

Connections

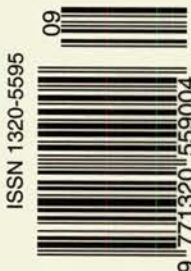
The **Entertainment Technology** Magazine

August 2000 A\$5.50 (inc GST)



• INSIDE THE OLYMPICS: TECH CREW COUNTDOWN

- IN EAR MONITORS: SYSTEMS DETAILED, TIPS
- D-ILA EMERGES: CAN IT TAKE ON DLP AND WIN?
- **SHOW TECHNOLOGY: BUSINESS AS USUAL**
- JANDS FAREWELL THE CLAIR BROS S4
- MEGA STUDIO PLANNED FOR CAIRNS
- **THE MOST-HATED TECHNICIAN - DISCOVERED!**



with **PRESENTTECH**

The way you say it. The way they hear it.

Unless You Use a Shure Automatic Mixer.

Sure they can *hear* you, but they'll hear you far more clearly with a Shure Automatic Mixer.

Why? Because Shure Automatic Mixers feature IntelliMix® technology, which activates microphones only when they are needed – *in just four milliseconds*. This provides more intelligible speech. Less background noise. Less reverberation. And greatly decreased chance of feedback.

It also means your audience won't have to work so hard to understand what's being said.

As Easy As They Are Smart.

Shure Automatic Mixers include all the features you need to get the most out of your sound system, such as individual channel EQ, and phantom power – to name just two. And since all Shure Automatic Mixers can be linked together, you can simply add more microphones as your needs increase.

Additionally, Shure Automatic Mixers are easy to use. Place them into the rack. Plug them into the wall. And turn them on. Just like that, you'll get seamless automatic mixing.



SCM810
Eight channels. Full-rack. Perfect for larger rooms.



SCM410
Four channels. Half-rack. Perfect for smaller rooms.

Wondering how much they cost? Most likely, the price will be far less than you expect.

From Shure, The Company More People Trust With Their Sound.

You probably already know that Shure Microphones set the standard for quality sound reproduction. It should then come as no surprise that Shure IntelliMix products are the recognized standard in Automatic Mixers.

What might be a surprise is how much information we have to help you get the most out of your House of Worship sound system.

Call JANDS on 02 9582 0909 and we'll provide – at no cost – any or all of the following informational pieces:



House of Worship
Sound Guide



House of Worship
Products Guide



IntelliMix
Demo CD

Or visit us online at www.shure.com for everything you need to know about Shure Automatic Mixers or our full line of audio products.

Because it's time you made something perfectly clear: your sound.

SHURE®

© 1999 Shure Incorporated www.shure.com

fabulous curves unforgettable sound

93% efficient—draws two-thirds the AC-mains current of conventional amplifiers
low thermal output—greater reliability and longer component-life
installation friendly: reduced power and signal cabling requirements
never quits: delivering continuous RMS power without shut-down
consistent frequency response into any load: reactive or capacitive
superior low-frequency performance—large secondary-side storage capacitors
inputs: XLR, 1/4" TRS, and Phoenix outputs: five-way binding post and Speakon

mobile DJ's

night clubs

audio / visual rental

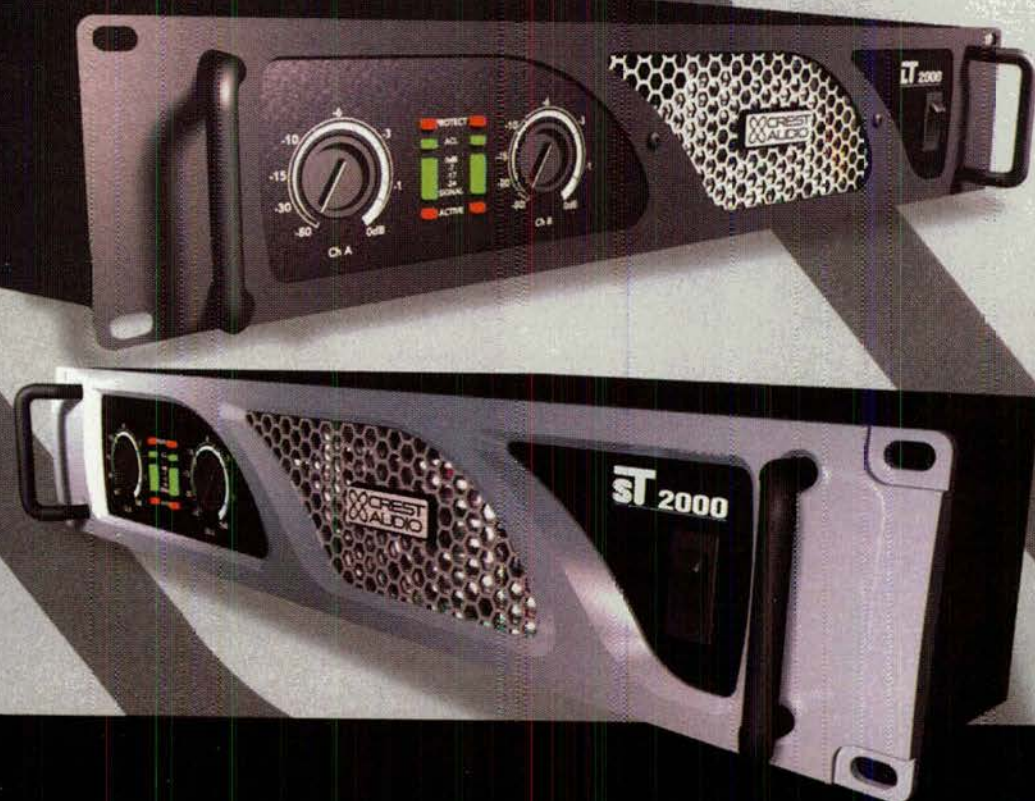
music retail

pro audio

regional touring

installed sound

a new benchmark in switching amplification



linear-toroid
power supply—33lbs.



resonant-switching
power supply—24lbs.

**CREST
AUDIO**
power is still serious business

Exclusively Distributed in Australia by Production Audio Services Pty Ltd
6-8 Elizabeth Street, Richmond VIC 3121 • Phone: (03) 9415 1585, Fax: (03) 9415 1595
Website: www.productionaudio.com.au • Crest Audio Website: www.crestaudio.com

YOUR LIVELIHOOD IS 100% DEPENDENT ON DELIVERING **GREAT SOUND**. CAN YOU AFFORD TO BE ANY LESS SURE OF YOUR **SPEAKER SYSTEM?**

Ever Wonder Why The World's Best Choose JBL?



"There are many speakers available, and you can believe we try all of them. But when it comes to power handling, long-term reliability and sonic performance, we have yet to find anything comparable to JBL."

~ Roy Clair, President

CLAIR BROS. AUDIO

"In the sound business, a competitive edge is crucial, both for sound quality and top performance. Our company has been investing in JBL products since 1968. The return on that investment has been spectacular."

~ Bert Pare, President
AUDIO ANALYSTS



"At the top level of this business, our clients don't just expect the



best. They demand it. JBL components help us provide premium-quality sound, they power our tour systems around the world...and they can take the punishment, show by show, mile after mile."

~ Richard Bratcher, President
SHOWCO, INC.

"We stay on top of new developments by field testing...and JBL components give us the best results, without question. Our touring systems and lab tests continually prove it to us and to our accounts. All you have to do is listen."

~ Dave Shadoan, President
SOUND IMAGE



The world's top entertainers demand the best performance from all of their business partners. There's just no room for second best. Top rental sound companies know this fact better than anyone. It's why, year in and year out, the most renowned sound companies agree on one thing: JBL tour sound systems and components. Trust, reliability, premium-quality audio and outstanding performance are a few of the reasons why more of the Top Ten Tours travel with JBL speakers than any other brand*.

For decades, JBL tour sound products have been the professional's choice, wherever sound matters most. At thousands of performances in venues around the globe, JBL speakers have taken whatever the road can dish out, providing great sound, ultimate reliability and maximum performance, tour after tour.

So, choose loudspeakers from JBL Professional. They're designed and built with the same level of commitment to excellence that you demonstrate every day on the only sound system that matters. Yours.



H A Harman International Company
www.jblpro.com

© 2000 JBL Professional, Inc.

* Based on Amusement Business box office reports.

A NEW BEGINNING

Last century, you knew us as the maker of the world's best-selling DJ cartridges. Now we're introducing an entire line of products that will establish Stanton as the maker of the world's best DJ equipment, period. All at a better value than you'll find anywhere else. Just check out our product line and you'll see what we mean.

SK2 (THE NEW STANDARD)



RM3 (READY FOR ANYTHING)



SK1 (WHO SAID "BIGGER IS BETTER"?)



SK5 (MORE FOR LESS)



STR8 50 (BELT-DRIVEN POWER)

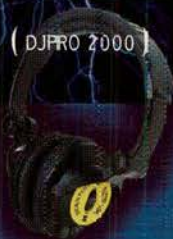
STR8 60 (DIRECT-DRIVEN POWER)

We told you the new millennium would be better than you could possibly imagine. And we're just getting started.

(DJF1)



(DJPRO 2000)



(TRACKMASTER II RS)



©2000 Stanton Magnetics, LLC

STANTON
sound innovations for generations™

Inside your news magazine:



Some weeks ago, Julius decided he wanted to try a change - resulting in me becoming the acting editor of Connections. I have since discovered that making this decision is one thing - doing the job is something else entirely. (I can just picture Julius snickering to himself in his office.....)

However, the business of producing Connections rolls on, and you will find that the magazine will continue on its familiar path.

As YOUR all-colour industry magazine, I would be interested in hearing about news and issues that you would like to know about, or items you would like to share with the rest of us.

In the meantime, as we begin working on the next issue, I hope you enjoy this month's offering.

-John Grimshaw, Editor.
email john@conpub.com.au
or call +61 2 9876-3530.



I'm still here, but from now I sell advertising - and write some stories. Grimshaw will take the decisions about what runs. I'm sure the mag will be even better for it. Talk to me anytime!

-Julius Grafton, Publisher.
email julius@conpub.com.au
or call +61 2 9876-3530.
Ad sales: 1-800-635-514 - now!



Display Formats

Page 18

Techno speak de-mystified



Making Gobos

Page 59

The processes and options



In Ear Monitoring

Page 71

More choice than you may realise



Olympic Ceremonies

Page 75

What's in store for the punters

News

Show Technology Moving Ahead	9
Jands Production Services retire the S4	9
Measuring Light Output - Avoiding the confusion	10
Australian wins presentation award at INFOCOMM	10
MEMO Conference - The music industry talks technology	11
Concert in the Rain - Party in a UK park	14
NZ Tradeshow - Sound 2000	16
Lako wins industry award	16

New Products

JVC aggressively promoting D-ILA	18
NEC re-vamp their projector range	22
Speaking about Speakers - Mackie, Martin and Klark Technic	24
Rane introduces Network Pre-amp	26
DVD RAM/ROM & CD-RW - The latest from Hitachi and Yamaha	28
Neumann microphones take the stage	30
Neutrik Minilyzer - The latest in hand-held testing	32
QSC Amplifiers add to their range	32
Yamaha Mixers - power in a brick	34
Coemar's Latest Nodding Buckets	35

Features

Projection Display Formats - Techno speak de-mystified	18
Best Job Under The Sun? - "Most Hated Technician" brags a little	38
Graham Walne on the Changing workplace for crew	41
Gypsy - Instant production, just add staff	44
Software Noise Reduction for Duncan Fry - not a bad idea!	48
Digital Television - Audio format under fire from Dolby	51
Coral Sea Studios - Recording in luxury	53
Dracula - Spectacular ballet lighting	56
Gobos - A Look at how gobos are made and used	59
ARIA Awards 2000 - Engineer & Producer Nominees	66
In Ear Monitoring - More choice than you may realise!	71
Olympics - talking to the people behind the ceremonies	75
Broadcasting the Olympics - The world's largest OB van?	77

Regular Features

Duncan Fry takes us to Karaoke in Taiwan - Gawd help us all	37
Letters	46
Rigging Note No 7 - by Tiny Good	52
My Favourite Microphone - Brian Laurence takes his pick	55
Women In The Industry - Jenny Morgan	58
Studio News	64
BASF Tracking Guide	64
How to do it - Duncan Fry on Compressor/limiters	78
Classifieds	80

World's easiest subscriptions!

Au \$52 1 year inc gst (Save \$8.50) Au \$86 2 years inc gst (Save \$35 on normal cover price!)

- NEW ZED:**
Au \$80 1 yr
Au \$120 2 yrs
ASIA:
Au \$80 1 yr
Au \$140 2 yrs
USA:
Au \$115 1 yr
Au \$199 2 yr
EURO:
Au \$125 1 yr
Au \$240 2 yr

- Step one. Decide to save up to 28% on our cover price!
Step two. **You want your mag early, before the newsagent!**
Step three. You know we are very trusted to do this right!

3 VERY EASY WAYS TO SUBSCRIBE:

- (A) Use our online form at www.conpub.com.au ; or -
(b) Call Sarah on 1-800-635-514 in business hours ; or -
(c) Fax us your name, address, phone and email, and creditcard details.
Just note if you want one or two years. (2 years saves even more!)

MiniMAC



- Bars
- Restaurants
- Theme Parks
- Hotels
- Sports Arenas
- Discotheques
- Pubs
- Museums
- Arcades
- Dance Halls
- Cafés
- Funfairs
- Shopping Malls
- Ferries
- Car Dealerships
- Retail Outlets
- Fashion Shows
- Live Concerts
- Corporate Foyers
- Cruise Ships
- Theatres
- Health & Fitness Clubs
- Bingo Halls
- Churches
- Exhibitions
- Conferences
- Architecture
- Casinos

Where would you put yours?

... and runways

Martin

Distributed in Australia by: Show Technology Australia Pty Ltd
13-15 Bridge Street • PO Box 480 • RYDALMERE NSW 2116

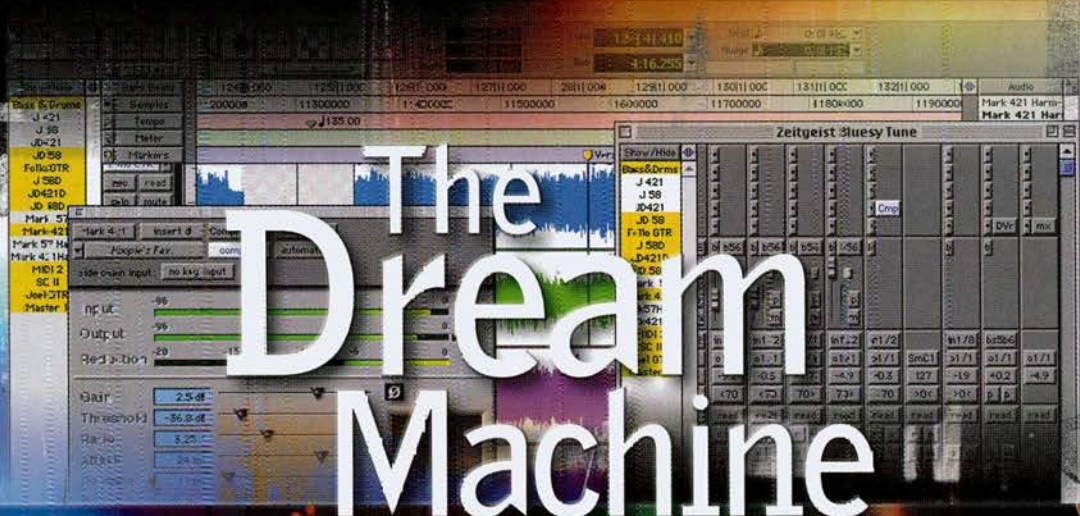
Phone 61 2 9898 1111 • Fax 61 2 9898 1222

E-mail: Martin@showtech.com.au

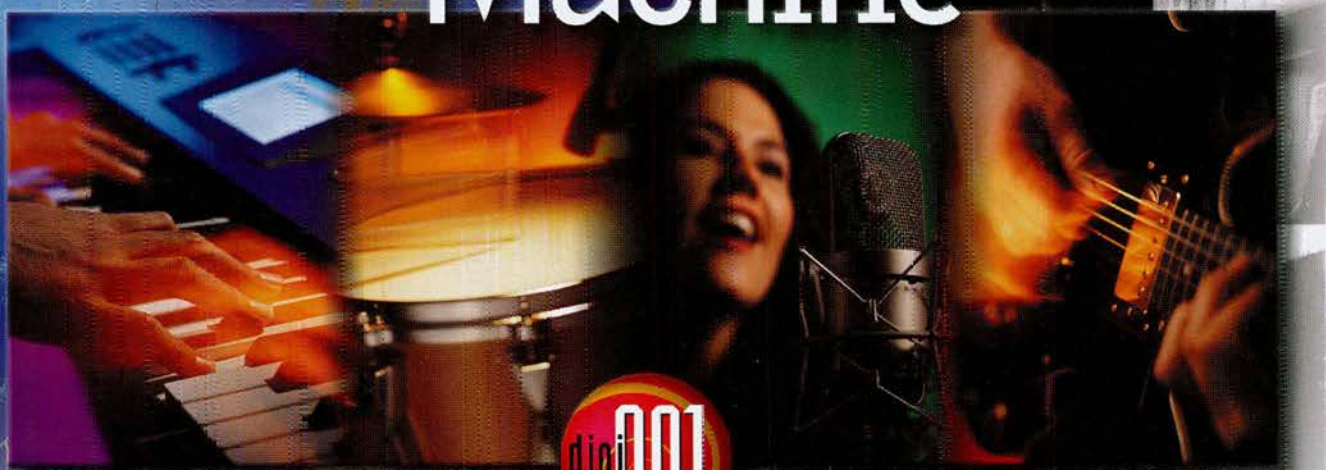
Website: <http://www.showtech.com.au>



Powered by



The Dream Machine



Perform and arrange with built-in MIDI sequencing; integrate software synths/samplers with DirectConnect™; create mind-altering sounds with the Kobo Studio9000*.

Sequence your rhythm tracks; arrange in bars and beats; create easy drum loops; replace and rem.x rhythm tracks with SoundReplacer™*. Cut, paste, nudge, move, re-arrange, pitch shift — do it all with Pro Tools LE.

Build unlimited vocal comps; record directly into the built-in mic pres; and revert compression and delay at any time.

Record first and tweak your amp later with SansAmp*; loop record unlimited takes in real time; experiment and arrange to perfection.

*Sold separately

At a Dream Price \$2095

Your \$2095 dream machine includes: Built-in mic pres, 24-bit audio, 8 analog ins and outs, MIDI I/O, ADAT optical I/O, 24 audio tracks, MIDI sequencing, Real-Time AudioSuite™ effects—all with the world's most advanced recording, mixing and editing software. No mixer, pre-amps or outboard gear is necessary. Just hook the Digi 001™ up to an approved Mac OS or Windows 98 computer and you're ready to make your dreams come true.



Upgradeable to our Pro Tools® 24 family of workstations.

For more information, visit www.digi001.com or contact us at 03 5428 7981

digidesign

A division of **Avid**

©1/00. Digi 001, DirectConnect, Pro Tools, Pro Tools LE, Pro Tools 24, Real-Time AudioSuite, and SoundReplacer are trademarks or registered trademarks of Avid Technology Inc. or its subsidiaries or divisions. All trademarks are the property of their respective owners. All features and specifications subject to change without notice.

Connections

The Asia/Pacific Entertainment Technology Monthly **AUGUST 2000**

OLYMPICS CREW SAY IT'S ALL OK

Ceremonies on track, SOBO's IBC starting up its systems now

It has the largest concert event ever staged on earth, immediately followed by the largest non-stop telecast ever staged. Everything about the 2000 Olympics is larger than life as we know it. There also may never be another event this large, given the unique confluence of Sydney, the millennium theme, and recent political issues attached to the Olympics.

Connections has been inside and checked the enormous scale of preparation. Some of the logistics are staggering -

- The **International Broadcast Centre** is on schedule. 350 tonnes of cables are run and terminated. There are 1,600 rooms inside!

- **Ric Birch's Ceremonies Division** is at fever pitch. Technical preparations, overseen

by **Morris Lyda**, include provision of ten million watts of power for the Opening and Closing Ceremonies.

- The Lighting Design (by **John Rayment** and **Rohan Thornton**) exhausted resources available in Australia, the primary lighting contractor, **Bytecraft** have contracted German production giant **Procon** to ship inventory and a small crew to help out.

- Live Audio will be mixed by legendary engineer **Bruce Jackson**, using a very large **EAW** system from **Norwest Productions**.

- And, the great **Peter Faiman** will direct the telecast of the Ceremonies, with **Colin Stevenson** out of semiretirement to supervise the TV mix.

- **Our preview coverage starts on page 74**

Show Technology ownership resolved

BUSINESS AS USUAL, SAYS EMMANUEL ZIINO

The partnership behind distribution of successful brands like Clay Paky, Martin and Numark has been dissolved, leaving managing director Emmanuel Ziino in charge of the Sydney based company. Co-founder Rod Salmon has sold his half of the business to the Ziino family. Rod Salmon has left the business to concentrate on running his growing collection of successful NSW Hotels and clubs.

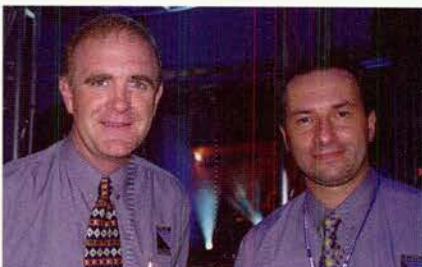
"I'm really looking forward to this fresh change," said an enthusiastic Emmanuel. "Here at Show Technology we have some really strong ideas for the future. For example, we are implementing a Web Strategy which will enable the company to better service our customers. We also plan to exploit the growth opportunities in this business, particularly the architectural market."

Emmanuel Ziino told

Connections that as far as he was concerned, everything was settled with Salmon in relation to the sale of the partnership at June 30th, but that new matters had arisen between the former partners which could be tested through the courts. He stated that the company has an excellent order book, and its main problem was keeping stock levels high enough to match sales in a very busy trading period.

Rod Salmon said a dispute existed regarding some issues unrelated to the normal conduct of the business, and that it was akin to a messy divorce. He said he guessed it would all be resolved by lawyers.

- Meanwhile, **Paola Moretti** has joined Show Technology to run the accounts department. Paola has worked in Milan, was educated at Oxford, UK and Montreaux, Switzerland. *Pictured: Rod Salmon at left and Emmanuel Ziino*



BIG NOISE

End of era as S4's go home to Clair Brothers

The large PA market will never be the same again, following retirement of UP TO two hundred S4 composite PA cabinets from the Jands Production Services inventory. The cabinets were returned to Clair Brothers in the USA, owners of the S4 design, who plan to strip them of components for their new i4 system.

Jands acquired around 100 cabinets when they purchased the assets of Artist Concert Tours (ACT) in the early 1980's. These were the only non-Clair Brothers owned S4 boxes in the world, and were joined by up to 100 more on a seasonal co-rental deal with Clair Brothers.

Earlier this year Jands decided to introduce a new 36 box V-Disc PA system, which was delivered into stock early last month. JPS require at least one other system to replace the balance of S4's retired, and are considering various types.

A quantity of Clair Brother's originated equipment, including AM 12 foldback wedges, was transferred to JPS ownership as part of the S4 return deal.

Sydney's Norwest Productions now hold the largest inventory of a single brand of concert PA loudspeakers in the region. Norwest hold the contract for the opening and closing ceremonies at the 2000 Olympics. They operate EAW loudspeaker systems.

CONNECTIONS

ISBN: 1320-5595

CONNECTIONS is published monthly -
except January - by Connections
Publishing Pty Ltd
Australian Company Number 058 443 182
ABN 66 058 443 182

Mail: PO BOX 439, EPPING
NSW 2121 AUSTRALIA.

Deliveries: 16 Willoughby street.

Web: www.conpub.com.au

Email: mail@conpub.com.au

Phone: +61 2 9876-3530

Fax: +61 2 9876-5715

Lazy Hours: nine to five, Sydney.
After hours try the Epping Hotel, or
any of the mobile numbers below.

Advertising YES PLEASE:

Julius Grafton, (Publisher)
julius@conpub.com.au,
call toll free 1-800-635-514
or +61 2 9876-3530.
Mobile 0408 498-180

Subscriptions: call toll free
1-800-635-514 or +61 2 9876-3530
or email sarah@conpub.com.au

Bulk sales, dealer sales: toll free
1-800-635-514 or +61 2 9876-3530
or email sarah@conpub.com.au

Newsagent sales: NDD code CNC.

Publisher: Julius Grafton
julius@conpub.com.au
mobile 0408 498-180

Acting editor: John Grimshaw
john@conpub.com.au
mobile 0408 833-394

Melbourne bureau: Mandy Jones
mandaj@deakin.edu.au
mobile 0414 537-847

Contributors: Everywhere. You too...

Write for us: We welcome your
unsolicited material, however rough,
and we don't mind spelling mistakes.
If your stuff is exactly grammatically
correct and gorgeously spelled, we
reserve the right to introduce *small
errors*, to maintain our track record....

Legals: Nothing herein to be
reproduced or transmitted by any
means without the express written
approval of the publishers. All
contents copyright of Connections
Publishing Pty Ltd. All material
thought to be correct at time of
publication, but we accept no legal
responsibility if it isn't. You can
always take legal action against us,
but in any case we always prefer to
run a correction in the very next
available issue if anything published
herein is faulty in fact. We have made
every reasonable effort to track
original copyright holders.

Lawyers: When required.
Why do you want to know?

Accountants: Partlett, Chave and
Rowland, Sydney.

Printed in Sydney by: John, Garry
and crew at Superfine. Quality!

Reprographics: Omicron. 8th year.

IT consultant: Brendan King

Platform: Apple Mac G3, G4 (Page
Maker 5) on a Win 2000 server.

Superb advertising production:
shazartshop: Sharon Miceli,
call +61 2 9981-2891 or email
smiceli@one.net.au

Caution urged on light output figures

High End Systems call for uniform approach. Mike Wood writes:

Some data can be misleading. For example, measuring the center beam power of a wash fixture does not provide the complete picture.

The centre beam power (measured in lux or foot-candies) gives no information on how the light is distributed-how "flat" or "peaky" the beam is-and how it will interact with other light sources.

One benchmark High End Systems uses is Total Lumen Output, essentially a measurement of the total output of the unit. It is derived by "adding up" light readings across the entire beam. An established standard, this is often referred to as the *ANSI Field Lumens* for the fixture.

High End Systems also publishes beam distribution data for its automated fixtures, both as charts and as IES format files. Data from these charts can be plotted to measure the effect of light beams from multiple fixtures overlapping at any throw and angle.

This can be a time-consuming activity without computer assistance, but lighting design simulation software such as Lightscape can generate a realistic computer simulation of the entire rig.

Looking only at centre power is not enough- you might be able to adjust a 12,000 lumen fixture to have a center beam higher than that of an 18,000 lumen unit, which looks good on paper but not on-site.

So if you want to compare apples with apples, look at total lumens and the distribution- not just at centre power.

NEW CEO FOR KOSPRO

Kospro International Pty Ltd, suppliers of high-end studio, sound reinforcement & lighting systems, announce the appointment of **Rob Scott** to the position of President and Managing Director.

Previously Vice President, Rob, has been entrenched in the development of Kospro's overseas and local business, where major success has been achieved.

"In our first two years, Kospro have firmly established our presence in the south east Asian market, and we have cemented our grip of the digital audio production market in Western Australia" says Rob.

• +61 8 9221 8880 or www.kospro.com

ENTECH winner takes first prize at INFOCOMM 2000 Presentations Playoffs



Eight presentations professionals from the United States and Australia went laser-pointer to laser-pointer recently at INFOCOMM 2000 in Anaheim, CA during the second annual Presentations Playoffs - a competition to find the world's best presentations and presenters.

When the projector bulb faded, Jennifer Hodgson (*above*) of Elefont Creative in Sydney was selected as the world's best presentation designer for her marketing oriented sales presentation.

The three Presentation Playoffs judges

remarked that her design was near flawless and the content carefully matched her delivery. Hodgson beat out four other Presentations Playoffs finalists to win the top prize. She is also the first international presentation designer to win an ICIA Presentations Playoffs award.

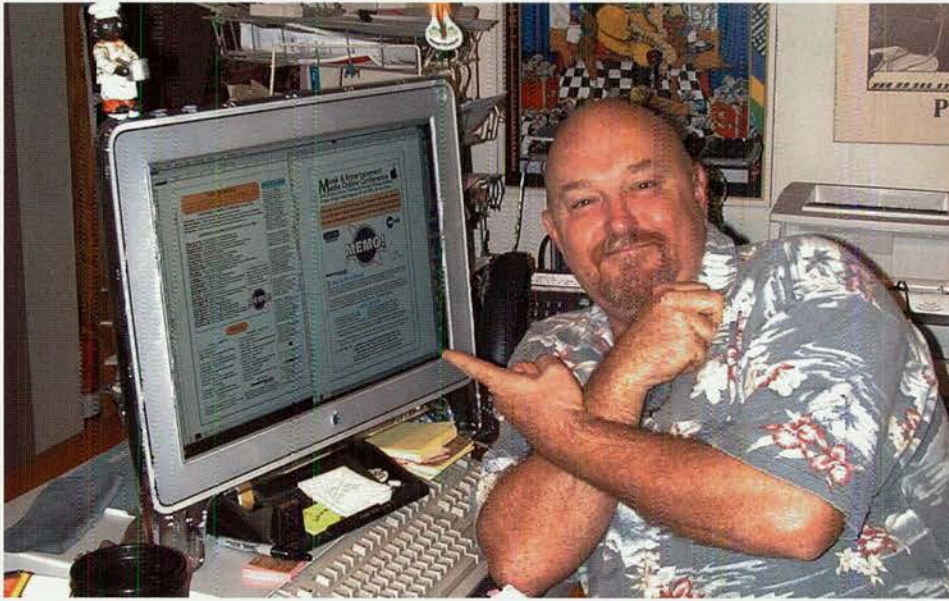
The International Communications Industries Association, Inc. (ICIA) the National Speakers Association and the Communications Management Association sponsored the two-day event.

All Presentations Playoffs finalists won their way to the INFOCOMM Finals by qualifying in a special elimination tournament held in April. Hodgson won first place at the ENTECH final in March, putting her into the world final. ICIA received slightly more than 100 entries for the Presentations Playoffs 2000 competition.

Hodgson received \$2,500 cash, an electronic projector and a custom-made crystal trophy for winning the top prize in this category.

Joe Healey of Joe Healey Seminars & Keynotes, Inc. in Pittsburgh, PA was awarded the Best Professional Presenter prize.

Who is doing what?



ELECTRONIC MUSIC DISTRIBUTION CRISES AND CHALLENGES MAKE MEMO CONFERENCE TOPICAL

Tripp hosts largest industry conflagration yet, as net dominates music industry

Slated to cover such diverse topics as MP3 piracy, e-tailing emergence, download convergence, net radio as well as other music industry issues, over 500 music industry professionals are expected to attend the MEMO conference this month.

Called "Music & Entertainment Media Online" (MEMO), the conference is to be held in Sydney at the ABC Radio Centre and is sponsored by Apple Computer Australia.

The conference will feature over 40 top industry speakers in eight panels with four keynote addresses over August 18 & 19. The event will also incorporate a music and technology exhibition in the ABC Radio Centre foyer called TechXpo, which will be

open to the public. The conference will conclude on Saturday night (August 19) with the 2nd annual Australian Online Music Awards (ONYA! Awards), webcast from The Basement nightclub.

The event is produced by IMMEDIA! - the music business' online directory and publishing house run by industry guru Phil Tripp, pictured above with his Apple Cinema Screen.

A website has been established at www.immedia.com.au/memo listing all topics, panels, speakers, schedule and registration information.

It costs A\$275 per day, or A\$500 for both, and you should check in advance as it may have sold out beforehand.

Juiced up as rolling stone gathers moss

Juice magazine recently reaped over twenty million dollars in a *just-in-time* IPO float fronted by founder Lesa-Belle Furhagen. The floated entity is called Terraplane, which will now attempt to surf the streaming content wave of the internet, with acquisitions and cyber announcements rolling out as this issue goes to print. They aspire to be a leading multimedia infotainment company.

Left looking like just a magazine publisher, is Furhagen's former fiance Phil Keir, owner of Rolling Stone Australia and Next Music magazine. Furhagen famously departed the relationship and Rolling

Stone, to establish Juice with former Stone editor Toby Creswell some years back.

Aside from totally missing the dot comet, Keir is fighting the Business Software Association of Australia (BSAA), who have issued a news release containing allegations that Next Media paid \$50,000 to BSAA for "unauthorised copying and use of computer software". In particular, the allegation is that Next Media illegally installed at least 40 copies of popular software titles on a number of computers.

Next Media deny the allegation, but say they did settle with BSAA on commercial terms rather than fight in court.

-JG

Crew site

Here's a website **Mandy Jones** found - it's a register of Aussie crew people - LD's, FOH eng, riggers etc. It's a long address: www.backstageworld.com/crews/au/AUS_pool.html

HireTrack Distributor Announced

After months of research, UK based **Navigator Systems Ltd.** are pleased to announce that they have appointed the **Premier Technology Group** as Distributors of their rental management software, HireTrack Eclipse. The deal covers sales in Australia and New Zealand.

Any enquires regarding Navigator should be directed to Craig Ryder at Premier Technology Group Pty Ltd, call +61 7 3257-0443.

Canberra Merger

The production businesses of **Better Music** and **Audio Acoustics** have merged with **Audio Solutions** to form Canberra's largest pro production service.

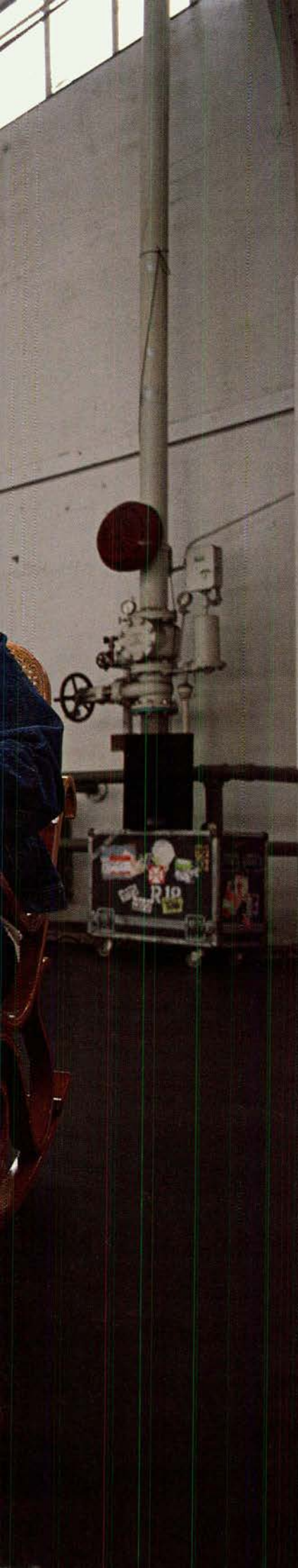
The new entity will trade as **Audio Solutions**. CEO **Simon Byrne** says all the equipment is now at their Fyshwick premises, and they can now offer 90 intelligent lighting fixtures, 200 luminaires, 80 speaker cabinets up to X-Array size, and rigging with chain motors. They have just ordered 2 Sony FE-100 data projectors to add to an already strong video capability.

Call them on +61 2 6280-6331.

Ouch!

Company B Ltd, the theatre company, were fined forty grand by a court acting under instructions from **Workcover** in NSW last month. This relates to the 1997 collapse of a temporary seating stand in a performance space at Newtown in Sydney, where 14 people were hurt.





With all your Meyer Sound gear out there working for you, you'll need to find new ways to use that empty warehouse.

It might be time for a good hobby.

In the best of all worlds, your warehouse stays empty, with every piece of gear out there working. And with that in mind, it's time to take a fresh look at Meyer Sound. Our loudspeaker systems provide the fines: audio quality, are simple to set up and exceptionally reliable - designed to be in demand.

We've never approached the professional sound reinforcement market like others do. We've never been followers. That's why all Meyer Sound loudspeakers are self-powered. Every system component is a self-contained building block. Amplifier racks are eliminated, so systems are easier to configure, set up and transport. Wiring is a piece of cake. Set-up and tear-down are faster, needing smaller crews and less truck space. And our new QuickFly™ rigging system makes array assembly and flying a breeze. Just add signal and mix well.

So why not check out Meyer's self-powered touring systems and talk to us about your system needs? Then start working on your lockstitch.



Meyer Sound

**www.meyersound.com.au
sales@meyersound.com.au**

**Toll Free
1800 4 MEYER (Australia)
0800 3 MEYER (New Zealand)**

Meyer Sound Australia Pty Ltd
PO Box 555 Albion Qld 4010, Ph 07 3252-4493, Fax 07 3319-6016

Who is doing what?

tp EVENTS-TEAM UPDATE

tp Events is proud to introduce their new and expanded team-

Danny Yezerki - Managing Director and creative force of the Company

Brigid Paton - General Manager and Event Director

Vivienne Shahin - Marketing Consultant

Judy Cheong - Event Development Manager

Briony Bennett - Event & Administration Coordinator

Avi Anger - Manager Touring & Entertainment

Agostino Marcello - Manager Production & Multimedia

Michael Yezerki - Manager Music Composition & Design

Here they all are, looking young and fresh. This is the year 2000 'before' photo!



The Corrs at Party in the Park

Though rain pelted down in torrents and the stage took on a slippery texture, the lighting equipment battled the elements and performed brilliantly for the Prince's Trust Party in the Park 2000 recently in London.

More than 100,000 people flooded into Hyde Park for a slate of artists including Ben Folds, Elton John, Christina Aguilera, Backstreet Boys, Kylie Minogue, Savage Garden, Sade and many more, who performed under soggy skies from noon to 9 p.m.

Supplied by lighting contractor Light & Sound Design UK, the rig was filled with 75 High End Systems Studio Spots and 85 Studio Color automated luminaries, run by two Wholehog II consoles with Expansion Wings. "It was 3,500 channels of DMX, so we're talking a lot of HES kit," says Hugh

Lighting Survives Soggy Prince's Trust Concert

Davies-Webb, technical support specialist for Flying Pig Systems. Additional gear in the rig included lots of conventional fixtures and some competitive gear as well.

Event LD was Vince Foster (LD for Peter Gabriel, Phil Collins and Lord of the Dance), programmer was Pete Barnes (Spice Girls).

Foster says, "We had 60 High End fixtures that got completely drenched. We homed a couple of them and they worked again perfectly. For the amount of rain we had — and it was just pouring straight for an hour, really tropical — the equipment held out wonderfully."

Most of the show was a daylight show, lit for TV, but Foster says the cloudy weather was actually good for the beams because it enhanced the light.

Foster is a long-time High End and Wholehog user, citing "robustness" and "reliability" as factors in his specifications of the gear. He believes the Wholehog to be a "fantastic desk" because of so many features, but mostly because of its versatility.

The event gained massive TV coverage, and despite the weather, was hailed by the Prince's Trust organizers to be "the best yet."

• For a photo gallery of artists, check out the website at www.PITP2000.com

Soundtube up and up

39 **Soundtube Speakers** have been specified for the new Meyer Mega Mart store due to open next month in Melbourne. Leo's Supermarket Chain has jumped on the band wagon as well and are retro fitting all existing stores with Soundtube Speakers after auditioning these Omnidirectional speakers.

• Distributors NSCA are seeking additional dealers. Call +61 3 94341888.

IJS ADD TO INVENTORY

IJS Concert Productions Pty Ltd has recently purchased an EAW KF400a Power Virtual Array loudspeaker system comprising of 6 x KF400a, 3-way full range boxes with internal bi-amplified powering. The system will be incorporated into an already impressive concert touring system of 24 x EAW KF750e loudspeakers, powered by Crest Audio amplifiers and using XTA Electronics digital processing. • Call +61 7 3852 2646

BIRTH ANNOUNCEMENT

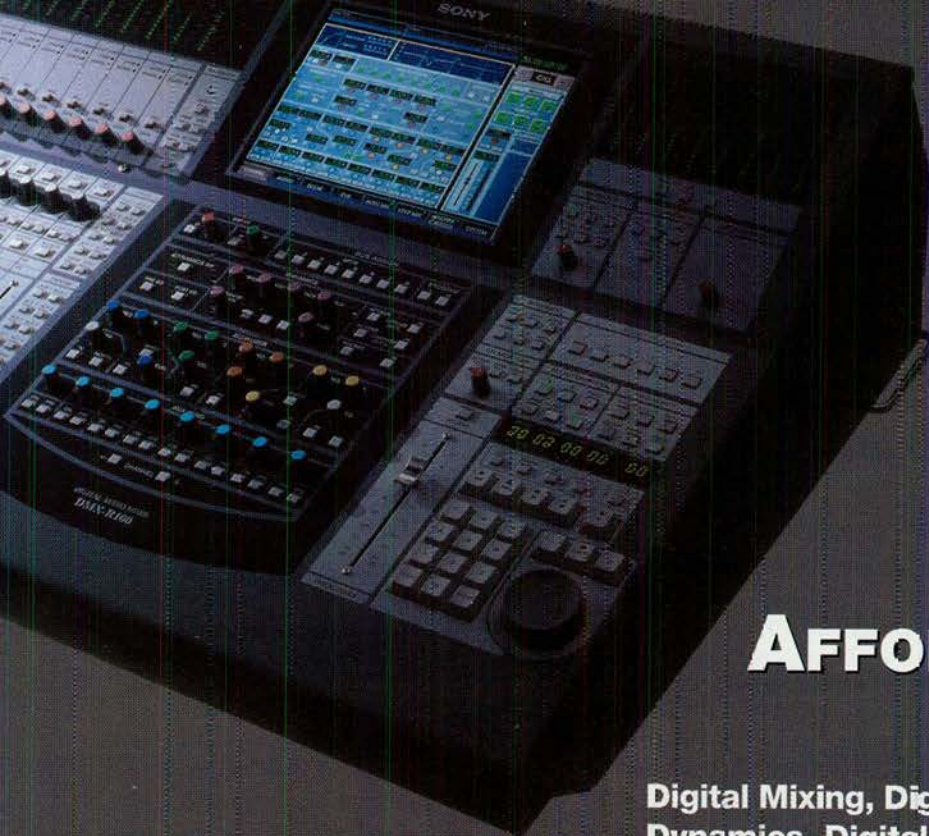
The Biviano family, from ULA in Queensland, announce the birth of their third daughter **Olivia Louise Biviano**. Olivia weighed in at 3450 grams or 7lb 10 in the old scale and a lengthy 49.5 cm. Both mother and daughter are very well and Dad has a smile from ear to ear.



GEAR TO MOVE?

IF YOU'VE GOT GEAR TO MOVE,
CALL STAGE & SCREEN ON (02) 9383-4544

STAGE & SCREEN
TRAVEL & FREIGHT SERVICES PTY LTD



AFFORDABLE, PROFESSIONAL

Digital Mixing, Digital Surround, Digital EQ, Digital Dynamics, Digital Routing... and Automated !

Sony's digital innovations are at the heart of a wide range of professional and consumer audio products in use around the world. The **DMX-R100** Audio Mixing console is an outstanding example of Sony's development process, using the latest digital technology to fully address the challenging and creative needs of modern audio production.

DMX - R100

The **DMX-R100** provides an opportunity for the growing number of studio owner/operators to invest in a fully professional digital mixer that has been specifically designed for the production of high-quality stereo and surround sound projects, inheriting the control philosophy of the world-acclaimed **Sony OXF-R3** Console—developed through a design partnership of **Sony** digital audio engineering teams working in Japan and the United Kingdom.

The result is a compact, 48-channel mixer with a comprehensive feature set that includes 25 (10-bit resolution)

motorised faders, a sophisticated control panel with touch-screen, a fully integrated package of automation, a digital routing matrix and machine control. The **DMX-R100** delivers superb sonic performance via its state-of-the-art processing technology, offering 24-bit quality and the ability to operate at both standard and double sample rates.

The **DMX-R100**, with its stunning sonic performance, operability and flexibility, meets the creative needs of producers, artists and engineers in applications ranging from music studios to post production and audio pre-mastering.



Who is doing what?

People

James Klein joins Showcorp, Sydney as a Senior Audio Visual Technician / Asst Production Manager.

Richie Mickan has been promoted to Technical Product Manager at Coemar DeSisti Australia.

Fabian Barzaghi has been appointed as a Sales Executive at Coemar DeSisti Australia.

Moving

Haycom Staging has moved to a brand-spanking-new office/warehouse in Port Melbourne. Gear and people all very happy. Visit them at: 63 Fennell Street, Port Melbourne 3207 Ph. +61 3 9645 1612 Fax. +61 3 9645 3199 www.haycomstaging.com.au

Avbiz Pty.Ltd. now occupy some 5000 square feet at 46 Amberley crescent Dandenong Vic.3175. Telephone number remains +61 3 9793 7888 / Fax 9793 7288.

They say: "We have introduced 2 additional full time AV staff, **Tom Corcoran** and **Jenny DeMarte**, our wonderful financial controller **Gaynor** and a new pup called **Honeydog**. In the past 6 months we have added to our hire stock, 10 x Shure UC UHF Radio Mic systems, lapel & handheld with 58 & 87 capsules, 2 Dalite 12 x 9 Truss frame fast fold screens with Dressup Kits, 4 NEC 1045 Data projectors, 12 pieces Suprex System portable stage, Kinderman and Elmo OHP's and a new computer system for the office.

Tech Dept's merge

The **Melbourne Exhibition and Convention Centre (MECC)** has announced that the **Melbourne Convention Centre (MCC)** Technical Services Department will expand their management to encompass the Melbourne Exhibition Centre (MEC) under one roof. **Gearhouse** Melbourne will continue to support the MECC.

Sound 2000 works for NZ trade

AUCKLAND: For the first time in over 4 Years the entertainment industry gathered to show their wares, and even some of their laundry at the Aotea Centre Auckland's premier entertainment complex located right in the heart of the city.

For a bit of a twist, car audio and Hi Fi and home theatre were added to the mix, as well as lighting and publishing. While this may seem a bit diluted but is really the only way to attract enough foot traffic to make the event viable considering the tiny size of the New Zealand market, 3.8 Million, plus Bondi. The multi room layout of the venue provided enough separation though to allow a certain amount of focus and the opportunity to give some of the product a run through its paces.

There were still plenty of Australian firms represented including Audio Telex and Australis, and even ARX. All the well known brands were represented too even if you had to look hard to find any evidence of products on the Jands Electronics cafe stand!

There were also plenty of new toys to look at including the new NEXO Alpha E series PA in the theatre. This was used for live performances. The system certainly sorted the engineer from the enthusiast, Mr Fry pulling a heart pumping mix for the drum workshop on Saturday night.



SGM on the stage of "BRAZIL 500 ANOS"

500 years after the landing of Pedro Alvares Cabral on the South American coasts, Brazil celebrates its own discovery with a maxi event - "Brazil 500". It rolled through the biggest Brazilian cities with a series of musical shows.

Photography director Césio Lima and his assistants Marcos Olivio and Danny Nolan created a flawless light frame which could wrap around all the stars who performed.

The SGM lighting hardware included 12 Giotto Spot 1200's, 12 Giotto Wash 1200's and 12 Galileo IV Live 1200's.

Dom Famularo, who is perhaps best known for his time with Santana, was brought out by Frank Gibson Percussion for this inspiring workshop as well as TV appearances and a motivational seminar earlier in the week. Rumours of dancing in the isles later in the show while Dom pumped out some of Santanas newest tunes cannot be confirmed but strong evidence of empty wine bottles behind the Jansen stand seem to support the story.

The Jansen stand their wide range: Proel was well represented with lots of stands, cable, cases, drums, amps, speakers, lighting, audio, and most things in between. Also new was the SGM range of lighting products including a range of moving heads from 250 to 1200 watts competing for space on the ceiling with other stands. There was a full display of Audio Technica Microphones supported by reps from ATSEA (audio-technica south east asia) to give a real international feel to the stand. Some Lab Gruppen Amplifier's had their innermost components on open display as well as the new Tambouro drums, made by Proel in Italy.

Even for a small show there was plenty of noise and excitement with over 8000 visitors through on the public days.

• By Simon Adams (Jansen Limited)

Headphone technology recognised at Australian Technology Awards

Lake Technology have won the Chairman's Award at the Australian Technology Awards for the development of Dolby Headphone technology.

The technology is being licensed by Dolby Laboratories to consumer electronics manufacturers for incorporation into almost any product that normally provides a stereo headphone jack.

"Dolby Headphone has a great shot at becoming the de facto standard for headphone listening-right across the audio industry, from in-flight entertainment to PCs and personal stereo," said Leonard Layton, Managing Director, Lake Technology. "The smarts behind the technology are inside the products, not the headphones, so any ordinary set of headphones can be used."

Dolby Headphone is a unique signal processing system that enables your stereo headphones to realistically portray the sound of a five-speaker playback system.

WORLD LIGHTING CHALLENGE

Griven, the standard in architectural illumination, presents the World Lighting Challenge. A complete range of high quality, reliable, fully featured and weatherproof products.

Griven changes the exterior world we know—introducing a new era of ever-changing dynamic colour and light.

From subtle interior highlight to dramatic illumination of entire buildings and structures, there is a Griven product for any application.

Kaleido 575
Kolorado MkII 1800
Kolorado MkII 2500
Kolorstream 2500
Kolorjet 4000

 **GRIVEN**



Distributed in Australia by: Universal Lighting & Audio Pty Ltd

Queensland:
26 Commercial Drive,
Southport, QLD 4215
Phone: +61-7-5532-9922
Fax: +61-7-5532-4155

Victoria:
2/40 Assembly Drive,
Tuilamarine, VIC 3043
Phone: +61-3-9310-4999
Fax: +61-3-9310-4655

FreePhone Australia Wide 1800-648-111
Web www.ula.com.au • Email ula@ula.com.au



Kolorado
MkII 1800



Kolorado
MkII 2500



Kaleido
575



Kolorjet
4000



Kolorstream
2500

 **ArchiVision**

FORMAT WAR: JVC STEPS UP D-ILA PRODUCT LINE HAS DLP GOT A NEW CHALLENGER?



By John Grimshaw

JVC has produced a new "small" D-ILA projector, and plans to release it in October. The DLA-G3010Z (left) is not all that small when compared to the smallest of the LCD and DLP projectors available, but its specifications place this device in a good position.

The unit is respectable 6.5kg, and has a native resolution of 1365 x 1024 pixels, making it capable of projecting an S-XGA image (1280 x 1024) without scaling and the resulting loss of quality.

With 1300 ANSI lumens coming out of the lens, this projector has more than enough light for most applications. The suggested list price of US\$8995 also makes this model the cheapest of the D-ILA projectors available.

LCD vs DLP vs D-ILA vs Plasma vs CRT

Working to promote the D-ILA format

Countering the tremendous growth of DLP projectors, JVC has signed a deal with Kocak to start using D-ILA chips in their projectors, and other companies are reported to be following suit.

In addition, JVC have produced a new D-ILA chip. The new chip is a 0.7 inch (1400 x 1050 pixels) device and is designed for ultra portable projectors. This chip signals JVC's intention to create a wide range of D-ILA chips.

Also just coming off the drawing board is the 1.3 inch (2048 x 1536 pixels) chip. Being used in development of the new digital cinema projectors, this chip may be rolling off the production floor in projectors as soon as April 2001.

Other intended D-ILA chips include a full High Definition resolution 0.9 inch chip (1920 x 1080), and the astounding 1.7 inch chip with a resolution of 3840 x 2048 intended for the next generation of digital cinema. However, don't expect to see these before 2002.

Technology is out of control, and this is not such a bad thing for the consumer. Competition is forcing the research and development departments of many manufacturers to

create options. Competition is gradually forcing prices down. Low prices encourage spending, and spending pays for the R&D.

In the realm of displays and projection this cycle of change has caused significant evolutions - even in the last few months. Of course, the down side to all of this is that it does not take very long before the consumer can become confused by all of the choices available. This becomes very obvious when you walk around the trade shows like Infocomm, held last June in Anaheim, California.

Much to the dislike of many manufacturers, knowing what each of these display technologies actually does becomes less important than the objective results of how the final results look. Yet, it is important to know what you are looking at when you are deciding between the technologies. So, here is a brief tour of the formats.

CRT - Cathode Ray Tube

Many still swear by these projectors - and they are usually the ones without enough money to upgrade to the latest technology. This year, I found only two CRT models at Infocomm, and this is a sign of things to come. CRT projectors have some excellent characteristics - including resolution, image detail and contrast. However, they cannot

produce anything like the brightness and cost effectiveness of the latest projectors. They typically take a significant amount of time to set up and do not enjoy being moved about. The CRTs

themselves have a limited life, and are VERY expensive to replace.

On the other hand, CRT displays used for computer displays still count for more than 90% of all computer monitors.

LCD - Liquid Crystal Display

This technology was already old when the first projectors were rolling off production lines more than fifteen years ago. More recent advances in LCD technology have made this

>Please turn the page

Projection format primer

This is not just another mirrored sign. It is actually made up of over 300 D-ILA chips - making it the most expensive sign at Infocomm 2000 last June.





AC400 Unbalanced to balanced audio converter
AC200 Balanced to Unbalanced Converter also available
\$275
Includes GST



ADA500 Unbalanced stereo audio distribution amplifier
\$275
Includes GST



ADA600 6 output balanced stereo audio distribution amplifier
\$275
Includes GST



AS400 4 Input Stereo Switcher with auto switch and RS232 / Relay Remote Control
AS800 8 input unbalanced mono switcher also available
\$275
Includes GST



AS450 4 input balanced stereo switcher with auto switch, RS232 and relay rem cont
AS850 8 input balanced mono switcher also available
\$385
Includes GST



MA111 Broadcast performance, dual microphone pre-amplifier with 24 V phantom power
\$220
Includes GST



HPAMPB6x1 Balanced stereo headphone monitoring switcher
\$440
Includes GST



AGA200 Stereo balanced, adjustable audio gain amplifier
\$440
Includes GST



PFA200 Stereo Audio Program Fail Alarm with 6 relays
\$770
Includes GST



PLM200 -40dB to 0dB Bal VU/PPM stereo program level meter
\$660
Includes GST



RC800 6 port relay controller
\$275
Includes GST



AS450XLRIF A Pre wired DB25 to 1RU XLR input panel for the AS450. Also available for the AS850 and ADA600
\$165
Includes GST



VDA1024 10 output video distribution amplifier with video loop through facility
\$495
Includes GST



VADA1022 10 output video and stereo distribution amplifier with loop through facility
\$660
Includes GST



VASS10 10 input video and stereo switcher with adjustable auto scanning facility.
\$935
Includes GST

Choose a Pro Solution!

For all of your "broadcast quality" Audio Visual Needs



SVDA600 6 output SVHS video distribution amplifier
\$440
Includes GST



SVS450 4 input SVHS video switcher with auto switching
\$440
Includes GST



VADA300 3 output video and stereo distribution amplifier
\$275
Includes GST



VDA300 3 output video distribution amplifier
\$236
Includes GST



VDA600 6 output video distribution amplifier with front gain and cable EQ
\$385
Includes GST



VS400 4 input video switcher with auto switching and RS232
VS450 4 input vertical interval video switcher \$385
VS800 8 input video switcher \$300
VS850 8 input vertical interval video switcher \$400
\$275
Includes GST



VAS300 3 input video and stereo switcher with auto switching
\$275
Includes GST

Broadcast Quality

Used by Radio & TV stations all around the world

No Cheap Plastic Boxes

All Pro Solutions are housed in strong metal cases.

No Wall Wart power adaptors

All products come with IEC 3 pin power connectors and 110/240V switchable power supplies.

Rack mount all products

All products smaller than 1RU may be rack mounted using the RF300 - see catalogue

Competitive Prices

Australian designed, manufactured and supported

Fast turn around

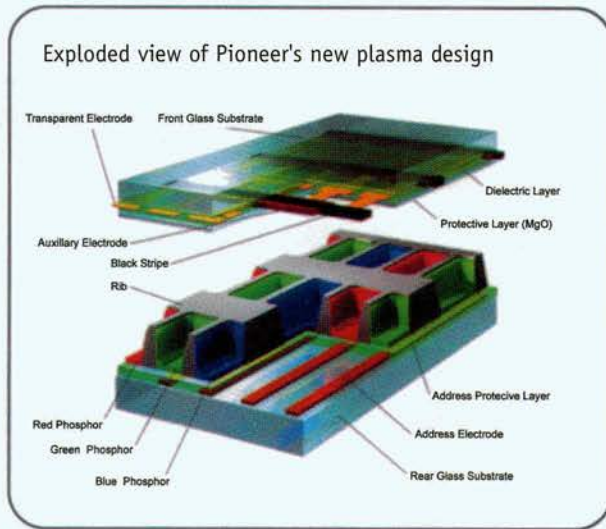
Usually 24 hours delivery to all capital cities



AV Communications Pty Ltd
PO Box 2092 MALAGA WA 6944
Ph: 08 9249 6688 Fax: 08 9249 6858
Email sales@avcom.com.au

Download the Catalogue from
www.avcom.com.au

LCD vs DLP vs D-ILA vs Plasma vs CRT



option keep place with the newer technologies.

LCD projectors use three separate panels or three layers in the same panel for red, green and blue. Each pixel colours the light as it passes through the panel or layer, and it is then projected via standard optics. The biggest drawback to LCD is that black is produced by blocking the light in the each of the three coloured LCD panels or layers. Because this does not block all of the light,

the blacks are very slightly grey.

Some say this race is likely to end in the next few years as DLP and D-ILA slug it out for the top position. However, if this year's projector shootout at Infocomm was any indication, LCDs will be around for a while to come.

The top LCD projector at the shootout was Sharp's XG-V10WU - designed for large audience projection, it was surprisingly high in quality.



JVC D-ILA Chip

Plasma

The main difference between a plasma display and any other display is that each of the three colours are present in each pixel of the display. By sending a charge to electrodes that are placed between some glass panels, tiny pockets of an inert gas are energised and changed into a plasma state. This state

creates UV light, which in turn reacts with the red green and blue phosphors in each pixel.

Another reason why this picture is inherently sharper is because all of the pixels are energised at once, as opposed to images that are created by a progressive line scan system as used in CRTs.

Unfortunately, Plasma displays are very susceptible to "burn-in", so be careful using static images for long periods. The better Plasma displays have built in methods for avoiding this.

- Three of the most important things to consider when selecting a Plasma display are:
- 1) How many pixels in the display (native resolution)?
 - 2) Can the display show 16.7 million colours?
 - 3) Is the pixel size uniform through the panel?

DLP - Digital Light Projection

This is one of the two recent technologies designed to overcome the shortcomings of LCD panels. Developed by Texas Instruments, this panel is like a cluster of tightly packed mirrors. Each mirror only reflects the desired output through the optics of the projector. As a result, absolutely no light is projected when "black" is required, thus giving much truer blacks than LCD.

Projection format primer

Another advantage to this technology is

that it has allowed significant expansion at the top and bottom ends of the projector market. Along with the improved DLA chips, improved optics and light sources have resulted in a wide selection of ultra-portable devices now on the market.

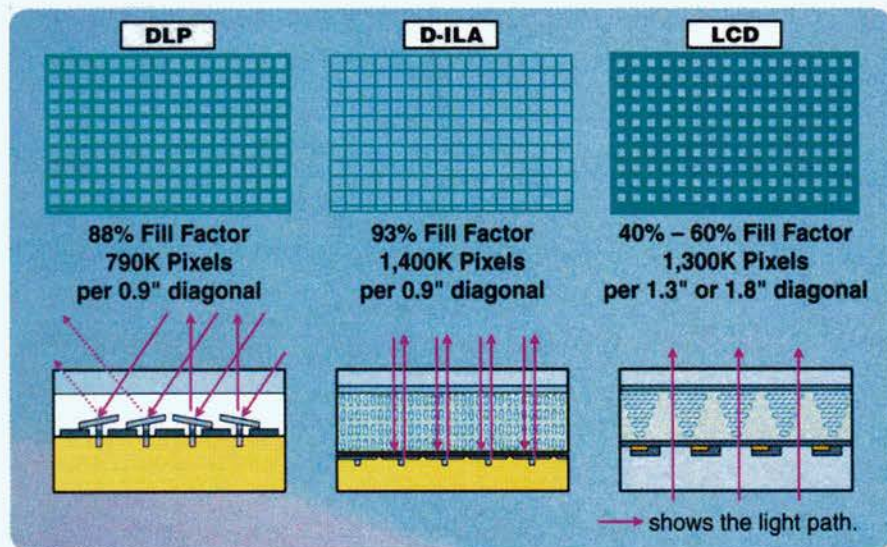
D-ILA - Direct drive Image Light Amplifier

As the main competing technology to DLP, D-ILA was originally developed by Hughes and called ILA. JVC developed and marketed the production version, adding the "D" in front of the "ILA".

Like DLP, D-ILA is a reflective technology, but it passes the light in a subtly different way. The D-ILA chip has an all-in-one, CMOS-like design, incorporating the matrix switching and electronics behind the reflective electrode layer. Another reported advantage to this design is that the pixels are closer together than LCD and DLA, leaving much thinner lines between pixels (see picture at left)

Originally, JVC used this technology exclusively, not licensing it to other manufacturers. Recently, JVC announced that it would now sell the D-ILA chips to other manufacturers, with Kodak being the first to jump on the bandwagon.

- John Grimshaw



EV **N/DYM**[®]

W I R E D

The new **N/DYM**[®] series of wired microphones – proof that you can make the best even better.

EV was the first to use a **neodymium-based magnet structure** in our microphones. The improved sound was a revolution. Today, we've made the best even better with our new **VOB™** (Vocally-Optimized Bass) technology. VOB™ technology eliminates the "muddiness" found in the "proximity effect" bass boost of competitive models, giving the performing musician and sound engineer better intelligibility to "cut through the mix."

The new N/DYM[®] series is also your choice for performance instrument miking requirements. From our versatile N/D478 universal instrument/vocal microphone to our specialized instrument and bass drum models, you'll experience the best in sound and reliability.



N/D767a



N/D267a/as



N/D167



N/D468



N/D478



N/D368



www.eviaudio.com.au

EV AUDIO

Head Office: Tel (02) 9648 3455
Victorian Office: Tel (03) 9796 7777
EVI Audio is a division of Telex Communications, Inc.

Projector Technology

Dolby Digital Surround EX Introduced

Many Hollywood releases will now be encoded with Dolby's new Digital Surround EX.

The EX system adds a centre rear surround channel to the 5.1-channel format.

Dreamwork's recent release, Aardman Animation's claymation *Chicken Run*, is encoded in Dolby Digital Surround.

Adrian Rhodes, the sound mixer for *Chicken Run*, said "we are starting to enjoy the benefits of using the Dolby Digital Surround EX system and it is proving to be extremely useful. We are creating complex sound effects of cogs, beeps, and buzzes-and find we can position these wherever we want in the dubbing theatre and smoothly pan around the room to match the picture movements.

"I wish this system had been available to me for previous mixes I've worked on."

Dr G's Gadgets



I love a good catalogue full of audio cables. Hosa's website is one such goldmine that is worth trawling from time to time. They make everything the pro-audio user likes to find in a pre-wired cable, as well as some hard to find items. This includes things like 1/4" stereo phone cables for patch bays. The picture above shows a multicoloured array of such cables available from this company. Hosa products are imported by Intellware Australia Pty Ltd in Adelaide.

Ph +61 8 8277 1722

NEC Updates Its Projector Line Up



NEC have completely revamped their range of projectors with five new projectors under US\$15,000. The Multisync LT85 and LT150 (pictured right) are ultra light portable machines that are SVGA and XGA resolutions respectively. Each machines will be 800 ANSI lumen projectors, which is an impressive output for such a tiny projector. They will be priced US\$4195 and US\$7295 respectively.

By John Grimshaw



The Multisync MT1050 and MT1055 are both XGA resolution projectors with 2000 and 2500 ANSI lumens respectively. All four of the above projectors will have a built in presentation viewer, allowing presentations to be downloaded directly to the projector.

The fifth new projector is the GT1150 (pictured left), a sleek locking device designed for fixed installation situations. It is an XGA resolution projector, with a very respectable 3000 ANSI lumens output. Its anticipated list price is US\$14,995. All of



the new projectors will be shipping by Sept/Oct this year.

The new range will include NEC's new Vortex technology. According to the specifications, Vortex is an image enhancement system designed to give CRT-like image quality to DLP and LCD projectors. It is a combination of hardware and software fixes to picture uniformity, colour and contrast.

- There are four processes involved in NEC's Vortex.
 - White Uniformity Enhancement* - a one-time correction that uses precision optical measuring to determine thickness variations in the LCD/DLP panel.
 - Gamma Correction* - for a more linear and accurate greyscale and improved dynamic range.
 - Black Detail Enhancement* - which expands low level grey scale information to increase image detail.
 - Colour Separation* - with improved optics and dichroic mirrors.

SUBSCRIBE! Save!
 Au \$52 1 year inc gst (Save \$8.50) Au \$86 2 years inc gst (Save \$35 on normal cover price!)
 Call 1-800-635-514

The Lightweight Choice for Heavyweight Performance



The ART Series Speaker System, designed by RCF's Electro-Acoustic Laboratory, uses Advanced Resource Technology to guarantee you a new level in professional sound, portability and flexibility. The ART Series is simply the most innovative range of high performance loudspeaker equipment available, offering both active and passive systems for the professional in every audio environment.

Where else can you find 15' performance from 12' woofers?

All ART Series active speaker systems are designed with an exclusive 'TOESP' thermal and over-excursion speaker protection. So you can turn up the heat on your audience while keeping your amps cool, and all advanced active electronic components are packed into a rugged, slim-line polypropylene case weighing in at 20-22Kg - making it lightweight but heavy in power.

ART SERIES



State-of-the-art Design

Internal Power Amps

This is the area where most self-powered systems suffer the greatest area of compromise (where most shortcuts are taken). The RCF designers took no shortcuts to include a no compromise serious power amp stage. Two high-tech, split-rail high-current amplifiers, supported by a high duty cycle power supply means a reliable power that will keep delivering long after most competitor's systems have shut down.

No Gimmicks Required

The system does not need protection through "gimmicky" devices such as sliding filters or load shedding, all of which alter the sound at high power or even worse shut it off altogether.

Stay Cool When The Going Gets Hot

The amplifier heat sinks utilise air moving through the enclosure to dissipate heat, so it can therefore be slung at any angle without the risk of overheating. Most powered systems have thermal dissipation only on the rear, so will quickly overheat when on their back (foldback application).



ART 300A Input Panel

Concert Box Protection

The amplifier contains full system monitoring for speaker over-excursion, input limiting, thermal (*turns down, not off!*), and DC protection.

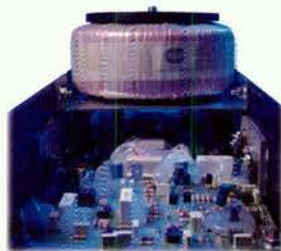
Independent Input Section

The input pre-amp stage is a separate isolated section with input/output and filter switches. Four preset EQ settings are available as well as mic/line level and volume control.

Accessories

The ART Series Loudspeaker Systems are packed full of great ideas to provide maximum flexibility, opening up a multitude of applications that would have needed twice the gear.

Accessories for the ART Series range from Protective Bags to a range of wall and truss-mount brackets. Other accessories include front metal grilles and a variety of installation hardware. The A1 accessory converts any ART speaker into a stable stage floor monitor. All accessories are thoughtfully designed to enhance the capabilities of the amazing ART Series.



Built for Reliability



A-7 Front Grille Accessory



UNLIMITED SOUND



What will you be using soon?



SR1530

MARTIN BLACKLINE

Martin Audio has introduced seven new speaker cabinets in a major new product range targeted at the portable and installation markets.

The seven cabinet BLACKLINE range includes the BlackLine F12 and F15 compact 2-way full-range loudspeakers.

BlackLine H3's potent bi-amped one-box fully horn-loaded system for maximum efficiency with separate low, mid and high horn sections.

BlackLine H2 comprises the high and mid sections of the H3 in a switchable active/passive configuration.

BlackLine subwoofers include the S15 and S18 with single 15 and 18 drivers respectively. They can be active or passive. S218 is a high output double 18 front loaded vented sub.

Recommended retail prices in Aussie dollars are (Incl GST): F12 \$2,095, F15 \$2,795, H3 \$6,595, H2 \$3,695, S15 \$2,495, S18 \$2,995, S218 \$5,995 and M3 controller: \$1,195.

• Martin Audio is distributed in Australia by Technical Audio Group, 558 Darling Street. BALMAIN NSW 2041. Phone +61 2 9810 5300. www.tag.au.com

Mackie debut SR1530 Active 3-Way System

If you shop music stores or browse the web, you'll discover that there aren't a lot of portable three-way sound reinforcement systems. Moreover, there aren't many active three-way systems designed for smaller venues. So they produced the SR1530.

Mackie reckon the output can "bleach the tattoos off the loudest thrash band". We would like to see that!

The SR1530 specifications include:

- A linear response from 40Hz to 20kHz at high SPLs High definition, high output, and wide dispersion
- FR Series tri-amplification: 500 watts RMS delivered to internal transducers

- Electronic equalization, time correction, and phase alignment
 - Optimized Wavefront high/mid horn system
 - RCF Precision Transducers
 - 15-inch LF transducer with Inside/Outside heat-resistant voice coil and high-flux magnetic circuit
 - 6-inch horn-loaded midrange
 - 1-inch-exit compression driver
 - Full electronic and component protection circuitry
 - RRP inc GST \$2995 AUD.
- Info, please contact Australian Audio Supplies on 1800 50 20 15.

KLARK TEKNIK LAUNCHES DN9848 DIGITAL LOUDSPEAKER PROCESSOR

Clark Teknik's new DN9848 loudspeaker management system is a cool box. This versatile unit packs four balanced analogue input channels and eight balanced analogue output channels into just 1U of rack space, making the unit completely flexible for both FOH and monitoring purposes.

The DN9848 is configurable for any loudspeaker system, making it a highly cost effective solution for companies with more than one brand of loudspeaker system in their portfolio. The features list is equally impressive. Although the DN9848 utilises a fully digital processor, it maintains the operational ease and sonic integrity of a high quality analogue unit.

In addition to precise filter operation, the use of digital technology provides unrivalled flexibility of routing, the ability to program delays into both the input and output channels, extensive equalisation on both the input and output channels, and of course programmability. Each input channel provides eight separately configurable, fully parametric equalisation stages that may be used for room equalisation, up to 1000ms of delay, gain control and compression.

Full metering with clip indication is

available for all input and output channels. Each output channel provides configurable high and low-pass filters for setting the crossover characteristics as well as six further stages of fully parametric equalisation that may be used to compensate for system or enclosure characteristics.

Further delay of up to 300ms is available on each output, mainly used for system time alignment, in addition to gain control, muting and limiting.

Dual all-pass phase correction sections are also included, each of which is referenced to the cut-off frequency of the low-pass filter and is adjustable in 5 degree steps. Furthermore, all aspects of the unit may be programmed from the front panel or via remote control using the standard RS232 and 485 coms ports.

Parameters may be directly edited via rotary controls on the front panel with all values being displayed on a 2-line, 24 character LCD window with back lighting. However, various levels of safety lockout may be applied including password protection, to prevent unauthorised user intervention.

- List price \$9749.00 AU (inc. GST)
- www.klarktechnik.com
- EVI Audio, Aust. +61 2 9648-3455



AN AUSTRALIAN LEGEND RENOWNED AROUND THE WORLD

"Australian Monitor amplifiers continue to give us reliable and clear sound quality throughout the 200+ days of the year for which they are in use. My senior technician calls your amplifiers "THE ULTIMATE". They provide clean sound, are highly reliable and durable...."
Vern Meding, Calgary Stampede,
Calgary, Canada

"We have around 70 Australian Monitor Amplifiers powering our very busy Martin Audio hire rig and other speaker systems. Our last batch we received the day before our Millennium NYE Celebrations, we unpacked the 34 amps and they all worked first go in -15 degree temperatures. That is why I always use Australian Monitor".
Sami Borgenstein, Radiant Sound, Finland

"Many many moons ago we were struck at first sight of the then new AM-series. When the audio performance turned out to be at the same level as the superb mechanical and electrical design, we choose AM as the new standard for the rental department. Some 12 years later that first amp is still happily performing just as well as the 30 others we have added since."
Roland Mattijsen, Audio Electronics
Mattijsen/Netherlands

"When Basset Acoustics specified amplifiers for the Adelaide Festival Theatre's new million dollar LARES electro-acoustical enhancement system, the application demanded the highest purity and lowest noise possible. Australian Monitor was a natural choice"
John Matheson, Acoustical Consultant for the project
(204 channels of Australian Monitor), Australia

"We needed an amplifier with recognised brand power and total reliability. AM have an unbeatable reputation for reliability and performance and are a huge asset to our new hire rigs. We have a busy year ahead and can afford to take no chances, so we went with Australian Monitor".
Lindsay Gesling, Event Sound People, Canberra Australia



Australian Monitor

TOUGH, RELIABLE AND SONICALLY SUPERIOR

SITUATION CRITICAL

RELIABILITY IS EVERYTHING

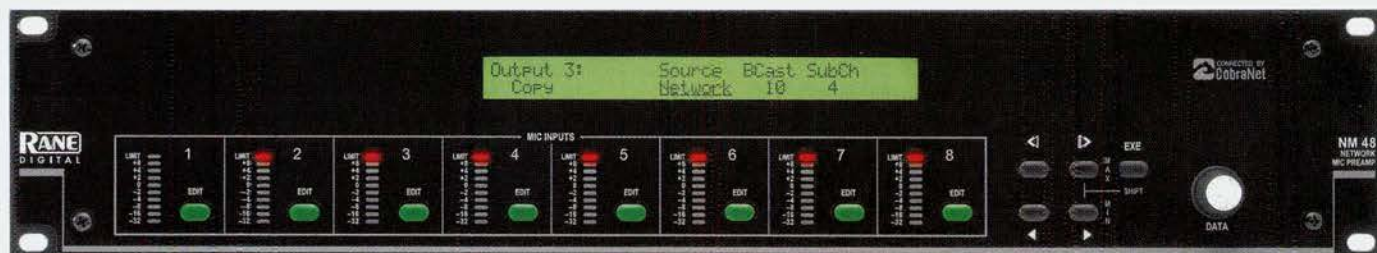
DISTRIBUTED WORLDWIDE BY AUDIO TELEX COMMUNICATIONS

AUDIO TELEX
COMMUNICATIONS PTY LTD

www.audiotelex.com.au

NSW: Tel: (02) 9647 1411 Fax: (02) 9648 3698 WA: Tel: (08) 9228 4222 Fax: (08) 9228 4233 SA: Tel: (08) 8352 4444 Fax: (08) 8352 4488
VIC: Tel: (03) 9890 7477 Fax: (03) 9890 7977 TAS: Tel: (03) 6228 6373 Fax: (03) 6278 1063 NZ: Tel: (09) 415 9426 Fax: (09) 415 9864
QLD: Tel: (07) 3852 1312 Fax: (07) 3252 1237

What will you be using soon?



RANE RELEASES COST-EFFECTIVE NETWORK PREAMP

With the ability to send four channels and receive eight channels of high quality audio over a single, low cost computer network cable, Rane's new NM 48 is a cost-effective solution for audio routing problems in schools, convention centres, arenas and

churches.

Unlike point-to-point distribution systems, the NM 48 network preamp features a highly flexible network protocol, which provides full control of audio destination and source. Flexible audio networks of any scale can be built using multiple NM 48s, or by combining the model with Rane's NM 84 network mic preamplifiers.

Features of the new preamp include balanced line-level inputs and balanced monitor outputs with 24-bit A/D converters, 20- or 24-bit broadcast mode, 10-segment metering per output, Peak Audio 100Base-T CobraNet transmission and monitoring technology, front panel control of all parameters and lock-out switch, programmable memory recall port and RS-232 and MIDI network transport.

The model is fully compatible with other existing CobraNet products.

Rane's NM 48 is distributed by Janes Electronics +61 2 9582 0909.

ASP131
ASP231
Graphic Processors

Audient's new ASP series Graphic Processors - the unparalleled control and performance of analogue.

achieve perfect balance...

establish
control

Features

- Optimised constant Q filters for improved sonic performance
- Dual bandwidth modes
- Back lit system displays for low light operation
- Unique tilt control for rapid system balance adjustments
- Continuously variable Hi-Pass filter
- Advanced high CMRR input and high current output topologies
- Long travel 45mm faders
- XLR and Klippon/Phoenix connectors.

For more information contact
Corporate Audio Services
188 Plenty Rd. Preston Vic. 3072
tel: 03 9474 1066 Fax: 03 9474 1070
email: mail@corporateaudio.com.au
web: www.corporateaudio.com.au

Mackie Making Sales...

Mackie are proud to announce the most recent members to the Mackie Digital 8 Bus club in Australia-

- Clovelly Downs Studio
- Tene Def Studio
- Chris Thompson (ABC/JJJ)
- Backbeach Recording
- Darriel Jones (Savage Garden)
- Soundhouse Studio
- Planet Studios

Also, eight Mackie SRM-450s purchased by the Burswood Casino and sold by Kcspro International in WA were used to great affect recently by the touring Russian Ballet.



Ready for the Stage

The world's leading artists and recording engineers have always relied on Neumann to capture the finest vocal performances in the studio.

Now the new KMS 105 brings the legendary Neumann sound out of the studio and onto the stage!

Designed for the rigours of live performance, the KMS 105 delivers limitless freedom for vocal artists to fully express their talent...

- Supercardioid condenser capsule with tailored 20Hz-20kHz frequency response
- 132dB dynamic range & 150dB Max SPL for vocal power without restraint
- New hardened-steel basket and "no-foam" windscreen for superb detail and clarity
- Perfectly matched for use with in-ear monitor systems
- Available in either satin nickel or matte black finishes.

The new KMS 105 from Neumann... hear what you've been missing!



For information on the full range of Neumann microphones & accessories, please contact:

Amber Technology Pty Limited ACN 003 231 187 ABN 86 303 231 187

www.ambertech.com.au

Sydney Unit B, 5 Skyline Place, Frenchs Forest NSW 2086 Tel (02) 9975 1211 Fax (02) 9975 1368
Melbourne Level 6, 10 Queens Road, Melbourne VIC 3004 Tel (03) 9867 7111 Fax (03) 9867 8277
Brisbane Unit 1, 220 Boundary Street, Spring Hill QLD 4000 Tel (07) 3831 8444 Fax (07) 3831 8455
National Toll Free Customer Service Tel 1800 25 1367 Email: sales@ambertech.com.au

What will you be using soon?

Dr G's Gadgets

Gaff/Cloth Tape variations

Here are a few of the more unusual cloth tapes I have seen. The items listed here are available from many suppliers. I canvassed the Audio Sound Centre and Herkes Electrical for their stocks.

Flouro Tape – available in the classic fluro colours of yellow, pink, green and orange, this tape sticks out like to proverbial canine testicles. Available in 25mm and 50mm widths (from ASC).

Doublesided – Also known as chewing gum tape, this is a cloth tape that has a layer of sticky "gum" on either side of the cloth. ASC has 25 and 50mm widths. Herkes have 12, 18 and 24mm widths. The rolls are 10m long.

Matt Black – As the name suggest this is non-shiny, all weather gaff tape. The Nashua 50mm version has 27.5m of tape on a roll.

Mark up tape – This is a very cheap, low quality product that is ideal for stage floor marking. Available in white, red, blue, green, silver, yellow and in 12mm and 50mm widths (from Herkes).

Camera tape – This is a high quality cloth tape where the actual cloth is coloured white, yellow, red, blue, silver, green and black – The 25mm wide tape comes on 25m rolls.

Pictured – Rosco's latest range of choma key paint and matching cloth tape – the DigiComp range.



Hitachi announces next generation DVD ROM and RAM drives

Hitachi have announced the release of new-generation DVD ROM and RAM drives. These drives bring closer to reality a viable alternative to the way video and data can be stored and replayed into a PC. Hitachi claims these new products will see the end of tape as low capacity storage media and as the preferred media for video recording.

Key to Hitachi's "revolution" is the new model GF-2000 DVD-RAM drive, with read and write capability. This unit complies with the DVD-Forum Book Version 2 standard with Real Time Read Write compliance (RTRW), offering up to 9.4GB capacity (nearly twice the old size) and an amazing 22.16Mbps data transfer rate (2.77Mbytes/sec).

According to Hitachi, this new drive can double as a data recorder and storage system, or as a video replay device, as well as having full backward compatibility with older generation RAM, ROM and CD drives. One DVD-RAM can effectively replace a tape drive, DVD ROM and CD.

Perhaps of most interest is that, like the new GD 7500 DVD ROM reader, this new drive is compatible with both 12cm disks (standard size CD size disk) and the new

mini 8cm video DVD disk announced by Maxell. This means DVD disks recorded on the soon-to-be-released Hitachi DVD Camcorder or DVD Recorder can be played back either in the PC-based DVD-ROM or ROM drive.

The GD-7500 DVD ROM also features a new high speed DVD read capability of up to 12 times depending on format, and a 40 times CD speed. This new DVD-ROM is also



RTRW compliant - meaning it will read video DVD's created on a DVD Recorder or Camcorder, and will accept both 12cm. and 8cm DVD discs.

It is also compatible with single and double layered DVD ROM media, DVD-R, CD-R and RW and standard CD-ROM.

For more information, visit the Hitachi web site at www.hitachi.com.au

YAMAHA INTRODUCES THE FIRST CD-RW DRIVE CAPABLE OF 8X REWRITE

Yamaha Music Australia announces the introduction of the CRW8824 series of internal and external re-writable CD recorders featuring the new Pure Phase Laser System - a Yamaha anti-glare technology that they say results in exceptional data reliability while recording CDs at high speeds.

Designed as part of a new generation of high speed CD recorders from Yamaha, the CRW8824 series of CD-RW drives are the world's first recorders to rewrite CD-RW discs at 8x speed, doubling the current standard of 4x and cutting the required time to rewrite a CD-RW disc in half.

In addition to 8x rewrite capabilities, the CRW8824 series of CD-RW drives record on CD-R discs at a top speed of 8x (writing a 650 MB CD in 9 minutes) and read CDs at a

sustained maximum rate of 24x. Digital Audio Extraction speed has also been increased to 24x, up from 16x previously.

The CRW8824 series drives offer 140 ms average access time, a large 4 MB buffer memory, and use high performance 8x CD-R and CD-RW media for optimum recording.

While 8x high performance CD-R blank discs are widely available in the marketplace, many leading manufacturers are now introducing a new breed of 8x rewritable (CD-RW) media, capable of reliable 8x rewriting at a cost only slightly higher than quality 4x certified CD-RW media.

• For product and distribution information, contact Yamaha's Consumer Electronics Division Hotline on 1800 682 705.



now available

for hire in

Sydney

super realistic
natural flame alternatives

variety of flame styles

&
fittings up to 3 metres

unit 4, lilian fowler place,
marrickville, nsw 2204

t: 02-9550-3002

f: 02-9550-3102

e: flames@uniqueflamelight.com.au

w: uniqueflamelight.com



NEUMANN PRODUCE STAGE MICROPHONE

Some of the world's leading artists and recording engineers have long relied on Neumann microphones to capture the finest vocal performances in the studio. Now the new KMS 105 brings the legendary "Neumann sound" out of the studio and onto the stage with a host of features specifically designed to meet the unique performance requirements and rigorous demands of live performance.

Compared to many other handheld vocal microphones, the KMS 105 offers superior resolution, extended frequency response and accurate transient detail without the sibilance problems commonly found in most handheld condenser systems.

With its supercardioid polar pattern, low self noise and uncoloured off-axis response, the KMS 105 is perfectly suited for use with the latest in-ear monitor systems. In addition, the use of special mechanical & electrical filters has virtually eliminated all handling noise.

As with all Neumann microphones, the response characteristics of the KMS 105 have been achieved acoustically. This approach provides extremely accurate transmission of the finest transient details with a very "open" and detailed capture of the human voice. Neumann state that the sound of the KMS 105 is so true that even back-up instrument bleed-through sounds natural - something that all live sound engineers will welcome!

The KMS 105 features a dynamic range of 132 dB and maximum SPL of 150 dB. Combined with exceptionally low self-noise, the system allows very high gain levels without the risk of adding undue noise to the mix. Artists can therefore use the microphone at a greater distance for maximum vocal power and creativity. And by employing a transformerless output circuit, the KMS 105 can support long cable runs without loss of signal quality or high frequency response.

Neumann's demanding design philosophy can also be seen in the innovative basket assembly of the KMS 105. While many manufacturers use foam inside the basket assembly as a cost-saving measure, this material can significantly reduce HF response as well as deform the polar pattern.

The KMS 105 eliminates the need for any foam by using four carefully matched layers of wire mesh - with an outer layer of hardened steel for maximum protection. This special design delivers excellent wind & pop attenuation whilst yielding a constant polar pattern and maintaining the capsule's acoustic frontal frequency response.

- \$890 Au inc GST in either matte black or nickel silver.

- Amber Technology
+61 2 9975-1211

NEW! DIMMERS at Lots of Watts!

Models ranging from 4CH to 24CH
Prices ranging from \$800 to \$12,000

INTRODUCING THE NEW LSC e24

Some features include:

- DMX 512
- 12A per channel
- Full control from dimmer with "Current Control Technology™"
- 48CH patching
- Optional 120v patching
- 240v "HOT" patching

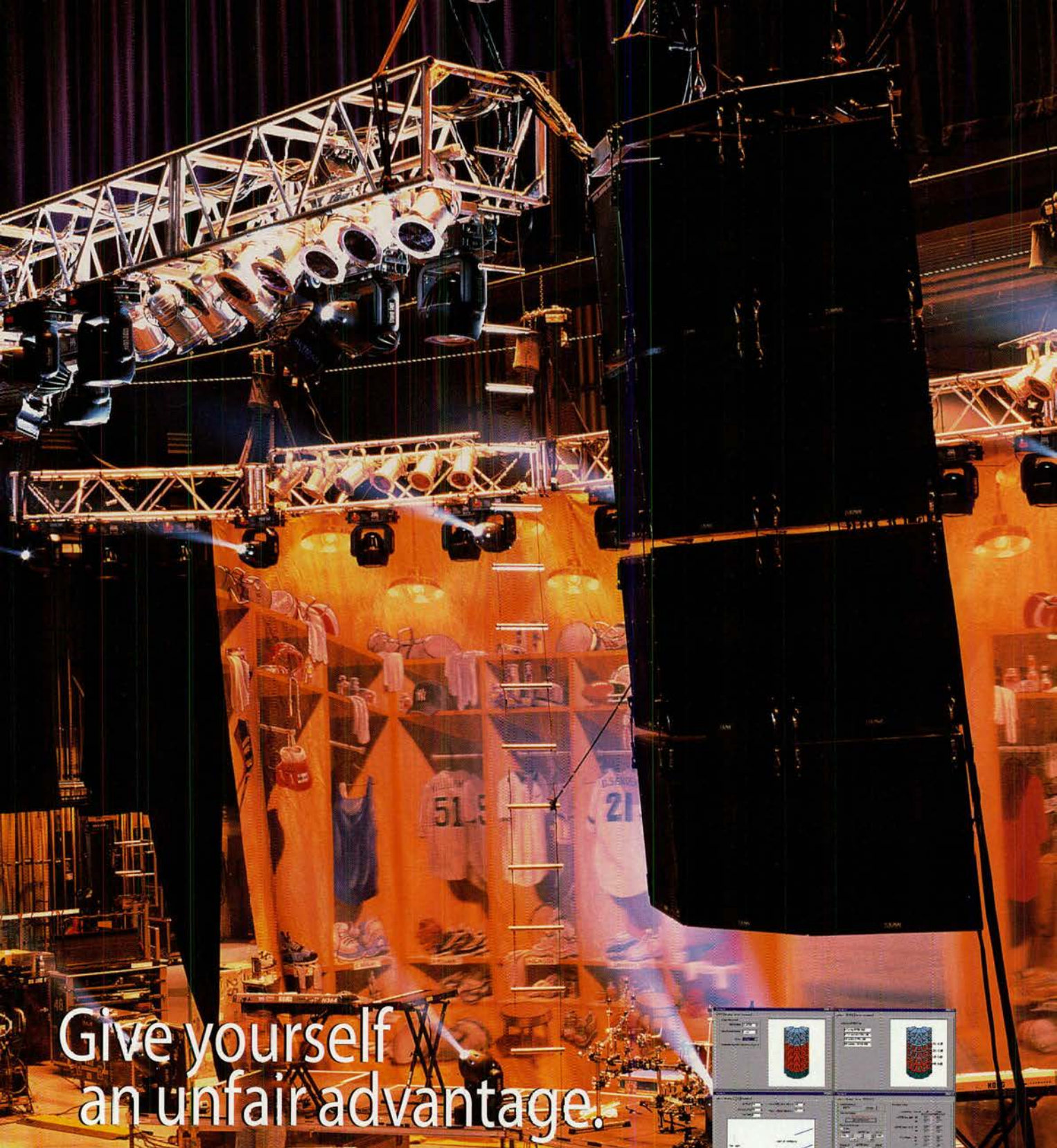


ALSO AVAILABLE FOR HIRE

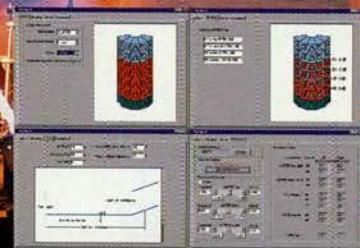
2 Bridge Street, Rydalmere NSW 2116
Phone +61 2 9638-0302, fax 9638-0331
sales@lotsofwatts.com.au
hire@lotsofwatts.com.au
www.lotsofwatts.citysearch.com.au

The company everyone else uses





Give yourself an unfair advantage.



Carry less gear. Use fewer trucks. Fly the rig faster.
Hire fewer helpers. Eliminate multiple arrivals.
Get better sound. Configure DSP settings to that night's
venue on the bus.* Eliminate guesswork. Make more profit.

EAW's KF700 Series: Give yourself an unfair advantage.

Meatloaf, VH1 Storytellers Tour
Scorpio Sound

* Go to www.eaw.com to download the KF700 Series Wizard. The Wizard takes user-defined parameters and develops custom-configured, venue-specific DSP and AS3D™ array shading settings. It can even talk to your EAW MX8600 or XTA DP226. Cool, huh?

The Laws of Physics | The Art of Listening

EAW
EASTERN ACOUSTIC WORKS

One Main Street, Whitinsville, MA 01588 tel: 800 992 5013 / 508 234 6138 fax: 508 234 8251 web: www.eaw.com
EUROPE: EAW International Ltd., tel: +44 1494 539090 fax: +44 1494 539091

AUSTRALIAN DISTRIBUTOR: Production Audio Services Pty Ltd, 6-8 Elizabeth Street, Richmond, VIC 3121, tel: (03) 9415 1585 fax: (03) 9415 1595 web: www.productionaudio.com.au

EAW is the worldwide technological and market leader in the design and manufacture of high-performance, professional loudspeaker systems.

What will you be using soon?

TRADE SHOWS: 2000

• **AMAC 2000 (Music gear)**
3 - 5 Sept. Gold Coast
Email rwalker@mira.net

• **PLASA**
10 - 13 Sept. London.
www.plasa.org

• **AES (Audio)**
22 - 25 Sept. Los Angeles.
www.aes.org

• **LDI (Lighting)**
20 - 22 Oct. Las Vegas.
www.intertec.com

2001

• **NAMM (Music/Audio)**
18 - 21 January 2001.
Anaheim, LA.
www.namm.org

• **MusikMesse**
07 - 11 March, Frankfurt
www.messefrankfurt.com

• **AES 110th (Audio)**
12 - 15 May, Amsterdam.
www.aes.org

• **SMPTÉ (Broadcast)**
July 10-13, Sydney.
www.smpte.org

• **AES 111th (Audio)**
21 - 24 September, New York.
www.aes.org

2002

• **NAMM (Music/Audio)**
Jan 17 - 20, 2002
Anaheim, LA.
www.namm.org

• **ENTECH 2002**
February 2002, Sydney.
www.conpub.com.au

• **MusikMesse**
13 - 17 March, 2002, Frankfurt
www.messefrankfurt.com



QSC'S new RMX amp line offers three low-profile 2-RU power plants. They provide 300, 450 & 750w/ch @ 4 ohms.

All feature high-current toroidal transformers for superior 2 ohm performance and low noise and include low-frequency filters. Each channel filter can be independently adjusted: 50 Hz for most compact full-range systems, 30 Hz for subs and large full-range systems and full-range for studio monitoring.

Other features include: independent switchable clip limiters to reduce distortion without sacrificing performance, front-mounted gain controls, signal and clip LED indicators, XLR, TRS and barrier strip inputs, binding posts and Neutrik Speaker outputs, independent DC and thermal overload protection on each channel and a continuously variable speed fan.

Retail prices (incl GST) are RMX850 \$1,395, RMX.450 \$1,595 and RMX2450 \$2,195.

QSC from Technical Audio Group,
Phone +61 2 9810 5300. www.tag.au.com

PRODUCTION SERVICES SEEK AGENCIES

The company who make Laboratory Series Technology, S.P. Series and Spectre speaker systems as well as LS and SP power amplifiers seek Australian distribution.

"The Australian market is important to us as a company. We are launching a promotion campaign to increase the perception of our products in the Australian market place. Our goal is to establish strong distribution for long term growth and stability of our products on the Australian market: says Rocky from Production Services, UK.

"Stadia to bars, we have the products and pricing to provide superior solutions cost effectively: how after show, night after night, our products deliver!"

PRODUCTION SERVICES

Te: +44 1482 587510; Fax: +44 1482 586872
e-mail: rocky@proservs.freemove.co.uk



Palm-Top Professional Audio Analyzer

Neutrik have launched the Minilyzer ML1 - a powerful, hand-held Analogue Audio Analyzer.

It'll do audio measurement & analysis functions and is a compliment to NTI's Minirator MR1 palm-top audio generator. In combination, the two units provide a versatile audio test system which can be stored in 2 packets!

Despite its small size and weight, the Minilyzer's advanced digital technology delivers extremely high standards of performance and accuracy. The system continuously measures audio levels as RMS or Peak,

absolute or relative to a definable reference with selectable units. The accurate frequency measurement (resolution of 100ppm) provides additional functions and acts as the base for distortion measurements. Distortion is measured as THD+N, automatically rejecting the fundamental frequency and calculating the THD+N value in either dB or %. A set of

Weighting Filters can be activated in all measurement functions.

The NTI Minilyzer ML1 has a Professional User Price of only \$852.00 (inc GST).

• **Amber Technology Tel: +61 2 9452 6600**

The best live sound mixer value yet!

ALL 3 CFX™ MIXERS INCLUDE:

- True 4-bus design with direct sub outs and L/R assign
- Low-noise, high-headroom mic preamps with superior RF rejection
- 32-bit EMAC™ digital effects with 9 reverbs, 4 delays, phaser, chorus, flange; 2 parameter controls + EFX wide spatial expander
- EFX to Monitor control
- Low-noise, phase-accurate 9-band stereo graphic EQ
- 3-band EQ with swept mid (100Hz-8kHz) on mic/line chs.
- 4-band EQ on stereo line chs.
- 100Hz low-cut filters on all mic/line channels
- Inserts on all mic/line chs.
- Exceptional input level versatility: +50dB mic gain, +30dB line gain and -15dB line attenuation to handle extra-hot signals
- Level set LED on all mic/line chs.
- 2 aux sends with pre/post and internal/external EFX level sends on each channel
- Pan, Mute, PFL solo and bus assign switches on each channel
- Logarithmic-tape 60mm faders
- Ingenious BREAK switch mutes mains during breaks to maintain your channel settings, avoid feedback and prevent unauthorized mic use
- Headphone output with dedicated level control
- Tape/CD inputs with level control and Main Mix Assign + tape outputs
- Balanced/unbalanced TRS and XLR outputs plus...
- Separate XLR subwoofer output with 18dB/oct. 75Hz crossover

\$2395
12 mic/line chs
+ 2 stereo line chs
CFX-16™



EMAC™ digital effects use 32-bit internal processing to create EFX that rival expensive outboard processors.



Finally, sound reinforcement mixers with integrated effects and graphic EQs that also have exceptional audio quality. Plus more useful features than you can shake a microphone at.

The CFX-16 is equally at home in a church sanctuary, hotel ballroom, school auditorium, club or rehearsal hall. Like all Mackie Designs products, it's built like a tank to take years of load-ins and load-outs. And like all our mixers, the CFX-16 sounds superb with ultra-low noise and exceptionally high headroom. That's because it's the first SR effects mixer that meets Greg Mackie's stringent audio quality standards.

Visit a Mackie dealer and get your hands on the CFX™ Series, the first EFX mixers that don't scream "CHEAP!..." and yet are remarkably inexpensive.



\$2895
16 mic/line channels + 2 stereo line level chs
CFX-20™

\$1095
8 mic/line channels + 2 stereo line level chs
CFX-12™

Besides the CFX-16, there's a large family size (CFX-20) and a travel size (CFX-12).

Need more information...

For more detailed information you can contact:
AUSTRALIAN AUDIO SUPPLIES
 TELEPHONE (02) 4388 4666
 WEB www.ausaudio.com.au



* Australian Suggested Retail Prices



The graphic equalizer is always in the signal path of an EFX mixer. If it's substandard, so is the sound of the mixer. Mackie's CFX Series have expensive, studio-grade graphic equalizers that use multiple summing amps and precision infinite feedback band-pass filters for superior phase and combining properties. Bottom line: The best EFX mixer you ever heard—whether you adjust the graphic EQ or not.



GOT A HEADACHE?

Take LSC Dimmers as prescribed for constant relief

For the relief of Unreliable, Over Priced Dimmers, take 2 LSC Dimmers for instant relief. If problems persist, Consult your Systems Doctor!

LSC
Lighting Systems

www.lslighting.com.au
LSC Lighting Systems (Aust) Pty. Ltd.
7 University Place, Clayton VIC. 3168 Australia
Tel: +61 3 9561 5255 Fax: +61 3 9561 5277
email: info@lslighting.com.au



MARTIN RAPTOR

An aggressive and wild addition to the pack

The Martin Raptor has more than 70 razor sharp light beams slicing through the air, constantly changing colour and direction to the intensity of the music. Raptor is surprisingly small and lightweight. Effects include nine dynamic beam effects, a three colour rotating triangular prism and a faceted rotating parabolic reflector.

It employs a 250 watt halogen lamp to give unrivalled brightness for a unit of its compact dimensions. A built-in high speed cooling fan ensures Raptor is ready to roar all night long.

- Price: AU \$851.10 rrp inc. GST
- Show Technology +61 2 9898-1666



NEW EMX660 POWERED MIXER

Yamaha's latest 'brick style' powered mixers, the EMX660, has been officially released. Replacing the EMX640, the EMX660 has an improved digital effect section and better power output. The on-board digital effects now feature eight preset types, including vocal echo's, vocal reverbs, hall, room and plate effects.

The power amplifiers have also been improved with a total of 600 Watts output. Both the Main and Monitor power amp's are rated at 300 W into 4 Ohms and use Yamaha's EEEngine technology.

The EEEngine offers dual improvements over traditional power amplifier design. Firstly the EEEngine design is quite efficient, allowing a Yamaha power amplifier to use less current to achieve the same output - this means that the power amp section will also run cooler. Secondly, because the EEEngine is more efficient, the need for heavy, and bulky heatsinks is reduced, thus the amplifier is much lighter.

EMX660 features 6 inputs channels each offering 3 band EQ. Both the main and monitor outputs have a separate 7 band graphic equaliser to perfectly tailor the system response.

- AU \$1,095.00 including GST.



Audio Telex Intro Install Series

Audio Telex has released a new range of low cost, high performance compact speaker systems collectively called "The Install Series". The range is exceptionally well priced and is the result of a lot of research into such speaker systems.

National Product Manager Don McConnel explains, "The new Install Series offers some exceptional sounding products at very attractive prices. The range even includes a great sounding, compact weatherproof speaker for outdoor environments."

The range includes the InWall speakers (50 watts and 75 watts), the Enviro 5 (30watts weatherproof), the Quick Fix 5 (install friendly 5" ceiling speaker w/metal grill), Install 4 (30 watt bookshelf or wall mount) and the Install 5 (bookshelf or wall mount 80 watts). Both the Install 4 and Install 5 have 100 volt line tapings available).

One of the highlights of the Install Series is the Install Sub. This is an 80 watt powered sub woofer, which is perfect for any applications where some extra "thump" is required.

• Audio Telex. +61 2 9647 1411.

Coemar's New Moving Yoke Luminaires

by Mandy Jones

Joining the ranks of the CF1200s and the rest of the Carbon Fibre range, the CF7 series fixtures incorporate 13 new patented features unique to Coemar.

Both models (Hard Edge and Wash Zoom) share basic design features and specifications such as fast and accurate movement with 630° pan and 260° tilt (270° for the WZ), 16 bit light beam positioning, automatic re-alignment to correct position if knocked, and electronic flicker-free ballast which provides 25% more light output and weighs one third less than standard mechanical ballasts. The carbon fibre construction ensures the fixtures are robust and can withstand temperatures of up to 650°C, while extremely lightweight - the CF7 HE weighing in at 32kg and the CF7 WZ only 28kg. They can be rigged in any position.

The CF7s use a Philips 700w MSR short arc lamp, and a cold parabolic reflector system whereby heat is dissipated by the dichroic glass. Both fixtures allow for adjustment of the lamp within the optical path. CMY colour systems are used to enable infinite colour range in both units

• Coemar De Sisti Australia +61 3 9467 8666

PROEL

After many years of manufacturing standards, PROEL have launched a "Pro Stage" series of microphone stands for the most discerning customer. These stands have been constructed with the highest technical innovation to meet the demands of use on the road or in studios.

Aluminium swivel joints with rubber washers, prevent boom-drop and vibrations

Newly designed aluminium base with nylon inserts assure maximum stability of vertical section. An innovative system allows tilt-leg to stay in either an open or closed position after years of use.

Nylon insert prevents scratching when standard boom adjustments are made

Make a Stand

THE SOLUTION TO THE PROBLEM

Distributed in Australia by CMI Professional Products Group
(03) 9315 2244 www.cmi.com.au



BIRKART FAIRS & EVENTS

Member of Birkart Globistics plc

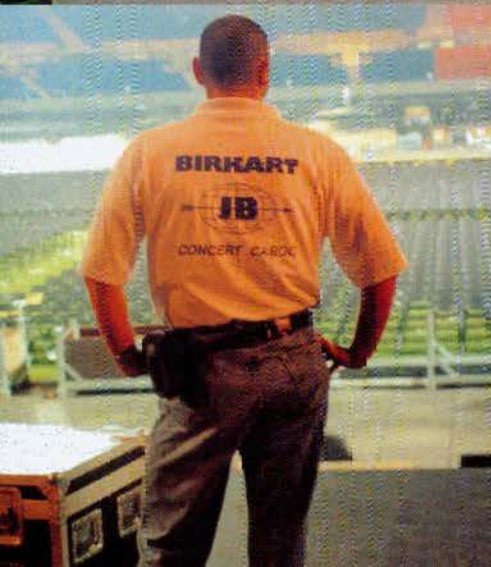
60 offices worldwide



- Total World Tour Planning
- Airfreight & Air Charters
- Sound and Lighting Logistics
- 48' Concert Touring Vans
- Major Event Logistics
- Carnet Specialists
- Offices Worldwide



Let us perform for you!



BIRKART FAIRS & EVENTS PTY. LTD.

MELBOURNE:

28 Clarendon St. Southbank 3006 Vic. Australia

Ph: 03 9696 3607 Fax: 03 9696 5927

Email: phocking@iaccess.com.au

SYDNEY:

Level 2, Suite 4, Centrum Place 6-8 Crewe Place, Rosebery 2018 NSW Australia

Ph: 02 9313 8694 Fax: 02 9313 8695

Email: chris@birkart.com.au

Check out our website at www.birkartfairs.com

Proud to be associated with our travel partners





It's Karaoke Time!

Sing, sing, sing- or show us your ring

Karaoke is a way of life in South East Asia. Something like our pub scene is as alien to them as karaoke is to most of us. But over there, it's an accepted part of the regular social fabric. It's big time.

While visiting Taiwan recently Dave Park and myself were taken out for a karaoke night.

We were picked up at our hotel and driven out to what appeared to originally have been a hotel, now converted into a karaoke beehive - seven floors of small individual rooms, each with a couple of couches, big screen TV, ratiomic and a remote control for choosing the songs.

We were raring to go, but before the evening could get underway, we had to sit through - the Safety Video. Just like the ones on airplanes, only less funny (or more so depending on your point of view) and in Chinese. The basic gist of it was that in the event of a fire, each person in the room had to climb into a safety harness hooked onto a winch, be swung out of the window by attentive, smiling staff, and then abseil down to the ground, several floors below. "Yeah, right!" as the young folks say. My feeling was that if a fire should break out, the attentive, smiling staff would immediately look after number one, and all race downstairs to stand under your window yelling "Jump chicken, jump!" or whatever the Mandarin equivalent is.

And as for strapping yourself into a safety harness, given the amount of alcohol consumed by these happy karaokeers, it was extremely unlikely that any of them would be able to even find the window, let alone climb out of it trussed up like a pork roast.

Did I mention that there was only one harness in a roomful of eight people? Hmm. Perhaps the best thing to do would be follow Frank Zappa's advice and 'just kiss your ass goodbye'.

Still, our crowd had obviously sat through this cheerful prelude to the evening more than a few times, and chatted happily amongst themselves while Dave and I sat transfixed!

Anyway, by the fourth bottle all our cares had dissolved away, and we got down to some serious drinking; oh, and some singing as well!

The format was this - drinks, song, drinks, party games, drinks, food, drinks, song...you get the picture. The party games were interesting; basic rock-paper-scissors, and a similar one where you had to count one two three and then hold up a number of fingers. If your hand had one more finger than your opponent's, then you were the winner, and slammed down your drink in one mouthful. If you drew, then you slammed down your drink

in one mouthful. If you lost, then you slammed down...ah, by that time no-one cared as we were all getting pretty blotto.

The last game was completely beyond my comprehension, and from what I recall consisted of calling out the names of birds and farm animals while your opponent acted them out. The first one to get it wrong lost, and had to slam down his drink in one mouthful (have you noticed there's a pattern starting to form here?). I just couldn't get the hang of it and ended up necking the bottle.

One of the guys had a party trick where he would put a lit cigarette in his mouth, take a swig of Johnny Walker Black Label, and blow the whisky over his cigarette lighter, sending a jet of fire into the room to much applause. The third time, though, he hiccupped half way through, sending the flames straight back into his lungs! He collapsed onto the floor and could only be revived by some serious mouth to mouth from his very attractive girlfriend.

"What games do you play at parties in Australia?" one of our hosts asked.

"We don't play games," I replied, smacking my fist into my palm, "We FIGHT!"

Delicious food was delivered on a regular basis, although Dave and I ate quite sparingly. We had picked up some kind of gastrointestinal bug, from our hotel water we suspected, and had been spending quality time doing a tour of inspection of every public toilet in Taipei. But in the interests of good taste we won't go into that that right now.

When it came to singing songs, Dave and I chose typical easy stuff like Proud Mary, Born to be Wild, Old Time Rock 'n Roll.

But the Chinese sang heart rending songs of lost love, young love, anguished love, accompanied by clips of couples walking hand in hand along the beach, waves crashing on the sand, doves fluttering into the air, rockets launching, trains rushing into tunnels, a geyser erupting (actually I'm just kidding about the last three!).

Towards the end of the night, while we could still put one word in front of another, I began to think that we should show them that Australians could get in touch with their romantic side too. Sadly, 'Smack My Bitch Up' wasn't on the karaoke songlist, so I had to choose something else. So we dimmed the lights, on came the video clip, and these words rolled across the screen: "It must have been cold there in my shadow..." Yes, that mainstay of maudlinity, that shitload of sentimental slop "The Wind Beneath my Wings!"

Bette Midler, Colleen Hewitt, eat your hearts out! I tell, you, when we finished, there wasn't a dry eye in the house, although, to be perfectly honest, that was probably less to do with the wind beneath my wings than the wind between my cheeks!



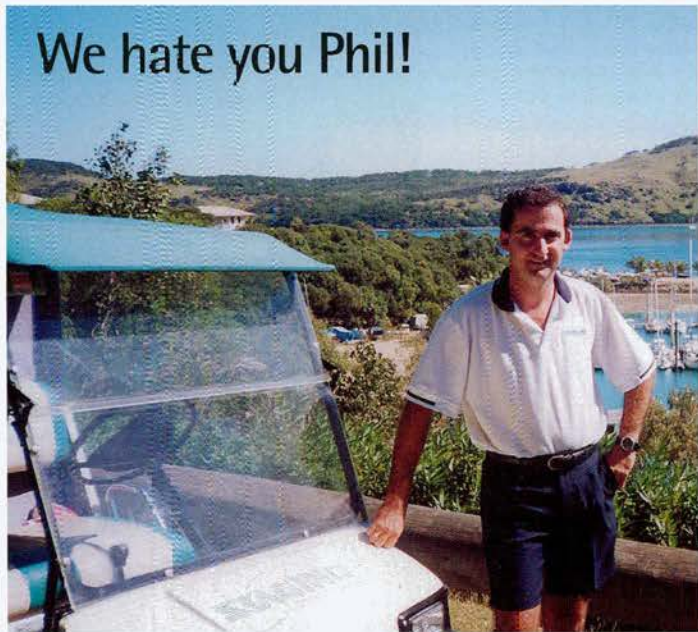
XM6150 ÷ 3U = 6 x 150W RMS @ 4Ω + HPF

- XLR & Euro-block inputs
- Binding post outputs
- Amps bridgeable in pairs
- Precision rear attenuators
- Individual high pass filters (switchable)
- Variable speed fans
- Individual amp status indicators
- 18 Kilograms



PO Box 268, South Melbourne Vic 3205
 Tel: Free 1800 805 413 Fax: 03 9696 4579
 Web Sites: www.yamaha.co.uk
 www.yamaha.com/proaudio www.audio-technica.com
 A.C.N. 004259 527 Forces subject to change

We hate you Phil!



Actual photo taken in JULY - 23 degrees!

This guy has got the best gig in the world - and we are all green with envy. Julius Grafton simply had to go and do a LOT of research!

Picture this. You're booked for a gig on another island, but the van needs to go onto a barge, back to the mainland, then onto another barge - and for a one day show, you sometimes won't see the gear back for a week. What do you do?

It's a common hassle for the AV crew at Hamilton Island, the mini city built in the middle of the Whitsunday group of islands in North Queensland. Hamilton boasts an airport big enough for 767's, and with direct flights from major East coast capitals, it is a thriving Convention destination.

Four lucky devils work the AV concession on Hamilton, held by Staging Connections for the past two years. Headed by Phil Delangen, the AV dept is finessed into such an artform that it looks dead easy. Unlike big city hotels, Conventions at Hamilton are usually multiple days in duration. There is usually time for a leisurely setup a day or two prior to the start of a booking. And, the crew have almost everything they need on hand.

"We work a 50 hour week" explains Phil, shattering the idyllic notion of sitting under a palm tree, sipping on a Slippery Nipple or two. "Some younger guys can't handle it here, they go crazy in the sun, late nights, drink, women - they're just everywhere, mate!"

Three of the crew have their families living on the island, the kids go to a little school which has forty customers in two composite classes. The stability of family life appears to be a major factor, as the fourth crew member is always a younger person on rotation out of a City for three months.

Phil is relaxed but sharp. He's sorted out some curvy logistical problems that come with working at a remote site. The van on the barge problem was alleviated by chartering a game fishing boat which'll carry a tonne of gear. For \$500 they'll whiz the rig over to Hayman Island or wherever, and come back to collect it all for another \$500.

Little things matter. Like running out of something. Despite the 9 direct flights a day from places like Brisbane, Cairns and Sydney, freight isn't always shipped same day.

"I can get gear down from Cairns, but it's usually on a bus, so I

need a guy to meet it and put it on the boat" says Phil. Likewise, sub hire usually comes from Brisbane or Sydney, and extra days need to be built into the price.

The workload at Hamilton has more bands and concert work than is typical, as the venues lend themselves to this. There is the Convention Centre itself, which caters to 1000 people. Then there are the Phoenix Room (up to 400) and the Endeavour Room (300 people). In summer, the Island often hosts promotions where a band will play on the beach.

Inventory reflects the heavy duty nature of the demand, there are eight self powered Meyer UPA 2's, and four USW sub woofers. This PA contingent is suitable for any sized show, and self powered means no amplifier racks in the sand - a major blessing. "We've had all kinds of weather, the Meyer's never let us down. Meyer are talking about taking some back to the USA for examination" explains Phil. Corrosion in loudspeakers is usually unseen, occurring around the voice coil, and affecting bolts inside the magnet structure. Meyer has identified Hamilton as a busy, hot and humid proving ground.

Because of the type of shows, Par cans and Selecon 1.2k lanterns do most of the work. There are a couple of older Martin 1220 moving mirror units there, and some Martin 250's will probably join them soon. Jands ESP desks and digital racks do the dimming job. "We blow a lot of lamps due to weather" says Phil, whose inventory also needs to include whatever colour gels anyone wants - because the nearest gel shop is 2,000k away.

The gear does get stressed due to conditions, a Spirit Live 24 mixing console has been ingesting a little more sand than it should and has been to see the doctor in the Staging Connections repair shop on the island. They've got a fleet of data projectors too, and these expensive devices sometimes venture outdoors. The Barco 6300 (renting at \$1,000 a day, the same price as in Sydney, according to Phil) has been outdoors without hassles. It only got bothered indoors at a show on Hayman, where too much fog fouled the LCD panels.

Maintenance is made bearable by the willingness of the fourth crew person who is usually very hyped to be there - until they see the pile of lights needing rewiring and the list of cables to be made!

"I tell the crew, enjoy what is here" says Phil, who celebrated arrival on the island by buying a boat. Staff accommodation is reasonably priced on the Island, which boasts eight kilometres of roads and about 2,000 drive-yourself golf buggies. We actually got into a buggy jam on our way to the Yacht Club! This is starting to sound like the script for a travel show!

Production charges are the same as in Sydney, with labour charged at \$60 an hour. It is clearly easier to use Staging Connections on the island than it would be to fly in gear and crew - although a two day gig for The Whitlams recently was charged at \$15,000 - utilising a level of production which could be expected to cost about half that amount in a major city.

As to Phil and co, it's a great chance to work in paradise and a million miles from his previous posting which was at Staging Connections Wollongong - still half owned by Phil. He explains that the company was poised to enter a partnership with a South African audio visual firm which would have seen every branch office partner (like Phil) in Staging Connections issued shares in the whole new entity. Buoyed by the move he had already been offered the gig on Hamilton when the deal fell through, but went anyway. Now his Wollongong branch is managed by Kim Thompson, and Phil says he doesn't need to worry about it.

Also controlled by Phil is the Port Douglas office located at the Mirage Resort, a smaller operation but still some distance to the North. •

www.teamphilips.com.au
 click onto
 www.teamphilips.com.au

WIN!



See below for details



- Gain access to the latest in high technology CCTV & Audio products
- Register at www.teamphilips.com.au as a Team Philips Member and order online
- **NO RISK!** 30 day money back offer** and 2 year warranty
- Online technical support, free Delivery** for orders over \$ 2000 and more!

**See Sales Terms & Conditions on the website

WIN

Order online before June 30, 2000 for a chance to WIN one of 3 Philips DVD718 players.

See www.teamphilip.com.au for details. Permit No:TC00/1896



PHILIPS

Let's make things better.

**REPUTABLE
 RESPECTABLE
 RELIABLE**



**Compressor/Limiters; Equalisers; Pre-Amps;
 Zone Controllers; Voice Processors;
 AGC Levellers; SPL Computers**

Symetrix
 For those who know the difference

www.audiotelex.com.au

NSW: (02) 9647 1411, VIC: (03) 9890 7477,
 QLD: (07) 3852 1312, WA: (08) 9228 4222,
 SA: (08) 8352 4444, NZ: (09) 415 9426

TRUE MOBILITY™
 WIRELESS SYSTEMS



The Sabine Wireless Microphone System includes:

- FBX Feedback Exterminator**
- Compressor/Limiter**
- Auto De-Esser**
- In Built Battery Charger**
- 30 Channel UHF Receiver**

SABINE™
 ADAPTIVE AUDIO

www.audiotelex.com.au

NSW: (02) 9647 1411, VIC: (03) 9890 7477,
 QLD: (07) 3852 1312, WA: (08) 9228 4222,
 SA: (08) 8352 4444, NZ: (09) 415 9426



MiniCAD®
Vector
WORKS
 Object-Based CAD for Professionals

Contact us to see why
 MiniCAD VectorWorks
 and Art-lantis Render
 are fast becoming the
 industry standards.
 Powerful, easy to use
 and available for
 Macintosh and Windows

Lighting inventory

Type	Wattage	No. of units
Technobeam	2500W	10
ETC 26	5850W	9
650 w Fresnel	7150W	11
1.2 Kw Fresnel	26400W	24
ETC Source Four 36	6500W	10
Par 56 Med	1200W	4
Coda (single)	17600W	22
Coda ground row	6400W	8
Par 46	4000W	16
Total Wattage:	77600	114

OZCAD

Free Call
 1300 788 828
 Web
www.ozcad.com.au
 Mail
sales@ozcad.com.au

Art-lantis Render



Studiomaster TRILOGY

Professional Front of House,
 Recording and
 Foldback Console

- 166 - 12 mIC/2 stereo Rackmountable*
- 206 - 16 mIC/2 stereo
- 326 - 24 mIC/4 stereo
- 140EX - 10 mIC/2 stereo Rackmountable expander*

- Balanced mic and line inputs.
- 3 band EQ with Mid Sweep ● 6 Aux sends.
- Listen (PFL & SIP) ● 4 Stereo Aux returns.
- 48V Phantom power ● 4 Subgroups.
- Balanced XLR outputs ● Direct Outputs.
- Inserts and mutes ● High pass filters.
- Internally modular ● EP7 External power supply.
- FREE rackmount kit included.*

Studiomaster - Intelligent Audio Solutions

Distributed by:
GREATER UNION ENTERTAINMENT TECHNOLOGY
 87 Mars Road,
 Lane Cove 2066
 Ph: (02) 9418 6029
 Fax: (02) 9418 9801
 Email: mardelle_collins@guet.com.au



The Changing Workplace

SAME DIFFERENCE

by Graham Walne

Working backstage has evolved to a point where different types of events require very different skills from their crew. Graham Walne takes a look at this problem, and how it has changed the workplace...

The mounting of theatre, concert and convention productions is, and will possibly always remain, a labour intensive and very human process. Some understanding therefore of how humans work in these environments should help us to deliver an improved, less stressed and more economic result.

Significantly, these three areas tend to approach the planning rather differently. Theatre tends to accept the limitations it faces whereas concert and convention production managers assume all difficulties can be overcome. Of course, this approach might owe more to budgets than to background.

The differences between mounting one form of live presentation and another are hard to encompass when delivering training, so, graduates might be technically and broadly competent, but lack experience of how one media differs from another. This means that graduates (and dare I say training providers) need to realise that a course is a starting point and not an ending.

For example, theatre and concert work has different levels of formality. Although concert presentation has become more sophisticated over the last two decades it is still acceptable for crew to walk on and fix a faulty monitor; it would be unusual for a stage manager to walk on and help an actor in trouble.

Another difference lies in the expected outcome. Theatre has always looked at the whole and immediate picture, but typically concert work is also concerned with sound recording and video images and sometimes these can have a higher priority than the live event itself and shape how the live work will be presented. This means that technicians need to identify the overall intent behind the production not just their bit - sadly demarcation lines on large productions can restrict vision and a good technician still tries to stand back and have perspective.

When I started work, the theatre was the sole entry point - not only for working in live venues but also into film and television (the concert area was not then as defined as it is now). A theatrical background was considered a good basis for all these areas and so there was a degree of similarity in approaches to problems and equipment. This lack of competition and outside stimulus wasn't necessarily always a good thing and it took the concert world (and notably it's considerable money) to introduce lateral thinking and a broader approach.

Today, people enter the concert and convention area directly without first having worked in theatre, perhaps they come in from working with some friend's band, or from work with a hire company whose name they might have seen at a gig. This means that people switching from one part of the industry to another can introduce new techniques but face new challenges. Thankfully, theatre has taken to its heart equipment such as chain-motors, trusses and Vari-lites, which were first developed for the concert arena. Conversely, the concert world probably builds more stages and scenery than most theatres. So a broad base of skills should make people more employable before they specialise.

It's good to cross disciplines occasionally and see how the other half works. On big concerts, especially those in arenas, the sheer size brings its own problems and many concert productions tour their own communications crew who establish networks before anything else. In theatre the production desk headset tends to be the last thing rigged!

New crew need to tune in to the ethic of the workplace and not assume the same kit is always treated the same way. On one concert I lit, I watched the crew carefully return every nut and bolt into its relevant box, not afterwards at a clear up (which would tend to be theatre practice) but constantly as they were working. The crew chief explained "they live out of road boxes so they have more respect for their use".

Whether you are working in theatre, concert or convention presentations I think it is important early on to work out a way of solving problems and that means identifying a time and a place. Until this last decade, and I accept particularly in the UK, the stage door pub provided a convivial meeting room. Today, many theatre crews either don't drink from choice or from restrictions placed on them by their employers' insurers. Nevertheless, people have to eat and informal surroundings deter people from stubbornly taking the hard line in a meeting. For LDs they also give your eyes a rest too.

We can only work well if we look after ourselves. Clothing for example affects not only our own comfort and sense of self, but also that of others. This statement needs some qualification however because in Australia's egalitarian society what you wear, (and where you went to school) counts for less than it does in other countries, notably the UK. In one season at a London concert hall when lighting a distinguished dance company I chose to wear suits because I thought it would remove a barrier between me and the establishment figures at both the venue and the company. This did work, but of course it then distanced me from my crew.

In theatre at least it's hard to be part of the creative team and one of the boys at the same time. In concert work it's not enough to deliver the model and say "that's what I want" but to address the issues of how the whole piece fits together, takes apart and goes into a truck - a good mix of the creative and the technical.

The message about clothing is don't dress to impress, dress to be comfortable. Bear in mind that the outside temperature can change radically over the long hours indoors and extra clothing isn't about being macho, it's about staying healthy, a macho LD is useless if off sick. Once in the USA I was lighting in temperatures 30 below and the heating was off because the singers weren't around. Canadian Air Force thermal underwear proved a good companion - if somewhat limiting in romantic moments!



Save Time Visuals
SALES • RENTAL • HIRE
SERVICE • INSTALLATION

**Audio Visual
 Multimedia &
 Presentation Specialists**

Save Time Visuals
 63 Wadham Parade
 Mount Waverley
 VIC 3149
 Telephone (03) 9888 2111
 Facsimile (03) 9888 2904
 Email savetime@wire.net.au

1800 888 089
www.savetimevisuals.com.au

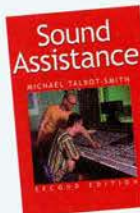
I've got 1,000 books in stock NOW! -Julius Grafton

THESE ARE IN STOCK NOW!

• PRICES NOW INCLUDE AUSTRALIAN GST

A PRACTICAL GUIDE TO STAGE LIGHTING Stephen Shelley	\$80
AUDIO WORKSTATION HANDBOOK Francis Rumsey	\$82
A-Z OF LIGHTING TERMS Brian Fit	\$60
BASICS OF VIDEO LIGHTING Des Lyver/Graham Swainson	\$38
BASIC STAGE LIGHTING Mark Carpenter	\$18
CONCERT LIGHTING James Moody	\$77
CONCERT TOUR PRODUCTION MGMT John Vasey	\$42
CONTROL SYSTEMS FOR LIVE ENTERTAINMENT John Huntington	\$120
CREATING SPECIAL EFFECTS FOR TV AND VIDEO Bernard Wilkie	\$40
EFFECTIVE AUDIO VISUAL Robert Simpson	\$88
EFFECTS FOR THE THEATRE Edited by Graham Walne	\$53
ESTA ETHERNET GUIDE	\$38
GAFFER'S HANDBOOK Harry C. Box	\$99
HUMS & BUZZES EXPLAINED Laurie Nethercote	\$9
LIGHTING AND SOUND Neil Fraser	\$31
LIGHTING STENCIL SET from KILOWATT CO	\$99
LIGHTING TECHNOLOGY H'BOOK Brian Fit/Joe Thornley	\$124
LIGHTING THE STAGE Francis Reid	\$44
LIVE SOUND MIXING Duncan Fry	\$41
MAKING MUSIC WITH YOUR COMPUTER David (Rudy) Trubitt	\$20
MAKING THE ULTIMATE DEMO Michael Molenda	\$27
MIDI SYSTEMS & CONTROL Francis Rumsey	\$60
MIX TEST CD DELUXE EDITION	\$77
MOBILE DJ HANDBOOK Stacy Zemon	\$49
MODULAR DIGITAL MULTITRACKS George Petersen	\$27
MUSIC & TECHNOLOGY H.P. Newquist	\$31
MUSIC PRODUCERS MIX Magazine	\$20
PRACTICAL STUDIO TECHNIQUES (with CD) Tom Misner	\$44
PROJECTION FOR THE PERFORMING ARTS Graham Walne	\$88
RECOMMENDED PRACTICE FOR DMX 512 Adam Bennette	\$20
SET LIGHTING TECHNICIAN'S HANDBOOK Harry C. Box	\$82
SOUND & MUSIC FOR THEATRE Kaye & LeBrecht	\$48
SOUND FOR PICTURE MIX Magazine	\$20
STAGE DESIGN & PROPERTIES Michael Holt	\$31
STAGE LIGHTING HANDBOOK Francis Reid	\$42
STAGE MANAGEMENT & THEATRE ADMINISTRATION Pauline Menear/Terry Hawkins	\$31
STAGES FOR TOMORROW Francis Reid	\$41
STUDIO BASICS Richard Mansfield	\$37
TECH TERMS George Petersen/Steve Oppenheimer	\$20
THE BEST OF DUNCAN FRY	\$13
YAMAHA SOUND REINFORCEMENT HANDBOOK Gary Davis/Ralph Jones	\$75

For more info on the above titles, visit www.conpub.com.au or call Sarah on 1-800-635-514 or +61 2 9876-3530 or fax +61 2 9876-5715 and we will send OR FAX you the webpage with full description!

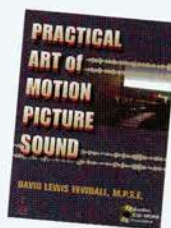


SOUND ASSISTANCE,
2nd edition \$56

By Michael Talbot Smith. Offers an easy-to-understand account of sound operations in radio and television studios. New edition covers microphone sensitivities, loudspeaker listening tests, stereo transmission in radio, stereo PPM interpretations, MiniDisc, and more. 250 pgs, 1999.

PRACTICAL ART OF MOTION PICTURE SOUND (with CD),
2nd edition \$84

By David Lewis Yewdall, MPSE. This book features such topics as: Pre-production planning, production tips, temp dubs and test screenings, custom recording sound effects, dialog editing, non-linear editing, music in film and television. The audio CD contains sound-effects and demonstration material. 265 pgs, 1999.



CALL Freecall 1800-635-514 to place your order or visit www.conpub.com.au



PROJECT STUDIOS, a more professional approach \$84

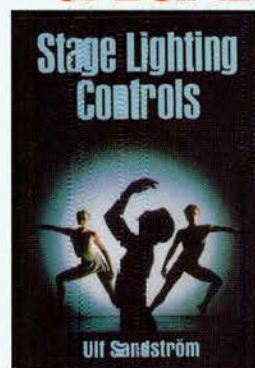
By Philip Newell. With a boom in so called 'bedroom studio' operations, lack of experience can lead to bad recording practices and an inability in getting the best performances from musicians. This book provide tips and advice on getting first class, professional results from project studio equipment. 274 pgs, 2000.

ON-LOCATION RECORDING TECHNIQUES
\$64

By Bruce Bartlett, with Jenny Bartlett. Focuses exclusively on the special techniques used for recording outside the confines of a studio. Offers a clear explanation of stereo miking theory, along with specific techniques, procedures and hardware. Also covers mixing and editing a live gig tape, building a recording truck, surround-sound miking, binaural and transaural stereo. 278 pgs, 1999.



AUGUST SPECIAL!



STAGE LIGHTING CONTROLS
BY Ulf Sandström, usually \$97 this month only: **\$59!**

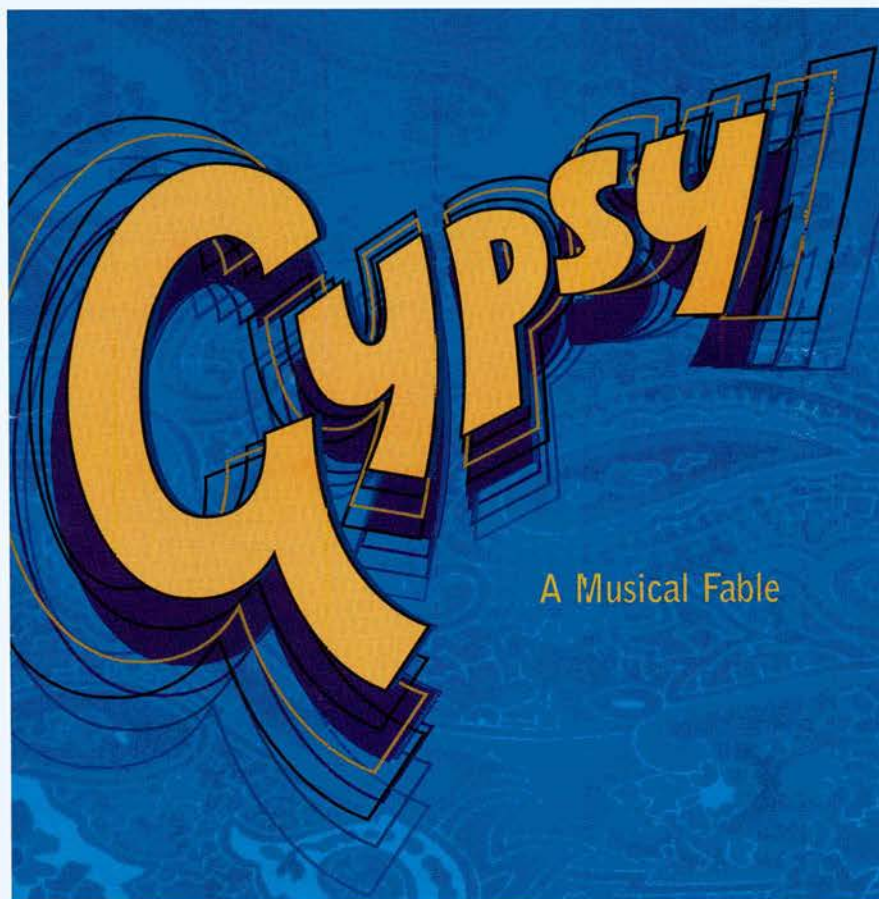
Principles of lx control, standards, dmx, ethernet, midi, basic moving light control. 215 pages.



THE MIDI MANUAL 2nd Edition \$64
By David Miles Huber. The book provides a close-up look at the industry's top products and teaches you how to integrate them with your computer. Illustrations and step-by-step lessons teach you how to set up an efficient MIDI system as well as how to use your PC to expand your musical recording and performance techniques. 255 pgs, 1999.

to integrate them with your computer. Illustrations and step-by-step lessons teach you how to set up an efficient MIDI system as well as how to use your PC to expand your musical recording and performance techniques. 255 pgs, 1999.

All prices in Australian dollars. Add freight for each order. Prices may change at any time of course! Current as of June 30, 2000. An activity of Connections Publishing P/L (ACN 058443182), PO Box 439 Epping NSW 2121



How The Production Company makes theatre work

Mandy Jones details an innovative approach to mass theatre in Melbourne

"With only a 10 day rehearsal period, the production elements are left very late so everything is done in a very short space of time. In the second week of the process we bump in on the Monday morning, we have actors on stage by Tuesday afternoon and the first performance is Wednesday night"

The Production Company was established by Richard and Jeanne Pratt two years ago as a venture to showcase new and established theatre talent, and to stimulate the Australian music and theatre industries. Based in Melbourne, *The Production Company* set out to tackle the great Broadway musicals in a stripped-back concert format. Inspired by the Encore Series in New York, the company adopted similar production criteria and timelines - a ten day rehearsal period, four performances, minimal crew and basic design elements.

As in the Encore Series, the orchestra is placed centrally on the stage in full view of the audience for the whole show. While this is sometimes awkward in terms of restricting movement and lighting effects it demonstrates the intention of the shows as concerts rather than fully staged musicals.

The Production Company is now five shows old. Their current production *Gypsy* has just finished its brief run at the State

Theatre, and they are already gearing up for the final show of the 2000 season, *Guys and Dolls*.

David Miller has had the role of Technical Director for all six musicals over the last two years. He describes his role as similar to most Technical Director or Production Manager roles, except a lot more "hands on". With a skeleton crew the entire company have to pitch in to put the shows together in many respects like a 'professional' amateur theatre company.

"With only a 10 day rehearsal period, the production elements are left very late so everything is done in a very short space of time. In the second week of the process we bump in on the Monday morning, we have actors on stage by Tuesday afternoon and the first performance is Wednesday night, so it's a very limited rehearsal time in the venue which puts a lot of pressure on everyone involved, especially the crew. For set it's fine because it's usually simple, but it's especially tricky for the lighting and sound people because there's just no time to do it. That's why we tend to hire the best people we can find, people who are incredibly experienced, because experience means you can do it quicker.

"We built a basic set at the very start and we make alterations to it for each show. We add platforms or rostra or have it on different angles with different curtaining behind it, and then there are some specialty bits for each production - in *Gypsy* it's a proscenium that flies in and lights up. Each show has a small budget for set alterations, but from what I've been hearing the next production *Guys and Dolls* is going to be quite different so it will require something new."

Working to shoestring budgets is another part of the challenge for the design team. Each area is allocated a small amount of money for basic requirements not supplied by the venue - for lighting it amounts to hiring some additional profiles and specialty effects units. Props are sourced on a 'beg, borrow or steal' basis and costumes are hired or made for a couple of thousand dollars. For *Gypsy*, a friend of the Costume Designer made some memorable outfits for the strippers in the show. Irvin Koss paid tribute to Melbourne in his design for stripper 'Electra' whose costume featured the famous Victorian Art Centre Spire as a glowing headpiece, complete with coloured LED's powered by a battery pack and controlled by handheld switches.

David credits much of the success of the shows to the generous support of compa-

nies and individuals within the industry.

"Companies like Melbourne Theatre Company, Playbox and Bytecraft realise we're a not for profit company doing these shows on a low budget and they've been incredibly helpful. Plus we've all called in favours from friends - that's the way these shows get on."

The audio requirements for the shows are difficult with a 30 piece orchestra and performers with limited microphone experience. System Sound have been on board as the suppliers and operators for the shows from the beginning but as *Gypsy* Sound Designer Julian Spink explained, audio is the one production element that suffers from the restrictive time frame.



Julian Spink
System Sound

"It was disappointing that there was not enough time devoted to the technical aspects of *Gypsy*," said Julian. "I had no time for sound balancing which meant the results weren't as good as they could have been."

Julian was further disappointed that a review in the Melbourne Age criticised the sound quality on opening night.

System Sound supply their own systems to supplement the in-house equipment at the State Theatre, including mixer, amps, processing and effects, subs, orchestra mics and 25 radio mics for the cast. Experience has taught them it is quicker to bring in their own systems than to patch into the in-house system.

David Miller believes the concept behind the productions is valuable to the industry, in that it is challenging but achievable.

"From everyone's point of view - marketing, actors, technical, everybody, it's an amazing pressure situation and by the Tuesday afternoon everyone's saying 'we're not going to make it, it's not going to happen'. But having done it five times I can see that it will come together. But it's extraordinary what happens between a Tuesday night rehearsal and a Wednesday afternoon rehearsal.

"And having spent most of my working life on big budget musicals I still find it hard not to gasp when I look at the budgets for these shows. But ultimately, it proves you can do it. Obviously it doesn't attain a standard you would ever aim for in a 'real' musical, but it's meant to be about the performer, nothing else. Personally, I would rather see less emphasis on costumes and scenery and make it more about a performer in black clothes, but directors and designers find that hard to do. But as long as we keep getting assistance from the industry our way of doing it works well."

• *Guys and Dolls* runs from 16 - 19 August at the State Theatre.

Key Crew:

Set Design: Dale Ferguson,
Lighting Designer: Gary Senior,
Audio Designer: Julian Spink;
Production Co-ordinator: Mark Wheeler,
Technical Director: David Miller

EMINENCE HF
COMPRESSION DRIVERS

Engineering Perfection, just got better.

Professionals rely on the performance of the popular 1 inch and newly designed 2 inch throat sized compression drivers from Eminence.

Distributed in Australia by CMI Professional Products Group (03) 9315 2244 www.cmi.com.au

PROEL PROFESSIONAL CABLES

Proel High Performance Bulk Cable always guarantees absolute signal integrity and importantly, a clear sound. Commitment to high quality cable requires innovation and excellent techniques. Proel offer a wide range of lines to customers and meet the full spectrum of requirements for the rigours of live work and the stability of permanent installations.

PROEL Combination Power & Balanced Line Cable

Combination Power & Balanced Line Cable. 2x22 gauge shielded cable plus 3x15 gauge AC/power conductors.

Microphone Cable 2x24 gauge conductors, 100% copper shield.

These and many more varieties of professional audio cable.

Endless Quality

PROEL PROFESSIONAL CABLES

Distributed in Australia by CMI Professional Products Group (03) 9315 2244 www.cmi.com.au

Gossip maligns company

Once again, my company falls victim to gossip, which whether idle or malicious, has the same devastating results for each of the families dependent on us for income. T-pac Sound and Light has NOT gone out of the hire business and has no intention of doing so within the foreseeable future. The same rumour was circulated this time last year, and was largely traced to a couple of jerks who obviously felt they could benefit from eliminating what they considered to be competition in the minds of clients.

It only took a few lines in this magazine, for which I am grateful, to help correct this impression and start the phone ringing again. I am hoping for the same results this time, and ask anyone needing production for either their local entertainment center or milkbar to call us.

Please get your information from the horse's mouth, not the other end.

Michael Orland, T-pac Sound and Light, Sydney. (02) 9799 7219

We don't want to be Techs!

Connections should be applauded for its misguided efforts to shepherd more women into technical roles in Entertainment. The fact is, no one I know in the business who is female really WANTS to be a tech. And those that are, report no problems with guys or promotions.

- Nadia Smithers, email

I work for one of the big national audio visual outfits, no name, no pack drill. I'm happy as a tech there, but really would prefer to be a manager or account director. There is no problem getting into the A/V industry as a women, and there is no problem with sexism as a tech. The only problem is getting promoted, because every A/V company and production house seems to be run by men.

- Elastic Girl, email

My story isn't too different to others. I went to see band crews and pestered anyone who could teach me about lighting. Then I did part time rigging work in the school holidays. Now I work on shows - when I can get work. No one really cares that I am female. No one really hassles me. The worst personal problem I face in the theatre is from other women who think I am a lesbian because of the work I do.

- Name withheld by request

Presentech

It was a shame to see the magazine fold. It was a great read, it served my industry, it should have worked for you.

- Byron Jackman, Darwin

I note the passing of your title, 'Presentech' with some irony. The path to publishing profit is a winding road, it seems. May I make the observation that Presentech attempted to do too many things, for too many people?

- Jim Gilling, Turramurra

Maybe it just wasn't good enough?

- acientetone, email

You sure have carved up your organisation. I see you cancel a magazine, lose a great staff member (Nicky), Caroline goes on an extended break, and you suddenly de-list all your contributors in your editorial panel. Not to mention the abrupt departure of Cetriona Forcer the other month.

Is something going on that we should know about?

- Loyal reader, email

• *Thanks for all the commentary. Let us say that any organisation is not immune to change. We are committed to refreshing Connections as often as is needed. The creative force behind the publication remains firmly in place. -Ed*



POWER CURVES



The beauty of a Celestion KR Series Loudspeaker is much more than skin deep. Elegantly styled cabinets combine with purpose - designed Celestion driver systems to deliver a package of quality sound and stunning looks that will enhance the atmosphere of any bar or restaurant.

And a range of custom hardware, plus OmniMount™ compatibility, ensures that installation is swift and simple.

So if you need speakers that look great and sound even better, talk to Celestion today about the KR Series.



CELESTION

**GREATER
UNION
ENTERTAINMENT
TECHNOLOGY**

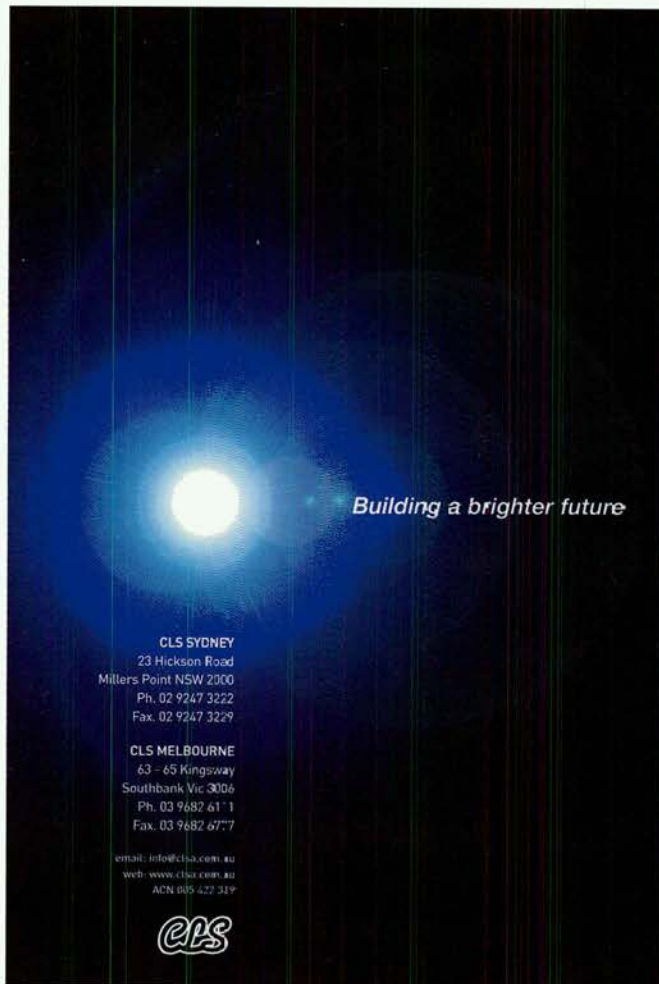
Distributed by GUET SVL Distribution

Australia: 87 Mars Road, Lene Cove 2066

Ph: (02) 9413 6029 Fax: (02) 9416 9801 Email: mardelle_collins@guet.com.au

New Zealand: Unit E, 665 Great South Road, Penrose, Auckland

Ph: 64 9 579 4032 Fax: 64 9 579 4084 Email: kkrroll@guet.co.nz




Building a brighter future

CLS SYDNEY
23 Hickson Road
Millers Point NSW 2000
Ph. 02 9247 3222
Fax. 02 9247 3229

CLS MELBOURNE
63 - 65 Kingsway
Southbank Vic 3006
Ph. 03 9682 6111
Fax. 03 9682 6777

email: info@cls.com.au
web: www.cls.com.au
ACN 045 422 319



the quality, the price
and the range...




Konig & Meyer offer the industry's widest variety of stands - all with the innovative design and distinctive German craftsmanship the world has come to rely upon.

Today, the K&M range offers a solution to every microphone placement challenge. And recently released models mean that now there's a stand to fit any budget, all with the same K&M quality.

Call us now for details on the complete range of K&M microphone stands.


trc *The Resource Corporation Pty Ltd*
tel: (03) 9877 8233
fax: (03) 9877 8244
www.trc.com.au




SPECIALISED LAMP SUPPLIES (VIC)

SLS CAN SUPPLY YOUR TOTAL LAMP SOLUTIONS

Wide range of quality products including:

- ✓ GKV with heat sink -
A quality lamp with a versatile base for multiple applications
-  ✓ ELC 30C hour -
High quality projector lamp with 300 hour life
- ✓ PAR64 -
For everyday use

All at competitive prices

For more information

phone: 1300 302 852 email: sls@teg.com.au fax: 1300 301 329
Unit 1/37-39 Ricketts Road, Mount Waverley, Victoria 3149

FORM 1807B/AD 7/00

Wave Corrector Noise Reduction Software

by Duncan Fry

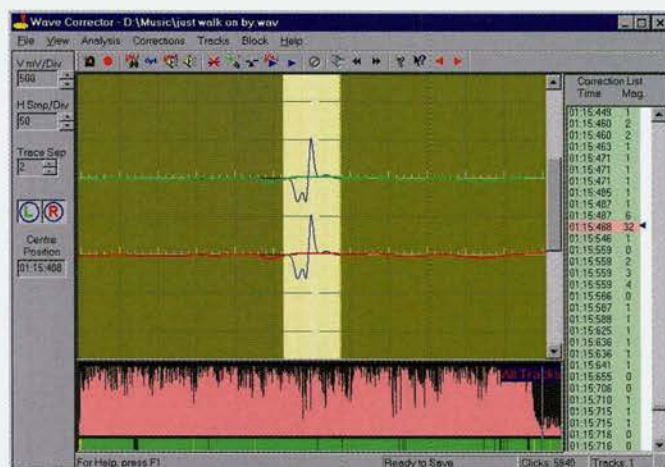
My millennium project of transferring my complete record collection to CD is a long and drawn out process, since many of the 45s especially are in less than pristine condition. Years of party use in my youth has resulted in many of them suffering the general wear and tear scratches to which vinyl is particularly prone.

So I'm always on the lookout for new noise reduction software. And just the other day I was skimming through the newspaper's computer pages, and there was a short PR release of a new noise reduction program called Wave Corrector from Ganymede Software. It said that Wave Corrector is a true WYSIWYG program, designed to automatically remove clicks, ticks and pops from vinyl recordings before transfer to CD, and ideal for the casual user or serious archivist. Just the sort of thing I'm on the lookout for. Best of all, you could download a working trial version of it. So I did.

To check out this new software, I decided to put it up against the two programs I usually use, to see how it stacked up. One of the attractions was the price, only \$45 US, whereas the other two were \$150 or more each.

Normally I use a program called Dart Pro 98, as well as one called Diamond Cut Audio Restoration Tools. Despite being designed to do a similar job, both have their quirks and limitations, as well as very different interfaces. Neither is what I would call intuitive, but a combination of both has usually cleaned up tracks to a very listenable level; certainly a vast improvement on the untreated tracks.

First of all I had to create a test track. One of the limitations of the trial version of Wave Corrector is that it will only operate on a stereo file a maximum of two minutes long. Not much is that short, so I created an edited version of the most scratched 45 I could find, which turned out to be "Just Walk On By (Wait On The Corner)" by Leroy Van Dyke, a country flavoured mega hit of the late 50's which I picked up at a record fair for \$2. By deleting the second verse I was left with a short, scratchy track that would be a good test of the program's capabilities.

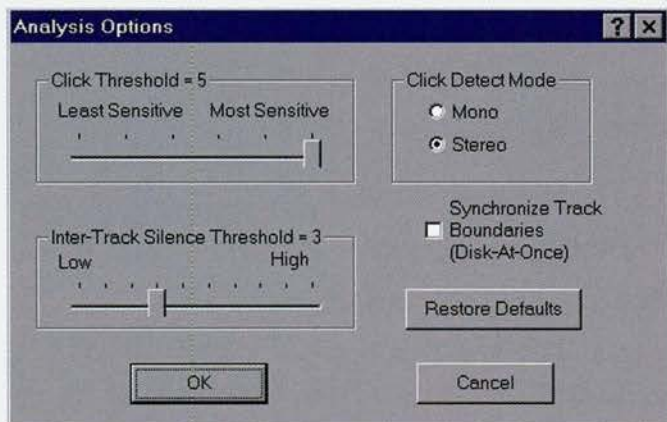


I then opened up Wave Corrector and loaded the file.

The interface is neat, if a little limited in terms of the amount of human intervention that can take place. The main screen consists of a graphical display of a section of the track's waveform, which can be zoomed by changing the x and y grids. Not quite as intuitive as a magnifying glass icon, but it worked. Right and Left waveforms are displayed in yellow and green respectively, and once a file has been processed, the corrected waveforms are shown in red and blue underlying the original waveform display. This is very neat and makes it easy to see what changes the program has made. Underneath this window is a histogram display of the complete file, and underneath that a corresponding display shows each of the detected clicks. To the right, the Correction list window displays a complete list of corrections performed by the program on the selected soundfile. This list is colour coded to show the severity of the click; a useful aid to seeing where the problems lie.

A first pass on the default setting produced OK results, but still left an overall scratchiness to the track. However, I was impressed by the lack of artifacts when replaying. Although not as quiet as I would like, it sounded promising. Artifacts left by noise reduction programs can often sound like a low rumble mixed in with the music, or a phasing, light whistling sound, depending on how heavy handed you've been with the processing. Icons on the toolbar make it easy to toggle between auditioning either the original or modified file, to hear the changes that have been made.

I closed the file without saving, and reloaded the original again. This time I selected Analysis Options (pictured left), and set the slider to 5 - maximum de-clicking. I was fully expecting this to be over-the-top processing-wise, and full of artifacts, but it wasn't. The click list generated in the right hand window seemed about the size of an airport best selling paperback, and although the file seemed to have lost a little of its sparkle, the sound was surprisingly good.



continued page 50

ZA Series Amplifiers

Could this
be next year's
Entech award
winner?



ARX is proud to introduce the all-new ZA series of multi-channel amplifiers:

ZA 800 8 Channel, 100 w/4 ohms

ZA 600 6 Channel, 125 w/4 ohms

ZA 400 4 Channel, 250 w/4 ohms

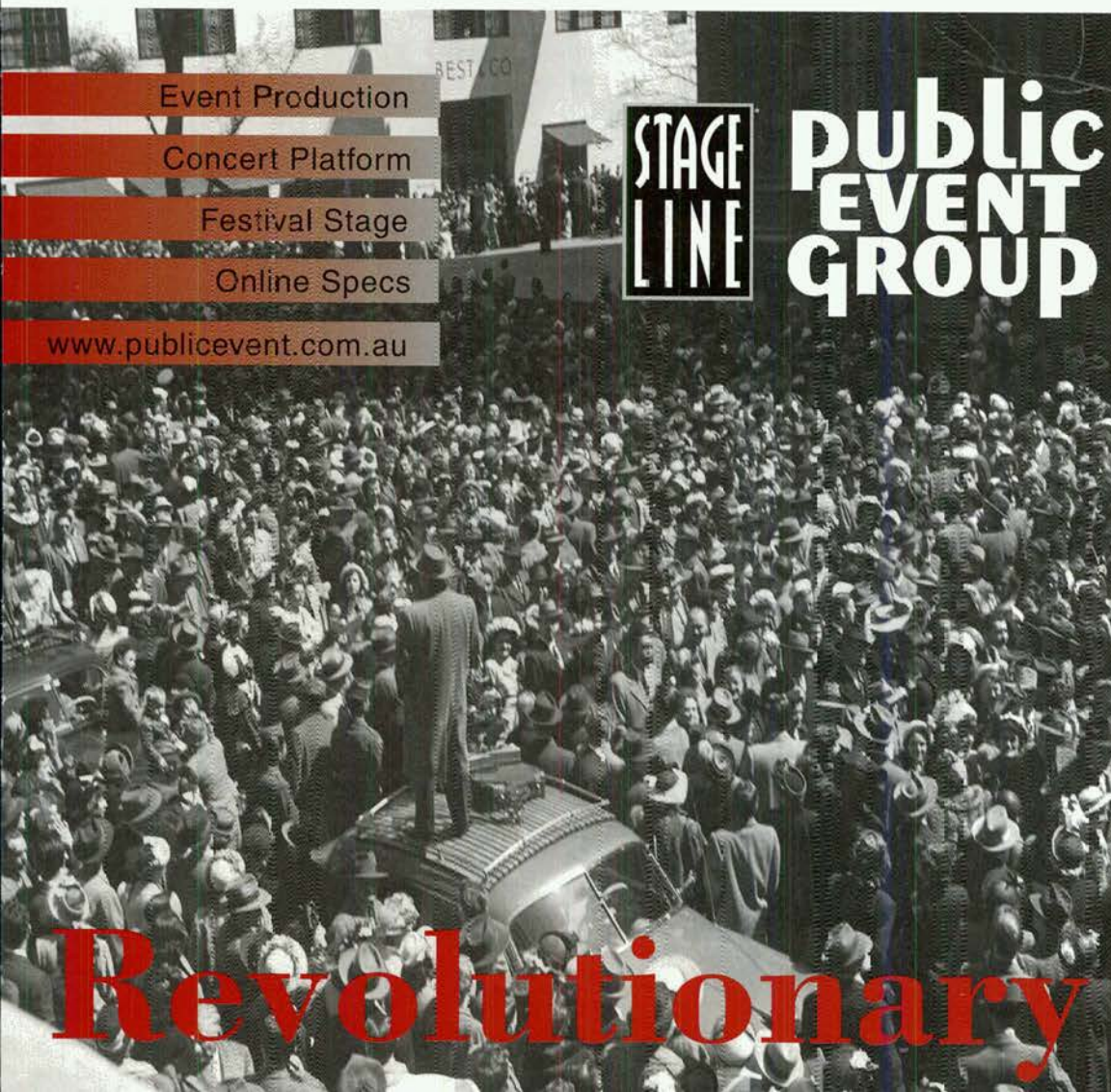
Standard features include rear level controls, balanced inputs with exclusive AutoLink circuitry, Signal and Protect status LEDs, 4 pole

Speakon outputs, and bridged mono capability switchable per pair of channels. Dual fans, plus our exclusive 'UltraFin' heat exchanger provide excellent long term temperature stability. Built to exacting standards throughout, the ZA series from ARX has already been specified into many installations in Australia and worldwide.

If you'd like to know more about these new amplifiers, you can write, phone, fax or email us on the contact details below for a CD ROM with complete technical information on all ARX products.



ARX Systems P/L Phone (03) 9555 7859 Fax (03) 9535 6747 Email: irf@arx.com.au Post: PO Box 15, Cheltenham, Vic 3192



Event Production

Concert Platform

Festival Stage

Online Specs

www.publicevent.com.au

STAGE
LINE

public
EVENT
GROUP

Revolutionary?

More advanced than any other outdoor stage and a cost that makes it deal for festivals and community events.

Major features:

- Travel virtually anywhere
- Sets up in hours
- Built-in PA support:
- Rated to 150 kmp/h winds
- Goes up in any weather
- Built-in rigging points

See it on our Website or call about your staging and event production needs anywhere in Australia.

public event group
tel 02 8585 5200
fax 02 8585 5252
group@publicevent.com
www.publicevent.com.au

Event
Staging

Revolutionary

PRODUCTION SERVICES

*"Laboratory Series
Technology"*
LS1



**CLUBS TO
STADIA
THE TOTAL
SOUND
SOLUTION!**

**HIGH IMPACT,
HIGH DEFINITION,
SOUND REINFORCEMENT!**

*"Laboratory Series
Technology redefining
the science of
acoustic technology!"*

Steward Partnership Ltd
D/B/A Production Services
Unit 3, Sullivan Business Park,
West Dock St, Hull, HU3 4HH,
United Kingdom
Tel: +44 (0)1482 587510;
Fax: +44(0)1482 586872
rocky@proservs.freemove.co.uk

Software Options

(From page 48)

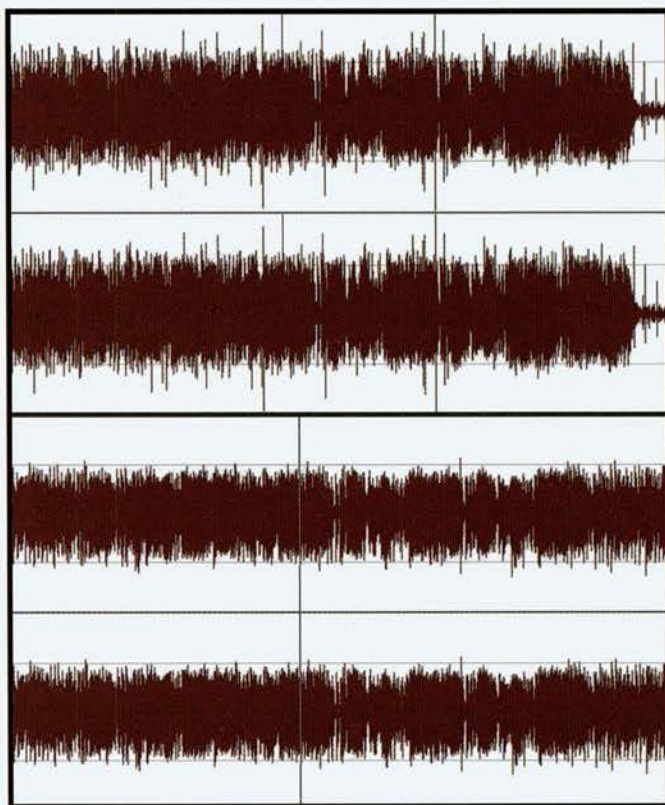
Track before cleaning up

Notice the numerous instant peaks and the "end of track" noise.

Track after noise reduction

The peaks are gone, the track is *Normalised* giving an even height wave form and the "end of track" noise is gone.

NB: Dunk accidentally left the cursor in the middle when he captured the screen!



Still, a number of major clicks still remained. I saved the file to a new name, and then reprocessed this new already processed track, just to see what would happen. This time it did get quite muddy sounding, so I cancelled it and reverted back to the first processing run. It seemed obvious that these recalcitrant clicks would have to be edited manually.

Wave Corrector lets you identify a click from the list, and display it on the screen. The rogue click can be identified by its sharp up and down waveform. You then select the Insert New Correction command, and the spike of the click is replaced by the program's best guess at the underlying waveform. It works, but is time consuming, although naturally like most things, the more you do it the faster and easier it becomes.

The problem with all click eliminators is that none of them have human ears. We know instinctively what is a click and what isn't, but a computer program has no such intuition. Consequently it has to rely on the rise and fall time signature of the waveform and make a stab at what it thinks should be done.

Ganymede say that all click eliminators must balance the conflicting

requirements of detecting as many clicks as possible while at the same time not being triggered by musical forms resembling a click. Sometimes it's right, sometimes it isn't. False positives, when the program removes a click that isn't there, is usually inaudible individually but manifests itself as a dulling of the sound. False negatives leave the click there, thinking it's part of the music, and, being much more noticeable, are the ones that need manual intervention.

Doing things manually as I have detailed above is fine for those who are total purists and want the absolute best sound they can, but to only focus on that is to miss the time saving side of Wave Corrector. Its automatic operation means that a complete album can be transferred to CD without any user intervention, apart from putting the needle on the vinyl and starting the program. It will automatically sense track endings and beginnings, clean up the track, normalise it and send it off to the CD. For many users, that will be all that's needed. LPs have a plastic liner and stiff cover, and don't usually get such casual handling treatment as 45s, so their condition is generally better. Unless it's a copy of Hot August Night or Frampton Comes Alive, both of which would have seen more than their

WORKING WITH AUDIO

fair share of alcohol fuddled scratches and bad stylus drops!

Still, Wave Corrector is not unique in having this function - Adaptec's Ezy CD Creator does the same thing. But a click eliminating program sinks or swims by the quality of its click detection alone; any other features are just icing on the cake.

So does Wave Corrector work? Does it justify its \$45 US cost? It certainly does in my opinion. It's not perfect; very few programs are. The manual intervention process could be made easier; the addition of a pencil tool for manually re-drawing the waveform would be a great timesaver. But otherwise it's great. It does an extremely

tricky job very well, and if you're looking for a de-clicking program, they don't come much simpler and more cost effective than this one.

To download it, go to:

www.ganymede.hemscott.net/wavecor.htm

Incidentally, perfection for Leroy van Dyke necessitated a few extra steps. First I ran the version that was processed at 5 on the Options setting through an Aphex Type C, to replace the lost sizzle, and then mixed in a small amount of a warm room reverb on the new track. A final subtle tweaking of the EQ was all that was required to bring the track back as close as possible to its original form.

Audio for Digital Television Under Fire

Dolby Laboratories has urged the Australian broadcasting industry to follow the global trend of digital television with Dolby Digital audio technology for digital television broadcasts.

The Minister for Communications, Senator Richard Alston, is insisting that the Australian broadcasting and associated industries adopt MPEG audio for digital television at all times. This decision flies in the face of the worldwide movement, which is shunning MPEG-only audio systems for the Dolby Digital transmission standard.

"If the Government forces the MPEG standard, digital television in Australia will not be able to compete with the quality standard of the DVD format which is exciting consumers all around the world, including Australia," said Mr. John Couling, Professional Product Manager Dolby Laboratories.

Manufacturers across the world are moving towards a 'global platform' when designing consumer electronics products, using a single chip that will decode all audio and video formats. Set-top boxes with this technology are already available in Europe. It makes no sense for legislation to force consumers into an obsolete and diminishing market of MPEG audio for digital television.

"If Australia has an MPEG-only standard definition system, it will establish immediate legacy issues and damage the success of digital television before it even gets off the ground," said Mr. Couling.

MPEG audio's track record in commercial formats has been less than impressive. Digital Compact Cassette (DCC) and CD-I were commercial failures, video CD has not been successful in any developed market, Digital Audio Broadcast (DAB) has failed to get off the starting blocks and DVD in Europe was not a commercial success until MPEG audio was replaced by Dolby Digital, they say.

The Australian Government is very concerned about spectrum efficiency and the return of the loaned spectrum from broadcasters. However an MPEG-only audio system for digital television will provide less incentive for Australian consumers to change to the new digital system, as there is little difference between MPEG audio and the existing analog audio service. And, as the demand for Dolby Digital grows in Australia, as it has in other countries, broadcasters will not have the option of recapturing the spectrum space wasted on the two-channel MPEG audio. Australia has the chance to learn from the experience of others and leapfrog to the right answer for the launch of DTV.

"The rest of the world is using Dolby Digital technology. However, in Australia the opposite appears to be the case. The question must be asked as to why the Minister is campaigning for MPEG audio to be a must-carry. Let the consumer make the decision," concluded Mr. Couling.

XM6150 ÷ 3U



= 6 x 150W

AHA

R

OFF



RMS @ 4 Ω



+ HPF



- XLR & Euro-block inputs
- Binding post outputs
- Amps bridgeable in pairs
- Precision rear attenuators
- Individual high pass filters (switchable)
 - Variable speed fans
- Individual amp status indicators
 - 18 Kilograms



YAMAHA

PO Box 268, South Melbourne Vic 3205
Toll Free 1800 805 413 Fax: 03 9696 4579

Web Sites: www.yamaha.co.uk
www.yamaha.com/proaudio www.audio-technica.com

A.C.N. 004 259 527 Prices subject to change

With Tiny Good

Rigging Note No.7

Harnesses and Fall Arresters

This subject is the probably the most discussed in rigging in the last two years. What sort of harness, what type of fall arrester, should we be allowed to climb at all. Well I am just going to address the first part of this debate, which is what harness and fall arrester should you be using.

Harnesses- well the answer to this is not an easy one. The harness that is right for you depends a lot on what you want to do with it. So first some basics. Any harness will need to be a full type; this means a harness with a top or chest and back section, and a bottom or hip and bum section. This can be in two halves or as one full unit. Next, it has to have a dorsal or between the shoulder blades connection point. And last it must fit you well.

The next part is up to your personal preference and the use you want it for. A harness for boom lifts and basic fall protection can be simple, cheap, and easy to choose and buy. A harness for climbing, twin rope, repelling, and high access work needs to be very comfortable, easy to wear, and have several attachment points for different applications.

Harnesses must also have an Australian or internationally recognised standards compliance certification. This means that the harness has been designed, constructed, and tested in accordance with recognised safety standards, and will not fail or unduly injure you in the case of a fall.

Fall arresters also are as diverse as the applications for which they are designed; however they will have the same basic feature. All fall arresters will have a compliance label, showing the standard to which they were designed and tested. They will have a method statement for how they should be used and the situations they are suitable for, and they should have an inertia reduction device, whether a rip away lanyard, shock absorbing link, or a dynamic construction.

The last part of the story is the most important one and the one most ignored. OK I fell and my harness caught me, WHAT NOW! The rescue procedure for the different situations should be discussed and clearly understood by all the crew prior to someone going aloft to perform and duties requiring harness fall protection. It could be as easy as a boom lift or cougar to go and rescue someone, or as complex as a team of people performing a mid air twin rope recovery rescue, or even lowering the truss to effect a rescue. In any event it must be understood before not after a fall. The best designed and fitted harness in the world will still result in serious injury or even death if the person is left suspended in it for too long.

Working at height is a process of control, preparation and risk analysis and should be well covered by your companies HSO procedures prior to arrival at the gig. Control of the work environment is the subject of another note.

The information contained in this note is the opinion of Tiny Good based on industrial training as a rigger, and job experience. No liability is accepted for use or misuse of this information.



METEORLITES
DESIGNER MIRROR BALLS
LIGHTING HIRE AND SALES

**EAST COAST OFFICE
NOW OPEN!**

Unit 4, 10-14 Lilian Fowler Place, Marrickville NSW

Phone (02) 9516 2255

Sydney office:

Unit 4,
10-14 Lilian Fowler Place,
Marrickville, NSW 2204
Ph: (02) 9516 2255
Fax: (02) 9550 3102

Australia-wide Toll Free Phone 1800 178 111

Email: meteorlites@hotmail.com

Web: www.iinet.au/~mudlark3

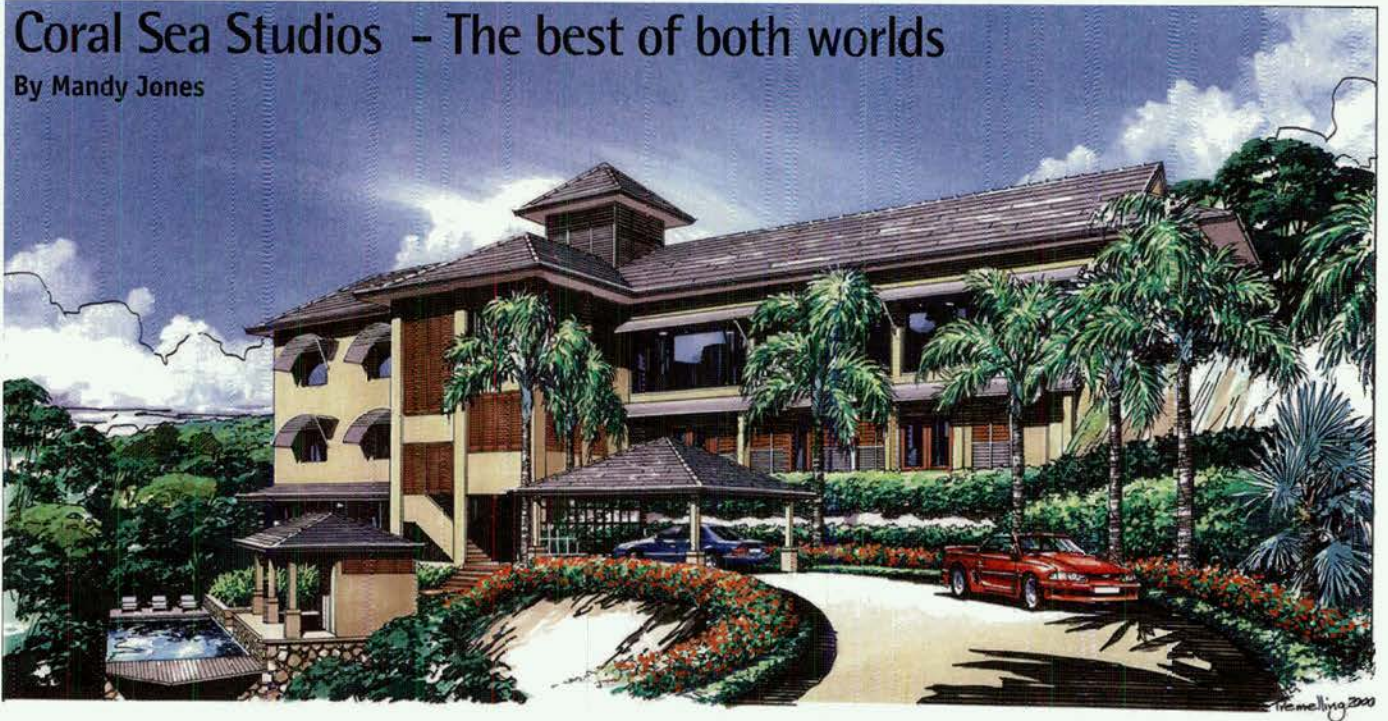
Established 1992

Perth office:

Building 9-11,
Old Aberdeen Place,
West Perth, WA 6005
Ph: (08) 9227 5590
Fax: (08) 9398 5501

Coral Sea Studios - The best of both worlds

By Mandy Jones



Sound Engineer Brian McCarty believes sound recording isn't a technology business, it's an expertise business. Both technology and expertise will feature heavily at the new facility he and business partner Jeff Wexler are building at Far North Queensland's Palm Cove.

Brian and Jeff are renowned American film sound engineers each with Oscar nominations under their belts. They have long recognised the need for world-class music, film and television, and multi-media sound recording facilities in the Asia-Pacific region, and after two years of planning, their dream is about to become a reality. Construction begins this month on the Coral Sea Studios complex. When it opens in November, Coral Sea Studios will join the ranks of other exclusive resort style recording studios in exotic locations such as Hawaii, the Caribbean and the Isle of Capri.

The investors behind Coral Sea Studios are Brian and Jeff along with "a few venture-capital type investors from Australia". Reluctant to put a dollar figure on the facility, Brian revealed the completed resort studio will come in under AU\$10 million.

A ground-breaking ceremony was organised as we went to press, but it wasn't to be the usual symbolic soil-shoveling exercise. Instead, sensitive to their surroundings both environmentally and spiritually, Brian and Jeff arranged a traditional ceremony which included the Aboriginal owners of the land as well as a Buddhist monk to bless the site.

"We're dealing with a lot of unique issues here, primarily because the studio is located in a very environmentally protected location, there's a lot of concerns by councils and others that we do this right, and of course we want to do it right because among our potential clients are some of the most environmentally outspoken people in the world."

An Australian resident, Brian believes Coral Sea will have a significant effect on the local recording industry by attracting world-class artists and film makers to the facility. He believes big-name musicians will incorporate recording time into their touring and holiday schedules in Australia to take advantage of the resort studio.

"Australia has been kind of bereft of a facility where artists could come in and do some recording because they ultimately have

to be able to take those recordings and go back to their studios in London or the US or wherever, and make sure what they've done is a quality product. So we feel we're going to meet some of that need.

"Essentially there are more world-class recording studios in the Czech Republic than there are in Australia. The need for this type of facility in Australia is growing as time goes on, because of the market demands for new software, and the ability to locate recording studios now in places where traditionally they couldn't be located due to the changes in communications technologies."

In terms of the effect on the film and television industries, Brian says it will alleviate the strain increased production of film and television in Australia is putting on existing facilities, and he draws a comparison between Coral Sea Studios and the Lucasfilm facility in California.

"Lucasfilm don't do every big film but they pride themselves on doing a more craftsman-like job on their projects. People get into a different creative environment and they can work in a more creative way, especially when they're working with world-class technology."

Coral Sea Studios sprawls over 1020sqm on a hillside above Palm Cove, 100 metres above sea level. 18 residential units will be built around the main complex, of which six or eight will be compounded off from the rest of the resort and controlled by the studio. Recreation facilities will take advantage of the tropical climate and feature a large swimming pool immediately outside the studios.

Studio A is to be the main music recording facility. It comprises a large live room of about 200sqm with a high ceiling and ocean views, all the usual amenities, and a 55sqm control room. The console will be an SSL 4000G+ that has been upgraded to mix 5.1, and the room is to be 5.1 surround-sound equipped with a Genelec monitoring system.

Studio B is the main film and TV room and is around 60sqm. It has full digital projection to a ten foot screen. The room features a Euphonix System 5 console which will be equipped to do 108 channels at 96kHz, and also utilises Genelec monitoring in 5.1 surround-sound.

continued over

YOU CANNOT MISS
AMAC 2000
 THE MUSIC PRODUCTS
 CONVENTION



SEP 3-5, 2000

CONRAD JUPITERS

BROADBEACH, QUEENSLAND

AUSTRALIA

Incorporating an exhibition
 of the latest:

- Musical Instruments & Accessories
- Music Technology
- Print Music
- Audio Products
- Professional Development Sessions with local and international presenters
 Feat: Bob Pritchard, Elliot Goblet, NAMM's Joe Lamond, GST and Internet sessions.

'Great Social and Networking Opportunities'

CONVENTION ENQUIRIES:

Robert Walker
 Australian Music Association
 PO Box 6306 St.Kilda Road Central
 Melbourne, Vic, 3004
 Phone: 613 9867 4222
 Fax: 613 9867 4111
 Email: rwalker@werple.net.au
 Website: www.australianmusic.asn.au

"In addition to being equipped to do film and TV post-production recording it is to be also set up with the same outboard complement as Studio A so you can start recording, tracking and mixing in Studio A and then move over to Studio B to do the digital and the automated kind of mixing that's going to be necessary for 5.1."

Studio C is intended for smaller music projects, and film and TV pre-mixing. It will run a full Digidesign Pro Tools ProControl system (96 tracks and all the plug-ins), 5.1 surround and also THX sound systems. There are two other smaller rooms as well as a number of editing and special purpose rooms.

"The interesting thing about the facility is that one of the techniques we've taken from the film industry is the ability to really utilise any machine from any room in any other room by using a central machine room. A lot of the key machines reside in the central control room and even for example two inch analogue tape recorders that would be normally living in studio A can be accessed from any of the other rooms."

Most of the film and television recording will be recorded to Tascam MMR-8 and MMR-16 which are now becoming standard in Hollywood. Studio A will have two Studer two inch analogue machines A820s and Sony 3348 HR 96khz one inch digital tape recorders.

"It's been a challenge designing a facility that can handle 96kHz all the way through because some of the outboard gear is not yet completely upgraded to 96kHz."

A huge range of outboard effects will be kept in stock, in fact at least two of each so that they can be used in studio's A and B. Brian recognises the need to have a wide assortment of microphones and outboard effects including 'vintage' type outboard equipment such as old EQ's and compressors which can help in attracting big travelling artists.

But Brian says what really matters to potential clients is the consoles and who designed the acoustics. Acoustic Architect John Flynn from UK based Acoustic Design Group, and head acousticians Sam Toyoshima and Bike Suzuki from JVC Japan have been contracted.

"The good thing about having Bike involved is that he was the chairman of the AES DVD-Audio standards committee, so if there's anyone who's fully up to speed on what it takes to design a control room for 5.1 this is the guy. Designing control rooms for 5.1 isn't just a matter of hanging a couple more speakers and saying you're in that business. It's a very different

animal and people are going to find very quickly as they start to re-master their existing recordings for 5.1 that they need a properly designed room."

Brian stresses that the impact of DVD-Audio on the recording industry cannot be underestimated.

"The difference between DVD-Audio and when we went from records to CD's is that this isn't about a re-mastering process, it's actually a re-mixing process. The artists have to go back to their original master tapes and it gives them a chance to do some new things while still keeping the essential core of what they recorded years ago. And because DVD-Audios are 96kHz a lot of the recording in the past has been done on analogue tape which many believe had bandwidth far exceeding the cut-off of CDs. So now the artists can go back and really capture everything that's on those tapes.

"The difficulty with DVD-Audio that people are already experiencing in the US is that it really can't be mixed properly on an analogue SSL kind of console, even a 9k, because no-one has enough hands to do the mix. That's really what's driving Euphonix so successfully now with the system 5 because it's fully automated so people can sit there and do a very complicated multi-speaker mix in a fairly reasonable way."

"There's always talk about convergence in every industry, and while it's an overused word, in fact here it is very appropriate because historically sound for film, television and music have all been very different formats for the audience. Those differences are going away now because digital television will be 5.1

continued >

Founders and Directors:

Brian L McCarty and Jeff Wexler

Design Team:

John Flynn and Sam Toyoshima - Acoustic Design Group - UK

Technical Design:

Martin Bengé and Neil Aldridge (Music), Ken Skimming (Film, TV and Multimedia).

Local Architecture:

Woodhead International

Staff:

Managing Director: Brian L McCarty

Technical Director: Jeff Wexler

Chief Engineer: Ken Skimming

Operations Manager: Jan Sarchfield

Call + 61 7 4059 2888

www.coralseastudios.com

MY FAVOURITE MICROPHONE

By Mandy Jones

Brian Laurence's all-time favourite is the Sennheiser MKH 416 P48 semi-directional microphone:

"This microphone sounds great in a huge variety of situations, and is almost indestructible. I have lugged them all round Australia and overseas, in and out of film trucks, recording location soundscapes, and no synwwfailures. However, it is their sound that really sets them apart. For studio voice recording (voice-overs and radio plays) I regularly compare it to the many other condenser mics available at studios such as Metropolis, but haven't found anything better as an all-purpose mic for general use.

"I first used 416s for location field recording, and when I moved into studio work I tried them for voice recording. They sound very clear and clean, and being semi-directional, produced great voice presence while largely cutting out any room reflections. Most importantly, the voice actors like them – they are able to vary their voice sounds by using the pronounced proximity effect of this mic.

"For location work, I use a pair of 416s on a T-mount. The effective width is about 60 degrees, so pointing them 60 degrees apart, they produce a clearly defined x-y stereo pattern. In the studio, I mostly use them one on each voice, with the actor about 10-15 cms in front, pointing half across the end to avoid comb. I've also used them on guitars, drums, double bass and percussion with great results, and I've used 6 of them to record an 80-piece orchestra.

"It is a very clean sounding mic, with the extra directionality adding a presence that's hard to get with most studio condenser mics. I particularly like its crispness on voices. It gives most voices a cut-through quality, and requires very little equalization.

"Some voices require just a little bit of boost around the 'presence' frequencies, somewhere between 1 to 3 K, others a little higher to give clarity to even the most mumbled speech. For sound effects, bass cut, otherwise the low rumbles sound much as recorded. For string instruments, very little EQ, except for bass cut in some cases.

"I've been using these mics for around 15 years now, and in that time there doesn't seem to have been any great advances in mic performance, although sales people will tell you there has been. I'm still on the lookout for anything better...and still waiting."



surround and DVD-Audio will bring 5.1 surround to the consumer in a music format. This convergence is all happening essentially in our backyard – the film industry, because this is the way films have been mixed for 30 years or more."

Brian is confident Coral Sea Studios will break into the niche market of resort studios.

"Technology wise we're a state-of-the-art studio," he says, "but the real reason people go to residential resort studios is to get out of the day to day hectic environment of their careers, so we've got a world-class facility here that's isolated but takes advantage of everything the tropics has to offer."

"It's the best of both worlds." •

Need some new:



Par Cans...



Mirror Balls...



Smoke Machines...

DYNAMITE

www.discoworld.com.au

email: info@discoworld.com.au



Disco World Pty. Ltd.™

SHOWROOM
FACTORY 20
Cave Hill Road
Lilydale Victoria 3140
Ph 03 9735 0588
Fax 03 9739 5441

Dracula

by Mandy Jones

The marketing campaign was simple - 'Go to the bloody ballet' and it worked. Audiences have flocked to see the sexy ballet adaptation of Bram Stoker's gothic novel *Dracula*. The production broke box office records when it toured the UK and America, and its Australian season is looking similarly successful. Melbourne was chosen as the first and only Australian season for the Northern Ballet Theatre (NBT) production, but it was the Royal New Zealand Ballet not the Australian Ballet who performed the confronting ballet at the State Theatre after the Australian Ballet chose not to include the production in their repertoire.

RADA trained lighting designer Paul Pyant designed the lighting for *Dracula* four years ago. Currently designing for a production of *Hamlet* in London, Paul recalled the background of the design and the key creative elements, via email.

"*Dracula* was created for the NBT by its Artistic Director Christopher Gable and Choreographer Michael Pink in 1996. The creative team of Gable/Pink, Composer Phillip Feeny, Designer Lez Brotherston and myself had collaborated together since 1989 when Gable became the AD of the company. Driven by Gable's vision to push classical ballet to new levels of dramatic production, NBT has developed both an enviable reputation and a faithful, enthusiastic audience following.

The first re-invention of a classic ballet was



The Next Generation In Rental Management Software

For Win95/98/2000/NT.

Multi Currency
Multi Site
Multi User

NAVIGATOR SYSTEMS
+44 (0) 7000 628797
info@navigator.co.uk
www.navigator.co.uk

Eclipse
Job
Hire
Warehouse
Equipment
Diary
Planner
Multi-site
Addons

Romeo and Juliet in 1991 and was followed by similar reworkings of other ballets in the classic repertory like *Swan Lake*, *Giselle* and *Cinderella* as well as expanding the repertory to cover new works based on classic novels like *The Brontes*, *A Christmas Carol*, *The Hunchback of Notre Dame* and *Dracula*.

"As the company style developed so did the organisation's technical prowess. Despite being always financially limited - budgets were always desperately tight - the Company developed a large rep rig on which all productions were based. It originally was formed entirely of ancient equipment acquired over the early years. This has steadily been updated and improved since 1989 as the repertory expanded but it is still entirely of generic equipment, the only nod to automation has been the addition of some scrollers to the pipe end pars and booms.

"So when *Dracula* was planned the basic rep rig had to be respected, as there are always other productions and 'triple bill' evenings slotted into any one tour. The basic six bar rig was supplemented by 'A bars' - a total of 12 overstage bars being used in *Dracula*. The show was recognised from the start as being hopelessly ambitious and many hopes and ideas had to be cut along the way, usually purely for financial reasons. Despite this Lez Brotherston came up with an ingenious unit set, into which various scenic elements flew in to create the various scenes - so by definition the lighting played a large part in aiding the narrative through setting the atmospheres.

"NBT, unlike a great number of the Ballet companies I work with, do schedule a full week of technical and dress rehearsals before they open a new production. This automatically broadens the horizons of what can be achieved in terms of complexities, as there is time to create a more involved production. This has been proved a problem when recreating the production elsewhere as it seems few allow more than three days of technical time.

"The responsibility of lighting the show on tour has fallen to the NBT production electricians Stuart Lister, and lately Johnny Eyre who recreated the production for New Zealand Royal ballet but, with few minor changes, has kept remarkably to the original format, usually only being compromised by local conditions. There are plans to develop the production further and we have been commissioned to build a new production in Europe and are hoping to restore some of the original set ideas as well as introduce a new element of video projection to several sequences.

"Projection plays a part in the present production using standard 2.5kw effects projectors projecting storm clouds and static

images of castles, trees, maps, stations etc onto various gauzes and screens. The thorniest problem was to try and create the effect of 'bats in flight' for the end of Act 1. This was only partly solved by adapting a standard 1.2kw 26/44 profile with a strobe light source and a double gobo rotator projecting bat shapes, a passable effect which I hope is going to be able to be improved on with video projection.

"The Ballet has remained as faithful as possible to the Stoker novel. The preamble and scene setting to the trip to Transylvania has been represented by a short prologue set as a nightmare and seen through a gauze. A neat idea at the top of the show is to plunge the auditorium into total darkness without warning, a simple trick but much enjoyed by the audiences. The Act 1 narrative takes us to Charing Cross Station, as Harker's train departs (a moveable staircase revolving across the stage amid much smoke and overhead animation discs providing suitable railway movement). A map of the journey is projected as the scene changes to a gypsy campfire in the remote mountains of Transylvania (more low level animation discs and stage-edge Par M16s providing firelight and shadows).

The journey to Castle Dracula is a series of projected images of trees and castles on gauzes whilst flaming torches cross the stage. Once at the castle gates, cold and sinister, these part to reveal the castle set for the first time lit by lots of gobos and flickering lamps and cool colours (Lee 200, 201 etc). Dracula appears and shows Harker to his bedroom (drapes fly in) and out of the bed soon appear the three vampire women who dance a seductive trio.

Just as they are about to dig their fangs into him the voile drape drops to reveal Dracula standing over a strong air current - his cloak spectacularly flying about, he dispels the vampires before engaging into a strong *Pas de Deux* with Harker, culminating in the fateful bite and 'flight of bats' ending Act 1."

Paul said the Northern Ballet Theatre have always been keen to break the 'rules' of ballet, and from a lighting point of view Paul described the style as a cross between lighting a musical and an opera where faces and atmosphere are as important as the body form.

Effects featured in *Dracula* include strobes, effects projectors, F100 Smoke machines, a hazer, Le Maitre theatre flashes and maroons.

• *Dracula* is at the State Theatre until August 6.



L.D. Paul Bryant



By John Grimshaw

Jenny Morgan The Queen Of Radio Mics?

Jenny is one of those rare people working in theatre that is always easy to work with. Currently on holiday after her stint as the radio microphone coordinator for the recently deceased Pan, Connections caught up with Jenny just before she hit the road.

Beginning her career backstage in amateur theatre in Brisbane, Jenny quickly found that she had a knack for (and quietly enjoyed) standing around in dark theatres. After applying for and getting work in props and as a dresser for Toadshow's successful 1991 spoof "Phantoad Of The Opera", Jenny found her way into show after show. From LaBoite to the Tivoli to QPAC, she was finding herself in better and better jobs.

"I never really sought out (working in theatre), it just happened" says Jenny. She gained a considerable amount of experience in a short time, and she quickly progressed to working in stage management.

However, making the leap from props, dressing and stage management to working with radio mics and pro-audio is quite a step. Credit for helping her make this step goes to Blair Marks, who worked with her at the Tivoli. When Blair went to work in the Audio Department at QPAC, Secret Garden was being produced. The audio contractors for the job, Coda Audio were without a radio mic coordinator. Blair suggested Jenny – who initially turned the job down. She told them that she had had very little experience in audio, but they persevered and said they would teach her.

Blair's faith in her panned out and Jenny worked the whole Brisbane season. When the show was to tour to Sydney, she relocated herself there to remain working on the show. Apparently the pay was awful, but she stayed

because the experience was invaluable.

From this and other shows, Jenny became a swing worker for System Sound on Phantom Of The Opera. Since then Jenny's credits include The Sound Of Music and Pan.

Jenny puts her success in the industry down to being honest about her capabilities. When work opportunities have come up that have been outside her experience, she has owned up to her deficiencies. The result has been that people she has worked with have been very helpful in teaching her.

One of her major assets is a very affable, "laid back" character – she is very easy to get along with. This is not surprising when you consider that theatre tends to squeeze out those that are hard to work with.

Jenny's experience of sexism in the industry is typical of many of the under 35's working in theatre. She has encountered little or no obvious sexist events that have affected her career thus far. In fact, her preconceptions of the industry were considerably worse than what has become her experience.

Only one event that came to mind when asked about this problem – and it was one with a very different twist. Once, when employed by a theatre company, she was introduced to the female general manager of the company. After being introduced, the GM said, "I will tell you though, I wanted a man to get the job because I feel that there are too many women within the company already, and I think it would be better to have a man for the job."

Within this company, Jenny felt that the male employees could get away with more mistakes, because if a woman made even the slightest error, the GM came down on them like a ton of bricks.

There are no immediate plans for family, and Jenny is not in any hurry. She continues to be happy living "show to show" and has already been offered a few tentative projects. Is there a life after radio mics? It takes a special kind of person to professionally manage and maintain forty odd radio transmitters and receivers. While most that work in this job are working towards operating a mixing desk, Jenny is far more pragmatic and simply enjoys what she does. However, she is quick to say that if the opportunity arises, she would definitely investigate new directions.

A resource just waiting to be tapped?

Mics and In-Ear monitors that Jenny supervised during Pan - just a battery or two to worry about



Gobos

Masking with *style*

Some of the most interesting lighting effects are achieved simply. Gobos have been around for a long time – long before electricity and precision optics. These days there are a spectacular choice of gobos, glass gobos and sizes to choose from. Also, the technology for making custom gobos is priced to make this a viable proposition for almost any show. Considering the vastly increasing diversity of options for this effect, we invited all of the major gobo players to inundate us with information on the subject.

Joakim Odlander of Lighting By Design stepped up to the task, and has kindly supplied us with a description of the various processes used in making gobos.

Aluminium gobos

These were the gobos you made with the gobo maker kit. Using the same process as the stainless steel gobos, you had the advantage that you could etch in a simple plastic tray using a Peroxide/Hydrochloric solution rather than using specialised spray etching equipment. Unlike steel, aluminium will not warp. However, the disadvantage is that they are not mechanically durable and

will quickly be destroyed by moderately rough handling.

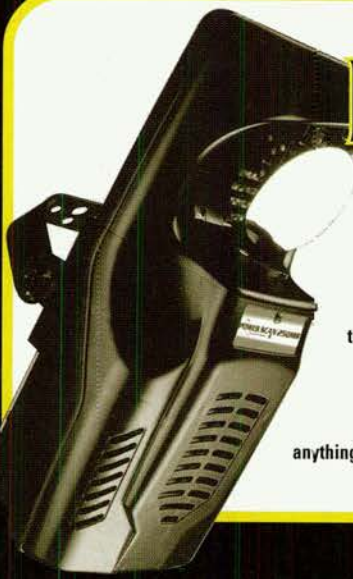
Steel gobos

These are manufactured using stainless steel of roughly 0.15mm thickness. A sheet of steel is coated with a photosensitive acid resistant coating. You place a film portraying your image between the steel and an UV source. Exposed to UV light and developed the unprotected steel will be exposed. This is then etched with an acid, usually Ferric Chloride that has to be heated and applied as a spray. This process has been used by chemical milling companies for many years and is similar to the manufacture of printed circuit boards.


The limitations of steel are obvious, as the stencil type image requires tabs to hold the image together and stop the middle from falling out. As fixture manufacturers specify

> continued over





POWER LINE

by High End Systems 

A FULL RANGE OF PROFESSIONAL LIGHTING


Now from High End Systems, the industry leader in concert lighting technology, comes the Powerline range of automated lighting. These affordable lights feature the same cutting-edge technology and quality construction as the company's professional luminaires used by hundreds of today's hottest bands including: U2, R.E.M., Metallica, Garbage, Crystal Method and more.

With Powerline, anyone can quickly and easily assemble a professional integrated package of scanners, strobes and other effects. Dazzle the crowd with effects or create an ambient mood - anything's possible with Powerline. Mix and match with the wide range of lighting and control to create the perfect package for your needs.

AVAILABLE AS

- 250W MSR
- 150W Arestream (10,000 hours)
- 150W Halogen

Available from



BYTECRAFT

EMAIL - bytecraft@bytecraft.com.au WEBSITE - <http://www.bytecraft.com.au>
 VIC - 23-31 Fonceca Street Mordialloc 3195 Tel: 03 9587 2555 Fax: 03 9587 5641
 NSW - 5/31 Bridge Road Stanmore 2048 Tel: 02 9550 3955 Fax: 02 9519 3977

Gobos - Masking With Style

smaller and smaller gobos, the limitations become more and more pronounced. However steel is cheap and you can use it in fixtures that would destroy glass in a jiffy. (Most 650W profiles would be unsuitable for glass.)

B&W Glass gobos

Also known as lithographic or greyscale gobos. These are made by using special heat-treated glass that gets coated by an aluminium or a chrome layer in a vacuum chamber. The research for the perfect

material is ongoing as the chrome based material tends to be quite durable but will eventually flake off whereas the aluminium based material is easily scratched. The major lighting manufacturers around the world use both processes. We suggest gentle care of glass gobos whatever the base material is but scratches can often be repaired using an aluminium paint marker.

The metal gets coated with an extremely thin layer of photoresist and is then exposed to UV light through a film of your image.



The advantage with using a glass substrate is that the image does not need tabs to hold it together. The thin metal layer also lets us etch at extremely high resolution. This in effect means we can project images based on photographs or make very detailed designs in small gobos.

Colour Gobos

Dichroic glass is made by vapour depositing a thin dichroic layer on the glass. The

Glass gobo use

People are under the misconception that it is the wattage of a fixture that determines the suitability of a lamp to use glass gobos. It is actually more likely to be the actual beam shape that determines the suitability. If you are after the perfect image projection you want a flat field and this is also best for the gobo. Cracking is usually caused by internal stresses in the glass due to uneven heat.

Thus it is most preferable to use a condenser lens placed between the lamp and the gobo. The lens evens out the beam so it hits the gobo with a nice flat field. Profiles like these do exist but as they are relatively expensive, the average fixture is more likely to lack the condenser.

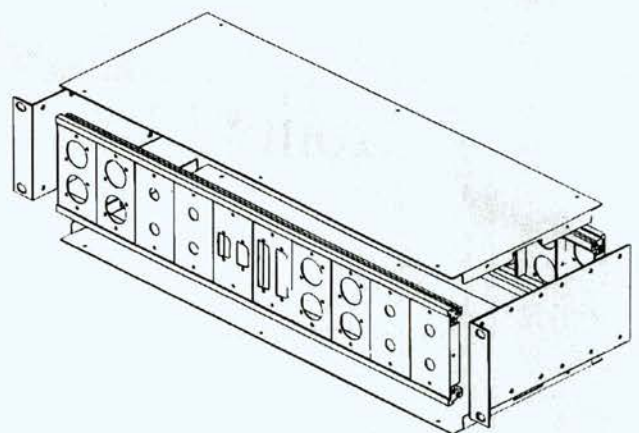
This condenser lens is however always

MODULAR STAGE BOXES

Need a custom stage box, rack panel, patch panel or distribution box, but just can't find one?

Then look no further than MSB, the modular system that allows the assembly of the most complex panels in minutes.

Oh, and you can leave the tool box at home as this is the only assembly tool you'll need.



For a free catalogue, please call...

Penn Fabrication Pty Ltd

Ph: (03) 9335 6455

Fax: (03) 9335 6466

thickness of the layer determines the colour achieved. Dichroic material can withstand very high heat without fading and have very high transmission levels with clear bright colours.

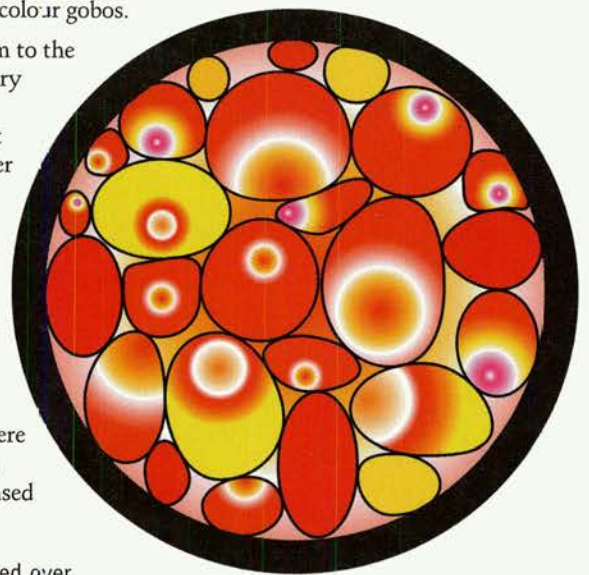
For many years colour gobos were made using a process best suited for mass production. The process is actually patented by Disney and entails coating a glass slide with the metal for the first layer and then etching this. You would then return to the vacuum

chamber to apply each colour one at a time. After each colour was applied you then had to mask and etch each layer. This is a slow and tedious process that gives great results for solid block colours and is perfect for mass production. Running a single gobo through the chamber is a different matter and thus tends to get very expensive.

Another method to achieve colour is to use a dichroic glass and glue it together to either a steel gobo (as in disco effects) or to a B&W glass. Very often it is used to achieve solid block colours - the client specifies the actual colour from a set palette of standard dichroics and you get the difference between 1colour, 2colour 3colour and 4colour gobos.

Each layer adds about 1mm to the finished gobo and you get a very thick result in the end. The problem with thickness is that you can only focus on one layer and have to be content with the other layers being out of focus. If all you needed was a green letter in your logo, then the method is ideal.

The Beacon process, as used exclusively in Australia by Lighting By Design, is a similar process to these but there is a distinct difference. Like an inkjet printer, the process is based



> continued over

found in discharge lamp fittings where you also have the added advantage of cooling fans to keep the lamp cool. So most discharge lamp fixtures are suitable even though the manufacturer might make some fixtures peaky.

Most 650W profiles are too peaky and hot at the gate to use a glass gobo and they are pretty savage on steel gobos too. The old 1000W Leko with its ellipsoidal reflector is also a gobo killer. Lighting By Design have gotten back glass gobos that have melted...!

Most 1k and 1,2k and even 2k fixtures with base down mounted lamps, are fine. They distribute the heat evenly and work ok if the beam is set flat. Cold reflector lamps are great for your gobos as they are designed to let out the heat at the rear.

JTS Cost Effective Quality Audio

From \$139*- our only concern is that they'll leave you speechless

The JTS series of microphones offer a serious challenge to those who think you have to pay big money for big performance. With a wide range available to suit all vocal and instrument demands, we're so confident about the performance of our JTS range we'll send your first order on spec! With prices dramatically less than comparable 'industry standards' you can't afford not to take up a trial** offer like this. You'll be impressed... but hopefully not speechless.

*Price is RRP including GST for Model PDM3 **Trial offer available to resellers only

N | S | C | A

National Systems Corporation of Australia Pty Ltd

Ph: (03) 9434 1888

Fax: (03) 9434 1866

Interstate: 1800 441 440

Email: nsca@bigpond.net.au



Gobos - Masking With Style

Sizes

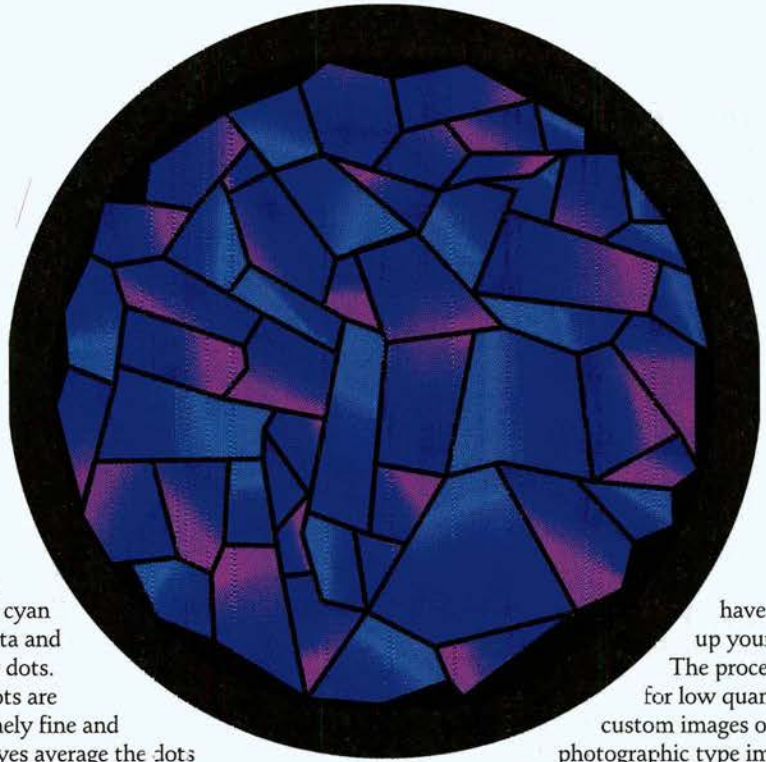
Item	Diameter	Image
A	100mm	75mm
B	86mm	64.5mm
M	66mm	49.5mm
D	53.3mm	40mm
E	37.5mm	28mm
J	38.8mm	25mm
Cyberlight	44mm	38mm
Intellabeam	25mm	19.25mm
Mac 500	27.8mm	24mm
Miniscan HPE	25.5mm	23mm
NAT	53.3mm	37.5mm
PAL	53.3mm	40mm
Piper	66mm	40mm
Roboscan 518	25mm	13mm
Scan	66mm	48mm
Technobeam	25mm	23mm
Trackspot	25mm	19.25mm
Varyscan	39.5mm	35mm
VIP	31.5mm	23mm

Thanks to The Gobo Factory website for these sizes
www.gobo.com.au

Copyright

Gobo pattern designs cannot be copied legally, due to copyright. You should not ask a custom gobo company to reproduce a gobo from another company's library/stock - as you open yourself to litigation for using an image without permission. This is not a grey area - the issues are firmly laid out in copyright law. Although this situation has yet to be tested in court, it is doubtful that the production company that you have set the gobo effect up for would appreciate the \$250,000 fine per offence.

So what? Who is going to know if you use a Rosco gobo or an identical copy? It is not unheard of for people to organise a copy gobo when the main source is out of stock. You would have to be unlucky to be the person involved in the test case when/if it happens - but why take the risk.



on the mix of cyan magenta and yellow dots. The dots are extremely fine and your eyes average the dots together to give you the colour mix just like the printer dots on a magazine page. To get this to work well you require wafer thin layers so that all the layers are within the focal plane. The layers used by LBD are 0.1mm thick and are laminated together under a microscope to achieve a full colour gobo. The process is referred to as the patented Beacon process and only a select few companies around the world are licensed to use it, and LBD is the only one in the southern hemisphere.

The advantage is that you are able to achieve shadings and graduations in colour. We can also stock standard sizes of ready to use CMY dichroic so that a quick turnaround is possible. A colour gobo can often be supplied within a day or two but it is nice to

have a few days up your sleeve. The process is ideal for low quantity custom images or when photographic type images are required.

The one minor drawback to using a CMY system is that highly saturated Reds and Blues cannot be easily achieved at the same time. One end of the spectrum must be sacrificed to the needs of the other. This is the same problem that is found in CMY colour mixing moving lights.

LBD currently uses 425 linescreen and 3600 dpi resolutions in their glass and colour gobos. In these types of gobos the d.p.i. is not that important (within reason) but the linescreen gives you the size of the actual pixels you see projected. The d.p.i. determines the number of shades you see - the visible difference between 64 shades of grey and 64 million shades of grey would be pretty hard to spot in a projection.



BROWN'S

PRECISION WELDING PTY LTD

ALLOY TRI TRUSS • BOX TRUSS • CIRCULAR TRUSS

20 YEARS EXPERIENCE • AUSTRALIAN MADE

ENGINEER APPROVED

Quality assured competitive prices

56 Mologa Road, West Heidelberg VIC 3081

Ph (03) 94552899 Fax (03) 94575044

Mobile 0412 401 469

Comparing the Prices...

Steel Gobos

Gobo Libraries	Price (ea)
DHA/Rosco	24.20
Lee	22.00
Lighting By Design	26.00
The Gobo Factory	26.40

Custom Gobo	First	copies	Turnaround
Lighting By Design (+61 7 5537 7002)	160.00	45.00	2hrs to 2days
The Gobo Factory (+61 3 5439 3770)	137.50	38.50	48 hours
DHA/Rosco (+61 2 9906 6262)	291.50	24.20	7-10 days
Mediavision - Lee (+61 2 9816 4055)	P.O.A		10-14 days

ALL PRICES BASED ON "B" SIZED GOBOS

Liquid filled gobos

Joakim Odlander of Lighting By Design enjoys the challenge of being creative...

"We made the liquid filled images that were projected out of the 4000Watt Coemar NAT on the Opera House earlier in the year. As far as we know that is a world first. Optikinetics have made oil wheels since the world began, but place a liquid gobo in the gate of a moving light....never. Won't make us rich, but it was fun."

Glass Gobos

Custom gobo - B/W Glass

	First	copies	Resolution	Turnaround
Lighting By Design (+61 7 5537 7002)	210.00	130.00	4251pi/3600dpi	2hrs to 2days
The Gobo Factory (+61 3 5439 3770)	229.90	143.00	4501pi/5280dpi	72 hours
DHA/Rosco (+61 2 9906 6262)	380.00	380.00	2400dpi	10-14 days

Custom gobo - Colour Glass

	First	copies	Resolution	Turnaround
Lighting By Design (+61 7 5537 7002)	735.00	555.00	4251pi/3600dpi	up to 4 days
The Gobo Factory (+61 3 5439 3770)	440.00	286.00	4501pi/5280dpi	7-10 days
DHA/Rosco (+61 2 9906 6262)	595.00	(two colour)		14 days
DHA/Rosco (+61 2 9906 6262)	850.00	(full colour)		14 days

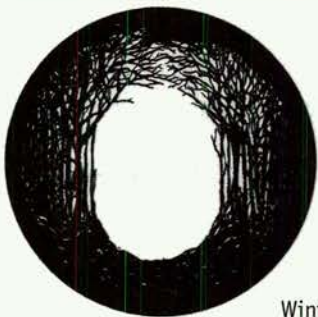
ALL PRICES BASED ON "B" SIZED GOBOS

Blowing your Budget

Be careful when choosing custom gobos - a big show recently had a major blow-out in gobo costs when the lighting designer panned the gobos cut for the show, and ordered a new batch for immediate delivery.

No one ever has an unlimited budget, so make your calculations carefully. If you are still unsure then before you order your 20 custom gobos, you can get a test cut to see the effect.

Spending \$120 to check something is cheaper than canning a \$1000 effect.



Rosco Steel Gobos

Winter Glades 77865



Glades 77860



**Professional Production
Design & Hire Services**
for schools, corporate, theatre,
exhibitions and special events.

CALL FOR FREE QUOTATION

1-7 Queens Avenue Hawthorn 3122 Victoria Australia Tel: (613) 9819 6912 Fax: (613) 9819 6008 A/H Mob: 019 135 757

Tracking Guide



New South Wales

C H A R T S

Compiled by Sarah Ford
sarah@conpub.com.au



ARTIST: Groove Terminator
SINGLE: One More Time (The Sunshine Song)
PRODUCER: Simon Lewicki & Noel Burgess
MIXING: Simon Lewicki & Noel Burgess
ENGINEER: Noel Burgess
MASTERING: William Bowden @ Festival

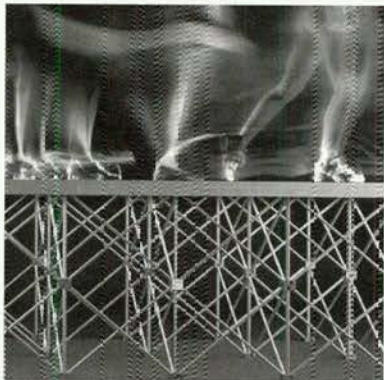


ARTIST: Christine Anu
SINGLE: Sunshine on a Rainy Day
PRODUCER: Stuart Crichton for XL Talent Partnership
STUDIO: Sing Sing Platinum (Melbourne)
MIXING: Brent Clarke & Stuart Crichton
ENGINEER: Brent Clarke
PROGRAMMING: Stuart Crichton
MASTERING: Peter Norman @ Heathmans Mastering (London)

More on page 70

ARTIST	PRODUCER	ENGINEER	SESSION
A#Sharp Studio Jeff Cripps +61 2 9153 9988 24 Track Analogue. 32 Track Digital			
Finn	Jeff Cripps	Jeff Cripps	CD
Ukrainian Women's Choir	Jeff Cripps	Jeff Cripps	CD
The Nevalators	Jeff Cripps	Jeff Cripps	CD
The Atlantics	Jeff Cripps	Jeff Cripps	Tracking Drums
Aphek Studio Greg Dixon +61 2 9876 8170 16 Track 1" analogue + Hard Disk + Soundcraft Ghost			
Chasing Happy	Band/Greg Dixon	Greg Dixon (E)	Album
Riz	Mick McGlynn	E Mick & Greg	Album
Backskank	Simon Smith	Greg Dixon (E)	Album
Ambergris	Ambergris	Greg Dixon (E)	EP
Fish Bait	Fish Bait	Greg Dixon (E)	Demo
Cydonian Sounds Colin Black +61 2 9400 5441 hard Disk, Pro Tools hardware, Film/TV Soundtrack Studio			
Colin Black	Colin Black	Colin Black	Feature Film Soundtrack
Damien Gerard Marshall +61 2 9555 1710 2" 24 Track/Pro Tools Digital			
Mental As Anything	Andy Beck	Andy Beck/Kristian Hill	Final Mixes
Ken Methold Multi Media	Ken	R.I Pilling/N. Johnson ProTools Comp/Edit	
Elysium	M Hollack	Nathan Johnson	Demo
Oyama	Russell Pilling	Russell Pilling	EP
Noogie	Marshall Cullen	Russell Pilling	Demos
Festival Mastering Suzanne Hill +61 2 9395 8070			
Multiball	Multiball	Sam Dixon	Album
Machine Gun Fellatio			Album
Turnstyle	Wayne Connelly	Wayne Connelly	"On A Bus" Single
King Salmon	Stu McCarthy	Stu McCarthy	Single
Ill Pickle			Single
Festival Studios Suzanne Hill +61 2 9395 8070 Studio			
Magic Dirt	Phil Vinal (UK)	Mark Thomas (P)/Phil Vinal (E)	Album
Silverchair vs Paul Mac	Daniel Denholm	Daniel Denholm/Paul Mac	Remixes
The Hard Ons	Mark Thomas	Mark Thomas	Album
Supersonic	Single (Drum Tracks) National Youth week		Prize
5 Flavaz jam	David Trump Manis	David Trump Manis	Single
Hindsong Studio David and Lyn Hinds +61 2 9582 7070 Digital Project Studio			
Balance	David & Lyn Hinds	David & Lyn Hinds	Album Tracks
JMF Recording Studio Fran Esther +61 2 9790 4097 24 Track Analogue. 32 Track X850. 24 Track ADAT.			
Wendy Wells	Glenn Cameron	Guy Saminaden (E)	Album
Peter Jands & Scott Finley	Peter Jands & Scott Finley	Ralph Esther (E)	Radio Ad
Mark Bonnici	Mark Bonnici	Ralph Esther (E)/Mark Bonnici (P)	Album
Crystal	Mark Bonnici	Ralph Esther (E)	EP
Keystone Recording Alan Heeney +61 2 6772 1838 16 Track Digital Recording			
Bruce Walker	Bruce walker	Alan Heeney	Album
Andrew McCue	Andrew McCue/David Curtis	Alan Heeney	Album
Treelos Lantana	Treelos Lantana	Alan Heeney	Album
Jazz Pump	Jazz Pump	Alan Heeney	Album/Demo
Lyndon Megarrity	Lyndon Megarrity	Alan Heeney	Album
Megaphon Studios Shane Fahey +61 2 9550 6576 Tracking 2" Analogue + Mixing - Music			
River	Steve Clark/Shane Fahey	Shane Fahey	Acoustic, Celtic Folk Album
Misda Swich	Misda Swich	Shane Fahey	Ethnic Trance Album
Caddison	Lachlan Mitchell/S. Williams	Lachlan Mitchell	EP - Tracking
Ashtray Heart	Ashtray Heart	T.B.C	Straight Ahead Rock EP
Nu-Town Studios Greg Hopping +61 2 9516 3306 Analogue/Digital recording + production			
Hera + Isis	Hera + Isis	Greg Hopping	Demos
mark Edwards	Greg Hopping	Sofie Lozol (P)	Demos
Jeff Island	Greg Hopping	Sofie Lozol (P)	Demos
Lisa Wass	Greg Hopping	Sofie Lozol (P)	Single
Blue World	Greg Hopping	Mark Worrall (E)	Album Tracking
Paul Bryant Mastering Paul Bryant +61 2 9874 3133 Mastering Studio			
Ten part Invention	Ross A'Hern (E)	Paul Bryant (E)	CD Album
Poppleton	Don Hopkins	Paul Bryant (E)	CD Album
Heroes From Heaven	Jeff Cripps	Paul Bryant (E)	CD Album
Southend	Andrew Penhallion	Paul Bryant (E)	CD Album

Staging CAN'T get any easier than this...



2m² of staging set up in 30 seconds by one person. Sound good? Then consider also these benefits:

- Lightweight** – 60cm leg section weighs 5kg
- Strong** – will support 1000kg per m²
- Fast & Easy** – legs can be set up with one hand!
- Versatile** – multiple heights let you build steps, multi-level staging, in fact you are only limited by your imagination!

SC Systems - distributed in Australia by:



The Resource Corporation Pty Ltd
 tel: (03) 9877 8233
 fax: (03) 9877 8244
 www.trc.com.au

AON Risk Services presents

Entertainment Protection Plus

INSURANCE FOR
 ALL
 YOUR
 ENTERTAINMENT
 RISKS

- Equipment
- Travel
- Non appearance
- Cancellation or abandonment
- Public liability
- Personal accident
- Vehicles
- Workers' Compensation

Email:

ken.killen@aon.com.au

Call Ken Killen or Ian Stack
TOLL FREE 1800 806 584
 for free quotations & advice

Level 27, AON Tower, 201 Kent Street, SYDNEY, 2000 Tel (02) 9253 7570

interlink@cia.com.au : 1800 638 777

INTERLINK SYSTEM SOLUTIONS

1201, 12" & Horn Speaker

\$849 / pair

- + 200 w RMS, 400 w programme
- + Stacking corners
- + Dual Speakon connections
- + Integral stand mount
- + Durable black carpet finish
- + Recessed handle

Stands not included, \$149 / pair
 Prices exclude tax and are valid until 30 July 2000

OFFER EXTENDED TO 30.10.2000

1201

Sound Advice

SOUND

Composing by Heart - The Art of Screen Composition

An introductory look at some examples from the film repertoire together with an examination of scripts, directors briefs and composition techniques. Participants will have the opportunity to compose and produce a small score.

Sound - Recording/Mixing

Aimed at people with industry experience this course provides an in-depth knowledge of the goals and techniques of film and television sound mixing.

September

TBC

Short courses for 2000

www.aftrs.edu.au

Contact the AFTRS on (02) 9805 6444 or email us at studentcentre@aftrs.edu.au or visit our web site.



AFTRS

AUSTRALIAN FILM
 TELEVISION AND
 RADIO SCHOOL

AP5023/C



NEWS

ARIA nominees 2000

PRODUCER OF THE YEAR

Producer/ Song / Album Title / Artist

Andrew Kornweibel

Some Kind Of Love Song / Friendly

Andy Van / Cheyne Coates

Don't Call Me Baby / Madison Avenue

Ashley Cadell

Sugarfiend / Guven

Ashley Manning

I Don't Think I'm Pregnant / Diana Ah Naid

Augie March / Richard Pleasance

Asleep In Perfection (Waltz) / Augie March

Caleb James

Kamikaze / Rhubarb

Charles Fisher

Desensitized / Invertigo

Charles Fisher

A World Away / Glenn Bidmead

Daniel Denholm

Don't Believe In Love / Diana Ah Naid

Daniel Denholm

Blow Up The Pokies / The Whitlams

Darren Hayes / Daniel Jones

Affirmation / Savage Garden

Dave Carnovale / Damian Robinson

Inna Styles / Wicked Beat Sound System

Dave Graney / Clare Moore

Kiss Tomorrow Goodbye / The Dave Graney Show

Deborah Conway / Willie Zygier

Exquisite Stereo / Deborah Conway

DW Norton

8 Miles High / Superheist

DW Norton

Alchemist / Organasm

Endorphin

Skin / Endorphin

Garth Porter

Rules Of The Road / Lee Kernaghan

Garth Porter

Big River / Troy Cassar-Daley

Genevieve Maynard

She Lies / Stella One Eleven

Icecream Hands / Wayne Connolly

Sweeter Than The Radio / Icecream Hands

Iva Davies

The Ghost Of Time / Iva Davies

James Morrison

Emma / Emma Pask

Joe Camilleri

Sugar Talk / Adam Harvey

Joe Muscat

Sister / S2S

Jonathon Burnside

Desert Caravan (LP) / Oscarlima

Jonathon Burnside

Easy / Grinspoon

Justin Shave

Sittin' On Chrome / La Di Da

Kalju Tonuma

Not The Same / Bodyjar

Kalju Tonuma

Rip It Up / 28 Days

Kev Stanton / John Kendrick

Lets Have A Holiday / The Silly Billies

Lachlan Goold

Never Mend / Nokturnl

Lachlan Goold / Regurgitator

art / Regurgitator

Lee J. Sadarkis / Larissa A. Sadarkis

Metamorphosis / Storm & Serenity

Lindsay Gravina / Area 7

Bitter & Twisted / Area 7

Magoo

(I Feel Like) Ringo / Custard

Magoo

Homeage / Screamfeeder

Michael Carpenter

Oberon / Eva Trout

Michael Szumowski

Poison / Bardot

Nash Chambers

The Captain / Kasey Chambers

Nick Launay

Miss You Love / silverchair

Nick Skitz

New South Wales

ARTIST	PRODUCER	ENGINEER	SESSION
Paul Bryant Mastering (CONTINUED)			
Baecastuff	Rick Robertson	Paul Bryant (E)	CD Album
Q Studios Paul Conroy +61 2 9212 4851			
Lash	Andrew Klippel	Paul Mc Kercher	Single
Give Christ Back To The Martians	Paul Conroy/Ben Reid	Paul Conroy	Single
Iota	Michael Letho/Iota	Michael Letho	EP
Fugue	Sorrelle David	Sorelle David/Phil Munroe	EP
R & R Recordings Rob Zimola +61 2 9672 4494 Analogue Digital Recording			
Dom O'Leary	Rob Zimola	Rob Zimola (E)	Album CD
Vicki	Karageogous	Rob Zimola (E)	Demo's
Sue Winkworth	Sue Winkworth	Rob Zimola (E)	Master to CD
Rockinghorse Vern +61 2 6688 4005 Neve V series, 48 channel Console, Studer 24 track, pro Tools Mix 24			
Not From There	Magoo	Magoo (E)	Album tracking + Mixing
Ten Tenors	Brendan Morley	B. Morley/A. Lycenko (E)	Album Tracking
Chenlab	C Pyle/Anthony Lycenko	Anthony Lycenko (E)	Album Tracking
Sundance	Michael Worthington	Michael Worthington (E)	Album Mixing
Sony Music Studios Peta Chew +61 2 9383 6461			
10 Part Invention	10 Part Invention	Ross A'Hern (E)	Album
Lo-Tel	Lo-Tel	Louise Taylor (E)	Record & Mix Tracks
Baecastuff	Rick Robertson & Band	Ross A'Hern (E)	Rec/Mixing/MasterAlbum
Died Pretty	Wayne Connolly/Band	Wayne Connolly (E)	Mix Album
Reverence	Guy Gray	Guy Gray (E)	Record Album tracks
Soundwarp Meredith Brooks +61 2 9905 7144 Mastering			
Imaginary band	Duncan Wheeler	Meredith Brooks	Album
Voodoo Monkeys	Mike Plested	Meredith Brooks	Album
Shane Watts	Pat	Meredith Brooks	Restoration
Fundamental	Judd Carter	Meredith Brooks	
Backbeat	Jeff Longhurst	Meredith Brooks	Demos
Sound Level John Soane +61 2 9552 3200 24 Track DA-88. 16 Track Paris Hard Disk			
Reaper	Jorden Brebach	Reaper (P)/Jorden Brebach (E)	Demos
Sean Lowry	Sean Lowry	Jorden Brebach (E)	Demos
Daredevil/Doomentia	Daredevil/Doomentia	Jorden Brebach (E)	Album
Vegas Nights	Mark Cornwall	Brett Valentine (E)	Demos
Jim Lindsay	Paul McDonald	Jorden Brebach (E)	Album Tracking
301 Mastering Jaquie Espie +61 2 9211 7301 Mastering & Audio Post Production facility			
Not From There	Margo	Steve Smart	Forthcoming Single
Glenn Shorrock	Brian Cadd/Glenn Shorrock	Don Bartley	Forthcoming Album
Yothu Yindi	Andrew Farris	Don Bartley	Forthcoming Single
Various	Rob Hirst/James Cadsky	Don Bartley	Official Olympics Album
Zed (New Zealand)	David Nicholas	Don Bartley	Forthcoming Single
Tiger Recording Lynda +61 2 9922 4700			
Wendy Matthews	Michael Szumowski	David Hemming	Album
Top Cat Recording Studio Brad Wann +61 2 6628 0233 24 track 1" Analogue Pro Tools Mix 24 Plus			
ChilBlain	Brad Wann/Lee Dowling	Brad Wann (E)	Album tracking
The Frugals	The Frugals	Brad Wann (E)	Pre Production
John Glenn	John Glenn	Brad Wann (E)	Album Tracking
Adrian Gawain	Brad Wann/Adrian Gawain	Brad Wann (E)	Tracking
Animals Are Smarter	Brad Wann	Brad Wann (E)	EP Tracking
Trackdown Digital Mike Duffy +61 2 9550 6890 64 Tracks/Post + Music			
Tabaluga 2	Yoram Gross EM-TV	Torei Lista (E)/Scott Ryan (E)	Post Audio
Allnitters	Allnitters	Damian Candusso (E)	Mixing/Album
TV. Com	Lin Buckfield/Craig Wachholz	Damian Candusso (E)	TV Music Mix
Dot & The Kangaroo	Yoram Gross EMTV	T. Lista/S. Ryan/S. Clarke	TV Sync Dialog
South Pacific	Sampson Productions	Tim Ryan (E)	Film Pre-Production
Troy Horse Mickey Levis +61 2 9319 1799 24 track Fully Automated			
Cybersub	Cybersub	Colin Wright (E)	EP
Fields	Rodes Cookie	Mickey Lev's (E)	Album
Robert Pluck	Bob Jay	Ben Kusto (E)	Spoken World Album
Misty Fisher	Ismo Koski	Mickey Lev's	Album

Aerobic Microphones Australia

Call for a
Catalogue



Your one-stop-wholesale-shop
for Fitness Audio Sales of:

- **Aeromic™** – The Sweat Resistant Microphone
- **Aeromix** – Voice Over Music Mixers
- **Aeropower** – Power Amplifiers
- **Baquapak** – the in-the-water mic system
- **Chiayo** – Wireless & Portable Sound Systems
- **Fitness FM®** – FM Stereo transmitters
- Large range of Neoprene Pouchbelts for most brands of wireless TX's

Plus more Pro Audio Products:

- **NADY™** – UHF Wireless Systems
- **Leon Audio** – Microphones and DI Boxes
- **Lectret Precision** – Headworn & Tieclip Mics
- Security and Comms Mic & Headsets

Head Office Sydney
Phone: 02 9313 4995
Fax: 02 9313 5569

Victorian Agent
Phone: 0417 316 299

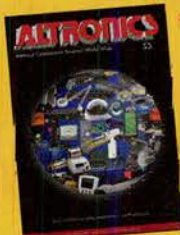
www.aeromic.com.au



REDBACK® Audio Products

Altronics is proud to announce the
following new Redback equipment...

- Four X 60W power amplifier
- Dual channel 125W power amplifier
- Dual channel 200W Hi-F amplifier
- Mixer amplifier with digital AM/FM tuner
- 19" Rack mount 20W PA amplifier
- 25 & 40W IP65 weatherproof horn speakers
- 24VDC Battery chargers
- Impedance matching attenuators
- AM/FM Tuner
- Programmable Alert/Evac timer
- 2" Speaker / grill combination
- 2 way high power monitor series speakers
- AB5 slim line wall mount speaker boxes
- UHF wireless microphone equipment



New Catalogue
Out now!

To receive our new 260 page catalogue with over 4000 product lines, including the entire Redback range simply e-mail us at cat@altronics.com.au, or contact our head office.

A full range of product support brochures are available on request for inclusion with your quotations. For your convenience, we have established a literature request form on our web site at www.altronics.com.au



Headquarters
Perth
Ph.: (08) 9326 2199
Fax: (08) 9328 4459

Sydney Branch
Auburn
Ph.: (02) 9648 5266
Fax: (02) 9648 5366

Melbourne Branch
Springvale
Ph.: (03) 9574 0365
Fax: (03) 9574 0075

The 'sphere' you're in is outdated

soundtube®

- ✓ Superior sound
- ✓ Costs less
- ✓ Greater Coverage
- ✓ Faster Installs



It's time to get out of the sphere you're into and step up to the award winning 'Soundtube' speaker systems (they even cost less than outdated omnidirectional concepts!)

Perfect for schools, halls, swimming pools, shopping centres, bars, pubs or anywhere quality audio is required. • available in 8 ohm & 100 voh • flush mount option • compact design & sleek styling • built in mounting hardware • variety of colours or with custom graphics for promotional use
Soundtube also produces FP sound focusing speakers for use with kiosks, listening stations & exhibits.

SOUNDTUBE CUSTOMERS INCLUDE: Crown Casino, Chadstone shopping centre, Chirnside Shopping Centre, Myer/Grace Bros Homemaker Centre, Zion College, Bonlac Foods, Cadbury Schweppes Ltd, Video Games Heaven and many more satisfied clients.

Australian Distributor: NSCA

Ph: (03) 9434 1888 Fax: (03) 9434 1866

www.ozemail.com.au/~hcaudio

soundtube®

LKS - The Lighting Connector

Designed for Professional
Lighting Applications

- Easy to use locking ring
- Grounding pins forward
- Machined contacts
- Suits 1.5 to 2.5 mm² wires
- Removable pins
- Waterproof IP67
- Male & female versions in both cable & panel
- Socapex compatible



Ask us about the new LKH range
of head to ballast connectors

LKS Lighting Connectors - distributed in Australia by:

trc

The Resource Corporation Pty Ltd

tel: (03) 9877 8233

fax: (03) 9877 8244

www.trc.com.au

Tracking Guide


PRODUCER OF THE YEAR
 (Continued)

Faith (Remix) / Bliss Inc
Paul Kelly / Gerry Hale
 Smoke / Paul Kelly & Uncle Bill
Paul Kosky
 Reflector / Killing Heidi
Paul McKercher
 Society Anxiety / Sunk Loto
Paul McKercher
 Testeagles / Non-Comprehendus
Peter Dacy
 Imagine / Taxiride
Phil McKellar
 Mumbo Jumbo / Tumbleweed
Phil McKellar / Spiderbait
 Glokenpop / Spiderbait
Richard Fields
 My Blues / Bridie King
Rob Taylor / Tim Freedman
 You Gotta Love This City / The Whitlams
Rod Coe
 99 / Slim Dusty
Rod Tamlyn / Tommy Emmanuel
 Only / Tommy Emmanuel
Ross Fraser
 Live At The Regent / John Farnham
Ross Wilson
 Shine Over Me / The Screaming Jets
Stephen Snelleman
 Blues for D.D. / Diana Doherty
Stephen Snelleman
 A Christmas Gift / Yvonne Kenny
Stephen Snelleman
 The Violin's Menagerie
Stephen Snelleman
 Out Of The Blue / Nigel Westlake Tasmanian
 Symphony Orchestra
Steve James
 My Friend / Oblivia
The Fauves / Tony Cohen
 Give Up Your Day Job / The Fauves
The Grapes
 The Grapes / The Grapes
The Rockmelons
 Rock Me All Night / Kaylan
The Rockmelons
 Woo Me / Marcia Hines
Tim Powles
 Skulker / Too Fat For Tahiti
Tim Powles / Genevieve Maynard
 Only Good For Conversation / Stella One
 Eleven
Tim Whitten
 The Sound / Rumanastone
Tony Byrne
 Love's A Crazy Thing / Keri McInerney
You Am I / Paul McKercher
 Saturday Night Round 10 / You Am I
Alex Lloyd
 Black The Sun / Alex Lloyd

ENGINEER OF THE YEAR

Adam Rhodes
 Kiss Tomorrow Goodbye / Dave Graney Show
Allan MacLean
 Vivaldi Motets & Concertos / Australian
 Brandenburg
Allan MacLean
 Blues for D.D. / Diana Doherty
Allan MacLean
 The Violin's Menagerie / Elizabeth Wallfisch
Allan MacLean
 Rough Magic Contemporary Works For Harp /
 Marshall McGuire
Ant Dale / Vince Deltito
 Somebody Like You / Jimmy Christo
Ashley Cadell
 Sugarfiend / Guven
Brent Clarke
 Sunshine On A Rainy Day / Christine Anu
Charles Fisher
 A World Away / Glenn Bidmead
Chris Harnath / Chris Dickie
 American Shoes / Motor Ace
Chris Scallan
 Act Of Free Choice / David Bridie
Craig Portells
 Strawberry Wine / Utopian Babies
Daniel Denholm
 Don't Believe In Love / Diana Ah Naid
Daniel Denholm
 Blow Up The Pokies / The Whitlams
Dave Carnavale / Damian Robinson
 Inna Styles / Wicked Beat Sound System

New South Wales

ARTIST	PRODUCER	ENGINEER	SESSION
The Vault James Cadsky +61 2 9555 8298 24 Track Vibe Box			
Lo Tek Hi Brows	Cane/Manning/Cadsky	Cane/Manning/Cadsky	Single
Phil Cebrano	Cadsky/Cebrano	Cadsky/Cebrano	Album
Mark of Cain	Phil McKellar	Phil McKellar	o/dubs
Susie Flowers	Flowers/Mogine/Cadsky	Flowers/Mogine/Cadsky	Album
Velvet Sound Recording Studios Dave McCunn +61 2 9264 3420			
24 Track 2" Analogue & 64 Channel Pro Tools Digital			
Skunkhour	Steve James	Tony Wall	Album Tracking
George	Justin Tresidder	Adrian Grigorieff	Album Tracking
Aurora	Craig Beck	Craig Beck	Album Tracking
The Mark Of Cain	Simon Townsend	Simon Townsend	Album Mixing
4 Bolt	4 Bolt	Adrian Grigorieff	EP track & Mix

Queensland

Arctic Studios Michael Flanders +61 7 3844 6990 Neve Console/MTR 90			
Matt Newnham	Michael Flanders	Jason Millhouse	New Single "Count of 3"
Digital Paradise +61 7 5527 0722 32 Track Digital Studio Full Production + Commercials			
Various	Barry Pearson	Barry Pearson	TVC Hinterland Toyota
Various	Barry Pearson	Barry Pearson	TVC Southport Mazda
Reg Keyworth	Reg Keyworth/Ian Peters	Ian Peters	Album Tracks
Client: Pro.Net International	Mike Taylor	Ian Peters	Corporate Tapes
Client: Must See TV	Cindy Donato	Ian Peters/Barry Pearson	Post TV show
Foxhole Audio Productions Mick Rayner +61 7 3262 5150			
The Flying Chimnees	Jeremy Alom	Jeremy Alom/Mick Rayner	Album Mixing
Shadow Wolf	Shadow Wolf	Mick Rayner	EP
Darren Pearce	Darren Pearce	Mick Rayner	Album Tracking
Citizen Khane	Mick Rayner/Band	Mick Rayner	
Dilap Dalup	Dale Pearce	Mick Rayner	Album
Grevillea Studios Bruce Jacobson +61 7 3262 8422			
Keri McInerney	Tony Byrne	Tony Byrne (E)	Album-Mastering
Philip Bracanin	Bruce Jacobson	Bruce Jacobson (E)	Album-Mixing
Francois Desmarais	Bruce Jacobson	Bruce Jacobson (E)	Album-Mixing
Irish Connection	B. Jacobson/R. Christie	Bruce Jacobson (E)	Alb-Mixing/Mastering
Brisbane Municipal Concert Band	Bruce Jacobson/David Jones	Bruce Jacobson (E)	Mixing Album
Stargate Music Productions Dash Mclvor +61 7 3260 6294			
Brett Goodwin	Dash Mclvor	Dash Mclvor	Album
Kelly Mellers	Dash Mclvor	Dash Mclvor	Album
Rob Black	Dash Mclvor	Dash Mclvor	Tracking
Nobza Russ	Nobza Russ/ Dash Mclvor	Dash Mclvor	Dance Project
Vandersound Studios Eric Vandersande +61 7 5546 8100 All Digital & Valve, ADAT/XT, 02R, HDR, CDR			
Oscar	Andrew Hines	Grant Walker (E)	Record & Edit Demo
Pale Horse	Eric Vandersande	Troy Adolphs (E)	Record EP
Mulch	Eric Vandersande	Nadia Loades (E)	Record & Edit EP
Lyn Dickson	Eric Vandersande	Eric Vandersande (E)	Presentation Edit
Chin	Eric Vandersande	Eric Vandersande (E)	Mix & master EP

South Australia

Fat Trax David Grice +61 8 8231 5199 Automated Music & Post			
Rhondo	David Grice	David Grice (E)	Album
J-Ded	David Grice	David Grice (E)	Album
Sacred Heart College	Kool Skools	Matt Williams (E)	Album
Fred Grice	David Grice	David Grice (E)	Album
Mixmasters Mick Wordley +61 8 8278 8506 24 Track 2"			
Brillig	Jed Palmer	Jed Palmer	Album
Jack Rabbit & The Pubic Hairs	Greg Hunt	Mick Wordley	Album Mix
E Type Jazz	Mick Wordley	Mick Wordley	Album
Kate Battersby	Ray Smith	Mick Wordley	Album
Purnland	Jack (Bad Loves)	Jack	Album Tracking



ARTIST	PRODUCER	ENGINEER	SESSION
Victoria			
Crystal Mastering Joe Carra +61 3 9326 2318 Mastering Facility			
Phil Manning	Phil Manning	John Ruberto (E)	Master Album
For Amusement only	For Amusement Only	Joe Carra (E)	Mastering EP
Snout	Ross	John Ruberto (E)	Mastering EP
P-Tex	P-Tex	Joe Carra (E)	Remastering Album
The Fauves	The Fauves	John Ruberto (E)	Mastering Single
Dex mastering Adam Dempsey +61 3 9372 2266 Pro mastering since 1982. Sonic Solutions + Sadie 24 96			
Tripod	Tripod	Adam Dempsey (E)	Live Album
Fiona Burnett	Fiona Burnett/Ben Hurt	Adam Dempsey (E)	Album
RAAF band	Graeme Lloyd	Adam Dempsey (E)	Benefit Album
Coloured Stone	Bunna Lawrie	Adam Dempsey (E)	Remastering
Various	Susan Forrester	Adam Dempsey (E)	Compilation
Lo Ricco Sound Studios Marcello Lo Ricco +61 3 9701 6220 32 Track Logic Audio Platinum/16 track ADAT			
AD	D Bleier/M Lo Ricco	M Lo Ricco (E/P)	Demos/Showcase Links
Marcus Jilla	Geoff Willis	M Lo Ricco	Mixes & Compilation
Jo Mulcahy	J Crewes/J Mulcahy	M Lo Ricco (E/P)	Single
Sarah Saunders	M Lo Ricco	M Lo Ricco	Album
Sean Clooney	S Clooney/M Lo Ricco	M Lo Ricco (E/P)	Demos
Metropolis Audio Sally Rodrigues +61 3 9696 2111 48 track Digital & MFX 3t Digital Workstation			
"Cold Live at the Chapel" Series	MCM Entertainment	Steve Delmenico (E)	Compilation Album
Chris Copping-Composer	Tim Marxsen	Simon Pavone (E)	TVC-Mixing
Madison Avenue	Vicious Vinyl	Simon Pavone (E)	Record Vox
Ipoh Music	Chong Lim	Doug Brady (E)	Olympic Ceremony Mix
The Ranch Norman James +61 3 9712 0136 Studio/Farm			
The Shenanigans	Garry King	Norman James	Children's Album
Various	A.M.M.A	Norman James	Eat'M 2000 CD
Various	A.M.M.A	Norman James	Pop Comm 2000 CD
Studio 52 Paul Higgins +61 3 9417 7707			
Freakapotamus	Chris Thompson (Triple J)	Andrew Meakes	Record Co. demo
Sentor	Chris Thompson	Andrew Meakes	Record Co. Demo
Mark Collis & Plunja	Mark Collis	Andrew Meakes	Indy EP CD
Kool Skools (Various)	Paul Higgins	A. Meakes/M. Kenny	Kool Skools Project
Big City	Big City	Mitch Kenny	Track for Sampler CD
True Form Recording Neil Gray +61 3 9391 0907 24 Track Analogue, Digital, Hard Disk Editing			
Klinger	Neil/Klinger	Neil Gray	Single
Remission	AI/Remission	Alistair Howard	EP
Squair	Neil Gray/Squair	Neil Gray	EP Mixing
Outpatients	Neil Gray	Neil Gray	Album
Wombat Rd Recording Studio Barrie Clissold +61 3 5145 4204			
24 Track Digital + 16 Track Analogue with full Digital Mastering			
John Ablett & Mary Burke	Barrie Clissold/J Ablett	Barrie Clissold (E)	Album Tracking
G Gurruthers (Acoustic Concert Band)	Band	Barrie Clissold (E)	Album CD
Tahila	Barrie Clissold	Barrie Clissold (E)	Album CD
J Taylor	J Taylor	Barrie Clissold (E)	Audio restoration to CD
J Ablett & Mary Burke	Barrie Clissold/J Ablett	Barrie Clissold (E)	Album Mixing & Master
Woodstock Studios Red +61 3 9631 9011 24 track Boutique Recording Studio			
Even	Even	Chris Dickie (E)	Album
Eskimo Joe			Single
Frank Tripolino	Joe Camilleri	Robin May	
Western Australia			
Bonsai Tom Thorpe +61 8 9246 4408 Pro Tools & analogue Studio			
True Learning Centre	Keith MacDonald/Tom Thorpe	Tom Thorpe	
Mike Blake	Tom Thorpe	Tom Thorpe	CD mastering
RPM	Tom Thorpe/Seeing Ear	Tom Thorpe	CD
Mr Mac	Keith MacDonald	Tom Thorpe	Educational CD
Poons Head Rob + Sam +61 8 9339 4791 Audio Recording, Production & Mastering			
Penelope	Rob Grant/Penelope	Rob Grant (E)	Album

David Hemming
Poison / Bardot

Doug Brady
Live At The Regent / John Farnham

DW Morton / Mark Rachelle
8 Miles High / Superheist

Endorphin
Skin / Endorphin

Garth Porter
Big River / Troy Cassar-Daley

Genevieve Maynard
She Lies / Stella One Eleven

Greg Henderson
Out Of My Head / Blush

Iva Davies
The Ghost Of Time / Iva Davies

Jonathon Burnside
Easy / Grinspoon

Justin Shave
Sittin' On Chrome / La Di Da

Kalju Tonuma
Somewhere Over The Radio / Deadstar

Kalju Tonuma
Shine Over Me / The Screaming Jets

Kevin Stanton
Let's Have A Holiday / The Silly Billies

Lachlan Gould / Regurgitator
art/Regurgitator

Lee J. Sadarkis
Metamorphosis

Lindsay Gravina / Mikey Alonso
Bitter & Twisted / Area 7

Magoo
(I Feel Like) Ringo / Custard

Magoo
My Mother Was A Deejay / Friendly

Magoo
I Love You But... / Friendly

Magoo
Homeage / Screamfeeder

Mark Ingram
Exquisite Stereo / Deborah Conway

Mark Rachelle
Don't Call Me Baby / Madison Avenue

Mark Rachelle
Who The Hell Are You / Madison Avenue

Michael Carpenter
Oberon Album / Eva Trout

Nick Hartley
I Don't Think I'm Pregnant / Diana Ah Naid

Paul Kosky
Reflector / Killing Heidi

Paul McKercher
Saturday Night Round 10 / You Am I

Paul McKercher
Society Anxiety / Sunk Loto

Paul McKercher
Non-Comprehendus / Testeagles

Peter Dacy
Imaginate / Taxiride

Peter Mayes
Sambanova / Pnau

Phil McKellar
Glokenpop / Spiderbait

Phil McKellar
Mumbo Jumbo / Tumbleweed

Phil Punch
My Blues / Bridie King

Richard Pleasance
Asleep In Perfection (Waltz) / Augie March

Rob Taylor
Love This City / The Whitlams

Sam Horsborough
Search My Heaven / Aleesha Rome

Simon Polinski
Smoke / Paul Kelly & Uncle Bill

Steve James
My Friend / Oblivia

Steve Newton
The Way It Is / John Williamson

Ted Howard
Rules Of The Road / Lee Kernaghan

The Rockmelons
Rock Me All Night / Kaylan

The Rockmelons / Peter Contini
Woo Me / Marcia Hines

Tim Cleaver
Give Up Your Day Job / The Fauves

Tim Powles
Only Good For Conversation / Stella One Eleven

Tim Whitten
The Sound / Rumanastone

Wayne Connolly
Sweeter Than The Radio / Icecream Hands



CHARTS

Compiled by Sarah Ford
sarah@conpub.com.au



ARTIST: Alex Lloyd
SINGLE: My Way Home
PRODUCER: Alex Lloyd
STUDIO: Sing Sing Studios (Melbourne)
MIXING: Tony Espie
ADDITIONAL PRODUCTION AND MIX: Ed Buller
FINAL RECORDING: Ed Buller @ Marrs (Los Angeles)
MASTERING: Steve Smart @ Studios 301
ADDITIONAL NOTES: Remixes by Alex Lloyd



ARTIST: Area 7
SINGLE: Bitter Words/Himbo
PRODUCER: Lidsay Gravina & Area 7
STUDIO: Birdland Studios
ENGINEER: Lidsay Gravina & Mikey Alonso
POST PRODUCTION: Don Bartley @ 301 Studios

West Australia

ARTIST	PRODUCER	ENGINEER	SESSION
Poons Head (continued)			
Boredumb	Rob Grant/Boredumb	Rob Grant (E)	EP
Lime	Rob Grant/Lime	Rob Grant (E)	EP
Leanne Chinnery	Rob Grant/Leanne Chinnery	Rob Grant (E)	Album
Trick	Rob Grant	Rob Grant (E)	Album
Revolver Vic Manfrin +61 8 9272 7505 32 Track Automated Analogue & Digital			
Spencer Tracy	Ben Glatzer	Ben Glatzer	Mixing
Nathan Gaunt	Nathan Gaunt/ Ben Glatzer	Ben Glatzer	Tracking
Greenroom	Greenroom/ Ben Glatzer	Ben Glatzer	Tracking/Mix
The Sleepy Jackson	The Sleepy Jackson/ Ben Glatzer	Ben Glatzer	Tracking
Love Camp 7	Love Camp 7	Vic Manfrin	Tracking
Satellite Recording Studio Darren Halifax +61 8 9470 4003 Pro Tools 64 Tracks 24 Bit			
Riverview Church	Andrew Bolt	James Hewell/Darren Halifax	TV Prog.
Jim fisher	James Hewell/Jim Fisher	James Hewell	Album
Scotty the Sexy Super Gran	Scotty	Darren Halifax	Backing Tracks
George Vegas	George Vegas	Darren Halifax	Demo CD
No Flowers	No Flowers	Darren Halifax	Album
The Sonic Lab Mark Whitehouse +61 8 9375 3902 Sonic Solutions editing system			
Storme	Evan Pritchard/Storme	D. Morrison/M. Whitehouse	Mastering
Flavour of the Month	Grant Ferstat/Ben Glatzer	B. Glatzer/M. Whitehouse	Album Master
Trent Humphries	Trent Humphries	T. Humphries/M. Whitehouse	Album Master
Trinity College	Robert Braham	Mark Whitehouse/Cliff Blackburn	Rec/CD Mastering
Sleepy Jackson	Ben Glatzer	Mark Whitehouse	CD Mastering



BASF YOUR MUSIC IS SAFE WITH US

YOUR BASF TRADE SALE OUTLETS:

NSW:

Audio Visual Designs (02) 9281-2444
Silver & Ballard (02) 9439-5355
Independent Tape Services (02) 9436-0666
MT&A (02) 9310-2799

VICTORIA:

CATS (03) 9529-3177
Chapple Tape (03) 9580-6620
DEX Audio (03) 9372-2266
MT&A (03) 9819-6455

SOUTH AUSTRALIA:

Adelaide Tape Duplicators (08) 8212-7111
Pro Media (08) 8276-6793

WEST AUSTRALIA:

Ausmag (08) 9314-1953
Pro Copy (08) 9375-3902

QUEENSLAND:

Musiclab (07) 3252-2188
Tek (07) 3239-4000

ARTIST: Friendly
SINGLE: I Love You But...
PRODUCER: Andrew Kornweibel
STUDIO: Home Studio
ENGINEER: Magoo
PROGRAMMING: Andrew Kornweibel
MASTER Kathy Naunton at db Mastering
ADDITIONAL NOTES: Additional production & remixes by (love) tattoo, Pauly B and General Elektrik



Be in the BASF Tracking Guide - contact Sarah on +61 2 9876-3530 or email sarah@conpub.com.au

IEM! In your ear

In Ear Monitoring

by John Grimshaw

In the past the limitations of foldback wedges, feedback and even the venues that are played in all tend to make the job of the monitor engineer very difficult.

"In-Ear" monitors have changed all that. They've become flavour of the month for musicians to hear what they want. Best of all, they cut down on stage noise. They have also become popular for use during live performance for one-way communications situations and cuing.

AKG IVM-1



AKG's "Individual Monitor System" is a fixed, 16ch UHF, stereo monitoring system. The 1RU transmitter is half a rack space wide, allowing for two devices to be mounted side-by-side. The transmitter has more built-in functions than most of the other systems viewed for this comparison.

One of these functions allows the user to process the incoming audio signal to simulate a "spatial" environment, avoiding the acoustic phenomenon that seems to aurally place a standard stereo signal in the centre of your head. There are eight of these IVA modes, as well as EQ curves, ambience room simulations, panorama (simulated distance between the monitors) and level control.

This level of audio control can extend the set-up time of this system, but it has the potential of removing several other pieces of processing equipment.

The receiver is a very compact unit with an all-metal case. The recessed power switch, pan pot, volume dial and channel controls are all designed to avoid accidental knocking. It has a very high

As a direct result, the monitor engineer has to provide the musician with a stereo mix - that includes audience ambient microphones- so they can hear the hecklers! Reverb, too.

There are now many more companies making In-Ear systems than only a few years ago. Only UHF systems are recommended.

To help get a perspective of what is on offer out there, Connections has put together a brief tour of some of the options. *These are not ALL the systems out there, just the ones we know of.*

powered output that would be capable of driving a wide range of ear piece impedances.

Some Specifications

UHF Freq Range	800.025 to 819.4 MHz (in Australia)
Channel Type	16 ch - factory defined frequencies
Audio Output	0 to 800mV rms into 2 of 50ohm ear phones
Batteries	3 x AA (typical life 6-10 hours depending on volume)

Price A \$4,723, from Audio Products Australia.
(Price includes transmitter, receiver and recommended earphones)



DB Technologies IEM-2000

The DB Technologies UHF transmitter is a full width, 1RU device, with 16 pre-programmed frequencies. The setting of operating frequency and stereo/mono mode is via push buttons on the front panel. Large LCD displays operating frequency, input level and mono mode (if selected).

The receiver has an in-built LCD display, showing operating frequency and RF signal strength. Push button controls are used to set the operating frequency and stereo/mono modes, and a switch to select between stereo or mix modes. Plastic, impact resistant case.

Channel Type 16 ch - factory defined frequencies

Price A \$1,995 from C.M.I.

Just as we were going to press, dB Technologies released their new In-Ear product. Though it was too late to make an examination of the actual unit for these pages, we have included some of its specifications...



Some systems detailed

Garwood "Radio Station" and "System 2"



Some Specifications

UHF Freq Range	Supplied on request
Channel Type	1 or 2 ch – factory defined frequencies
Batteries	1 x 9V
Price	System 2 A\$3,669
	Radio Station A\$7,695
From Production Audio Services. (Inc transmitter, receiver and earphones)	

Garwood is one of the original names in In-Ear monitoring, and is often considered the "Roll Royce" of the In-Ear systems. The transmitters for each of these systems are 1RU high, with the Radio Station model being full width, and the System 2 unit being half width (The picture shows a pre-drilled panel ready for two units to be placed side-by-side). These systems are not frequency agile like the more recent options. Radio Station can send on either of two frequencies, whereas the System 2 can only send on one factory pre-set channel.

The receivers are small, metal cased and simple to use. Simple on/off toggle switch and volume controls are all that the performer has to play with. These units are very robust, and able to deal with a wide range of ear phone impedances.



IDS is Garwood's frequency agile version – which is remarkable in the sense that it can be used anywhere in the world. All you have to do is tell it what country you are in. Hang on to your hat though, because at \$15,289 list price each, they are a touch pricey.

Shure PSM700 Transmitter and P7R-HF



Shure's system is one of the easiest to use of the ones supplied for the comparison. The transmitter is a 1RU high, half-width unit with few control options. The front controls consist of an input volume control, mono/stereo switch, local headphone level control, channel and power switches. There is also an eight segment stereo VU display. Neutrik Combo connectors allow connections via 6.3 mm (1/4") jack or XLS connectors.

The channel configuration on this unit is quite elegant. There are 16 available channels to choose from, each of which being able to switch between two frequencies. This gives the unit a total of 32 accessible frequencies. More importantly though, this feature allows the user to easily switch between two frequencies to allow monitoring on either on without the need of a screwdriver to change the channel.

The receiver is enclosed in an all-metal body, with only the dual power/volume control knob and balance control externally

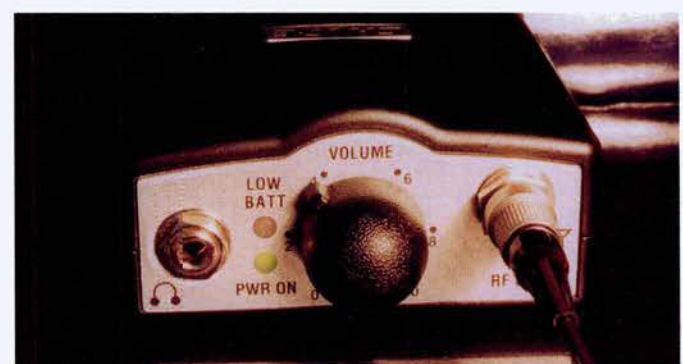
available. Inside the battery compartment are the channel, stereo/mixmode, simple EQ and volume limiter switches. MixMode is a same feature described as "Focus" in the Sennheiser equipment. There are separate LEDs for power, RF reception and Batt Low.

Shure also make cheaper models of In-Ear monitors. These include the PSM400, available at \$2,150 and the PSM600, available at \$3,135.

Some Specifications

UHF Freq Range	722.325 to 745.675 MHz (freq of product supplied)
Channel Type	16 ch - two factory defined frequencies per channel
Audio Output:	290ohm ear phones supplied
Batteries	1 x 9V (typical life 4-6 hours depending on volume)
Price - PSM700	A\$5,350 (for transmitter and receiver)
- E1 Ear Phones	A\$445 (single driver Ear Phones)
- E5 Ear Phones	A\$1380 (for the dual driver E5 Ear Phones)

From Jar ds Electronics.



Sennheiser ew300 IEM



The Evolution Wireless In-Ear Monitoring System by Sennheiser is their newest option. The transmitter is a 1RU, half rack width unit, with a backlit LCD display, and three buttons that control all of the unit's options. The three buttons drive a menu-based system for selecting the various options available. These options include being able to define the specific frequencies to be used, and assign these to one of eight channels. The transmitter can also be assigned a "Name" which can be displayed in the LCD panel – good for quick referencing a particular performer on their monitor.

The receiver is a metal cased device with a plastic sliding window, allowing the in-built LCD to be seen – but not easily damaged. A similar three button programming system is used on the receiver, and additional controls include squelch, volume limiter, stereo/mono selection and locking function.

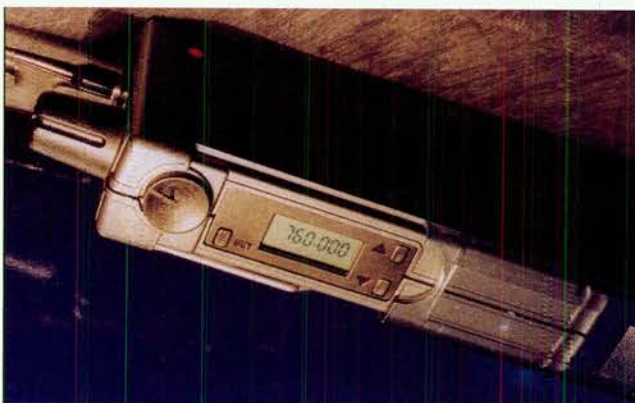
A feature called "Focus" is available on the menus. This allows two different audio channels to be combined to form a mono signal, thus making the balance control able to control the mix of the two signals. This could be useful if you send say vocals on one channel and instruments on another – the user can then use the balance control to mix how much of the vocals or instruments can be heard.

A robust, large external knob provides a dual on/off and volume control for the unit. There is a combined On/Battery Low LED and a RF signal LED.

Some Specifications

LHF Freq Range	740 to 772 MHz (freq of product supplied)
Channel Type	8 ch – each can be a user-defined freq
Audio Output	≥100mW at 32ohm ear phones
Batteries	1 x 9V
Price	A\$1,799. from Syntec International

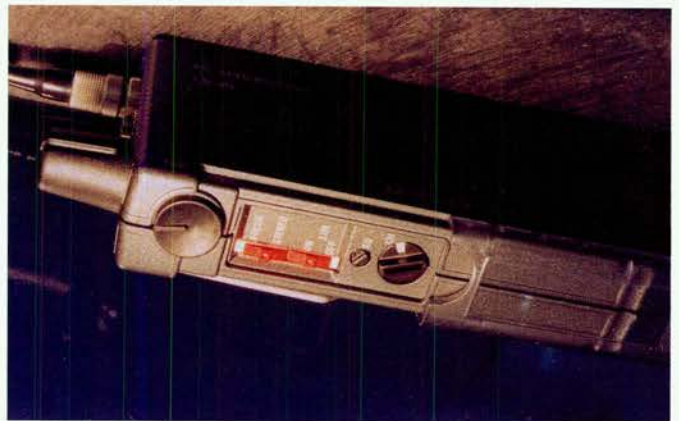
(Price includes transmitter, receiver and recommended ear phones)



Sennheiser SR3054-U and EK3053-U

This Sennheiser system is nearly identical to the newer Evolution series, except that it is capable of selecting any one of 16 channels. The 1RU unit is available as a single transmitter or as two separate transmitters in the one box. The transmitter also employs the three-button control system as described for the Evolution. It also has two LED displays showing the transmitted AF signal (much like a VU display), and a power level for the RF output.

The receiver (EK3053-U) is less intelligent than its Evolution cousin, with the 16 channels being pre-defined by your supplier. The channel selector is behind a sliding plastic cover, along with stereo/focus and output volume limiter switches. As for the Evolution unit, a robust, large external knob provides a dual on/off and volume control for the unit and there is a combined On/Battery Low LED and a RF signal LED.



Some Specifications

UHF Freq Range	702.1 to 725.7 MHz (freq of product supplied)
Channel Type	16 ch – factory defined frequencies
Audio Output	≥100mW at 32ohm ear phones
Batteries	1 x 9V
Price	\$5,357

(Price includes transmitter, receiver and recommended earphones)

In Ear Issues!

- Custom ear moulds are VERY desirable. Take the standard earpiece to a hearing aid company and see what they can do. One in Sydney is Ternan Danavox, call +61 2 9516 2888.
- Mix in STEREO- you need more busses. Reverb is useful too.
- Extra limiting is a VERY good idea. Avoid hearing damage.
- A hard wired backup beltpack for EVERY user is also a VERY good idea. Most suppliers do offer this.
- Check other frequencies in use nearby, ie: instruments and wireless microphones. Know your frequencies!
- Change the batteries EVERY gig, despite what anyone says!

Ten MILLION Watts

And a cast of Ten Thousand. The largest show on earth is just a few weeks away. Connections enters the Ceremonies bunker to sample the nervous tension.....

The Opening Ceremony of the 2000 Sydney Olympics is the largest performance ever staged, and might never be topped for scale. It is easily understood how the interest attached to the Opening and Closing Ceremonies of the 2000 Sydney Olympics grows at an ever increasing pace, held in the largest stadium with the greatest media interest, and before the largest television and cable audience ever. This is a tornado, a perfect storm, and an earthquake, all cued to go off at once.

It's well known that Australian born Ric Birch is Director of Ceremonies at the 2000 games. He alone has headed more of these events than any living human - and has adroitly navigated through many boring months of petty Games scandals and political curve balls. Now he has delivered a pre event state of organized mayhem, where the organizational totem has the matrix all working as planned. It's a management system that has been developed over two decades of mega- events.

The bunker is sedate, with a theatrical backstage feel. More than 120 work stations are crammed into a concrete space under the East stand of Stadium Australia, in what may be a dressing room space in another time. A cafe is sighted near the entry, white boards, schedules and the driftwood of a transient crew pack the



Ric Birch

foldup trestle desks and overflowing filing cabinets.

We've negotiated this story for months, passed through three levels of security and signed things that would make our lawyer blush. We understand how the team in the bunker DO NOT WANT details of their segments and performance to become known. We've held the line and kept quiet against a growing tide of rumour, resisting the urge to tell you what we thought we knew, what we thought you knew, or what we heard while propped up against a green room bar. All of which may or may not have been correct. So we stick to the source. Our emails are cc'd to Ric Birch, and he is finally worn down - or worn out.

So inside the Bunker, finally, and Technical Director Morris Lyda is coming down to talk to us. He is riddled - crippled - with the flu. Eye watering, throat constricting, sneezing, dribbling up-to-bed-now type flu. Don't come near me, Morris! But he want's to give Connections readers the broad brush stroke on what is happening. We are honoured.

Lyda is one of the top three production manager's on the planet. He is Texan, or was, since he married an Australian girl and now calls this other big country type of place home. His resume features some of show history, including those immortal production icons Pink Floyd. In nature he is measured and sharp, hiding behind the drawl.

Working under Morris is Malcolm White, in charge of Operations. Operations is in charge of anything that needs to be moved or powered, and oversees venues and logistics. Morris's other realm is the Art Department, headed by Brian Edmonds. The Art Department has over 100 people attached to it, and it includes all of the props, scenery. Essentially anything built or made with metal, fabric, wood or paint. Costumes are also a part of the Art Department, and the Costume Department is headed by Paula Ryan.

Here's the scoop: if the Opening Ceremony is a mind blower, then the Closing Ceremony will be tenfold harder to pull off. This is because the team have just thirteen hours to set it up! Opening has two weeks, along with several soon to be announced dress rehearsals. "We don't get access to the Stadium until September first" says Morris.

After the Atlanta Olympics in 1996, where Ric Birch produced the hand-over ceremony, we asked him what he looks to achieve in a ceremony. "In the simplest form, to be true to the whole city. Ceremonies have to achieve all the requirements of the Olympic character, and the traditions. We start with a script, and everything else unfolds from that". (You can read the Atlanta story at: <http://www.conpub.com.au/conmag/oct96/atlanta.html>).

Before Atlanta, Ric Birch ran the Ceremonies at Barcelona in 1992, for Expo 88 in Brisbane, and was instrumental in the 1984 LA Olympics Ceremonies.

In Sydney Morris Lyda stresses the isolation from the world production community. "We are deeply self sufficient here, at the end of the food chain". Technical contracts were let with local

suppliers, who rely on overseas equipment being shipped down. Much of the lighting rig was sourced from German production giant Procon - as the overall design simply exhausted resources available in Australia and from the primary contractor, Bytcraft. Procon have much inventory based on High End Systems branded automated lighting, although no announcement of what is actually specified for Sydney has been made.

Lighting Designer John Rayment and Lighting Director Rohan Thornton will preside over the largest single show ever lit in the world, with Bytcraft supplying equipment, support, logistics and crew. Durham Richie and Paul Rigby are fronting the Bytcraft team.

The audio system for the Olympics was reported in Connections (May this year) and is designed and operated by legendary sound engineer Bruce Jackson. It is based on EAW branded loudspeaker systems, and supplied by Sydney firm Norwest Productions, whose additional inventory has propelled them to third largest sound production company in Australia. Steve Law is shepherding the audio implementation, "Chris Kennedy (Norwest CEO) has done a brilliant job bringing in support from EAW" says Morris.

Klotz Digital have recently been contracted to provide digital audio processing equipment. They have had an Australian office established for some time, headed by Wil Stam, and have some innovative technologies that we will examine in a future issue. "The Klotz system offers greater flexibility than many other systems," says Lyda.

The provision of electricity is a major issue at a large show. Ceremonies have projected their power requirements, and compared these projections to the power available at Stadium Australia. For example, the Stadium's sports lights will not be utilised during the Ceremony, therefore, the show will utilise about 70% of the electrical supply normally devoted to the Stadium's sport lighting.

Based on measurements made by Energy Australia during sport events, it was determined that the Stadium uses 40% of the total power available from the grid. The Stadium's supply is roughly 17 Mega Watts, of that they need about 5-6 Mega Watts for an event.

Bytcraft then performed on-site measurements during sporting events to determine where the power was utilised. Based on these observations, Ceremonies has been able to effectively utilize all of the Stadium's underutilised power and avoided the acquisition of additional power generation.

The ten million watts consumption figure is what Ceremonies calculates it will require to power the show, and this figure is down from the thirteen million estimated by the team in earlier planning.

One big - major - aspect of the gig is Communications. At Barcelona, 350 walkie talkies were used. The requirement for this opening Ceremony will be larger, and will use comm's more

effectively. The competition for spectrum in an already crowded bandwidth is as serious as the 100M sprint. Within SOCOG (Sydney Organizing Committee for the Olympic Games) the enormous job of frequency management is left to the Technology Division.

Morris's Comm's guru, Laurence Estrin, has a major gig in front of himself, and were it not for his experience at the LA Games, Barcelona, and years of sport and public mega-events, he might be very depressed. Working with local contractor P.A. People, he is confidently progressing toward a totally connected Ceremony.

Other departments include rigging, headed by Reg Dew, with infrastructure coming from Adelaide Festival Trust and APC. As the clock winds down, the activity reaches fever pitch.

Morris has a good handle on things. Two random comments: "There is no economy of scale if there is no scale", and - asked about the impossibly tight timeline for setting up the closing ceremony: "We'll just get into it with gay abandon!"

The only unresolved problem facing the team is just who will organise the after party!

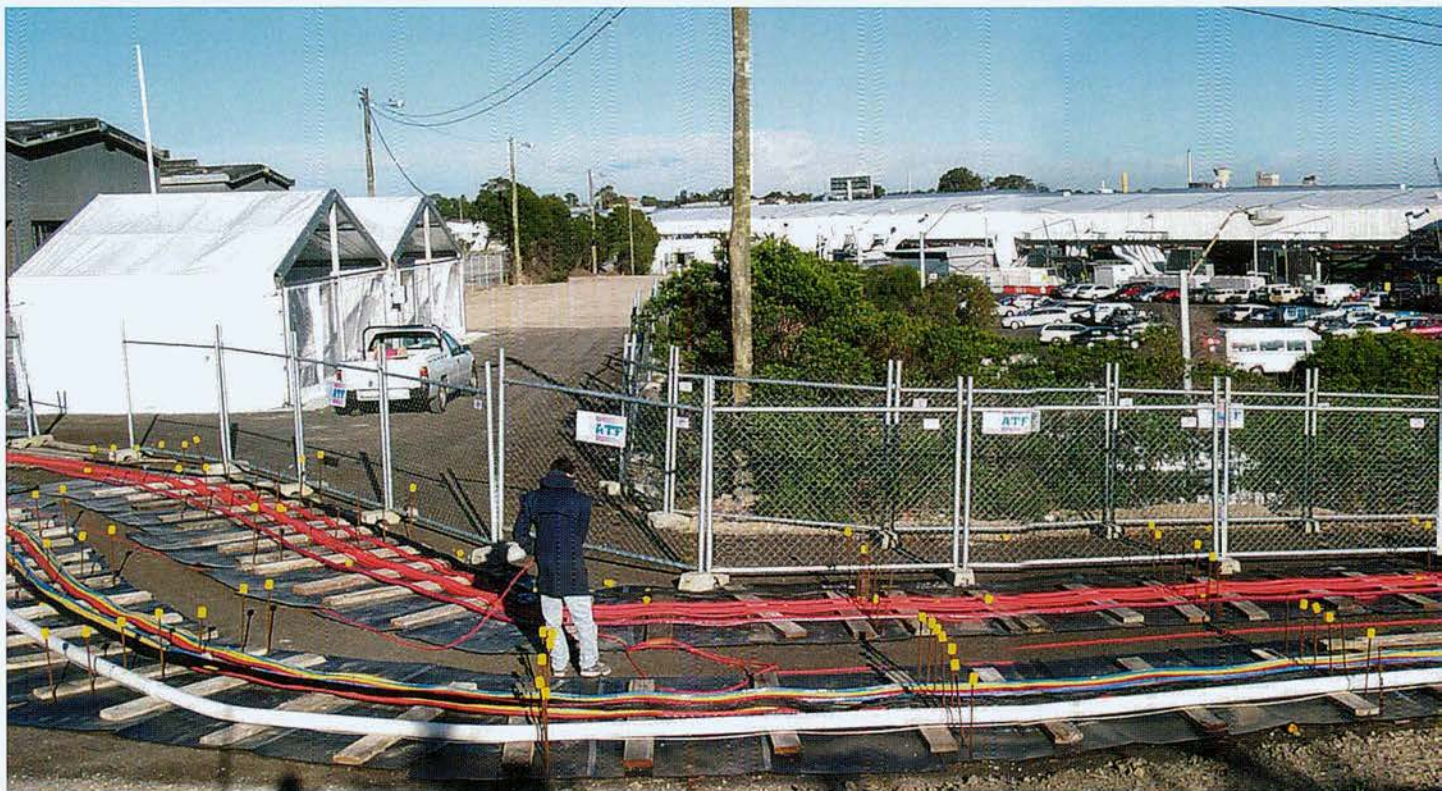
By Julius Grafton



Morris Lyda

NEXT PAGE:

BROADCASTING THE SYDNEY OLYMPICS



BROADCASTING THE SYDNEY OLYMPICS

Facts and Figures

- Olympic broadcast centre for 190 Rights Holding radio and television organisations.
- 35 Rights Holder studios.
- 1,600 broadcaster rooms.
- 402 monitor video wall.
- 350 tonnes of electrical, video, communications, earth and power cables.
- Enough power to light a town the size of Bathurst (approx. 30,000 people).
- Satellite Farm with 15 satellite earth station dishes.
- 22 metre Skytower.
- Monitoring up to 40 simultaneous Host Broadcast sports signals.
- Largest Rights Holder space - EBU 13,000 square metres.
- Smallest Rights Holder space - Estonian Radio 8 square m.
- Two food courts, a restaurant and a bar able to service up to 2,500 people at a time.
- 17 magnetometer and security bag checks.
- 1,500 doors.
- 18,000 square metres of painted surfaces.

Perhaps the most complicated temporary broadcast installation ever attempted is currently being commissioned for the Sydney Olympic Games. It is organised by the Sydney Olympic Broadcasting Organisation (SOBO) - the Host Broadcaster for the 2000 Sydney Olympic Games.

SOBO is a full service broadcast company that has been created by the Sydney Organising Committee for the Olympic Games (SOCOG). The 2000 games may well have an event called 'acronymy's'!

As Host Broadcaster, SOBO will televise every Olympic event. This coverage is provided as a service to broadcasters who have purchased the Olympic television rights from SOCOG and the International Olympic Committee (IOC). These television organisations are called Rights Holders.

To televise the Olympics, SOBO will employ more than 3500 staff, 200 of whom work full-time in the eight main function areas; Executive, Production, Technical Operations & Engineering, Broadcast Information, Support Services, Venue Management, Business Affairs & Personnel and Booking.

From the 13th of August to the first of October, SOBO will be one of the world's largest television organisations. This massive personnel force will work at every Olympic venue and at the International Broadcast Centre (IBC).

The IBC (pictured above) will be the headquarters for the Olympic television operation. Situated directly to the west of the

Olympic Stadium at Sydney Olympic Park, the IBC will be the largest in Olympic Games history. It will consist of more than 70,000 square metres of television facilities, including; videotape edit suites, control rooms, studios, transmission capabilities, booking, information and logistics offices.

About the IBC

The International Broadcast Centre (IBC) is located in a large warehouse complex between Sydney Olympic Park and the Olympic Village, it is the headquarters for the host broadcaster of the Games, Sydney Olympic Broadcasting Organisation (SOBO) and the 190 plus Rights Holding broadcast organisations.

From the 13th of September to October the first, the IBC will be the centre of Olympic television and radio operations, containing studios, technical and production facilities. Operating 24 hours a day, the IBC will be home for the 15,000 plus Sydney Olympic Games broadcast personnel. It will accommodate an average working population of between 6,500 and 7,500 a day.

The complex is comprised of one main building (58,000 square metres) and two support buildings (9,000 square metres). The IBC will provide broadcasters with easy access to 15 Sydney Olympic Park sports venues, as well as the Main Press Centre (MPC), Olympic Village and Opening and Closing Ceremonies.

For the first time in Olympic Games



This is looking at the rear of the IBC, from the Olympic Stadium, which is 150m behind our spy photographer. The cables go up a bridge, unseen at left of the shot, into the Stadium.

broadcasting nine digital control suites and the broadcast compounds for athletics (Olympic Stadium) and gymnastics (SuperDome) will be located within the IBC site. This provides broadcasters with an unparalleled level of security and superior facilities. In addition, the IBC will be connected to the Olympic Stadium by footbridge and to the SuperDome by a tunnel, ensuring ease of access and greater convenience for accredited personnel.

An additional imposing structure on the IBC site is the 22 metre high Skytower. Situated between the main building and the smaller IBC building, Skytower contains three glass fronted studios with a spectacular view of the Olympic Stadium and Sydney Olympic Park. It also has a bookable stand up position and doubles as a microwave dish mounting and radio frequency blimp and helicopter tracking facility.

Another feature of the Sydney 2000 Olympic Games IBC is the world's largest monitor wall. Located in SOBO Tech at the centre of the IBC, the monitor wall displays all television coverage from venues, including unilaterals (Rights Holder) cameras and every signal distributed by SOBO to the broadcasters in the IBC.

Containing 402 individual screens, the wall will be more than 50 metres long and approximately two and a half metres high.

The IBC receives SOBO's host broadcast signals from all Olympic venues, monitors them and feeds this coverage to the Rights Holding Broadcasters throughout the IBC.

Transmission Centre

Broadcast signals being sent by Rights Holding broadcasters to viewers all over the world will pass through the SOBO Transmis-

sion Centre. Transmission from there can be arranged through telecommunications partner Telstra. Telstra can provide circuits via international optical fibre, through satellite uplinks from their major earth stations or from antennas installed at the IBC satellite dish farm.

Commentary Switching Centre

All commentary circuits from venues are received by the Commentary Switching Centre based in SOBO Tech. A Rights Holder commentary at a venue, travels via a four wire circuit, back to the IBC Commentary Switching Centre and then is passed on to the Rights Holder studio area in the IBC and ultimately on to the Rights Holder's own country.

Operations Centre

The Operations Centre at the IBC is the main broadcast status reporting control point for all broadcast related activity at the venues and IBC. All problems, concerns and activities that relate to broadcast venue operations will be reported on a daily basis to the Operations Centre and directly to the SOBO Executive.

To ensure the integrity of the production of the host broadcast International Signal, SOBO's 40 feeds from all competition venues are monitored by production staff for quality, consistency and continuity.

Archive Library & Logging

All live feeds will be recorded by SOBO at the IBC, via the distribution system and each feed will be allotted to one of 40 logging stations. All feeds will be logged and archived and following the Games will be sent to the Olympic Museum.

- 35,000 square metres of ceiling tiles.
- 60,000 metres of carpet.
- 1,800 smoke detectors.
- 300 km's of power cable.

SUBSTATIONS

- 3.6 mVA Substations x 5
- 1000 kVA Substations x 2
- 1.5 mVA Substations x 1

INSTALLED POWER

- Technical Power 5.5 mVA
- Utility Power 2.2 mVA
- Air Cond. Power 8.3 mVA
- Power for retail areas and food courts 4.0 mVA

BACK UP GENERATORS

(1750kVA) x 1C

UNINTERUPTIBLE POWER SUPPLIES (No break power)

- 300kVA x 1, 500kVA x 1

9 KILOMETRES OF CABLE TRAYS

ELECTRIC OUTLETS

- Technical power 5,000
- Utility power 3,000
- Telephone outlets 3,400

AIR CONDITIONING GEAR

- 20 x Air cooled screw chillers
- 7 x Air cooler chillers
- 50 x Air handling units

Signal Processors

(Part 2, Extract 28)

Compressor/limiters - Where do you use them?

Compressor/limiters can be placed almost anywhere in the signal chain from microphone preamp to before the amplifier. Big touring systems have lots of them, because the bigger the system is, the easier it is to overdrive it.

Where a small system will probably just have one over the main outputs, as system protection, a larger system may have one on each output of the crossover, one on each monitor send, one on the Drum group, individual vocals, Bass, and a stereo pair on the main Left/Right outputs from the desk.

You can insert a compressor wherever you need to control levels Without having to gain ride the faders all the time. To experiment with them, set the main system compressor on 0 dB Threshold, a Ratio of 3: 1, and 0 dB output, and play a tape through the system, pushing up the level until the compressor's metering tells you it's compressing. Now vary the Ratio, from 3:1 up to 10: 1, and listen to the difference. Try varying the other controls until you are familiar with what each one does. In the use of compressors especially, the more you know about how they work, the better you can use them to keep the mix under control but still loud and up front.

When you feel comfortable using compres-

sors in the mix, you can let them look after the housekeeping while you look after the window dressing - setting up delays, reverb, stereo panning, solos, looking cool, that type of thing.

If you've only got one compressor, try using it over the whole mix at about 3:1 ratio. The improvement on no compressor is amazing - the whole mix improves because any sudden loud parts are pulled back before they get too loud - automatically. If you're running stereo, it's the same thing times 2, but make sure they track together (see Stereo Link switch above).

Tracking together means one channel usually controls the dynamics of the other. In real terms it fattens up the bottom end and keeps your stereo image centred.

If your system is too small for the venue you can still keep some impression of big and loud by increasing the compression ratio to about 10: 1. Now it's a limiter. This is going to soak up any peaks, so you can push things harder, raise the compressor output a couple of dB (more on this later), and keep the whole mix a lot louder. However, only one thing at a time is going to be up front.

Why is this so? Well, one thing you have to remember is that compressors are not infallible. With Live music being what it is - Live - most compressors make a pretty good job of keeping a constantly changing, unpredictable signal under control. But they can be easily fooled. Whatever is loudest in the mix will trigger them, and attempt to push out the rest.

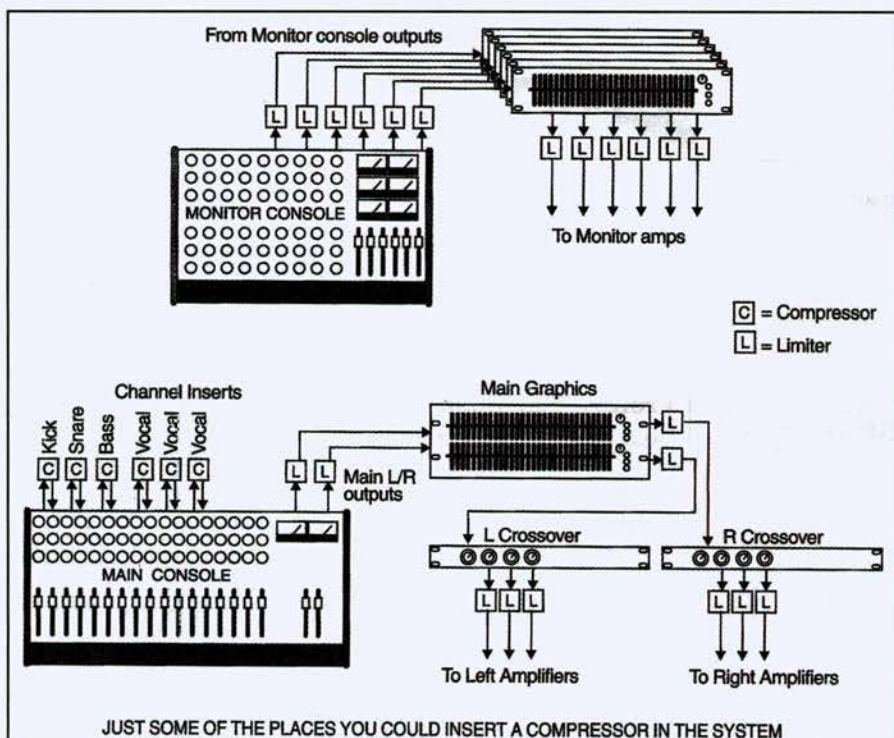
So, when there's vocals, they take over, and when there's not, the band shifts up front. Instantly. You just couldn't move enough faders manually that fast. You are compromising the sound, sure, but you are getting the gig done. Just make sure the whole thing is not being modulated by the kick and snare drums. Otherwise, everything but those drums will drop out momentarily on each beat.

If you have more compressors, say four, then you can put one on the kick drum, one on the lead vocal, and one each on Left and Right.

That way you can have a big kick sound that's really up front but not overpowering, and vocals that can be loud but not so loud that they push everything else down on a loud scream. Start at about 3:1 and experiment; too little compression and the levels will be too uneven; too much and die sound will be strangled.

EXTRACTED FROM DUNCAN FRY'S BEST SELLING BOOK, 'LIVE SOUND MIXING'.

©Duncan Fry 1998.
ISBN 0 646 11235 X.
Retail price A\$41 inc gst, \$39 export.
Available from book stores and music shops around the world, or from the Connections Shop, call 1-800-635-514.



Classifieds

Only free if lodged by email, fax or post: email nic@conpub.com.au, fax: +61 2 9876-5715, Text: first 15 words free, then \$16.50 next 15 words, then Post-PO Box 439, EPPLING NSW 2121 Aust. Display/paid classifieds: call Sarah, 1-800-635-514 .60c per word after that

VIDEO

Blue shadow Productions
TV and Video Production
Specialists, Equipment
Rental, Event Manage-
ment, Themeing and DJ.
PH: 0413 949 732

Employment

Casual Lighting Operators/
Programmers required for
busy production
Company. PH: +61 2 9311
1197 FAX: +61 2 9661
7110

Walk-In Engineer with
ABN for regular live gigs,
Norther Rivers NSW. CV's
to PO Box 92 SEA-ORTH
2092 or
outofsightaudio@hotmail.com

For Sale

AAAfter a certain piece of
gear or have some to sell.
Call Neil @ Cannon Sound
on (02) 9948 4440.

Acoustic Technologies
BB03 1800W Double 18"
front loaded subs. Ex
Demo Stock, Mint
Condition. Great attack,
clean, punchy, amazing
sound. \$5200 pair

negotiable. Phone +61 2
9416 4834

Aftermarket quality
replacement diaphragms.
From \$60 (incl GST), to
suit many popular 1", 1+1/
2" and 2" drivers including:
Altec, Acoustician, Coral,
P.A.S., P.Audio, Zomax
and around 20 different
JBL models (ie. JBL 2416

[MR Series and EONs],
2440, 2441, 2445H,
2445J, 2446H, JBL LE85,
2470, 2421, 2421B, 2420,
2425H, 2426H, 2426J,
2412 [TR Series] etc) Next
day delivery Australia-
wide. See Spec Table at
www.cannonsound.com.au
or call (02) 9948 4440.

AKG D112 microphone
\$300, as new, PH: +61 3
6331 3370

Altman Leko exhire
clearance. Heaps in
stock...models include
6x4.5, 6x9, 6x12, 6x16,
6x22. \$115 each (incl
GST). Call (02) 9948 4440
or email
sales@cannonsound.com.au
for a complete list.

Amplifiers ARX
SS1200VC 600 watts
perchannel 2 Units high.
\$900 Coastal Sound PH:
+61 2 6564 7517

Amplifiers. Jands 920
500w + 500w. Delivered to
your door Australia-wide
\$600 each (incl GST).
Value at around \$0.50 per
watt. Getting down to the
last! Cannon Sound (02)
9948 4440.

AMS1680S Harmonizer.
Rare..hard to find.. be
quick! \$6000. Cannon
Sound (02) 9948 4440.

Beyer DT100 Headphones
for \$60 (incl. GST).
Limited number
available..don't delay.
Cannon Sound (02) 9948
4440.

Bruel & Kjaer 4021.
These are a classic
microphone used for
recording cellos. Lot of 6
for \$8000 (incl. GST).
Huge ex-hire clearance -
call for a complete list.
Cannon Sound (02) 9948
4440.

BSS DPR402 2 channel
compressor \$1100 (incl.
GST). Cannon Sound (02)
9948 4440.

Sole Agency Opportunity

- Professional Audio
- International market leader
- Sole agency for NSW and QLD

This is a unique and excellent opportunity to win the sole agency for a well known and recognised high quality professional range of audio equipment.

This agency is well suited to either a dynamic and pro-active person wanting to start their own business or to an established company looking for additional opportunities to develop an exclusive range.

Full product support and assistance will be provided by the local Head Office of this international company and a generous commission scheme is offered.

To be successful with this agency you will have established networks and high standing in the professional audio marketplace. Technical capability and knowledge, and demonstrated capacity to market these products effectively will be important.

To express your interest in this opportunity, contact in confidence Ken Lucas, swa@swacorp.com.au phone on (03) 9525-0066 or Freecall No 1800 819-113, fax to (03) 9525-0088 or mail your detailed resume.

Interviews will be conducted in Sydney.



**SOUND &
LIGHTING**
Hire, Design, Sales
Installations, Service

47 Auburn Street, Wollongong
Ph: (02) 4229 6010

NEED CREW?

Staging * Lighting * Sound

LIVE CREWING can provide you with
experienced crew for your Concert
Productions, Press Conferences, Launches,
Corporate Seminars etc.

Office (02) 9792 7770 Fax (02) 9792 6660
Contact Fred Ward Mobile 0418 212 431



Professional Audio and Lighting Sales, Service and Production

2 Bridge Street,
Rydalmere NSW 2116
Ph: +61 2 9638-0302
Fax: +61 2 9638-0331
hire@lotsofwatts.com.au
www.lotsofwatts.com.au



The gobo Factory

GLASS  STAINLESS STEEL

Custom-made and Catalogue Range
Customised Message & Theme Sets

Quality, Service and Competitive prices

Ph: 61 3 5439 3770 Fax: 61 3 5439 3601
Email: gobos@netcon.net.au
Website: www.gobo.com.au

Bose 1800 P/Amp \$800, H/H M900/V800 P/Amp \$900, Jands M600 P/Amp \$750, Crown PB2 P/Amp \$1100, Crown MA2400 P/Amp \$2000, Peavey Autograph RTA \$495, EV 2230 27 band G/Eq \$450, LEM GE 10/10 Dual 10band G/Eq \$200, Precept 24 24 ch Analogue Desk in R/case \$1195, Quadpack 4 channel Controller harmony 22/40 1K Profiles \$350, ZS1200W 1K Profiles \$350, 6120 Audio Telex 1:3 16x High Speed Cassette Copier and Rewind Bank - All Test and Alignment Tapes, Service Manuals - Excellent condition - Replacement Value \$16 000+ \$8000. All items in good to excellent condition. All prices negotiable/All reasonable offers considered/Discounts for multiple items. All Prices inclusive of GST Ring Lindsay or Frank +61 2 6242 9955

Byron Music Nth Coast Leading musical instrument outlet. Sales service Tuition Worth the drive PH: +61 2 6685 7333 Now!

Clair Bros SLP concert wedges loaded. 2 in

each roadcase. 11 pairs available @ \$1550 (incl GST) a pair. Clair Bros R3 - containing 2 x JBL E140, 1 x JBL2445 on flair. 4 available @ \$1100 each (incl GST). Cannon Sound (02) 9948 4440. Huge ex-hire clearance - call for a list!

Clay Paky 4 x Miniscan 300's \$1000 each. PH: 0417 858 456

Drawmer DS201 2 channel gate \$1100 (incl. GST). Cannon Sound (02) 9948 4440.

Followspots (2) Ultra-arc 350 medium/short throw complete with stands. \$500 each PH: +61 2 9698 3288

Fostex E16 16 Track Tape Machine with remote \$1500. PH: +61 2 9555 1710

Intelligent Lighting 4 Very good condition Geni Shiva Scanners. <http://jason.freeseervers.com>

Jands 14 RU amp racks in cases \$225 each (incl GST). Huge ex-hire clearance - call for a list. Cannon Sound (02) 9948 4440.

Jands ESP II 24 Digital lighting console. Excellent condition includes hard case.

\$2500 PH: +61 2 9311 1197

JBL Control 5 Speakers \$170 (incl GST) - 6 available. Cannon Sound (02) 9948 4440.

Loudspeakers: JBL 'Soundpower' 2x12" & 2" horn, P.Audio loaded, 6 months use, \$600 ea, JBL 15" & horn wedges, \$300 ea, PTM 950W power amps, \$600 ea, Ph: +61 3 6331 3370

Make an offer - save \$\$\$ Before you buy dimmers, lights, lamps-anything. Go to www.creativelight.com EG: controllers and DMX512 Dimmers - only 8 weeks use. Available Nov 1st, be quick to pre-order!

Microphone ex-hire clearance. Includes quantities of: SM57s, EV RE20s, AKG D-12s, Shure 55SH (Elvis/Buddy Mic), AKG C-535s, Sennheiser MD-421s & MD-441s, Shure SM 10-A Headset Mics & too too many more to mention. Call (02) 9948 4440 or email sales@cannonsound.com.au for the complete list.

Multicore 19-way 72M \$420 each - 4 in stock (incl. GST). 19-way 38M \$280 each - 4 in stock (incl. GST). Huge ex-hire clearance - call for a list. Cannon Sound (02) 9948 4440.

Orban 424A Compressor/ de-esser \$900 (incl. GST). Cannon Sound (02) 9948 4440 or sales@cannonsound.com.au.

P.Audio Professional Loudspeaker Components. 'Professional Sound for Professional People'. New 10", 12", 15", 18" Speakers. 1 and 2" Hi Frequency Drivers. Flares and Diaphragms. Quality at a very affordable price. With most things in this world you only get what you pay for. With P.Audio you get much more..... see on the Net at www.paudiosystem.com, or call Cannon Sound (02) 9948 4440 or sales@cannonsound.com.au for a catalogue and price list.

PA/Lighting/Studio equipment. Sell or swap. Wide variety of gear. For details PH: +61 7 5529 9969

Peavey audio consoles, reliable workhorses, roadcases, four auxiliaries, 4 way equalisation, 16 Channel. \$500 24 channel \$800 PH: +61 2 9799 7219

Pro Audio S/H and new. Mixmasters/Shrape: +61 8 8278 8506 WEB: www.mixmasters.com.au bookmark it!

ROCKARD Coatings for your PA and roadcases - the true industry standard. Available in 1,2,4 & 18 litres. Black as well as custom colours including

various greys, reds and blues etc. We also can match colours from any colour chart or sample. Call Cannon Sound (02) 9948 4440.

Roland - MC 303 Groovebox + Yamaha MDF Midi Data Filer, JS 30 Sampler + Apple External Hard Drive. As New Condition - Cash offers accepted (Adam 0410 627 538)

Sennheiser HD40 Headphones. Lot of 4 @ \$60 (incl. GST) the lot. Huge ex-hire clearance - call for a list. Cannon Sound (02) 9948 4440.

B.S. Sound PA Hire
3k PA with separate F/B. LX & crew. Driveway Vocal PA Systems & LX. Mics & components also available. Contact Mark Barry for free quote (03) 9531 1403 or 041 999 3966 www.bssound.com.au mark@bssound.com.au

HUM ELIMINATOR™
MADE IN THE USA BY EBTECH



Hum Eliminator™
Silence AC Hum, forever!
We've all heard it. That buzz, that noise, that AC hum pouring through audio equipment. The Hum Eliminator breaks the groundloops safely, while leaving all signal grounds intact. No dangerous ground lifting. Works with balanced or unbalanced signal at either end.
Just plug it into the signal lines between offending pieces of equipment and you're done! No hum. No signal degradation. No filtering. No noise gates. No dangerous ground lifts. No signal ground lifts.

Line Level Shifter™
Solve -10dBV to +4dBu problems
What do you do when you need to connect a low volume, -10dBV output (cassette deck, CD player, synth), into a high volume +4dBu input (DAT Machine, multitrack recorder)? The Line Level Shifters allow you to use equipment with different line level requirements. It converts between -10dBV and +4dBu equipment.
Using the physics of inductance and impedance matching, there's no added noise. The units also contain Ebtech's Hum Eliminator to eliminate AC hum.

HE-2 2 Channel MiniBox \$199
HE-8 8 Channel 1-Rack Unit \$599
LL-2 2 Channel MiniBox \$249
LL-8 8 Channel 1-Rack Unit \$699

Need more info? Contact...
AUSTRALIAN AUDIO SUPPLIES
TELEPHONE (02) 4388 4666

Australian Audio
SUPPLIES

Sydney Digital Productions & OB Services
Offers competitive hire rates for the following equipment
Sony Digital Betacam VTR's (DWW A500P)
Time code Generator's
Sync Pulse Generator's
ADA's & VDA's (SDI)
Delivery/pickup available
Ph: 0402 071 434 Fax: (02) 9619 2061
www.sydneydigitalproductions.com.au

Drapes and Stages
from **Staging Rentals**
"Your complete staging service"
Big range Top quality On time Friendly, professional advice
Ph: (02) 9519 6300
Fax: (02) 9519 6489
1 Pyrmont Bridge Road
Camperdown NSW 2050
mail@stagingrentals.com.au
www.stagingrentals.com.au



STAGING RENTALS

FOR
**CUSTOM CASES
SPEAKER ENCLOSURES**
TUFFA
CASES & CABINETS PTY LTD
Ph (02) 9153 9373 Fax (02) 9153 9329
Unit 5, 15 Lorraine Street Peakhurst 2210

**PRO-AUDIO
NEW & USED**
www.mixmasters.com.au
Exclusive Australian Distribution
AVALON, UA, JOEMEER,
DISTRESSOR, RNC
Always buying vintage equipment
08 8278-8506 MIXMASTERS / SHRAPE
Email to be on list mixm@senet.com.au

ELECTROLUMINESCENT (EL) SPECIALISTS
EL LAMPS - FLAT SHEETS THAT ILLUMINATE
EL CABLE - 3.2mm WIRE THAT ILLUMINATES
CALL US FOR A BROCHURE
**FLEXI-GLOW
LIGHTING**
PH (02) 9684-6796 FAX (02) 9684-6688
WEB <http://www.flexiglow.com.au>

Shure VHF LX and SC wireless systems (11 in stock) with belt packs and WL-83 lapel mics, tie clips and pop filters \$300 (incl. GST) per system. Call (02) 9948 4440 or email sales@cannonsound.com.au for the complete details.

Signal Processors: BSS 340 8-way cross-overs \$400 ea, Furman PL-PLUS-E Power Conditioner \$500, ARX Sixgate \$350, Behringer MDX4400 4 Ch Comp/Lim, \$500, PH: +61 3 6331 3370

Sound Development 1/3 octave graphics \$225 each (incl. GST) - 13 available. Huge ex-hire clearance - call for a complete list. Cannon Sound (02) 9948 4440.

Soundcraft 600 Series 24/8/2 with 16 tape returns - fully serviced - a real classic. \$2750 (incl GST). must sell at this price..... Cannon Sound (02) 9948 4440.

Soundcraft 2" 24 Track tape Machine. Lots of life left in this old dog. \$2400 PH: +61 2 9555 8298

Soundcraft TS24 82 input 24 Buss mixer Bantam Patchboy stand. Only \$5995. Sound devices PH: +61 2 9283 2077

Strand Patt 23 123 223 743 263 264 774 varieties, accessories, spares. Greg@stuntworks.com.au or 0417 697 980

Studio System 2 JBL 4425 Studio Monitors, 2

JBL Control SB- 1 K2 Aust. Monitor Amp. \$2600 ONO. Colin Baldwin 9966 9888

Urei 1178 mint \$3500, Neumann U-89 Mnt \$2400. PH: +61 8 8278 8506 Mixmasters

Yamaha NS-10 Studio Monitors. \$450 a pair (incl GST). Cannon Sound (02) 9948 4440.

Yamaha 02R digital mixing console with meter bridge and 3 Adat cards. \$8000. (02) 4322 2466

Yamaha PM1200 24-4-2 console, cased, \$1800, PH: +61 3 6331 3370

Yamaha SPX1000 \$900 (incl GST). Cannon Sound (02) 9948 4440.

requires Costume Sewers; Cutters and Pattern Makers. At least 3 years experience, for the production of costumes for the upcoming Australian production of Annie. Please apply to Anrie Smith by fax (02) 9331 8337.

Production staff Organisation: Ten Days on the Island Ltd Closing Date: Monday, August 28, 2000 http://www.tendaysontheisland.org

Location: Statewide events TAS Ten Days on the Is and will be staged across Tasmania between March 30 and April 8, 2001. We are seeking people for work between January and April 2001 to work as Production Managers, Productions Coordinators, Stage Managers, Set Designers, Lighting Designers, Lighting Operators, Sound Designers, Sound Operators and Mechanists. Send your CC by August

The Jobs Bulletin from The Dramatic Group P/L www.dramatic.com.au.

Box
Costume Staff Organisation: SE and GFO Closing Date: n/a Location: Sydney NSW Annie, Broadway's brightest musical,

28, 2000 to Kristen Molhuysen, Administration Manager, Ten Days on the Island, GPO Box 646, Hobart TAS 7001. e-mail info@tendaysontheisland.org ph 03 6233 5700

Production Staff - New Star City Show Organisation: Jacobsen Entertainment Closing Date: n/a http://www.jacobsen.com.au Location: Sydney NSW New production opening

at Star City mid November then touring nationally: Company Manager, Production Manager, Stage Manager, Assistant Stage Manager, Mechanist, Lighting/Sound Director, Lighting Director, Sound Director. Please forward resume to Jacobsen Entertainment: vlangley@jacobsen.com.au, fax (02) 9211 6966.

SONY VPH 1252 CRT VIDEO PROJECTOR \$7250
NEC PG6000G CRT VIDEO PROJECTOR \$5000
Contact Gordon (03) 9888-8987

Mac Garage Sale
Connections pre loved Macs!

HP 1600 CMYK A4 inkjet proof printer, 40mb RAM \$500	1.2 BG M/O drive, heaps of cartridges! \$400
Mac 7200, 40mb Ram \$800, mon xtra	Syquest 88 & 10 carts \$250
Quadra 800, 80mb ram, \$600, mon xtra	Near new Diamondview 17" mon \$400
	15" monitor \$150

Call Julius Grafton, 1-800-635-514

THE AUDIO DEPT.

Wireless Microphone Specialists. 20 years experience. Large inventory of Sony UHF systems, Shure UHF and VHF systems, and now Garwood In-Ear monitors. Short or long term hire for all applications, sales and full service. Authorised Sony Wireless Service Centre.

Call for a quote.
(03) 9415 1868.

Technicality

Specialists in AUDIO VISUAL SERVICE & REPAIR

- Video/Data Projectors
- P.A. Systems
- Video Cameras
- Broadcast Equipment
- Digital Audio & Video
- Studio Equipment
- Home Theatre
- Stage Equipment

Ph: (03) 9737 0007
technicality@service.mel.net

GOBO

Greyscale Glass, Colour & Steel

Lighting by Design

First with the glass technology to OZ now standard in Martin 918 and Mac500. Original designs & innovative ideas.

Tel: 0755 377 002 Sales@LBD.com.au
Fax: 0755 292 226 www.LBD.com.au

DUE TO PRESSURE FROM THE ACCC, WE HAVE BEEN FORCED TO MAKE ALL OUR LIGHTS 10% BRIGHTER TO COMPLY WITH THE GST
www.electricsunshine.com.au

ROADCASES for PROFESSIONALS



STANDARD RANGE & CUSTOM MANUFACTURE LIMITED LIFETIME WARRANTY APPLIES TO ALL CASES

CALL US FOR A CATALOGUE & PRICE LIST

PH: 07 3899 2971 FAX: 07 3899 0155
Email: desine@powerup.com.au



MAJOR NEW Version

For A/V, Lighting & Audio Equipment rental & production, staging & business theatre.

- Australia's No.1 - Save your valuable time, look at the best software with local service first.
- Download a demo now! www.HireP.com RentalPoint Software (formerly HirePoint Software) Contact: Stephen Collard, SF Business Dev. Ph (03) 9761 2727 Mob 0407 541 290

RentalPoint2000 Hire Software

Graftons Lighting & Sound

Professional Equipment & Service

Hire, Sales, Installs Production & Design

6/890 Bourke St, Waterloo NSW 2017

Tel: (02) 9698 7777 Fax: (02) 9698 9999

Lighting: graftons@idx.com.au

Sound: info@productionsservices.com.au

Sound: www.productionsservices.com.au

Connections Advertiser & Brand

EASYFINDER!

Please.... tell them you saw it in Connections!

Company Name	Phone	Website address	Brand	Page Number
Active Lighting	+61 3 9819 6912	not available at this time	Professional Production	63
Aerobic Microhones	+61 2 9313 4995	www.aeromic.com.au	Aerobic Microphones	67
Altronic Distributors	+61 8 9328 2199	www.altronic.com.au	Redback, Altronic Catalogue	54
Amber Technology	+61 2 9975 1211	www.ambertech.com.au	Neumann	27
AON Risk Services	+61 2 9253 7000	www.aonrisk.com.au	Entertainment Insurances	65
ARX	+61 3 9555 7859	www.arx.com.au	ARX	49
Audio Telex Communications	+61 2 9647 1411	www.audiotellex.com.au	Australian Monitor	25
Audio Telex Communications	+61 2 9647 1411	www.audiotellex.com.au	Symetrix, Sabine	39
Australian Audio Supplies	+61 2 4388 4666	www.ausaudio.com.au	Mackie	33
Australian Film, Television & Radio School	+61 2 9805 6444	www.aftrs.edu.au	AFTRS Audio Courses	65
Australian Music Association	+61 3 9867 4222	www.australianmusic.asn.au	AMAC 2000	54
AV Communications	+61 8 9249 6688	www.avcom.om.au	AVC Pro Solutions	19
Birkart Concert Cargo	+61 3 9696 2988	www.birkart.com	Transport & Logistics	36
Browns Precision Welding	+61 3 9455 2899	not available at this time	Browns Truss	62
Bytecraft	+61 3 9587 2555	www.bytecraft.com.au	Hi End	59
CLS - Concert Lighting Systems	+61 3 9682 6111	www.clsa.com.au	CLS	47
CMI - Central Musical Instruments	+61 3 9315 2244	www.cmi.com.au	Eminence, Proel	35
CMI - Central Musical Instruments	+61 3 9315 2244	www.cmi.com.au	Eminence, Proel	45
Connections Shop	1800 635 514	www.conpub.com.au	Merchandise	42,43
Corporate Audio Services	+61 3 9474 1067	www.corporateaudio.com.au	Pulse	26
Digidesign	+61 3 5428 7780	www.digidesign.com	Digidesign	8
Disco World	+61 3 9739 5255	www.discoworld.com.au	Dynamite	55
EAW	+61 3 9415 1585	www.eaw.com	EAW	31
Emtec Magnetics	1800 805 691	www.emtec-magnetics.com	BASF Tracking Guide	Starts 66
EVI	+61 2 9648 3455	www.eviaudio.com.au	EV	21
Group Technologies	+61 3 9872 5000	www.gt-aust.com	Nexo	23
GUET	+61 2 9420 4888	www.guet.com.au	Celestion	46
GUET	+61 2 9420 4888	www.guet.com.au	Studiomaster	40
H&C Audio	+61 3 9876 2333	www.ozemail.com.au/~hcaudio	Soundtube	67
Infocomm	+65 297 2822	not available at this time	Infocomm Asia	83
Interlink System Solutions	+61 2 9638 0777	www.dbsound.com.au	Interlink	65
Jands	+61 2 9582 0909	www.jands.com.au	Shure	2
Jands	+61 2 9582 0909	www.jands.com.au	JBL	5
Jands	+61 2 9582 0909	www.jands.com.au	Stanton	4
Lots of Watts	+61 2 9638 0302	www.lotsofwatts.citysearch.com.au	Lots of Watts	30
LSC Lighting Systems	+61 3 9561 5255	www.lslighting.com.au	LSC	34
Meteorlites	+61 8 9227 5590	www.iinet.au/~mudlark3	Meteorlites	52
Meyer Sound Australia	1800 4 MEYER	www.meyersound.com.au	Meyer	12,13
Navigator Systems	+44 7000 628 797	www.navigator.co.uk	Hiretrack	56
NSCA - National Systems Corp Australia	+61 3 9434 1888	www.chaiyo.com.tw	JTS	61
Ozcad	1300 788 828	www.ozcad.com.au	MiniCAD Vector Works	40
Penn Fabrication	+61 3 9335 6455	www.penn-fabrication.com.au	MSB	60
Philips	1800 132 022	www.teamphilips.com.au	Philips	39
Production Audio Services	+61 3 9415 1585	www.productionaudio.com.au	Crest	3
Production Services (UK)	rocky@proservs.freeseve.co.uk		Laboratory Series Technology	50
Public Event Group	+61 2 8585 5200	www.publicevent.com.au	Stageline	49
Save Time Visuals	+61 3 9888 2111	www.savetimevisuals.com.au	AV, M' media, Presentation Specialists	41
Show Technology	+61 2 9898 1111	www.showtech.com.au	Clay Paky	Back Cover
Show Technology	+61 2 9898 1111	www.showtech.com.au	Martin	7
Sony	+61 2 9887 6666	www.sony.com.au	Sony	15
Specialised Lamp Supplies	1300 302 852	not available at this time	Specialised Lamps	47
Stage & Screen	+61 2 9383 4544	www.stageandscreen.com	Travel & Transport	14
TRC - The Resource Corporation	+61 3 9877 8233	www.trc.com.au	K&M	47
TRC - The Resource Corporation	+61 3 9877 8233	www.trc.com.au	SC Systems	65
TRC - The Resource Corporation	+61 3 9877 8233	www.trc.com.au	LKS Connectors	67
The Unique Flamelight Company	+61 8 9228 3000	www.uniqueflamelight.com	Unique Flamelight	29
Trader	1800 635 514	www.conpub.com.au	Trader	Starts 79
ULA - Universal Lighting & Audio	1800 648 111	www.ula.com.au	Griven	17
Yamaha	+61 3 9693 5111	www.yamaha.co.jp/product/	Yamaha	37,51

Subscribe to Connections! Save and get your magazine faster! Call 1-800-635-514 or online at www.conpub.com.au

INFOCOMM ASIA

21 to 23 March 2001, Singapore

2001

- Are you in Audio-Video, Presentation, Project on, Multimedia and Interactive Conferencing business?
- Do you plan to expand into Asia, create new businesses in Australia, venture into New Zealand?
- Would you like a cost-effective Marketing/Sales/PR opportunity that will give you maximum results?
- Do you wish for ONE simple answer to ALL your questions?

Be an EXHIBITOR at **INFOCOMM ASIA 2001**

Providing Solutions Across Asia

21 to 23 March 2001, Singapore Expo

CALL US at **(65) 297 2822**, DROP A FAX **(65) 296 2670** or

Go online @ **INFOCOMMASIA.COM**

For your booking forms; special savings; premium benefits

Organizer: **INFOCOMM ASIA Pte Ltd**

Sponsored by:



Endorsed by:



Approved International Fair

Supported by:



SINGAPORE EXHIBITION & CONVENTION BUREAU
A DIVISION OF THE SINGAPORE TOURISM BOARD

Please tick where appropriate

- Send me my booking form Call me Send me your sales kit I want to visit. Keep me updated.

Name: _____ Designation: _____

Company: _____

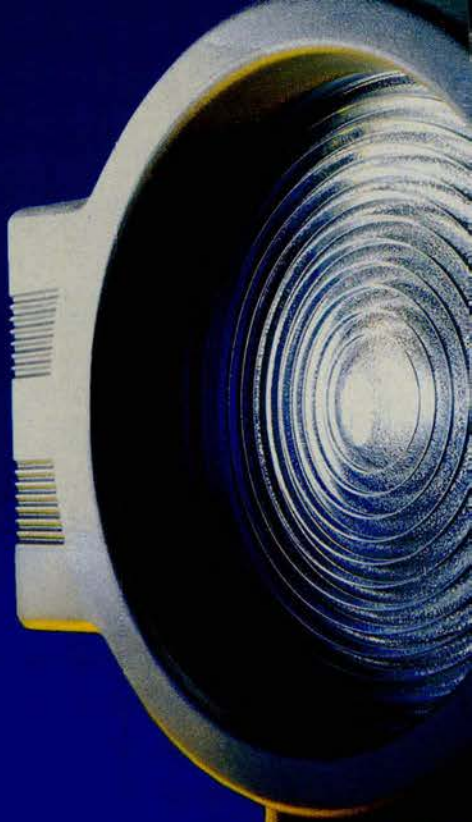
Address: _____

Country: _____ Postal Code: _____

Tel: _____ Fax: _____

E-mail: _____

The winner is... Stage Line



STAGE LINE
1999 LIVE! AWARDS
New Lighting Fixture
of the Year



STAGE LINE
1999 EDDY AWARDS
Club Lighting Effect

STAGE COLDF 300
1999 ETA AWARDS
Award: Lighting Effect



STAGE LINE
1999 MOLSON BEDA AWARDS
The New Product of The Year



STAGE LINE
1998 EDDY AWARD
The Art and Technology of
Show Business



STAGE LINE
1998 ETA AWARDS
Innovative Lighting Product

Distributors:

SHOW TECHNOLOGY AUSTRALIA Pty Ltd

Adm. Office: 13-15 Bridge Street - Rydalmere NSW 2116 - PO Box 430, Rydalmere NSW 1701
Tel. +61 (0) 2 9393 1666 - Fax +61 (0) 2 9396 1222 - E-mail: showtech@showtech.com.au

CLAY PAKY s.p.a.

Via Pascoli, 1 - 24066 Fedrengo (BG) Italy
Tel. +39-035-654311 - Fax +39-035-665976
Internet: www.claypaky.it



PROFESSIONAL SHOW LIGHTING