

Connections™

THE ENTERTAINMENT TECHNOLOGY MAGAZINE

**PULL OUT DIRECTORY:
HIRE & PRODUCTION FIRMS**

FEBRUARY 1998 A\$4.50

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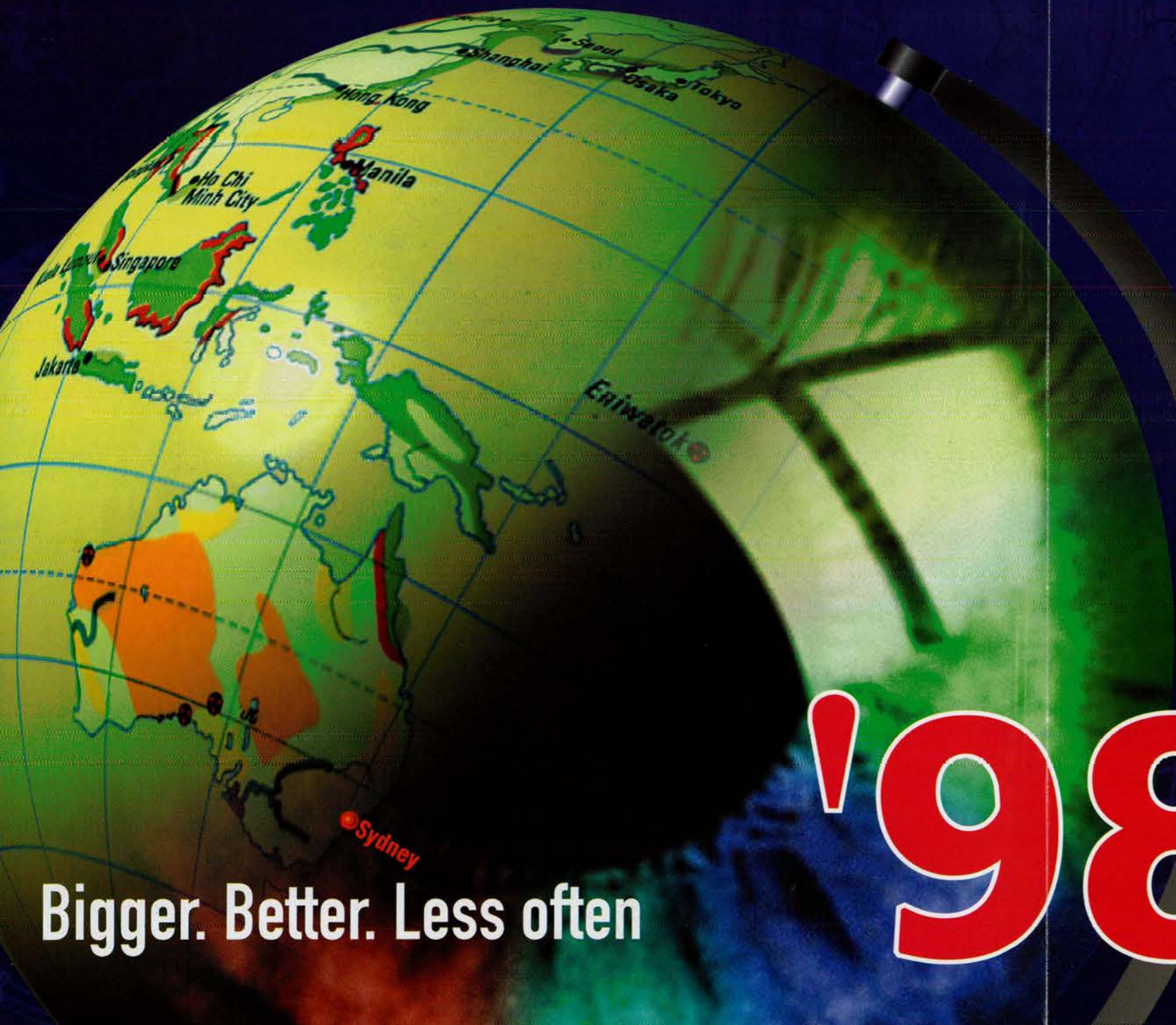
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EntTech



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'98

◆ WHAT'S ON AT ENTECH 1998

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- Hundreds of manufacturer product specialists and guru's.....
- Show special deals, bargains, one-off's and opportunities....
- ENTECH AWARDS dinner dance on April 23rd at The Metro
- SEMINARS - 1.5 hours in duration. New easy timetable:
 - Audio: daily at 10.30am and 4pm.
 - Lighting: daily at 10.30am and 4pm.
 - Show Safety (hosted by Showsafe): daily at 1.30pm
 - Audio Visual (hosted by ICIA): daily at 1.30pm
- CONFERENCE - Show Safety (hosted by Showsafe) on Tuesday April 21st, the day prior to ENTECH

..... and more!

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Aside from the thousands of entertainment technology devices on display, come of the HOT sectors for 1998 are: Architectural lighting, Digital audio workstations, Digital mixers, Digital audio routing, DLP vision, Lighting control, and Fully automated lighting. For a full list of Brands on show, call us or log onto our website: www.conpub.com.au

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EnTech

◆ SEMINARS

1.5 hours in duration. *New easy timetable!*

Audio: daily at 10.30am and 4pm.

Lighting: daily at 10.30am and 4pm.

Show Safety (host: Showsafe): daily, 1.30pm

Audio Visual (hosted by ICIA): daily, 1.30pm

Wednesday April 22nd

Exhibits open at 10am, free entry

10.30am: **Lighting:** 'ARCHITAINMENT 1'
Lighting building facades: turning GREY into colour.

10.30am: **Audio:** MICROPHONES
A primer session on techniques, placement, types and technology.

1.30pm: **Show Safety:** ELECTRICAL SAFETY
Testing, tagging, conformity. Also a debate, 'towards a Guidance Note'.

1.30pm: **Audio Visual:** PROJECTION
Guide to LCD, CRT, DLP and ILA Projectors, how to choose, how to use.

4.00pm: **Lighting:** 'ARCHITAINMENT 2'
Theatre principles applied to architectural lighting. Achieve the vision!

4.00pm: **Audio:** SPEAKER TECHNOLOGY
Where to now? Differences and commonality in components & designs.

ENTECH AWARDS DINNER DANCE

- Thursday April 23rd
- Metro Theatre, George st Sydney
- A superb 3 course meal will be served
- Dr Karl Kruszelnicki will deliver the lecture: "30 years of Entertainment Technology"
- A surprise artist will rise from the grave
- Craig Calhoun will funkify the end of the night
~Bookings now open at \$69 per head~

Thursday April 23rd

Exhibits open at 10am, free entry

10.30am: **Lighting:** 'FILM TV 1'
Current trends in Film lighting. Chaired by Tony Mandle, AFTRS

10.30am: **Audio:** 24 BITS DEEP- UPDATE
How much better does it sound? What are the issues recording 24 bit audio?

1.30pm: **Show Safety:** RIGGING
Conformity, standards, new technology. Also debate, 'towards a Guidance Note'.

1.30pm: **Audio Visual:** AV HIRE COMPANY
How to make your event succesful. How companies & clients can work together.

4.00pm: **Lighting:** 'FILM/TV 2'
Lighting a TV set- techniques and politics. Chaired by Rohan Thornton.

4.00pm: **Audio:** CONTROL & ROUTING
Where to now? Is Ethernet the backbone? What are your system choices?

Wed. April 22nd, Thurs. 23rd, Fri 24th

Sydney Exhibition Centre, Darling Harbour. Halls 1 and 2

Info: call +61 2 9876-3530 or visit www.conpub.com.au



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• CONFERENCE - Show Safety

(presented by Showsafe) Tues. April 21st, the day prior to ENTECH. Venue: Sydney Opera House.

- Manual Handling and the Entertainment Industry - Regulations/Standards, Engineering Controls, Applying Regulations and Controls to the Industry.
- Accidents/Incidents: Investigating Accidents- Report Structure, Developing Preventative Measures, First Aid Requirements
- Safety Training - Role of Training in Safety Management, An Industry Induction "OK Card" Scheme
- Imposing Noise Standards- Current Regulations, Australian Standards, Industry led Reform.
- More to be added. Conference opens at 9.00am and Closes at 4pm. Includes Lunch, morning & afternoon tea. Cost: \$179. ShowSafe members \$149.

• Women's Morning Tea:

Meet other women from in and around the industry. Free! In the MEETING LOUNGE, Fri April 24th 11am

• Connections Readers

Meet the writers at an informal tea and coffee session, Free! In the MEETING LOUNGE, Friday 2pm

Friday April 24th

Exhibits open at 10am, free entry

10.30am: **Lighting:** 'CONCERT/STAGING 1'

Style & Visibility in lighting design.
Chaired by Nigel Levings.

10.30am: **Audio:** DIGITAL MIXERS

Technology update: what's new, what works- and what you want!

1.30pm: **Show Safety:** OUTDOOR EVENTS

Creating temporary facilities. Pitfalls, and debate towards creating a checklist.

1.30pm: **Audio Visual:** WORKING WITH YOUR

AV DESIGNER : Do the RIGHT design.
Also, working successfully with architects and engineers.

4.00pm: **Lighting:** 'CONCERT/STAGING 2'

Meet the LD's. Popular Seminar returns. Let them encourage/disillusion you!

4.00pm: **Audio:** ACOUSTICS- NOW or LATER?

Debate: getting new spaces right!
Includes some design trends and tips.

REGISTRATION COSTS

• Trade show only:

Exhibits are free to trade. Walk-up registration or register online at www.conpub.com.au

• Seminars:

Buy any one Seminar at \$35, any two at \$60, any three at \$75. Includes coffee /tea.

• Awards Dinner: \$69

• Convention pass:

Attend any seminar \$230

• Safety Conference:

Cost: \$179. ShowSafe memb: \$149. Inc. lunch

THE ENTECH GOLD LAMINATE

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• Attend exhibitor cocktail party Wed 22nd

• ENTECH Awards Dinner

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(Not inc. conference April 22)

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Connections™

FEBRUARY 1998. Number 51

THE ENTERTAINMENT TECHNOLOGY MAGAZINE

♦ TRAINING

CTS: towards a new technology qualification

SYDNEY: Around 100 technicians and industry professionals earned credits towards Certified Technology Specialist (CTS) certification in January. The credits were earned at the A-V Professional Industry Conference, held in Sydney.



The CTS program is run by the International Communications Industries Association (ICIA), which recently established an Australian arm.

CTS Certification is the only international qualification for audio visual technicians, consultants and users. It isn't easy to obtain, a number of exams must be passed first.

The five day Conference was divided into six courses, with
(continued over)

Studio survives as Render Farm placed in receivership

How did KISS die?

by Madeleine Murray

With her Jerry Hall blond hair, flawless face, and enigmatic name, former model Chess Winters was an unusual computer executive. Two years ago she gave a talk on render farming at an Avid seminar. Later, she opened a tiny silver rectangular box, and handed out her business card, an embossed pink kiss imprint. I was dazzled by this apparent combination of style and substance.

Her partner, Lennis Charter, was a frequent first class traveller, calling the Melbourne office from farflung places like London, New York, or Singapore.

Together they acquired six Silicon Graphics Onyx computers, worth millions, fitted out a lavish eight-office headquarters, as well as a

recording studio, and called themselves The Kiss Corporation. They had style, flair, and outrage, but did they have common sense?

Today, The Kiss Corporation is in receivership, and its assets are being sold off. The ten page list, asking \$432,985, includes a timber framed 3/4 size pool table, cantilevered visitors' chairs, and a slew of computers, software, and processors. Strangely, it does not include the six Onyxes.



KISS chief Chess Winters

Meanwhile

At one time, Kiss claimed to be the biggest single purchaser of Onyx in the Southern hemisphere.

Kiss was in the business of renting rendering time. Rendering is filling in the spaces of images, for very high resolution film work. A

Pull Out HIRE & PRODUCTION DIRECTORY

NEW FOR '98 HOW TO DO IT SERIES

1 LIVE SOUND MIXING

Duncan Fry takes you through the whole process!
Page 35

PRACTICAL STUDIO TECHNIQUES

Tom Misner on Recording and Mixdown
Page 42

3 HOW TO DO LX DMX channel assignment for Moving Lights, tips & pitfalls. By **Richie Mickan**.... Page 74

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Cover: Our Birthday drawing by Josh Luo

♦ EQUIPMENT SALES BOOM AS USERS RUSH TO BEAT PRICE RISES

Dollar Fall Triggers Panic

EQUIPMENT PRICES shot up around 10% last month as equipment distributors scrambled to maintain gross profit margins. The wild fluctuations in local currencies has had a savage effect for both importers and exporters.

In Australia most equipment suppliers rushed to issue new pricelists and in some cases ap-

plied a loading on all new orders.

The likely short term effect is that imported equipment will stay at least 10% dearer this quarter. Most suppliers have an exchange rate poison pill built into their trading terms, allowing a price rise when the currency falls.

Several callers to Connections in late January complained that

equipment ordered from some suppliers in November for January delivery was being supplied at 15% more - due to the fall in the currency. One caller claimed an importer had prepaid an order with an American manufacturer in November, but was now seeking a higher price based on the January exchange rate. >cont. over

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Dollar Fall

(continued from previous page)

Exporters are also affected due to increases in component costs. Melbourne based audio manufacturer ARX face a price rise as the majority of their components are sourced in United States dollars.

Most equipment pricing over the past three years has been based on an Australian dollar exchange rate of .74c against the US\$.

DOLLAR HISTORY

HOW the A\$ has fared over time.
One Australian dollar would/will buy:

	US\$	Yen	£	DM	\$\$in
1965	1.14	403	0.39	4.46	3.25
1970	1.12	400	0.46	4.05	3.22
1975	1.33	392	0.59	3.11	3.15
1980	1.16	251	0.49	2.03	2.52
1985	0.66	165	0.51	2.02	2.10
1990	0.77	98	0.39	1.18	1.45
1995	0.74	69	0.47	1.07	1.03
NOW*	0.65	85	0.40	1.19	1.16

30 day trend: ▼ ▼ ▼ ▼ ▼
Trendline: fall means A\$ weakens, imports cost MORE, while exports earn less. And vice-versa. It takes TIME to take effect.

*At 21/1/98. All rates indicative only. Check with your bank.

The lowest US\$ exchange rate in January was .64c, a fall of .10c, or 15%. The effect on pricing is roughly per the following sum:

Item costing **US \$1000**
at 0.74c = **A\$ 1,350** (June '97)
at 0.64c = **A\$ 1,562** (+15%)

All currencies have since strengthened against the Australian and New Zealand dollars, lending hope that the 10% rise will be the last. Otherwise further rises on imports generally will push up inflation and then interest rates.

Inflation does assist the value of second hand goods, but high interest rates help no-one.

-Julius Grafton

Kiss in receivership

FROM PAGE 7

spaceship, for example, can be seen from all angles as it turns, when the image is fed into the machine. The rendering takes an inordinately long time, and heaps of computer power to do.

The work is used in high end commercials, and big bucks feature films with a lot of post production special effects. The question is, did Australia have enough of this work to warrant the investment?

As an industry colleague observed, "One would presume they invested a fortune. To justify the investment in six Onyxes, you'd need a lot of work going through. A lot of work of the size and magnitude that we've only seen about two of in Australia, period."

"The source of the money was a constant source of speculation. They were spending money like it was going out of style. Even the people they were hiring couldn't quite understand where it was coming from. Salaries alone would have been in the six figures. Kiss seemed to just appear. They certainly talked the talk, and lived the life, but they didn't seem to bring in much work."

Kiss Corporation started with the agenda of a graphics design and post production house. After acquiring the Onyxes and a talented operator, the focus shifted to render farming.

One Onyx would have been a good start, considering it costs over \$1m to fit out a suite.

Ed McCracken, former Silicon Graphics CEO, had a saying on his wall. "Power cubed every 18

months." One of the troubles that everyone who buys million dollar computers faces, is that you have to make your money back fast. Because a year later, a faster, cheaper version will be on the market, and your big box will be virtually obsolete.

The recording studio

Paul Kosky, engineer and manager at Kiss Music Recording Studio was adamant that the music side is still operating, and the studio is open.

"The Corporation has got problems in other areas," Kosky said, "but the studios are unaffected. We have bookings for the next three months, and we're not affected at all. A flier went around with a mistake that said that the studios were actually a part of it. The studios aren't a part of it, and I'm taking my own action about that. We're going strong, and I'm continuing here in the studio."

Kosky then pleaded legal constraints. "As it stands, I can't say anything more. The relationship we have has been good in the past, but in a few weeks, we'll have some pretty serious news."

With the trend towards smaller studios, and even home recording, Kiss seemed out of touch with the times when they poured money into refurbishing the defunct Platinum studio.

At press time, Kosky said that the studio was in the process of a management buyout. If it goes ahead, the new owner and manager will be Paul Kosky.

Stay tuned.

CTS (continued from page 7)

topics ranging from Advanced Hire Operations, The Perfect Image, and Videoconferencing.

ICIA host several similar conferences each year in the USA, and Australia is the first conference location outside the USA.

Australian ICIA President, Peter Blackmore, says this is because a growing number of Australians were obtaining CTS qualifications in the USA. The first industry development conference was held in Sydney a year earlier, whereafter the local affiliate was established.

"The new affiliate heralds a new era of training and professional development for the industry", said Gary Hackett, Vice President of ICIA International.

CTS is the most recognised qualification today in the USA and increasingly in our region. The ICIA have ramped up their training and education commitment with the establishment of a Professional Education and Training Committee, headed by Gary Kay. "Our goal is to have twenty five percent of the industry certified by 2000", Kay said in Sydney.

ICIA AT ENTECH

Furthering their reach into the region, ICIA will host a special AV Seminar at 1.30pm daily at ENTECH '98 in Sydney (April 22-24). The Seminars run for 1.5 hours, and are condensed from topics offered at the Professional Development Conference. Seminars cost \$35 for one, \$60 for two, and \$15 for each additional.

ICIA will also exhibit at ENTECH, where information on CTS and further specialised certifications will be available.

CONNECTIONS PUBLISHING

Pty Ltd ACN 058443182.

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NSW 2121 Australia

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(Unrelated to 'Graftons Sound & Lighting')

NEWSAGENTS
DISTRIBUTION: NDD

DEADLINES:

Monthly except January, deadline
15th of the month prior.

◆ NEW MODEL TIME FOR INDUSTRY FAVOURITE

EVI replace SX 200

Some years ago the Bose 802 was overtaken by the Electro Voice S200 in the compact workhorse loudspeaker sector. Now the SX300 is the third generation entrant, likely to maintain high user acceptance.

The new system utilises Ring Mode Decoupling (RMD) technology developed for the X-Array concert system. (See Connections August 1997). This entails examination of the high frequency horn during development to identify resonances generated by the woofer. By 'toughening' and damping the high frequency horn, secondary distortion and unwanted resonance side effects are eliminated. The other developmental reason in designing the SX 300 is a system approach, dubbed System 2000, which will allow more efficient combination use of other SX300 and associated System 2000 speakers in mini-arrays.

The high frequency horn throws out audio in a fairly tight 65° x 65° dispersion pattern. A new 12" cast frame woofer does the job below 1500hz and delivers



an extra 2dB over the previous version.

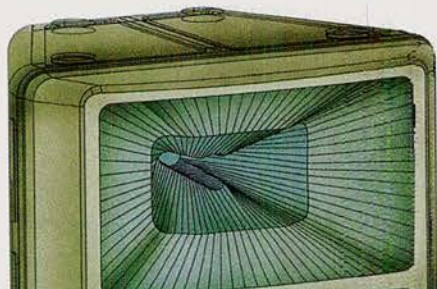
Like the previous models, SX300 is built into a polypropylene enclosure which is 'weather resistant' and reasonably light. The box weighs in at 17.7kg.

SX300 has a quoted frequency response of 80Hz to 20kHz, and at 55Hz it is down -3dB. Input amplifier power is rated at 300 watts or 1,200 watts short term.

An amplified version, the SX300-a is coming, and a sub bass module, the SB-121 is now available.

EVI (Australia) say the SX300 sells for less, at A\$1459 each. The SB-121 sells for A\$999 each.

• EVI (Aust), call +61 2 9648-3455.



Ring Mode Decoupling (RMD) technology for SX300 H/F horn

TASCAM fare poorly in service survey

A warranty claim with a five month wait on a Tascam DA30II DAT recorder heads a number of unhappy equipment stories in this month's ProTalk.

Connections ProTalk surveyed 320 Studio's over the Christmas period to establish the state of after sales service today. Tascam products headed the gripe list, which mainly relates to after sales support by Tascam importer, Teac Australia, based in Melbourne.

Head replacement time and costs for DA-88 family digital multitrack recorders were a common complaint, at presstime Teac Australia quoted A\$900 - A\$1,300 for this service, with a wait time of ten days. Users report an average DA-88 head replacement interval of 1,000 hours or less.

Other professionals contacted by Connections tell of the good and the bad in buying and owning pro audio equipment.

• See ProTalk, page 40

Ensoniq Sells

Ensoniq is to be sold to Creative Technology Inc, a Singapore based maker of multimedia for the PC. Welcoming the move, Dug Drowne, Digital Products Manager for Australian Ensoniq distributors, the Electric Factory, said: "This is great news. We can expect new products from Ensoniq quicker than ever before". Ensoniq say it's business as usual!

THE PRODUCER Tim Whitten

Profiled by Madeleine Murray - page 46



Exclusive Reviews

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SoundScape: DAW



Beatmixing VIDEO! World 1st? P.30



Jands Hog: is it a dog? We find out... page 70



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MOVES & CHANGES

◆ **DigiDesign Australia** has a new office. David Corazza can be reached on +61 2 9568-1711 or fax +61 2 9568-1722.

◆ **Joakim Odlander** has returned to Australia after a six year stint honing his skills at Lightmen in Stockholm. Lighting by Design is his new company, they manufacture metal and greyscale glass gobo's with full colour dichroics soon. Call 0418-79 77 62 or Fax 0755-29 22 26.

◆ **Barco Systems** have taken over the ongoing business of their distributors, Trace Pacific in Australia. People and addresses remain unchanged for now.

◆ **Phil Bowman** (formerly of QPAT) has been appointed LX and AV Master at the new Petronas Concert Hall in Kuala Lumpur.

◆ **Jerome Seah** is new at Stage & Studio Productions in Perth on the sales team. The move coincides with the appointment of Stage & Studio Productions as the primary Selecon outlet in WA. Call +61 8 9227-9932.

◆ **Emilijo Mihatov** has been appointed Asian Export Sales Engineer for Fairlight ESP Pty Ltd.

◆ **E.V.I.'s Melbourne Office** is now located at the old Troy Balance premises. Andrew McIlvride can be found upstairs at 9 Union street South Melbourne, call +61 3 9699-3553.

◆ **Troy Balance Corporation** was sold and closed in November, meanwhile the Hire and Rehearsal business at South Melbourne has been acquired by Andrew Irvine and will continue at the same location. Call +61 3 9699-3844.

◆ **Married:** Michael Doherty (EVI Sydney); to Jo, in January.

◆ **Karen Bergin** has joined Melbourne based LSC Electronics as marketing consultant. She has an advertising, marketing and theatre lighting background. Call +61 3 9561-5255.

◆ **Justin Knox** joins Gold Coast based Universal Lighting and Audio Pty Ltd, as Sales manager. Justin comes from New Zealand's Lighting Supply Company. Call 1-800-648-111.

editorial

This issue marks **FIVE CONTINUAL YEARS** of Connections. It's worth noting we first came out ON TIME in February 1993, and have been ever since. I laugh when I see other magazines stretch their publication date to sell a few extra advertisements. We don't do it!

I think it's time to reflect on what is happening within the entertainment technology industry, and with this magazine.

For me, the magazine was almost reborn with the JUNE issue last year. Recognising problems and fixing most of them gave me a great boost.

The format change we introduced then has lifted the magazine greatly. You obviously agree, because sales are well up since!

For this year we have a new group of 'How To Do It' pages, which will run in series from this issue. We are delighted to bring you these pages, two of which are exclusive serialisation's of best selling Australian technical books.

We also introduce the first of our Producer Profiles, by journalist Madeleine Murray.

ONE INDUSTRY EMERGES

Five years is a long time in a technology based industry! First, when we started we had a fair bit of criticism because we attempted to cover what were then completely separate industries. Pro audio, Lighting, Staging and Vision were mutually incompatible, we were told, and no magazine anywhere in the world attempts to cover all of these sectors. We

should specialise in one alone, said the experts.

Within a year we launched ENTECH- which everyone knows means 'Entertainment Technology', it is a trade show for all these sectors and, by intent, a trade show for the readers of this magazine. This year, ENTECH (our fourth) is the largest trade show of its kind in the southern hemisphere, having attained international recognition way back in 1994.

Consider how the business has moved in five years. Here is a short breakdown of our reader sectors:

CONTRACTING today involves system routing and programming prowess and Information Technology expertise. The hardware can be audio, video, lighting or mechanical motors- it doesn't matter. It's going to be fired and run by computers or chip based devices.

HIRE AND PRODUCTION is now dominated by Corporate Theatre. In five years the revenue has shifted hard away from traditional hire firms to savvy operators like Staging Connections and Intercity Gearhouse.

Some of the 'traditional' show business (and rock and roll) based firms have kept up and embraced corporate theatre too. Some have not and cannot because they fail to educate staff on the principle that customer service counts. Worse, they also don't recognise that new tricks equal extra pay, and then expect crew to wear a tie for the same lousy money. Some production firms pay very poorly indeed.

Gigs and Music Tours still happen, but this is a very, very hard

place to make a buck.

The Performing Arts sector is enjoying reasonable times, but the mega-musical trend has died off. More shows done smarter is the theme, witness the two greatest hits on Broadway right now: The Lion King and Rent - both use minimalist sets.

STUDIOS have really suffered as technology put hard disk recording in every bedroom. But many have moved with the times, embracing Post and even album production to survive. The Studio business has paralleled the tough times in traditional Musical Instruments, music shops face declining trade - unless they sell hard disk recording gear! Post and music production for film and TV is buoyant at present.

CLUBS: We see less money getting spent on sound systems and more on video and moving lights. There is a growing trend for DJ's to make their own sounds too, it may be hard to accept for many, but the age of the 'turntablist' and 'music technologist' is coming.

• There are other parts and sectors which make up **The Entertainment Technology** industry. By definition Entertainment Technology is the industry for the technology behind the 'show'. It goes further, and sometimes the definition of 'show' is stretched, but here we are!

Finally, the 'no bullshit' policy continues at Connection, despite the occasional threat and/or cancelled advertising. -JG

◆ **Upward Productions** in Alice Springs has been confused with several other firms with 'UP' in their name. So Tim Upward has changed the company name to Alice Concert Sound, same number: - 0417-815-673.

MERGER

◆ **LA Audio** and **SCV Electronics** have joined forces, the SCV range will now be known as LA Audio Pro-Series.

WOMEN AT ENTECH

◆ An informal morning tea hosted by Connections co-owner **Caroline Grafton** will be held at ENTECH '98 - to unite women working in and around the entertainment technology industry. Women from all corners of the biz, and those who aspire to work in the industry, are very welcome. Network, at no cost, from 11am Fri 24th April, in the entry meeting lounge, just inside Hall 2.

Fair Competition?

Hire Companies fight exclusive 'lockout' deals in venues, as government funded theatre's look for external hire business. Our lead story in your pull out guide!

Pull Out

HIRE & PRODUCTION DIRECTORY



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Five years of user input, new materials, new technologies and the soul of our 8-Bus...at a super-low price of \$2995 rrp.

TRIM control on the channel strip! 60dB total mic gain; -10dB "virtual pad" for line inputs.

6 AUX SENDS per ch. Aux 1 & 2 switch-able pre/post. Post-fader Aux 3-4 /5-6 selectable via Shift switch.

HI EQ. ±15dB shelving at 12kHz.

SWEEPABLE MIDRANGE. Wide, musical peaking EQ with 100Hz to 8kHz range. ±15dB range.

LO EQ. ±15dB shelving at 80Hz.

LOW CUT FILTER is a must for live sound and acoustic (microphone) recording. Sharp, 18dB/octave @ 75Hz high-pass filter lets you add Lo shelving EQ to vocals without boosting undesirable mic thumps, stage rumble, wind noise, P-pops, etc.

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MUTE switch.

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SOLO. In-place AFL or PFL.

BUS ASSIGN for Subs 1-2, 3-4 & Main L/R.

60MM FADERS with 8-Bus log taper, special lip seal & long-life wiper material.

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The original CR-1604 defined the modern compact mixer. Now we've "raised the standard" by adding over 20 new features like true 4-bus design, our famous mic preamps on every channel, flexible routing and monitoring, and swept mid EQ — for just scarcely more than the original CR-1604. Call for a free 40-page brochure.

5-WAY PHYSICAL CONFIGURATION

via our famous rotating input/output "pod." In minutes you can switch the CR1604-VLZ between ultra-compact 8-rack space configuration with pod to back ①, rackmount jacks-to-top ② or tabletop/tabletop/ rackmount jacks-to-back ③. Optional RotoPod-VLZ bracket places input/output jacks on same plane as the controls (tabletop ④ or rackmount ⑤).

MONO OUTPUT (bal./unbal.) has separate level control.

RCA TAPE inputs and outputs—(unbalanced).

Separate CONTROL ROOM OUTPUT (bal./unbal.).

DIRECT OUTPUTS (bal./unbal.) channels 1-8.

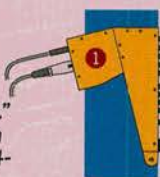
SUBMASTER OUTPUTS (bal./unbal.).

Pre-fader INSERT on every ch.

16 STUDIO-GRADE MIC PREAMPS means the new CR1604-VLZ actually costs less than our classic CR-1604 & XLR10 expander combination!

VLZ (Very Low Impedance) CIRCUITRY developed for our 8-Bus consoles, further reduces noise and crosstalk in critical signal path areas.

SOLID STEEL main chassis. **SEALED** rotary controls.



AUX SEND 1 & 2 MASTERS.

Stereo **AUX RETURNS 1 & 2** with 20dB gain above Unity for boosting effects.

EFFECTS TO MONITORS controls fold Aux Return 1 & 2 back into Aux Sends 1 & 2 so that on-stage performers can hear effects.

AUX SEND 1 & 2 SOLO switches with LEDs.

Stereo **AUX RETURNS 3 & 4.**

Aux Return 3 **ASSIGN SWITCHES** to Main Mix, Subs 1 & 2 or Subs 3 & 4.

Aux Return 4 **ASSIGN** to Control Rm/Phones.

CONTROL ROOM/PHONES level control. **TAPE INPUT LEVEL** control and **TAPE TO MAIN MIX** switch.

SWITCHING MATRIX. This creative feature lets you route any combination of Tape, Subs 1 & 2 Subs 3 & 4 or Main Mix to Control Room/Phones bus. Lets you create custom headphone or broadcast mixes, monitor 2-track output or route a cue/click track to phones, create a second stereo main output with its own level control & more...check out the manual!

Global **SOLO** level control.

Global **AFL/PFL SOLO** switch.

SUB ASSIGN to Left or Right Main Mix.



MAIN MIX FADER.

BNC lamp socket.

Global **AUX RETURN SOLO**

LED METERS with -30 to +28 range & **LEVEL SET LED.**

RUDE SOLO LED.

HEADPHONE output.

60mm SUB-MASTER log-taper faders.

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Philips push extra brightness

The Philips ProScreen 4600 is said to produce up to 650 ansi lumens from a 120w lamp, making it a bright and tight LCD projector. Two variations are available, the Impact features the 120W UHP lamp, rated at 2,000 hours life. The UHP is a miniaturised quartz bulb with an ultra short arc. The Endurance is based on a 100w version and can run 8,000 hours.

Both devices utilise a Philips innovation, named the LIMESCO chip. Philips say this chip allows

better image fidelity, and image mapping. It will convert any input signal up to an 85KHz horizontal line rate, to the projector's resolution, without user intervention.

All notebook computer resolutions, plus video standards PAL, NTSC and SECAM are supported.

Priced from A\$10,295 inc tax. Philips, +61 2 9888-0464.



360 Systems Short Cut

It's been around a little while, but needs to be considered anywhere fast audio editing is done. This is a one box approach ideally suited to broadcast applications where previously a quarter inch tape deck would have been used. In simpler situations like news gathering, a full blown DAW may be too sophisticated or too expensive. The Short Cut differs from any other firmware device (we call any 'all in one' digital recorder hardware 'firmware' here at Connections). The difference is the stereo waveform display available on the small but bright liquid crystal VDU screen. This makes the cut, paste and tighten process fast and clear.

An internal hard drive is the medium for work in progress, and like most firmware type devices a SCSI output is available so you can plug on an external drive or ZIP or magneto optical drive, for data (audio) transfer.

Not cheap, but pro audio generally isn't.

• **A\$7,873 from EAV Technology, +61 3 9417-1835.**

WINNER!

Benjamin Page from Image Audio Productions in Browns Plains (QLD) is our **SUBSCRIBER CONTEST** winner this month. Benjamin wins a return Business Class QANTAS ticket to ENTECH next April! The Connections power team, Sharon Miceli (left) & co-owner Caroline Grafton pulled Benjamin's name from The Winners Box at presstime. YOU can be in this contest too, just renew your sub or buy a fresh subscription NOW. We award flights with winners announced in the March and the April issue, so do it before March 20th.



• **Subscribe & enter, call 1-800-635-514**



MAJOR TRADE SHOWS

- **NAMM 1998**, Jan 28 - Feb 1, LA Convention Centre. Ph. +1 619 438-8001
- **LUMINAIRE ASIA '98**, February 19-21, Singapore. Ph +65 431-2293
- **MUSIKMESSE**, March 11-15, Frankfurt. Fax. +49 69 7575 6433
- **SIB**, March 29-April 1, Rimini, Italy. Fax +39 541-711225
- **NAB**, 5 - 9 April, Las Vegas. Fax +65 291-8922
- **SHANGHAI PLASA**, April 14-16. +44 323 410-335
- **ENTECH 1998**, April 22-24, Sydney. Fax + 61 2 9876-5715
- **NSCA Expo '98**, April 27 - 29, Las Vegas. Fax +1 319 366-4164
- **AES 104th**, May 16-19, 1998. Amsterdam. Fax +1 212 682-0477.
- **LightFare International '98**, May 27-29, New York. Ph +1 404 220-2215
- **PALA**, July 17-19. Singapore. Ph +65 227-0688.
- **PLASA 98**, Sept, London. Call +44 323 410-335
- **AES 105th**, Sept 26-29. San Francisco. Fax +1 212 682-0477.
- **LDI Nov 13 - 15**, Phoenix. Ph +1 212 229-2965
- **SMPTE**, 13-16 July 1999. Sydney, Ph. +61 2 9977-0888.



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March 11-15th

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D.A.S. Surprises with PF

Spain audio manufacturer moves up

Spain is a wonderfully advanced place, nothing like my conceptions before a visit at Christmas. D.A.S. Audio SA is located down at Valencia, where the temperature at Christmas is an easy 18°C, while the rest of Europe is freezing. It's a three hour run down the tollroad from Barcelona. I'm telling you this so you can get jealous about the glam life of a journalist....

My message is, I went to D.A.S., and it's every bit a large, modern and high tech audio manufacturer. They've been at it for 25 years.

Latest entrant from D.A.S. is the PF Series of loudspeaker cabinet, which has all the 'correct' features for a sound reinforcement cabinet. This starts with a complete compression driver, meaning that behind the horn flair is a separate high frequency assembly with a field replaceable titanium diaphragm. Often in less expensive speaker cabinets you'll see what looks like a normal horn at front, but it is moulded to a piezo driver. The whole unit gets replaced if it fails.

Loudspeaker components are built on a moulded aluminium frame (basket) rather than stamped and folded steel. 3" voice coils work in a large magnet assembly, and the cones are as rigid as possible without sacrificing efficiency.

The passive crossover built into each PF cabinet has a form of overload protection built on, to at least minimise the risk of component failure when overloaded. A note about component failure in speaker systems: generally a well designed system will sound simply horrible well before it fails.

Most black loudspeaker cabinets look alike, imagine a traffic jam of

black coloured 1.6 litre hatchback cars. They'd look alike too!

The PF is a good example of a well finished product. The other touches which position these speaker cabinets in the upper/mid market sector are hardware and connectors. PF have two Speakon connectors linked on the back panel. Internal damping and overall cabinet construction is very neat too.



The PF range starts with the PF-112 which as the model number implies is loaded with 1 x 12" woofer and a horn. Price: A\$980. The PF 012 is a foldback version at the same price.

Next up is the 15" woofer variants, model numbers PF-115 and PF-015 at \$1,100 each, retail. The PF-215 is a dual 15" model, at \$1,500. The SUB-15 is just that, one 15" woofer alone - which can be used with any of the single woofer models, at \$800. It does need an active crossover, as do most subwoofers.

• Info from Magna Systems, Phone +61 2 9417-1111.

Get a Mac - Packed

Australian Audio Supplies introduces the new MACPAC - a high quality Australian made Road Case built by Melbourne case company, Nova Forge. The MACPAC is designed to house a Mackie Compact Mixer and Mackie M1400 amplifier - ideal for small to medium-size PA applications.

The base MACPAC model is a 4-unit configuration. 6-unit and 8-unit versions are also available giving the option on the amount

of extra rack space required.

Australian Audio Supplies has come up with some special pricing on the package if you buy the MACPAC loaded with a Mackie MS1202-VLZ and MI400 Power Amplifier, A\$3495 for the MS1402-VLZ configuration and A\$4995 with the CR1604-VLZ and MI400 Power Amplifier.

• Australian Audio Supplies
Phone +61 2 4388 4666



ROLAND AF-70

Anti feedback. Anything that assists in damping or even eliminating that most annoying PA condition must be good. Roland have refined their AF-70 into a very neat package indeed. This unit is based on the AP-700 advanced equalising processor, but is simplified. Here's how it works: there are up to twelve steep filters available, each as tight as one-twenti-

eth of an octave. Hyperthetically to get filters at this spacing, you would need a 200 band graphic equaliser. It has variables, like a 'Diffuse' function which will minimise adjacent frequency 'ringing'. A limiter is included. Balanced XLR/6.5mm jack connections are a sensible touch.

• A\$695,
Roland: +61 2 9982-8266



Sensible connections make AF-70 suitable for pro use

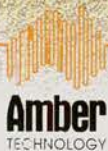




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Number: 130

AHB MixWizard dual mixer

Allen & Heath have carved a neat niche with versatile, multi-role mixing consoles at a realistic price. The latest in the MixWizard range is this beastie, the WZ 14:4:2. The 'dual' bit of our headline refers to the fact you can use this mixer for ordinary front of house sound mixing where a stereo mix is generated, or stage monitors where up to six mixes are required.

There are 10 mono and 2 stereo inputs, then each channel has six auxiliary sends and four band equalisation with the two midrange bands featuring sweepable EQ centres. Four stereo returns, individual or global phantom power, and 2 track in/out are amongst the connectivity features.

In the engineering dept, AHB have put a nut on every pot as opposed to mounting the pots on PCB's alone, with the shaft sticking out a hole



DEALS

Despite the wild gyrations of the currency exchange rate, some prices actually went DOWN last month! As usual we are delighted to tell you about them.

- **BOSE** 1800V amplifier, was A\$3,750, now A\$1,644. Call Bose, +61 2 9204-6111.
- **YAMAHA** MT4X 4 track cassette recorder - was A\$949, now A\$889. Call Yamaha Internal Sales for info, +61 3 9693-5111.
- **SMOKE FACTORY** Captain K smoke machine has taken a dive from A\$1450 (ex tax) to A\$800 ex tax. Call LSC +61 3 9561-5255.
- The **BEHRINGER** MX8000 Eurodesk drops from A\$6,696 to A\$5,999 - but now also comes with a free metrebridge or free automation. The MX2642 mixer drops from A\$2,294 to A\$1,799 PLUS it now ships with five free microphones. Call Music Link, +61 3 9429-9299.
- **KORG** 168RC Digital mixer & 1212 hard disk rec. card, now A\$3,999, down from A\$5,399. Call Music Link, +61 3 9429-9299.
- **MILES** MTI-3 TriSonic Stereo Imager, was A\$1,555 now A\$1,100. Call Horwood +61 2 9585-1011.
- **BSS** reductions at System Sales: AR-133 DI/line balancer: A\$210 (from A\$295); DPR-522 dual gate now A\$1,049 (from A\$1,495), DPR-422 dual comp/de-esser now A\$1,195 (from A\$1,895. Call +61 3 9529-7755.

Send us your DEALS!

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*The World Athletic Championships 1995, Gothenburg, Sweden
Stockholm Audio, 90 LAB 2000C's*

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on the front panel. This reduces long term hassles. The connector section can be rotated so the console can be rack mounted, as opposed to ordinary upright use. Also AHB feature something called minimum signal path architecture.

AHB have a SysLink bus which will let this mixer act as an extender for other similarly endowed consoles from their factory.

As you would expect in a pro console, the faders are 100mm in throw, as opposed to shorter throw faders found in other consoles.

Price is A\$3,295, in Australia call A.R. Audio Engineering on +61 2 9810-5300.

DIGITAL BYTES

◆ **AKAI** announce new software for the DR-8 and DR-16. Version 2.32 is the latest, allowing two machines to run together, and more. Call Australia +61 2 9698-4444.

◆ **EMAGIC** Logic Audio version 3.0 (Mac or Win 95) is now shipping on CD. A start up tutorial with Quicktime movies and demo stuff is included. V3.0 boasts a long list of improvements. Call Electric Factory on +61 3 9480-5988.

◆ **SADIE** owners can now add Protia Random Access Video with the release of V3.03 software. No longer do Sadie or Octavia users need a separate VTR, vision can be recorded into the EDL along with the audio. The audio appears as a dedicated stream in the Playlist, both audio and video can be scrubbed simultaneously. A Portia JPEG video playback card is required. Call Studio Connections, +61 3 9874-7222.

◆ **HITACHI** announce their new DVD-RAM re-writable drive will be available in March in limited numbers. DVD-RAM format allows 2.6GB storage per disk side, and the disk is said to be compatible with existing CD (for replay of CD audio we presume) and DVD devices. The price? A\$1,580. Hitachi Australia, +61 2 9888-4100.

Next Month:

Don't miss our Buyer's guides: Wireless Systems; and Moving Lights

When all the hype is filtered

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SDR series in VHF (174-222MHz), UDR series in UHF (803-926MHz) all with hard held end belt pack transmitters.

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By means of selector switches on the receiver and transmitter, the frequency may be changed. Now the user has the choice of frequencies! If one frequency is not suitable in a particular area, another can be selected immediately.

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RFX has deviation range of 5KHz, which is nearly 4 times that of most systems and dramatically increases dynamic range and signal to noise ratio. Compare the sound and you will appreciate the difference.

Outstanding Selectivity

Unique helical filters (not found in most other brands), plus TONE 2 squelch, ensure RFX systems are less prone to interference from neighbouring channels, so multiple frequency installations are a breeze!

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SID'S MIC CASE

The CAD 95 - what gives with this new fangled breed of microphone?

The Cad 95 feels good in the hand, being slim but having a nice balance / weight, a rich mat black finish, and a tasteful gold ring at the top middle third. The metal mesh grill appears to be very sturdy, and squarish, but comfortable on the lips. This mic is likely to make a favourable impression on a vocalist about to use it. (We operators always like to be rehired.)

This mic has been used just once live - but- what a hot mic! It certainly did



justice to a young female singer with little experience but a big rich voice. She sounded very good.

The CAD 95 is a condenser type microphone, and needs a power supply (48V phantom). The output is a good 6dB higher than many other commonly used mics, and the frequency response really is very flat. Each mic comes with an individually graphed frequency response, and is mostly within a few dB of being flat from 50Hz. to 20kHz. The obligatory "check one two" verifies this with the extra top and bottom end being noticeable. Two observations are apparent.

Firstly, the CAD 95 could be used to mic many types of instruments, including cymbals, brass, guitars, toms, and kick. Secondly, it may just sound cold and or thin on some types of voice, in particular, light and nasally female voices.

Available at around \$300, this



mic could represent a good investment for any rig, as a versatile workhorse. At its' first live gig for this operator, it certainly made a positive impression. It produced very good front house and foldback levels under difficult conditions, one of which was miking a flute being played by a very shy amateur performer.

It remains to be seen if the CAD 95 possess reliability, and longevity. In conclusion, the CAD 95 could best be described as hot, and exciting.

Sid Kidman
(microphone fetishist)
e-mail: g.kidman@qut.edu.au

*** AMID GOES HEAVY**
The 20th edition of AMID (the **Australasian Music Industry Directory**) hit our desk with a thud late January. It has hit a huge 400 pages and costs a reasonable A\$30, from Immedia Call +61 2 9557-7766.

*** SOUND GETS ATTENUATED**
Poor sales are believed to be the reason behind the suspension of **Sound Australasia magazine**. Subscribers should contact them for a refund.

*** OZZIE WRITES**
Tour and Production Manager John 'Ozzie' Vasey is at best unhelpful towards this publication when we encounter him at work, but to be fair his latest book is a good thing. Called **Concert Tour Production Management** (How to take your show on the road), ISBN 0-240-80235-7. It sells for A\$39. We sell it here at Connections too, add \$5 for airfreight. Call 1-800-635-514 to get a copy.

*** CONNECTIONS IS FIVE!**
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MIPRO True Diversity VHF wireless microphone systems are designed using the latest in surface mount technology and miniaturised RF components to ensure maximum reliability and performance. Operating with either a hand held or lavalier transmitter, the MIPRO systems provide clear, interference free audio. **The NEW frequency agile MIPRO systems feature 16 preset channels in the 180-220MHz VHF band, allowing users to select compatible frequencies in multi-system installations. Also, if stray RF interferes with a selected frequency, users can simply dial up another frequency.**

The hand held mic features a revolutionary capsule structure, incorporating a shock-proof mounted insert, which virtually eliminates handling noise. Plus, the patented mic grill can withstand a vertical drop from **one metre** without sustaining damage, so they're perfect for hire companies or systems which are used regularly.

Features:

- Hand held or lavalier transmitters
- Frequency agile over 16 preset VHF channels
- Tone squelch circuit for reliable no-signal muting
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- Removable TNC antennae (external discone optional)
- Conforms to 19" rack specifications (bolt-on rack ears)
- Includes AC plugpack adaptor and 6.35mm audio lead
- Covered by a 2 year warranty

Optional external discone antenna now available. Ideal for larger venues eg. sports grounds, shopping centres & large auditoriums.



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Enlarged view of battery charging drawer.

* Based on hire system: used twice weekly, and supplied with a fresh alkaline battery value of approximately \$5 each.

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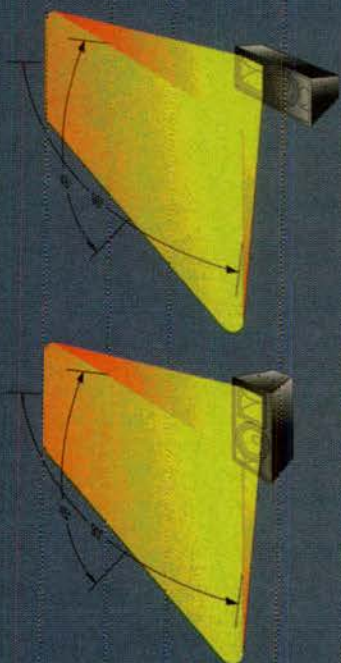
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The MK5100 Series systems use 15-in woofers with 60°x45° or 90°x45° coverage pattern horns. The MK2100 Series systems use 12-in woofers with 60°x45° or 90°x45° coverage pattern horns.

COMMON DIMENSIONS

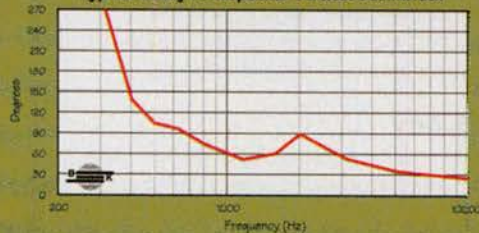
All MK Series enclosures are 30 inches tall. All 2100 Series enclosures are identical. All 5100 Series enclosures are identical.



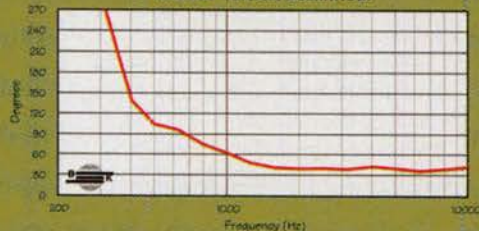
The New Standard for Two-way Loudspeakers

EAW'S NEW MK SERIES

Typical 2-way Loudspeaker Vertical Beamwidth



MK5100 Vertical Beamwidth



Traditional two-way loudspeakers suffer from a beamwidth mismatch at crossover. As the woofer's beamwidth collapses near crossover, it becomes significantly more narrow than the HF horn's beamwidth, which balloons near crossover. Off-axis listeners will hear noticeable gaps in frequency response in the crossover region.

EAW's new MK Series of two-way loudspeakers has solved this problem by matching the crossover point with the beamwidths of the woofer and HF horn at crossover. The result is flat off-axis frequency response meaning better sound in the venue as a whole.

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MOUNTING OPTIONS

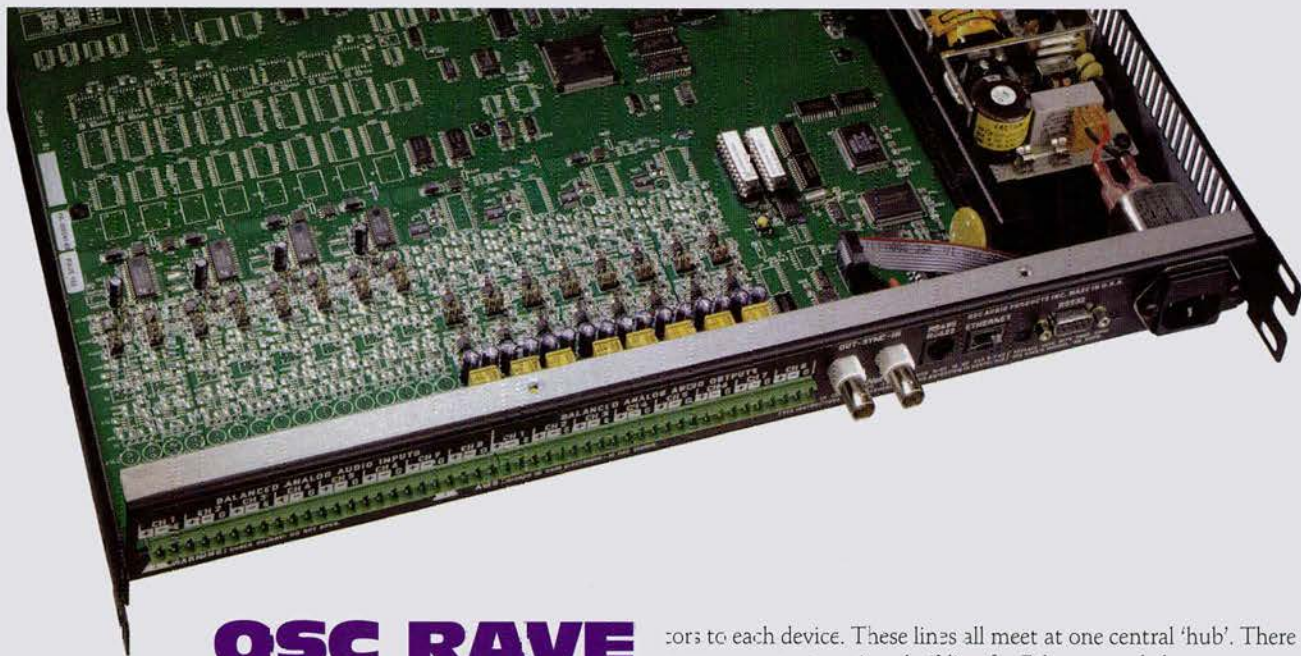
A comprehensive system of 3/8-in mounting points lets enclosures be hung in virtually any configuration without any modifications.

ARRAYABLE TWO-WAY

Because they employ a beamwidth optimized design, MK Series systems array more smoothly than traditional two-way loudspeakers.

COLOR OPTIONS

MK Series systems can be ordered as standard products in black or white. Other colors can be specified as special orders.



QSC RAVE

RAVE replaces cables ... thousands of them
CobraNet based product the first realisation of the digital network dream

Every time we cover a major trade show I get emails from readers who demand to know WHEN a digital multicore will be available at something approaching a viable price. The answer is still 'not yet', but QSC have a neat solution to the growing nightmare of wiring an audio system.

RAVE is short for Routing Audio Via Ethernet, meaning multichannel audio can be run on a single, cheap Ethernet cable on a 100 base TX fast Ethernet backbone. One cable vs. many is always a good call, aeroplanes and cars are starting to replace power wiring looms with single, point to point wiring using pulse switching. Audio signal is much more complex than raw voltage, but new technologies like RAVE promise to change the way we think.

Direct wire is how we connect audio today, and in smaller jobs this will always prevail. Unless the wire itself is damaged the system works - right? When the project needs multichannel audio to multiple places, the cabling costs sky-rocket. Many installations lose the installer money because the number of cabling hours are underestimated. It is always hard to estimate - and when you do, the temptation is to over estimate. The risk is that your quote is then too high.

RAVE AUDIO ROUTING

To get any audio away from balanced, shielded cable (carrying normal old analogue audio) and onto something cheaper means converting audio to digital code ... binary stuff where a lot of zero's and one's are switched at interstellar speed. Analogue audio is what comes out of a microphone or normal mixer or signal processing device from an XLR or jack connection. We are talking about line or microphone level stuff, before amplification.

RAVE is reasonably simple, first break down 8 or 16 inputs from analogue audio to digital, then send all that digital data out of your RAVE Digital Audio Router box - from an Ethernet port to an Ethernet network.

Ethernet is what almost every standard computer network uses. The Connections cottage has three Ethernet lines to each room, each is wired using relatively inexpensive cable, with RJ45 connec-

tors to each device. These lines all meet at one central 'hub'. There are many ways to wire a building for Ethernet and almost every new building or venue we see is now pre-wired. There are also many standard Ethernet hardware devices like Hubs and Switchers.

RAVE offers a series of 8 or 16 channel models, the simplest application would be one 16 channel RAVE unit connected to another using one Ethernet cable. 16 Analogue audio lines are connected to one RAVE, with 15 at the other.

A basic overview: each RAVE unit (Digital Audio Router) is a one rack unit tall box with connections on the back. There are various models, but basically each box deals with 16 channels of audio. This can be 16 channels of inputs, or 16 channels of outputs (for the destination) or a mixture: 8 channels of each on one box. Then there are digital audio models which will carry AES/EBU digital signals.

Essentially you prewire a place with Ethernet cable and connectors, in a 'star' topology so every cable from each room runs to a 'hub' where they are all interconnected. A very basic Ethernet site may have each room 'daisy chained' to the next - but this is extremely unrecommended because one break in the chain kills the whole network. It happens, we have been there, done that....

UNDERLYING TECHNOLOGY

RAVE is based on CobraNet, a technology developed by Peak Audio in the USA. It provides network transmission of an accurate clock, real time data like audio and video, and control - over a dedicated Ethernet network.

Dedicated means no sharing with other unrelated stuff. Ethernet is designed to carry relatively low bandwidth computer traffic - in package bursts. Ordinarily if Ethernet is asked to carry real-time audio, as is done in many PC multimedia applications, the results are not real-time. This is due to the fact that Ethernet uses statistical processes to resolve contention on the network.

According to Peak Audio, Ethernet can be said to be non-deterministic, especially when carrying heavy loads. This non-deterministic nature means that although there is a good chance, there is no absolute guarantee that data will be delivered over the network in a timely fashion. Late delivery results in audio dropouts and discontinuity.

Put another way, a typical Ethernet is very polite, with file transfers and print jobs waiting for a break in the traffic before transmitting. These breaks may be very brief, measured in milliseconds - but completely defeat the objective of 'real time' audio. For this reason, while CobraNet uses common Ethernet cabling and

Buying a new mixer?

Mix Wizard Series WZ16:2

When you're looking for a top quality professional-standard mixer with plenty of inputs, versatile auxes and terrific EQ, the new WZ16:2 is it. And at an unbeatable price!

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The WZ16:2 incorporates the unique Allen & Heath QCC (quick change connector) system allowing the input connector block to be swung up for desktop or flightcase use, or down for rack mount operation.

Its MSP (minimum signal path) architecture has been designed by Allen & Heath engineers to assure sonic transparency from this new, professional mixer.

CHECKLIST

		Yes
16 mic/line inputs	<input checked="" type="checkbox"/>	
2 stereo returns	<input checked="" type="checkbox"/>	
Wide-gain front end	<input checked="" type="checkbox"/>	
4-band 2-sweep EQ	<input checked="" type="checkbox"/>	
6 Aux sends	<input checked="" type="checkbox"/>	
Extra AB output	<input checked="" type="checkbox"/>	
Stereo/mono aux monitoring	<input checked="" type="checkbox"/>	
Lo-cut filters on all channels	<input checked="" type="checkbox"/>	
100 mm faders	<input checked="" type="checkbox"/>	
Channel peak leds	<input checked="" type="checkbox"/>	
MSP signal path	<input checked="" type="checkbox"/>	
Jack and XLR on channel inputs	<input checked="" type="checkbox"/>	
Phantom power for inputs	<input checked="" type="checkbox"/>	
Balanced XLR L-R outputs	<input checked="" type="checkbox"/>	
QCC connector panel	<input checked="" type="checkbox"/>	
Inserts on all channels	<input checked="" type="checkbox"/>	
Inserts on L-R mix	<input checked="" type="checkbox"/>	
All-metal chassis	<input checked="" type="checkbox"/>	
Internal power supply	<input checked="" type="checkbox"/>	
12-segment 3-colour meters	<input checked="" type="checkbox"/>	
Individual controls	<input checked="" type="checkbox"/>	
UNDER \$3000	<input checked="" type="checkbox"/>	

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no fiddly concentrics

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excellent control

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RMS Power Handling: 250W
Program Power Handling: 500W
Nominal Impedance: 8
Sensitivity (1W/1M): 99dB

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Program Power Handling: 500W
Nominal Impedance: 8
Sensitivity (1W/1M): 99dB

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QSC RAVE



hardware like Hubs and Switchers, it works slightly differently to a standard Ethernet.

CobraNet technology allows over 90% of an Ethernet networks bandwidth to be utilised. Upwards of 64 channels of studio quality audio (20 bit 48 KHz uncompressed) can be carried on a single CAT-5 cable. The network delivers 20 bit data at 48kHz, meaning 48,000 times per second.

CobraNet is not a control protocol, it is a medium for the transport of control protocols. The network currently accepts RS-422, RS-485, and RS-232 control I/O. If AES-24 is ever established as a standard it can be carried as well. CobraNet allows control schemes from different vendors to co-exist on the same network infrastructure. The idea here is to reduce the amount of wiring, while increasing flexibility.

RAVE is QSC Audio's stand alone, 'proprietary' system which talks only amongst itself - but runs on bog standard Ethernet, thanks to CobraNet technology for which QSC have a license. The actual RAVE protocol belongs to QSC. Other audio manufacturers have and are working on CobraNet based systems too. Peavey's Media Matrix will shortly grow networking capabilities thanks to CobraNet. Crest base the NextSys amplifier network on a Cobra backbone.

Readers may recall reportage of Lone Wolf's Media Link technology which promised and threatened to be The Audio Carrier for networking earlier in the decade. Cobra-Net is similar but different, opting to utilise a very standard network format (Ethernet) instead of trying to invent a network backbone from scratch.

USING RAVE TODAY

Once you have a wired venue, simply put a RAVE box (Digital Audio Router) at each place you require audio. You could use it in place of a multicore, for example, running -say- one 8 channel in/out box and one 16 channel input box to give yourself 24 channels from a performance area and 8 return channels back again. At the mixing end you would also need two RAVE boxes, the same 8 channel in and 8 channel out box would handle the job in reverse, and you'd need a 16 channel output box.

More likely you've got a distributed audio system installation. The best example is a bunch of studio's - where you desire to send and return audio between each or any studio. The flexibility of RAVE means anything up to a current system limit of 64 audio channels can be wired into any place where there is one Ethernet point!

Some considerations. Firstly the Ethernet network needs to be dedicated to RAVE, in other words - no printers or other computers hanging off it. This is reasonably obvious, RAVE simply must

work better if there are no log jams of unrelated data.

The second major issue is one that anyone designing digital audio applications is very familiar with. There is, by necessity, a slight delay involved in processing the audio through the converters. This is currently quoted at 7.6 milliseconds or less. We don't regard this as a problem because the whole system would be uniformly delayed. 7.6 milliseconds is not a big delay.

Ethernet cable lengths are finite too. Using ordinary twisted Category 5 cable you are limited to 100 metres between each unit or between Ethernet hubs. Fibre Optic cable lengths can run as far as 2000 metres, with simple conversion to connect to RAVE units and/or hubs.

HARDWARE

The RAVE boxes (Connections' speak for each one rack unit tall Digital Audio Router black box) have phoenix type connectors on the back for your audio connections. At the front of the box is the network channel assignment selector switches, behind a security cover.

Eight status LED's show what is happening in a network sense. Each signal (there are 16 channels handled per box) is represented by a multicoloured LED on the front panel. As with every device handling digital audio, no signal overload is advisable, so the LED's are there for good reason.

Signal attenuation is a bugger because you need to set internal jumpers to +12, +16 or +24dBu on the analogue audio inputs and outputs. Proper system design and signal management is essential, after all the RAVE box is really something to set, hide away and hopefully forget.

Prices:

There are six models-

RAVE 160: 16 analogue output channels: A\$9995

RAVE 161: 16 analogue input channels: A\$9995

RAVE 188: 8 analogue inputs channels, and 8 analogue output channels: A\$9995

RAVE 80: 16 digital audio outputs (AES/EBU): A\$6900

RAVE 81: 16 digital audio inputs: A\$8495

RAVE 88: 8 digital inputs and 8 digital outputs: A\$7900

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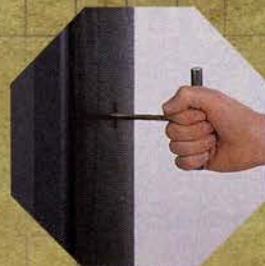


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Soundscape Hard Disk Recording and Editing System

We examine the critical differences between buying a DAW for film, video, broadcast or for multitrack music recording. It's the same.... isn't it?

By Julius Grafton

Imagine the atypical recording studio with a 24 track Studer recorder, Mackie mixing console, ATC monitors and all the usual effects stuff. You would and could do all kinds of projects in here, some harder than others. At the end of the day you usually end up with a two track master.

The evolution of recording equipment has seen a variety of digital formats almost totally obliterate the analog recorder, mostly because of the convenience of virtually immediate access to your project. Not to mention considerable cost savings.

For the first years of the digital revolution people have preferred using MDM's (Modular Digital Multitracks like Adat or Tascam's DA88) because you use a cheap and hardy tape in each machine. Hard Disk recorders have suffered The Media Transport Problem until recently. This is because the hard disk is the storage medium, rather than the little VHS or Hi-8 tape, and in order to get the data off the hard disk, some compromise must occur. For instance, everything is compressed onto DAT tape. Or the whole drive is backed up and carried away.

Hard Disk technology is now cheap enough, reliable and advanced so that it is no longer the problem it was. The Digital Audio Workstation (DAW) based on an average computer is now extremely viable for almost anyone who needs to record almost anything.

So what's the difference between buying a DAW for film, video, broadcast or multitrack music recording? Very little, according to recording engineer Christo Curtis. He has a Soundscape DAW system in his home studio, where he had just finished music editing a feature film when I called. More on this in a minute.

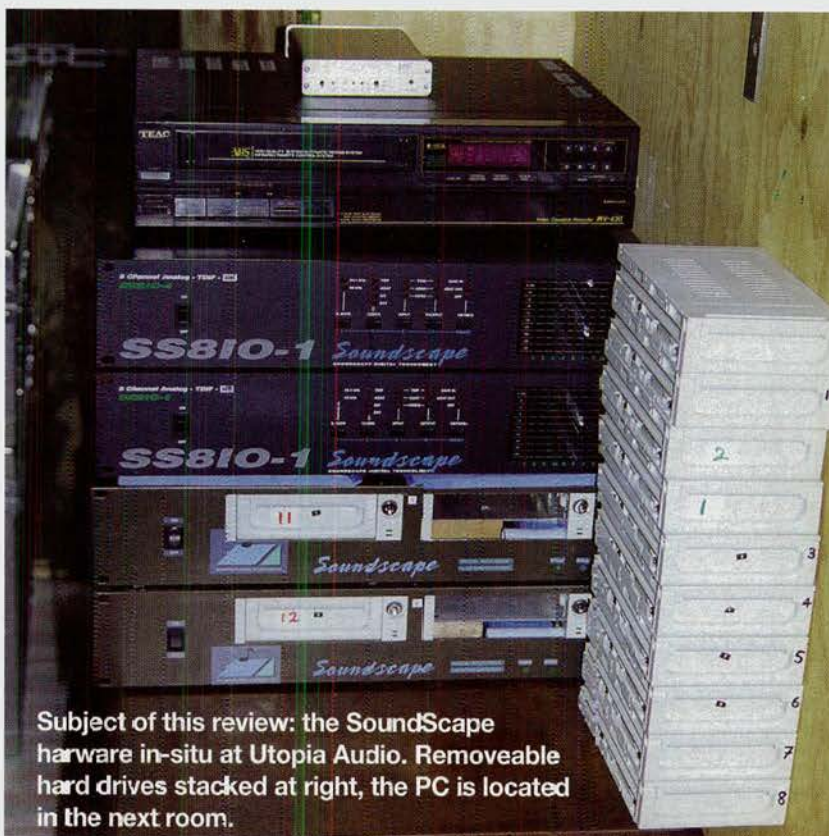
START ANY SYSTEM WITH HARDWARE

Readers will recognise that DAW's all need a PC or a Mac, or a proprietary computer in the case of Fairlight and DSP. Data (audio is broken into data) is written to, and read from, hard disk/s.

Audio usually comes along as either a conventional microphone or line (analogue audio) or a digital signal, perhaps from a project previously recorded on an ADAT or maybe from a digital mixer like a Yamaha 02R. To get the audio INTO a hard disk recording system there is an A > D converter (analogue to digital) and to get the audio OUT there is opposite, a D > A converter.

Generally you need one A>D / D>A for each recorded 'track', although once recorded, a single track can be multiplied, replicated and modified ad nauseam once inside the system.

All hard disk recorders work this way. The very smallest examples, like a Roland VS 840 for instance, just incorporate it all into one box. Where there are analog audio connectors, like microphone inputs and recording outputs, there are always converters. Convert-



Subject of this review: the SoundScape hardware in-situ at Utopia Audio. Removeable hard drives stacked at right, the PC is located in the next room.

ers feed a CPU (computer), the CPU has the operating system and software burned onto chips, (or stored on a drive) there is some kind of operator interface and display, and the audio is written to and read from a hard disk.

SOUNDSCAPE'S HARDWARE SOLUTION

Soundscape offer an elegant system, by virtue of design approach. First start with a PC running Windows. One Soundscape Host/Interface card needs to be inserted in an ISA slot inside your CPU (PC 'box'). The card provides the hardware link between the PC and the Soundscape system.

Understand at the onset that the PC is just only doing interface duties, no audio lives inside there.

From the card in the PC a ribbon cable connects to one or more Master Units, the Soundscape SS HDR-1. This is the heart of the system, because each HDR-1 has processing and hard disk provision for 3 tracks. There are two hard drive positions on the front of the HDR-1, which can be configured as removable or fixed hard disk drives. Various options can be added onto the HDR-1, such as additional digital input/output ports and an accelerator card.

Basic audio converters are provided on the HDR-1, in the form of 2 inputs with A>D, and 4 outputs from D>A converters.

A basic system requires at least one Master Unit, one Card (in your PC) and one hard disk fitted to the Master Unit. As fitted, you can record two tracks in and replay 8 tracks through four outputs.

Soundscape DAW

For more inputs and outputs, an accelerator card (SSAC-1) is fitted inside your existing HDR-1. The card has a T-DIF port and an Expansion port, which allows connection via the T-DIF port to anything with a T-DIF port. Soundscape have a converter unit, called the SS 810-1 which, hooked up via the T-DIF port, allows eight inputs and eight outputs, in both analogue and ADAT optical formats. These have 20 bit converters, as opposed to the 16 bit converters in the HDR-1.

Two HDR-1 and two 810-1 units can be run from the one PC Host/Interface card. This allows 16 tracks in and out on the 810-1's, and also four tracks in and eight out on the two HDR-1's. For additional tracks, you need an extra PC card. Up to 16 HDR-1 and 810-1 can be run from one PC.

BUILDING A RECORDING SYSTEM

Christo Curtis, trading as Utopia Audio, has a hard working Soundscape system which he uses for music recording and editing for film. Christo is a recording engineer and audio consultant who started his career as a musician. He can read music, lives in a really tasteful house handy to the Sydney CBD and works on projects of his own choice. His 'studio' is like my office at Connections - dominated by the computer monitor, keyboard and mouse in the middle. Two different nearfield monitors at each side, and a hanging 14" video monitor complete the room. It is used purely for editing on Soundscape, no recording is done here.

On the other side of a wall is the PC, and the Soundscape hardware. The reason the hardware was originally placed outside the room was primarily hard disk noise. Most hard drives, including all the fourteen various Quantum and Seagate models we have at Connections, chatter away when in use.

Christo recently discovered that IBM branded disk drives of a certain kind not only work virtually silently, they are also hardy and durable. In hard disk recording work, disk drives work harder than at any other task - except video. Generally any drive used for AV (audio-visual) can be expected to work at its limits.

The HDR-1's at Utopia have IBM DHEA-36480 6.4GB and IBM DCAA-34330 4.3GB hard drives, mounted in removable drive cases which are available for about \$40 from Jaycar or similar outlets. So fitted, Christo has two removable drives in each 8 track HDR-1, which can be used in several ways.

Recording is done to one drive at once in each HDR-1, the second drive is used for backup or additional recording time. In playback you can use (read) both drives in an HDR-1. Christo's system has two HDR-1's each loaded with two hard drives.

BUYING SOUNDSCAPE

Almost three years ago Christo was sniffing around various different systems but didn't want one based on an Apple Mac. Soundscape was recommended by a friend, and Christo visited a dealer. He is coy about identifying the dealer, (who no longer sells the system anyway) but subsequently he had to hire a system for a weekend in order to appraise it.

"I picked it up, and drove up to St. Albans (on the Hawkesbury river) and unpacked it. There was no manual with it!"

Despite this challenge, Christo got the system

configured and running and actually did some work over the weekend. He resolved to buy it, and in fact purchased from another dealer, Soundcorp in Melbourne.

LIVE RECORDING

The project being finalised at Utopia was a 180 minute major release feature movie called Moby Dick. Christo is the music engineer/editor, which works like this. The composer Chris Gordon wrote the score which comprises about 60 pieces of music of varying lengths; 96 minutes in total.

Before the recording, all the Video is captured from common VHS to PC as an AVI file (which seamlessly integrates with Soundscape), and all click tracks are recorded to Soundscape, according to timecode references. The arrangers score is used for this process. During recording the audio is locked to pictures as they go, with immediate replay possible.

Christo then hooked up with an orchestra at the Goosens Hall in Sydney and recorded each piece of music. This was done the traditional - and only- way, namely with microphones carefully placed around the orchestra and the hall.

Microphone placements are a 'trick of the trade' and not for publication, according to

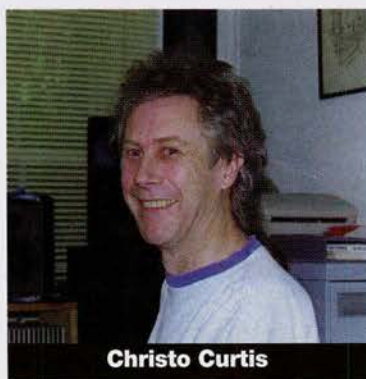
Christo. The microphones run into a mixer, and from the insert point on each channel they are run into Soundscape. The system at Utopia has flight cases for field recording usage like this.

"If I'm recording in Melbourne or Tasmania I just hire a monitor as well" Christo says, referring to his PC monitor. The core system is his PC CPU, and the Soundscape hardware.

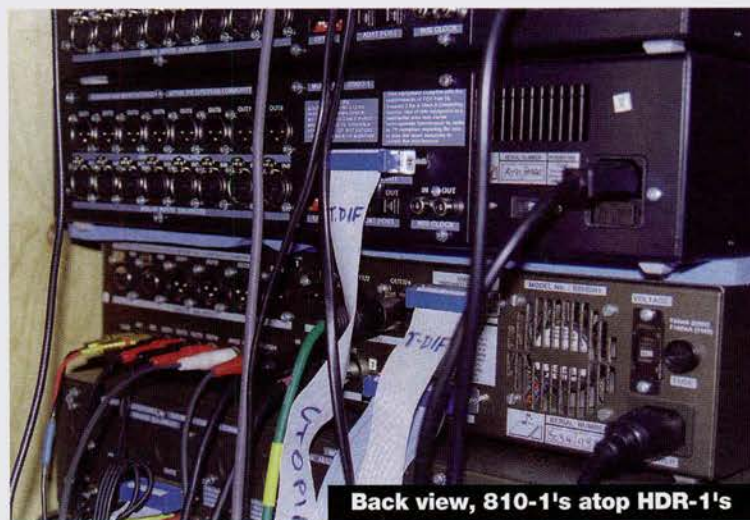
Connecting audio is straightforward, because the 810-1 has balanced XLR inputs and outputs. A send from a mixer can be either run direct from a channel for 'pure' single channel input, or out of a group where a number of channels are pre mixed together.

Like all good recording engineers, Christo works with a safety copy of everything he does. On the HDR-1 this is achieved by running the second disk drive as a backup, or, alternately Christo sometimes hires Tascam DA-88's (an 8 track tape based MDM) to run as a real time backup from the T/Diff port.

(continued over page)



Christo Curtis



Back view, 810-1's atop HDR-1's



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FEWER SPEAKERS MORE PROFIT!

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TIME

Recording at 44.1kHz rather than 48kHz sample rate, Christo figures each hard drive will yield 13.5 single mono track hours. Bearing in mind that because one HDR-1 will record 10 tracks (2 with internal inputs and eight from either a digital source like a Yamaha 02R, or eight inputs from the 801-1) then one 4.2GB hard drive would give you roughly an hour and a half recording time.

Why record at 44.1kHz instead of 48kHz? "We usually spin off a CD from these projects, it's quite OK for 16 bit audio" Christo explains.

Because all sound files are remote from your host PC, the option to use your standard system hard drive for storage and replay is also there, perhaps for little bits and pieces you commonly use.

MUSIC FILE MANAGEMENT

With the 60 items recorded in sync to the picture, Christo went back to the studio and started on the finishing process. This has 2 main components, first the music must be edited between various takes to sound 'right' from the raw recordings. Second the music must be mixed to the movie.

The sheer number of sound files (>5500 in this case!) becomes staggering, and a lot of removable hard drives are used. This is part of Christo's trade, managing files and knowing where a given mix of a certain piece is stored. Once any project or item is finished for good, Christo backs it up onto DAT tape as a Soundscape file.

Soundscape is great because, according to Christo, he can manage his files onscreen at all times. Soundscape has a window called 'S File Manager' which can be active while you work on a project. To use this, Christo has a 'virtual' screen whereby his 17" computer monitor (VDU) emulates a screen four times larger. It is like looking through a square cut of a larger piece of cardboard. Imagine you have cut a 500mm square and you have a picture 1m x 1m. As you move the square over the picture you are seeing a quarter of it at a time. It means you can have some windows open but moved off screen, and then 'bump' or 'jump' to the window without having to open it again.

Within the S File Manager you can open (or 'fly') any file, and move files between directories or even between disks. In use with two HDR-1 units loaded with four hard disks the S-File identifies each drive as 'A-1', 'A-2', 'B-1' and 'B-2'. It is an easy file management system.

WAVEFORMS, TRICKS AND TRAPS

I'm not going to delve deeply into all the software features of Soundscape V2.0, because really, every DAW now does virtually the same thing. Some better than others. Every user is enamoured with their system.

Generally Christo loves the 'virtual' mixer and also the compressor limiter module. This is put to use when the final mix is delivered

back to the producers for post production. This is where dialogue and sound effects are mixed with the music elements to form the end soundtrack. Christo slightly limits the music tracks, and delivers each at a consistent level.

Of course as with any DAW you can cut, copy, paste, squeeze, stretch, process and re-order any part of any track any time.

One really important aspect of Soundscape: "There is good phase look between machines. This is very important, not necessarily for rock and roll where you record single tracks and overdubs, but for orchestral recording. All the microphones have a relationship to each other which is important to the mix, in regards their phase and distance apart".

"Soundscape sample lock their machines (HDR-1's). You can get an absolute 100% sync. To test this, record a sound on one machine and another machine simultaneously, then play them back and flip the phase of one of them, the sound will cancel out 100%. Some systems traditionally haven't totally locked".

"Think about it - if you have one analog 24 track tape machine, all 24 tracks are locked together solid. But when you have three 8 track digital machines then you've got variables between each. You can have up to half a frame difference between machines in some circumstances".

CONCLUSION

I tried and tried to get some kind of negative or bummer statement from Christo Curtis. He simply and honestly details a history with Soundscape that goes back almost three years. He's had one hard drive fail in that time and it wasn't an IBM. "I'm recording 16 or 20 tracks deep, whereas many DAW users essentially are working in stereo. This is as heavy duty as it gets" he asserts.

One thing that may be a bother to some is lack of MIDI Tempo Mapping. "I don't give a hell!" says Christo, maybe others would like this feature.

So here's a professional with 25 years experience who is very happy with his equipment.

Distributors -

Australia: Digital Sound Systems, +61 2 9386-1043 New

Zealand: Digital Sound Systems +64 9 303-2880

Internet: www.soundscape-digital.com

Prices: Base system with software, host/interface card and one SS HDR-1 A\$5995

SS HDR-1 PLUS fitted with accelerator card (also available separately) A\$9995

SS810-1 8 channel converter with balanced XLR connectors and digital I/O's: A\$4595

Various options include Wave Mechanics Reverb, TC Works Reverb, Audio Toolbox (comp/limiters, etc), EDL processor and CD writer.



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BEATMIXING VIDEO FROM CD

Aussie Firm Pioneer a Unique Technology

V-CD is a massive format in Asia, where these common CD sized disks are available with literally umpteen thousand movies on them. Asia moved away from pre-recorded VHS video in favour of V-CD several years ago, and V-CD players are dirt cheap there.

V-CD has very real limitations, namely that the image is heavily MPEG compressed to fit onto the standard 600 meg CD, but people love the fact that you had immediate access. Until DVD arrives properly, V-CD is the now format for mass pre-recorded digital video. If you enjoy Kung Fu movies.

Being smart about it, SBA Music recently started to offer V-CD systems to clubs as a replacement for their VHS video systems. SBA Music (as ShowBiz Video, their previous name) have for some time rented VHS replay systems to clubs and bars where music video was required. They bundle compilations under license from the major record companies and provide music packages with the replay hardware on a monthly rental basis.

The original ShowBiz system had two VHS players with a cueing system that worked fine - many sites use this today. The V-CD system improved on this, but the missing link has always been that a DJ likes to mix music together. When playing a video clip, the only option has been to press the start button. The video clip then plays at a fixed beat.

ENTER THE 'BOX'

SBA Music GM Kylie Little conned me into checking out the system in Sydney. "We'll talk about the technology" she sweetly cooed into the phone. Like a moth to bright light I went.

Take one V-CD, insert it into a Pioneer CDJ-500S CD player, press play and it plays. With vision too, which was not/is not what Pioneer intended, for the 500S is a pro CD player.

SBA have a breakout box cloned onto the front of the 500S which provides a video output. They have apparently tapped into the laser circuitry and split an output which feeds an MPEG card in the breakout box as far as I can gather. Thus a video output is supplied. Kylie was all coy about anything to do with HOW they did it.

Amazingly, when you slow down or speed up the V-CD it acts like a CD and..... slows down and speeds up. The vision does too.

Most staggering of all, the new Pioneer Master Tempo Control (a thing which everyone doesn't understand HOW it does



what it does) still works WITH the V-CD! What happens with the Master Tempo Control is that when activated you can speed up the tempo of your music but the VOCALS stay in pitch. The image is zapping along with the music running at up to +16% faster, but the vocals still sound 'normal'. Or in other words, no chipmunking!

IT'S A SYSTEM

SBA Music are offering the V-CD system for rental with music releases. The base system comprises two Pioneer CDJ-500S CD players with The Box, and a Videonics MX-1 Digital Video mixer with four inputs.

To use the system as supplied, a club needs a DJ audio mixer (or SBA can supply one if required), a speaker system and a video monitor or projection system.

Naturally the system plays normal CD's too. The massive attraction is that DJ's suddenly have control over vision, which in the past was often controlled or mixed by the lighting person. The degree of control is a big issue too - with beat matching and all the nuances of contemporary music 'turntable-ism' available on one pair of CD players WITH video vision.

The MX-1 can also do a variety of cool pre-programmed transitions from one deck input to the other, and the extra inputs can be used for camera's or a Titlemaker. A video monitor is a good idea for the DJ too.

SBA rent some of the extra stuff like Titlemakers, and can refer you to other rental outlets for things like TV screens and monitors. The pricing for the V-CD system is around A\$1,250 per month, which includes software on V-CD sent to you twice a month. They typically load 17 - 19 tracks on each V-CD and have around 27 different V-CD's made up at presstime. Currently the library is being updated at a rate of 5 disks per month.

• More info: call SBA Music, +61 2 9660-8999.



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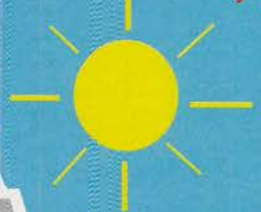


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MIXX: The ARX mini mixer

Trevor Cronin looks for a tool to assist with a live recording. He turns to what is and was designed as a contracting / installation mixer. Recipe for disaster, you say.....



Recently I was asked to do a live-to-DAT recording of a 60 piece Brass Ensemble Concert Band. Definitely not your normal mixing gig, and I intended using not your normal setup.

Both the band and myself wanted to keep the recording as natural as possible, so I planned on leaving my Midas at home and running the microphones straight into the DAT.

However, I needed a Phantom power supply to run the condenser microphones, and a chance reading of New Products listings in Connections led me to discover a great new product from local manufacturer ARX Systems - The MIXX four channel microphone mixer.

I already had a couple of ARX products, an Afterburner compressor/limiter and a Sixgate, which I bought while I was working in the UK (Imagine my surprise when I found out they were made in Australia!). I had found both of these products to be indispensable in day to day mixing, and so I rang ARX, had a look at the MIXX, and ended up buying it!

IN'S & OUT'S

The rear of the unit features a switchable Mic/Line electronically balanced XLR input, Direct Line jack output (great for connection to a DAT!), Gain trimpot (adjusted with a small screwdriver) on each of the four channels. There's also a Phantom power switch, 2 Electronically balanced XLR outputs, 2 x 5 pin DIN sockets for linking multiple units together, and a removable IEC power input switchable between 240V and 110V. The last point alone makes it a valuable asset for international touring.

The front of the unit features a row of 5 rotary pots on each of the four channels. These are, in order, Fader level, Low EQ (100Hz shelving, ± 12 dB), Mid EQ (300Hz Bell, wide Q, ± 12 dB), High EQ (10 KHz shelving, ± 12 dB), and Pan control.

Underneath these there's the regular ARX feature of a numbered panel with sufficient space to mark each channel with a Chinagraph pencil (Good Idea!). On the right hand side there's a green LED for Power On, and a Red LED for

Phantom Power.

RECORDING ON THE MIXX

I originally intended to record the band with just an X/Y pair of AKG 451 microphones positioned high above the conductor's head, but I changed my mind once I got the MIXX. I was very impressed with the quality of sound from the pre amps. Truly quiet and clean enough for DAT use.

I know that people rave about the Mackie input stage, but this was every bit as good and the unit is even more compact. So, on the recording day I decided to make the most of its four inputs and added 2 additional mics covering the percussion section at the rear of the stage. This worked very well.

What I really liked about the MIXX was that everything worked as I expected it to. This unit should rapidly become the minimalist recording engineer's mixer of choice. The controls were smooth, the EQ was warm and clean, the Phantom power worked flawlessly all day, and the unit was absolutely silent. ARX quote better than -90dB (unweighted) signal-to-noise, and massive headroom, and I can't see any reason to doubt it.

Even though I didn't need to, I liked having the flexibility to easily link up another couple of MIXX's using a MIXXMaster (another unit with only two Mic inputs but extra auxiliaries and master controls).

As the band warmed up I did a quick balance adjustment, using a little of the Low EQ to reduce the rumble being produced from a reflection off the rear wall.

Having 4 mics resulted in a smooth even coverage, and the end result was a great sounding budget recording, and 60 happy clients!

PRICE: A\$941 (MixxMaster: 2 mic , 4 line channels \$778)

DISTRIBUTORS:

Australia: ARX: + 61 2 9555-7859

New Zealand: Syncotech Systems, +64 9 300 3038

Singapore: Auvi Pte Ltd, +65 545-0020

Hong Kong: Dah Chong Hong Ltd, +852 2808-6111.



LETTERS

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Clever or Accidental?

I'm barely into the December issue and I see something that is obviously too clever for your editor to have intended. Page four has a story about David Bell leaving Bose for JBL because Bose are not serious about pro sound. Page five (opposite) has the story about BOSE replacing EAW as preferred brand at the new Olympic Stadium! Very clever?

-Stuart Williams, Beecroft NSW

Digital Lighting

An impressive story on how DLP projectors and moving lights will one day be the same thing (December). The only thing is, how can the likes of the Moving light manufacturers ever get enough light off a little DMD chip?

-J. Elvins, Sydney

Reviews?

Every Review this year in your magazine has been favourable. Explain this.

-Buzzo, email

• But we have no letters from disenfranchised users of any of those products either. Explain that! -Editor

Big Picture are cool

I was recently browsing through your November 1997 issue when I came across an article on Big Picture, a video support company with whom I've worked with.

I am the video director on Lord of the Dance and just completed an Australian Tour. When touring acts come to Aus they bring core groups of the usual crew to save money. With this kind of transition you need good local support. Big Picture has always come through for me. Joe Bonano and Dennis Murphy were especially helpful this time as always!

Your article also reminded me of the Eastern Creek gig I did with these guys on Bon Jovi in '95. Fifty knott winds hit our outdoor stage at 5pm, about three hours before the band was due onstage.

Video world was underwater, and we watched a scaff tower holding my Barco projectors get blown into the stage! Looked hopeless, but the show happened. Due in large part to the Big Picture guys!

A nice Magazine! Couldn't believe I found such a hip industry Mag in Tasmania!

Mark Haney, BCC Video.

Article re dB is WRONG

The tech article "What is a dB" (Connections Dec '97) has two gross errors, that will give your readers the WRONG idea. Firstly, voltages are measured as $20\log(V/V_{ref})$ while power is measured as $10\log(P/P_{ref})$. The article incorrectly states "voltage level = $10\log(V/V_{ref})$ ".

The dB values on P42 are correct if you are talking about changes in power, but incorrect if you are talking about changes in voltage or sound pressure, which we do most of the time.

Simply put, double the power = 3dB but double the voltage or sound pressure = 6dB.

These things matter in the big picture of life, the universe and sound and must be got right for music punters or the EPA to be happy.

Perhaps you should pay those of us who know about these things to write these articles.

Glenn Leembruggen, Elecoustics, Sydney.

Richard Freeman responds: My apologies. Glenn is Correct that $dBV = 20\log(V/V_{ref})$ as dBV compares power levels referenced to the power developed by 1 Volt and not

voltage levels. Unfortunately I had always accepted that dBV strictly referred to Voltage and not Power which ironically illustrates some of the misunderstandings that exist about dB.

However the statement $Voltage = 10\log(V/V_{ref})$ is still correct as it gives us a logarithmically scaled voltage (but not a dBV) but does not give us a power measurement as $Power = 20\log(V/V_{ref})$.

As for the Second Statement that the Table is correct only if referring to Power - that is also correct as twice the Voltage or Current is 6dB and Twice the Sound pressure is also 6dB.

However I did go to some effort to point out in the article the importance of knowing what the dB value is referenced to and the table is for converting dB values into multiples of the Reference (which is always a measurement of power).

My Apologies for my carelessness in writing the Article and you can stop abusing Connections for my inaccuracies

Richard Freeman
rf@eagles.bbs.net.au

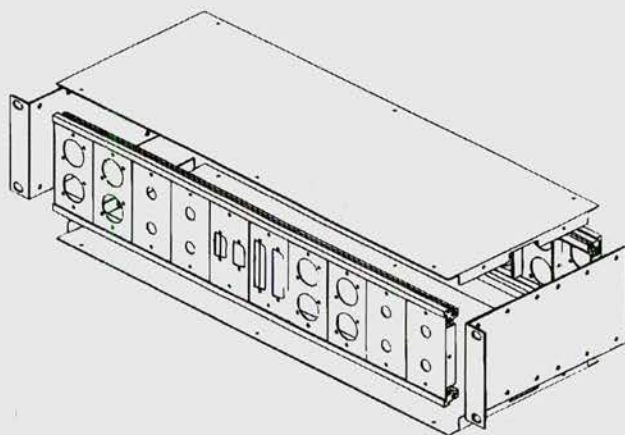
More letters on page 36

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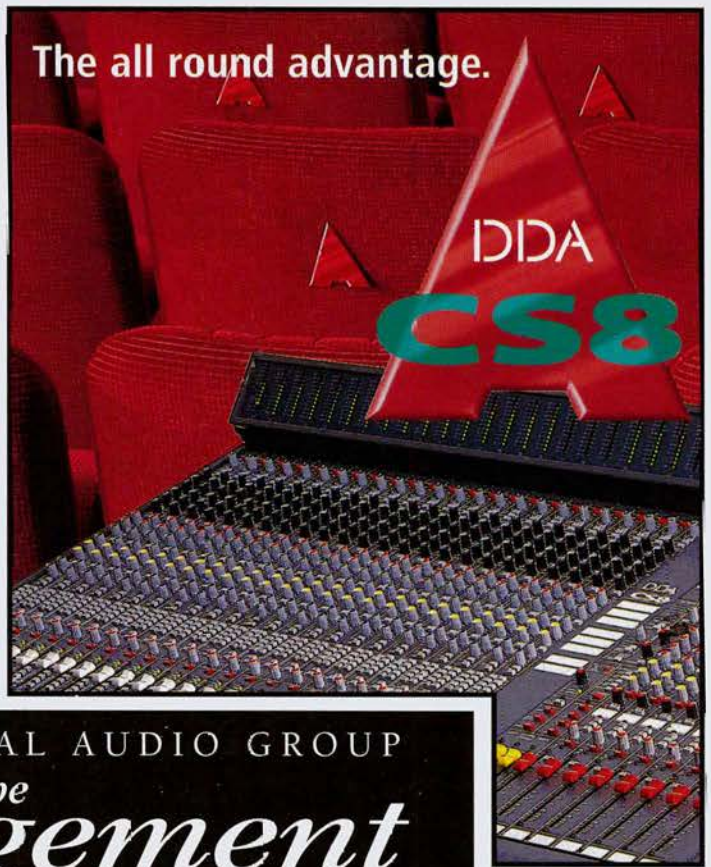
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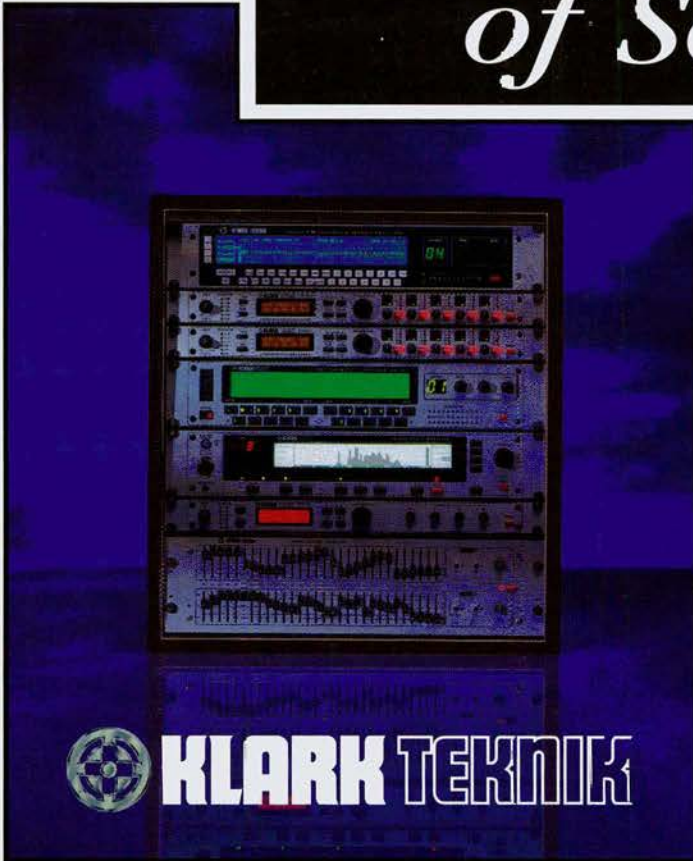
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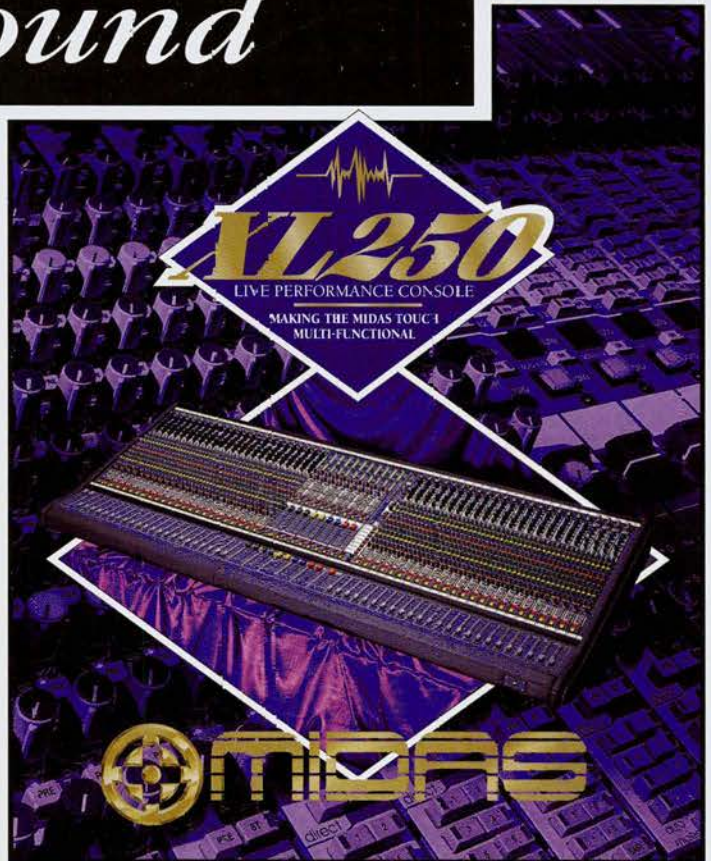
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LIVE SOUND MIXING

Basic Principles

Duncan Fry takes you through the whole process! **Part 1**

What is a PA System?

A P.A. (Public Address) system, or Sound Reinforcement system, is a collection of equipment designed to amplify voice and music so that they can be heard by a larger number of people. From the small speaker that makes the announcements at school to the several truckloads of equipment used by big touring acts, the principle remains the same:

1. The original sound travels to one or more microphones.
2. The microphones convert the sound to electrical impulses and send it down a wire to a mixing console.
3. The mixing console mixes all the signals together in the correct balance and sends this single 'mixed' signal down another wire to an amplifier.
4. The amplifier converts the electrical signals into much larger ones and sends them down another wire to the speaker(s).
5. The speaker converts the electrical signals into mechanical vibrations, setting up sound waves.
6. The audience hears these sound waves.

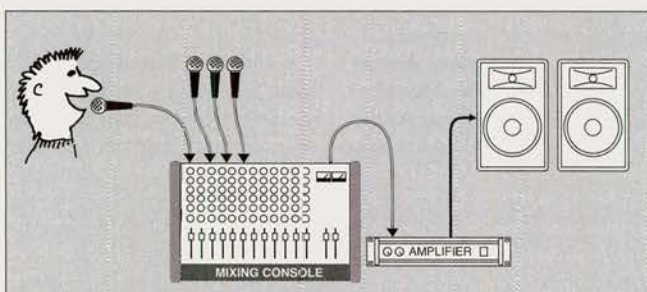
That's it. That's all the mystery there is to a PA system. Try to think of it as a directional chain when you're wiring things together and you can't go far wrong

- The microphone leads run OUT of the microphone, IN to the console,
- The mixed signal runs OUT of the console, IN to the amplifier,
- The amplified signal runs OUT of the amplifier, IN to the speakers.

When you're confused about what lead goes where, refer back mentally to this simple chain of events and you'll find that everything falls into place.

Other small systems may have the amplifier inside the console - this is called a 'powered mixer'. Nevertheless, the chain remains the same.

No matter how large or small the PA system, it will always follow this same basic layout.



A Simple System

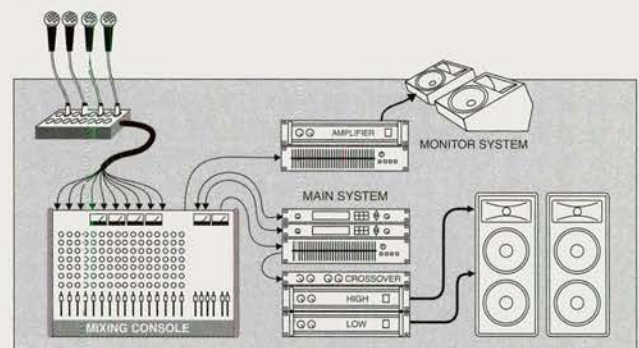
In practice this simple set-up is as follows:

1. The microphones plug into leads which run to the mixing console, which is usually set up at the side of the stage. Each mic has its own channel.
2. Each channel often has basic tone controls (more commonly known as the EQ section - more on this later). These are usually LOW and HIGH, which act pretty much like the ones on your home stereo. As well, each channel has a knob or a slider which controls the volume on that one channel only.
3. The mixer has a Master volume control, again a knob or slider, which mixes all the channel volumes together and sends it out as one 'mixed' signal from the mixer's Main Output.
4. This signal then runs down a lead to the Input of an amplifier. This amplifier is known as a Power Amp, as it does not have a pre-amp section - your mixer is supplying that function.
5. Speaker leads run from the Output of the amplifier to the Main speakers; for example one each side of the stage.

That's it. To get a sound out, set the Master volume at about 7, or two thirds the way up, and talk into the microphone as you gradually bring up the level of the channel volume control until it is as loud as you want. If everything is working and has been plugged up correctly, then you should hear yourself going "Check ONE - TWO", the timeless chant of the sound engineer!

If you have a powered mixer, with the amplifier inside the console, it's even easier. You only have to plug in the microphones, and plug the speaker leads from the mixer's amp section to the speakers.

Note - These powered mixers also have standard mixer outputs, marked Left Out/Right Out or similar, as well as the amp section outputs. Make sure you plug the speaker leads into the correct connectors, usually marked Left AMP Out/Right AMP Out or similar.



LETTERS

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A Bigger System

OK, that's a simple system. Now let's have a look at a more complicated system layout, one which is used by a lot of PA systems in pubs, clubs, and medium sized venues. It's a bit of a jump from the previous system, but still conforms to the 6 basic functions of a PA system as described earlier.

1. This time the mixing console is out in the audience so that the sound engineer can hear the band the same way the audience does.
2. The individual mic leads plug into a box on stage (appropriately called a Stage Box!), and a thick cable runs from this box down to the mixer. This is called a Multicore cable, or Snake, and is virtually a long extension of each mic cable.
3. The mixing console this time is a bit more complicated than the previous one we looked at, but it still performs the same basic functions, plus a few more

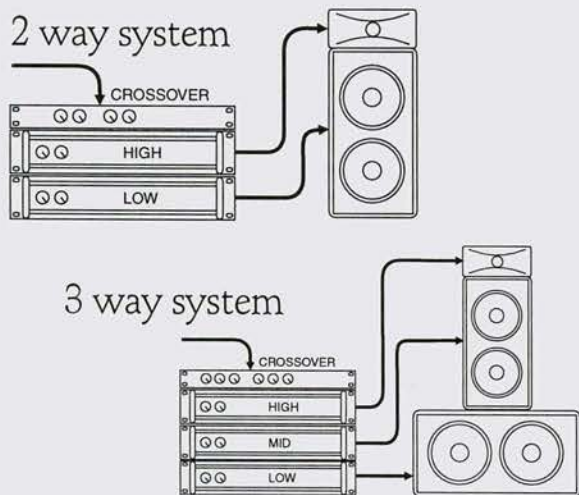
So that the band can hear itself on stage there is a Monitor control on each channel. This sends a separate signal to extra amps and speakers on the stage so that the singer(s) can hear themselves above the band.

There is also usually an Echo or Delay unit and a Reverb unit running off Effects controls on each channel, to fatten up vocals or drums or for special effects. The EQ section is also more comprehensive, split into Low, Mid and High with maybe an extra Frequency control for the Mids. (See Chapter following - Mixing Consoles)

4. The Main signal from the Mixer runs into a Graphic Equalizer. This lets the engineer 'tune' the PA system to compensate for acoustic deficiencies in the room, which can cause feedback howls and other unwanted sounds.

5. This PA system has separate speakers for Bass and Treble (LOW and HIGH) and needs an amp for each one, with an Active crossover splitting the signal into LOW and HIGH frequencies. This type of system would be called Bi-Amped, or Active 2 way system.

Next step up would be a 3 way, LOW, MID and HIGH, with a 3 way Active Crossover and 3 separate amps.



This is extracted from the top selling book: LIVE SOUND MIXING, (third edition) by Duncan Fry. © D. R. Fry 1998. ISBN0 646 11235 X Retail: A\$39.90. Duncan Fry is a director of ARX Systems. Available from book stores and music shops everywhere, also through the Connections Shop. Call 1-800-635-514.

South African Roadies

Just a short note from the membership, executive and Board of SARA to all at Connections Publishing to wish you a great Xmas and a very prosperous New Year. The load of information you sent us started the growing library at the SARA Recourse Center. Also this year SARA ran, in conjunction with the Irish, the first 3 month Live Sound & Stage Production course ever in SA.

SARA looks forward to working with you all in the future.

- **Freddie Nyathela,**
President, SARA

1001 Uses For Gaff.... THE WINNING STORY!

Readers will recall that we have run a contest, of sorts, in recent issues on that perennial subject: GAFF. It started when *Braham Ciddor* (*Lightmoves, Melbourne*) offered a mixed box of the stuff for the best story.

So here goes!

Suzy Brandstater and **Don Jones** from Thirlmere Visible Solutions (NSW) have sent us a veritable tome of useful Gaff stories from their obviously exciting life....

"Camping: we take school kids on Caving Camps to Wee Jasper. We would never leave home without the gaff, it is used for repairing tents, attaching torches to helmets, and more".

Best of all is "The Gaff Baby". Students created a poor effigy of Suzy's baby, who was being breast fed during a production. The boys then 'breast fed' the Gaff Baby in front of all and sundry. Sick puppies!

As the Baby itself grew, it was kept entertained for hours in the school hall with a gaff ball! When this failed, a little Gaff anchoring same to the floor provided baby with dubiously frustrating hours trying to pull the ball off the floor!

Of course Suzy also has discovered that Gaff is a Beauty Aid. Half an hour before a show the bass player fell ill. Suzy was ready to play the gig but was worried about the short skirt, due to lack of leg waxing.

Naturally The Husband knew what to do, handing over the roll of Gaff. "It really works, I've used it since when I've been in a hurry, and find it works even better: if you warm it up first!"

Ouch!

• So **Suzy Brandstater** and **Don Jones** from Thirlmere Visible Solutions, the Gaff is on it's way, courtesy of Lightmoves (Vic).

1001 Uses For Gaff....

Just wanted to relate this story in regards to your GAFF tape stories. A long long time ago, I was on tour with my father (I was probably ten or twelve years old and he was the tour manager for a certain country act). The tour was through country NSW during the school holidays just before Christmas. Anyway, the two and a half week tour progressed with the normal problems - the truck ran off the road when the guys driving (with the windows open) ran into a swarm of bees and ducked, forgetting to drive.

The normal fun was also had by all - I think I remember one of the road crew powerlifting another over his head, then dropping him 'accidentally' onto a gravel carpark. (*ha ha, we LOVE this game! -Ed*) But during all this time the crew were taking an extra hour each night to load out- every piece of GAFF was recycled into a gaffa ball that they presented to me as a christmas gift at the end of the tour. It was roughly the size of a basketball and weighed about 6-7 kilos. I still have it to this day.

Danny Bishop
National Sales Manager
Professional Audio
Yamaha Music Australia

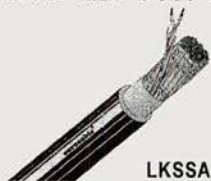
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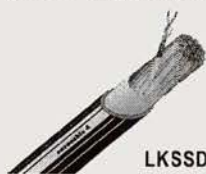
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CELESTION

Steel City sorely tests The ShowRoom

By Cat Forcer

Dein Perry's *Steel City* is a hit. Currently playing at Star City's The Showroom in Sydney, the dance piece has been a test for the new venue. Problems are a-plenty at the 900 seat multi-purpose venue which was originally designed to house a Lido Folly type revue.

One problem is the flying gantry (described in the last issue of Connections) which caused a few headaches during the previews.

"Basically there are two types of (automation) systems used," explained Hugh Hamilton, Head Lighting Technician from the Sydney Theatre Company. "We get a problem where the crane loses track of where it is. It stops, judders forward and the guy operating has to keep hitting the button to make it move. It's pretty disconcerting and impossible to choreograph around."

"A couple of nights ago when Randy Crawford was in for the late show they couldn't track the gantry back and so it stayed above the stage for her show. She wasn't very happy about it!"

"The bump-in was difficult because they're doing shows in rep," Hugh continued. "You work for seven hours and then have to clean up for an hour as a show is in that night. There will be times when there are shows on after us during the run and they'll be putting up their own lights which will be very tough. It's the longest bump-in I've ever done, three weeks. If we'd had the whole theatre for 24 hours we could have got through it a lot quicker."

Despite the depth of the stage the show only goes back as far as the proscenium. It is done mainly on the thrust stage out front.

"Because the room is so wide the sight lines are shocking," Hugh said. "It's a very odd shape room and why is there a crane in it? Because the room is so big it has sucked cable like you wouldn't believe - I think we've drained Chameleon dry!"

"As we're the first serious show in this room we're using dimmers that haven't been used before. The fire curtain goes through the floor of the stage down to the floor of the basement, you can't get cables from floor stage to upstage where a lot of dimmers are (an area you can't use because the sight lines are so bad). You end up having to run cables for miles to go through the few penetrations in the fire wall."

Hugh also believes the room is badly designed for access to lighting.

"You have to get a ramp and six people to push a Cougar up to the required levels to focus from," said Hugh. "We've had to do that a few times. The winching bars are pretty jerky to start with and to clear the gantry everything has to be grided. So often you can't get the shots you want because there's something like an air conditioning duct in the way. You certainly couldn't rush a show in here."

GANTRY, LX ACCESS HASSLES

Lighting Designer Gavan Swift said that the problems they encountered were to be expected as the venue was so new.

"The gantry is the major restriction for our show because it travels the full length of the room and the lighting bars have to be fully out," he said. "The only bars we can use are truss 2 upstage and lighting bar 1 downstage to the proscenium. Even those have to be high enough to clear the 2 tonne trap door lid which lifts up from the floor. Because those bars are so high we have to get around other physical elements like the house lights which hang below them. Access to lamps is phenomenally difficult as there are no catwalks or crawl ways - everything takes five times as long."

"Another thing that we discovered is that there's a speaker front of house which we have to keep disabling otherwise the audience hears the stage manager calls. Apparently it was put there because the Lido band were to have been housed there!"

Another problem was that the venue lost its technical manager and

Gavan said 'there's no sensible hierarchy of management technically'.

I asked Gavan what he thought about the venue's lighting control desk - a Compulite Super Ovation and, after some laughter, he replied.

"I don't know of another theatre in the country that has got one so obviously operators are scarce," he said. "I discounted it straight away, I don't know it nor do my operators. I've bought in an Expression 2X which everyone here knows how to operate."

PA PLACEMENT VERY CHALLENGING

Sound Designer Darryl Lewis returned from Canada, where he had been working on one of the Tap Dog tours, to start work on *Steel City*. Darryl had a band to contend with as well as making sure we could hear the tap dancers. His initial impression of the Showroom was that it was designed for the Lido, totally for playback only - not live sound.

"Because of the thrust, the speaker system is 15ft back off the edge of the thrust," he said. "It posed a big (feedback) problem for Tom Jones when he played here as he had to stand along way away from the audience".

"However, we have no choice. We come down on the tables and 95% of the show is danced out front of the sound system and we have to get rock'n'roll levels. We've done a lot of investigating with radio mics - we're using Vega radio mic systems. We've inserted EQ's and compressors over the whole group of radios."

It was decided to attach the radio mic heads to the dancers' Blundstone boots for the best sound and so they can go in front of the front of house. However at the first rehearsal they kept falling off and seven were trashed at \$190 each! Darryl went back to the drawing board. He bought aluminium pipe 3mm thick which fits perfectly over the capsule and crimped it down at the back to fit.

"We're not trying to hide the mics, too many shows these days have the taps pre-recorded (think of a famous Irish dancer). We believe in live sound and not faking it".

The PA is the inhouse EAW 650 system which Darryl was happy enough with, believing that if you're a good sound engineer you can make any sound system work. However, his personal favourite is the Meyer MSLA system. A 40 channel Soundcraft K2 was hired in from S & L as a submixer to house all the radio mics whilst all the band is mixed on the house Amek Recall console.

"One of the problems we have is that other shows come in after us and that's when the Recall comes into its own, (with showtime automation) but we don't let anyone get onto our submixer," said Darryl. "It's been fascinating and we're playing God a little bit by having all these radios in front of the speakers but we're getting a great level out of it."

"There are a lot of hard walls in this room and consequently there are a lot of reflections around the room. We've had to do some draping especially at the back on the audience right side. I believe it was a problem for Tom Jones and Randy Crawford."

The other disadvantage that Darryl has is that the show's band is also in front of the house whereas all the other bands that have played there have all been on stage. Consequently Darryl had to 'baffle-off' the house left sound system.

"We've done a lot to clean up the room and I think we've succeeded although there are a couple more things we'd like to do."

"I'm using loads of compressors and gates on the band. Because of where they're situated we get a lot of over-tones from the reflections off the walls. The band is very tightly packed together so we've had to do a lot of gating, especially over the drums, to clean it up." •

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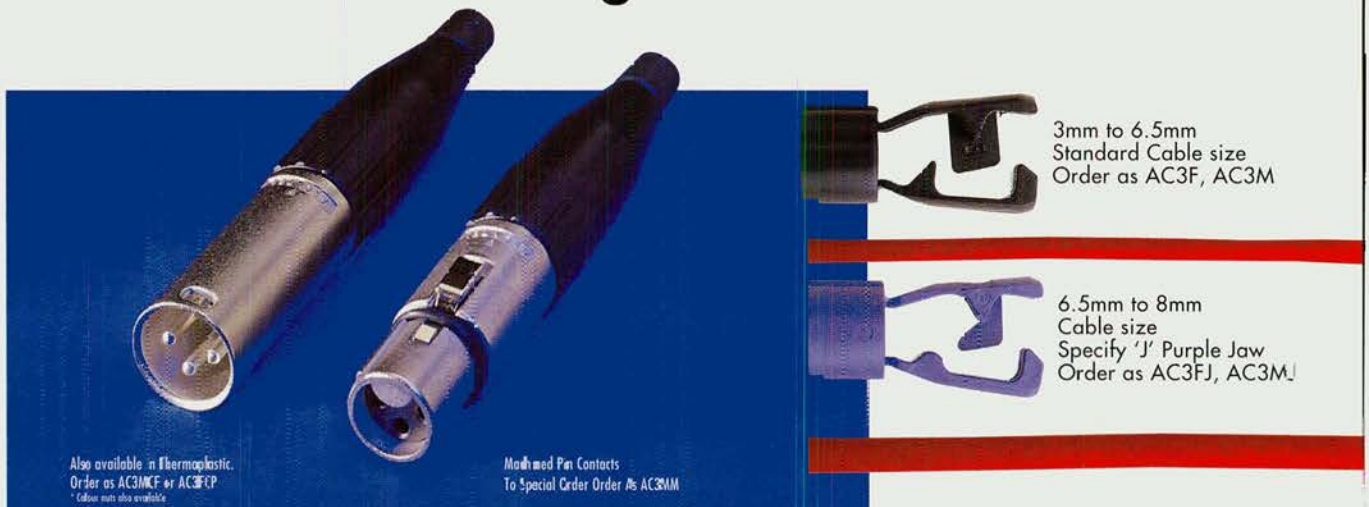
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EQUIPMENT :

The good, the bad, and the ugly.....

Connections ProTalk surveyed 320 Studio's over the Christmas period to establish the state of after sales service today. We asked about devices which didn't live up to their promise, about after sales service, and about favourite distributors and re-sellers. Compiled by Julius Grafton

A warranty claim with a five month wait on a Tascam DA30II DAT recorder heads a number of unhappy equipment stories in this month's ProTalk.

Connections ProTalk surveyed 320 Studios over the Christmas period to establish the state of after sales service today. Tascam products headed the gripe list, which mainly relates to after sales support by Tascam importer, Teac Australia, based in Melbourne.

The Tascam DAT story comes from **John Summers** at Lee Street Studios: "I did a live one-off recording to DAT (DA-30II) which came up with a software error. I was still under warranty, but Teac (Tascam) said they carry nil stock- and that there was a five month waiting list. They refused to give me priority on the list. I was rescued after my sister threatened to cancel her \$43,000 order".

Head replacement time and costs for DA-88 family digital multitrack recorders were a common complaint, at presstime Teac Australia quoted A\$900 - A\$1,300 for this service, with a wait time of ten days. Users report an average DA-88 head replacement interval of 1,000 hours or less.

Typical of comments: "Why must I pay \$1000 for a new head when the drum assembly costs around US\$320 (A\$463)? The problem is that if I bicker, I suspect Tascam will take their time doing the changeover". This reader, like many others, is a current DA-88 user who would prefer to remain anonymous.

"With new heads on my DA-88's I found that some tapes that I had recorded previously did not play well on the machines with new heads. They had some dropouts and pops. Teac (Tascam) downright deny this is possible".

Another user complains that machines with different software versions suffer dropout problems. But Teac (Tascam) wouldn't acknowledge this was a possibility. The reseller eventually fixed this.

Generally the users are all committed to the DA-88 and its newer derivatives, but are critical of Teac (Tascam) - and even Tascam itself, because it apparently doesn't have a website where many machine family and software version problems could be easily solved.

"I get the feeling that any call to Teac (Tascam) is a complete nuisance, and that I should only talk to my dealer or to a service agent. The problem is, my dealer infers that they, themselves, are often given the runaround by Teac". This reader also complains that Teac (Tascam) Australia seem to hold few replacement parts.

OTHER EQUIPMENT SNAFFU'S

While Tascam came in for attention, many other brands made the hit list too. However there was no pattern, and so it would be unfair to single out distributors, brands, or service agents for one-off problems.

We will hold these responses on file in case other readers report ongoing performance problems with new equipment and/or distributors. When a pattern emerges we will report it in our usual honest way. Connections operates on a 'no bullshit' policy after all.

As you would expect, second hand equipment generated a fair bit of debate. The more used equipment you buy, the more often you run the risk of failure or disappointment, it seems.

Jamie Durrant from Boathouse Studio in Benalla tells a sorry tale: "I flew to Sydney to buy a Urei LA3 and a LA4 compressor from an independent dealer who promised me both units worked perfectly. Upon meeting he requested cash and was in a hurry. I discovered a

fault with the LA3 and he suggested I pay him for both and he would send me the LA3 once it was fixed. He would then ring me when the LA3 was repaired. I'm still waiting. Sharks patrol these waters....."

Norman McCourt from C'est Ca says that the second hand market is wonderful, provided you have plenty of cash and good Australian know-how for backup.

CONSUMERS RULE, RIGHT?

Marshall Cullen from Damien Gerrard in Sydney has an ongoing hassle with a consumer style "midi" hi-fi system - purchased for clients to use in the foyer, to check how mixes would sound at home.

"We thought 'buy a good brand name so no breakdown/maintenance problems and if there were there would be some backup'..... so we bought the top of the line Yamaha Midi System about \$1000 instead of much cheaper, lesser respected brands. It has been a complete disaster.

Recurring problems with the laser sensing CD's present continue to this day and each time we send it for repairs (4 times so far) it is attributed to dry joints!!! Why not replace the laser I say?

"That's not faulty, and what do you know anyway?" We have been reticent to buy anything with Yamaha written on it since either domestic or professional.

DISTRIBUTORS and OUTLETS

Notwithstanding the above hiccup, Marshall Cullen says: "virtually all Australian distributors have really lifted their game in the last few years and I have few complaints with any of them".

Barrie Clissold from Wombat Road Studio's singles out Yamaha for good after sales service, good products and most importantly - good and concise equipment manuals.

A.R. Audio Engineering in Sydney get a good rap from **John Summers** at Lee Street Studios: "I'm a small fish compared to most of their customers, but they always help me out, even in situations with no profit for them. A rare and excellent company!"

Good pro audio outlets are scarce. **Harry Williamson** from Spring Studio, (Melbourne) tells of his favourite: "I always go to Audio Oz in South Melbourne. Serg and John really take the time to investigate all the latest products impartially, rather than relying on fads or constantly pushing their own barrel. For me, it's a one stop shop. I buy all my consumables there, bought most of my major studio components there, and I recently managed to grab a great solid seventies equipment tower for a tenth of its value.

At first sight, the showroom does appear chaotic. You push your way through mountains of boxes, cables and connectors of every imaginable shape and size. But where else can you pick up vintage analogue desks and tape recorders at ridiculously low prices and also get a great deal on something new. They are also willing to get in a competing products for evaluation and, being technically literate, are able to fix esoteric items like valve mikes and portable consoles.

It's generally a place for audio professionals only, and not the sort of place where people sit around playing guitars, as seems to be the case with most outlets".

Nick Hassall from Masterdisc in Perth elaborates on the need for a good supplier: "The majority of the equipment used at Masterdisc was purchased from Kosmic Sound here in Perth primarily because of the reputation of the staff in the digital product's department.

Throughout the process of buying equipment I found them to be helpful and friendly".

"Initially there was a software compatibility problem with some DigiDesign software I had bought and a piece of external hardware I was using, and, after a visit to the store this was resolved quickly with no fuss and better still no expense to me. Another good point: on after sales service is that I am always informed of new product information and the like so that future upgrades can be planned for".

"I think in the end the key to getting good after sales service is to pick your equipment retailer very carefully and if there is a problem, remain calm, this gets you a lot further with sales staff than shouting down a telephone to them".

Norman McCourt from C'est Ca praises Manny's in Melbourne,

"he goes out of his way to source for you, and to keep the price down".

Stuart Sheldon from Artec Digital in Sydney loves the pro outlet Sound Devices, from whom he purchased a 32 track ProTools hard disk recording system recently. "Excellent after sales service, particularly for equipment breakdowns. They act fast, with replacement or loan equipment, or a problem solution. They are very responsive and professional".

Which is what it is all about, right?

• *Let us know your views on this subject, but in writing please. The phone calls are no good at all, because I will only ask you to put it in writing anyway.* Fax +61 2 9876-5715, or email mail@conpub.com.au

Duncan Fry

Falling off the Continental Shelf



'We will only share this confidential information with anyone who can pay for it...' A Travellers Tale (eventually)

Late night television is the repository of many programmes that have bombed badly, shows that are not ready for prime time or shows that have been bought as a package in order to get better shows. The latter is, I suspect, the reason for an appalling British show late at night on the ABC called Chance in a Million. Tom Chance, the hero (?) speaks as if he were a walking telegram, and is the victim of amazing coincidences.

Well, sometimes I feel that way myself.

I'm either in a particular demographic group that is of particular interest to researchers (male + deaf + married + kid + afghan), or the victim of staggering coincidence.

Somehow my name, address and unlisted phone number has found its way onto market research people's hot list. Hardly a month goes by without some earnest researcher calling me, often about dinner time when I'm halfway through my meal, to get my opinion on a number of things - everything from how far down the social scale do politicians rate, and is that really being fair to real estate agents or hookers? to comments on TV commercials and /or programs.

For people who are supposed to be calling people at random from the phone book, this is most odd, since I'm not in there!

Two weekends ago I had one market researcher on the phone with a survey, plus both the Morgan Gallup poll and another one come knocking on the door! At random? One of them wanted in depth answers to questions on what new car was I planning on buying next! When I pointed out the dream machine gleaming obscenely in the sun and explained that for me there have been no real cars made since 1970, just vehicles to get from A to B, that river of questions soon dried up.

But I digress.

The trouble is, these days everybody wants to know something about you. Who you are, what you do, where you live, how much you earn, how much you spend, what you like, what you hate. Knowledge is power and power is money. Call me a conspiracy theorist if you like, but just because I'm paranoid doesn't mean that people *aren't* out to get me!

Several years ago (1988, to be precise) a bunch of us were on our way to the NAMM show on Continental Airlines. Col and Dave Park, Mark from Penn and myself. Col was never happy with the amount of alcohol he was served on Continental, so he'd brought along his own duty-free litre bottle of Cointreau. So the lights were

out, and the loads were heaving into liberal amounts of the stuff, when all of a sudden the plane hit an air pocket and dropped like a stone for about one second. Whoosh! Up in the air go the contents of 3 full glasses of Cointreau, only to come back down again half a second later and about 6 inches to the left - right in their laps!

A sticky night was had by all!

This tale has nothing to do with the thread of my story, but it sticks in my mind because it happened on the same flight as... 'The Confidential Customer Survey.' (Cue dramatic music)

The long trip to and from Australia/USA must be a highly sought after gig, because all the most senior air hosties (translation *old*) appeared to have pulled rank to work the flight.

And some of them would get just a tad cranky by the end of it!

Anyway, after breakfast the oldest of the old comes down the aisle with some forms that she explained were Confidential Customer Surveys on how well we liked the flight, would we travel with them again, things we didn't like etc. etc. The usual warm and fuzzy claptrap. Would we all mind filling them in and answering the questions as fully as possible, so that the decision-makers in head office could better serve the needs of their customers. Everything would be completely confidential, so we could be quite frank and open with our answers.

So having nothing better to do, we all filled them in.

Later on she came back and collected them, thanked everybody, and reassured us that all this information would be kept strictly confidential.

That was that, we thought.

Less than ten minutes after she'd collected them, she comes marching back down the aisle, waving one of the surveys in her hand.

"OK, who wrote this one?" she barked, obviously hopping mad about something. "Come on, who's writing is this? Stand up, which one of you wrote this? Which one of you complained that we don't pronounce the word 'beer' correctly!!!"

The whole plane burst into gales of laughter. Obviously we weren't the only people with a sense of humour on the plane, although this didn't extend to the hosties.

She stood there fuming, her arms folded tightly and fingers drumming on her sleeve.

"You want us to say beer like Australians - then go fly on Qantas!!!" she yelled, then turned on her heel and stormed off.

So much for the 'confidential' survey. Ever since then I've been extremely wary of any survey, confidential or not!

HOW TO DO IT: SERIES

PRACTICAL STUDIO TECHNIQUES

The Human Ear

Tom Misner takes you through Recording and Mixdown. *Part 1*

The human ear is the only organ in the body that is fully developed at birth. It recognises rapid changes in atmospheric pressure and translates them into nerve impulses which are sent into the hearing center in our brain. The brain translates these nerve impulses into the sensation of pitch and volume.

The human ear is not as efficient as the ears of most animals, which are able to hear much smaller variations of sound pressure and much higher frequencies. Its performance tends to decrease with age, losing about 2 kHz from its upper frequency response every 10 years.

The human hearing mechanism can be divided into three parts; the outer ear, middle ear and inner ear:

THE OUTER EAR

The outer ear, or pinna, collects sound and guides it through the auditory canal to the eardrum (also known as the tympanic membrane). The eardrum isolates the middle ear from external damage except for excessive volume, from which the ear has no protection.

THE MIDDLE EAR

Protected behind the eardrum is the middle ear. It's a small cavity filled with air supplied through the eustachian tube, which remains closed under normal conditions. Swallowing causes the eustachian tube to open very briefly, and is a good way to release increased pressure in the ears due to high altitudes.

Inside the middle ear are three tiny bones—the hammer, anvil and stirrup—which form a lever mechanism for transmitting vibrations from the larger eardrum to the smaller oval window.

This lever mechanism achieves a nearly perfect transmission of energy, with maximum efficiency at frequencies around 1 kHz. This explains why our ears are more sensitive to sounds in that frequency range. Broadcast advertisers use this knowledge to make their commercials sound louder.

THE INNER EAR

The inner ear consists of two main parts; the cochlea and the semi-circular canals. The semi-circular canals are filled with body fluid, similar to that found in the human spine, and are responsible for our control balance.

The cochlea is the shape of a snail shell and is where all the hearing work is actually done. Vibrations from the oval window are transmitted through the cochlea via the lymph liquid and produce movement in a number of fine hair-like cells, called cilia, which stimulate the auditory nerves. High frequencies activate the cilia nearest to the oval window, while low frequencies activate the cilia furthest from the oval window. The activated nerve sections send a pulse to the brain which is translated to a definite pitch. The ear is capable of distinguishing around 1500 separate frequencies—no

known electronic system can compete with its fast response and selectivity.

It can be said that cochlea is a frequency discrimination network, with specific areas for detecting each frequency band. The nature of the frequency selecting system is not well understood at this stage. Recent research has shown that a travelling wave, rather than what was formerly believed to be a standing pressure wave, transmits the frequency information along the cochlea.

The brain's perception of loudness is proportional to the number of nerve impulses it receives from the cochlea. As the sound intensity increases it excites a greater number of cilia, thereby sending a correspondingly greater number of nerve impulses to the brain.

It is important to note that the ear becomes less accurate with increased loudness. The excessive sound pressure not only excites the correct auditory nerves but also the nerves surrounding them, causing some incorrect frequencies to be sent to the brain.

Nerve Fibre Connection

The mass of nerve fibre connecting the cochlea to the brain is approximately 1.5 mm thick and contains around 30,000 separate nerve fibres. The individual fibres have a limited dynamic range and transmission capability, with various amplitude, frequency and time lag characteristics. In audio terminology this can be described as a multiplexed multicore system.

Transmission inaccuracies due to the limited capabilities of each individual fibre can cause differences in a person's perception of pitch. The nerve fibre connection is not the only part of the hearing mechanism which can introduce pitch inaccuracies. Other aspects affecting the perception of pitch include the brain's aural memory, the lever system in the middle ear, and physical deficiencies at birth.

Hearing Range

The hearing range of the human ear is determined by the highest and lowest frequencies to which the hearing mechanism can react. Human hearing is quite limited compared to that of some animals.

The lowest frequency the ear can perceive is around 16 Hz. Frequencies below that range do not register an impulse in our ears but can be felt as a form of pressure change, which is transmitted through the bone structure of the body to the brain's hearing centre. If frequencies below 16 Hz reach excessive levels (e.g. over 130 dB) they can be very destructive.

The highest perceptible frequency varies from person to person and is age-dependent. Measurements have shown that up to age 10, the human ear can react to frequencies up to 25 kHz, while at age 80 we can only hear frequencies up to about 10 kHz. The average upper limit is somewhere between 18 kHz to 20 kHz. Due to this variation in high frequency hearing, a common definition is that the average person has a hearing range from 20 Hz to 20 kHz at birth. This does not usually apply to active musicians as they are continu-

HIRE & PRODUCTION DIRECTORY

A Connections Magazine publication

Australia; FEBRUARY 1998

VENUE A/V POLICIES

Production Companies are barred from certain venues as clients are forced to use in-house or preferred equipment suppliers. How does this sit with the trade? Catriona Forcer reports:

Around the country production companies are still fighting policies enforced by certain venues. Some venues insist that all productions held in their building use their in-house gear whilst others direct the client to a preferred production company.

The policies of the Brisbane Convention & Exhibition Centre have certainly attributed to a loss in revenue for a few Queensland-based production companies. The State-owned BCEC is very well equipped with AV gear and they have a policy that quite clearly states that if you're booking their venue, you must book their equipment - although you can bring your own staff in to operate it. The only time it differs, is when they decide it's a touring show.

Many Civic Centres in Queensland (there are 22 Civic Centres alone in Queensland) have begun to equip themselves. The Brisbane Entertainment Centre has 1200 par cans and 700 5K dimmers sitting in the venue - a lot of equipment owned by the Queensland tax payer.

QPAC is actively advertising their ability to build sets and Civic Centres advertise in their local paper for lighting hire.

Fifalite in Brisbane has gone out of business partly due to the fact that two Civic Centres in their area started to advertise their lighting for hire and picked up a percentage of their business.

The largest AV equipment

owner/supplier in Australia could now be the Queensland tax payer.

A very real issue that Production Company owners have raised with Connections is that Government bodies and venues are exempt from wholesale sales tax - and so can purchase equipment exempt of 22% tax. An item of equipment costing \$1,000 is sold to a Government venue at \$1,000, but a Hire Company must pay \$1,220.

Restraint of trade?

In Melbourne, John McKissock of *Clearlight Shows* had strong views on the subject.

"If anyone tries to stop me from trading in any venue I would hit them with the Trade Practices Act. They've tried over the past five years. I've been told several times that I can't bring gear in (to a particular venue) and I've said 'try it'. They can't stop me from doing what I do for a living. It's illegal under the Trade Practices Act - which is there to protect little companies - like us - from large monoliths trying to take over.

"Venues also have lots of covert ways of doing it like 'you must use our this or you must use one of our technicians at an outrageous rate'. I have a lot of loyal clients who won't use anyone else, so they wear that cost. There are a lot of small companies squashed by companies that are trading in house around the country.

"Melbourne Convention and

Exhibition Centre as well as Sydney Exhibition & Convention Centre have tried it in the past. It's a problem when they say you can't bring in a certain projector because they've got projectors in house. I reply 'bad luck'.

"The problem is that you want to get the show done without jeopardising it or the next show you have to do in that venue. If it's going to get to people holding a big stick over you, somebody has to speak up and I would certainly take someone to court over it.

"When the World Congress Centre first opened here I was one of the first people to go in there with a show and they said I couldn't go in. I said try it and they obviously thought about it because I did the show."

"How can a government body restrict free trade?," Michael Hassett of Sydney based company *Technical Direction Company* asked.

"With these centres that insist on you using their technical services, many clients go in and sign the contract without reading the fine details. They find out later that they've agreed to use internal services regardless of the quality of service or products they have to offer. The problem is that so many of these venues have become so institutionalised, the staff have taken a safe seat thinking they'll be in the job for the next twenty years so. If they make a mistake it's 'well,

(continued on page 15)

Changes

FIRST, we have many more production firms listed in this, our second Directory.

They are in alpha order, state by state. It is still not too hard to find what you want by looking through the entries for each state. We would prefer not to break the listings up further, because so many firms offer multiple services.

Is your firm listed? If not, use the form on the back page.

Thanks to Nicole Morris for getting all the data together.

Who's Bought What?

Clearlight Shows (Melbourne) have been womping up the inventory. These goodies join the team: Celco Ventura 1000 lighting desk; Labino UV Flood (36W, long throw, weatherproof); XTC DMX Eye recorder 48 and 96 channel models; Promotion Scan (fully featured effects fixture, using 35mm slides or gobos); Source 4 Junior Zooms.

Tamworth based **MusCaPro** have spent up with a new Martin Audio Concert PA- 12 W8C trap cabinets and 12 WSX monster subs. This substantial PA is all QSC Powered. Call Bill O'Neill on (02) 6762-2452.

Stage and Studio Productions (Perth) report adding Selecon Performer MSR Followspots; Further JBL Array cabinets;

(continued on page 15)

ACT

Abroad Entertainment

PA/Light Hire
PO Box 102, WODEN ACT 2606
Phone: (02) 6291 9060
Fax: (02) 6291 4686
Established: 7 years
Number of Staff: 6
Activities: Concert Production for Indoor or Outdoor events.
Inventory includes: JBL, EV, Crown Amplification.

Audio Acoustics

Audio & Lighting Hire
75A Hemailey Street
MAWSON ACT 2607
Phone: (02) 6286 2655
Fax: (02) 6286 7355
Company Principal: Greg Williams
Established: 1990
Number of Staff: 3
Primary Activity: Concert Production Inventory includes: 1. JBL Speakers 2. Crown Amplification 3. Allen & Heath Consoles 4. Martin, Jands Lighting

Audio Solutions

AV Hire and Event Staging
3/4 Wiluna Street FYSHWICK ACT 2609
Phone: (02) 6280 6331
Fax: (02) 6280 6323
Email: hire@audiosolutions.com.au
www.audiosolutions.com.au
Company Principal: Simon Byrne
Established: 1991
Number of Staff: 3 . Primary Activity: AV Hire and Event Staging
Inventory includes: 1.Data Projection 2.Video 3.Audio 4.Slide.

Concert Productions (Canberra)

Audio & Lighting
26 Fellows Street LATHAM ACT 2615
Phone: (02) 6254 0743
Fax: (02) 6254 0743
Email: concert.productions@actonline.com.au
Established: 12 years
Number of Staff: 4
Primary Activity: Audio & Lighting Hire. Festival Production Specialists Australian and Folk Music. Inventory includes: 1. Extensive Audio 2. Mid sized Lighting and Design. 3. Specialist Microphones.

Event Sound People

Event Production
Randwick Road LYNEHAM ACT 2602
PO Box 394 MITCHELL ACT 2911
Phone: (02) 6242 9955
Fax: (02) 6242 9956
Company Principal: Lindsay

Gesling Established: 1986
Number of Staff: 10
Primary Activity: Productions & Outdoor Events Inventory includes: 1. Bose/Crown 2. Yamaha/Soundtracks 3. Full Lighting for Production 4. 100V Line for Large Outdoor Stadiums.

Sound Advice Australia Pty Ltd

Unit 4, 4 Wiluna Street, FYSHWICK ACT 2609
Phone: (02) 6280 8777
Fax: (02) 6280 8177
email: nk@internet.com.au
Company Principal: Steve Nano and Norman Korte. Established: 2 years. No of Staff: 3F/T, 4P/Time
Primary Activity: Sales, Service, Contracting, Hire and Production, Inventory includes: JBL, Shure, Martin 518's, Staging and Lighting.

Sound Workshop

Audio Visual Hire
67 Wilshire Street DICKSON ACT 2602
Phone: (02) 6247 6203
Fax: (02) 6247 8508
Email: sound.workshop@interact.net.au
Company Principal: Tony Brighton
Established: 14 Years
Number of Staff: 3
Primary Activity: Audio/Visual Hire and Event Services.
Inventory includes: 1. Bose outdoor systems, 2.Yamaha Consoles/Small and Large 3. JBL/EV/ARX Products.

Staging Connections (Canberra)

Event Staging 11 Whyalla Street FYSHWICK ACT 2609
Phone: (02) 6280 6990
Fax: (02) 6239 1530, Email: sccanb@stagingconnections.com.au
Url: www.stagingconnections.com.au
Company Principal: George Desira
Established: 12 Years
Number of Staff: 25
Branch Offices at: Canberra Convention Centre, Hyatt Hotel. Primary Activity: A/V Hire, Corporate & Govt. Event Staging
Inventory includes: 1. Extensive Audio/Visual Equipment. 2. Lighting and Sound Systems 3. Video Conferencing, Data Display.

New South Wales

A.M. Staging

Staging/Management
73A Burrows Road ALEXANDRIA NSW 2015
Phone: (02) 9550 6511
Fax: (02) 9550 6802

Email timolah@amstaging.com.au
Url: www.am.com.au
Company Principal: David Beal. Established: 1972.
Number of Staff: 11
Inventory includes: 1. Corporate Staging Equipment

AAV Business

Communication Solutions
Provider of Electronic Communication Solutions 83-85 Chandos Street ST LEONARDS NSW 2065
Phone: (02) 9438 3900
Fax: (02) 9438 3570
Email tmcMahon@aavbc.com.au
Url: www.aav.com.au
Contacts: Tim McMahon, General Manager (See Melbourne listing for further details)

Academic Sound and Lighting

Sound and Lighting Hire
Phone: (02) 9584 9999
Fax (02) 9584 1352
Company Principal: Chris Clough
Established: 28 years experience
Staff: 15 p/t. Primary Activity: Sound and Lighting Hire for all purposes
Inventory includes: 1. Soundcraft 2. JBL/EV Spks 3. Martin/Clay Paky/conventional cans 4. PTM Amps

Action Sound

Concert Production
PO Box 272
CONCORD NSW 2137
Phone: (02) 9743 3793
Fax: (02) 9743 3793
Email: tony@actionsound.com.au
Company Principal: Tony Hystek
Established: 8 Years
Number of Staff: 3
Primary Activity: Concert Sound and Lighting Production
Inventory includes: 1. EV Deltamax Etc. 2. EV, Aust Monitor Amps, 3. Vocal PA's to concert tours

Allison Audio

Installation & Service
Unit 6, 750 Pittwater Road BROOKVALE NSW 2100
Phone: (02) 9905 5613
Fax: (02) 9939 2341
Email dave@ozemail.com.au
Company Principal: David Allison
Established: 1983.
Number of Staff: 14.
Primary Activity: Various
Inventory includes: 1. Technics DATs 2. Shure Wireless 3. Small PAs

Anaconda Audio Productions

Audio Rentals/Production
5 Russell Avenue LINDFIELD NSW 2070
Phone: (02) 9415 6270

Fax: (02) 9415 6270
Company Principal: Alex Gourlay
Established: 1987
Number of Staff: 2
Primary Activity: Audio Rentals/ Technical Service
Inventory includes: 1. All areas of professional audio, equipment and services

Anything Audio

Audio - Professional
12/5-13 Parsons Street ROZELLE NSW 2039
Phone: (02) 9818 8000
Fax: (02) 9818 8011
Company Principal: Walter Gerin
Established: 1988
Primary Activity: Sales, Installations, Hire
Inventory includes: Shure, JBL, EV, Rane

Audio Sound Centre

Pro Audio Hire
32 Punch Street ARTARMON NSW 2064
Phone: (02) 9901 4455
Fax: (02) 9901 4229;
Email: asc@audiosound.com.au
Url: www.audiosound.com.au-asc
Company Principal: Geoff Grist
Established: 1990
Number of Staff: 10
Primary Activity: Pro Audio Hire
Inventory includes: 1. DAT Recorders 2. Wireless Mic Systems 3. Location Audio Equipment 4. Film & TV Specialists
Audio Sound Centre is your one stop shop for all your location sound recording needs. ASC hires professional location recording equipment specifically catering to the film and TV market. This means portable DAT recorders, timecode clapperboards, shotgun and directional microphones, stereo microphones, Rycote windscreens and mounts, location sound carts, boompoles, headphones, soft carry cases, hard carry cases, portable radio mic systems, walkie talkies, portable playback systems and battery operated location accessories. We do not run accounts, all equipment must be insured and paid for on collection. Call for our FREE 28 page rental catalogue, or new 24 page colour sales catalogue.

SHOW TECH RIGGING

Australia

ACN 062 726 078

STAGING, RIGGING, ENTERTAINMENT TECHNICAL AND UNCOMMON SERVICES

23 CHESSELL ST, SOUTH MELBOURNE, VICTORIA, 3205

PH: 03 9682 2900 FAX: 03 9682 2100

EMAIL: showtech@iaccess.com.au

Austage Sydney P/L

Corporate Theatre and Staging
266 Mitchell Road ALEXANDRIA
NSW 2015
Phone: (02) 9517 1599
Fax: (02) 9517 1823
Email Austsyd@ozemail.com.au
Company Principal: Bruce
McIntyre/Joe De Abreu
Established: 3 years
Number of Staff: 8
Branch Offices At: Brisbane/
Canberra/Adelaide/Perth Primary
Activity: Audio Visual Staging
Inventory includes: 1. Data
Projection 2. Sound 3. Lighting 4.
Design

Australian Business Theatre

Event Production
1-15 Barr St. BALMAIN NSW
Phone: (02) 9555 9911
Fax: (02) 9818 2658

Avsound Productions P/L

Sales, Production, Hire
1/28-34 Roseberry Street
BALGOWLAH NSW 2093
Phone: (02) 9949 9000
Fax: (02) 9949 9444
Email hire@avsound.com.au
Url: www.avsound.com.au
Company Principal: Matthew
Kline Established: 1988
Number of Staff: 8 Branch
Primary Activity: Sales,
Installation, Hire, Production
Inventory includes: 1. QSC
Audio, Allen & Heath 2. Clay
Paky, Martin Lighting 3. EV
Manifold Technology, Martin
Audio 4. Clay Paky Display
Line Lasers, Technics, Denon,
Rane. Avsound promises
quality and reliability in hire
equipment and production
services. Our comprehensive
Inventory includes QSC Audio
amplifiers, Martin Audio,
Electro-Voice (full range &
subs), Technics turntables,
Denon dual CD players. Allen
& Heath and Rane mixers;
lighting, Clay Paky, Martin
and a variety of disco effects.
3D Laser systems- 300
milliwatt to 20 watts 3D are
available. Foggers galore!
Clay Paky's new V.I.P. 300 is
available - a multi-purpose
tool for corporate presenta-
tions and a variety of display
and club applications. With

product and design innovation,
Avsound is a leader the
Sydney club market. Its
Skygarden productions were
legendary. We are first to offer
brand new Clay Paky
MiniscanHPEis for hire.

Band-Tech Productions

PA HIRE
PO Box 322,
MORTDALE NSW 2223
Phone: (02) 9580 4838
Fax: (02) 9580 4838
Company Principal: Willi Gutwein
Established: 4 Years
Number of Staff: 3
Primary Activity: Medium Sized
Concert PA - 6500W - Foli. 3000W
- 8 Send F.B. - Big Lights.
Inventory includes: 1. Soundcraft
2. JBL 3. Aussie Monitor 4. Hino 5
Ton Trucks

Big Picture Australia P/L

ON SITE VIDEO
25 Dickson Ave., ARTARMON
NSW 2064
Phone: (02) 9439 0177
Fax: (02) 9439 0377
Email: dennis@matra.com.au
Company Principal: Dennis
Murphy/Joe Bonanno
Established: 5 Years
Number of Staff: 4
Primary Activity: Video Production
and Projection Services and
Facilities. Avid Non Linear
Editing. Inventory includes: 1.
Barco & Sony Projectors 2.5
Camera touring outside Broadcast
System 3. AVID MC1000 Non
Linear (online)

Black Express Lighting & Sound

Audio & Lighting
275 Homer Street, EARLWOOD
NSW 2206
Phone: (02) 9559 4363
Fax: (03) 9558 4923
Company Principal: Con Andrews
Established: 1983
Number of Staff: 7
Primary Activity: Hire/Production
& Sales Inventory includes: 1.
Clay Paky/Martin Moving Lights
2. Water cooled laser display
systems. 3. EHT Processed audio
systems. 4. Effect & Small laser
lighting systems.

Blacksheep Productions

Event Production
22-36 Mountain Street, ULTIMO

NSW 2007
Phone: (02) 9212 7222
Fax: (02) 9212 7018
Email: flock@blacksheep.com.au
Company Principal: Ben Alcott
Established: 9 Years
Number of Staff: 12
Primary Activity: Total Event
Production & Video Production
Inventory includes: 1. Audio Visual
2. Lighting 3. Online Editing.

BLM Production Services

10 Elkhorn Place, ALFORDS
POINT NSW 2234.
Phone: (02) 9541 4888
Fax: (02) 9541 4199
Email: brian@blm.com.au
Url: www.blm.com.au
Company Principal: Brian Walsh
Established: 1993
Number of Staff: 12
Primary Activities: Production
Management, Corporate Events,
Dance Parties, Installations
Inventory includes: Intelligent
Lighting, Stage and Theatre
Luminaires, PA, Rigging and
Control.

Cannon Sound Systems

PA Sales & Hire :
6/102-112 Edinburgh Road
MARRICKVILLE NSW 2204
Phone: (02) 9550 3828
Fax: (02) 9550 6919
Email cannon@ptme.com.au Url:
www.ptme.com.au/cannon
Company Principal: Neil Smith
Established: 1987
Number of Staff: 4 Branch Office
At: Shop 5/38 Frenchs Forest Road
SEAFORTH NSW 2092
Primary Activity: Vocal takeaway
hire Inventory includes: 1. EV
100M Entertainers 2. Shure
Wireless Mic Systems

Caribiner Wavelength

Level 2, 384 Eastern Valley Way,
EAST ROSEVILLE NSW 2069
Phone: (02) 9417 1677
Fax: (02) 9417 1330
Email: info@wavelength.com.au
Company Principal: Paul Kenny
Number of Staff: 70
Branch Offices at: Melbourne,
Auckland, Hong Kong
Primary Activity: Corporate
Communications and Event
Management.

Centrestate Sound & Lighting

Sound & Lighting Hire, Sales
82 Margaret Street ORANGE
NSW 2800

Phone: (02) 6362 0587
Fax: (02) 6361 7875
Company Principal: Allan Brown
Established: 18 Years
Number of Staff: 3
Primary Activity: Hire, Sales and
Service, Installations.
Inventory includes: 1. Australian
Monitor Spk, Amps 2. Soundcraft,
Allen & Heath 3. Clay Paky &
Martin.

Chameleon Touring

Lighting/Rentals
2 Huntley Street (Unit 7/41-45
Bourke Road) ALEXANDRIA
NSW 2015
Phone: (02) 9310 5222
Fax: (02) 9310 5511
Url: www.chameleon
Number of Staff: 35
Primary Activity: Production/
Rental
Inventory includes: 1. Chain
motors/trusses 2. Intelligent/
Automated Lighting 3. Film/
Television Lighting
Chameleon Touring Systems
specialise in the lighting of
corporate presentations,
special events, theatre shows,
musicals, exhibitions and film
& TV. The Company provide
an innovative and professional
service in the design and
installation of all their
productions. Chameleon have
a comprehensive range of
luminaires and effects, control
systems, trussing and motors
and special effects equipment
from all the leading manufactur-
ers including Altman, ETC,
Clay Paky, High End, Martin,
Selecon and White Light that
is available for hire as
individual components or
production packages.

Coastal Sound Systems

PA & Lighting Hire,
Sales and Service
PO Box 52
BOWRAVILLE NSW 2449
Phone: (02) 6564 7517
Fax: (02) 6564 7517
Company Principal: Tom Benson
Established: 1988
Number of Staff: 2
Primary Activity: PA Hire
Inventory includes: 1. Public
Systems 2. PAs from 100 to 4000
watts 3. Stage & Effects Lighting



McLean Audio Services

Specialising in High Quality Audio Systems
and Experienced Technical Staff
Rental, Design and Staging for Corporate,
Theatre, Industrial, Concerts, Television,
Broadcast and Special Events of all sizes.

Building 4, 64 Balmain Street Richmond Victoria 3121 Telephone (03) 9429 5381 Facsimile (03) 9428 0156

4. Radio Mics

Coda Audio Services Pty Ltd
 Sound Design & Supply
 9-11 Layton Street
 CAMPERDOWN NSW 2050
 Phone: (02) 9557 2111
 Fax: (02) 9557 2366
 Company Principals: Philip Murphy/Michael Wilkie
 Established: 1989
 Number of Staff: 8
 Primary Activity: Sound Hire
 Inventory includes: 1. Meyer MSL4/MTS4/MSL2 2. Tannoy S300/CPA15/CPA12 3. Midas/Yamaha/Soundcraft consoles 4. Sennheiser/Vega/Shure Radio Mics

Comet Lighting P/L
 Film & TV Lighting
 5 Ramsay Street HABERFIELD NSW 2045
 Phone: (02) 9716 6093
 Fax: (02) 9799 8930
 Email samcomet@peg.apc.org
 Url: http://www.pag.apc.org/~samcomet
 Company Principal: Sam Bienstock
 Established: 11 Years
 Number of Staff: 2
 Primary Activity: Complete Film, TV & Video Lighting Package
 Inventory includes: 1. HMI Lighting Package 2. Tungsten Lighting Package 3. Truck

Dazza's Sound and Light
 6 Burrows Ave,
 DAPTO NSW 2530
 Phone: 0418 473 657
 Company Principal: Darren Robertson
 Established: 6 Years
 Number of Staff: 2
 Primary Activity: Hire and Operation of PA, Lighting and Staging for Concerts and Corporate Functions. Inventory includes: 1.2K PA System 2.Jands Lighting Rig 3. Staging & Risers.

Electric Sunshine

Hire/Rental/Production
 PO Box 126,
 EXETER NSW 257
 51 Nelson Street
 ANNANDALE NSW 2038.
 Phone (02) 9550 6000
 Fax(02) 9550 5500
 30th Year of Business.
 Manager: Phil Cullen.
 Staff: 4.
 "Sydney based company mainly dealing with the rental of lighting equipment to stage performers (bands/plays/schools/small presentations etc). Full range of lanterns; control systems; rigging; cycloramas; intelligent and moving lights; and technical support. Can either hire only or supply full transport/rigging/set-up and operation and removal. Sales of ex-hire equipment. Design of lighting plots. Full 24 hour 7 Day back up service".

Entertainment Installations

Shop 1, 43 Brisbane Water Drive,
 POINT CLARE NSW 2250
 Phone: (02) 4324 3873
 Fax: (02) 4324 5878

Email nmace@ozemail.com.au
 Company Principal: Neale & Carolyn Mace
 Established: 9 years
 Number of Staff: 6
 Primary Activity: Pro Audio and Lighting Sales, Hire, Production, Contracting. Inventory includes: 1.QSC Amps and all audio gear. 2.Martin Intelligent Lighting & FX 3.JBL, EV, Martin Audio AKG, Shure.

Eurovision

Audio Visual/Staging
 6 Ralph Street,
 ALEXANDRIA NSW 2015
 Phone: (02) 9667 1999
 Fax: (02) 9667 0299 Email terry@eurovision.com.au
 Url: www.eurovision.com.au
 Company Principal: Yvonne Rigby
 Established: 1975
 Primary Activity: Audio Visual
 Inventory includes: 1. Data Monitors 2. Video Monitors 3. Data Projectors 4. Sound & Lighting Equipment.
 Audio Visual and event specialists. Providing the latest in audio visual equipment and staging services since 1977.
 Eurovision specialise in large screen data projection.
 Eurovision provide technical services to venues, exhibitions and corporate clients. From a small board room meeting to the largest event, we have the people and equipment to cover your needs. A wide range of audio visual equipment including data, video monitors, slide projectors, sound and lighting is available. We design and build corporate sets and themes for conferences and theme nights. Call Brett Bower now for an information pack and find out how Eurovision can help make your event a success.

Events Showbiz Shop

Production Hire/Sales
 47 Auburn Street
 WOLLONGONG NSW 2500
 Phone: (042) 296 010
 Fax: (042) 276 644
 Company Principle: Stuart Udy
 Established: 1992 Staff: 12
 Primary Activity: Sales and Hire, Sound and Lights. Inventory includes: 1. All types of Sound Systems 2. Lighting and Staging 3. Curtains and A/V 4. All conference needs

Feral Studios

Audio hire
 24 Agnes Ave,
 QUEANBEYAN NSW 2620
 Phone: (02) 6299 3224
 Fax: (02) 6297 0244
 Company Principal: Jon Robertson
 Established: 15 Years
 Number of Staff: 4
 Primary Activity: Audio and Lighting Hire, Small to Full Concert Driveway Hire
 Inventory includes: 1.Martin, JBL, EV 2.Soundcraft, Studiomaster, Hill 3. Amcron, PTM, Jands

Gearhouse

Audio Visual Hire and Staging
 22-34 Rosebery Ave
 ROSEBERY NSW 2018
 Phone (02) 9697 9977
 Fax: (02) 9697 9900
 Email sydney@gearhouse.com
 Url: www.intercity.com.au.
 Gearhouse Group PLC
 Established 1986
 Number of Staff: 150.
 Branch offices at Adelaide, Brisbane, Cairns, Canberra, Gold Coast, Melbourne, Perth
 Primary Activity: Audio Visual Staging
 Inventory includes: 1. Cube Walls 2. Large Screen Video Projector 3. Portable Video Production Units. 4. Corporate Sound Systems.
 Intercity Gearhouse is Australia's largest, specialised Audio Visual Hire and Staging company with braches in all major capital cities and Gold Coast and Cairns. Intercity Gearhouse is part of the International Gearhouse group supplying Large Screen Video and Data Projection Systems, Video and Cube Walls, Portable Production Units, Conference Equipment and Experienced Technicians and Operators. Specialists in the hire of Image Magnification Systems for Concerts, Entertainment Centres and Sporting Venues. For professional and friendly service call your nearest Intercity Gearhouse office or visit our web site at www.intercity.com.au.

Gearhouse Lighting

Corporate Lighting
 22-34 Rosebery Avenue
 ROSEBERY NSW 2018
 Phone: (02) 9697 9400
 Fax: (02) 9697 9500
 Email syd.lighting@gearhouse.com
 Company Principal: Michael Hewitt - Sydney Manager
 Established: 1997
 Branch Offices At: Sydney/Melbourne
 Primary Activity: Corporate Lighting.
 Inventory includes: 32 x Cyberlight CL, 64 x High End Systems Studio Colour, Inventory of Polished Lighting.
 Gearhouse Lighting has been designed to provide the professional corporate events producer a new standard in corporate lighting. Gearhouse Lighting is part of Gearhouse Group PLC, the world's largest event services grouping. Gearhouse Lighting's attributes include inventory utilising the latest technology, and will fit our inventory to your specific requirements. Gearhouse Lighting is targeted at the following areas- events,

conference, theatrical, video and effects lighting. We provide services including, design, specification, advice, supply, production, one-off jobs, roadshows. Gearhouse Lighting provides our clients the benefits of high impact and professional presentation.

Grafton Lighting

Hire/Production/Sales
 6/890 Bourke Street
 WATERLOO NSW 2017
 Phone: (02) 9698 7777
 Fax: (02) 9698 9999
 Company Principal: Robert J. Vanderent
 Established: 14 years
 Number of Staff: 5
 Primary Activity: Hire/Production/Sales
 Inventory includes: 1. Profiles, fresnels, cans 2. Truss, trees, blocks 3. Smoke machines, Mirror balls, Party FX 4. Display, studio, floods

Graftons Sound

Sound Hire & Production
 6/890 Bourke Street
 WATERLOO NSW 2017
 Phone: (02) 9698 7777
 Fax: (02) 9698 9999
 Established: 17 years
 Number of Staff: 7
 Primary Activity: Driveway Hire
 Inventory includes: 1. Australian Monitor Amps 2. Australian Monitor Speaker Systems 3. P.A.S. TOC (Time Offset Correction) System 4. Mitec Consoles

Haycom Staging

1 Lawrence Street,
 ALEXANDRIA NSW 2015
 Phone: (02) 9557 1666
 Fax: (02) 9557 4744
 Company Principal: Alan Hay
 Established: 25 Years
 Branch Offices: Nationally
 Primary Activity: Specialised Audio/Visual & Staging Services.
 Inventory includes: 1.Video Data Equipment 2. Audio Equipment 3.Lighting Equipment.

Image Design Technology

Video wall Rentals and Sales
 16-18 Carlotta Street
 ARTARMON NSW 2064
 Phone: (02) 9439 3929
 Fax: (02) 9439 3050
 Email idt@idt.com.au
 Company Principal: Gerry Wilkins
 Established: March 1, 1993
 Number of Staff: 27
 Branch Offices at: Sydney and Melbourne
 Primary Activity: Visual Display
 Inventory includes: 1.Pioneer Rear Projection Cubes 2.Hanterax Monitors 3.Imtech Processors 4.Toshba Cubes and Processors. Image Design Technology is the market leader in professional visual display. The company's expertise lies in integrating a range of fully programmable videowall systems particularly suited to the presentation

market. The company's primary client base in the rental market includes corporate broadcast, production and the trade show area. IDT is also a world class installations company, providing complete service including the technical management of the installations themselves and the crucial long term maintenance necessary to keep systems in perfect working order. Service is the key to IDT's success - for the best result, first time. The company's dedication to excellence is apparent in every videowall installation or show.

J&A Lasers

Laser hire
24/17 Balgowlah Rd
MANLY NSW 2095
Phone: (0412) 603 293
Company Principal: Justin Barry
Primary Activity: Laser hire and production, special FX for TV and theatre.

Jands Production Services

Concert Production
40 Kent Rd, MASCOT
NSW 2020 Phone: (02) 9317 5200
Fax: (02) 9693 5451
Email office@jps.com.au

Jazzright Audio and Lighting

Audio and Lighting Production
30 Romani Parade
MATRIVILLE NSW 2036

Phone: (02) 9311 1197
Fax: (02) 9661 7110
Company Principal: John Perez
Established: 1989
Number of Staff: 8
Primary Activity: Audio and Lighting Production
Inventory includes: 1. Pro Audio Equipment 2. Pro Lighting i.e. Intelligent Lighting 3. Pyrotechnics Displays - Shows 4. Corporate Consulting.

Kandleworx Concert Lighting

PO Box 1050
ARTARMON NSW 2064
Phone: (02) 9411 7604
Mobile: 0419 613 109
Email: lucius@bigpond.com
Established: 1994
Company Principal: Gavin Wright
Primary Activity: Lighting Production, Design and Labour for Television, Theatre, Clubs and Corporate Events.

L & W Technical

Support Systems
Audio Visual Hire & Production
1/566 Gardeners Road
ALEXANDRIA NSW 2015
Phone: (02) 9667 0062
Fax: (02) 9667 0266
Company Principal: John L'Estrange
Established: July 1996
Number of Staff: 10
Primary Activity: Hire & Production
Inventory includes: 1. PA & Communication Systems 2. Audio & Visual Installations 3. Lighting

& Staging 4. Repair

Laservision (Aust.) Pty Ltd

Laser Animation & Display
50 Carthers Road
DURAL NSW 2158
Phone: (02) 9658 1000
Fax: (02) 9651 3217
Email laser@laservision.com.au
Url: www.laservision.com.au
Company Principal: Paul McCloskey, Managing Director
Established: 1981

Number of Staff: 20
Primary Activity: Special Events and Attractions Industries
Worldwide. Inventory includes: 1. Large selection of Display Laser Systems (0.5 watt to 70 watt) 2. Show control and integration technology 3. "AquaJet" Water screens 4. "Black Devil" high power intelligent spot lamps

Lighting Across the Board

Lighting Audio Staging
PO Box 3068
BRONTE NSW 2024
Phone: (02) 9386 1908
Fax: (02) 9386 1908
Mobile: (0414) 46 1968
Email laxtb@hotmail.com
Company Principal: Alex Cross
Established: 1 Year Number of Staff: 1 Primary Activity: Supply and Installation of Studio Vinyl flooring for Film and Television and Corporate Events.

Lightmoves Technologies

Hire, Sales, Service, Installation
631 Parramatta Road,
LEICHHARDT NSW 2040

Phone: (03) 9560 0000

Fax: (03) 9568 2333
Email lightec@ozemail.com.au
Company Principal: Johnathon Ciddor. Established: 1989
Number of Staff: 12
Primary Activity: Hire for Theatre, Bands, Corporate Theatre, Custom Effects Projection Inventory includes: 1. Optikinetic Effect Projectors 2. Teatro Luminaire 3. Theatre Light Control Systems 4. LeMaitre Smoke Machines Pyro Systems

Lightsounds Pty. Ltd

Pro Lighting, Audio & Lasers
629 Parramatta Road,
LEICHHARDT NSW 2040
Phone: (02) 9560 0300
Fax: (02) 9560 0022
Email sales@lightsounds.com
Url: http://www.lightsounds.com.
Company Principal: Rick Chisholm Established: 13 Years
Number of Staff: 10
Primary Activity: Hire & Sales of Professional Lighting and Effects, Audio and Lasers PAs Party and Nightclub Hire. Inventory includes: 1. ESP Technologies-Audio Equipment, 2. Light Emotion-Special Effects. 3. Denon CD Players, Technics Turntables, Karaoke, F.A.L. Intelligent Lighting, American DJ Intelligent Lighting.

Lots Of Watts Pty Ltd

Sound, Lighting, Sales, Hire
1 Mary Parade
RYDALMERE NSW 2116

microphone stands

stands

Tall
Short
Round Base
Folding
Table
Floor
Overhead
Black
Silver
Budget
Premium



booms

Long
Short
Telescopic
Fixed
Length
Black
Silver
Budget
Premium



The world's most versatile range of microphone stands from the company with 50 years of design and manufacturing experience.

trc

The Resource Corporation
6 King Street Blackburn Vic 3130
tel: (03) 9877 8233
fax: (03) 9877 8244
email: sales@trc.com.au

Write in Reader Service Number: 132

Since 1976
T-PAC
Sound & Light
The Right Equipment
The Right People
The Right Price
Sound & Lighting
Hire, Sales and
Installation
To Any Scale
Ring Around

But Save The Best Number Till Last

(02) 9799 7219

Phone (02) 9638 0302
 Fax: (02) 9638 0331
 Company Principal: Greg Kean
 Established: 6 Years
 Number of Staff: 16
 Primary Activity: Sound, Lighting
 Sales, Hire, Concert Production.
 Inventory includes: 1. Clay Paky/
 Martin Intelligent Lights 2.
 Turbosound PA Systems 3. Midas
 XL3 40 ch. 4. Jands Hogs

Macsound Electronics
 11 Plane Avenue (PO Box 111)
 URALLA NSW 2358
 Phone: (02) 6778 4090
 Fax: (02) 6778 4911
 Email: macelec@tpgi.com.au
 Company Principal: Bruce McRae
 Established: 19 Years
 Number of Staff: 4
 Primary Activity: Hire and Sales of
 Lighting PA Systems, Stage
 Curtains & Porta-floor Inventory
 includes: 1. Sound Systems 2. Stage,
 Film & TV Lighting & Control.
 3. Theatrical Makeup

Maggie Music
 PA & Lighting Hire
 109 Carp Street BEGA NSW 2550
 Phone: (064) 923 533
 Fax: (064) 923 780
 Company Principal: Tony Haid
 Established: 8/8/88
 Number of Staff: 4F/T 12P/T
 Primary Activity: Retail All Music
 Product. Inventory includes: 1.
 Audio Hire, all venues in our area
 2. Friendly Reliable Crews 3. Stage
 Equipment, Local Knowledge.

MR Lighting Pty Ltd
 Lighting equipment Hire & Sales :
 15 Dickson Avenue ARTARMON
 NSW 2064 Phone: (02) 9906 1811
 Fax: (02) 9436 4497 Company
 Principal: Mick Morris
 Established: 1989
 Number of Staff: 5
 Inventory includes: 1. 200w-18kw
 HMIs 2. Peppers - 20kw tungsten
 3. Kino Flo 4. Underwater lamps

**Oracle Laser
 Productions**

Laser shows Production/Hire/
 Sales and Laser System
 Manufacturing
 5/222 Headland Road
 DEE WHY NSW 2099
 Phone: (02) 9938 4466
 Fax: (02) 9938 4504
 Email:
 info@oraclelaser.com.au
 Company Principal: Paul
 Mazlin, Chris Sifton, Brian
 Mazlin
 Established: 1993
 Branch Office: Singapore
 Number of Staff: 8
 Primary Activity: Laser Show
 productions and sales for
 special events, theme parks,
 corporate events, night clubs,
 dance parties, Australia wide
 and over seas. Multimedia
 attraction design for laser
 based shows including audio,
 lighting, aqua screens, water
 effects, video, slide or film
 projection. We can provide
 turn key multimedia show
 control via our PC based
 custom show control software.

Pinknoize Audio
 Sound Hire 9 Bennett Street,
 GLEN INNES NSW 2370
 Phone : (067) 322 927
 Fax: (067) 322 927
 Company Principal: Garry Kiefer
 Established: 1989
 Number of Staff: 5
 Primary Activity: Hire Inventory
 includes: 1. Meyer 2. Martin 3.
 Crown 4. Yamaha.

Pollard Productions

Concert, Trussing, Rigging,
 Special Effects
 5-11 Bay Street
 BOTANY NSW 2019
 Phone: (02) 9700 1233
 Fax: (02) 9316 6727
 Pager: (02) 9962 4422
 Company Principal:
 James Ring
 Established: 1984
 Number of Staff: 20
 Branch Office At: Botany
 Inventory includes: 1. Concert
 & Tri Truss 2. Chain Blocks &
 Chain Motors 3. All rigging
 hardware 4. Special Effects.
 With years of industry
 experience, Pollard Produc-
 tions are able to attend to all
 your production needs; from
 concept consultation and
 planning, through to fabrica-
 tion, engineering, specialist
 rigging, any practical,
 mechanical and flying effects
 to complete event manage-
 ment. They can also provide
 all your permanent installation
 demands. Their emphasis
 remains on quality, reliability
 and safety. The Pollard hire
 department can help you with
 chainmotors, chainblocks,
 miles of truss, pallets and
 slings, steels & shackles,
 girder clamps, pullies, rope,
 scaffolding, decking, car
 ramps and platforms,
 turntables, pneumatic rigs,
 effects hardware and much
 more. Phone Roger, Wally or
 James on (02) 9700 1233 for
 more information, or ask for a
 brochure or showreel.

Premier Lighting Sydney
 Lighting/Hire/Production/Sales
 Factory 10, 11 Moore Street
 LEICHHARDT NSW 2040
 Phone: (02) 9550 9223
 Fax: (02) 9564 3734
 Contact: Phillip Planer, Toby
 Holloman (See Melbourne listing
 for further details)

PTM Entertainment
 Production 62A Stanley Street,
 EAST SYDNEY NSW 2010
 Phone: (02) 9361 5847
 Fax: (02) 9332 1656
 Email ptme.com.au Url:
 www.ptme.com.au
 Company Principal: Chris
 Brockbank Established: 1974
 Primary Activity: Audio Produc-
 tion Services Inventory includes: 1.
 Soundcraft Mixers 2. PTM
 Amplification & Processing 3.
 Concert, Vocal, Dance & Corporate
 Systems 4. Shure Wireless Systems

Ray Standen Audio Pty Ltd

PO Box 80 YAGOONA NSW 2199
 Phone: (02) 9709 2737
 Fax: (02) 9709 4244
 Company Principal: Ray Standen
 Established: 9 Years
 Number of Staff: 4
 Primary Activity: Hire and Sales of
 PA equipment.
 Inventory includes: 100 Volt line
 systems 2. Electrovoice and AKG
 Products 3. Music Systems.

Revolver Audio Pty Ltd
 Audio Hire and Production
 937 Bourke Street
 WATERLOO NSW 2017
 Phone: (02) 9698 3288
 Fax: (02) 9699 9570
 Company Principal: Lee Conlon
 Established: 1975
 Number of Staff: 4
 Primary Activity: Sound System
 Hire and Production Inventory
 includes: 1. Yamaha 40 Channel
 PM3000 2. Martin/Revolver
 Speakers 4. Klark Technik/BSS
 Drive 4. 12 Send Feedback.

Saltbush Productions
 Sound & Lighting hire
 36 William St
 AVALON NSW 2107
 Phone: (02) 9918 6668
 Fax: (02) 9918 6668
 Established: 1986 Primary
 Activity: Sound & Lighting
 production Inventory includes: 1.
 Concert Rig to 25000W/100 cans
 2. Vocal PA, minimal or more.

**SAVI (Sound And Visual
 Innovators)**
 AV, Sound & Lighting Hire
 Unit 5, 108 Warrane Road
 WILLOUGHBY NSW 2068
 Phone: (02) 9417 4388
 Fax: (02) 9417 2118
 Company Principal: Edgar Kramer/
 Ian McLean
 Established: For 20 years
 Number of Staff: 7 Primary
 Activity: Hire & Sales of AV,
 Sound & Lighting
 Inventory includes: 1. Video
 Projectors and screens 2. PA
 Systems, radio microphones etc. 3.
 Slide and Overhead Projectors 4.
 Lighting, FX & Control

Scion
 Stage, Sound & Lighting:
 Production Hire
 18 Maitland Road ISLINGTON
 NSW 2296
 Phone: (049) 695563
 Fax: (049) 695676
 Company Principal: Darryl Hoy
 Established: 1976
 Number of Staff: 4
 Primary Activity: Production Hire
 Inventory includes: 1. EV/JBL
 Speakers 2. Soundcraft/Allen &
 Heath Mixing Desks 3. Shure/Vega
 Wireless Mics 4. Lightwave
 Research Trackspots

Showcorp
 Production Services
 12/9 Pioneer Avenue,
 THORNLEIGH NSW 2120
 Phone: (02) 9481 0440
 Fax (02) 9481 8838
 Company Principal: Colin Baldwin
 Primary Activity: Event manage-
 ment and production services
 Inventory includes: 1. Meyer 2.
 JBL 3. BOSE 4. Yamaha

Small Systems PA Hire
 Sound and Lighting Hire
 Phone: (02) 9584 9999
 Fax (02) 9584 1352
 Company Principal: Chris Clough
 Established: 28 years experience
 Primary Activity: Sound and
 Lighting Hire for all purposes
 Inventory includes: 1. Soundcraft
 2. JBL/EV Spks 3. Martin/Clay
 Paky/conventional cans 4. PTM
 Amps

**Staging Connections
 (Australia) Pty Limited**
 Event Staging
 26-30 Halloran Street
 LILYFIELD NSW 2040
 Phone: (02) 9818 2555
 Fax: (02) 9818 3703 Email
 scsyd@stagingconnections.com.au
 Url: www.stagingconnections.com.au
 Company Principal: Peter Helft
 Established: 1982
 Number of Staff: 85
 Branch Offices at: ANA Hotel,
 Manly Pacific Parkroyal, Novotel
 Brighton Beach, Ritz Double Bay,
 Sheraton on the Park, The Regent
 Sydney.
 Primary Activity: Corporate Event
 Staging Inventory includes:
 Audiovisual Equipment, Sets,
 Video conference.

**Staging Connections (Coffs
 Harbour) Pty Limited**
 Event Staging
 Pacific Bay Resort Cnr. Pacific
 Highway and Bay Drive COFFS
 HARBOUR NSW 2450
 Phone: (066) 58 0410
 Fax: (066) 58 0420 Email
 scoffs@stagingconnections.com.au
 Url: www.stagingconnections.com.au
 Company Principal: Chris Speedy
 Established: 1997 No. of Staff: 2
 Primary Activity: Corporate Event
 Staging Inventory includes:
 Audiovisual Equipment, Sets,
 Video conference.

**Staging Connections
 (Wollongong) Pty Limited**
 Event Staging
 58a Auburn Street
 WOLLONGONG NSW 2500
 Phone: (042) 26 9555
 Fax: (042) 27 1149 Email
 scswoll@stagingconnections.com.au
 Url: www.stagingconnections.com.au
 Company Principal: Phil Delangen
 Established: 1993 No. of Staff: 7
 Branch Offices at: Novotel
 Northbeach. Primary Activity:
 Corporate Event Staging Inventory
 includes: Audiovisual Equipment,
 Sets Video conference.

**Staging Rentals
 Pty Ltd**

Hire of Staging Equipment
 1 Pyrmont Bridge Road
 CAMPERDOWN NSW 2040
 Phone: (02) 9519 6300
 Fax: (02) 9519 6489
 Email:
 mail@stagingrentals.com.au
 Url:
 www.stagingrentals.com.au
 Company Principal:
 Mr Meri Took
 Established: 8 Years.
 Number of Staff: 20 full-time,
 30 casuals
 Primary Activity: Special

Events and Hire Inventory: "Your complete Staging Service" Choose from our huge range of top quality Drapes, Cycloramas and Starcloths, Photographers backdrops, Timber, Steel, Mobile, Pneumatic and Round stages, A comprehensive range of rigging equipment, Flats and other specialty items including Gas Bruners, Masks, Lecturns, Plyths, Circular Drinks Bar, Set Design and Scenic Art. Receive a professional design and consultation service, a free site inspection, full production management service and punctual installations. Catalogue Available.

Studio FX Pty Ltd

Hire Professional Outboard Equipment
PO Box 696
DARLINGHURST NSW 2010
Phone: (02) 9281 0272
Fax: (02) 9281 0276
Company Principal: Peter Cobbin
Established: 1987
Number of Staff: 2
Primary Activity: Hire Services: Hire of new and rare vintage professional audio outboard effects and related equipment for film, music, video, broadcast, post

production and related equipment for film, music, video, broadcast, post production and composers. Service, advice, delivery and collection. Inventory includes: Sony PCM800 and Alesis ADAT 8 track digital recorders; Panasonic SV3800 DAT recorders; Lexicon 480L/PCM70/224XL digital reverb/effects; Eventide H3000 S/SE/VAI/B Ultra Harmonisers; GML, API and Pultec valve EQ; Focusrite Producer Packs (dual dynamics processors and dual EQ/mic-pre with power supply); Mixers (Mackie 1604 and Tascam M08); AMS digital processors (DMX delays, RMX16 reverb); Fairchild, BSS, Urei, Teletronix, Summit, DBX, Joe Meek and SSL compressors and limiters; Behringer and DBX de-essers; microphones including AKG C12/C24/C12NB (valve), Neumann U87 and M49 (valve), Microtech Geffell UM92S; Microphone Pre-Amps (API, GML and Trimax); Akai S3200XL midi sampler with 32Mb RAM; Keyboards.....and da whole lot more. Call for a copy of our rate card and full equipment list.

T-PAC (The Public Address Co.)
Sound and Lighting Hire and Sales
141 Edwin Street
North CROYDON NSW 2132
Phone: (02) 9799 7219
Fax: (02) 9799 7219
Company Principal: Michael Orland
Established: 1977
Number of Staff: 4 Full Time 4 Casual
Primary Activity: System Hire and Component Sales
Inventory includes: 1.Large Scale Hire System 2.Medium Scale Hire System 3.Small Scale Hire System 4.Huge Sale/Back up Hire Stock.

Technical Productions
Event and Production Management
Suite 13, Level 2, 51 Spring Street
BONDI JUNCTION NSW 2022
Phone: (02) 9386 9494
Fax: (02) 9386 9490
Email techprod@intercoast.com.au
Url: www.techprod.com.au
Company Principal: Danny Yezerski. Established: 1991
Number of Staff: 5
Primary Activity: Event & Production Management
Inventory includes: 1. Event production equipment 2. Lunar balloons 3. Martin audio systems 4. LSC lighting systems

Technofear Pty Ltd
Laser Display Production Sales and Hire
4 Seaview Street CRONULLA
Phone: (02) 9544 1771

Fax: (02) 9544 0755
Email dean@technofear.com.au
Company Principal: Dean Holland
Established: Jan 1986
Number of Staff: 4
Primary Activity: Laser Productions. Inventory includes: 1. 15 Watt Colour 3D Laser 2. Dual Head 4 Watt Colour 3D Laser 3. High Power Argon and Mixed Gas 4. Air Cooled Lasers.

The FOGG Group

voice +61 2 9363 9122
fax +61 2 9363 9201
Email: foggfx@tig.com.au

Roger Foley & Associates Pty Ltd,
Fogg Productions,
Ellis D. Fogg
Established: 1966

Winner ENTECH AWARD
Lighting Design for
Architectural Theming.

**permanent and temporary
unique and unusual
not for everyone.**

The P.A. People
432 Liverpool Road ENFIELD
NSW 2136
Phone: (02) 9642 5344
Fax: (02) 9642 5738
Email hire@cstgroup.com.au

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installer system



SX Amplifiers From 100W to 1000W
per channel - there's one just right for
your application, including 100v line
models



MIXX and MIXXMaster The name says it all

And lots, lots more...

At the moment, overseas manufacturers have a bit of a problem - the money crisis has suddenly made their products a whole lot more expensive.

In fact, right now you're probably seeing price rises like you've never seen before!

But at ARX, we build all of our products right here in Australia*, with Australian people and Australian dollars, so this is less of a problem.

What does all this mean to you? It means there's never been a better time to make a conscious effort to buy Australian.

From Signal Processing to Equalizers to Amplifiers to Speaker Systems, we've got it!

And all of it coming with the legendary ARX back-up service that only local manufacturing can provide.

So Phone, Fax, E-mail (info@arx.com.au), write to us, or check out our www page for complete info on everything ARX.

Why? Because the Price is Right, **RIGHT NOW!**



*Truth in advertising check: Except for the Ambience speakers which we assemble here from overseas components

Vic/Tas: Tony Hosking 03 9877 8233; NSW/Qld: Iain Everington 041 118 3158; WA: Ian Ross 089 354 3185
ARX Systems, 33 Advantage Road, Highett, Victoria 3190, Australia. Phone 03 9555 7859 Fax 03 9555 6747

File Edit View Go Bookmarks Options Directory Window Help
Location: <http://www.arx.com.au>

Made in Australia, Sold around the World™

Write in Reader Service Number: 124

Connections Supplement Feb '98 P7

HIRE & PRODUCTION DIRECTORY

Pull Out >

Branch Offices at: Brisbane, Melbourne. Primary Activity: Hire Sales Installation Inventory includes: 1. Garwood In-ear Monitors 2. Communication Systems 3. Shure Radio Mics 4. Vocal P.A.

Twilight Sounds

Sound & Lighting Production
PO Box 745
INGLEBURN NSW 2565
Phone: (02) 9829 3888
Fax: (02) 9829 3590
Email twilight@syd.dragon.net.au
Company Principal: Greg Babbage
Established: 1986
Number of Staff: 6
Inventory includes: 1. Radio Mic, 24 ch. Desk 2. Intelligent Lighting 3. Small PA Equipment 4. Disco Lighting

Videoplus Pty Ltd

Audio Visual Staging
9 Hill St,
LEICHHARDT NSW 2040
Phone: (02) 9552 3400
Fax: (02) 9552 6066
Email info@videoplus.com.au
Web: www.videoplus.com.au
Company Principal: Noel Hogan
Established: 28 Years Staff: 35
Branch offices at: Crowne Plaza, Terrigal and Menzies Hotel, Sydney. Inventory includes: 1. Video/Data Projector 2. Audio Lighting Systems 3. Conference Presentation Equipment.

XYZ Lighting

2 Huntley Street,
ALEXANDRIA NSW 2015
Phone: (02) 9310 5222
Fax: (02) 9310 5511
Company Principal:
Tony Davies. Est: 1997
Inventory includes: Martin MAC600 & MAC500, Clay Paky Stagescan, Miniscan HPE. As a "resource company" the focus of XYZ lighting is to provide a wholesale service to the

professional rental market meeting the demand for intelligent lighting. XYZ Lighting can also assist with the latest in control, power and (DMX) data distribution. New products available include Martin MAC600, MAC500, PALS, MAC1200, PRO518; Clay Paky Stagescans, Miniscan HPE, Superscan Zooms and GS111. Tony Davies, MD of XYZ Lighting comments, "the benefits are that smaller companies who would not normally be able to access large quantities of moving lights can become operators of large shows with the latest technology with a minimum of fuss".

Victoria

A Audio Hire

Audio Hire and Installation
13 Bent Street
NORTHCOTE VIC 3070
Phone: (03) 9489 0702
Fax: (03) 9696 0656
Company Principal: Barry Findlay
Established: 15 Years
Number of Staff: 3
Primary Activity: Hire Installation of Audio for music, theatre & corporate clients. Inventory includes: 1. JBL, Bose, Yamaha, EV & Celestion Speakers 2. Mackie, Yamaha, Behringer & Peavey Consoles 3. Shure Radio Mic.

AAV Business Communications

Provider of Electronic Communication Solutions
180 Bank Street SOUTH
MELBOURNE VIC 3205
Phone: (03) 9251 1700
Fax: (03) 9690 8841
Email admin.aavbc@aavbc.com.au
Url: www.aav.com.au
Contacts: Andris Pinnis, Manager
Established: 1980 Number of Staff:

20+. Primary Activities: Creative development, strategic planning, project management, business theatre, event staging, conventions, seminars and exhibitions for corporate and government communications as well as programming for inflight and business television

Active Lighting Pty Ltd

Lighting and Production/Hire
1-7 Queens Ave
HAWTHORN VIC 3127
Phone: (03) 9819 6912
Fax: (03) 9819 6008
Email:
activel@activelighting.com.au
Url: activelighting.com.au
Company Principal: Tim Hall
Established: 1986 Number of Staff: 10 (Fulltime) Primary Activity: Professional Production Services. Production Design & coordination, Lighting Hire (With 24 hr Backup Service) Inventory includes: Clay Paky Stagescans & Golden Scans Martin Pro 400s L.S.C. 48 way Dimmer Patch Systems, Colorset Colour Scroller Systems, Selecon & Altman Theatrical Fixtures.

Audio Live

159 Verner Street, EAST
GEELONG VIC 3219
Phone: 0419 520 222
Email: poqed@ne.com.au
Company Principal: John Quick
Established: 5 Years Number of Staff: 5 Primary Activity: P.A. and Lighting Hire, Audio Engineering
Inventory includes: 1. Soundcraft/Yamaha consoles 2. JBL/Australian Monitor FOH 3. Shure, Sennheiser mics.

Audio Visual Dynamics

5/186 York Street,
SOUTH MELBOURNE VIC 3205
Phone: (03) 9699 3788
Fax: (03) 9690 8850
Company Principal: Peter Worth
Established: 7 Years Number of Staff: 19 Primary Activity: Audio Visual Hire and Staging Services

Inventory includes: 1. Sound 2. Vision 3. Lighting

AVBIZ

23 Olive Road, I
DOVETON VIC 3177
Phone: (03) 9793 7888
Fax: (03) 9793 7288
Email: smile@avbiz.com.au
Company Principal: Paul Lyon
Established: 5 Years Number of Staff: AV Hire & Production
Inventory includes: 1. Audio Visual Equipment. 2. Data Monitors and Projectors.

B.S Sound PA Hire

Sound Equipment (P.A.) Hire
64 Spray Street,
ELWOOD VIC 3184.
Phone (03) 9531 1403
Fax (03) 9531 2688
Email: mark@bssound.com.au
Url: www.bssound.com.au
Company Principal: Mark Barry.
Established: 9 Years. Number of Staff: 6. Primary Activity: Hire of P.A. Systems and Microphones and Lighting. Inventory includes: 1. Stereo Double PA with Lighting 2.6 or 8 Channel Vocal PA Systems 3. Microphones including shotgun and Cordless

Bishop Audio & Lighting

Audio & Lighting Sales & Hire
22 Dowsett Street
SOUTH GEELONG VIC 3220
PO Box 629 BELMONT VIC 3216
Phone: (03) 5229 2269
Fax: (03) 5229 0776
Company Principal: Kevin Bishop
Established: May 1997.
Number of Staff: 4
Primary Activity: Audio & Lighting Sales Inventory includes: 1. Audio Systems 2. Radio Microphones 3. Lighting Systems 4. Specialising in school and corporate hire

Blackmore AV

AV Hire & Event Staging
137 Gladstone Street SOUTH
MELBOURNE VIC 3205
Phone: (03) 9699 5200

LOTS

Now with lots of audio too!

We're well known for lighting. In fact we've also been supplying major events with superb sound for quite a while now. Anything from small to large.

Outdoors, indoors, and arena - with all rooms in between. We can design it, supply it, rig it, operate it, and mix it with the best of them.

Something else we like to do is sell and install systems, like the major audio and lighting system we put into the Evan Theatre at Panthers recently.

Whatever you need give us a call first. If we can't help you, we'll tell you where to go. In the nicest possible way!

1 Mary Parade Rydalmere NSW 2116. Phone +61 2 9638-0302 Fax + 61 2 9638-0331

**Lots
of
Watts**
Pty Ltd

Fax: (03) 9699 4805
Email encorvic@ozemail.com.au
Company Principal: Alex Bialocki
Established: 1977
Number of Staff: 12
Branch Offices At: South Melbourne and Sydney
Primary Activity: Hire, Staging, Video
Production Inventory includes: 1. Lots of EV Sx PA speakers 2. Data projectors, LCD, CRT, Sony etc. 3. AVID Non-linear digital edit suite 4. TV Monitors, telecine, sets, auto-cue

Burkinshaw Consultants
Staging Manufacturers
12 Budgerie Place HOPPERS CROSSING VIC 3029
Phone: (03) 9748 6864, 0412 386 481 Fax: (03) 9748 8193
Company Principal: Phil Burkinshaw
Established: 10 Years
Primary Activity: Staging
Equipment manufacture, sales and hire
Inventory includes: 1. Staging Equipment 2. Portable Platforms.

Bytecraft
29 Fonceca Street
MORDIALLOC VIC 3195
Phone: (03) 9587 2555
Fax: (03) 9587 5641
Email bytecraft@bytecraft.com.au
Url: <http://www.bytecraft.com.au>
Company Principal: Stephen Found, Ted Fregon.
Established: 13 Years
Number of Staff: 100+
Branch Offices At: Sydney (02) 9550 2955.
Primary Activity: Professional Lighting hire & theatre corporate and concert production.
Inventory includes: 1. Motors & Rigging 2. Lighting Including Skytracker, Pani Projection 3. Pre rig touring dimmers & looms.

Catchment Hire Department
7 Dredge Street, RESERVOIR VIC 3073
Phone: 0417 545 710
Fax: (03) 9467 3068
Email: colin_richards@bigpond.com
Url: <http://cougar.vut.edu.au/>

~robert/catchment/welcome.html
Company Principal: Colin Richards.
Established: 2 Years
Number of Staff: 2+.
Primary Activity: Lighting, Audio and Rostrum Hire
Inventory includes: 1. Shotgun and Radio microphones 2. Basic Lights and Accessories 2. Tiered Rostrum and Scaffold.

CC's Light and Sound Pty. Ltd
Lighting Hire
538 City Road
SOUTH MELBOURNE VIC 3205
Phone (03) 9690 3999
Fax: (03) 9690 3988
Company Principal: Roger Clapton
Established: 9 Years
Number of Staff: 5
Branch Offices at: Moorabbin and South Melbourne
Primary Activity: Sales of Audio and Lighting Equipment, Hire of Martin Intelligent Lighting Inventory
includes: 1. Martin PAL 1200, Mac 500/600/1200 2. Pro400/812/518 Case Controller

Clearlight Shows Pty. Ltd
Lighting, Production, Hire, Sales
9 Horsecroft Place,
MOORABBIN VIC 3189
Phone: (03) 9553 1688
Fax: (03) 9553 4401
Email: clearlight@clearlight.com.au
Company Principal: John McKissock.
Established: 1978
Number of Staff: 12
Primary Activity: Lighting Hire, Production and Sales
Inventory includes: 1. High End Systems 2. Jands Dimmers and Consoles 3. Selecon Luminaires 4. ETC

Concert Lighting Systems (CLS) Australia
Stage Lighting
282 Normanby Road
PORT MELBOURNE VIC 3207
Phone (03) 9646 8444
Fax: (03) 9646 8555
Email clsa@enternet.com.au
Url: www.com.au/cls
Company Principal: Trevor Lloyd

Established: 1976
Number of Staff: 20.
Inventory includes: 1. High End Equipment 2. Truss and Rigging 3. Theatrical Spot Lights 4. Dimming Systems

db Concert Sound
26 Riversdale Road,
GEE LONG VIC 3220
Phone: (03) 5221 1688
Fax: (03) 5221 4113
Company Principal: Bill Dart
Established: 1977
Number of Staff: 6
Primary Activity: Audio Production and Rentals
Inventory includes: JBL Speakers Systems, Australian Monitor Amps, Yamaha and Soundcraft Consoles, Touring & Festival.

Disco World P/L
Sales/Hire
Factory 20, Cave Hill Road
LILYDALE VIC 3140
Phone: (03) 9735 0588
Fax: (03) 9739 5441
Email archie@discoworld.com.au
Url: www.discoworld.com.au
Established: 1978
Number of Staff: 8
Primary Activity: Sales/Hire/
Distribution
Inventory includes: 1. Gemini 2. Lytequest 3. Ryger 4. Smoke Effects, Stanton

Durham Audio Visual Hire
A/V Rental
65 Haig Street
SOUTHBANK VIC 3006
Phone: (03) 9690 2288
Fax: (03) 9696 4251
Email durhamav@c031.aone.net.au
Company Principal: Peter Durham
Established: 1986
Number of Staff: 20.
Primary Activity: A/V Rental
Inventory includes: 1. Large And Smaller Video 2. Data Imaging 3. Audio Systems 4. Conference Accessories.

Gearhouse Lighting Pty Ltd
Corporate Lighting
170-180 Buckhurst Street
SOUTH MELBOURNE VIC 3205
Phone: (03) 9686 7400

Fax: (03) 9686 7411
Email melb.lighting@gearhouse.com
Company Principal: Stephen Bond,
General Manager (See Sydney listing for further information)

Gearhouse Melbourne (Victoria) Pty Ltd
Audio Visual Hire and Staging
170-180 Buckhurst Street SOUTH MELBOURNE VIC 3205
Phone: (03) 9686 7400
Fax: (03) 9686 7411
Email melb.lighting@gearhouse.com.au
Manager: Kim Lowes (See Sydney listing for further information)

Greenland Audio Pty Ltd
Production Audio & Hire
2/47 Crissane Road WEST HEIDELBERG VIC 3081
Phone: (03) 9455 3081
Fax: (03) 9455 3082
Company Principal: Alan Green
Established: 1992
Number of Staff: 3, and 12 casuals
Primary activity: Production Audio
Inventory includes: 1. Shure & Chiayo Radios 2. Bose (8) 802s 3. Assorted Microphones 4. Assorted mixers and outboard gear

Haycom Staging
Audio Visual Staging
29 Grattan Street
PRAHRAN VIC 3181
Phone: (03) 9529 3044
Fax: (03) 9529 1893
Company Principal: Alan Hay
Established: 1971
Number of Staff: 12
Branch offices at: Sydney, Brisbane, Adelaide, Perth
Primary Activity: Audio Visual/Staging.

Humania Outdoor Projections
High power projections
33 Everard Drive
WARRANTYTE VIC
Phone: (03) 9844 3558
Mobile: (018) 206 160
Established: 1969
Primary Activity: Custom projection and SPFX for concerts, festivals

Keylighting Australia
69 Whiteman Street,

LASERVISION®

Leading Innovator of High-Impact Creative Presentations for the Australian Events Industry.

- Comprehensive range of laser display, animation and special effects systems.
- Award winning concept development, Australian technology and production resources.
- Reliable and cost effective performance and installations services.

Laservision (Aust) Pty Ltd 50 Carters Road, Dural NSW 2158 <http://www.laservision.com.au>
Ph: 02 9658 1000 Fax: 02 9651 3217 E-mail: laser@laservision.com.au

SOUTH MELBOURNE VIC 3205
 Phone: (03) 9696 2920
 Fax: (03) 9696 4096
 Company Manager: Terry Riley
 Established: 10 Years Number of Staff: 6 Primary Activity: Film and TV Lighting Hire/Production
 Sales/Service Inventory includes: HMIs & Pars Tungsten & Fresnels Dino's & Kino Flos

Lighting Lab
 Hire

16 Clarice Road
 BOX HILL VIC 3128
 Phone: (03) 9898 7064
 Fax: (03) 9899 5774
 Established: 1982
 Number of Staff: 3
 Primary Activity: Hire Inventory includes: 1. Lighting 2. Rigging 3. Staging 4. Rehearsal Studios.

M. Ahearne Systems

Audio & Recording
 PO Box 66
 HARCOURT VIC 3453
 Phone: (03) 5474 2842
 Fax: (03) 5474 2844
 Inventory includes: 1. Major Festival PA Systems 2. Recording Studio/Farm

McLean Audio Services Pty Ltd

Audio Production & Rentals
 Building 4, 64 Balmain Street,
 RICHMOND VIC 3121
 Phone: (03) 9429 5381
 Fax: (03) 9428 0156 Email:
 mclean@preston.starway.net.au
 Company Principal:
 Richard Bilinski Established: 1987
 Number of Staff: 10
 Primary Activity: Audio Production & Rentals Inventory includes:
 1. EAW Speaker Systems 2. Shure VHF & UHF Radio Mic System 3. Clear-Com Wireless Intercom System 4. Yamaha, Allen & Heath, Soundcraft consoles

Music Workshop

Hire and Sales
 36 Fyans Street GEELONG VIC 3220
 Phone: (03) 5221 5844
 Fax: (03) 5221 6036
 Company Principal: Greg Bee
 Established: 1980 Number of Staff: 10
 Primary Activity: Hire/Sales
 Inventory includes: 1.E.V. 2.Mackie 3. Roland 4.Bose

Nova Hire

Audio sales, supply and production
 Phone: (03) 9555 4766
 Fax: (03) 9553 2381
 Primary Activity: Theatre, audio, corporate and concert touring and sales
 Inventory includes: 1. Nova Speakers 2. Nova Amps 3. Yamaha.

Outlook

Communications Pty Ltd
 Hire & Production Services
 121 Rupert Street
 COLLINGWOOD VIC 3066
 Phone: (03) 9415 7677
 Fax: (03) 9415 7655
 Company Principal: Greg Ginger
 Established: 8 Years
 Number of Staff: 5
 Primary Activity: Theatrical & Corporate Sound, Comms & CCTV Systems, Large Talkback Systems a specialty. Inventory includes: 1. Micron Radio Mic

Systems, Yamaha 2.EAW & Tannoy Speakers, Crest Amps, Sony Minidisc 3.Allen & Heath Mixers, Intercom and CCTV Packages.

Picture This! Productions

Event Staging
 WINDSOR VIC
 Phone: (03) 9314 2763.

Premier Lighting

Lighting Hire/Production/
 Sales/Service
 433 Graham Street PORT
 MELBOURNE VIC 3207
 Phone: (03) 9646 4522
 Fax: (03) 9646 5020
 Company Principal: Bob Prosser/
 Andrew Holmes Established:
 December 1991 Number of Staff:
 30 Branch Offices At: Brisbane/
 Sydney/Melbourne Primary
 Activity: Hire/Production/Sales/
 Service Inventory includes: 1.
 Lighting for Film, Television,
 Corporate and Rock & Roll.

R & K Lighting

Lighting Production
 14 Naomi Court
 BAYSWATER VIC 3153
 Phone: (03) 9720 7689
 Fax: (03) 9738 0990
 Company Principal: Rolf Greve
 Established: 1991 Primary
 Activity: Lighting Production/
 Sales

Showpro

Tour management, PA hire
 Suite 4, 7th floor 443 Little Collins
 St., MELBOURNE VIC 3000
 Phone: (02) 9602 4344
 Fax: (02) 9602 3575
 Primary Activity: Tour manage-
 ment, PA hire, production
 management Inventory includes: 1.
 Meyer Speaker Systems 2. Langley
 501 3. Soundcraft 4. Yamaha.

Showtech Rigging

Australia Pty Ltd
 Rigging & Technical Services
 23 Chessell Street, SOUTH
 MELBOURNE VIC 3205
 Phone: (03) 9682 2900
 Fax: (03) 9682 2100
 Email showtech@iaccess.com.au
 Company Principal: Tiny Good
 Established: 11 Years
 Primary Activity: Rigging, Staying
 and Technical Services. Inventory
 includes: 1. CM Lodestar & Coffin
 Motors 2. Tomcat Truss & Ground
 Support System 3. Tri Truss 4.
 Rigging Accessories

Showtech Sets & Scenery

Scenery, Props Construction &
 Hire
 23 Chessell Street SOUTH
 MELBOURNE VIC 3205
 Phone: (03) 9682 2900
 Fax: (03) 9682 2100
 Email showtech@iaccess.com.au
 Company Principal: T. Good & M.
 Ashby Established: 1997 Branch
 Offices At: South Melbourne
 Primary Activity: Construction &
 Hire Inventory includes: 1. Drapes
 2. Styrene Props 3. Set Dressings

Sound & Light Concepts

PA & Lighting Hire/Sales/
 Production
 26 Martin Drive DELACOMBE
 (BALLARAT) VIC 3350

Phone: (03) 5336 1255
 Fax: (03) 5336 1320
 Email: slc@netconnect.com.au
 Company Principals: Partners -
 Craig Butterworth and Geoffrey
 Johnston. Established: 1995
 Number of Staff: 2. Primary
 Activity: Band & Theatre
 Production Inventory includes: 1.
 Crest Amps, SLC/Lorantz
 Speakers 2. Mackie & AHB
 Mixers, Shure, EV, Chiayo Mics
 and Radio Mics 3. ARX, Yamaha,
 Alesis, ETC Drive & FX 4. Axiom
 & Atoms, Par 56/64, Selecon etc.,
 FOH to 15 kw.

Sound Power

Hire/Installation
 21 Sturt Street, SOUTH MEL-
 BOURNE VIC 3205
 Phone: (03) 9682 0202
 Fax: (03) 9682 0101
 Company Principal: Stewart
 Guthrie. Established: 1982
 Number of Staff: 2 Primary
 Activity: Hire Inventory includes:
 Martin EM15 2. JBL Speakers 3.
 Crest Amps 4. Yamaha Mixers

Stagecraft Corporate Theatre

Event Staging
 63-69 Market Street SOUTH
 MELBOURNE VIC 3205
 Phone: (03) 9686 7770
 Fax: (03) 9686 7771
 Email: thecrew@ozemail.com.au
 Url:www.stagecraft.com.au~thecrew
 Company Principal: Lexine
 Houghton and Tim Mitchell
 Established: 1994 Number of Staff:
 6. Branch offices at: Brisbane
 Primary Activity: AV/Corporate
 Theatre Inventory includes:
 1.Experienced Staff 2.Professional
 Equipment 3.Superior Service and
 more.

Staging Connections (VIC) P/L:

Event Staging
 101 Roden Street
 WEST MELBOURNE VIC 3003
 Phone:(03) 9329 5899
 Fax: (03) 9329 0396 Email
 scmclb@stagingconnections.com.au
 Url:www.stagingconnections.com.au
 Company Principal: Bill Kneebone
 Established: 1986. Number of
 Staff: 95. Branch Offices at: Crown
 Towers, Carlton Crest, Grand
 Hyatt, Hilton on the Park, Le
 Meridien at Rialto, Sheraton
 Southgate. Primary Activity:
 Corporate Event Staging Inventory
 includes: Audiovisual Equipment,
 Sets, Video conference.

System Hire

**(A division of
 System Sound Pty Ltd)**
 10-13 Porter Street PRAHRAN
 VIC 3181 Phone: (03) 9529 2633
 Fax: (03) 9529 4897
 Primary Activity: Audio Equip-
 ment hire to broadcast, theatre and
 the professional audio industry.
 Inventory includes: Specialists in
 radio mic systems, communica-
 tions (wireless and cables), quality
 audio processing and automation
 systems.

System Sound Pty Ltd

Sound Design & Engineering 10-
 13 Porter Street
 PRAHRAN VIC 3181
 Phone: (03) 9529 2633

Fax: (03) 9529 4897 Email:
 systemsoundemail@compuserve.com
 Company Principal: John Scandrett
 General Manager: Colin Ford
 Director: Peter Grubb.
 Established: 1979
 Primary Activity: Australia's
 longest standing audio engineering
 company with twenty years
 experience in design installation
 and operation of purpose built
 sound systems. Specialists in sound
 designs for difficult acoustic
 environments. Inventory includes:
 Broadcast specification radio mic
 systems, two way communication.

**The Audio Dept.
 Pty Ltd**

Wireless Microphone Hire
 6-8 Elizabeth Street
 RICHMOND VIC 3121
 Phone: (03) 9415 1868
 Fax: (03) 9415 1595 Email
 gsteven@seranis.com.au
 Company Principal: Colin
 Stevenson
 Established: 3 Years.
 Number of Staff: 8
 Branch Offices At: Sydney,
 Crows Nest.
 Primary Activity: Hire and
 Service of Wireless Micro-
 phones & In-ear Monitor
 Systems Inventory includes:
 1.Sony 800 & 900 MHz
 2.Shure 200 & 800 MHz
 3. Garwood In-ear Monitors.
 Australia's wireless micro-
 phone specialist with years of
 experience in hire, sales,
 service and operation of
 wireless systems. Experience
 covers broadcast, theatre,
 touring and corporate
 productions. The new,
 frequently agile, Sony
 800MHz systems have the
 ability to operate up to 48
 channels simultaneously. Sony
 systems available with Sony,
 Shure or Audix capsules and
 lavalier microphones and
 headset from Sony, Shure and
 Countryman. Garwood In-Ear
 monitor systems are The
 Audio Dept's newest addition.
 The top of the line IDS system
 is available which is frequency
 agile and made for use
 worldwide. The Audio Dept.
 also has an un-matched
 wireless service centre
 dedicated especially to radio
 microphones. A system design
 and consultancy service is also
 offered.

The Complete Audio Centre

Rental, Sales Service
 10/136 Cochrane Road
 MOORABBIN VIC 3189
 Phone: (03) 9555 1997
 Fax: (03) 9555 9220
 Company Principal: George
 Gobaira
 Established: 1979
 Number of Staff: 4
 Primary Activity: Rental Audio
 Systems Inventory includes: 1.JBL,
 Bose 2.Soundcraft 3.Crest
 4.Shrape Incl Radio Systems.

Warehouse Sound Systems Pty. Ltd

Pro-Audio Sales and Rental
77 Argyle Street,
FITZROY VIC 3065
Phone: (03) 9417 4866
Fax: (03) 9419 0958
Company Principal: Sven Langbeck. Established: 1981
Number of Staff: 6. Primary Activity: Contracting and Hire
Inventory includes: 1. JBL Loudspeakers 2. Yamaha Amps and Mixer 3. DBX Compressors and Gates 4. Aphex Limiters and Compressors.

Queensland

A. Action Packed Lightshows

Lighting & Audio Hire
Shop 1, 119 Oxley Road
CHELMER QLD 4068
Phone: (07) 3379 4313
Company Principal: Jim Philp
Established: 1971
Primary Activity: Low cost lighting for small venues Inventory includes: 1. Oil Projectors 2. Mirror Balls (many) 3. UV (many) 4. Fairylights (many)

A.T.S. Production Services

Technical Production Consultant,
Audio and Electrical Services
27 Susanne Street
SOUTHPORT QLD 4215
Phone: 0412 451 499
Fax: (07) 5564 0642
Email ats@mars.nettrek.net.au
Url:www.ozemail.com.au/~c17879
Primary Activity: Technical Production Consultant, Audio & Electrical Services-Including electrical safety testing of production equipment, Audio Engineering - various Asian Tours, conferences and major events.
Inventory: Portable Appliance Tester, Results downloaded to floppy disk, meters to measure all sorts of electrical and audio things

Abstract Lighting

5 Pidgeon Drive DECEPTION
BAY QLD 4508
Phone: (07) 3888 0222
Fax: (07) 3888 5967
Mobile: 019 627 358
Company Principal: Philip Kay
Established: 16 Years. Number of Staff: 3. Primary Activity: Lighting and Effects Equipment Supply and Driveway Hire and Production.
Inventory includes: 1.Snow Machines 2. Smoke/Bubbles/Laser

3.ParCans and Disco Effects.

Advanced Audio QLD

PA Hire/Rehearsal, Rec. Studio
419 Commerce Ct
NOOSAVILLE QLD 4566
Phone: (07) 5442 4233
Fax: (07) 5442 4404
Company Principal: Rod Watts
Established: 7 years
Number of Staff: 3
Primary Activity: PA & Lighting
Hire Inventory includes: 1. 12K 3 way systems 2. Small vocal systems mics 3. Speakers, mixers, FX, Radio Mics 4. Repairs, Sales, Installations

Australian Concert Productions

Audio Rental and Production
222 Barry Pde. FORTITUDE VALLEY QLD 4006
PO Box 480 FORTITUDE VALLEY QLD 4006
Phone: (07) 3854 1512
Fax: (07) 3854 1504
Email admin@acp.net.au
Url: www.acp.net.au
Company Principal: Mick Privitera
Established: 1989 Number of Staff: 8
Primary Activity: Audio Rental
Inventory includes: 1.Turbosound Flashlight/Floodlight 2.Turbosound TMS-3 3.JBL Arrays 4.Yamaha PM4000, PM3000, Midas XL3

Brisbane Backline

119 Granadilla Street
MACGREGOR QLD 4109
Phone: (07) 3344 7791
Fax: (07) 3344 7791
Company Principal: Peter Marsden
Established: 1 Year. Number of Staff: 2. Primary Activity: Hire of Backline or Stage equipment for production and tours
Inventory includes: 1. Hammond A100 & Leslie L122 2.Yamaha 9000 Recording custom drum kit (6-piece) 3.Marshall and Fender Guitar Amps

Brisbane Sound Hire

36 Agnes Street, FORTITUDE VALLEY QLD 4006.
Phone:(07) 3252 4935
Fax: (07) 3252 7874
Company Principal: Nigel Line
Established: 13 Years.
Number of Staff: 7
Primary Activity: Corporate Events. Backline Equipment. Radio Mic Systems, Studio Equipment. Inventory includes: 1.Turbosound E.V. Ramsa 2.Amek & Yamaha Consoles 3. BSS Lexicon Klark Technic ADAT.

CPC Audio Pty Ltd

Audio Hire & Production
14 Short Street, BUNDAMBA QLD 4304
Phone: (07) 3816 1009
Fax: (07) 3816 1791
Company Principal: Murray Keidge. Established: 15 years.
Number of Staff: 9. Primary Activity: Audio Production/Sales
Installation. Inventory includes: 1. AKG/Nuemann/Sennheiser 2. Midas & Yamaha Consoles 3. Klark Teknik/Lexicon & Yamaha Sig. Processor 4. Crown & Yamaha Power Amps.

Creative Lighting

105 Brunswick Street FORTITUDE VALLEY QLD 4006
Phone: (07) 3252 5686
Fax: (07) 3252 4718
Email: hire@creativelight.com
Url: creativelight.com
Company Principal: Lance Stewart
Established: 9 Years
Number of Staff: 5
Primary Activity: Lighting Sales, Hire and Design. Inventory includes: 1.Disco Lighting 2.Smoke and Bubble Machines 3. Pars, f/spot, fresnels etc.

Entertainment Lighting Supplies

2/30 Taree Street, BURLEIGH JUNCTION QLD 4220
Phone: (07) 5593 5105
Fax: (07) 5593 5161
Company Principal: Philip Stafford
Established: 14 Years. Number of Staff: 6. Primary Activity: Concept, Design, Operation of Intelligent and Conventional Lighting for Convention and Concerts
Inventory includes: 1.Cyberlights, Studio Colors 2. Stage Scans, HPEs 3.Conventional Lighting

Frontier Lighting

Lighting hire and sales
104 Newmarket Rd. WINDSOR QLD 4030
PO Box SPRING HILL QLD 4004
Phone: (07) 3357 3244
Fax (07) 3357 4848
Email frontier@powerup.com.au
Staff: Jamie Johnson, Keith Mackinnon
Primary Activity: Lighting equipment supply
Inventory includes: Single units to complete systems, standard fixtures to moving lights.

I.J.S Concert Sound and

Lighting Pty Ltd.
Concert Production
30 Jamieson Street BOWEN

HILLS QLD 4006
Phone: (07) 3852 2646
Fax: (07) 3854 1608
Company Principal: Ivan Simon
Established: 10 years.
Number of Staff: 6.
Primary Activity: Concert and Event Production/Driveway/Backline Equipment Hire
Inventory includes: 1.Soundcraft/Crest/Ramsa 2.Court Speakers/RCF Powered Speakers 3.Concert Lighting

Image Audio Productions

8/35 Tradelink Road, BROWNS PLAINS QLD 4118
Phone: (07) 3800 7742
Fax: (07) 3800 1847
Established: 4 Years. Number of Staff: 3. Primary Activity: Audio Production, Driveway, Hire, Sales.
Inventory includes: 1.Yamaha, Ramsa Consoles. 2.Yamaha, ARX Outboard, 3.Crest Audio, ARX Power Amps 4. Image Speaker Systems.

Intercity Gearhouse (Brisbane) Pty Ltd

Audio Visual Hire and Staging
2/26 Bailey Street WEST END QLD 4101
Phone: (07) 3844 9171
Fax: (07) 3846 2054
Email brisbane@intercity.com.au
(See Sydney listing for further information)

Intercity Gearhouse (Cairns) P/L

Audio Visual Hire and Staging
2/112 Buchan Street CAIRNS QLD 4870
Phone: (07) 4035 6522
Fax: (07) 4035 6511
Email cairns@intercity.com.au
(See Sydney listing for further information)

Intercity Gearhouse (Gold Coast) Pty Ltd

Audio Visual Hire and Staging
6 Strathaird Road BUNDALL QLD 4217
Phone: (07) 5570 2044
Fax: (07) 5570 3099
Email goldcoast@intercity.com.au
(See Sydney listing for further info.)

JuStaging Productions

Production & Event Co-ordination
PO Box 8332,
BUNDALL QLD 4217
Phone: 0418 741 074
Fax: (07) 5593 7355
Email justin@winshop.com.au
Company Principal: Justin



Active
lighting
Pty. Ltd.

1-7 Queens Avenue Hawthorn 3122 Victoria Australia
Telephone:(613) 9819 6912 Facsimile:(613) 9819 6008

**Production, design & hire
for
concerts, corporate theatre,
danceparties & special events**

A comprehensive range of production equipment available, including:

Clay Paky Stagescans 1200HMI
L.S.C. Tour Series patch rack systems
Colorset colour scroller systems
Moving light systems (large & small)

ACT/CONN001

Williams. Established: 3 years.
Inventory includes: 1.Specialist
Crewing Services 2.Production
Management.

Kennedy Amplifier Hire Service
PA, Lighting, AV, Hire, Sales and
Service

2 Kennedy Street
MACKAY QLD 4740
Phone: (07) 4957 3904
Fax: (07) 4957 3904
Company Principal: Dale Kennedy
Established: 29 Years. Number of
Staff: As many as needed for the
job. Primary Activity: Hire, Sales
and Service PA, Lighting and AV
Equipment. Inventory includes:
1.PA Lighting and AV Equipment.

LMNR : Pyrotechnics

5 Saffron Street ELANORA
QLD 4221
Phone: (07) 5564 0641
Fax: (07) 5564 0642
Email spark@bigfoot.com
Company Principal: Robbie Dale
Established: 1993. Number of
Staff: 3. Primary Activity:
Fireworks displays, corporate
theatre Inventory includes: 500
mortars 2. 6 Electronic control
systems 3. Stock always on hand

**Multi-Image Lighting and Video
Productions**

Suite 4,3 Hampton Road
BURLEIGH HEADS QLD 4220
Phone: 0418 765 892
Fax: (07) 5593 7355
Email: multi_image@hotmail.com
Company Principal: Chris King
Number of Staff: 3. Inventory
includes: 1.Martin Moving Lights
2.FX Lighting Editing Suite
(S.VHS) 3.Lighting Sales Kupo,
ADJ, Studio Due, MA Lighting,
Geni.

ODC Productions

Unit 1B, 11 Moreton Bay Road
CAPALABA QLD 4157
Phone: (07) 3823 2179
Fax: (07) 3823 2198
Email: odc@odyssey.com.au
Company Principal: Olaf and
Jacqui De Ceuster
Established: 5 years
Number of Staff: 5
Primary Activity: Specialised
Sound Productions, Complete
Event and Risk Management,
Licensed Rigging Inventory
includes: 1.Meyer MSL-4P
Concert Rig 2.Several Meyer UPA/
Deltamax corporate rigs 3.Full
range stadium sound up to 60,000
people.

Paradise Music Factory

Driveway Hire & Production
1/6 Northview Street MERMAID
BEACH QLD 4218
Phone: (07) 5575 1900
Fax: (07) 5575 2740
Email paradise@onthenet.com.au
Company Principal: Barry & Anne
Williams. Established: 1975 .
Primary Activity: PA Hire, small
and large Inventory includes: 1.
"Flexi Stage" staging 2. ARX/
Australian Monitor Concert
System 3. Small vocal systems 4.
Rehearsal Room

Premier Lighting Brisbane

Lighting/Hire/Production/Sales

32 Chester Street FORTITUDE
VALLEY QLD 4006
Phone: (07) 3257 0443
Fax: (07) 3257 0451
Contact: Craig Ryder (See
Melbourne listing for further
details)

Production Dungeon

19 Tanrego Street FERNEY
GROVE QLD 4055
Phone: 0419 650 041
Fax: (07) 3210 0013
Email: dungeon@compuserve.com
Url: http://
ourworld.compuserve.com/
homepages/dungeon
Established: 7 Years
Number of Staff: 3.

Primary Activity: Concert
Production PAs, Backline,
Lighting, Crewing and Transport.
Freelance Sound Engineer.
Inventory includes: 1.JBL Active
Speakers 2.Australian Monitor
Amplifiers, 3.Soundcraft and
Yamaha Desks

Pua Audio Systems

Live Sound Production
45 Hanlon Street TANAH
MERAH QLD 4128
Phone: (07) 3801 4094
Email daves@powerup.com.au
Url: www.powerup.com.au/~daves
Primary Activity: Sound Produc-
tion Hire Inventory includes: 1.
Mackie 2. Australian Monitor 3.
Shure Wireless Systems 4.Ensoniq
DP/44 Yamaha

Schuster's Lighting

22 Hibiscus Haven BURLEIGH
HEADS QLD 4220
Phone: (07) 5576 3839
Fax: (07) 5520 1311
Email: sch@winshop.com.au
Company Principal: Leon Schuster
Established: 6 Years. Number of
Staff: 8. Primary Activity: Lighting
Event Specialists for Film, TV and
Corporate Events. All Lighting
Hire needs. Inventory includes:
1.Silenced Generators 2. Film
Lights, Intelligent Lighting, Pars.
3.All Rigging & mains power
cabling.

Skypak Lighting

& Production Services P/L
Lighting Hire/Sale
20 Austin Street NEWSTEAD,
BRISBANE QLD 4006
Phone: (07) 3852 2757
Fax: (07) 3252 8910
Email skypak@rainbow.net.au
Company Principal: Craig Fussell
Established: 8 years. Number of
Staff: 3. Primary Activity: Lighting
Inventory includes: 1. Martin Mac
600's 2. Clay Paky Intelligent
Fittings 3. Martin Intelligent
Fittings 4. Lasers

Smythe Sound and Lighting

12 Kale Street SPRINGFIELD
QLD 4300
Phone: (07) 3818 1630
Company Principal: Michael
Smythe. Established: 2 Years.
Number of Staff: 6. Primary
Activity: Production Management,
Schools, Community Events, Small
to Large Events, Lights, Sound,
Stage Management.

Stagecraft Corporate Theatre

Audiovisual Staging and Sales
1/101 Newmarket Road, WIND-
SOR QLD 4030
Phone: (07) 3357 9999
Fax: (07) 3357 8888

Email thecrew@stagecraft.com.au
Url:www.stagecraft.com.au
Company Principal: Herbert Van
Daalen. Established: 1988. Number
of Staff: 15. Branch Offices at: 63-
69 Market Street SOUTH
MELBOURNE VIC 3205
Primary Activity: Audiovisual
Event Staging and Sales Inventory
includes: 1.Sony Projection 2. Scan
Do Hire and Sales 3.Meyer Audio
4.Draper Truss Screens

**Staging Connections (Brisbane)
Pty Limited**

Event Staging
6 Sneyd Street BOWEN HILLS
QLD 4006
Phone: (07) 3252 9333
Fax: (07) 3252 4674 Email
scbris@stagingconnections.com.au
Url:www.stagingconnections.com.au
Company Principal: Mike
Bosworth. Established: 1989.
Number of Staff: 43. Branch
Offices at: Brisbane Hilton,
Carlton Crest, Hyatt Coolum,
Sheraton Brisbane Hotel &
Towers. Primary Activity:
Corporate Event Staging Inventory
includes: Audiovisual Equipment
Sets Videoconference.

Staging Connections (Cairns)

Pty Limited
Event Staging
275 McCormack Street
Manunda QLD 4870
Phone: (070) 32 2553
Fax: (070) 32 2344 Email
sccairns@stagingconnections.com.au
Url:www.stagingconnections.com.au
Company Principal: Peter Hassall
Established: 1995. Number of
Staff: 7. Branch Offices at:
Sheraton Mirage. Primary Activity:
Corporate Event Staging Inventory
includes: Audiovisual Equipment,
Sets, Video conference.

**Staging Connections (Gold
Coast) Pty Limited**

Event Staging
19 Northview Street MERMAID
BEACH QLD 4218
Phone: (07) 5526 0500
Fax: (07) 5572 3355
Email
scgold@stagingconnections.com.au
Url:www.stagingconnections.com.au
Company Principal: Reiner
Schuhle. Established: 1995.
Number of Staff: 10. Branch
Offices at: Hyatt Regency
Sanctuary Cove. Inventory
includes: Audiovisual Equipment,
Sets, Video conference.

Terry Bassett Productions

Crewing/Sound Engineering
PO Box 5660 GOLD COAST
QLD 4217
Phone: 0418 985 369
Fax: (07) 5531 5880 Email
statik@marvintechnet2000.com.au
Company Principal: Terry Bassett
Established: 4 Years. Up to 40
Casual Crew at 1 time Branch
Offices at: Gold Coast/Brisbane
Primary Activity: Production
Manager/Crewing

Transtec Sound, Lighting & DJ's
Unit 5/25 Upton Street,
BUNDALL QLD 4217
Phone: (07) 5570 3345
Fax: (07) 5570 3395

Company Principal: Jason Terry/
Mark Stanford. Established: 5
Years. No. of Staff: 2 +6 p/time.
Primary Activity: Sound &
Lighting, DJ Staff & Mobile Disco
Equipment Hire Inventory
includes: 1.Amps/Speakers 2.Disco
Consoles 3.Lighting Effects for
Hire.

Wild Gravity

Sales Hire and Installation
106 Boundary Road
TOWNSVILLE QLD 4810
Phone: (077) 213 540
Fax: (077) 211 375 Email
wildgrav@ozemail.com.au
Company Principal: Noel Anthony
Established: 8 Years. Number of
Staff: 3. Primary Activity: Hire and
Sales. Inventory includes: 1. 56 ch
Midas XL200 2.24 Deltamax 1183
3.Total Fabrications Outdoor Roof
System 4.Audio Visual and
Lighting Equipment.

South Australia

Adelaide Sound Hire

P.A. Hire 1B Martindale Ave
TOORAK SA 5065
Phone: (08) 374 3559
Fax: (08) 8331 9605
Email adlsound@camtech.net.au
Company Principal: P.Morris
Established: 1997. Number of
Staff: 2. Primary Activity: P.A.
Hire. Inventory includes: 1. 10 -
EAW KF650. 2. Soundcraft, Allen
& Heath. 3. Klark Teknik, DBX,
Lexicon, Drawmer.

**BSS Light & Sound
Innovation**

33 West Thebarton Road
THEBARTON SA 5031
Phone: (08) 8352 8688
Fax: (08) 8234 5504
Company Principal: Bob
Dixon
Established: 28 Years
Number of Staff: 9
Primary Activity: PA &
Lighting sales, hire, repairs, A/
V & Production. Stage
Management Inventory
includes: 1.Compact & Large
Lighting & Sound Systems
2.Intelligent Fixtures. BSS
sell, hire and repair many of
the industries well known
brands including DAS, Denon,
Technics, dBX, Alesis, Shure,
DOD, InterM, AKG,
Sennheiser, Prolite,
Soundtracs, LSC to name a
few. From Party Systems
through to complex concert
systems, BSS have the
experience and expertise to
handle the most straightfor-
ward product launch, to
outdoor concerts. Current
Inventory includes compact &
concert speaker cabinets,
microphones, equalisers,
compressors etc. coupled with
the usual Par 64 & 56,

Fresnels, Profiles, Followspots, DMX racks and desks, Intelligent Lighting inc Laser Emulators & more. Contact us to professionally organise your next event. BSS: Just one call.

Golight

Concert Sound and Lighting
34 The Parade West,
KENT TOWN SA 5067
Phone/Fax (08) 8363 3393
Primary Activity: Concert sound and lighting hire and production
Inventory includes: 1. EAW850s 2. JBL 3. Multi-pin bars 4. Theatre Lighting

Gottalite and Sound

Lighting Hire and Production
1A Davies Terrace NAILSWORTH SA 5082
Phone: (08) 8269 2399
Fax: (08) 8344 2363
Company Principal: Phil Doherty
Established: 1984. Number of Staff: 2. Primary Activity: Hire and Production Inventory includes: 1. Martin Intelligent Lighting 2. Parcans and Effects 3. Theatre Lights- Fresnel's, Profiles etc. 4. Audio

Intercity Gearhouse (Adelaide) Pty Ltd

Audio Visual Hire and Staging
15 Grove Avenue MARLESTON SA 5033
Phone: (08) 8293 8155
Fax: (08) 8293 8163
Email adelaide@intercity.com.au
(See Sydney listing for further information)

Multivision Australia

Staging (Audio Visual Hire)
82 Leader Street, FORESTVILLE SA 5035
Phone: (08) 8371 1948
Fax: (08) 8371 1486
Email events@multivision.com.au
Url: www.multivision.com.au
Company Principal: Richard Creasy
Established: 1978 Number of Staff: 5 Primary Activity: Event Staging Inventory includes: 1. Meyer Sound 2. Video Projection & Replay 3. Screens & Staging Accessories 4. Multi-image Slide Projection and Control.

Osmond Electronics

Lighting/Audio Rental & Prod'n
142-150 Gray Street ADELAIDE SA 5000
Phone: (08) 8410 1111
Fax: (08) 8410 3322
Company Principal: George Psorakis
Established: 1952
Number of Staff: 10
Primary Activity: Production
Inventory includes: 1. Midas XL3-XL200 2. EV Deltamax & MT4 Systems 3. Selecon Theatre Luminaire Range 4. LSC Dimmers & Desks

PR Lighting & Set Design

Lighting & Set Design
PO Box 1038
MT BARKER SA 5251
Phone: (08) 8391 3233
Fax: (08) 8391 3233
Email prlx@olis.net.au

Company Principal: Peter Robins
Established: December 1996
Number of Staff: 2. Primary Activity: Production Design & Application

Pro Co Stage & Sound Whyalla Retail and Rental

1/77 Essington Lewis Ave,
WHYALLA SA 5600
Phone: (08) 8644 0211
Fax: (08) 8644 40211
Company Principal: Ron Hay
Established: 12 Years Primary Activity: PA, Lighting and Backline Hire, Retail of Audio Lighting and HiFi Equipment. Inventory includes: 1. JBL, Martin and EV Speakers 2. Soundcraft Consoles, Rane, DBX 3. Jands Dimmers and Consoles.

Psycholites

Film, TV, Photographic
43 King Street
NORWOOD SA 5067
Phone: (08) 8267 3719
or 0411 112 211
Fax: (08) 8239 0280
Email plights@camtech.net.au
Company Principal: Ian Linton
Established: 1969. Number of Staff: 4. Primary Activity: Film, TV, Photographic, Rental, Sales, Service Inventory includes: 1. Tungsten 150 watt to 10 kw. 2. HMI 125 to 4.0K Par. 3. Dollies & Cranes. 4. Gels, Globes, Tapes, Sprays

Staging Connections (SA) Pty Limited

Event Staging
59 King William Street KENT TOWN SA 5067
Phone: (08) 8363 1006
Fax: (08) 8363 1402 Email scadel@stagingconnections.com.au
Url: www.stagingconnections.com.au
Company Principal: Bill Kneebone
Established: 1993. Number of Staff: 15. Branch Offices at: Adelaide Hilton, Stamford Grand Adelaide. Primary Activity: Corporate Event Staging Inventory includes: Audiovisual Equipment, Sets, Video conference.

Western Australia

A.V.L.A. (Audio Visual Lighting Australia)

Sales and Hire of Audio, Visual, Lighting
19 Regal Place, EAST PERTH WA 6004
Phone: (08) 9221 1888
Fax: (08) 9221 1444
Company Principals: Gino Lombardi and Frank Miranda
Established: 1995. Number of Staff: 15. Primary Activity: Hire of Audio, Visual and Lighting Inventory includes: 1. Audio Systems. 2. Lighting. 3. Intelligent, Fx Lighting. 4. Visual, Video Wall, Projectors etc. A.V.L.A.- Audio Visual Lighting Australia is a leading Multi-tasking sales, production and hire company. With experi-

enced operators and technicians in all facets of audio, visual and lighting. AVLA's diversity of expertise means its various departments lead the W.A. industry in most departments. Everything from driveway hire to WA's hottest club lighting and sound, live productions and corporate presentations, promotions and product launches. Some of AVLA's products which we are proud to be associated with are: Martin, Studio Due, Kupo, Jem, ARX, EV, Mach, Shure, Geni, Phonic, Gemini, AKG, Mackie, Denon, Pioneer, Numark, Technics, Pulsar, Soundtech, Seleco, Smartwall. Rise above your competition, impress your friends or clients with an AVLA production, unrivalled in impact, impression and professionalism.

AAA Production Services

44B McCoy St Myaree WA 6154
Phone (08) 9317 2055
Fax (08) 9317 1566
Email: aaa@networx.net.au
Company Principal: Neil Campbell/Simon Hunt
Established: 5 Years. Number of Staff: 7. Primary Activity: Hire and Sale of Sound Equipment.

Audex Concert Sound Pty Ltd Audio Production

2 Fitzgerald Street
NORTHBRIDGE WA 6003
Phone (08) 9328 3188
Fax: (08) 9227 7161 Company Principal: Keith Cramond
Established: 1980. Number of Staff: 8. Primary Activity: Audio Production & Hire. Inventory includes: 1. Midas. 2. EAW 850. 3. Crest. 4. Meyer.

AVI

Audio Visual Hire & Staging
Unit 2, 13 Mallard St
MYAREE WA 6154
Phone: (08) 9330 2000
Fax: (08) 9330 2600
Email tr@avi.com.au
Url: www.avi.com.au
Company Principal: Tony Routledge. Established: 1990. Number of Staff: 9.
Primary Activity: Staging
Inventory includes: 1. Big screens 2. Bright projectors 3. Experienced operators 4. Video & Audio conferencing
AVI was conceived in 1990, originally trading as Haycom Perth. It specialises in staging, installation and support of large scale communication technologies such as video conferencing, data/video projection, multi-image slide projection and complete audio visual systems. It also supplies a back up support and maintenance service for all permanent installations. AVI is

Martin HIRE

1 800 63 33 63

PAL 1200
automated profile, 15-26" zoom, CMY & colour wheel, beam shaping, D size gobo's, 1200w MSR
Superb optics.

MAC 1200
moving head colour changer, 440" pan x 306" tilt, CMY & colour wheel, six beam apertures & frost, 1200w MSR.
A spotlight with serious punch.

MAC 600
moving head colour changer, 440" pan x 306" tilt, fresnel lens, CMY colour mixing, two beam shapers & frost. 575w MSR.
Super quiet and super bright!

Robocolor PRO 400
compact colour changer, 32 colours, 4 beam apertures, strobe & dimmer. 200w MSD. The par can killer!

Roboscan 518
compact scanner with rotating gobo's & prism. 200w MSD

MAC 500
moving head profile spot, 440" pan x 306" tilt, iris, rotating prism, motorized focus, 14 gobo's, 100 colours, strobe & dimmer. 575w MSR.
All your wishes come true

Imagescan
moving mirror projector, rotating 35mm slide, D size gobo or overhead film. Low cost media, ideal for corporate presentations, promotions and retail display. 200w MSD

Hydrosonic 2000
silent glycol based haze machine, DMX512 control, the perfect accompaniment to intelligent lighting, a real JEM!

CC's Light & Sound

538 CITY ROAD SOUTH MELBOURNE VIC. 3205

a wholly west Australian owned company. The service AVI offers include: Project Management, Consultancy, System Design, Sales and Installation, After Sales Support, Maintenance and Repair of Equipment, Video/Audio Conferencing, Data/Video Projection, Multi-image Projection, Staging and Presentation Services.

Corporate Theatre Productions

26 Stiles Ave,
BURSWOOD WA 6100
Phone: (08) 9470 567
Fax: (08) 9470 5679
Email: events@corptheatre.com.au
Company Principal: Vaughan Emery. Established: 9 Years.
Number of Staff: 11.
Primary Activity: CTP is a one stop shop to fully service the needs of the convention industry with the latest presentation technology and stage design. Inventory includes:
1. Audio Visual Equipment
2. Sound- Specially Con figured for Convention Industry
3. Business Theatre Sets and Themes.

Intercity Gearhouse (Perth) Pty Ltd

Audio Visual Hire and Staging
35 Kensington Street EAST
PERTH WA 6004
Phone: (09) 9221 3700
Fax: (09) 9221 3870
Email perth@intercity.com.au (See Sydney listing for further information)

Lightworks Australia

4-74 Collingwood Street,
OSBORNE PARK WA 6017
Phone: (08) 9445 7557
Fax: (08) 9244 7134
Company Principal: Neil Piccinin
Number of Staff: 10. Primary Activity: Staging, Ground Supports, Trussing, Concert Lighting. Inventory includes: 1. Self Leveling Staging 2. Largest Range of Ali Truss, 3. 200+ Chrome Par 64s

Limelight Technical Services

7-74 Collingwood Street,
OSBORNE PARK WA 6017
Phone: (08) 9445 7557
Fax: (08) 9244 7134
Email: Limelite@aceonline Jay Iseppi-Manager. Number of Staff: 5. Primary Activity: Club installs, Dance Parties, Corporate Events, Sales, Hire, Repairs and Pyro Sales
Inventory includes: 1. Abstract & NJD Fx Lights. 2. Golden Scan 3s. 3. Coemar NAT1200.

Matrix Lighting Productions

U3/18 Mooney Street
BAYSWATER WA 6053
Phone: (08) 9371 1551
Fax: (08) 9371 1552
Company Principal: Darryl Edwards, Established: 10 Years.
Number of Staff: 12. Primary Activity: Lighting, Staging, Crowd Barriers, Sound Systems.
Driveaway Installation to Concert.
Inventory includes: Abstract Constella, Martin, Jands, JBL, Jem, Technics, Numark, Denon

Perth Concert Sound

1 Rae Place HILLARYS WA 6025
Phone: (08) 9307 8594
or 015 082 607
Fax: (08) 9307 8594
Company Principal: Matt Thomas
Established: 8 Years. Number of Staff: 4. Primary Activity: Audio Visual Production from Corporate to Concert
Inventory includes: 1. Amcron Amplifiers 2. Broke Siren Varicurve EQs 3. Turbosound Speakers FOH and F/Back

Phase 1 Audio

286 Aberdeen Street,
PERTH WA 6005
Phone: (08) 9227 7979
Fax: (08) 9328 9529
Mobile: 0412 777 710
Email: phaseone@opera.iinet.net.au
Company Principal: Jon Caisley
Established: 2 Years
Number of Staff: 4
Primary Activity: Production Management, Audio System Hire, Production and Installation
Inventory includes: 1. Apogee AE5 x 12, AE12 x 4. 2. Apogee Amps and Processors to 12Kw. 3. FOH Allen and Heath GL3000, Mackie. 4. RCF Foldback.

Pro-Productions

13 Burbridge Ave,
KOONDOOLA WA 6064
Phone: (08) 9342 9827
Mobile: 0419 924 068
Company Principal: Jeff Lewin
Established: 2 Years. Number of Staff: 2. Primary Activity: Lighting and Sound Productions (Professional Equipment and Professional Staff. Lighting Design, Concerts, Clubs, Pubs and Corporate Productions.

Rosound Hire

Corporate & General Public
29 Yampi Way WILLETTON WA 6155
Phone: (08) 9457 4044
Fax: (08) 9354 2354
Email iross@ami.com.au
Company Principal: Ian Ross
Established: 1968. Number of Staff: 5. Primary Activity: Corporate & Sporting Events
Inventory includes: 1. 3 Custom Sports Caravans. 2. 80 TOA TH50 Horns & Special long horns. 3. 20 EV Sx100 etc. Speaker Systems. 4. ARX, EV amps, Mackie Mixers

Soundworks Productions

3/8 James Street, BAYSWATER WA 6053
Phone: 0411 852 761
Company Principal: David Frizzell
Established: 10 Years. Number of Staff: 3. Primary Activity: Hire of PA equipment, Lighting and Effects (Smoke etc.), Rehearsal Studios for Touring Acts, Consignment of Instruments.

Stage & Studio Productions

Sales, Hire & Production
6 Cleaver Street WEST PERTH WA 6005
Tel: (08) 9227 9932
Fax: (08) 9227 9825
Email ssp@crystal.com.au
Company Principal: David Cook/ Byron Tarry. Established: 1989.
Number of Staff: 12. Primary Activity: Lighting, Audio, Staging, Drapes
Inventory includes: 1. JBL

Array. 2. Selecon. 3. Jands. 4. Radio Mics.

Staging Connections (WA) Pty Limited

Event Staging
34 East Parade
EAST PERTH WA 6004
Phone: (08) 9221 4111
Fax: (08) 9221 4991 Email scperth@stagingconnections.com.au
Url: www.stagingconnections.com.au
Company Principal: Brian Robeson
Established: 1991. Number of Staff: 40. Branch Offices at: Esplanade Hotel, Hyatt Regency, Radisson Observation City, Sheraton Perth Hotel. Primary Activity: Corporate Event Staging
Inventory includes: Audiovisual Equipment, Sets, Video conference.

Technofear Pty Ltd

Laser Display and Production Sales and Hire
400 Newcastle Street, WEST PERTH WA 6005
Phone (09) 228 1711
Fax: (090) 228 0755
Url: www.technofear.com.au
Company Principal: Mark Marshall
Established: 1986. Branch Offices at Sydney. Primary Activity: Laser Productions
Inventory includes: 1. 15 Watt Colour 3D Laser. 2. Dual Head 4 Watt Colour 3D Laser. 3. High Power Argon and Mixed Gas. 4. Air Cooled Lasers

The Lighting Workshop

408 Newcastle Street WEST PERTH WA 6005
Phone: (08) 9227 1221
Fax: (08) 9227 1242
Company Principals: Mike Bird, Brian Anslow, Anthony Littlewood-Johnston.
Established: 2 Years .Number of Staff: 5. Primary Activity: Service, Hire, Sales and Installation and Production of Entertainment Lighting
Inventory includes: Intelligent Lighting Sales: Intelligent Lighting, Sound Systems, UVFX, Effects Lights, Theatrical Effects, Smoke Fluid, Dimmers, Control Systems, DMX Control & Distribution. Hire: full range of Intelligent Lighting and Effects-Cafe to Concert.
Service: Modern Fully equipped service centre, Electronics Repairs. Production: We can co-ordinate the production on your behalf or totally manage your event.
Design: Complete CAD Drafting and design service for Nightclubs, Architectural. Pyrotechnics: Full range of Pyrotechnics and Licensed Pyrotechnicians

Theatre Crafts

468 Newcastle Street PERTH WA 6000
Phone: (09) 9328 2787
Fax: (09) 9227 7015
Mobile: 0418 917 235

Email nie@wanews.com.au
Company Principal: Patrick Cahill. Established: 1991.
Number of Staff: 2, plus 2 part time. Primary Activity: Sales, Service, Hire
Inventory includes: 1. Memory Lighting Control. 2. DMX Distribution Equipment. 3. Theatre, TV Luminaires. 4. Hard To Get Items.

Theatre and architectural technical consultant. Specialist supplier of film, TV, theatrical lighting and control equipment, staging machinery and curtains. Also audio and PA systems, film and video projection equipment. Specialist lighting effects hire, theatrical and architectural control service and repairs. Products and services include Theatre and TV studio lighting design and consultancy. Computer lighting control specialists, digital dimming supply and installation services. Moving lights, smoke machines and other special effects products. Sale of new and second hand theatre and television lighting including photographic stands, lamps and colour filters. Principal WA dealer for Bytcraft and Strand Lighting; Coemar de Sisti special effects, television lighting and specialist software.

Tasmania

Extreme Lighting

89 Mersey Main Road,
SPREYTON TAS 7310
Phone: (03) 6427 2919
Mobile: 0417 325 617
Fax: (03) 6427 0696
Company Principal: Michael Westcott. Established: 2 Years.
Number of Staff: 2. Primary Activity: Lighting Production, Concerts, Bands, Corporate Events
Inventory includes: 1. High End Trackspots 2. Par Cans, Profiles etc 3. LSC Axiom Desk.

Powersound

Sound and Lighting Hire
4 Durham Road COOEE BURNIE TAS 7320
Phone: (03) 6431 7722
Fax: (03) 6431 7722
Company Principal: Neville Fisher
Established: 1972. Number of Staff: 3. Primary Activity: Sound Reinforcement
Inventory includes: 1. Up to 10kw FOH JBL. 2. Up to 10 Monitor Sends. 3. Yamaha Digital Drive & Fx. 4. Lighting, Trucking and Crew arranged.

Production Works

Concert and Special Event Production Services
74-80 Molle St., HOBART TAS
Phone: (03) 6231 1505
Fax (03) 6231 1504
Company Principal: Tony Miller.
Primary Activity: Audio, lighting, staging, AV.

Soundfix Audio Productions
60 Lovett Street ULVERSTONE
TAS 7315
Phone: (03) 6425 5989
Fax: (03) 6425 5989
Company Principal: Greg Dunham
Established: 5 Years, Number of
Staff: 2. Primary Activity: Sound
reinforcement Production Hire
Inventory includes: 1. Mackie
SR24. 2. Australian Monitor
AM1600. 3. JBL, QSC, 6000 watts.

**Staging Connections (Tasmania)
Pty Limited**
Event Staging 1/16 Mertonvale
Circuit KINGSTON TAS 7050
Phone: (03) 6229 7510
Fax: (03) 6229 7530
Email

schob@stagingconnections.com.au
Url: www.stagingconnections.com.au
Company Principal: Tim Banfield
Established: 4 Years. Number of
Staff: 4. Branch Offices at: Hotel
Grand Chancellor. Primary
Activity: Corporate Event Staging
Inventory includes: Audiovisual
Equipment, Sets, Video confer-
ence.

The Sound Company
54 Arthur Street,
SOMERSET TAS 7322
Phone: (03) 6435 1885
Mobile: 0419 36 86 75
Fax: (03) 6394 4029
Company Principal: Jamie Howell
Established: 3 Years. Brief
Description: PA Hire and
Production Statewide. Inventory
includes: Garwood IEM Systems,
Community RS Series Speakers
and Processors, Crest CA Series
Amplification, Mackie Mixers,
BSS Drawmer, DBX, TC
Electronics Processing, Beyer,
Sennheiser, AKG, Shure, Audix
Mics, Rigging and Scaffolding.

Toucan Stage Lighting
182 Campbell Street, HOBART
TAS 7000
Phone: (03) 6234 3318
Fax: (03) 6234 4015
Mobile: 0418 125 389
Company Principal: Gary Molloy
Established: 1985. Primary
Activity: Corporate & Theme
Lighting Inventory includes: 1.
Theatre Lights. 2. Pars. 3. Power
Distribution. 4. Rigging Equip-
ment.

Woodstock Music
PA and Light Hire
1629 Bishopsbourne Rd.
Longford, TAS
Phone: (03) 6391 2277
Fax (03) 63911900
Email dougal@vision.net.au
Company Principal: Doug Kelly
Established: 1980. Staff: 3.
Primary Activity: PA Hire
Inventory includes: PA and Lights
from large outdoor concerts to
small vocal PAs.

LATE ENTRY

NSW: Norwest Productions
Chris Kennedy
Phone (02) 9809-0244, fax (02)
9809-0647.
Inventory includes 40 EAW KF-
850 & smaller audio for any show.

Venue A/V (from page 1)

hey- I'm not paying for it'.

"Generally I don't agree that any venue can dictate to a client that they use internal services, it's restrictive trade. It's not fair and reasonable especially as they are all government institutions. I've had the argument from those centres saying 'would you like us to be able to go out on the free market and encroach on your territory'. I invite them to. If they opened the doors to production companies to do as they wished in their venues, I'd be very happy for them to come out onto the open market and be competitive."

One of Melbourne's major venues has Intercity Gearhouse as their preferred supplier.

"I'm in the business of hiring technical and production services so why would I pay Gearhouse for their Barco's when I can put my own Barco's in a show," Michael points out. "Darling Harbour in Sydney also insist you use their internal services. I find that policies tend to be enforced on smaller events but as the function gets larger to custom built events, they tend to get scared and back-off as the production is too big for them. I've certainly suffered financially over the years from these policies."

Vaughan Emery of Perth-based *Corporate Theatre* has no problems with the main Perth venues such as the Burswood Showroom.

"We're generally made to feel very welcome," he said. "With the Burswood Showroom we use the in-house sound and lighting but bring in our own audio visual system. Their sound and lighting system is so good it's pointless bringing in your own. All we ever do is supplement the lighting with things like intelligent lights. The rest of the venues are happy to work with the hire companies to their benefit."

However, Vaughan did tell me that some of the Perth hotels have preferred contractor arrangements so when a client arrives at that hotel the service is presented to the client as the only option.

"A less experienced client thinks that they have to deal with that company and consequently we don't get a lot of recommendations or referrals from the hotels," said Vaughan.

"The in-house people obviously have a commercial arrangement and the hotel sees the supply of equipment as another revenue centre and as a result of that they'll always try sell against you."

VENUE A/V: IS IT PROFITABLE?

By Julius Grafton

THERE ARE THREE KINDS of A/V policy in effect at venues today. The first is an open house, where the venue may have some house equipment and where a hirer may use this and pay an extra fee if required. The venue earns little or nothing other than the venue hiring fee.

The second is the In-House supplier, where an A/V company operate an in-house department which charges the Hirer via the Venue. The venue takes a cut, usually 20%.

Then there is the Venue operated A/V department. These range in quality and expertise from first

Northern Territory

AV Sound and Lighting
Sound, AV, Lighting Hire
1/66 Smith St. ALICE SPRINGS
NT 0870 Phone: (08) 8953 4777
Fax (08) 8952 1146
Primary Activity: Sound and
Lighting Hire and Sales Inventory
Includes: . Soundcraft. AM
Amplifiers

Top End Sounds P/L
Sound, Lighting, AV
24 Stuart Highway STUART
PARK NT 0820

Phone: (08) 8931 7744
Fax: (08) 8981 7525
Email tes@topendsounds.com.au
Url: www.topeandsounds.com.au
Company Principal: Colin West
Established: 1980
Number of Staff: 10
Primary Activity: Hire &
Production Inventory includes: 1.
Midas & Yamaha Consoles 2.
Deltamax, JBL & ARX Systems 3.
NEC & Sharp Video Projectors

rate to downright farcical.

If a venue insists as a condition of hire that a hirer utilise in-house or exclusive audio visual services, then the issue is that this service be as good as, or better than, those commercially available elsewhere. Not to mention cost competitive.

I know of some venues where the in-house A/V supplier competes commercially for the business coming in. This is fair and reasonable for all. I also know of venues where the A/V services are exclusive, and I also know that in some cases this is costing the venue revenue. Hirers object.

One case we were unable to report last year, involved a promoter who signed a contract to hire an auditorium - and then got a call from the in-house A/V manager, looking for the rider. The promoter had already tendered the show and had a production firm ready to go, for \$8,000.

The venue A/V manager made the promoter aware of the contract and then quoted \$12,000 for the show. The promoter had two choices: default on the venue hire contract and cancel the show, or take the in house production.

In this case the promoter called Connections and we had the story ready to go. The promoter was to go on record as saying he would never hire the venue again. Naturally the guy came to realise he should have read the Venue contract properly and so became worried he would look like a goose. So no story. But, he will STILL never hire that venue again.

It's my considered view that Venues do not make money from Venue operated A/V departments. I would be delighted to report otherwise, but I have seen a procession of well intentioned and professional A/V managers sitting on inventory which is under utilised, operated by casual staff who are often poorly trained and inefficient. The losses come with time.

It is also my view that Venue managers who analyse their business will see that in trying to enforce 'exclusive' AV policies to favour an In-House supplier, they are chasing away some hirers. I hear event producers talking.....

The only long term sustainable option is the 'non-exclusive', in-house supplier, who competes with everyone else. Then, if the in-house team get the show, the venue makes 20%. Otherwise....
The free market rules. OK?

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FREE BASIC LISTING

Company name _____

Address _____

City _____

State _____ Post Code _____

Phone _____

Fax _____

Email _____

Netsite (Url) _____

Company Principal _____

Established years

Brief description of activities _____

Inventory includes (20 words max) _____

Your name (not for publication) _____

Your contact number: _____

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PO Box 439

Epping NSW 2121 Australia.

Call +61 2 9876-3530 Fax +61 2 9876-5715

Email: mail@conpub.com.au Url: www.conpub.com.au

Who's been buying what?

from page 1

Expanding of radio mic stocks; Le Maitre LSG low fog machine; Le-Maitre Pro-Stagell Pyrotechnics; JB Varyscan and Abstract FX.

Norwest Productions have added EAW KF853 long throw boxes to take their system up to 40 cabinets- arena capable.

Also EAW users, **GoLight** in Adelaide recently added a Midas XL-3 console to stock.

Meyer UPA-1P and **USW-1P** powered speakers join the Showcorp inventory in Sydney.

In Brisbane **Skypak Lighting & Production Services** have gone Mac, with 4 Mac 500's; 8 Mac 600's; 2 Punishers; 4 Destroyers; 4 Lynx; 10 Starflash; 1 Hydrosonic 2000; 6 Pro 2000 4 of with DMX controls; 3 Silk hazers; 1 Martin Case 1; 2 2504 controllers; 10 lengths of arc trace; 2 Image scans

& hand controllers; 18 Geni nimbus; and 2 X 3 ft Mirror balls

In NSW, **Entertainment Installations** have added: Clay Paky "Shadow" 1200HMI follow spot; JBL Wedges; dbx and Rane processing gear; Mackie mixers; QSC amps; lighting incl. Martin Roboscan 812, Pro518, Imagescan; EV, JBL, Klipsch audio.

Active Lighting recent additions include Clay Paky Stagescans; L.S.C. Touring Dimmer Patch Systems; Martin Pro 400's; Altman Shakespeare profile spots; Selecon Acclaim Fresnels; Thomas 1kW cyc/groundrow units; Selecon 1.2kW PC's and 2.5kW followspots.

Finally, **Intercity Gearhouse** are dropping the 'Intercity' off their name nationally, and have purchased Synelec 50" DMD video cubes, which promise to be bright and punchy. Just like Connections!

ACTIVE GO HYPERACTIVE!

Active Lighting has undergone a transformation during the last six months including moving into a new 13,000 sq ft factory at 1-7 Queens Avenue, Hawthorn, Victoria. The company's growth over the past few years has seen staff numbers increase from three to ten full time positions.

The move into a bigger factory was necessary to accommodate an ever increasing stock level and to provide space for an in-house workshop facility.

This new facility gives Active the flexibility to build their own cases, meat-racks, distros and hardware accessories unique to specific jobs or venues. It also provides them with more space for their on-going maintenance program of equipment.

In an effort to provide their customers with an extra level of service and reliability, Active Lighting has decided to upgrade it's visual image.

"From now on whenever you see Active Lighting as your pro-

duction company, you will be supplied with staff in black corporate uniform," said Andrew Topp of Active. "This is always important on site to help identify people and to make your production look slick and well organised, particularly in hotel ballrooms and other corporate venues."

Changes to the structure of the company have also been made which sees the daily running being handled by a new Company Administrator - Mark Pritchard.

Tim Hall is still there as Production Co-Ordinator but now he has more time to devote to servicing his clients. Tim is assisted by on site Production Managers David Wright and John Panetta, together with a large group of experienced casual staff. Peter Hough has joined the team as Operations/Hire Manager and he will be offering free on site advice and design assistance to prospective hire customers.

• **Active Lighting** ph (03) 9819 6912, fax (03) 9819 6008.

**PUBLISHED IN AUGUST
AND FEBRUARY, INSIDE
CONNECTIONS MAGAZINE**

ously using and thereby training their ears, which slows down the age-related decay of high frequency perception to an almost negligible level.

Pitch perception

The ear assumes frequencies which are whole number multiples of each other to be related on the basis of an applied set of harmonic components. When hearing music, the ear perceives relationships of frequencies based upon harmonics and then assigns a pitch to these frequencies. Most musical sounds are made up of many different harmonically related frequencies. The lowest of these frequencies is known as the fundamental and determines the pitch of the note. In theory, if the sound has no fundamental note the ear should not be able to determine its pitch. However, in practice the ear will pick an approximate harmonic relationship, imagine a fundamental frequency, and assign a pitch to the sound. The ear needs very little harmonic information to assign a pitch.

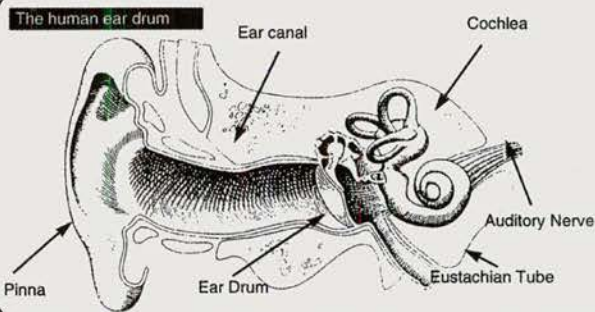
Every musical instrument has its own unique balance of harmonics, which allows us to tell different instruments apart even when they're playing the same note. Both a guitar and a piano can play 'concert A' pitch but their sounds are different due to their individual harmonic contents.

The ear's perception of pitch operates according to a logarithmic function. A frequency change from 100 Hz to 200 Hz and a frequency change from 4 kHz to 8 kHz will both be perceived as identical pitch changes. Even though one is a frequency change of 100 Hz and the other is a frequency change of 4 kHz, the ear's logarithmic pitch perception interprets them both as the same percentage of change—each represents a frequency increase of 100%, or one octave.

TOM'S PRACTICAL INFO BIT:

Using edge tracks

Try recording the bass sounds on the edge tracks of the tape. The edge tracks are more susceptible to 'drop-outs' which only affect the high frequency range. The centre tracks of multitrack tape recorders are considered to have better sonic quality, and the multitrack tape itself will be more stable in the centre. Hence Vocals and Lead instruments are usually recorded at or near the centre tracks e.g. track 10 to 14 in a 24 track system. Time code is also recorded on the edge tracks at a very low level, around -10 VU, due to the excessive amount of spill it can cause onto adjacent tracks. Time code sounds like a high frequency pitch that is not pleasant to the ear. Avoid recording lead or feature instruments on the adjacent tracks.



This is extracted from the top selling book: PRACTICAL STUDIO TECHNIQUES, by Tom Misner. © Tom Misner 1988. ISBN0 646 16704 9 Retail: A\$40.00. Available from book stores and music shops everywhere, also through the Connections Shop. Call 1-800-635-514. Tom Misner is the owner of SAE International.

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BASF National Tracking Guide

ARTIST PRODUCER ENGINEER PROJECT ARTIST PRODUCER ENGINEER PROJECT

New South Wales

301 Mastering	Jacqui Espie (02) 9211 7301. CD Mastering Facility		
Nick Cave	Nick Cave/Mick Harvey	Don Bartley	Album Mastering
Wendy Matthews	Glenn Skinner(UK)	Oscar Gaona	Single Mastering
The Mavis's	Kawu Tonvma	Don Bartley	Album Mastering
Various	Baz Luhman	Don Bartley/Oscar Gaona	Album Mastering
Ed Kuepper	Artist	Don Bartley	Album Mastering
Regurgitator	Lachlan Gould	Steve Smart	Single
A# Sharp Recording Studio	Jeff Cripps (02) 9153 9988. 24 Track 1"		
Mamma Green	Jeff Cripps	Jeff Cripps	CD
Dave Tick	Jeff Cripps	Jeff Cripps	CD
Beverly Hills Anglican Ch.	Jeff Cripps	Jeff Cripps	Christian CD
Peter DeCosa	Jeff Cripps	Jeff Cripps	Jazz CD
Angelwood Studios	Peter (Flash) Sheedy (067) 689 161. 2" 24 and 16 Tk, Valves, Nuemans Flying Faders.		
Percy & Louise Hanson	Percy Lou/Flash	Flash	Album-Record/Mix
Brett Dallas	Brett/Flash	Flash	Album-Record/Mix
Rex Dallas	Dirtwater/Flash	Flash	Album-Record/Mix
Low Downs	Low Downs/Flash	Flash	Album-Record/Mix
Larry Hughes Time Band	Band/Flash	Flash	Album-Record/Mix
Artec Digital	Stuart Sheldon (02) 9906 3151 24Trk Analogue	37 Trk ProTools & 6 Trk ProTools	
Great Outdoors TV Series	Stuart Sheldon	Stuart Sheldon	Recording
Elegant Solutions Series	Stuart Sheldon	Stuart Sheldon	Recording Theme
Coco Cola Corporate	Stuart Sheldon	Stuart Sheldon	Track lay & Mix
Polydor TVC	Stuart Sheldon	Stuart Sheldon	V/O Track lay & Mix TVC
Volleyball TV Series	Stuart Sheldon	Stuart Sheldon	Record Title Theme
Baz Luhrmann CD TVC	Mark Jago	Stuart Sheldon	Record V/O Track lay & Mix
Audioscapes	Jim Blackfoot (02) 9550 4205 16Trk Digital Post Production.		
Darryl Hilton	Susan Delaruaella	J.Blackfoot	Voice overs
Linda Nagle	Christine Dunston	J.Blackfoot	Tracks
Nigel Finch	www.com.	J.Blackfoot	Website Audio
Various	Burbank Animation	J.Blackfoot	Animated Feature
Rody Lee	Rooster Music	J.Blackfoot	Album Demos
Gillian Hyde	Kaye Green Leaf	J.Blackfoot	Voice Overs
Charing Cross Studio	David Sykes (02) 9387 8362. Classic Neve Console-Vintage Outboard-Automation		
Something for Kate	Steve Foster/Matt Maddock	Steve Foster/Matt Maddock	Album Mixing
Nick Dalton	Peter JOnes/Nic Dalton	Peter Jones	EP Mixing
See Luvver	Jordan Bach	Jordan Bach	EP Track and Mixing
Puppetsphere	Martin White	Martin White	Tracking
Screamfeeder	Paul McKercher	Paul McKercher	Mixing
Bean	Martin White	Martin White	Album Mixing
Crystal Clear Studios	Dave Tozer (02) 9684 1152 or 015 106 776 24 Trk (ADATS) Amek Big 32ch Console		
Burgstrums	Dave/Band	Dave Tozer	Album Track
Astral Taxi	Dave/Band	Dave Tozer	Album Track
Troy Kemp	Dave/Band	Dave Tozer	EP
Melancholy Angels	Dave/Band	Dave Tozer	EP
Sandlebutt	Dave/Band	Dave Tozer	Album
MIASMA	Dave/Band	Dave Tozer	Album
Damien Gerard Studios	Marshall (02) 9660-8776. 16, 24, 32 Track Analogue		
Joanne Lewis	Jeremy Cook	Russell Pilling	Album
Clank	Band	Russell Pilling	Album
Riddle	Band	Carter	EP
Propoganda	Band	Russell Pilling	Album
Jim Reece		Marshall Cullen	Demo
Hairy Eyeballs	Band	Carmel	Album Tracking
Festival Mastering	Catherine Knapman (02) 9395 8070. Sonic Solutions		
Circus Zombies	N/A	William Bowden	Single
Renaissance Players	N/A	William Bowden	Album
Raw Sugar	N/A	William Bowden	Album
The Pagans	N/A	William Bowden	Album
Tim Hopkins	Artist	William Bowden	Album
Godstar	N/A	William Bowden	Compilation 28 Tks
Festival Studio	Catherine Knapman (02) 9395 8070. Studer MCI Analogue or Mitsubishi Digital		
Mescaline	Jason DeWilde	Mark Thomas	Demos
Wonderkind	Band	Mark Thomas	Overdubs-Album
Richard Clapton	N/A	Mark Thomas	Anthology
Arizona Productions	Peter Kaldor	Dave Hemmings	Channel 9
Tim Hopkins	Artist	Mark Thomas	Overdubs/Mixing LP
Ammonia		Matt Lovell	Sample Dubs
Hullabaloo	Glenn (02) 9906 2933 24 Trk Analogue. 2 Pro Talk Rooms		
Strum	Heaton Imac	Heaton/Bowers	Demo
Brink of Extinction	Patrick O'Neil	Heaton	TV Doco
PGA Tour	Heaton Imac	Heaton	TV Theme
Now you See it	Heaton Imac	Heaton	TV Theme
Outback Adventures	Dann/Leinbach/Middis	Heaton	TV Series
JMF Recording Studio	Fran Esther (02) 9790 4097. Mitsubishi Digital, 24Trk ADAT		
Hell Hound Blues	Band	Ralph Esther/Guy Saminaden	Demo
The Wiggles	Band	Chris Brooks	Tracking
Texas Radio	Band	Guy Saminaden	Demo
MacDonald Health Care Svcs	John MacDonald	Mike Ward	Voice Over
Mr James	Band	Mike Ward/Ralph Esther	Album
VanNguyen	Van Nguyen	Ralph Esther	Album
Lucinda St. Recording	Rick Mostyn (02) 4229 1169.		
Fuzz Monkeys	Rick Mostyn	Rick Mostyn	Demo Tracking
Paradise Studios	Jason Lea (02) 9357 1599. Custom Mixer, Studer A800, MCI JH114 2" Analogue		
Lindsay Hammond	Band/DP	David Price	Album-Tracking
Compilation	John Morrison	Jason Lea	Album-Live
Crank	Band/Pilling	Russell Pilling	Album-Mixing
Sydney Staff Songsters	Graeme Press	Bob Scott	Album-Rec/Mix
T.V. Doco	Dave Skinner	John Frohlich	Rec/Mix to Vision
Michael L Edwards	Artist	Remesh Rasiah	Tracking
Paul Bryant Mastering	Paul Bryant (02) 9748 0222. Mastering Suite		
Hopkins/Green	Mal Green	Paul Bryant	CD Album

Songsalve Sampler	Gilli Moon	Paul Bryant	CD Album
Zelda Trip	Jeff Cripps	Paul Bryant	CD Master
Tornado	Dave Goodger	Paul Bryant	CD Master
Mal Forsyth	Grant Kuhrs	Paul Bryant	CD Album
Evening Hours	Kerry Joyner	Paul Bryant	CD Album
Powerhouse Studios	Doug Henderson (02) 9318 1220 32	Input Neve 24Ch Sturder Rec.	
African Express	Epizo	Shane Hale	CD Album
Mystery	Gene	Russell Pilling	CD Album
Knuckle Head	Paul Cronk	Mark Worrell	CD Album
Freesia	Berger/Henderson	Doug Henderson	EP CD
D.I.G.	Band	Mark Worrell	CD Album
Gilding the Lily	Martin Carr	Mark Worrell	CD Album
Sound Level	John David (02) 9552 3200 16Trk Digital/Live to DAT		
Introvert/Extrovert	Jan McDermot	Jan McDermot	16 Trk
Mon Amor	Ben Whatmore	Jason Blackwell	Demo
Andy Copeland	Andy Copeland	Jason Blackwell	16Trk
Promenade	Paul McDonald	Hugh Willson	Demo
Porcelain Bus	Rob Ltd Ford	John Soane	Demo
James Blundell	Artist	Crew	16Trk
Top Cat Recording Studio	Brad Wann. (02) 6628 0843. 24 Tk Analogue 1" CD Mastering & Burning		
Chris Cook	John Sayers	John Sayers	2 Singles
Cicus Twist	Brad Wann	Brad Wann	EP/CD
Cored	Brad Wann	Brad Wann	EP/CD
Dennis Dryden	Artist	Brad Wann	Single
Krazelna	Ross Ward/Brad Wann	Brad Wann	Album/CD
Plastic Smash	Band/Brad Wann	Brad Wann	EP/CD
Velvet Sound Recording Studios	Dave McCunn (02) 9264 3420. 32Ch Automated, 24Tk 2"		
Fur	Paul McKercher	Paul McKercher	Single
Frank Bennett	Tony Wall	Tony Wall	Soundtrack
The Lab	Jeremy Allom	Jeremy Allom/Paul Mac	Single
Fourplay	Tony Wall	Tony Wall	E.P.
Apostrophe	David Price	David Price	Album

Queensland

OPM Studios	Daniel (07) 3374 0066. 24 Tk. ADATS, Mackie Console		
Spider Monkey	Daniel	Daniel	EP
Jetson 77	Band	Daniel	PreProduction
Post Life Disorder	Band	Daniel	Demo
David Megarity	Daniel/David	Daniel	Demo
Brad Horwood	Daniel/Brad	Daniel	Album
Tree House	Daniel	Daniel	Demo
Suite 16 Audio Productions	Murray Lyons (07) 3369 8733. 24 Tk. Analogue, 16 Tk. Digital.		
Greville Patterson	Garry Smith	David Champion	Album
Toyota Camry	Garry Smith	David Champion	Radio Commercial
T.A.P. Duncan Wood	(07) 5479 2277 24 Trk ADAT & 24 Trk Hard Disc Production and Digital Studio		
Siena	Duncan Wood	Duncan Wood	Album Final Mixes
Doug Lashbrook	Duncan Wood	Duncan Wood	Demo's
Betta Electrical	Barry Morrison	Duncan Wood	December Campaign
Taramalin Sound	Allan Lahey (07) 3208 9736 Comfortable 16Trk Facility		
Mark Tempany	Dash Mclvor	A.Lahey/D.Mclvor	Album Tracking
Primeval	Band	A.Lahey/L.Foote	Demo
Chris Foenander	Artist	A.Lahey	Album Track
Chattering Psyclops	Bands	A.Lahey	Pre Production
Romping Decent	Band	A.Lahey	EP
Godnose	Ben Jones	Ben Jones & Hugh Webb	Single Release
Vandersound Studios	Eric Vandersande (07) 5546 8100. All Digital & Valve, HDR, ADAT/XT, O2R, CDR		
Ian Francis	Eric and Ian	Eric Vandersande	Album Tracking
Crush	Eric and Band	Eric Vandersande	Album Mix and Edit
Gypsy	Eric	Eric Vandersande	Album Tracking
Defiled	Eric	Eric Vandersande	Mini Album Tracking
Don't Yet Know	Eric and Andrew	Andrew Hines	EP Tracking
Synergy	Eric	Eric Vandersande	Single

South Australia

Agro Fish Studios	Julie Raynes (08) 8223 7211. 20 Tk. Video Sync, HD Recording, Sequencing		
CFC	Tim Power	Ray Erzinger	CD
Humphrey Bear	Wilson Main	Andrew Bayfield	TV Show
Safety Electrical Services	Mike Steel	Andrew Bayfield	Radio Advertisements
Joyce Russ Adverting	Peter Russ	Andrew Bayfield	Jingles
Hitmen Audio Productions	Tim Jones	Andrew Bayfield	Jingles
Creative Forrest Prod'ns	Mike Forrest	Andrew Bayfield	Jingles
Globe Recording Studio	Dave Grice 0414 884 410 16 Trk Digital & Hard Drive Editor		
Fab Four	Band	David Grice	Single
City Dub	Band	David Grice	Documentary
Adrian Blenkinsop	Artist	David Blenkinsop	Album
David Evans	Paradise AOG	David Grice	Demo
Blackwood Cafe	Mark Drilling	David Grice	Album
Mixmasters Productions	Mick Wordley (08) 8278 8506. 24Trk Analogue 2"		
Krystopinch	Jed Palmer/Mick Wordley	Mick Wordley	Album
ASD	ASD/Mick Wordley	Mick Wordley	Album
Ken Howden	T.Tolhurst	Mick Wordley	Tracking
Helga	Artist/J.Grace	Mick Wordley	Tracking
Donkeys	L.Karski/Mick Wordley	Mick Wordley	Tracking
"The Fridge"	Nigel Sweeting (08) 8231 3588. 16Trk Non-linear Digital; 16Trk 2" Analogue & Auto Mix		
Tim Gibuna	Julian Barnett	Nigel	CD
Sweet William	Craig Greening	Nigel	CD
St Dominics Chior	Danni/Nigel	Nigel	CD
Vinod Rajput	Vinod/Nigel	Nigel	Demo
Nigel Davidson	Nigel/Nigel	Nigel	CD



BASF YOUR MUSIC IS SAFE WITH US



BASF National Tracking Guide

ARTIST PRODUCER ENGINEER PROJECT ARTIST PRODUCER ENGINEER PROJECT

Victoria

Back Beach Recording	Mark Rachelle (03) 5988 6948. 2inch, 24 track, neve, focusrite, emt.		
Superheist	Norton, McCleod, Rachelle	Mark Rachelle	EP/Single
Echures End	Band/Rachelle	Mark Rachelle	Album
IC Female Spirits	Davie/Rachelle	Mark Rachelle	Demo
Pod People	Norton	Norton	EP
Bellucose	Franchetto/Rachelle	Mark Rachelle	3 Side Remixes
Dallas Krane	Band	Robbie Rowlands	Album
Big Beat/Equinox	John "Shadow" Toth Fax (03) 9898 5815. 16 Tk. Analog, 8 Digital, Midi/Mastering		
Akaysha	Band	Williams/Borgeest	Demo
Stainless Steve	Williams/Toth	Williams	Demo
Orange Cannon	Band	Borgeest/Williams	Demo
Who's Harvey	Band	Borgeest/Williams	Demo
Serenade	Band	Borgeest	Demo
Slavemaster	Alan Pan	Williams	CD Musical
Boathouse/Bank Studio	Jamie Durrant (03) 5762 7437. 12Trk, 16Ch Neve Console		
Jamie Durrant	J.Durrant	J.Durrant	Album Tracks
The Stinking Badge of Java	J.Durrant	J.Durrant	Mixing Album Tracks
Bread & Butter Recording Studios	Richard Sievers (03) 5881 7112. 16Tk/Midi Suite		
Berrigan Bush Drivers	Richard Sievers	Richard Sievers	CD Album
Paul Greene	Richard Sievers/Artist	Richard Sievers	Demo
Hissteria	Richard Sievers/Band	Richard Sievers	CD Album
Cheap Katz	Richard Sievers/Band	Richard Sievers	CD Album
Boneshakers	Richard Sievers/Artist	Richard Sievers	Demo
C'est Ca AV	Norman McCourt (03) 9419 1506. Automated Digital 24 Tracks		
Bushfire Press	Kevin O'Mara	Gena Coath	Kids Albu
Free Reign	Tony Leonard	Norman McCourt	CD
Misguided Angles	Scott Lacoy	Norman McCourt	CD/EP
Passi Joe	Passi Joe	Norman McCourt	CD
Shane Benning	Shane Benning	Genn Coath	CD
Cloudburstz Studio	Bruce Jacques (03) 9416 1038 24 Trk Digital, DA88/ProTools		
Sally Boyden	Gumpy/S.Boyden	Dale Warren	Album
Robert Slaney	Jeremy Ailsop	Dale Warren	Album
Leona Cuisala	Dale Warren	Dale Warren	Album
Curicus Yellow	Bruce Jacques	Bruce Jacques	Demo's
Jocuum Schubert	Dale Warren	Dale Warren	Album
Crystal Mastering	John Ruberto (03) 9326 2318. CD Mastering/Sonic Solutions		
Groundswell	Band	John Ruberto	Mastering EP
Sandpit	Band/G.Wales	John Ruberto	Mastering EP
Narcosis	Band	John Ruberto	Mastering EP
The Dumb Earth	Band/M.Robins	John Ruberto	Mastering Album
Pod People	Band	John Ruberto	Mastering EP
Unsassy Ways	Band	Joe Carra	Mastering EP
Dex Mastering	Adam Dempsey (03) 9372 2266. 2 Suites, Sonic Solutions, All Formats.		
Berth	Don Webb	Adam Dempsey	EP
Michael Price	Artist	Adam Dempsey	EP
Scallywags	Pirate Glen	Adam Dempsey	CD
Vericious	Vericious	Adam Dempsey	EP
Chris Haham	Chris/Laurie	Adam Dempsey	Compilation
Val Dusty	John Frank	Adam Dempsey	CD
Kiss Music Recording Studio	Paul Kosky (03) 9827 1500. 48 Tk Digital/Analogue-SSL Console		
Sisterella	Band	Doug Bradey	Album
Killing Heidi	Paul Kosky	Paul Kosky/Andy Baldwin	Album
Happy Gas Store	Kal Tonuma	Kalbaby	Album
Tism	Band	Lawrence Maddy	Single
Petrophonic Productions	Petros Georgiades (03) 9553 0176. 16 Tk. Digital Recording/Midi Suite		
Mark Joseph	Petros	Petros	CD
Wayne Berry	Artist	Petros	Seminar Audio Package
Glen Craven	Petros	Petros	Backing Tracks
Mari Hall	Petros	Petros	CD
Greg Carrick	Artist	Petros	Voice Overs
Fling	Band	Petros	EP
SAE Technology College	Bruce McDonald (03) 9534 4403. 24 Trk Analogue + Pro Tools		
Hinge	Bruce McDonald/Band	Bruce McDonald	
Karl Wesols	Ben Hallard	Andrew Broadhead	CD EP
Smokin Joker	Neil Goudge	Neil Goudge	Album
Young Australians	Justin Clark/Band	Justin Clark	Vinyl EP
Sing Sing	Kaj/Phil (03) 9428 4622 48 Analogue, 48 Digital Neve/SSC		
Paradise Motel	Victor VanVought	VVV	Album
TISM	McGoo/Band	McGoo	Album
Paul Kelly	Mark Opitz	Mark Opitz/Stuart Day	Album
Cat Power		Matt Voigt	Album
Cordrazine	Nigel	Nigel	Album
Monique Brumy		Adam Rhodes	
Sound Around	Trevor Cronin (03) 9531 3891 Mobile Recording Studio		
Jeremy Meltzer	Trevor Cronin	Trevor Cronin	Live Video Soundtrack
Jeremy Meltzer	Artist	Trevor Cronin	Mixes
Fat Cats Revenge	Band	Trevor Cronin	Live Recording
Studio 52	Paul Higgins (03) 9417 7707. Studio A: 32 Trk, B: 24 Trk ADAT		
Snug	Band	Rowan Jarl	Demo
Swai	Band	Rowan Jarl	Demo
Braybrook S.C.	Band	Rowan Jarl	Demo
Miray	Trevor Carter	Trevor Carter	CD Mastering
Still	Trevor Carter	Trevor Carter	CD Mastering
Carols by Candlelight	Trevor Carter	Paul Higgins/T. Carter	Myer Music Bowl
True Form Music Services	Neil Gray (03) 9391 0907. 24 Tk. Digital, 12 Tk. Analogue		
Just Add Water	Glenn Lewis/Band	Glenn Lewis	Pre-Production
Framing Watson	Peter Farnan	Peter Farnan	Single
Stoney Creek Backwash	Band	Neil Gray	EP
Big Charlie	Band	Brett King	Mix Demos
Thimblege	Band/Ross	Ross O'Driscoll	EP
Snarl	Band	Neil Gray	Demo

Wombat Rd Recording Studio	Barrie Clissold (03) 5145 4204. 32 Tk. Digital, 16 Tk. Analogue		
Jill Meehan	Artist	Barrie Clissold	Album Mastering
Mr Joochie	McLaren/Clissold	Barrie Clissold	Demo Tape
Steve Lamb	Artist	Barrie Clissold	Advert Voice overs
M.Webb	Artist	Barrie Clissold	Demo Tape
Dayona Henery	P.Bennett/Bontock	Barrie Clissold	Xmas Tape
Noelene Legge	Artist/D.McLeod	Barrie Clissold	Album Tracking

Western Australia

Bonsai Recording Studio	Tom Thorpe (08) 9246 4408. 24 Track		
Redgate	Tom Thorpe	Tom Thorpe	Demo
Music Crew	Tom Thorpe	Tom Thorpe	Demo
Kay Redman	Tom Thorpe	Tom Thorpe	Jingles
The Zins	Tom Thorpe	Tom Thorpe	Demo
True Learning Centre	Tom Thorpe	Tom Thorpe	Corporate Theme
John Meyer	Tom Thorpe	Tom Thorpe	Jingles
Planet	John Villani (08) 93822211 48 Track 32 Track + 24 Track Analog		
Mike Vdelli	M.V. & L.W.	Les Williams	Album Tracking
Desert Child	Band	John Villani	Album Mix
Gift Box	Band & J.V.	John Villani	EP Mix
E.Green	John Villani	John Villani	Single
Oz Connection	Band & J.V.	John Villani	Album Tracking
Flanders	Wayne Connolly	John Villani	EP Mix
Poons Head	Rob. Sam, Bush (08) 9339 4791. 32-48 Track		
Alton Tebbutt	Rob Grant	Rob Grant	Album
Graham Dickenson	Rob Grant	Rob Grant	Album
Perry Dound	Rob Grant	Rob Grant	Album
John Roberts	Rob Grant	Rob Grant	Single
Berbermerkin	Rob Grant	Rob Grant	Album
Satellite Record ng Studio	Darren Halifax (08) 9470 4003. ProTools		
The Cowpersons	Band	James Hewgill	CD
Joel Smoker	Lucky Oceans	James Hewgill	CD
Delicatessen	Band	Nick Hassall	Demo
Sometimes	David Cobbold	Nick Hassall	Demo
Stick	Dean Lillee	Darren Halifax	Demo
Splinta	Band	Darren Halifax	Demo
The Sonic Lab	Mark Whitehouse (08) 9375 3902. Sonic Solutions, Mastering Facility		
Thumb	Band/Mark Whitehouse	Mark Whitehouse	CD Single, Album, Sampler
Squidfinger	Band/B.Glatzer	Mark Whitehouse	CD Mastering
T.J. Dennis	Mark Donohoe	Mark Whitehouse	Album Mastering
Richard Easton		Mark Whitehouse	Album Mastering
Pat Leahy		Mark Whitehouse	Album Mastering
Perth College	Andrew Partington	Mark Whitehouse	CD Mastering
Troppo Sound	Mick Connolly (08) 9192 2394 24Trk Analogue, 8 Trk Digital		
Broome Beats	Band	James Edwards	Debut Album
Kenny's Leaving	Rotten+	Mick	All the best
Witzend Recording Studio	Alan Dawson (08) 9331 1818 16 Track Automated.		
Colin Mills	Colin	Alan Dawson	Demo
Martin Moon	Martin/Alan	Alan Dawson	Album
Greg Huntley	Greg/Alan	Alan Dawson	Album

Northern Territory

Kakadu Studios	Mat Cunliff (08) 8941 1344. 24Tk Digital, Hard Disk Mastering		
Resin	MC & Resin	MC	EP
Roy McKonky	MC & Roy McKonky	MC	Album
Adlibido	Colin Simpson	MC	Mastering Album
Filmcam	Band/MC	MC	Soundtrack
Stuart Mathieson	MC/Artist	MC	EP
KHC	MC/Band	MC	Remix
Masters Studio & Productions	Lindsay Masters (08) 8932 1754. 8 Trk Digital & Midi		
B.Ireland	L.Masters	L.Masters	Single EP
P.Ciriotis	L.Masters	L.Masters	Album
Sublimes	L.Master	L.Masters	Album

YOUR BASF TRADE SALES OUTLETS:

- NSW:** Audio Visual Designs (02) 9281-2444, 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

THE PRODUCER

The Profile by Madeleine Murray

After an hour of conversation, Tim Whitten struck me as a particularly sane person. If I didn't know he was a music producer, he could have passed for a doctor or a young, better looking Paul Keating. During the years he toured with bands like Beastie Boys, Devo, Alice Cooper, and Cult, he must have been a perfect chord in a chaotic world.

Rumour has it that he doesn't do drugs, and there is absolutely nothing neurotic about him, compared to some wild characters. Leonard Cohen once told me about his Phil Spector recording experience, which involved guns and savage dogs.

Unfortunately for a racy article, it's hard to find anyone with a bad word to say about Whitten. Words like judgement, decency, tact and discretion come up. He seems to inspire respect and affection in people. Even adoration and midwife metaphors in some, like Lindy Morrison, drummer for the Go Betweens. Whitten was the band's monitor engineer for two years in Europe. "One of his most redeeming qualities is not just his technical prowess, but his manner," Morrison said. "He never ever breaks under pressure, and he never scapegoats the drummer in the band, which other producers have done, particularly in the 80s, during the advent of the drum machine. Tim's always interested in real sound.

.....

Whitten admits that he is not liked by everyone, all the time. Once he mixed a record as a favour, at mate's rates. The friend liked the mix, brought it home, and the band decided they didn't like it. And they wanted Whitten to pay for a remix.

He feels a bit hurt and baffled when a band, who has a good record with him, moves onto another producer, and puts out a less successful effort. A long term relationship produces a certain shorthand. "I think it's really important to nurture a recording relationship," he said. "Whenever you pick up a new producer or engineer, you have to get to know them, to work out how you each respond. That's a whole learning experience in those first days, the crucial time that you are putting down the beds of the songs that you build on. Those days are very important, that's where the structure, the intent and the feel come out."

Jason de Wilde was in a band called Pelican Jed, when Whitten produced their EP. "He was kind of quiet in the studio, I guess he was concentrating," de Wilde said. "He was very particular about sounds. He's certainly one of the nicest guys I've met in the music industry. He doesn't really push his weight around, but lets the band have their ideas, and then expands them."

Whitten was engineer on Glovebox's "Um-

Tim Whitten



brella." Singer/guitarist Tony Dupe found him "easy going, focussed, very polished, and a perfectionist, in a good way. He's smooth with fader movements, and good at changing levels subtly. His attention to detail is remarkable."

First, listen to the songs

When Whitten first works with a band, he likes to listen to the music at home, imagine how it could sound, and make notes. That could be shortening some sections, cutting, extending. He gets a feel for the overall look of the song, and talks to the band about their ideas. "Obviously, it's a very delicate matter," he said. "I don't dictate, but ask them for their suggestions. What overdubs, strings, percussions, do they want to add in the studio? I try to find a common thread between their vision of the song, and mine. The band's initial ideas remain intact, but the music becomes a little more listenable, or challenging, or unusual."

Whitten is tactful. "It'll become apparent if there's any conflict. I approach the band carefully about making changes if I think they might be really sensitive about it. Rather than tell them there's a problem, I'll try and show them it could work better another way. It's always important for the musicians to feel that they're in control. I'm there really as a catalyst, but I do make changes."

After they have worked out arrangements, they go into the studio. "I might have a reservation about something, but I won't mention it. Because often things change," he said.

Next step, the subconscious

In the studio, as engineer, Whitten positions the mics, instruments, and arranges isolation. "That depends on how the band feel. I try and get at least bass, drums, and one guitar down together, hoping to keep all three. Mainly because music works in an emotional sense. I work out which is the most comfortable way for the band to play the songs, in order to get a good feel. That means focusing on the bed of the song, which could be the basic melody, and the basic rhythm. If those things gel together, then I can overdub with counter rhythms, counter melodies, or whatever."

Whitten gets the band to go through a song, and records it, "hopefully without them know-

ing I'm pressing the record button. The trick to getting a good performance is for the musician not to be overly concentrating on recording. There needs to be some kind of detachment for the subconscious to work."

He only goes through a song a few times, because the band lose their freshness "You have to create some kind of tension, some kind of feel, and it's very hard to do that, if you've been recording the song ten times."

Whitten uses compression in the recording stage on particular instruments, and in the mixing stage. "It depends on the instrument. Generally I'm always using some compression, because it helps bring out detail and textures of sounds. You can have a very strong level on tape, and a very low noise floor, which is good for vocals. I mainly use compression to gain some textural change to an instrument. Something which initially sounds a little weak and uneven can be made to sound quite present and confident with compression."

After all the overdubs, and vocals are done, Whitten feels that the picture is locked in. Then the details are worked on.

"It's very easy to fall into the trap of thinking you can fix it in the mix." (When he told me that, I wondered if he knew the other two great lies of the music industry, but I didn't ask.) "You can change a song completely in the mix. I try to find the essence of the song. It might be one little guitar line that works with the vocals."

Style

He likes to create large subtle soundscapes, and sonic blends. "It's hard for me to do something direct, where everything is at the same level. I hope my mixes have clarity and a sense of space."

Eno's work with U2, Martin's with the Beatles, and Steve Albini are favourites. "With U2, Eno challenges everything that's going on, he will find the gem of the song among 20 guitar tracks. Albini focuses so intensely on the pure energy and rawness. His approach is the opposite of mine. He has the ability to make bands feel very uncomfortable, which creates a tension that comes out on tape. You can hear the band is pissed off, and hating every moment of it. With some types of music, that's an advantage."

**HIS
CREDIT LIST
READS LIKE
A ROAD
MAP TO
THE
STARS.**



Photo taken at Westlake Studio E

"After I used the 160S once, I knew I wouldn't consider doing another project without it. It's in the top spot in my rack. dbx has done it again."

Humberto Gatica

All through the audio industry people are talking. The big people. People like Humberto Gatica. They know what it means when a truly superior product comes along. It makes the job easier. It makes the client sound better. It gives the producer a little peace of mind. Humberto has been down the road once or twice; recent

engineering credits include Barbara Streisand, Celine Dion, Michael Jackson, Rod Stewart, Natalie Cole you name 'em, Humberto's recorded 'em. His gear better work. That's why Humberto uses the dbx 160S Stereo Compressor. He knows that he has the music industry's most versatile, robust compressor. With the engineering on the inside to match the gorgeous architecture of the exterior, the 160S almost does it for you.

You see, when you publish a dynamic range spec of greater than 127dB, and you trademark a new VCA architecture, well, you better mean it. Especially when your name is dbx. We started the connotation 25 years ago, and have been the standard ever since.

The 160S is the deserving heir to the heritage that comes with the dbx name and the 160 family of compressors. The 160S is destined to be the industry benchmark for decades to come. Again. Visit your dbx dealer today and audition it for yourself. Humberto did. In fact it sounded so good he wouldn't give it back.



dbx
PROFESSIONAL PRODUCTS

A Harman International Company

Distributed in Australia by: Jands Electronics Pty Ltd ACN 004 187 837
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Internet: <http://www.jands.com.au>

Write in Reader Service Number 116

BUYER'S GUIDE

studio monitors

Prices INCLUDE sales tax and were correct on 15th January 1998. All care taken, no responsibility for errors. Four models only are shown in each category although these manufacturers have many more. Indicative only.

SMALL (1 x woofer 8" or less)

ALESIS

Electric Factory (03) 9480 5988
Point 7 near field shielded reference monitor, 5.25" woofer, 1" silk dome tweeter, 50 watts RMS, 100 watt peak, 4 ohm impedance, 86 dB SPL 1 watt/1 meter, magnetically shielded. \$649.
Monitor 1 near field studio reference monitor, 6.5" woofer, 1" silk dome tweeter, 120 watts programme, 200 watt peak, 88 dB SPL 1 watt/1 meter, 4 ohm impedance. \$949.

ATC

A.R.Audio Engineering (02) 9810 5300
SCM10 Pro nearfield 5" mid/bass 1" HF 2-way featuring soft dome mid and HF technology. Recommended 250w amplifier. 1W @ 1m. 10kg. \$3985.
SCM20SL Pro nearfield 7" mid/bass 1" HF 2-way featuring soft dome mid and HF technology. Recommended 250w amplifier. 83dB @ 1W @ 1m. 23kg. \$5995.
SCM20A Pro nearfield 7" mid/bass 1" HF 2-way active featuring soft dome mid and HF technology. All aluminium construction with built-in 250w bass and 50w HF amplifiers. 30kg. \$10,995.

AUDIX CORPORATION

Production Audio Services (03) 9415 1585
MM15/PH15 full range 2-way near field monitors. Feature single 5.25" woofer and 0.75" polymer dome, powered version (PH15) available, dual 5.25" woofer also available - powered/unpowered. From \$729.
PH5vs full range 2-way near field powered monitors. Feature 5.25" woofer and 0.75" polymer dome, 25W power amp built in, durable plastic case, available in black and white. \$805.

1A full range 2-way near field monitors. Feature single 6.5" ported woofer and 1" cloth dome tweeter, max power handling 250W, dual 6.5" woofer version available (3A). \$1575.

NILE V full range 2-way near field reference monitors. Feature 7" Kevlar woofer and 1.1" cloth dome tweeter, max power handling 350W, dual 7" woofer version available (NILE X). \$2925.

D.A.S.

Magna Systems (02) 9417 1111
Factor-5 2-way; 70Hz - 20kHz; 80W (RMS); 90dB SPL; 4 ohms. Dimensions: 23 x 16 x 15cm. \$200.
Factor-8 2-way; 45Hz - 20kHz; 100W (RMS); 91dB SPL; 8 ohms. Dimensions: 44 x 27 x 23cm. \$490.

DYNAUDIO ACOUSTICS

Amber Technology (02) 9975 1211
BM5 2-way near field, 170 mm woofer (75 cm voice coil) + 28 mm soft dome tweeter, 100W RMS, 88 dB sensitivity, 50 Hz - 20 kHz freq. response, video shielded, all cabinets matched to within +/- 1.5 dB. \$1295.
BM6 2-way near field, 170 mm woofer + "Esotech" 28 mm tweeter, 150W RMS (1000W peak), 86 dB sensitivity, 43 Hz - 22 kHz freq. response, adjustable rear-facing port, BMGA active version also

available. \$1995.

M1 2-way near fields with contoured response for meterbridge positioning, 2 x 128 mm woofers + 28 mm dome tweeter, 300W RMS, 88 dB sensitivity, 50 Hz - 20 kHz freq. response, 122 dB max SPL @ 1.25 m. \$4995.

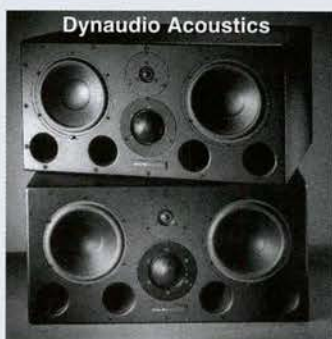
C2 2-way near fields mastering monitors, 40 Hz - 25 kHz freq. response (+0/-3 dB), all cabinets matched to +0/-0.5 dB., 150W RMS (1000W peak), 120 dB max SPL @ 1.25 m. \$5495.

EAW - EASTERN ACOUSTIC WORKS

Production Audio Services (03) 9415 1585
MS20 full range 2-way near field loudspeaker. Features 7" vented woofer and 1" soft dome tweeter, AES standard power 150W, mounting points, frequency response 50 Hz - 19 kHz. \$1795.
MS30C full range 2-way near field loudspeaker. Features 8" vented woofer and 33 mm soft dome tweeter, AES standard power 200W, mounting points, frequency response 45 Hz - 19 kHz. \$2295.

GENELEC

Studio Connections (03) 9874 7222
1029A near field monitors. Bass 5", tweeter - 3 1/4" metal dome, 40W on bass and 40W on treble. 247mmH x 151mmW x 191mmD. \$2495.
1030A bi-amplified near field monitors. Bass 6", tweeter - 3/4" metal dome tweeters - 100W. 312mmH x 200mmW x 240mmD. \$3995.
1031A near field monitors with 8" bass + 1" metal dome tweeter, bi-amplified 240W. 393mmH x 250mmW x 290mmD. \$4995.
S30C bi-amplified medium field monitors with 8" bass - 3" midrange + 1" metal dome tweeter, 360W. 495mmH x 320mmW x 290mmD. \$7599.



HAYES

Australian Audio Supplies
f80 near-field, studio monitors that achieve true spatial imaging. Features 'Fractal Spatial System' (FSS), omni-directional, two-way passive/time aligned design, recommended amplifier power 25-80 Watts per channel, 70 Hz - 20 kHz frequency response, 8 ohms nominal impedance, sensitivity 86 dB @ 1M/1W, fractal diffusion bandwidth 4 kHz - 20 kHz, Phillips 25 mm (1") fluid cooled aluminium dome tweeter, SEAS 125 mm (5") polypropylene woofer, rear tuned port, black stained oak and black powder coated aluminium construction. \$995 pair.



JBL PROFESSIONAL

Jands Electronics (02) 9582 0909
4206 Studio Monitor A 2-way monitor with shielded 6" woofer and titanium dome tweeter. Multi-radial baffle aligns the acoustic centres of the high and low frequency transducers. Transducers are magnetically shielded to allow placement near tape recorders and video monitors. Frequency Range: 42 Hz - 21kHz; Sensitivity: 87dB SPL; Nominal Impedance: 8 Ohms; Power Capacity: Cont. Pink Noise: 75 watts; Dimensions (HxWxD): 390 x 229 x 241 mm; \$895 per pair.

4208 Studio Monitor A 2-way monitor with shielded 8" woofer and titanium dome tweeter. Multi-radial baffle aligns the acoustic centres of the high and low frequency transducers. Transducers are magnetically shielded to allow placement near tape recorders and video monitors. Internally bi-amplified near field monitor with optimised crossover. Line level input accepts either +4 or -10 operating levels. Frequency Range: 38 Hz - 21kHz; Sensitivity: 89 dB SPL; Amplifier: Power output: (2x) 50 watts continuous Distortion: <0.05% @ 1 and 10 kHz for 0.01 watt to full power; Power Capacity: Cont. Pink Noise: 75 watts; Dimensions (HxWxD): 451 x 286 x 229 mm. \$2595 per pair.

4408A Studio Monitor A 2-way monitor with 8" woofer and titanium dome tweeter, designed for smaller recording or broadcast studios. Frequency Range: 30 Hz - 30kHz; Sensitivity: 89 dB SPL; Nominal Impedance: 8 Ohms; Power Rating: Pink Noise: 100 watts; Dimensions (HxWxD): 438 x 305 x 293 mm; \$1695 per pair.

MACKIE

Australian Audio Supplies
HR824 High Resolution Active Studio Reference Monitor. Features 8.75" driver, 1" aluminium dome high frequency driver, 150watt/woofer, 100watt/tweeter, mass-loaded passive driver (rear), 39-22kHz ± 1.5dB frequency response, electronic limiter section, acoustic space switch (Full space, 1/2 space, 1/4 space), electronic crossover Linkwitz-Riley 24dB/octave, balanced female XLR and 1/4" input connectors, power switch

on front. \$3295 pair.

MEYER SOUND LABORATORIES

Meyer Sound Australia (07) 3252 4493
HD-1 Near Field Monitor, 8" cone driver (bass reflex), 1" Dome Silk Tweeter (direct radiating), self powered, 32Hz-22KHz. 23Kgs each. \$10,275.00 pair.
HM-1S Near Field Monitor, 7" bass driver with 1" concentric soft dome tweeter, self powered, requires 48V DC power supply, 42Hz-20KHz, optional single HM-1S Subwoofer (\$1,050.00) is powered by two HM-1S boxes. \$4,160 a pair.

SPIRIT by SOUNDCRAFT

Jands Electronics (02) 9582 0909
Absolute 4P High definition linear phase design. Flat on- and off-axis frequency response. Custom designed magnetically compensated drivers - Long throw Aerogel? 170mm LF driver, 25mm ferrofluid-cooled soft dome tweeter. Vented cabinet with large flared port, for extended low frequency response, even at high levels. Integral 100W (LF) and 100W (HF) low distortion power amplifiers, with full protection/limiting for both drivers and amplifiers. Constant voltage active crossover, with time compensation for driver alignment. Stepped input level control for accurate setup, Switched 40Hz HPF allowing higher sound levels from bass-heavy music signals. XLR connector for balanced signals, RCA phono-type sockets for unbalanced signals. Amplifier Power Output: HF - 100 Watts RMS/LF - 100 Watts RMS; Frequency response (half space on axis): 40Hz - 22kHz, -3dB; Efficiency (half space): 115dB max SPL @ 1m; Dimensions (HxWxD): 395 x 240 x 330mm/15.5 x 9.5 x 13"; \$2995 per pair.

Absolute Zero High definition Linear Phase design, Flat on and off axis frequency response, Wide, controlled dispersion, CAD optimised, low loss crossover, Custom designed drivers - Long throw 170mm LF driver, 25mm soft dome HF unit on proprietary waveguide. Ported cabinet for extended LF response at all listening levels Power handling (typical music signal content): 95 Watts RMS; Frequency response (half space on axis): 55Hz - 18kHz, +1/-3dB; Impedance: 8 W nominal; Sensitivity (half space): 89dB/2.83V/1m; Dimensions (HxWxD): 320 x 230 x 290mm; \$795 pp.
Absolute 2 High definition Linear Phase design, Superb sonic accuracy, Neutral, balanced sound for accurate monitoring, Magnetically compensated High-quality crossovers with film capacitors and air-cored inductors. Custom-designed drivers - ferro-fluid cooled soft dome HF driver 165mm cone LF driver with solid-cast chassis and 30mm edge-wound voicecoil. Terminals allow bi-wiring. Vented cabinet with special port for smooth low-frequency performance Power Handling (programme) 100 Watts RMS; Frequency Response (+2dB, -3dB) 45Hz - 20kHz; Impedance 8 ohms nominal; Sensitivity, for 2.83V @ 1m 90dB; Dimensions (HxWxD) 365 x 235 x 297mm (15.5 x 9.25 x 11.7") \$1095 per pair.

TANNOY

Syntec (02) 9417 4700

PBM 6.5II discrete system with a 6.5" bass and soft dome tweeter - designed for project studios as a playback monitor. \$899.

System 600 6.5" dual concentric, nearfield monitor ideal for left/centre/right surround system. \$1259.

System 800 8" dual concentric similar to System 600 - slightly larger cabinet with extended bass. \$1789.

System 600A active version of the System 600 with two 70W amplifiers and electronic crossover. \$3149.

YAMAHA

Yamaha Australia (03) 9693 5164

NS10M Studio the studio monitor for nearfield reference work, 2-way, 60W program, 8 ohm, 90 dB @ 1W/1m, black. \$949.

S15 compact 2 way monitor, 12.5 cm and 2.5 cm drivers, 80W program, 6 ohm, 88 dB @ 1W/1m. Assorted mounting options available. \$399.

S55 compact 2 way monitor, 16 cm and 2.5 cm drivers, 140W program, 6 ohm, 90 dB @ 1W/1m. Assorted wall and ceiling mounts available. \$718.

MS205 powered personal monitors with two line and one mic input. 12 cm and 3 cm drivers, 20W output power, tone control, 88 dB @ 1W/1m, magnetic shielding. \$998.

MEDIUM (woofer 10"/12")

ALESIS

Electric Factory (03) 9480 5988

Monitor 2 mid field reference module, 10" low/5" mid drivers, 1" silk tweeter, 150W program, 200W peak, 90 dB SPL 1W/1m 4 ohms impedance. \$1599.

ATC

A.R.Audio Engineering (02) 9810 5300

SCM50A Pro near/midfield/main 9" bass, 3" soft-dome mid, 1" HF 3-way active. Built-in 250w bass/100w mid/50w HF amplifiers. Vertical or horizontal configuration. 49kg. \$19,995.

SCM100A Pro near/midfield/main 12" bass, 3" soft-dome mid, 1" HF 3-way active. Built-in 250w bass/100w mid/50w HF amplifiers. Vertical or horizontal configuration. 65kg. \$23,995.

D.A.S.

Magna Systems (02) 9417 1111

Factor-12 12" 2-way; 35Hz - 20kHz; 200W (RMS); 94dB SPL; 8 ohms. Dimensions: 54 x 40 x 31cm. \$999.

DYNAUDIO ACOUSTICS

Amber Technology (02) 9975 1211

BM15 2-way near field reference monitors, 240 mm woofer (100 cm voice coil) + 28 mm tweeter, 250W RMS, 88 dB sensitivity, 40 Hz - 22 kHz freq. response, 108 dB SPL @ 1.25m, BM15A active version also available. \$2495.

C3 3-way midfield reference monitors for mastering applications. 12" woofer + 6" mid + 1" "Esotar" tweeter, 35 Hz - 25 kHz freq. response, 250W RMS (1000W peak), 87 dB sensitivity. \$9995.

M1.5 2-way midfield monitors, high output compact design with pin-point accuracy, 200W RMS, 88 dB sensitivity, 40 Hz - 20 kHz freq. response, 120 dB max SPL @ 1.25 m. \$6595.

M2 3-way midfield/main monitors, flexible design (suitable for midfield or main monitoring as well as O/B), 400W RMS, 87 dB sensitivity, 125 dB max SPL @

1.25 m, THD + IMD < 1%. \$10,495.

EAW - EASTERN ACOUSTIC WORKS
Production Audio Services (03) 9415 1585

MS63 full range 3-way near field loudspeaker. Features 12" vented woofer, 7" mid in sealed enclosure, 33 mm soft dome tweeter on wave guide plate, AES standard power 400W, frequency response 50 Hz - 19 kHz. \$6595.

MS103 full range 3-way mid field loudspeaker. Features 15" vented woofer, 7" mid in sealed enclosure, 33 mm soft dome tweeter on wave guide plate, AES standard power 30W, frequency response 40 Hz - 19 kHz, can be passive/biamped. \$7995.



GENELEC

Studio Connections (03) 9874 7222

1032A medium field monitors. Bass 10", + 1" metal dome tweeter. Bi-amplified 300W. 495mmH x 320mmW x 290mmD. \$6995.

JBL PROFESSIONAL

Jands Electronics (02) 9582 0909

LSR32: Linear Spatial Reference Studio Monitor System The LSR32 Linear Spatial Reference Studio Monitor combines JBL's latest in transducer and system technology with recent breakthroughs in psychoacoustic research to provide a more accurate studio reference. Features: Differential Drive® Technology with dynamic braking for extended low frequency response and low power compression. Neodymium Midrange with 2" voice coil and Kevlar™ cone material for extended frequency response and low distortion. Titanium Composite High Frequency Device with Elliptical Oblate Spheroidal Waveguide and Damped Pole Piece. Carbon Fiber Composite Baffle for low cabinet resonance and stable inertial ground. Linear Dynamics Aperture Port Design eliminates port noise and reduces port compression. Input Impedance (nominal): 4 ohm; Anechoic Sensitivity: 93 dB/2.83V/1m (90 dB/1W/1m); Frequency Response (60 Hz - 22 kHz): +1, -1.5 Low Frequency Extension, 2-3 dB: 54 Hz, -10 dB: 35 Hz; Enclosure resonance frequency: 33 Hz; Long Term Maximum Power (IEC 265-5): 200 W RMS; 800 W Peak; Recommended Amplifier Power: 150 W - 1000 W (rating into 4 ohm load); Dimensions (WxHxD): 63.5 x 39.4 x 29.2 cm. \$4995 per pair.

4410A Studio Monitor A 3-way monitor with 10" woofer and titanium dome tweeter, designed as a vertical line array. The system delivers incredibly fine transient response and spatial details. Frequency Range: 33 Hz - 30kHz; Nominal Impedance: 8 Ohms; Power Rating: Pink Noise: 125 watts; Dimensions (HxWxD): 597 x 362 x 286 mm; \$2495 per pair.

4412A Studio Monitor A 3-way monitor with 12" woofer and titanium dome tweeter, designed for applications requiring maximum low frequency output from semi-nearfield sized monitor. Frequency Range: 30 Hz - 30kHz; Sensitivity: 89 dB SPL; Nominal Impedance: 8 Ohms; Power Rating Pink Noise: 150 watts. \$2895 per pair.

4425 Bi-Radial Studio Monitor A 2-way monitor with 12" woofer and Bi-Radial horn loaded HF transducer. The use of the Bi-Radial horn provides 100 x 100 degree coverage pattern for the hi-frequency signal. Frequency Response: 40Hz-16kHz; Sensitivity: 91 dB SPL; Nominal Impedance: 8 Ohms; Power Rating: Pink Noise: 200 watts; Dimensions (HxWxD): 406 x 635 x 311 mm, w/ o horn \$4495 per pair.

TANNOY

Syntec (02) 9417 4700

AMS 8 active 8" dual concentric with two built in 90W amplifiers. \$7829.

System 1000 10" dual concentric for midfield monitoring - cabinet design as system 600/800. \$2839.

System 1200 12" dual concentric again midfield monitoring with extended bass response. \$3999.

YAMAHA

Yamaha Australia (03) 9693 5164

NS40M Studio exceptionally flat, precise near/medium field monitor, dual woofer 3 way acoustic suspension system; 18 + 6 + 3 cm drivers, 100W program, 6 ohm 90 dB @ 1W/1m, black. \$1798.

MS202II powered monitor with two line and one mic inputs and line out plus LF & HF EQ and volume controls, twin 10 cm drivers 20W output, designed for all semi-pro applications. \$938.

FULL SIZE

ATC

A.R.Audio Engineering (02) 9810 5300

SCM150A Pro near/midfield/main 15" bass, 3" soft-dome mid, 1" HF 3-way active. Built-in 250w bass/100w mid/50w HF amplifiers. Vertical or horizontal configuration. 75kg. \$27,995.

SCM200A Pro main monitor 2 x 12" bass, 3" soft-dome mid, 1.25" HF 3-way active. Includes external amplifier pack with 2 x 275w bass/200w mid/100w HF amplifiers. 116kg. \$49,995.

SCM300A Pro main monitor 2 x 15" bass, 3" soft-dome mid, 1.25" HF 3-way active. Includes external amplifier pack with 2 x 275w bass/200w mid/100w HF amplifiers. 1140kg. \$59,995.

DYNAUDIO ACOUSTICS

Amber Technology (02) 9975 1211

M3-P 3-way (passive) main studio monitors, 2 x 12" bass + 2 x 5" mids + 1" dome tweeter, bi-amp configuration, 650W RMS, 40 Hz - 20 kHz freq. response, 120 dB SPL @ 2.25 m, THD + IMD < 1%, active version also available. \$18,995.

M3-5 3-way active main monitor system,

4 x 12" bass + 2 x 6" mids + 1" dome tweeter, 35 Hz - 20 kHz freq. response, 123 dB SPL @ 2.25 m, extensive protection circuitry, various amplifier/x-over configurations available. \$46,995.

M4 4-way active main monitors, 4 x 12" bass (fluid cooled) + 2 x 6" mids (3" voice coils) + 5.6 and 3.3 mm "Esotar" tweeters, 35 Hz - 20 kHz freq. response, 130 dB SPL @ 2.25 m, extensive protection circuitry, various amplifier/x-over configurations available. \$59,995.

ABES active bass extension system with 2 x 12" bass drivers, integral 300W amplifier and crossover. Allows flexible monitoring configurations in conjunction with near and midfield monitors. 35 Hz - 95 kHz freq. response, 126 dB max. \$11,995.

GENELEC

Studio Connections (03) 9874 7222

1037A tri-amplified monitors. Bass 12", mid 5" + 1" metal dome. Full output 420W. 680mmH x 400mmW x 380mmD. \$9995.

1038A tri-amplified monitors. Bass 15", mid 5" + 1" metal dome. Full output 640W. 810mmH x 480mmW x 420mmD. \$17,200.

1039A control room main monitors - full output 1000W. 2 x 15" bass, 1 x 5" mid, 1 x 1" metal dome. 820mmH x 1050mmW x 550mmD. \$29,995.

1035B control room main monitors - full output 2000W. 2 x 15" bass, 2 x 5" mid, 1 x 1" metal dome. 820mmH x 483mmW x 370mmD. \$POA.

JBL PROFESSIONAL

Jands Electronics (02) 9582 0909

DMS-1 Studio Monitoring System The DMS-1 series of studio monitors uses the most progressive technology JBL has ever developed to provide an extremely high performance studio monitor. DMS-1 uses high technology transducers, including two 14" ultra-low distortion neodymium woofers, and a 1.5 inch (exit) neodymium compression driver. Designed to be used with either the DSC280 or SMC24 external active system controllers Uniform horizontal coverage, to provide correct imaging and consistent sound across the console. Provides both soffit and free standing mounting options. Available with a choice of analogue or digital systems controllers. Frequency Response: 30Hz-20kHz (+/- 3dB); Power rating: HF 75 W AES, 1kHz to 10 kHz, 300 W peak LF 400 W AES, 50; Hz 'o 500 Hz, 1600 W peak; Sensitivity: 95 dB SPL (1W, 1m) Max SPL: 130 dB (2 m); Nominal Impedance: 8 ohms; Dimensions: 914.4 x 584.2 x 527.05 mm. From \$39,995 RRP including tax for system (loudspeakers and controller).

TANNOY
Syntec (02) 9417 4700
System 15DMT 15" dual - main studio monitor with differential material technology cabinet. \$7139.
System 215DMT 15" dual and a 15" bass driver - a very high powered main studio monitor. \$10,999.

next month:

WIRELESS MICROPHONES

ON TOUR

SYDNEY: FOH engineer Grant McAree has been with k.d.lang for fourteen years so he must be doing something right. At the new Lyric Theatre in Star City he was using a fairly identical sound system to the one he specifies in the States.

"We use Meyer MSL4's and MSL2's in the States," he said. "But here I'm using a Midas XL4 instead of an Amek console as Jands couldn't supply one. I prefer the Amek because I use the onboard compressors a lot saving on rack space - which in theatre is a beautiful thing. It's a good sounding clean desk. I use an Amek 9098 pre amp on her vocal - microphone to pre amp, through a couple of other devices

of the stage. The speakers covered the top circle, middle circle and the stalls. A couple more speakers covered the sides and delay speakers were underneath the balcony.

"The idea is to use the SIM to look at all the different acoustic environments in the room and to treat them differently," said Jamie. "By gaining that control of the system you can then align each part of the house so that you can bring everything back to having as close to the same response as possible."

Jamie takes the feed off of the mixing console and splits it out into all of the separate zones - each one has EQ, time delay, and level control. He then works on each one of those areas using his SIM

k.d.lang

'The Voice' has used the same sound engineer for 14 years. We find out why.....

into the desk."

"The whole show is based around her vocal so we spend most of our time trying to get the vocal right. The vocal is mixed where she's down stage centre, where she hears the PA as much as the monitors. It's trying to get a balance that works out for her - it's all one big giant monitor system for her. She likes to play theatres because there's a bit of a bounce back."

The musicians are all of the studio musicians from her last record making a very straight-ahead show with no sampling. The only effects used were reverbs. Neither Grant or k.d. have ever liked delay on her voice.

"You don't have to do much to her voice to make it sound like something," Grant said. "Just fill it out a little bit with the reverb and that's it. It's a simple thing really."

SETTING UP THE PA

System Engineer Jamie Anderson was using a Meyer SIM spectrum analyser. "We've broken apart the control of the whole system so instead of just having a left and a right, we break it into zones." The main PA speakers were Meyer MSL4's with a couple of the smaller MSL2's for front fill and UPM's across the front edge

(Source Independent Measurement) analyser. The SIM analyser compares what is coming out of the board to what is showing up at the seven analyser microphone points that Jamie has set up in the room. Before and during the show, Jamie looks at the response of the system in different parts of the room and works on them.

"The reason why it's called Source Independent Measurement is that you can use whatever is going through the system so you don't have to put any type of test tone through the system," explained Jamie. "Quite often a room changes the way it sounds when you add an audience into it - especially in places with hard floors and surfaces where you bring in a 'soft' audience. We call them bags of water! Usually it improves the sound but if you've aligned the system for having those bounces then your system is going to sound funny."

"When Grant is looking and listening I can spot frequencies for him with the spectrum analyser, as soon as the system is dialled in I support Grant to get the sound he wants and during the show I match the response where he is to the rest of the room. It takes me about an hour to go through the system - tonight there's eleven branches of the system - and once that's

System Engineer Jamie Anderson



Meyer SIM set up



More of Jamie's tools



together and the show has started. I work quickly to get everything back to the way it was before the show started."

Jamie also uses his ears! "I can make the system flat in response but that's not necessarily what it needs to sound like."

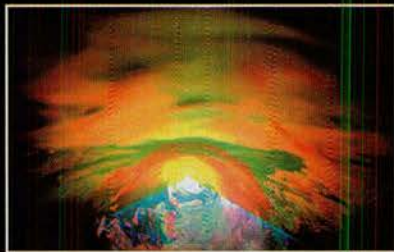
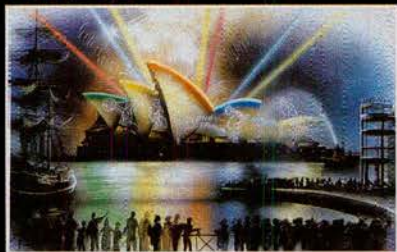
"The key to it all is having good equipment and setting it up right," said Jamie. "EQ is the last thing that you want to use to fix general problems in the system such as all the speakers adding up in the low frequency or loading against walls, but you can't use it to fix a bad speaker. If there's distortion in the system, you can't take it out. That's why we use the Meyer speakers - they have very low distortion and they're very high quality."

The SIM analyser enables Jamie to look at the phase response of the system so the time response not just the amplitude response which is what people which spectrum analysers are generally looking at.

continued on page 53

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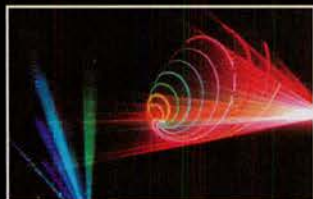
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O N T O U R

k.d.lang *continued from page 50*

One of the keys to making multiple speaker systems work together is time alignment - making sure all the elements (components) are working in time together.

"It's a pretty detailed process but in the end it gives us an even playing field for Grant to go to work on," said Jamie. "It's also very quick even though we're dealing with a huge amount of information, a lot of highly detailed measurements. We can achieve consistency from venue to venue. The performer will vary as will the mix but we can keep this consistent."

START WITH THE VOCAL MIC

One of the first things that Jamie does when he aligns the system is to place a microphone on the stage to look at the PA from the centre stage position where k.d.lang stands.

"I take out any frequencies that are offending and I make the house system sound good on stage before I even start looking at the house," said Jamie. "Mark and Grant then do a ton of work integrating FOH and the monitor system."

Monitor engineer Mark Frink only joined k.d.lang a couple of weeks before the tour started

k.d.lang stands in the centre of an area targeted by four different monitors. There were a couple of MSL4's side fills for her to listen to whilst at the centre of the front of the stage there was a small EAW

Monitor Engineer Mark Frink



JF8C speaker.

"I think it's designed to be more of an under balcony speaker," said Mark Frink. "It's got 2 x 6" speakers and a 1" compressor driver. We find it's very helpful because where the side fills meet in the centre of the stage, there's a bit of cancellation going on and it helps bring the image together in the centre."

Another speaker is used for k.d.lang and that's situated underneath the piano pointing over her shoulder, filling in the image from behind. The two smaller speakers that she listens to have a delay on them, about 18 milliseconds, so they are in time with the side fills. For this delay a Sabine ECF2400 is used which also has parametric EQ in it and dynamic anti-feedback filters - notch filters placed specifically on problem frequencies. For the side fills Mark uses a BSS Varicurve.

The rest of the band use a downstage EAW JF80 speaker and Clare Bros 12AM monitor wedges. All the wedges were

driven by Crest 7301 amps.

In the States Mark had been using a Yamaha PM3500M console for monitors but in Sydney he had a Midas XL3 which he was thoroughly enjoying.

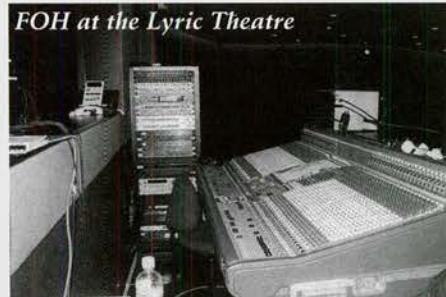
k.d.lang's vocal mic was an AKG 535 which she has used for many years and endorses. The back-up singers use the same. Other microphones on stage included a AKG C5600 condensers for the accordion as well as one in the piano.

"Many people aren't familiar with the C5600," said Mark. "It has the same diaphragm as an AKG 414 except it's in a more rugged package making it better for on the road. It doesn't have as many choices of pattern control as the 414, I think it's strictly cardioid pattern but it does have a roll off switch on it which is helpful and it also has a pan on it."

Added to the AKG microphones were quite a few Audix microphones - mainly the Instrument 'D' Series. The D2 microphone has been compared to a Sennheiser

continued on page 54

FOH at the Lyric Theatre



R O U G H R I D E R

This is traditionally a time of recovery from all the excesses of Xmas and New Year. And techs can usually be counted on to need more recovery than most! As we all know our staying power is legendary whenever a keg or a bottle of single malt scotch is present. I always give a cheer when I see how vital alcohol sales are to keeping the economy in good shape- because I know that we black-clad nocturnal creatures are doing our patriotic duty. It gives me a warm glow of satisfaction that you just can't get any other way (well certainly no other ways that I'm prepared to discuss here).

Imagine then, my distress when some fellow techs presented me with a copy of the Rider for a New Years Eve show they were working on and pointed out the blank page that should have been the drinks rider. Well the

page wasn't totally blank it had four words typed boldly in red letters slashed across it: ABSOLUTLEY NO ALCOHOL BACKSTAGE.

Now I shared their indignation because everyone knows that you can't possibly bring in the new year without a glass of champers in your hand. Even my dear mother who does nothing more than have an occasional sniff from the sherry decanter keeps a bottle of Great Western on ice for the midnight revelries. I was even more surprised when I realised who the headlining artist for the gig was: a legendary boozier if there ever was one.

Surely it's written in the constitution that a human being has the right to drink champagne to see in the new year! I was further outraged when reading through the gossip page of a tabloid paper the next morning to discover that the headlining boozier had

become a born-again-teetotaler. He was quoted as saying, "after I crashed my fourth car, woke up next to a beautiful stranger for the millionth time and burned down my summer house I knew I had a problem with alcohol that I just couldn't ignore any longer".

Well I for one wept for the poor man! His comments confirmed my suspicions that he was a selfish pratt with bad timing and no realisation that he was onto a good thing. I'd give up my mortgage and my KISS autographed T-shirt to wake up to a beautiful stranger even once! You'd think he could have waited until after New Years Eve to sober up: after all what's the loss of another house or car when he obviously has plenty to spare?

Rufus B.

TINA ARENA



Kurt Wagner lights with High End products

Kurt Wagner, known for his work with Kate Cebrano, was delighted to become the lighting designer on Tina Arena's latest tour. Working closely with theatrical set designer John Hazelgrove, Kurt produced a sophisticated and elegant show for Australia's top diva. Although Kurt was touring South America with *Men at Work* when most of the conceptual ideas were formed by John, Tina, and her manager Ralph Carr, he had no trouble enhancing their ideas.

The lighting was supplied by Premier Lighting out of their Melbourne office with the moving lights supplied by Gearhouse Lighting. The rig contained 24 Litho Cyberlights, 24 Studio Colors, 8 Intellabeams, 24 Ministrips, 20 groundrow cyc units, 8 2Ks, 20 Lekos and 2 truss spots.

For the intelligent lighting Kurt was using a Wholehog II and the analogue part of the show was run through a Jands Event 48.

"I've used the Jands Hog a lot but not the Wholehog so I wanted a back-up sys-

tem with the analogue separate if any happened," said Kurt. "I found the Wholehog II to be a fabulous console, a treat to work with. For lighting people, as long as you have a good imagination and set the board up well, you can do whatever you want with it. There was a lot of intelligent lighting with no par cans on the show - a theatrical style rig with the energy to allow the show to happen, so that's why I went with Premier and Gearhouse who did an exceptional job."

The truss has an outer box with an inner box within it and a triangular-shape front truss. The outer box had a curtain track that ran for 360° so the whole stage and set was concealed from the audience when they first entered the venue. At the opening of the show the drape travelled both stage left and right along the way to the back to form a cyc behind the set pieces.

"The set was very time consuming and the pre-production time was very limited," said Kurt. "It's very tough in this country

for an artist to justify two weeks pre-production for a month tour. The set was designed around the Entertainment Centres in Melbourne and Sydney and had to be scaled down for shows in places like Canberra and Launceston. Consequently there were only six shows using the full production."

A feature of the show was the B Stage situated behind the FOH area where Tina would sing three songs acoustically whilst playing a piano. Kurt lit this stage with the FOH followspots keeping it as minimal as possible. During this segment the curtains would close on the main stage whilst a lot of the set pieces were removed to leave an open, clear stage for the remainder of the show.

"In all it was a very good show especially as the price of the ticket was only \$42 said Kurt. "I've just been reading how Mariah Carey is charging \$120 and U2 about \$90. When I see an Australian artist work that hard and do such a good show, only to have overseas acts come here without touring an Australian act as a support band, I get disappointed."

● Cat Forcer



k.d.lang

qued from page 53

421 and Mark is using them on one rack tom and one floor tom. The D3 microphone, comparable to a Sennheiser 409 except it's got a much tighter pickup pattern, is used on the snare top, and all of the electric guitar amps. A D1 microphone is used underneath the snare to get the snare bottom and a D4 kick drum mic is used. Neumann KM84's are used for overheads and high hat.

● Cat Forcer

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EXIT: East Coast Lighting ENTER: Herkes Pro Lighting

Herkes have bought up East Coast Lighting of Brisbane and will begin trading as Herkes Pro Lighting as of this month. They will be Queensland's Selecon distributor.

Well known industry figure Tim Kennard has left Jands Electronics to head up the Queensland Herkes Pro Lighting Division. Tim is very familiar with the Selecon range having previously lead the NSW Pro Lighting team.

Jeremy Collins of Selecon NZ wishes to thank Greg Hughes and the East Coast team for all their hard work supporting Selecon over the years.

Herkes Pro Lighting Queensland can be contacted on:
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With new creative direction the Festival of Sydney mapped out a fresh program for the three weeks of January the festival is held. One major icon was to light the Sydney Opera House, and the colour was to be 'Festival Blue'.

Originally Yvonne Hockey came up with the 'key lighting concept'. Yvonne is the Operations Manager for the Sydney Festival. She brought in Janet Eades to act as Production co-ordinator, then tracked down LD Alan Stone who had lit Sydney Town Hall for a night earlier in the year. Janet handed the luminaire modification job over to Showcraft Australia Pty Ltd, who had the expertise to fabricate the weatherproof colour filter shrouds for the chosen luminaires.

Philips Lighting had already tendered and specified their Arena Vision discharge fixture, which is a daylight corrected outdoor flood typically used for football arena lighting. Philips did the calculations on positions, lumens and numbers, but this was based on using white light.

Lee Conlon at Showcraft had experience with outdoor colouring of light for

the Victorian Arts Centre Spire, a contract we was awarded by Barry Webb and Associates. His firm is a manufacturer of lighting control and scroller products. Lee became interested in architectural lighting when at the LDI trade fair in the USA several years ago. He attended various seminars at LDI and learned about high temperature glass filter technology. Glass colour filters are the only option for permanent, outdoor high power illumination. Showcraft designed and fabricated the filters, and weatherproof shrouds for the Philips fixtures in little time, having been awarded the contract for December delivery on November 1st.

Alan Stone did the final rigging and positioning of the 30 luminaires. Alan had a dry run early in December with a few fixtures fitted with the blue filters, similar to Congo Blue. Some adjustments were made within the fixtures, like removing the glare reflectors for a more uniform beam when used with the blue filters.

Ironically although the Festival say this is the first time the SOH has been lit in

continued on page 61

GAM COMMAND II

By Jacqueline Molloy

Scott Suttar, a casual Head Electrician at Perth Concert Hall knows what it's like to work in a large venue without a rigger's remote for the control desk; it's exhausting! "When I first started at the concert hall there was no remote and a lot of shows that we did just required a basic refocus or colour change: so often there was a one man crew. The hall is a big space and it got very tiring constantly having to go back to the desk and select the next group of lights you wanted and put them on a slow fade to give you time to get back to the rig". All of this changed two years ago when Perth Concert Hall purchased the very affordable Gam Command riggers control. Suttar said, "it makes a huge difference to the way we work in terms of efficiency". Suttar recently evaluated the latest version of the remote; Gam Command II, and used it over several weeks. On the whole he was very impressed with the upgrades that have been made.

INSTALLATION & APPLICATION

The Gam Command II outputs DMX and is powered by 4 x AA batteries. It is quick and easy to install by simply plugging into a DMX outlet using a standard 5 pin XLR cable. Turn the power on to the unit and it's ready for use. The concert hall have installed a simple change over switch between their Jands Instinct control desk and the dimmer system which allows control either via the desk or the remote. Suttar says it's very annoying to get to one of the rigging positions, plug the remote in and discover it doesn't work because you've forgotten to switch control over to remote! (Showcraft actually make a unit: the DMX switch, that solves this problem) Since purchasing the original unit the concert hall has installed DMX outlets at all major rigging positions.

DURABILITY

Suttar finds that the unit performs well over time even after being dropped a few times! "it's the kind of tool that has a bit of a hard life, it's constantly being carried around and unplugged numerous times in a day. The connectors seem robust and the metal case is hardy and offers good protection for the unit. The batteries are easy to get to and change which is a big plus; there is only one screw to undo".

FUNCTIONALITY

Suttar believes that the Gam II is easier to operate than the original model, "the original has a plus button that needs to be selected before carrying out many of the other functions whereas Gam II is quite straightforward in terms of the required key strokes. Anyone who has used a Galaxy or a desk that doesn't rely on Reverse Polish Notation would find



it very easy to operate".

To set Channel 1 at 75 % you simply enter DIM 1 AT 75. The LED (light emitting diode) screen (which is a new addition) gives you a status readout. Suttar believes that the LED screen is one of the biggest improvements on the previous model, "it was very inconvenient not having any kind of readout before, especially if you couldn't remember the channel number that you had last accessed and now needed to clear. It made it a bit complicated". He is also pleased that the screen is LED rather than LCD (liquid crystal display) because it makes it much easier to read in any situation.

Another new function is the memory facility which allows entry of up to 14 steps into the unit's single memory. Though a step can be something like ch 1 thru to ch 20 at full, thus allowing you to store a significant amount of information.

OTHER USES

Suttar finds the Gam Command II to be very handy as a cable tester or to track DMX signal faults. "You can plug a DMX cable into the male and female outlets at the top of the unit and get a readout that will let you know whether or not all 5 pins are functional. It'll let you know if a couple of the pins have been reversed at one end of the cable or if a connection has come loose. It's also a quick and easy way to find out if you have a fault in your line somewhere. It can also sit in-line and give you a readout of the active channels".

FAVOURITE PART

One of the main criticisms Suttar had of the original model was how quickly it consumed batteries. The Gam II has an energy saver mode that activates after 2 minutes if the keypad hasn't been touched. Normal operation resumes as soon as you make a new entry and whilst in energy saver mode it doesn't interfere with the selections you have previously made. Another useful feature is that you get a warning when you switch the unit on

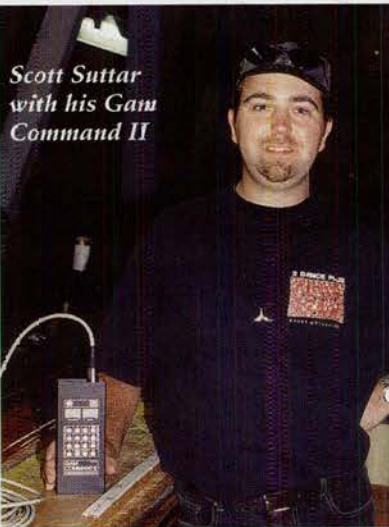
to let you know that the battery is low. "There is nothing more irritating than being part-way through a focus and the remote dies: so I'm really impressed with the new power saver and battery warning mode".

CONCLUSION

Suttar was very impressed with the Gam Command II. "I feel that the new features on the Gam II are actually functions that you really need. But I do think they should have another rewrite of the manual as it's not very clear in places; though fortunately it's an easy product to use". Another aspect of it Suttar really liked was the positive action of the



keyboard. "With some other remotes that I've used it's hard to tell whether or not you've pressed the button; whereas the Gam II has a nice feel to it. Although I'd like to see a backlit keypad in the next upgrade. I'll definitely be lobbying to get the Gam II at the concert hall now I've seen what I'm missing out on!"



Scott Suttar
with his Gam
Command II

Size: Height 180mm,
Width 75mm, Depth
35mm

Weight: 456kg (including batteries)

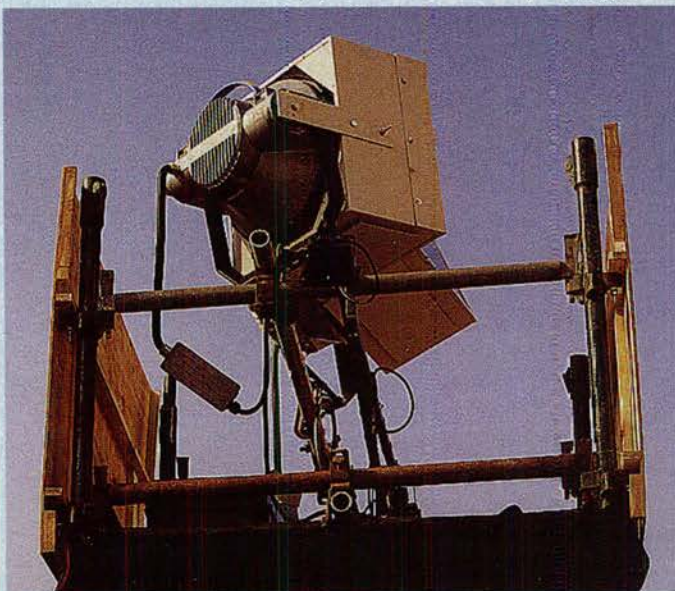
Price: A\$620.00 plus tax

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BLUE NIGHTS ON THE HOUSE

continued from page 59



colour, the very first Festival in 1977 featured a New Years Eve concert with the house floodlighting coloured with giant colour changers by the late Roger Barratt. Not only coloured, but with changing colour, as Barratt designed the worlds largest colour changer magazine, measuring some 12' x 6' in. size. Each colour frame was counter weighted into position by two large Maori mechanists, on cue given over a walkie talkie by Barratt! At the same time, four Colourtran 5k Fresnels up on the cliff opposite changed colour via enormous plywood colour wheels - but only after several had been blown over, and had expensive (and hot) lamp replacement!

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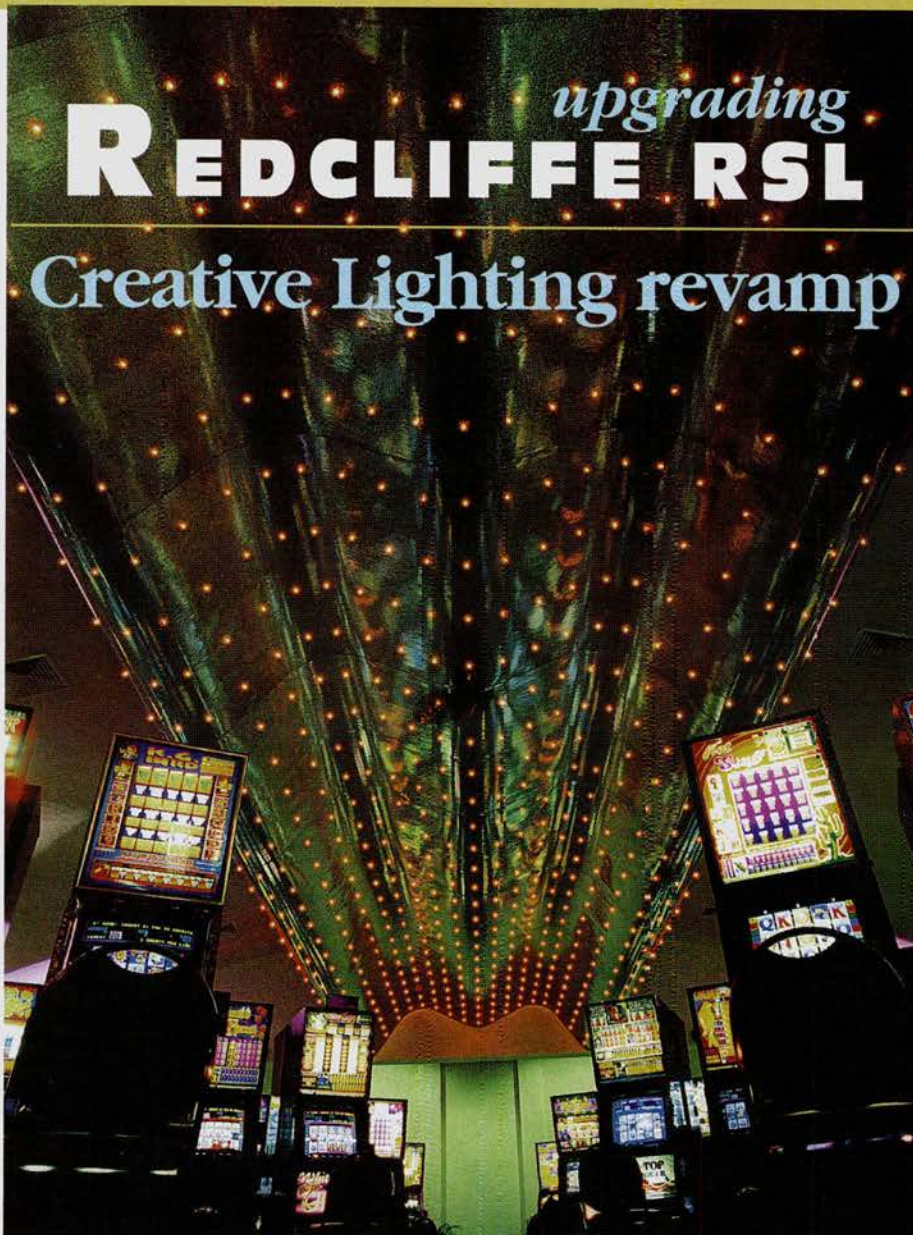


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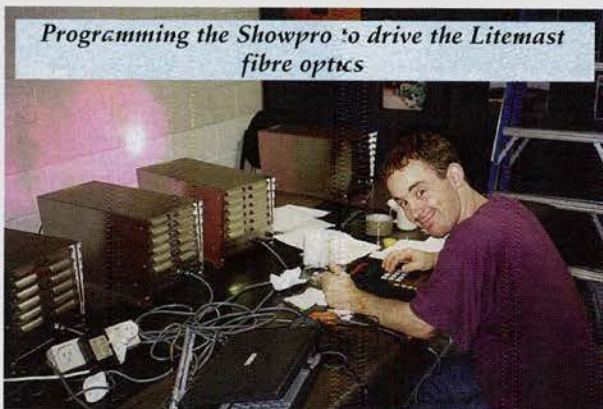
Design of the multi-million extension to the Redcliffe RSL in Queensland began back in December 1996 with the opening due this month. The interior lighting design contract was awarded to Creative Lighting of Brisbane who have worked with the architects - Fulton Gilmour Trotter Moss - and the builder - Rubicon Constructions - on previous successful jobs such as both Caloundra and Hervey Bay RSL clubs. Both were award winners in the IES Queensland lighting awards this year.

Creative Lighting were fortunate to be involved in the design of the extension from day one, so when they saw the Architect's sketch of 'some sort of vertical spire to the building', they took over and developed the 'Litemast' - a purpose-built 14 metre star pole with fi-

bre optic rings and a beacon.

Likewise, the sketch of the Gaming Lounge showing a simple cover to hide the central air conditioning duct was superseded by Creative designing a 140 square metre suspended fibreglass 'Wave'. The Wave hides both the duct and the lighting whilst also acting as a projection.

continued over



LXbizzBITS

PRODUCTS

CF6 and KP6/12
 TAS have launched two new moving-yoke fixtures aimed at the live music and lighting production/installation markets, the **CF6 Colour Wash** and **KP6/KP12 Spot**.
 The CF6 (Colour Fresnel) wash luminaire has pan and tilt movements of 369° and 260°, trichromic CMY full colour mixing, an additional colour wheel, 3 interchangeable frost filters.
 The KP6/12 (Kompact Power) spot luminaire features pan and tilt movements of 369° and 260°, colour via a 9 colour wheel, 8 gobos and fan forced-cooled MSR 575/2 (KP6) or MSR 1200 (KP12) lamps.
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FOG HOG Jnr
 New to the vast American DJ range of products is the **Fog Hog Jnr**. Similar to it's father, the Fog Hog, only more compact and portable, Fpg Hog Jnr is a high output (2500 cubic ft/min), low cost mobile fog machine. It's highly efficient 700W heater makes it ideal for situations where electrical supply is limited, and due to its low operating temperature it is one of the safest fog machines on the market.
 It has a low profile case design with a hanging bracket for mounting on a truss, and also comes with a 10 metre remote control, and a fog fluid tank. This promotionally packaged little fogger is ideal for mobile DJ's, clubs, bands, parties, and stage shows.
 Call American DJ Australia 1800 643 111.

LPL3 LIGHTING SYSTEM
 Ace Edit of Sydney has released the **LPL3** kit - a compact film or video lighting system from LPL of Japan. It comprises of three lamp heads, each with detachable barn doors, and three robust stands. The lamp head is rated at 700W and all barn doors incorporate a clear glass protection screen; a diffused glass protection screen is also included.
 Call Ace Edit +61 2 9398 9039.

NEW FROM COEMAR
 Coemar have released the **Focus E.H.P. 2500**, a 2.5kW HTI powered zoom profile spot, and the **Tourlite Spot 1200**, a 1.2kW discharged powered colour wash luminaire.
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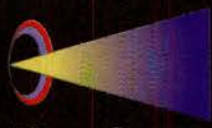
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Tel: 65.742.8266, Fax: 65.743.9322

HIGH END SYSTEMS GmbH:
Tel: 49.8122.9903-3, Fax: 49.8122.9903-33

REDCLIFFE RSL

continued from previous page

surface. It also has nearly a thousand lamps as 'rivets' in its wave-like hull.

According to Creative's Lance Stewart: "The freedom to take over and develop the design of key architectural features with the architect in a supportive role is a great step forward. Of course, if we stuff it up the opportunity for the rest of the lighting community to piggy-back on this approach will be lost and you'll know who to blame!"

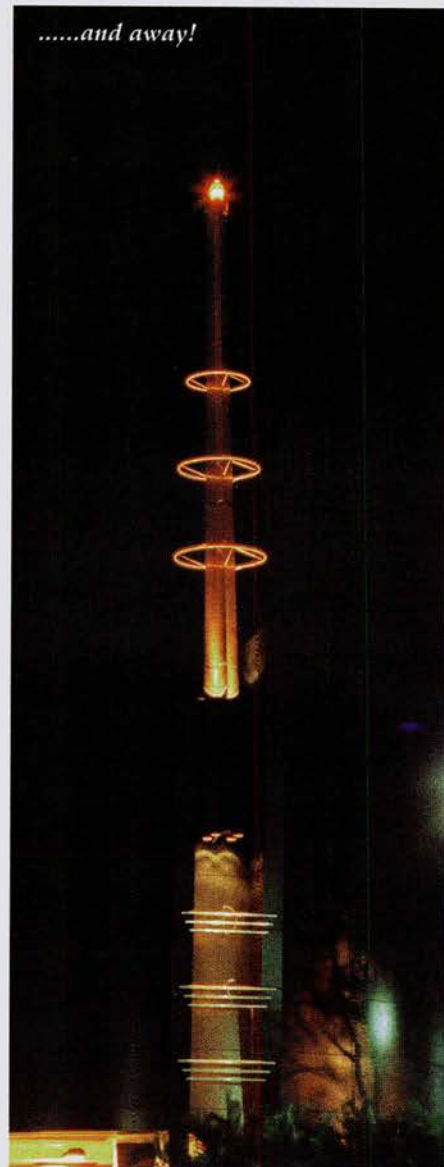
The lighting of both the Litemast and the Wave are driven by Creative's Showpro products which include facilities for the automatic shows to be overridden by the Club so they can select ranges of shows that best suit the desired atmosphere at any given time. The Showpros inside the Club are hooked into the Ode system and have PE and timer functions as well as sending simultaneous DMX512 and DyNet commands to dimmers and intelligent lights.

Redcliffe's RSL's new Litemast has three concentric rings outlined in side light fibres. These sequence in colour and direction. On top of the pole is an arc-lit beacon claimed by Lance Stewart to be "the world's biggest bullet lens!" (about 600mm high). The sequences of the rings and beacon tell the time at night and change automatically through dozens of randomly chosen shows.

The Litemast weighs in at around 900kg and reaches a height of 25 metres above ground level. The four Digilin fibre optic light drivers with dual DMX512 colour wheels, send light from their 150 watt metal halide lamps up more than 100 metres of side and end light that are made from almost 20 kilometres of fibres.

The Gaming Lounge lighting is designed to make the most of the space with its high curved ceiling. Martin Pro 400s, JB Lighting Varyscan Specials, Megabay Ciplight, QI scoop-up lights, Clay Faky water columns and a unique cross-floor lighting all work to bring the room alive. The centrepiece to the design is a Coemar NAT in the middle of the Wave. The NAT is the first wide angle intelligent light with 3600 clip-on head to arrive in the country and will be fitted with custom gobos in addition to its standard range of glass and metal gobos.

Creative Lighting now have a web site: www.creativelight.com.



★ *Cat Forcer*

LXbizzBITS

PRODUCTS

VIDESSENCE V-BEAM SERIES

Techtel have released the new V-Beam series by California-based media lighting specialists Videscence. The V-Beam series of fixtures uses new, higher output lamps and provides 3000° Kelvin lighting.

The V-Beam 200 uses six 32W lamps for a total of 192W but provides 2200 lux at 0.9m. The largest V-Beam - the 3441 - provides 10,600 lux at 0.9m but only uses 440W (eight lamps at 55W each). The SRGB (sustained RGB) lamps have a low heat output, a rated lamp life of 10,000 hours, spectral response which matches today's CCD cameras and a dimmable option.

Call Techtel +61 2 9906 1488.

JEM ZR22 DMX

JEM have released a new smoke machine - the JEM ZR22 DMX which offers the control options of DMX512 as well as dedicated analogue control via the removeable remote panel. The new style remote offers the usual auto speak operate and delay controls, but this has been enhanced to include a unique 8X mode. This multiplies the standard operate and delay times by eight, offering the operator greater control of the unit.



The JEM ZR22 DMX uses the D-TEC vaporising system which JEM claims doubles the smoke output of conventional systems, and a much longer run time.

Call Show Technology +61 2 9898 1111.

AVENGER BY MANFROTTO

Coemar De Sisti Australia have added the **Manfrotto Avenger** range of lighting stands and grip equipment to their inventory of products.

Call Coemar De Sisti Australia +61 39467 8666.

Selecon Acclaim range

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High quality german base with lamp ejector for trouble free lamp removal.

Airflow design effectively removes heat away from critical components such as lamp base and wiring.

Industry standard T class lamp, low cost (lamp cost approx 4c per hour) available from many manufacturers/distributors.

Unique shutter design provides widest range of shutter movement around the beam.

Pattern holder clamps the pattern flat and rotates upto 70 degrees for ease of image alignment.

Cranked yoke to provide unrestricted shutter movement even when positioned nearly vertical.

Yoke pivot point adjustable along the luminaire as required.

Light output equal to or better than other manufacturer's junior/650w profiles.

Standard tungsten colour temperature matches all your other luminaires using T class lamps. No need to consider differing filters in an attempt to compensate for colour temperature differences.

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Rear grab handle, use as a cable wrap.

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THE SAFE OPTION

With features such as automatic mains power disconnection etc, the Acclaim range meets the requirements of the European CE standards. An important consideration for the user, manager or consultant when considering their responsibilities under today's OSH regulations.

Australian Distributors: NSW – Herkes Pro Lighting 02 9319 3133 QLD – East Coast Lighting 07 3252 9583 VIC – Clearlight 03 9553 1688 / Concert Lighting 03 9646 8444 / Three Arts 03 9818 3397 SA – Osmonds 08 8410 1111 / GUVT 08 8340 1999 WA – Aston Admor 09 9478 3800 / Light Applications 09 245 3343 / Stagecraft 09 227 9000 / Stage & Studio 08 9227 9932 TAS – McCulloch 036 285373

SELECON

changeovers at OA Countdown to Curtain Time

Opera Australia have a daunting schedule, but they have it down to a fine art. As a repertory company, they put on an opera at night, strike that, stage a full rehearsal for a different opera at 10:30 the next morning, strike that, and put on yet another opera that night.

How so they do all that, without having a nervous breakdown?

The answer is organisation.

Colin Alexander, Deputy Head of Lighting for OA, showed me around one afternoon. *Maria Stuarda* had been on the night before, and I arrived around 2 pm, as the full rehearsal of *Cunning Little Vixen* was finishing. *Cunning*, designed by Stephen Curtis, is a theatre within a theatre. The little theatre has its own scene changes and lights, with two flymen, and a lighting operator hidden in the ceiling. Because the set is a revolve, it has 3 phase slip rings, and its own 50amp supply for the dimmer racks and 24 channels.

The OA standard rig is eight overhead bars, carrying Profiles, Fresnels, 650w, and 1Ks, 1.2Ks, and 5K Fresnels. The eight booms have Pars, Shakespeares, Preludes, Profiles, Cadenza Fresnels, and some Cantata PCs.

The LD for each show begins with the standard rig as a base. The focus, colour, gobos can be changed on all the lights, and

new lighting positions added. The FOH lights are rarely refocused. "They're hard to reach, as they're right over the orchestra," Alexander said. "The only way to get to it is a very small crawl space."

The five people in the OA lighting department share a tiny office off the Green Room. The impressive paperwork (shown here) notes every lamp by type, colour, size, channel, grid, and description.

The Schedule

11pm *Maria Stuarda* ends, mechs strike set, lighting changes colour, size, and refocus lights

7am Mechs put set in, lay floor, put in scenery

9am Lighting check focus, colour and patching. Move set into different positions to check focuses for each act.

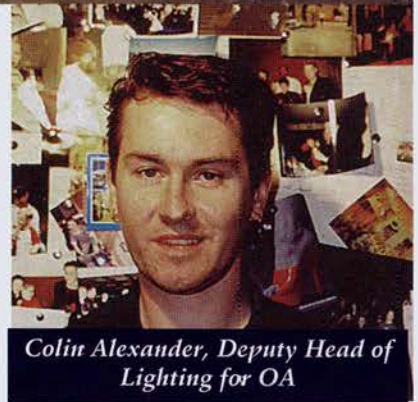
10:30am *Cunning Little Vixen* begins

2:00pm Rehearsal finishes, wardrobe takes away costumes from quick change areas, mechs start striking set

2:02pm Disconnect all light booms that were part of the *Cunning* set, and move them upstage onto the rear lift. 15 mecs come onstage, take away all the floor, flown header, all goes onto trucks to the rearlift.

Flymen and mecs do all the flying changeovers, moving borders, and flown

Changing gels in overheads



Colin Alexander, Deputy Head of Lighting for OA

cloths. Cloths are changed over, because there are only 45 bars. Some cloths are removed, because the overhead storage area is limited

Up in the fly space, the flymen are shouting numbers across the stage, moving weights onto ropes, and working the new Bycraft State Automation system. It's like the deck of a tall ship, with the big ropes, and hardy mates "I just got to change ends! Hang on! 99" Kerry Doherty is the head flyman, and she's a woman.

3:00pm Mechs are hanging snow bags for *Onegin*, and pulling up the *Vixen* floor, storing it on the slave trucks. Scenery is placed on rear lifts, which can work together or alone, about 9mx9m, and two storeys deep. Mechs are down in the dock receiving, and storing scenery under the



Fly Area



Orchestra Bar

main stage. Little railway trolley moves loads. Mecs clear the lift, and load in scenery for *Onegin*.

The orchestra bar is lowered and held out by brackets, while two lighting techs change gels on all orchestra and boom lights. The gels go into a folder, in order, for the next show.

Cunning teaser, 3m high, comes down, and is held at an angle using low trolleys. Mecs shorten the pickups, so it can go out higher

3:45pm Bring down all eight overhead stage bars, remove and store *Cunning* gels, put in *Onegin* gels, change sizes, raise bars to 20'.

Lay down a measuring tape grid. Consult sheet, ie Lamp 1, stand at 1m:90 upstage x 5m:90 across. Checker holds three gels with UV filter between on his face, while staring up at Lamp 1. Person on Cougar points light until checker gets the hot spot in the centre of the lamp.

Kerry Doherty - head flyman, fly spot



7:30pm *Onegin* begins

During the afternoon changeover, I didn't see any confusion, or inefficiency. Everyone, particularly Kerry Doherty, seemed energetic and focused. All the moves were choreographed, everyone had a position, no one got in anyone's way. Opera Australia is one of the marvels of the country, and is staffed by

dedicated, talented people, who produce a great product.

"I love this job, because of the variety, with two different shows a day, and many different LDs, it's not boring," Alexander said.

★ *Madeleine Murray*

THE OPERA HOUSE LIGHTS UP

Lighting Design Partnership have been commissioned to make the Opera House stand out at night in time for the 2000 Olympics. The result should see the building bathed in a permanent 'moonlight' effect. Currently shadows hide much of the building at night.

The new lighting design is expected to take eight months to complete and will be installed at a total cost of between \$2 and \$3 million. However, the introduction of contemporary lighting technology in a number of areas will save the Opera House Trust up to 30% on its annual \$1 million light bill.

BYTECRAFT NEWS

Bytecraft have delivered a large shipment of lighting equipment to the Lyric Theatre, Star City Cas no. Equipment includes 40 racks of Bytesize 483's, a ream of multicores, 2 Limelight Followspots, A 500 channel Strand 520 Lighting Control System, 15 x Strand Cantata 18/32 Profiles, 20 Strano Cantata F, and 20 Par 64 cans

continued on page 75



MH-130 Hyper II



MH-200 Minimoon



MH-150 Wildmoon



MH-1124 Dancing Waters

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MH-260 Ninja



MH-270 Goboflower



MH-1124 Dancing Waters

Write in Reader Service Number: 179

BUYER'S GUIDE

truss, flying systems, rigging

Prices EXCLUDE sales tax and were correct on 15th January 1998. All care taken, no responsibility for errors. Four models only are shown in each category although these manufacturers have many more. Indicative only.

STANDS

ALE

Chameleon Pro Lighting Sales (02) 9310 5222

A2004 1.8 m push up stand with removeable tri leg base available in black powdercoat or chrome finish. \$189.

A2023 folding leg push up stand, accepts 1 inch spigot. Maximum height 1.9 m. \$254.

A2001 18 foot winch up with folding legs, load brake winch, accepts all 1 inch accessories (truss to tree adaptors). \$1015.

A4002 NEW 6.1 m lifter. Fitted with Australian standard approved load brake winch, leg leveling for uneven surfaces. Accepts all standard 1 inch hardware.

CLS

Concert Lighting Systems (03) 9646 8444

4m Winch Up Stand \$528.

3.3m Telescopic Stand \$200.

Followspot Stand \$275.

Floor Stand \$16.

DOUGHTY ENGINEERING

Coemar De Sisti Australia (03) 9467 8666

Bulldog & Club Stands A complete range of 'Cine' and 'C' stands, with full range of grip accessories. Up to 670cm/40kg lifts in Cine, up to 60' 'C' stands up to 480cm lifts. Club stand range includes tripod type, followspot stands, standard winch ups, and castors to suit. Standard raw and satin black finishes. From \$140.

Winch Stands to suit all applications in lighting, audio, and multimedia. Up to 6.0m lift, 150kg max. Stands feature lay leg, single person operation, folding base, dolly wheels, secondary safety systems and full TUV approval ratings. From \$912.

Music stands Music and Conductor stands for both professional and amateur use finished in scratch resistant black nylon coating. Feature up to 600mm height adjustment, spring loaded safety catches, lamp/unlamped versions, grill style music tray, and detachable base assemblies for transporting. From \$200.

ESP TECHNOLOGY

ELSTA (02) 9568 2100

SSHHD Australian made custom ESP heavy duty rugged steel speaker stand. Wide footing, perfect as a tall speaker stand, folds away to compact size, black powder coated finish. \$138.50.

KONIG & MEYER

The Resource Corporation (03) 9877 8233

KM 24630 lighting stand All steel, height adjustable from 1955mm to 2915mm, 20kg centre load. Extension rod features M10 female thread. The usual K&M quality at an affordable price. \$320 per pair.

KM 24640 lighting stand Extra tall steel tube construction with 2 extensions, infinitely variable height adjustable from 1590mm to 4025mm with locks and safety rings. 20kg centre load. Extension rod features M10 female thread. \$697 per pair.

KM 246/1 winch-up lighting stand Aluminium with steel extension rod, height adjustable from 1840mm to 3050mm by easy-action hand crank. 30kg centre load. M10 threaded extension rod. \$1064 per pair.

KM 21393 lighting crossbar Slip-on crossbar to suit any 35mm diam. stand. 1455mm long, 10 mounting holes for lights, supplied with 4 screw fittings. \$78 each.

LIGHT EMOTION

ELSTA (02) 9568 2100

LSHD Australian made, super heavy duty - rugged steel construction, collapsible legs, maximum height 3m, wide footing, black powder coated finish, holds up to 8 par cans or lighting effects, folds away to compact size. \$163.10.

LTS1 specially designed heavy duty aluminium lighting stand with side arms which holds extra lighting. Extends up to 3m and holds up to 16 parcans or lighting effects at one time. Light weight, portable, black powder coated finish, wide footing, simple to erect. \$155.70.



base. \$327.

A320 Overhead wide base, capacity of 40kg, (196cm diameter) with maximum height of 557cm with multifunction head. Available with optional wheels. \$510.

MANFROTTO

Coemar De Sisti Australia (03) 9467 8666

Avenger Stands The complete Manfrotto Avenger range of stands and accessories. From \$50.

PROEL

C.M.I. (03) 9499 6805

KP-110LX heavy duty, all metal lighting stand with removeable cast-iron base. Height adjustable from 230-300 cm. Load capacity 100 kg. Spring-loaded locking pin and safety locking screw. \$129.

KP-150 tripod style stand, very stable, height adjustment with spring-loaded locking pin and safety locking screw. Folding legs for easy transportability. 184-284 cm. Load capacity 106 kg.

QFX

Quantum Efex (08) 8351 9085

LTS 05 aluminium tripod stand with T crossbar. Max capacity 40kgs, up to 13ft. \$298.

LTS 06 small metal tripod stand. Max capacity 30kgs, up to 9.5ft. \$129.

LTS 31 10ft aluminium trussing system. Features 2 x aluminium tripods with T bars, 2 x 5ft truss pieces. Max capacity 90kgs, weight 17kgs. \$595.

TRUSS

ALE

Chameleon Pro Lighting Sales (02) 9310 5222

300 Series Alloy Tri-Truss available in lengths from 0.7 m to 3 m (stock), custom lengths to order. A full range of corners and accessories available - dealers Australia wide. From \$292.

MANFROTTO / AVENGER

Miller Professional Products (02) 9439 6377

070U Follow Spot Manfrotto Follow Spot Stand with a maximum capacity of 40kg, minimum height 88cm, maximum height 147cm, weight 6.8kg. \$275.

680B Autopole 2 Avenger Autopole 2, height range 2.1m - 3.7m with black finish. Tallest Autopole in the range with Upgraded Locking mechanism. \$192.

40" C Stand complete with griphead and 40" arm in black or chrome finish. Includes leveling leg or detachable

14" Box steel box truss as used by silverchair, Midnight Oil and Babe II. Stock and custom lengths. Full range of corners and accessories. From \$200.

18" Box heavy duty steel box truss for concert, theatre and film work. Standard lengths 2 ft, 4 ft, 8 ft, 10 ft and 12 ft. Universal corners, cubes, right angles etc available. From \$300.

ASHBAR

Ashton Admor (08) 0478 3800

Ashbar proprietary extruded aluminium lighting bar with flat side to accommodate architrave. Flush power outlets for optimum safety. Full range of accessories - cap, ends, junctions, clamps. \$210 per 0.5m length.

Ashcap a PVC extruded capping allowing ease of cabling and installation to Ashbar bars or grid. Useful access for maintenance or extension. \$17.60 per 3.25m length.

Ashjunction cast aluminium 4 way 2 piece junction to convert Ashbar into full lighting grid. Also enables simple suspension and installation of grid. \$13.25.

Ashend extruded aluminium end plug to finish ends of open Ashbar with a flush seal. \$2.

CDA

Coemar De Sisti Australia (03) 9467 8666

Multi Truss Specialist truss and staging pieces, generally made to order, in a variety of materials. Suitable for display and fixed applications. Most items made to client specifications, and include standard items such as lightweight display truss and aluminium tri-truss pieces. From \$10.

CLS

Concert Lighting Systems (03) 9646 8444

300mm Alloy Heavy Duty Tri-Truss straight sections, curves, corners, cables etc (3m Sections). \$531.50

300mm Alloy Heavy Duty Flat Truss (3m Sections). \$425.

450mm Alloy Heavy Duty Folding Truss (3m Sections). \$1365.

500mm Alloy Heavy Duty Box Truss (2.4m Sections). \$900.

LIGHT EMOTION

ELSTA (02) 9568 2100

LSPT designed for easy set up and high stability, fully adjustable height up to 3 metres, features two black anodised aluminium tripods with super wide footing and locking pins. Light weight and portable, holds up to 90kg, heavy duty and robust. \$327.05.

LITESTRUCTURES

L.S.C. Electronics (03) 9561 5255

Billite a 227mm C-C aluminium flat truss; lightweight and strong; comes in a range of colours, corners and lengths. From \$65.

Astralite 245mm C-C aluminium tri-truss; lightweight and strong; comes in a range of colours, corners and lengths. The innovative 'KEY' locking system is also available. The key allows a section of truss to be joined quickly with a single plate and does not require bolts. From \$109.20.

Quatralite 227mm C-C aluminium box truss. Offers great strength for its size. Comes in a range of colours, corners and lengths. \$183.30.

MEC

Show Technology (02) 9898 1111

SQ 4 Tube square linear truss. From \$191.31 (0.5m straight truss). Also available as square radial truss. From \$652.87.

TR 3 Tube tri linear truss. From \$112.86 (0.5m straight truss).



SL 2 Tube flat radial truss. From \$112.86 (0.5m straight truss).

Hard & Soft Corners from 60' corner/radial corner - 135' corner/radial corner. From \$341.81.

PENN

Penn Fabrication (03) 9646 7222

TT2540 aluminium Tri Truss in a 4m length. Also available in 0.5, 1, 2 and 3m lengths. \$304.

ST2540 aluminium square truss in a 4m length. Also available in 0.5, 1, 2 and 3m lengths. \$389.

FLYING GEAR

CLS

Concert Lighting Systems (03) 9646 8444

Video Flying Brackets for Barco, Sony, NEC, Fujitsu. From \$72.50

T.V. Clamps & Dropper Bars. From \$66.

Chain Hoists C.M. Lodestar, Demag, Kito. From \$2000.

CLS Hoist Controllers 2 way, 4 way, 8 way, custom. From \$3000.

C.M. LOADSTAR/GIS

T.C. Hasemer Pty Ltd (02) 9519 8188

Model L 1000 kg Lodestar Model L 1000 kg capacity. Std 18 m lift (60 ft). The industry standard in stock ex Sydney. Model R 2 to one also available. \$3420.

EM 100/IN GIS Swiss made chain motors 1000 kg capacity std 18 m (60 ft) lift. Quiet, compact, well known in the industry. Used motor up or motor down. Full range 80 kg - 5000 kg. \$2865.

DE SISTI

Coemar De Sisti Australia (03) 9467 8666

Pantographs and Hoists comprehensive range of manual and motorised pantographs and hoists suitable for a variety of applications including film and television studios and other permanent installations. All fixtures are available with powered outlets and DMX/analogue control sockets or audio outlets. POA

DOUGHTY ENGINEERING

Coemar De Sisti Australia (03) 9467 8666

Flying Gear A complete range of flying accessories including winches, pulley blocks, pipe clamps, spring hooks, scaffold fittings, safety bonds & chains, wire rope & fittings, swivel clews, stage weights, curtain fixings, and scenery fixings. From \$5.

CLAMPS/ACCESSORIES

ADJ

Show Technology (02) 9898 1111

Half Coupler traditional 2" hook clamps. \$6.55.

3/4" Disco Truss Clamps \$5.75.

Plastic 2" Hook Clamp attractive yet functional clamp holds up to 30 clamps. \$8.20.



ALE

Chameleon Pro Lighting Sales (02) 9310 5222

Various Australia's largest range of locally manufactured hook clamps, 2", 1", 2"-1", 1"-1", mini hooks, 'S' hooks, light and heavy duty, boom arms, barrel clamps. From \$4.

A2008 H-stand, suits most popular lighting instruments. Provides a stable floor mount. \$22.

A2011 2 inch round 'T' bar with 1" spigot to suit ALE 1" sockets. Allows fixtures to be mounted with hook clamp. \$60.

A10007 aluminium joiner sleeve for alloy truss, fits all 53 OD x 3 mm wall thickness alloy sections.

\$11.

ASHBAR

Ashton Admor (08) 0478 3800

Ashclamp extruded aluminium hook clamp Ideal for use on Ashbar. angled tri-bolt eliminates slipping under load and over tightening. Also allows use on off-standard bar sizes. \$8.75.

CLS

Concert Lighting Systems (03) 9646 8444

Hook Clamps from \$5.

Heavy Duty Hook Clamps from \$8.

'C' Hooks from \$8.50.

Boom Arm Brackets from \$20.

C.M. LOADSTAR/GIS

T.C. Hasemer Pty Ltd (02) 9519 8188

Lodestar Chain Motor

Cover foam backed 8 kg/m² material reduces motor and brake noise to almost nothing. Velcro straps for easy fitting. \$295.

Chain Bags for Chain Motors 35 m capacity, reinforced base. Made from ripstop material for long life. Stainless steel fittings. \$130.

DOUGHTY ENGINEERING

Coemar De Sisti Australia (03) 9467 8666

Doughty Supa-Clamps A complete range of clamps, couplers, joiners, and truss adaptors available in a variety of configurations in extruded aluminium, natural or silk black finish. All TUV tested to 500kg SWL. Accessories include all standard and individual grip equipment from frames to scrims and butterlies. From \$5.25.

Doughty Easydeck Easy to assemble staging manu-

factured from steel and phenol coated birch ply. Features reversible panels, compact stacking, various staging sections, and all accessories. Suitable for all applications from schools and amateur groups, to professional production companies. From \$120.

Doughty Bluebook Products A totally comprehensive range of every conceivable accessory for attaching lighting and audio equipment. Range includes fixings, scenery accessories, curtain accessories, etc. From \$5.

KUPO

Show Technology (02) 9898 1111

Couplers including half coupler, swivel coupler, eye ring coupler, spigot coupler. From \$38.93.

Truss Adaptor \$138.52.

Safety Wire small \$5.33; large \$7.50.

LIGHT EMOTION

ELSTA (02) 9568 2100

CLHD two inch powder coated steel hook clamp. Made exclusively for Light Emotion, it's extremely strong and is very heavy duty, with non scratch surface. \$6.50.

MANFROTTO

Coemar De Sisti Australia (03) 9467 8666

Avenger Clamps A range of clamps including multi-purpose locking clamps (V-jaws, rotating profiles, rotating cams) and standard TV clamps in brass and aluminium, as well as barrel clamps, and gaffer grips. From \$60.

MANFROTTO/AVENGER

Miller Professional Products (02) 9439 6377

C100 Junior Pipe Clamp cast pipe clamp for lighting fixtures with 26mm spigots with safety locating pin for lighting bars and grids. \$98.

C1575B Super Clamp case aluminium standard clamp accepts 16mm spigots includes safety release button with rubber jaws for extra grip. \$39.

C350B Barrel Clamp designed for lighting grids approx. 52mm in diam-

eter. The barrel clamp tightens and accepts fixtures with 28mm spigot. Incorporates safety locating pin.

C150 Swivelling Clamps adjustable "C" clamp for various diameter grips incorporates. A rotating lower section accepting 28mm spigots or 16mm socket.

MEC

Show Technology (02) 9898 1111

Accessories clamps, couplers, tubes etc. From \$2.86.

next month

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JANDS HOG 250/600

By Mandy Jones

The Jands Hog range of automated lighting consoles are a co-design between software company Flying Pig Systems of the UK, and Australian manufacturing company Jands. The result is a mid-priced console that can handle just about any moving or conventional light on the market.

I met with Rohan Thornton and Jason McKinnon from GTV 9 to discuss their experience with the Jands Hogs, and why such a good console has been given such a bad name in recent months.

MAIN USE

The Hog 600 and 250 consoles are owned by Cn Air Productions however they are practically permanent residents at GTV 9 in Melbourne. They are used on almost every show produced out of the studios.

"Whenever a moving light is used, they're our weapon of choice," says Rohan.

Shows include *Hey Hey It's Saturday*, *In Melbourne Tonight!*, *The Price is Right*, *Sale of the Century*, *The Footy Show*, as well as the special events channel 9 is famous for: *The Logies*, *Carols by Candlelight*, and *The Footy Show Grand Final*.

Rohan explains the choice of the Jands Hog range:

"We originally chose it three or four years ago because there were so many moving light consoles on the market that we decided we just had to pick one because it was too hard to get people trained up and maintain their currency in all the other consoles. So we weighed the pros and cons and even in it's infant stage - price versus versatility, the Jands Hog won.

"It copes with all our current lighting stock - VL5s, VL6s, Arcs, VL5 Arcs, Mac 500s and 600s, Cyberlights, Intellabeams, Stage Scans, Golden Scan 3s, Superscan Zooms, Golden Scan 2s, Robocolors, Colour changers: Colourset, Wybron and Rainbow. We actually use it quite a lot just as a conventional console, particularly with the 600, it's very handy to have 600 channels up your sleeve. Actually, it's surprising the number of times we use it as a conventional console."

THE TRANSITION

While some lighting departments and companies have had problems adjusting to the Jands Hog system, Rohan explains that previous experience with similar consoles made the transition easier.

"We're lucky because we were exposed to the Vari*lite Artisan which in the late 80s was probably the best moving light



console around. The logic of assembling your parameters outside of the cue and then bringing them together into the cue, is the best way to operate moving lights, particularly Cyberlights with 20 channels of control. I think we made the transition well because we had been exposed to those sorts of consoles as

opposed to going straight from trying to do eight moving lights on an Event, Axiom or Instinct console.

"You've got to completely change your mindset on the way you operate because it is a *moving light* console, not a two preset fader console.

"We were also lucky because we were at the test site when the Hogs first came out a few years ago, so we had a lot of time with Jands learning how to use it. We changed the way we approached operating moving lights then, therefore we've had little or no problems with the two consoles over the entire time we've had them. Any little problems we've had, Jands have been good in resolving them."

TRAINING THE OPERATOR

"We've trained about a dozen people on the Jands Hogs over the last three years. We start with 'forget everything you already know'.

"I haven't had any problem with people understanding the concept of HTP (Highest Takes Precedence) and LTP (Lowest Takes Precedence), so again that made life easier, and again that is one of the problems - some operators out there just don't understand the fundamental difference between the two, and if you don't understand that, more than anything else you'll get yourself well and truly into the shit. You start chasing problems that aren't there.

"That's a classic example of the console getting a bad name because some operators don't come to terms with it. It is definitely not a board you can just open the case, put your fingers on it and make a show happen. Jands may say that, but it is not the case. There's a certain amount of education you've got to have before you can operate it efficiently."

OPERATION

Both Rohan and Jason agree the Hogs are a simple console to operate once you know what you are doing. Rohan reveals the advice that he gives to his operators:

"I think the best thing you can do when you're operating this console is to



spend time making up your palettes, labelling and making sure everything is correct. If you've got twelve hours programming time, and you spend eight hours doing your palettes, then all your programming and editing time is really quick and efficient because it's just all there.

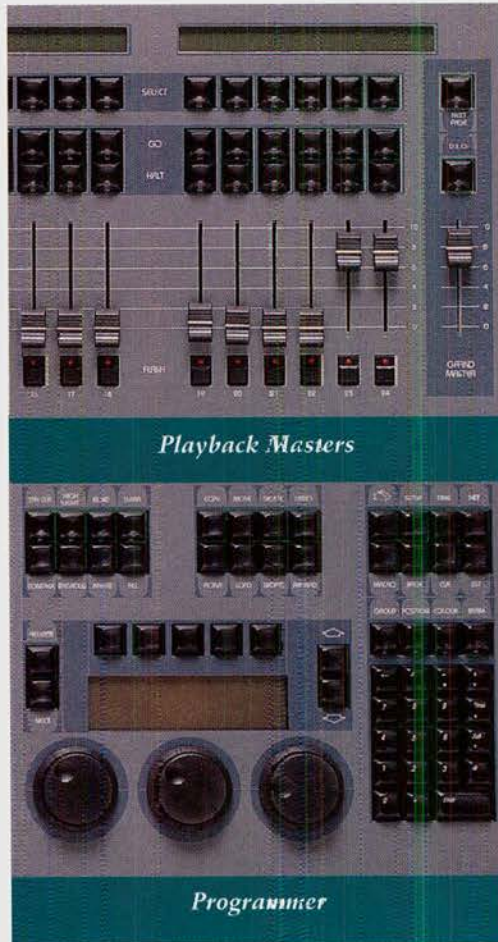
"A lot of people just make their palettes, colours and positions up as they go along and that becomes really time consuming. There's so many different parameters - if you don't label things you can easily get lost. Again that could be thrown back at Jands in that they haven't educated the market on what's the best way to operate the consoles."

Rohan suggests his operators use the optional external monitor as useful operating information is displayed on it.

FAVOURITE FUNCTIONS

"I'm really into the comment macros at the moment. It's the ability to link any step, any cue with another cue list anywhere else in the console. I actually first used it when we did *Godspell*, I had to keep it fairly simple for the operator, so there was little chance of anything going wrong because it was only the one button. We had heaps of chases and things like that in it, so it just located them elsewhere in the console, and simply activated the chases, which is not bad for a \$10,000 console. People tend to forget that it's not exactly a high priced item, but it's a powerful little thing for the small amount of money you pay. If you compare the prices of consoles like the Avo Pearls and MA Scan Commanders, it's still a good \$4 - \$5000 cheaper and it does all the same things plus a lot more," says Rohan.

As for Jason: "I just like all the little shortcuts. There are so many on the console it's fantastic. Often we're really pressed for time, and we've got five minutes to knock up a couple of



looks. It's just so easy because with fan and flip you can make chases and things like that. You can store in a couple of positions, then run upstairs during the first rehearsal and quickly knock your colours up, and do all that kind of thing. There's just so many easy ways to do things quickly. It's a good console for when you don't have much time.

"I also think it's a logical console. Most of the time if you get caught up somewhere if you just stop and look at it and think logically about it, you're okay.

"Every time I operate it I find at least five new functions or shortcuts. Even accidentally I'll find new and better ways of doing things. The best thing is that at the end of the day, every operator here is producing the same product but every single person has got their own way of doing it that they're comfortable with. It just shows how versatile the console is."

Rohan says the best thing about having so many good operators in the department is that each of them discover new functions, play with it, figure out how it works and then pass that information on to the other operators.

"It's a good console to adjust to people's operating styles," he adds.

ENDURANCE

One of the biggest tests with any lighting console is endurance. According to Rohan and Jason though, the Hogs are tough enough to take just about anything.

"They get bashed around quite a bit carrying them up and down stairs. We program on the floor and then we carry the console upstairs, usually in a big hurry, and it does get pretty battered around. But we haven't had any hardware problems at all," Jason says.

Rohan adds: "And they've held up really well. Except they

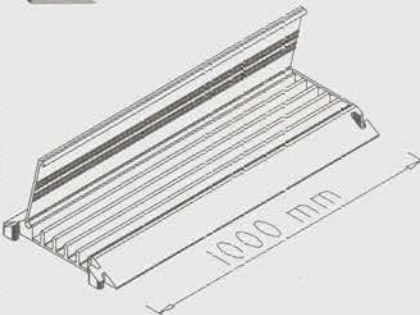
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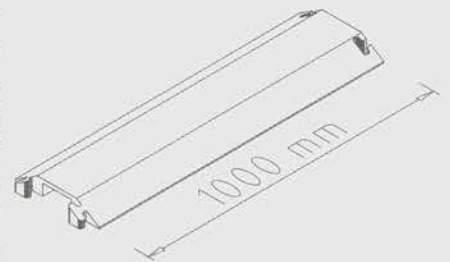
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didn't like having a cup of coffee poured on the power supply.

"The thing about TV is that you tend to do long hours. For *IMT* the console is running 14 or 15 hours. For *Hey Hey* it's running 12 hours, *Price is Right* it's running 12 or 13 hours. We usually clock up about 60 hours of console use a week, and it copes really well. It's never let us down live or given us a problem that we weren't able to solve quickly. Except for the coffee!"

Given that the consoles undergo almost constant use, including external hire through On Air Productions, these Hogs have coped extremely well.

"It's a rare day when either one of the consoles doesn't get used. Five out of seven days of the week, we're running at least one of them."



Built-in Floppy Disk Drive

internet heads who are always downloading the latest beta-beta-beta version of software and installing it into the console and not telling anyone. By definition beta versions are unstable, so as we've had a few problems, we only go with release software and we haven't had anymore problems.

"I was talking to the guy from Flying Pig at LDI about that and he said it's a worldwide problem, people trying to run thousand show cues off beta software that was only reluctantly put on the net, and that's where a lot of the bad press has come from."

Maintenance is not a problem with Jands being local, and Flying Pig able to offer software support by phone and email from England.

MAINTENANCE

Rohan is proud of the reputation of the Hogs owned by Cn Air. They are known as reliable consoles that are well maintained - a result Rohan attributes to monitoring of the software installed into the console.

"Other than the coffee spill, the only hardware problem we've had in the three years was a crack developed in the main CPU of the 600. We replaced it and it's chugging along fine.

"We've been lucky with hardware in that we've had few problems with it. In terms of software, we've got a couple of

HARDWARE IMPROVEMENTS

When it comes to hardware improvements, Rohan and Jason say it's the little things that make the difference.

"I've found the jug plug (IEC connector) on the back comes out too easily," said Jason. "There must be some better way because when we're on the floor programming I always plug it in and then tape the cables running to it to the roadcase so that no-one can pull it out. They just need a little clip on it because all it takes is someone strolling past to pull it out and you're in trouble."

"Again, little things like if they could label DMX1 and DMX2 a bit bigger on the back panel so you don't have to stick your face right against it," Rohan adds.

Other than wishing it could process a bit faster, the only other hardware improvements Rohan and Jason have noted the need for are a new colour scheme for the console, as well as the inclusion of an all important beverage holder in future models. There goes the warranty.

SOFTWARE

Rohan says that one of the greatest features of the Hog is the Flying Pig software.

"Software improvements have gone in quantum leaps over the last twelve months. And the support Flying Pig gives their software is just second to none."

"The problem is that Jands are not keeping up with the changes. I guess that's the inherent problem when an offshore company is writing the software and Jands are only providing the hardware."

After trying out WYSIWYG 3 on a Whole Hog 2 at LDI, Rohan is keen to get it up and running on the Hogs at channel 9.

"I was astounded by how accurate it was. It really is a very useful tool."

Both Rohan and Jason agree that the biggest prob-

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lem with the software is the ease in which incorrect updates and corrupted versions can be downloaded off the internet, causing huge operating difficulties.

RE-EDUCATION

Despite the Hog's long reputation as a reliable console, the attitude in the hire market at the moment is to the contrary. Jason believes it is the result of inexperienced users being encouraged to use the Hog.

"Hire companies are too happy to hire it out to people who aren't educated in using it, which is giving it more of a bad name. It's the average punters who have done a bit of lighting and have a disco coming up with four track spots, and the hire companies are giving them Jands Hogs and saying it can do this, this and this. Because it is marketed as such an easy console to use, they have taken it too far. It is an easy console to use if you've had moving light operating experience, but if you haven't used them it's a difficult console to grasp the concept of."

Rohan believes the issue is far broader and that Jands may need to look at re-educating the market so that Hogs are used for the right applications, and overkill can be avoided.

"Jands can do themselves a big favour by re-educating people how to operate moving lights, because three years ago, the few moving lights that were on the market, people were running them off the old two preset board. It was easier for everyone to do because it took a long time, whereas with the Hog you can do everything a lot quicker so your understanding of the fixtures and the principles of moving light operation needs to be far greater.

"For its price and what it's meant to do, it's a great console. 95% of all problems I've had with the Hog were my own fault. I might not have realised it at the time, but looking back on it, most definitely. And simply because I didn't quite understand what I was doing at the time. We're lucky because we have such a high usage of the consoles and such a large amount of operators using them, we tend to iron out problems very quickly."

Specs:

Hog 600: dimensions (mm) 1219(L) x 530(D) x 110(H), weight 25kg, 600 channels, 24 submasters, 6 menu banks, 8 pages per bank, 1.5M bytes.

Hog 250: dimensions (mm) 855(L) x 530(D) x 110(H), weight 20kg, 250 channels, 12 submasters, 4 menu banks, 4 pages per bank, 768K bytes.

DMX 512 output x 2; Power supply: Universal 90-264V, 47-63, 60W max, IEC power inlet; DOS compatible 3.5" disk drive; output for external colour VGA monitor; durable Lexan covering.

Price: Hog 250 - \$15,995 inc. tax; Hog 600 - \$20,995 inc. tax.

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AVENGERMANFROTTO



When the DMX protocol was first introduced the idea of an intelligent moving light was still in its infancy. Any units in existence used their own dedicated protocols and controllers. Therefore DMX was designed on the basis of 'one light = one dimmer = one channel'.

However with moving lights there are many different functions (called parameters) that need to be adjusted for each fixture. The most basic example of this is a par can with a colour scroller. If we describe these two items as one fixture then we have two parameters- brightness and colour. Therefore we will now need two channels of DMX to control it properly. One channel for the dimmer to ad-

leading manufacturers currently use 20-25 channels of DMX per fixture! Suddenly the 512 channel limit of DMX is looking a little low!

Some manufacturers use methods to reduce the number of DMX channels required per fixture. For instance they may combine two functions onto one channel, such as dimmer and strobe. This means a reduction in the functionality of the fixture, but means that your 24 channel console may be big enough to run your rig.

So how do you go about using these devices on a show? Firstly you need to work out the DMX start address of each fixture. This is usually set with a row of DIP switches on each fixture. These use binary values to set any value between 1

same DMX start address. This is perfectly safe and cannot damage anything. What will happen is that both fixtures will work in unison, you will not have separate control, a bit like when you connect two par cans to a single dimmer channel. By inverting the X (pan) mirror movement on one of the fixtures (usually via DIP switches on the fixture) you can pair two fixtures on either side of the rig together and still make it look like they are separate.

If you set up your rig and find that one fixture is affecting control of another fixture then it is probably caused by overlapping channels. If you have your first fixture set with a DMX start address of #1 and the next fixture starts on #6, then because you need 7 channels of control you have weirdness happening.

This is often seen as the Pan slider of fixture #2 controlling the colour of fixture #1 or something similar. The first

DMX & Moving Lights *by Richie Mickan*

just the brightness and a second channel to change the colour in the colour scroller.

An intelligent moving light could be thought of as just a par can and scroller with a few more parameters added. Each time we add a parameter (such as pan or tilt) we need another DMX channel to control the new function. Therefore once you start using intelligent moving lights the number of DMX channels required increases dramatically. A basic 16 can lighting rig can easily be run off a 12 channel desk, allowing for some of the lights to be paired together for control. If we add 4 basic moving lights, each requiring -say- 6 channels, then we need 36 channel for control. 20 fixtures now need 36 channels.

Let us now look at a basic moving light and why it uses so many channels of DMX. Firstly we need to look at each function that needs separate control. The mirror has two axis of movement, X (horizontal) and Y (vertical), each of which need a channel to control them. Next we need a channel for the dimmer, then another channel for the strobe. The colour and gobo functions also need a channel each. Finally we need a 'function' channel for the light. This channel is used for special internal functions such as resetting the fixture and turning the discharge lamp on/off.

This adds up to 7 channels and we haven't even looked at the advanced functions like rotating gobos and colour mixing. The top of the range lights from the

and 511. Firstly read the fixtures users manual and find out how many channels each light uses (we'll say 7 for this example). Then get a piece of paper (don't try to do it in your head, ALWAYS write it down for later reference) and work out the start address. We call it a start address as it the first of many channels that the fixture will use.

For an example we will set the first fixture up to start at channel #1. As it uses 7 channels the next free channel will be channel 8. So we set the DIP switch on fixture #2 to a value of 8. Then we add 7 channels again to get the next start address of channel 15. Simply repeat this process until all you fixtures have a start address.

Now all you need to do is label your lighting desk and connect the DMX leads between all the lights and the console. This is where quite a few people get confused. They think that you must run the DMX lead from the console into fixture #1, then to fixture #2, then to #3, etc. However this is not correct. You can run the leads in any order. If it is easier to run a lead from the console to fixture #2, then #1, then #4 then #3, then do it. The DIP switches are what determine the fixtures number, not the order they are connected on the cable.

If you start to run out of DMX channels there is a little trick that you can use to reduce the number of channels required. Simply set up two fixtures to work on the

thing to check is that all your fixtures have the DIP switches (for their DMX 'start' address) set correctly. Be very wary of dust in the DIP switches as this can stop them making a good contact, even though they may look to be pushed all the way over. Otherwise check your paperwork and make sure that you did allow enough channels for each fixture, if the start address for one of your fixtures is halfway through the channels used by another fixture then you will get the problems described above.

Some of the better lighting consoles allow you set up templates for each brand of moving light to solve this problem, but they are mostly too expensive for us to hire when we are learning.

To make things even more confusing their is no standard setup of what the channels do. On a Coemar and High End fixture the first channel is the Pan (X) mirror, however on a Clay Paky fixture this function is on the 5th channel. To make it even worse even if we know what channel controls a function, such as colour, we do not know how it controls it. If the channel is at 0% then everyone seems to agree that the colour should be white. However if we increase the slider to 10% then one fixture may turn blue, another green and still another yellow. Therefore it gets very messy to mix different brands, or even different models from one manufacturer in a rig. •

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Eurocable have released three new DMX cables - DMX S, DMX D and DMX CC. DMX S and DMX D cables are designed to be used with light control systems, meeting the DMX/512/1990 standard with 110 ohm nominal impedance. Both models feature double shielding, with external diameters that allow use with 5 pin XLR connectors. DMX S features a single control pair, DMX D features two control pairs.

The DMX CC is designed for colour changers and moving lights, carrying power supply and DMX 512 signal in one cable. It consists of one control cable with the same specs as DMX S and one 2-conductor power supply cable, with an aluminium total screen.

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Panavision Rules, OK!

Film and TV Lighting services



John Barry's, lighting sales, and Sammy's rental have been bought out by Panavision. A name change is imminent.

The change means that the companies will be concentrating more on lighting, rather than camera gear. Martin Cayzer, the Managing Director, who started off driving the Samuelson brothers around London, explained. "Over the years, we've been the Arri agent for cameras, and for lighting. Although Panavision don't actually make cameras, Arriflex felt there was a conflict between us and them, now that we were run by Panavision. So we lost our exclusive agencies for Arri cameras and lighting.

"We needed to focus on what our sales direction would be in the future, without camera sales. We asked Wayne Ritchie back on board, after two years in his own business and we decided that with Wayne, and Vince D'Aprile's experience, we'd focus on lighting. Wayne brought Power Gems and Sunray with him, and we are

now the exclusive agencies for them in Australia. It worked very well, because now we have the ability to sell Arriflex lighting products, Sunray, Power Gems, Kino Flo, and more. Basically we can supply anything for lighting."

Since the company imports lighting equipment from Italy, US, and the UK, they will be hit by the low Australian dollar. Everything now costs at least 10% more than it did last year. Presumably they pass the increase onto the gaffers, who pass it onto the production office, who quietly despair.

THE AUSSIE WAY

Australia has a unique film lighting setup, in that the gaffer owns all his own gear. Overseas, the DOP has to go to each location, and make a list of all the lights needed for each scene. These are then rented by the production.

Here, the gaffer arrives with a truck or two loaded with every kind of light, stand,

ballast, cable, reflector, and gel required. As DOP Geoffrey Simpson (*Shire*) said, this means the gear is well looked after, and that the DOP can throw last minute lights into a scene. All in all, a good system, particularly for the DOP, who can rely on the Aussie gaffer to not only supply any light, but also build improvised rigs.

TV LIGHTING

Barry's and Samuelsons supply mainly to gaffers, but they also deal with studios and TV stations, like NBN, Channel 9 and 10. This information gave me a chance to whinge about TV lighting. Because TV is relatively low budget, they shoot fast. *Big Sky* can shoot up to 15 minutes a day. Most soaps shoot multicam, the wide shot and the close ups at the same time. So the lighting is all purpose, flat, no shadow, to be seen from any angle.

Kino Flo is the new softer way of lighting for TV, but it still gives an overall even

look without any mystery or contrast. These soft shadowless light, neon tubes, give everything the allure of McDonalds.

CHANGES

Vince D'Aprile, product manager at John Barry's, explained the latest in lights. "We now have 18kW HMIs, that can light up whole fields at night. That's the major light that has been developed over the last year. Leonetti Sunray is probably the best of the 18kWs out at the moment. It's less cumbersome than others, it's very reliable, and it gives you a good spread of light. We don't have any problems with it. We have 6-8 of these out in the marketplace working away, and no problems.

"The light, with ballast, costs about \$50,000. It's horses for courses. If you want to earn more money, you have to move up the scale, simple as that."

Arri has been in Australia for over 20 years, while Sunray has only been here two years.

"Sunray is more portable, it's does the trick. But some gaffers started out with Arri, and they swear by it. There's not a great deal of difference in quality. They both get roughly the same light intensity, within half a stop of each other."

D'Aprile feels that the biggest technological change in the past year has been the use of flouro equipment on film sets and TV. "On film sets and commercials these days, many DOPs prefer to have a lot of these flouro lights all the way around, which are balanced and colour corrected to 3200 or 5500 kelvins, which is basically your normal HMI tungster.

"That's been a developing thing, and we slowly moved into that with the Kino Flo lamps. Also, the 18kWs have come out, and given a new meaning to power in the lighting industry. Before, you might have to use five 12kWs to light up a studio, or a set. Now you can use two 18kWs."

LITTLE LIGHTS

In TV area, Barry's has been selling a lot of junior lights, smaller versions of the large fresnels. "Gaffers are starting to go back into the smaller range of lighting now, with 575w, 200w, and 1200w lights," D'Aprile said. "They are realising that they can manoeuvre them around.

"With the Par technology that has come out in the past 5 years, the par lights are taking over the HMI market. You can adapt them to any need. The biggest Par is a 6kW, and we've put quite a few Arri 6kWs in the market.

"Arri are working on a 12kW par. But

there's also a concentration on the smaller lamps, to try and get par technology into 200w, 575w, and 1.2kW lamps, and get a tremendous output from a very small lamp.

"With those pars, you get the extra wide beam, or very narrow spot, and still use normal house power. So, they can use a smaller light without needing a generator. And they can control the light better, without a lot of spill. Pars have more direction, and focus.

"Xenon lighting will make an impact on the Australian market. We also have beam intensifiers, that can raise the light by a stop. And 200w Sunray HMIs, called budlights, are a very baby sort of light. You can put it behind a box of tissues, sit it on a table, hide it in a corner. It's a minute light, good for small shoots, if you want to brighten up a little area of the room. That will be coming out in the new year."

Cayzer, and the Panavision companies have to keep their eye on the future, because they are investing big bucks in equipment. They don't want to wake up next year, and find that half their stock is obsolete.

"We're always looking for new technology, and what our suppliers are coming out with next year, and the year after that. There's always something that's going to revolutionise the industry," D'Aprile said.

BUYING DIRECT

"A lot of the gaffers work overseas, and talk to other gaffers there to find out what the trends are," Cayzer said. "They also get to know the various manufacturers overseas, and have dialogue with them. So it's harder for us to capture sales in Australia, because these people can go overseas, and buy direct.

"What we do offer is service, and backup. So if anything goes wrong, they drop a light, or it needs modification in the future, we can do that for them. People do buy directly, but it's only a small minority."

D'Aprile added that a light bought overseas would have to be sent back for repair, with loss of rental revenue for the gaffer. Samuelson's offers a 24 hour backup service, on any light. "If there is a problem," he said, "we can turn that around very quickly. If a gaffer goes overseas to buy, overall it might not save him money."

The sales and the rental sides complement each other. Gaffers can rent a light first, and try before they buy. "Gaffers see that if something can last in a rental environment, it can certainly last as a purchase," D'Aprile said. "That's what happened with the Sunray. The rental depart-

ment just bought two 18kWs Sunrays. That gives the confidence to the gaffer that it's a robust light. And they know that if they buy one, and there's a problem, they can always get a backup."

PROGRAMMABLE LIGHTS

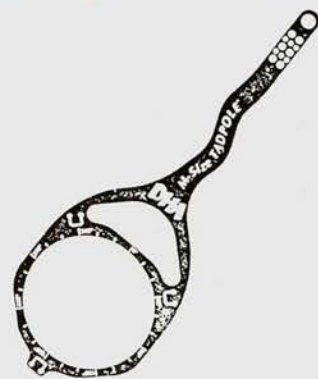
Theatre and film lights use the same lamp technology, but the fittings are different. Film lights have to withstand heat, dust, bumpy roads, rain, and travel from the desert of *The English Patient* to the jungles of *Paradise Road*.

Generally theatre lights are programmable, and film lights are not. However, some films are now using programmed lights. Peter James, DOP, did it on *Paradise Road*, so that he could reproduce the light of the huts on call. And it is also being used on *Babe 2*, where they are using a mixing desk on the backlot of Fox. The gaffer Simon Lee, brought rock and roll mixers in to work the consoles. Lee has also brought in 4kW Xenon from the US, which is mainly used for spotting from very long distances up to a km.

★ Madeleine Murray

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ENTECH LX SEMINARS

ARCHITAINMENT Wednesday April 22nd

1. 10.30 am

Lighting Building Facades - Turning Grey into Colour

Transforming mundane concrete and brick into a kaleidoscope of colour and movement. Practitioners tell you how they do it.

2. 4pm

Techniques & Technology to Achieve the Vision (Theatre Principles applied to Architectural Lighting)

Chaired by Lance Stewart of Creative Lighting.

With the abundance of lighting products available to designers offering varying degrees of sophistication, features and benefits, the real design questions, like "why?", need to be answered. Useful, real world examples will be used by expert panelists to explore successful and innovative lighting to a target audience of regular Connections readers and Professionals from Architecture, Engineering and Lighting.

FILM/TELEVISION Thursday 23rd April

1. 10.30 am

Current Trends in Film Lighting

Chaired by Tony Mandle of the Australian Film & Television School

2. 4pm

Lighting a Television Set

Chaired by Rohan Thornton

There's almost as much drama involved in lighting a television set as there is on screen. Apart from the technical problems, there's the internal policies to deal with. Three industry leaders will tell all.

CONCERT/STAGING Friday April 24th

1. 10.30 am

Style & Visibility in Lighting Design

Chaired by Nigel Levings.

An examination of the issues surrounding Style and Visibility in Lighting Design. What is the first duty of the LD - make it look fabulous or make it visible? How does the LD balance these sometimes conflicting elements? An attempt to find some common ground in the debate between the visibility of the performer and the search for visually exciting lighting. Truth in advertising? - Does concert lighting strive to fool an audience into thinking boring music is exciting? Is R&R lighting fascistic? (*ehé -Editor*)

Some of Australia's leading LD's Directors and Designers attempt to hammer out how bright is bright enough.

2. 4pm

Meet the LD's

Chaired by Catriona Forcer

The ever popular seminar. Some of Australia's finest will encourage/disillusion you.

BOOKINGS: Call 1-800-635-514 or do it on the day if seats available. Cost: \$35 for one, \$60 for 2, then \$15 each thereafter.

LXbizzBITS

NEWS

BYTECRAFT NEWS (cont from P 67)

and a few lighting bars to hang it all on. The supply and installation of stage lighting and control equipment to the Playhouse Theatre, Canberra Theatre Trust has been awarded to Bytecraft. Equipment to be supplied includes 420 channels of Dimming and a 650 channel Strand 520 Lighting Control System.

LIGHTING BY DESIGN

Joakim Odlander has returned to Australia after a six year stint honing his skills at Lightmen in Stockholm.

Settling on the Gold Coast, Joakim has started Lighting by Design and currently manufactures metal and greyscale glass gobo's with full colour dichroics soon to be released. Lighting by Design will also be releasing associated lighting hardware during the coming year with the ARNO quick release strap available now. A polypropylene strap with metal buckle alleviating the use of gaff, electrical tape or cable tie in many instances.

Joakim can be contacted on 0418 79 77 62, email: lbd@OnTheNet.com.au

CLS NEWS

December saw CLS Production crew working on Dreamscapes' ICI convention as well as the Linfox Xmas Party, Carols at Como Park and The Falls Festival.

CLS is currently adding a lot more rigging equipment to its inventory.

Included is a new Alloy Box Truss System with Ground Support Towers for indoor and outdoor applications.



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Club

Sandwich

Edited by Caroline Grafton, Compiled by Nicky Morris, Catriona Forcer & CG

Product News

It's Mixer Month!

Soundcraft has released something for everyone mixing in both the mobile and club environments - the D-Mix range of mixing consoles. For the Mobile DJ there's the D-Mix 300 (below) featuring full 3-band EQ, 'dipless crossfader, punch buttons with built in LEDs

for beat matching, separate master and booth/recording outputs and variable voice-over facility on mic input - price A\$1195. For the Club DJ there are two releases. Firstly,

the D-Mix 500 allowing 10 stereo input sources through 7 input channels, 3-band EQ, super bass control giving up to 12dB of additional boost and a dedicated line to external lighting control - price A\$2895. Next we have the fully modular D-Mix 1000 with interchangeable mono, stereo and master modules



for creative layout. Features include 100mm log-throw faders, sound to light triggering, large LED meters and 3-band EQ - price A\$6,795. Available from Jands Electronics +61 2 9582 0909.

KAM present the Imperial audio mixer (below) featuring 8 digital audio controllers and 2 independent send and return loops allowing the use of 2 separate sets of FX. Other inclusions are 2 sets of Eliminator dials more commonly known as 'kill switches' are a little different



as they allow a track to be played on the left hand side of the crossfade with say the bass removed and the right with a different setting, lets so no mids or highs, eliminating the need of multi-track recording and playback equipment. Additional specs include 13 inputs, cue crossfade plus cue/output BPM meters and selectable balanced output mono/stereo for 2 x headphone and

Stanton Vibemaster displayed through LEDs - price A\$3,500 from Universal Lighting & Audio (ULA), Sales Hotline 1800 648 111.

Gemini have launched the Executioner Series of audio mixers (below). Executioner TEN and Executioner NINETEEN offer separate kill switches - *get it? Kill!! ... Executioner!!* - and rotary kill for the low, mid and high on each ch. plus an FX loop and dual mode display, 2 phono/line convertible inputs and funky green graphics. The 10 has 2 stereo channels, 1 mic and 2 line inputs with punch/in out on each ch., combined XLR or 1/4" DJ mic jack. Other features include master, booth and record outputs and low, mid, high, gain and balance controls - price A\$639. The 19 offers 3 stereo chs., 4 line, 1 aux and 2 mic inputs; gain and balance controls for ch. 1 & 2 with punch in/out, balanced and unbalanced master outputs plus booth and record outputs - price A\$759, available from Disco World on +61 3 9735 0588.



Chasers Niteclub

\$1.5 million in renovations have contributed to Chasers becoming a world class function facility, drawing on international influences in architecture, interior design and audio visual technology. But it takes more than lighting, sound and funky furniture/fittings to produce the 'place to be'. Chasers offers four separate areas, allowing intimate cocktail parties for 100 guests for promotional functions or fashion shows to bass pumping parties for 1,500 - nights that have become Melbourne institutions - Delirium, TUSH and Hard'n'Fast. The dance floor has been specifically designed so that it can be extended for bands and live entertainment.

In the Main Dance area on the ground floor, metal rules, adding another dimension to the light show. Metal flecked yellow/ochre walls, turquoise/blue flecked laminate banquettes, undulating glass, pearlised metal, the blue tinted stainless steel bar, all add to the visual experience. The back wall of the dance floor level is covered in laser cut metallic star sheets which are also backlit, time sequenced to cross fade between different coloured tube lighting.

The bars are constructed using semi opaque fibreglass lit internally with coloured dichroic lamps, each having its own ambient colour.

The Cocktail Bar on the mezzanine level offers earthy, tribal colours, tiger print carpet and a beautifully crafted bar of quarter cross cut, silky oak. From here you can observe the action occurring throughout the venue in a relaxed atmosphere.



In the extended loft you find The Sake Bar in a Japanese theme (of course) with it's own bar fitted with a huge lightbox painted in true Japanese style, DJ booth, dance floor and sound/lighting systems. With a dedicated entrance from Chapel Street, the Sake bar can be isolated to provided a more intimate and exclusive private function venue.

On the same level there's the DJ Lounge

in a swirling fantasia of pink, fuchsia and mulberry. The DJ lounge, which is a soundproof, is the chill out room. Banquettes snake around three of the walls, with Juke Box and Video facilities available. The room also features two metre high, backlit cylindrical fishtanks.

The Audio Spec

The Main Dance Floor

- DJ Booth: 3 x Technics SL1200MK11 Turntables (mounted on a sand and 32mm MDF independent from the main booth structure); 1x Denon DN2000F Dual CD Player; 1 x Rane MP24 Mixer, 2 x GE27 Graphic EQ's; 1 x DBX 166; 2 x JBL Systems AD44s (passive) powered by 1 x Jands 510 amp for monitoring.

- The Dance Floor: 6 x JBL SR4726 as mid/high overheads run fully active using a Rane AC23B Xover. 3 x Crest' V1500s for mids and 3 x V650s for highs. Sub Bass consists of 8x Jands/JBL system S18s powered by 8x Labsystems M4 amps. 4x additional JBL System 44's (mounted in the suspended bulkhead either side of 2 X video screens) powered by 2 x Jands 510 amps, are aimed at the mezzanine on an individual zone feed, providing coverage for special events. Total system power for the main dance floor is approx.

Chasers cont'd

17,000 watts with a dedicated 80 amp sub board and clean technical earth.

The Loft Sake Bar and DJ Lounge: 2 x Technics SL1200ML11 Turntables; 1 x Denon DN2000F dual CD Player; 1 x Rane MP24 mixer & 2 x ME30 Graphic EQs; 1 x DBX166 Comp/Limiter; 1 x JBL M512 Active Xover; Speakers consist of 4 x Jands/JBL System 700s overhead and 2 x JBL System S18s for sub bass, powered by 4 x Labsystems M4 amps. A 24 channel multicore is provided for bands to patch into the house system.

The Lighting Spec

The Main Dance Floor: The aim was to incorporate the old Chasers globe symbol into the venue's new feel. A 4m diameter circular truss with 8 x 2m chrome alloy triangles arranged around its circumference supports the

majority of lighting fixtures but is complimented by two additional triangles that free float above the main downstairs walkway. Fixtures include 12 x Clay Paky Miniscan HPes controlled via a NSI MLC16, 2 x Clay Paky Astroraggi II; 1 x TAS Synchro-Digital; 6 x Geni Shimmers; 2 x Pulsar Megastar Strobes; 4 x Horseshoe fans; and 1 x Martin Magnum Pro2000 Smoke Machine. All effects are controlled using a touch panel that has both latch and flash sensors. All of these things help to compliment the hand sculptured 8' mosaic mirrored woman that rotates within the star structure.

The Sake Bar: contains a host of Martin Roboscan 518s and 2308 controller plus various FX lighting.

The Venue

Chasers Nightclub, Chapel St, Sth Yarra, VIC

Phone: +61 3 9827 6615

Venue Manager: Cameron Manning
Promotions/Marketing: Jacinta Ronchi
Creative Director: Ranjan Wijay
Assistant Creative Director: Stephanie Jaros

The Installation

Audio Design & Installation by: Labsystems - Derek O'Leary -

Ph: +61 3 9885 0888

Lighting Design

& Installation

By: Let There Be

Light - Cameron

McKaige with

credits to Kait

Hall and Chris

Rogers - Ph: +61

(0) 414 859 564



Club/Venue News

► A new venue has hit the streets of Sydney. Situated in Redfern former Delaney's Hotel, **Skybar**, is breathing a fresh new air. Skybar provides a trendy bar, a-la-carte restaurant, gaming room and live music venue. Skybar plays host to a range of bands playing anything from acid jazz to contemporary rock Thursday to Sunday nights for FREE. On Tuesday night enter the Pool Comp and test your knowledge on Wednesday at the Trivia Night. For info ph: +61 2 9690 0610 or make your way to Skybar on the corner of George & Redfern Sts, Redfern, Sydney NSW.

► After making an impact on the chic of Geelong VIC, **Irish Murphy's** has opened a new watering hole in the Ballarat VIC district. Serving cold Irish ales (11 beers - all on tap) and providing live bands on Friday and Satur-

day nights for the small fee of \$3. If you would like to experience the Irish culture in Ballarat, visit 36 Sturt St, Ballarat, ph: (03) 5331 4091 or if you're in Geelong, experience the original Irish Murphy's at 30 Aberdeen St, Newtown, ph: +61 3 5221 4335.

► The **Brunswick Hotel** in New Farm QLD has come up with two alternative dance nights to satisfy your cravings. Thursday nights is Das HIT, "funky beats with thump". On Friday nights fill your soul with funky chemical break beats at Monkey Business. Both nights have a cover charge of \$3 with free pool 'till midnight. Doors open at 9pm. For info ph: +61 7 3358 1181 or visit the Brunswick Hotel at 569 Brunswick St, New Farm.

► Happy birthday to Sam and everyone at **Metro**, for completing 10 years of trading. Metro is one of Australia's largest nightclubs, boasting 3 floors, 8 bars, a restaurant, func-

tion areas, concert sized stage, not to mention huge dance floor. All this along with lighting, lasers and audio equipment create a unique night clubbing experience. To see Metro for yourself make your way to the old Palace Theatre in Bourke St Melbourne. What's on info ph +61 3 9663 4288.

► **Mad Love** in Adelaide is a live music venue with a strong commitment to promoting the South Australian Arts Industry. Every Saturday and Sunday night features live bands. The occasional mid-week also gig occurs, raising the opportunity for budding new bands in Adelaide to strut their stuff on Thursday nights. They are also introducing sporadic all age gigs on Sundays. In addition, the venue serves as an art gallery and film venue, showing works from local and national artists. For info ph: +61 8 8224 0515 or make your way to the action at 13-15 Synagogue Pl, Adelaide.



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THE PA PAGE

BACK to basics!

Part One: Rolling Leads! by Michael Orland.

The start of a new year is a time for planning and resolutions as well as reviewing the year just ended. No doubt the live music scene varies substantially from town to town, but in My City of Sydney, '97 will be remembered by many system owners as the year the Great Crew Drought settled in.

I remember reading an interview with Mary Tyler Moore in the seventies where she was asked the secret of her success. "Easy", she said, "Always surround yourself with the best people". This simple, almost glib remark had a profound effect on the young man I used to be. I eventually achieved a level of success bragging that even if I didn't always have the best gear that money could buy, I was damn proud of being able to offer clients the best people.

But the problem is that they are always in demand. Whenever the works slows, they simply move to greener pastures. For a long time, I dealt with this by simply having a large pool of 'best people' to draw from. There was always someone between jobs, tours, whatever, who was happy to fill in a few weeks with us.

In '97 the pool dried up. Many regulars moved on to the cushy "in house" or "walk in" gigs. Compared with which, the work they used to find "challenging" with us just became too hard. Lots of newcomers started putting their hands up and saying "Try me! Try me!". And wherever practical, I did. Sometimes with disastrous results.

I often swap names and numbers of crew with other system owners who all seem to be suffering from the Crew Drought. Recently one said to me that most of the people he tries, claiming some sort of qualification, can't even roll a mic lead. "Maybe that's what you should use that P.A. Page for, Michael", he says. "Fill in a few basics!" Fine. Take a seat, kiddies.

It's the first day of school.
Never roll a lead around your elbow. That's how a muso does it. See how when he pulls the rolled lead off his forearm, the

entire lead twists into a figure 8?

Oh oh, knucklehead's done it again. Now he's wrapping the last foot or so tightly around the middle. Surely he's not going to finish it with a knot? Oh oh, spoke too soon...

This is not just a lesson in neatness. The reason why a system boss will "freak", grab the lead off you, and tell you to go and pack the mic stands instead, is because you were damaging equipment.

The inner cores within either a speaker lead or mains power lead can twist an roll within their outer jacket, leaving kinks in the cable, making it difficult to tape down safely in the future. This can eventually lead to the telephone hand-piece cable syndrome. Once my leads start showing such signs of deterioration, I replace them, then recycle them.

I do this by snipping the connectors off, stripping the outer insulation off entirely, and twisting together pairs of the inner cores. This serves as handy hookup wire for future projects like wiring the internals of speaker cabinets.

Good microphone cable is usually a lot more expensive than speaker cable, and once it becomes unreliable, it has little recycling potential.

Classic mic cable consists of two inner cores shielded with a braid. This braid is vulnerable to fracturing and disintegration, resulting in handling (crackling) noise and poor phantom powered applications.

The mic cable I use in my A rig, Connectronics Musiflex, uses a conductive nylon shield with a drain wire. B rig uses West Penn Starquad Ultraflex, which has four twisted cores for doubling up on pins two and three of the connectors. Canare make an equivalent also called Starquad.

Since using these brands I have yet to experience a dud mic lead: the little extra they cost is well worth it; but that doesn't mean we allow them to be treated with any less respect.

When rolling a lead (assuming you're right handed), your left hand is your holding hand and

your right hand becomes your gathering and looping hand. The idea when rolling a lead is to encourage it to fall into even loops as you go. This is done by rolling the cable between the ball of your right thumb and the inside of the top joint of your right index/forefinger whenever necessary, as you fold up each loop. Don't force the cable to twist if it resists. There may be existing kinks or twists that need to be rolled with. Occasionally give a slight tug downward on the roll to even the coil as you go.

Various methods are used for finishing the job. Personally, I have always hated the knot, considering it to be the most harmful thing you can do to the braid in the region (the last couple of feet at either end) prone to the most stress anyway.

Every time I see someone giving two or three good yanks down on a knot after rolling a lead, I wince. Electrical tape has become pretty much standard issue in most systems for finishing leads, and its not unusual to see even casual loaders carry their own. It has zero impact on the cable, but can slow things down a little at the next setup when trying to unpick the tape. My own preference is for one-wraps. Colour coded strips of velcro which loop around and do up on themselves. Perfect. If your working with a system where neither one-wraps or "lecky" tape is provided. I guess the polite thing to do is ask the boss how he wants it done. My preferred method in such cases is to run the last couple of feet of cable around the coil, tucking the connector at the end through a part in it, as per fig.1 This stops it unravelling and tangling as soon as you throw it down. Rolling a cable is a skill that looks easy when you see it done by professionals who don't even consciously think about it anymore. Like most skills, it can be acquired with patience and practice. Try it at home, get it right, and make yourself that much more in demand.

*Michael runs TPAC in Sydney,
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VR Series



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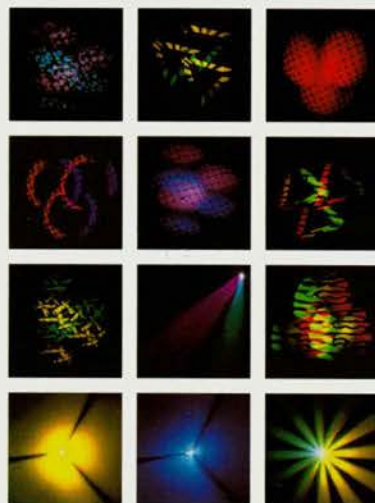
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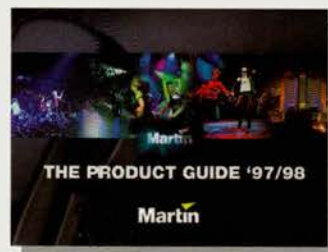
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