

ALL ABOUT STUDIO MONITORS  
*with Buyers Guide*

# Connections

AUSTRALIA'S Entertainment & Technology MONTHLY

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#30

FEBRUARY 1996

## **DJ COMPETITION:**

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The latest Hoyts Cinema

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Shootout at ENTECH  
Buyers Guide: Trussing  
Legs On The Wall

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# ALWAYS full of NEWS

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## Editors Notes

It's no secret, we are reliant on advertising here, it is better than half our gross revenue. So the number of pages in a given issue is advertising related. There is a ratio, dear reader.

Thus it was a shock to the system to get back to work, bloated with Christmas cheer, to find an avalanche of advertising bookings pushing this, our first issue for 1996, way past planned size. Last February we had a 92 page magazine, this one has 112 pages. A good omen, we hope!

Anyway, the other thing is that there are over 4000 newsagents across the land, and of our 13,000 circulation we ship 6000 magazines to newsagents. You may need to ask your newsagent to get you a copy, as some places sell out quick. We are distributed by NDD, who slave to allocate the mag where needed!

*4th Proud Year of Independent Publication*

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- 5 **60dB GAIN** on the first 4 channels.
- 6 **BALANCED INPUTS & OUTPUTS**  
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**EFX TO MONITOR** switch, plus there's a master level control.

**BALANCED XLR MAIN OUTPUTS** along with the usual balanced 1/4" TRS outputs.

**VLZ MIX ARCHITECTURE** just like on Mackie's acclaimed 8-Bus consoles, provides superior noise specifications - dead quiet and minimal crosstalk.

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# SR-SERIES

SR24•4 \$3995...SR32•4 \$5495...4 BUSES SWEEP MIDS...PFL/AFL...6 AUX SENDS ONLY MACKIE COULD PACK MANY OF THE SAME FEATURES & SONIC PERFORMANCE OF THE 8-BUS INTO THE SR-SERIES.

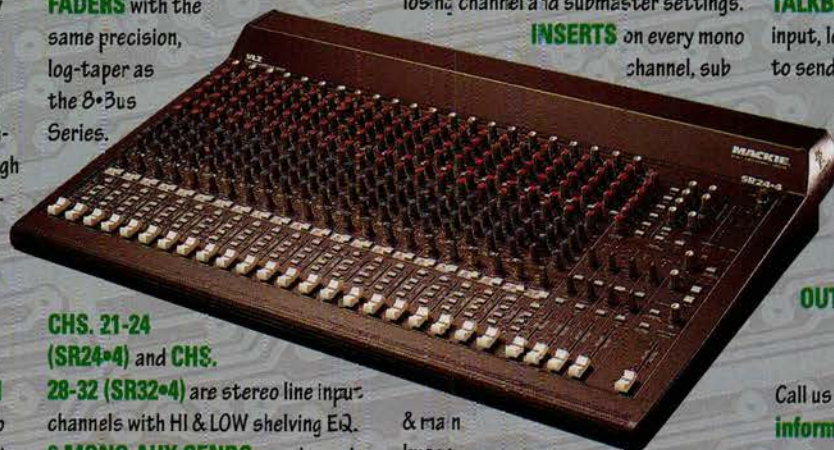
**GREG MACKIE DID IT AGAIN...** The new 4-bus SR24 & SR32 are the first live sound consoles with the **high headroom**, low noise, VLZ circuitry and superb sound quality of the Mackie 8-Bus console series.

That's because the SR-Series are equipped with many of the same features, components & design. Through **economies** of materials and manufacturing processes, we're able to offer the SR-Series at astonishingly low prices.

**A NEW MACKIE INNOVATION: FACTORY "AIR" EQUALISATION** on each submaster! Centred way up at 16kHz, AIR applies a gentle boost to the extreme high end. **CHS. 1-20 (SR24•4)** and **CHS. 1-28 (SR32•4)** are mono with 1/4" TRS balanced line inputs, & the same high-headroom, low-noise XLR mic preamps found on the Mackie 8-Bus consoles.

**HI SHELVE EQ** with 15dB boost or cut at 12kHz, **SWEEPABLE MID EQ** from 100Hz to 8kHz, and 80Hz LCW

**SHELVE EQ and LOW CUT FILTER** with 18dB/octave @ 75Hz. **ALL CHANNELS** feature **60MM FADERS** with the same precision, log-taper as the 8-Bus Series.



**CHS. 21-24 (SR24•4)** and **CHS. 28-32 (SR32•4)** are stereo line input channels with HI & LOW shelving EQ. **6 MONO AUX SENDS** per channel 1 & 2 are pre-fader 3 & 4 are switchable pre/post, 5 & 6 are post-fader. **Dual HEADPHONE OUTPUTS.**

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# Connections

FEBRUARY 1996. Number 30

## AUDIO VISUAL

### Video for the Eagles

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## National DJ competition

Winner goes to Italy. Page 78

CLUBS

## LIGHTING

### SHOOTOUT FOR ENTECH

STARTS PAGE 81

## Studio Monitors

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STUDIOS

## Mark IV Audio to sell

E.V., Gauss, Altec, Midas, Klark Teknik, Dynacord, Vega, DDA conglomerate seeks new owners, reports Julius Grafton from NAMM.

**LOS ANGELES:** Mark IV Audio is on the block for US\$220 million, a move initiated by its ultimate owner, Sal Alfiero, who owns Mark IV Industries. While the audio division has traded well, it is just part of Mark IV Industries which turns over US\$1.2 billion.

While the group was offered in one line with all buildings, plants, machinery, brands and business in working order, it is known breakup bids have been lodged.

Bob Doyle, chief of the Mark IV Audio Professional Products Group, is understood to have assembled a consortium which has an offer in place for Midas and Klark Teknik. Approached to confirm this, Doyle wouldn't deny it.

The Mark IV Audio group had a turnover about the same as its sale price last year, and locally the Australian subsidiary has done very well recently, posting a 40% increase in sales last year. It is not known if the group will sell in one line, or be split.

### SPECTRAL SOLD TO EUPHONIX

Seattle based Spectral, makers of Prisma music recording system, have been acquired by Euphonix, who make digital mixing consoles.

## PERFORMANCE SAFETY LAWS- THE RACE IS ON

*Entech conference to seek representative action before restrictive bans are imposed.*

**T**he possibility of a regulation enforcing railings on the front of stages is every bit as real as a blanket 84dB(a) limit on all performances.

If an asthmatic suffers a fatal attack during a show using smoke, the smoke machine could be banned too, even if not to blame. And worse still, at this time all this could occur in one venue, or one state but not another. Witness cable and appliance testing and tagging, where each state assures a different standard and some don't do it at all.

If ever there was an industry needing clear standards, it is the performance industry, where staging, electric and audio all combine en-masse in front of hundreds

of vulnerable, paying punters to assail the human senses and create a show. But there is no one body currently in place where nervous legislators or diligent venue managers can turn to for advice or for a ruling when the need - or the crisis - arises.

A one-day conference; 'Safety in the Performance Space' will deal with the issue in April. Scheduled for the day prior to ENTECH trade show, the safety conference will be held at the Sydney Opera House by Connections Magazine, the promoters of ENTECH and with the support of Opera House management, who are interested in an industry based code of practice.

The primary objective is to draw together administrators, depart-

ment heads, production company proprietors and senior entertainment industry staff, to debate the current environment. Occupational Health and Safety (OHS) issues, state by state differences in Workers Compensation legislation, and the existence of the federal Worksafe body mean that a national consensus is required to establish an industry representative committee which can advise Worksafe and venue managements alike on issues.

Input has been sought from representative bodies such as the Entertainment Industry Employment Association and the Venue Management Association regarding issues to be put before

*(continued over)*

## Audio Technology Sleeps At NAMM

*Los Angeles provides the venue, but the earth doesn't move this year*

**I**f it's racial in pro audio, it turns up at NAMM, the second largest music show in the world today. But while the great leaps didn't materialise at Anaheim in January 1996, we can report they are coming soon.

The digital microphone is needed to give the fibre optic

multicore (already in existence) its digital inputs. Word has it the profusion of analogue-to-digital converters already in existence will lead to the A/D module built INTO the conventional microphone. So we can use what we already like.

Plugging this microphone into the digital, fibre-optic multicore

however provides the next problem which people are trying to fix. A rugged and road-able fibre optic connector.

Then the mixer. It is already digital as far as Yamaha are concerned, but the pundits say that there is a chance that Greg

**Go to NAMM, page 17**

## DEALS

• **KLIPSCH PROFESSIONAL**, the Arkansas based manufacturer of loudspeaker systems, is now listed on Wall Street - and headed by an Australian. Former Melbourne boy Ian Thacker is now President and CEO, with Klipsch a division of New York based Consolidate Technology Group.

Consolidated's Lewis Schiller said that Thacker will guide the conglomerate towards becoming a major player in the pro music and audio industry.

Connections congratulates Thacker, yet another great Australian technician at large, making a mark on the massive US and Northworld markets.

• **MEYER SOUND** of Berkely California have confirmed their distribution network for Australia. "Our long time associate Ian Richardson of Audio & Recording in Sydney, continues to be the most experienced user of Meyer equipment in Australia. He will continue to specialise in the rental

and installation of Meyer equipment". The distributors are: Audio & Recording (02) 316-9935, System Sound (03) 9529-7755, and Audex Concert Sound (09) 328-3188. Meyer are an ENTECH exhibitor.

• **SHURE** will discontinue OEM sales of their microphone elements to makers of wireless systems, they have announced. The move comes after 'growing confusion in the marketplace regarding the use of the Shure name on so many different competitive products', says John Phelan VP of International marketing.

## MOVES

• **SPACE AGE COMMUNICATIONS** have appointed Peter Cohen to run their new Sydney office. Location: 138 Bridge Rd, Glebe. Call (02) 660-8088, fax (02) 660-8488, email peterc@spaceage.com.au.

• **ISMT** have closed their Sydney office, with former manager Iain

Everington moving to expand his distribution business Audio Rep Australia. Added to NSW duties on behalf of ARX, he now handles Queensland. In addition Soundtracs mixers and KKR studio monitors will be handled by Everington on behalf of distributor Syncrotech Systems. Call (02) 879-6404.

• **BYTECRAFT** expand their NSW operation this month with a move to new premises closer to Sydney city. An Open Day on February 16 (Fri) and 17 will see an ICON system on display along with new Strand products. The new address: Unit 5, 31 Bridge Rd, Stanmore NSW 2048. Call (02) 550-3955.

• **DIGIDESIGN AUSTRALIA** have a new mobile number, dial 041 141-8383, or use the old number (03) 9817-6886.

## TRADE SHOWS

• **LEISURE ASIA '96** will display games and arcade equipment, 21-23 March in Singapore. Call (65) 297-2822 for more.

• Another event to (possibly) attend, the **12th Australian Hospitality Industry Exhibition**, Darling Harbour Exhibition Centre, February 27-29. This will feature current developments and trends in technology, interior design and services such as: speaker systems, audio/visual equipment, hire services, ice making machines, rotisseries, display lighting, communication systems, carpets. Enquiries, (02) 436 3266

## WINNERS

**ANYTHING AUDIO**, newly owned by Walter Gearin who purchased the business from David Croxton, ran a contest at Christmas. Ron Polglaze of Hazelbrook NSW won a Mackie mixer, and Paul Nicholson of Gladesville scored an AZDEN wireless system. Anything Audio; (02) 879-6788.

## INTERNET SITES

Ignore it at your peril, BUT the Net works.

**AV Experience**  
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# Wanted

## Inexperienced people for top careers!

Audio Visual Operators install and operate sound, projection and lighting equipment for conferences at the nation's largest hotels and venues.

There is a shortage of trained people for these jobs because until now, there has been no training or job experience in this field of work.

AV Experience, Australia's Audio Visual training organisation has changed that by offering a range of technical and "hands on" AV courses backed by a job placement service for successful students.

Topics include audio, lighting, video, computer data projection, staging and customer service. Courses cost from \$350 for two day modules through to \$2,750 for a 7 week full time course with work experience.

If you are enrolled with a CES program, contact your Case Manager or Burwood CES for assistance.

**For further information:  
Call Kevin Hammond, AV Experience  
on (02) 744 8245.**

Fax: (02) 747 3579

PO Box 139 Burwood NSW 2134

## Safety In The Performance Space: Conference for Entech

Guest speakers to include Karl J. Ruling (New York)

(from previous page)  
the conference, which at time of publication had gathered some considerable steam.

Convener representing the entertainment industry is Simon Jenkins from the S.O.H., while the OHS/Worksafe Convener is Byron Commonos. One key speaker is Karl J. Ruling, technical editor of Theatrecrafts and Lighting Dimensions magazine from New York. He brings an expert view on the American perspective.

Topics will include an overview of OHS in Australia, workers compensation statistics, employer obligations, workplace rehabilitation, definitions of an employee vs. a contractor, and a snapshot of the industry. Issues include manual handling, work and sleep patterns, scheduling, electrical safety and LPG handling.

A voluntary industry code of practice for creation and awareness of specific audio sound-check requirements is also on the

agenda, for too long audio staff and indeed any noise maker, including stage technicians and musicians, have adopted an ad-hoc approach which can be harmful to other crew.

The conference will conclude with the proposed establishment of an industry representative committee, initially funded by Connections Publishing by way of sponsorship, to lobby Worksafe for possible inclusion within the tripartite committee system advising the national body. The committee would also work to establishing an industry based voluntary code of practice, and advise the industry on issues.

• **The conference commences at 09.30 Monday April 22nd, and ends at 17.00. The cost is \$170 including lunch. For more details call for a brochure on 1-800-635-514, fax (02) 876-5715, or visit the new ENTECH internet site url at this world wide web address: [www.conpub.com.au](http://www.conpub.com.au).**

• **CONNECTIONS** and **ENTECH** are pleased to announce their third attempt in 14 months at getting a site working properly. Go to [www.conpub.com.au](http://www.conpub.com.au).

• **IMMEDIA** have a new site too, [www.immedia.com.au](http://www.immedia.com.au) with several hundred pages and good stuff like: '75 reasons why radio won't play our record!' They are, of course, producers of the Australasian Music Industry Director (AMID), which comes out as a 400+ page issue as you read this! Call us for a copy, 1-800-635-514. (\$20 + \$5 postage).

• **SOS Communications** have been scanning and inputting their collective butts off, to create a pretty impressive site: [www.amfd.com.au/sos/soscomms.htm](http://www.amfd.com.au/sos/soscomms.htm).

• **AMS-NEVE** have a 50 page site, the UK manufacturer makes analogue and digital mixing consoles and editing products. Go to [www.ams-neve.com](http://www.ams-neve.com).

• **OMNINET** is an alliance between Omnicon Digital, and Nethead Communications. Go to [www.omninet.com.au](http://www.omninet.com.au) for a wild world of digital expression.

• **VIDEO**, the Internet: an Aus-

tralian Video Guide is on offer from Hullabaloo Interactive, who say it helps. Buy it at Harvey Norman and such places.

• **AUDIO OPTICS** of California do the rad LightWave optical scanning pickup system, their netsite is [www.mallennium.com/AOLIGHTWAVE](http://www.mallennium.com/AOLIGHTWAVE).

• **ABC Radio** is now on the InterNet with 1000 hyperlinked files drawn from JJJ, Hot Chips, Radio National, Radio Australia, Behind The News and an information file, About The ABC. Tap in: <http://www.abc.net.au>.

### NEW NAME:

**New Media Systems** is now trading as **SOUND CONTROL AUSTRALIA PTY LTD**. They are at the same premises. Call (02) 418-6388.

### NEW ACT FIRM:

• **SOUND ADVICE AUSTRALIA** is the new venture for the dynamic Topstage duo, Norman Korte and Steve Namu. They are sole regional agents for Jands, they say, and do most other major brands. Call them on (06) 280-8777.

## 26 UK Firms For ENTECH

At presstime a party of up to 26 UK manufacturers had been confirmed by UK industry association PLASA, as part of a UK trade mission to ENTECH 1996.

The mission is organised by PLASA with support from the UK Department of Trade, and the UK Consulate in Sydney.

An initial party of eight UK manufacturers participated in the last ENTECH, taking display space. "The difference this time is that the majority of the UK firms coming are already represented by Australian distributor's. They are coming to support their distributor's and will assist on their distribu-

tor's stands. This is the kind of support any distributor really dearly loves to get", said ENTECH director Caroline Grafton.

"It also adds greatly to visitor appeal, because there is a strong base of industry experts on hand to answer technical questions".

ENTECH '96 - which is presented by the publishers of Connections Magazine- has over 100 exhibitors at press time.

• **JAPANESE DELEGATION** Roy Tazawa in Tokyo is assembling a trade mission representing over 20 Japanese firms to visit ENTECH '96. Mr. Tazawa runs *Roy Planning Office*, a consultancy.

**Connections**  
**New website '96**  
(Replaces our 2 old ones!)  
Please bookmark this:  
**[www.conpub.com.au](http://www.conpub.com.au)**

# The News

## WALKER QUILTS AES

Convention Organiser  
Departs After Five Years

Rob Walker has organised his last AES (Audio Engineering Society) Convention, deciding not to bid for future events after the last AES held in Sydney during 1995.

Pivotal to his decision is ENTECH stepping up to a yearly schedule, with the next ENTECH scheduled for Sydney in April, followed by the new Melbourne Exhibition Centre in April 1997. Walker was engaged by Connections Publishing, the promoters of the first ENTECH in 1994 as event manager, and will do the same for the 1996 and the 1997 ENTECH. In addition, Walker is Executive Officer for the Australian Music Association (AMA).

"I'm proud of what I achieved with AES" Walker said. But I've got a lot on, with the AMA expanding and the success of Australian Musician, the AMA magazine".

Australian Musician was launched last year as a quality, free magazine pitched at music practitioners and available from music stores who are AMA retail members. It subsequently has run at 64+ pages, with circulation exceeding 20,000 copies.

The AMA also run AIMS, Australia's largest music tradeshow, which is next scheduled for Sydney in September 1997. AMRA has also forged an alliance with the AMA, which will see Walker organise the AMRA convention each September.

### • AES/ENTECH merger rumours quashed

Connections Publishing director Caroline Grafton has refuted rumours that AES and ENTECH will merge. "What happened is that we twice offered AES the chance to stage a convention alongside ENTECH, either this year or next", she says. "They declined on the basis New York HQ might not agree, that's the extent of it. Sadly, we haven't been able to fully explore this possible synergy which would make an even more appealing event for visitors".

"We are interested in any value added synergy to add to ENTECH's trade visitor appeal, and are working on future concepts".

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**Submissions:** We WELCOME well written articles and stories for consideration. Send hard copy, preferably WITH a PC or Mac word processing RTF file and NORMAL file together. Photograph prints, B&W or colour, & transparencies (preferred) also welcomed. Stamped self addressed envelope required if return desired. No responsibility for loss accepted, sorry.

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**100% produced in Australia**

Connections Magazine proudly presents the Main Event:

# EnTech 1996

## THE Entertainment Technology Trade Show & Conference

### THE EVENT

For you to **commit** your time to a trade event these days, you need to be sure it will stimulate, inform and inspire. With so many demands on your time, you need an iron clad **guarantee** of value.

ENTECH 1996 more than answers that challenge. It's a **large** trade show with more:

- 20 essential **seminars**,
- a **conference**,
- the **ENTECH Awards** dinner,
- social **events**,
- and exceptional **technical tours**.

To **maximise** the experience, the Interactive Theatre offers hands-on product comparisons, interactive auditions, a giant live internet AV experience, and plenty of **space**. It is also the lobby area for our Seminar Theatres and Demo area.

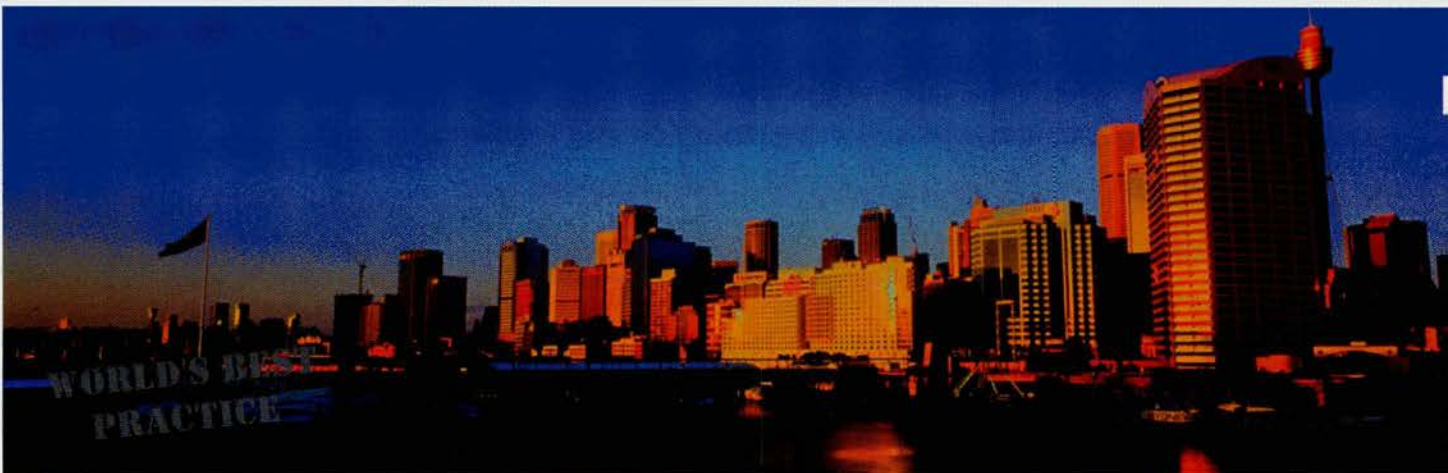
ENTECH is a state-of-the-art **business class** trade show, run to 'world's best practice'. The promoters draw upon the best aspects of major trade shows world wide, and naturally incorporate uniquely Australian elements. It's friendly!

There is **more** room to meet, with visitors lounge and 'green room' bar facilities. Seminars are held in large, self contained fully isolated theatre spaces on the trade show floor. You can register in advance, or just walk up!

Best of all, it **costs nothing** for trade to enter ENTECH and to experience the best on offer from more than 100 exhibitors, across 7,500 square metres of exhibition space.

**Only** ENTECH can draw together the diverse elements that make up Entertainment Technology and A.V. -and put them under one roof.

**ENTECH is sensory integration!**





## CONFERENCE:

### Safety In the Performance space

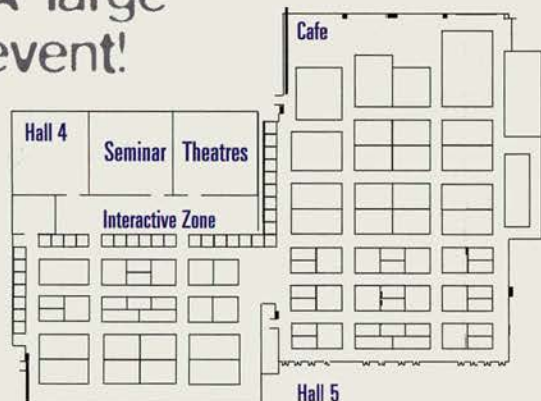
This special one day conference, held at Sydney Opera House, precedes ENTECH, on **Monday April 22, 1996.**

The conference examines issues such as:

- National occupational safety and health legislation as it affects the performance industry;
- Current and proposed restrictions and limitations, work practices and work place safety;
- Likely trends, noise limits, insurance issues and more.

The conference is invaluable for administrators, department heads and business operators. As an ENTECH event it will draw together practitioners and industry professionals. Cost is \$170 for the full day, which includes lunch. **More details:** call 1-800-635-514 or see March and April Connections.

A large event!



## MONITOR SHOOTOUT

The Nearfield Monitor shootout allows **side-by-side** comparison of different units. Nearfield monitors are a hot market sector, and are now widely used. An appraisal sheet will assist you in shortlisting or final selection. Shootout runs **continuously** during ENTECH.

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**i** ENTECH INFO: Call 1-800-635-514.  
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...and more!



**Tuesday April 23,** 10am - 6pm.  
**Wednesday April 24,** 10am - 6pm.  
**Thursday April 25,** 10am - 6pm.

# Music News

With Natalie Apostolou

◆ According to Business Sydney, Chris Murphy and Trevor Smith's radio dabble with 'cool, country, rock and blues' is performing poorly in the ratings stakes.

◆ Emmanuel Candi has announced the establishment of a superannuation fund for Australian recording artists receiving continuous annual collection distributions from the PPCA.

◆ Frontier Touring's ace publicist Anthea Collins has wed Premier's Mick Newton. Congrats!

◆ The Big Backyard Concert, was unfortunately cancelled (scheduled for January 7 at the Domain). The concert is planned to go ahead during March in Sydney, Melbourne and Adelaide.

◆ Awesome Oz Promotions have moved to Suite 1102, Northside Gardens, 168 Walker St North Sydney. You can contact Chris Mikhael and his team on Ph: 02 9957 1600 Fax: 02 9957 1622.

◆ Perth entertainment paper X-

Press is publishing its first entertainment directory this year. Call Michelle Pearson (09) 244 2677.

◆ After a year of speculation the Triple J mag is finally going quarterly for \$4.95. Each issue will be themed by one topic and will feature related articles from varied angles. The managing editor is Stuart Coupe.

◆ Billboard recently reported the stats on which music mags pack the best punch in the states. There are currently 397 consumer and trade mags devoted to the US music industry. Old favourite Rolling Stone (bi-weekly) comes out on top by figures alone, with a staggering 1.2 million in circulation. Music monthly Spin, is coming in close with circulation of 450,000.

◆ Dennis Handlin and friends are keeping the promo parties rolling in '96. A massive launch was held at Sony's Artarmon warehouse in mid January, showcasing the Sony artists on the Big Day Out bill.

◆ P.J. Harvey has cancelled her Big Day Out appearances and her associated Australian tour due to exhaustion.

◆ Strangest news out of Britain comes from Michael Eavis, with his decision to cancel this year's Glastonbury Festival. Quick to seize the opportunity, organisers of the Reading Festival (August 23-25) are negotiating to increase the festival's capacity from 5,000 to 50,000. The Phoenix festival, held in July is expected to increase its capacity by 10,000.

◆ Rupert Murdoch has been snatched up as the keynote speaker at American music weekly's Gavin 1996 seminar on Feb 7-10 in Atlanta. He will be discussing his myriad of media interests, particularly Fox Inc and News Corp.

◆ Oasis former drummer Tony McCarroll has activated legal action against his ex-members, claiming a share in royalties for 'Whats The story (Morning Glory)',

which sold 1.5 million. Although founding member McCarroll was sacked from the group before the album was recorded (performing only on the track Roll With It), he states that he was an equal member of the band and hence should share in its royalties.

◆ Simple Minds have decided to leave Virgin Records, their record company for over 14 years. The band have cited problems with changes in personnel and the label as factors for their decision to leave. The bands manager is currently finalising a new deal for the band to be announced shortly.

◆ The annual British Music Week awards will be held on March 7 at Grosvenor House Hotel London. Organisers have announced a new awards night to complement the main music awards, to be held on February 28. The Music Week Creative and Design awards will recognise talent in categories including video and multimedia.

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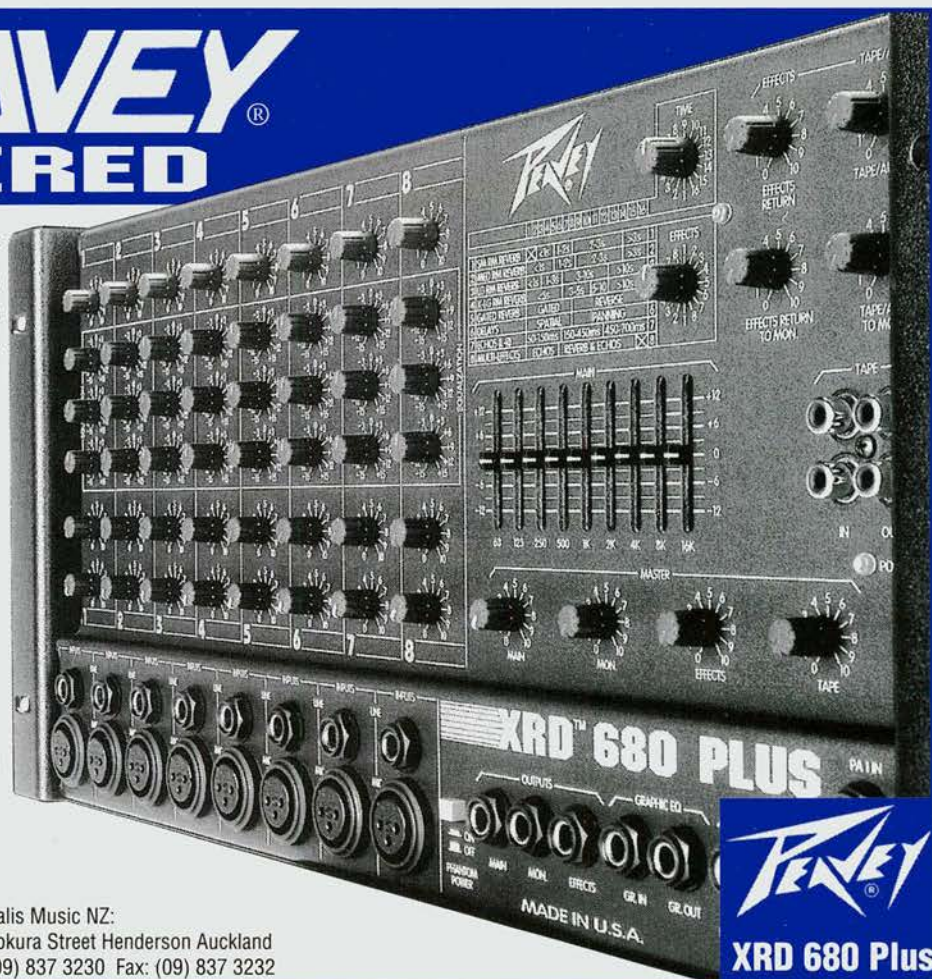
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Ph: (09) 837 3230 Fax: (09) 837 3232



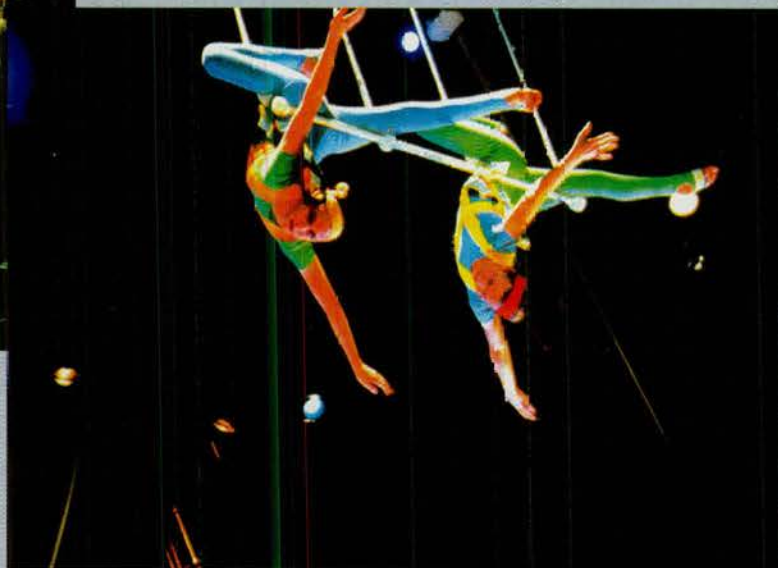
XRD 680 Plus

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# SHOWSCENE

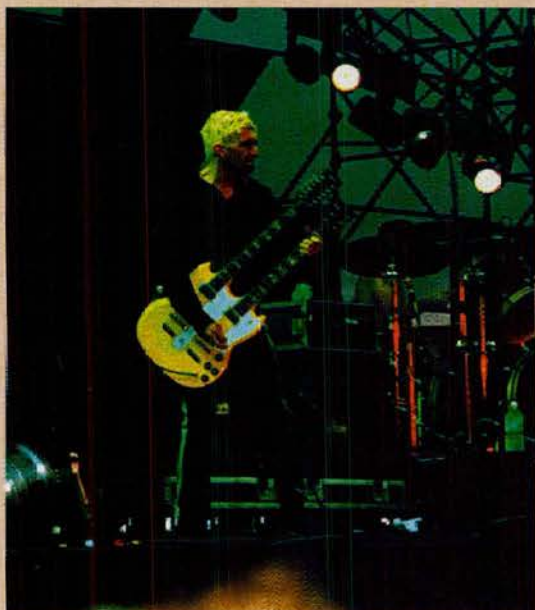


The National Dance Company of Guinea enthralled Sydney Festival audiences with their *African Heritage* dance performed at the Concert Hall of the Opera House, Sydney. Artistic director/designer, Italo Zambo. Choreographer: Mohamed Kemoko Samc. Lighting by Tim Speechley.



Under the Big Top in Moore Park, Sydney the **Flying Fruit Circus** presented their latest show *Totally Wicked*. The two hour show is performed by young people ranging in age from 10 to 17 and their extraordinary feats include rope work, trapeze, juggling and balance acts.

This is Fruit Fly's 17th year of performing and training young Australians in circus skills. The kids end up anywhere from Circus Oz to local physical theatre companies to the international arena. Unfortunately, due to lack of funding, this may be their last year of existence.



*Golden Sounds' Summersault Festival* was held without a hitch on New Years Eve in Sydney. Local press took particular interest in the show, harping on the rather late council approval of the event and local Eastwood police's opposition to the granting of a liquor licence. All was resolved as 15,000 people turned up to the ground of Macquarie University grooving the New Year in with **The Beastie Boys**, **Sonic Youth**, **Foo Fighters** and friends. Sound and Lighting was provided by Jands. ★ Nat Apostolou

The **State Theatre Company of South Australia** recently presented *Haxby's Circus* at the Playhouse from the novel by Katharine Susannah Prichard and adapted by Carolyn Burns. The designer was Mary Moore, the director was Simon Phillips and the lighting was designed by Mark Shelton.

The elaborate set included a moving hydraulic stage as well as the use of trapeze work.



## World Electricity

Country	Cycles	Volts
Argentina	50	220/380
Australia	50	240/250
Bangladesh	50	220/240
Brunei	50	240
Burma	50	230/250
Canada	60	120/240 & 110
China	50	220/380
France	50	220/380
Germany	50	220/380
Grt Britain	50	240 & 240/415
Greece	50	220, 220/380/127
Hong Kong	50	220, 200/346
India	50	230/400/220
Indonesia	50	127/220
Italy	50	220/380
Japan	50/60	100/200
Korea	60	110/220
Malaysia	50	230/240/415
Mexico	60	varies
NZ	50	230/400
Russia	50	127/220, 220
Singapore	50	230/400
Sth Africa	50	250
Tahiti	60	220 & 110
Taiwan	60	110
Thailand	50	220/380
USA	60	120
Vietnam	50	120/127/220

**Not here?** The COMPLETE Connections goes EVERYWHERE list of Electrical currents around the world is on our online site at MSN, see Entertainment: Trade Journals.

## DOLLAR HISTORY

HOW the A\$ has fared over time.

One Australian dollar would/will buy:

	\$US	Yen	£	DM	\$\$in
1965	1.14	403	0.39	4.46	3.25
1970	1.12	400	0.46	4.05	3.22
1975	1.33	392	0.59	3.11	3.15
1980	1.16	251	0.49	2.03	2.52
1985	0.66	165	0.51	2.02	2.10
1990	0.77	98	0.39	1.18	1.45
<b>NOW*</b>	<b>0.73</b>	<b>76</b>	<b>0.48</b>	<b>1.07</b>	<b>1.03</b>

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

**NZ\$ at publication: \$1.09 ▼**

\*At 22/01/96. All rates indicative only. Check with your bank.

## MAJOR TRADE SHOWS

- **SIEL '96**, Paris Feb 11 - 14th. Call +33 (1) 4522 3540  
Largest sound & light show in France.
  - **USITT**, Fort Worth USA. March 14-16.
  - **Musikmesse**, Frankfurt March 13 - 17. Call +49-69-7575-6662  
Largest music show in the universe!
  - **SIB, Rimini**, (Italy), March 24 - 27. Call +44 1323 442-747  
Worlds Biggest Disco Show, a real visual treat!
  - **Broadcast Thailand**, Bangkok. April 4-7, 1996. Call +66-2503-2199
- 
- **ENTECH '96**: Sydney April 23-25, 1996. Call **1-800-635-514**  
Australia's Entertainment Technology show, **every APRIL**
  - **AES 100th**. Denmark May 11-14, '96. Call +45-9785-1122  
Europe's leading pro audio show.
  - **NSCA St Louis (USA)**, May 13 - 15, '96.  
Best contracting and pro install audio gear show there is!
  - **PALM China** Beijing, 25 - 28 May 1996. Call +65-227-0688
  - **Infocomm International** Philadelphia, 13-15 June +1-703-273-7200
  - **Audio Technology** London June 18-20
  - **World Lighting Fair** Tokyo, June 20-22nd, '96. Call +81-3-3706-5687
  - **SALA '96**, Bangkok, June 20 - 22nd, '96. Call +662 9600-1413  
One of 2 similar but fledgling shows in Thailand.
  - **PALA '96 Singapore**, 10 - 12 July. Call +65-227-0688
  - **NAMM Summer Session**, Nashville July 12-14. Call + (619) 438-8001
  - **PLASA** London Sept 8-11 1996 and includes British Music Fair.  
A world-great tradeshow! Call +44-1323-642-639
  - **Photokina**, Cologne Germany, Sept 18-23. +49-221-8210
  - **AES 101st**. Los Angeles, Nov. 8-11, 1996. (New dates!)  
Call +1-415-558-0391.
  - **LDI 1996**, Orlando, 21 - 24 Nov. Call +1-212-229-2965
  - **NAMM 1997**: January 17 - 20, Anaheim LA. Call + (619) 438-8001
  - **ENTECH '97**: Melbourne Exhibition Centre, April 1997.  
Annual show, at Sydney Exhibition Centre on even years.
  - **SMPTE**, Sydney 25 - 28 August, 1997.  
Biannual TV/Film equipment trade show and convention.
  - **AIMS '97** - Aust. International Music Show 1997, Sept/Oct 1997.



## World Weather trend, FEBRUARY

Where?	Temp °C	Rain mm			
Auckland	23/16	94	Manila	31/21	11
Bangkok	33/22	29	New York	4/-2	74
Beijing	5/-7	5	Paris	7/1	46
Chicago	2/-6	41	Perth	29/17	12
Dubai	24/14	23	Rome	13/5	62
Frankfurt	5/-1	44	San Francisco	15/6	89
HoChiMinhCity	33/22	3	Seoul	3/-7	21
Hong Kong	19/14	42	Shanghai	8/1	92
Jakarta	29/23	300	Singapore	31/23	175
Kuala Lumpur	33/22	169	Sydney	26/18	102
London	7/2	40	Taipei	13/12	147
Los Angeles	18/7	74	Tokyo	9/-1	73
			Toronto	0/-7	58

## CASH!

The column

### RETAIL FEAR & LOATHING

I went to NAMM as this issue was put to bed, to see what's new and refresh some valuable acquaintances.

My observation is that the American music equipment retail market is flat. The association NAMM run a very large show, but it wasn't materially larger than previously. And the trade were muttering about NAMM building a new mega headquarters instead of ploughing more money back into education.

Music retailers are a frightened lot, they say the trend is that pampered youth don't have the staying power to bother learning an instrument anymore.

So NAMM has cooked up the Weekend Warrior program (see report elsewhere) to reactivate defunct musicians. This one is probably unique to the USA, I can't imagine it would work here.

Meantime, people selling professional equipment have to cope with shortening product life more than ever before. New amplifiers, microphones, mixing consoles and to a lesser degree loudspeakers are all CHEAPER than ever before.

Recording technology is getting cheaper too, witness the new Roland VS 880 8x8 track hard disk recorder/workstation with inbuilt 1Gb JAZZ removeable drive. It's cheaper than an ADAT and does more.

And that's scary! -JG



## HOW do I get to ENTECH? WHERE can I stay?

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# EXTREMELY SMOOTH



# NAMM CURIOSITY BITS



The NAMM trade show, held each year at Anaheim near Los Angeles, draws around 50,000 trade. This year, like most others, you would find an oddball assortment of dazed drummers, fat bass players, and music industry shysters scattered amongst music store proprietors.

So why the duck? Sadly the picture was quickly snapped whilst a lot else was going on, and so we were unable to ask the young lady what her intentions were.

But naturally, while not stooping to our bad old ways, we cannot resist. Toga party! No, wrong. But the next best thing is a:

## CAPTION CONTEST

Yes! Our resident expert (Tom) has penned a few to get you thinking.... "Wait until Harvey hears about THIS nesting site" ..... "Peeking Duck"..... "Lady, I'm sure I saw my brother go down there" and more.

Remember this is a family magazine, send your caption now to Fax (02) 876-5715 or PO BOX 439 Epping 2121 NSW. Prize for the winner!



**THEN** there is this person at left, whose presence at NAMM was a mystery. He wandered around poking out his tongue without provocation. Now if he tried this at OUR music show I'm certain he would be quickly set right by the first Aussie to come along!

## DVD firms for 1996

*New CD format for movies takes shape, reports Buck Freeman*

**DETROIT:** Digital Video Disk is the formal name, the format is firmly under final development now that nine major electronics manufacturers including Philips and Sony have agreed on details and specification.

The new 5 inch optical disk will offer consumers backward compatibility with audio disks, but it is regarded as a videoc product. It comes as a double sided disk, but one side has enough storage for most main release movies.

When released late this year,

player are expected to sell at around US\$800, while disks will carry Dolby AC-3 surround sound. The format promises to give distributors a new profit boost not unlike the catalogue conversion boom which saw all major recording companies awash with profits from back catalogue sales when CD took off.

The video rental business looks to be vulnerable, with major movie distributors rumoured to be looking to more straight sales of DVD than ever occurred with video.

## Auxiliary Send

**This column of trivia, gossip and things abnormal returns after an extended holiday. In audio-speak an auxiliary send is an alternative output, alternative to the main mix. It is used for foldback and/or effects. So, think of the contents of this column as foldback or effects perhaps? If you are a lighting reader you can disregard the meaning of auxiliary send and simple settle into the groove and read the words below .....**

### \* Radio DJ Brilliance

Sydney 2DayFM DJ David Rymer hoax called a school leaving exam achiever to advise her a mistake had been made and her marks were to be severely downgraded. Naturally the young lady was very upset, and Rymer insisted the call was genuine. His shift demographic heavily features 15 - 20 year olds, an audience which wouldn't find the 'joke' very funny. Rymer was suspended from air.

### \* Agency Brilliance

We sought a particular female musical act for the Entech Awards in April, a Sydney agent quoted \$15,000 for an hour then quickly adjusted to \$6,000 with our incredulous reaction. Upon seeing the act we called the agent back to advise some modification was required before agreeing to the \$6,000, as the act was working 'unplugged'. Far from agreeing to the addition of a rhythm section, the agent stridently argued the acts suitability, but was forced to confess he hadn't actually, um, seen the new unplugged show he was selling. He still didn't get it, the ENTECH Awards are the TECHNICAL awards for the Entertainment industry. Hardy suitable for an unplugged act..... A considerably more suitable band were subsequently hired from another agent without a fatiguing and dumb fee haggle.

Ship your gossip direct to Auxiliary Send, PO Box 439 Epping NSW 2121, fax (02) 876-5715 or email julius@conpub.com.au.

### \* Steel Men NOT

In town for big day out, a stage crew from the UK were interviewed at random on the beach by a Playboy reporter seeking male opinions on The Female Orgasm. One was very direct: "There must be something wrong with me, I've never seen a woman orgasm". Hmmm.

### \* Janet Jackpot

The record US\$60 million dollar plus recording deal reported signed by Janet Jackson last month has some local significance, as ex-pat Roger Davies is her manager.

### \* Nice Gesture From JPS

The display advert in the amusement pages of the Sydney Morning Herald was direct:

"Jands Production Services and Vari\*Lite Australia congratulate The Big Day Out on 5 years of success". Complete with logos too. It wasn't ordinary in the sense that sometimes you see advertising supplements in newspapers for particular events. This one came out of the blue.

Watch for similar adverts congratulating Frontier Touring, Michael Coppel, Kevin Jacobsen, Garry Van Egmond, Toyota .....

### \* And a Jands Move?

Incidental news at JPS has it the huge firm will relocate this year while their Kent Road Mascot site is levelled. A new facility to reunite JPS along with the separately located (at nearby St. Peters) manufacturing and export/import firm Jands Electronics will be built, sources say.

Jands Electronics parted ways with Jands Concert Productions about 10 years ago when JCP was sold. Having bought back the firm in 1990, the two operations look to synergy at the one huge site near Sydney airport.



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H A Harman International Company

168A STUDIO DYNAMICS PROCESSOR



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578 Princes Highway St Peters NSW 2044 Phone: (02) 516 3622 Fax: (02) 517 1045

Write in Reader Service number: 116

## NAMM

# New Music Market Beckons?

Baby boomers meet secretly to play rock music, retailers learn how to tap new market

When we reported recently on the world's richest garage band (using a swag of BBE gear), we thought it was just a bunch of surgeons and lawyers trying to rediscover youth. Indeed on my last trip to the USA I heard talk of another garage band, this one featuring one of the richest people in the USA, one Paul Allen of Microsoft fame.

Now there is a program in the United States called 'Weekend Warriors' which is designed to encourage former musicians to take up where they left off. A long time ago.

What happens is that a local music store promotes the concept and draws together a group of dormant muso's. Music coaching, a place to rehearse. The project is complete when the group perform a concert for their families and friends.

Along the way, the music store



has used the Weekend Warrior program to entice, encourage, and most importantly, equip the people, who preferably have a high disposable income and a lot of idle time. A quote: "The last time my daughter saw me play in a band she was a year old. When she and her fiancée heard me play in the weekend warriors concert, they were amazed at how hip I'd become over the last 22 years!"

Will the Australian Music Association try this here?

## NAMM from page 5

Mackie, of Mackie mixer fame, could be the person to take it the next step. Which is to make an interface (the controls) into a console which becomes THE standard.

Recording advances follow this, because all recording means is getting an orderly flow of audio onto disk, this could also occur at the mixer with a 1Gb Jazz drive installed. The mixer chipset already used by Yamaha in the Pro Mix 01 and the 02R have all effects, processing and virtual-everything you need, so why not just go the next step and make the mixer a recorder too?

Of course all this worries the pro audio community no end, because suddenly the end is in sight for manufacturers of outboard effects, processors and many of the current major players themselves may not adapt quickly enough.

### Wolf Wounded

One who didn't adapt is ironically the player we first heard about at NAMM when we launched this very magazine. Lone Wolf, who make Media Link, appear very much a spent force. It seems the concept of virtual control

AND monitoring of every part of an audio system using an open protocol down fibre optic cable was too ambitious, because while the technology wasn't extremely radical, the memory and speed required to do the job in large applications were.

As expressed to me: "We don't need to see what every amplifier in a concert system is doing every minute. We haven't had it before now, so why do we need it?"

If Media Link had have been less complex, it would have worked. Many audio manufacturers (including Australian Monitor here) paid good money to license the technology which they have. Problem is, it is not being adopted.

David Scheirman who presented the Media Link seminar at the last ENTECH has left the firm, and he confirms operations there are scaled down and pursuing domestic technological applications.

•Speaking of Digital Audio, Bruce Jackson will present a seminar at ENTECH titled 'Digital Audio, a pioneer's perspective'. Tuesday 23rd April, 10.45am, reference A1. Cost \$10, call 1-800-635-514 to book.

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The DA-20 is full featured with 44.1 kHz or 48kHz sampling rates and for less critical applications there's also a 32kHz long-play mode. It has unbalanced phono's for the audio ins and outs. S/PDIF ins and outs on phono's for the digital connections. One other feature is the ability to store up to 60 characters of information along with the start ID for each track.

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Write in Reader Service Number: 144

# Technology

WHAT'S NEW, HAPPENING & IMPORTANT FOR THIS MONTH

## SHURE LX WIRELESS

The new LX Wireless microphone system from Shure offers improvements including 18-20 hours battery life and is 6dB quieter overall.

The LX diversity receiver is equipped with improved front panel metering - a five-segment audio level meter, two five-segment RF level meters, and a front panel mounted squelch control. The balanced XLR is now switchable between mic and line levels.

Addressing complaints often directed at clumsy "wall warts", the power supply features an in-line transformer (a.k.a. "line lump") which uses only one space on a power strip.

Redesigned body-pack (model LX1) and hand-held (LX2) transmitters complete the line-up. The LX1 now features a tough new belt clip and is available with a choice of lavalier and head-worn microphones, wind instrument mics or a guitar/instrument cable. The new LX2 is offered with SM58 and SM87 or Beta 58 and Beta 87 capsules.

The LX Series is available as a complete system from \$1395. • Call Jands, (02) 516 3622.

## Digital Recording Finds A Removable Tape Alternative

Iomega Jazz drive offers 1Gb transportable disk for US\$100, Roland first to install Jazz inside new recording product.

Never caught napping, Roland have released the first hard disk recorder to use the new 1 Gigabyte (1000 megabyte) Jazz removable drive by Iomega.

The question with hard disk recording has always been 'how do I transport the material?' Until now there has not been an economic large format, re-recordable removable disk. The 1.3Gb magneto optical system was considered a possibility two years ago, and indeed a machine was prototyped by Augan using just such a drive. Problem was, the Magneto Optical disk only stored 650Mb on each side - and access times are slower than hard disks, even if only just. We have one at Connections.

The Jazz drive changes all that, with removable, re-recordable disks selling for around US\$100. The Zip drive was released a year ago by Iomega, with a 100Mb disk selling for US\$25 - it became a fa-



mous hit, overnight.

Roland saw Jazz coming and quickly incorporated it as an option on the new 8 track VS-880 (see story next month). Filled to capacity it allows 5 track hours recording time, which reduces as you add tracks. This is still around an hour for 8 tracks, and given the low disk cost, viable.

Just last year the transport answer appeared to be the Sony Mini Disk (MD) format, which is now available as a data storage medium

capable of holding 140Mb. However, this is not enough for serious recording, although Tascam have a Digital portastudio prototype, known as model 564, which uses Mini Disk.

AKAI are also touting the JAZZ drive as the answer, pointing out it will connect as a SCSI device outside their DR4, 8 and the new DR-16 'all in one' recorders.

Let history record that Roland were first to incorporate the Jazz drive within their product. -JG



## RØDE takes on USA

One of just three Australian firms exhibiting at NAMM late January was Freedman Electronics, selling their RØDE brand microphones which are assembled in Australia.

Owner Peter Freedman is pictured on his stand at left, the company has a new valve mic, the 'Classic', pictured right. This uses a 6072 valve, which although production has ceased, is said to be held in ample supply by the firm.

Nine polar response patterns are featured, with 2 frequency selections for the high pass filter. Cost: less than \$3000.

• Call Freedman on (02) 638-6666.

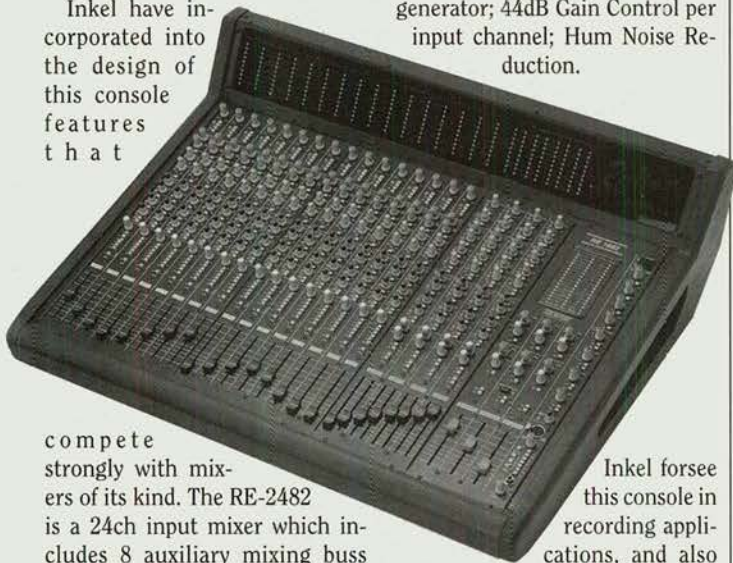


## INKEL 8 BUS STUDIO MIXER

Part of Inkel's corporate direction includes a renewed focus on the commercial and professional audio areas. To this end, Inkel have released the RE-2482 Studio Console Mixer, part of the RE-UNION SERIES.

Inkel have incorporated into the design of this console features that

Other features include: 8 auxiliary returns by stereo; Stand-By switch for Master Out; Multi-point signal monitoring LEDs in each channel for input trim and EQ adjustments; Talkback; Built-in test oscillation including pink noise generator; 44dB Gain Control per input channel; Hum Noise Reduction.



compete strongly with mixers of its kind. The RE-2482 is a 24ch input mixer which includes 8 auxiliary mixing buss sends on each of these channels, each with its own pre/post switch.

For group mixing, it has 8 mixing busses each with its own master. Channels come with a 4 band EQ with 2 sweepable mid bands, high/low shelving; 12KHz and 80KHz types respectively.

Inkel foresee this console in recording applications, and also as a FOH PA live mixer.

Inkel will be changing their name also in the near future to Inter M after mid 1996.

• RE-2482 RRP \$8700

**For more information call Magna Systems, Ph. (02) 417 1111**

## STEDMAN MIC

The N90 Microphone is hand built and designed for a variety of applications from guitar, kick drum and voice. Intended primarily for studio use, the mesh screen is stainless steel and the body is machined from 1/4" solid aluminium.

A high performance microphone, it accepts in excess of 155dB without distortion.

The N90 is avail-



able with an optional shock suspension mount and is supplied standard with a carry case and microphone clamp. A matched stereo pair are available by special order.

Studio Connections say it'll take kick drum, guitar, or sound pleasingly warm for vocals due to a neat proximity effect. Versatile.

The RRP is said to be under \$1000 including tax.

• Contact Studio Connections, Don Dowling, (02) 873 3994



## MiniDisk duo for Tascam

Minidisk may not be the consumers recording format of choice, but boy : professionals love it. Random access and cheap media are the keys.

Tascam will soon release two MD format recorder/edit machines. Both the MD-801R and MD-801P incorporate MiniDisc technology that offers quick random access and digital disc based editing facilities.

The MD-801R is a recorder/reproducer/editor whilst the MD-801P is a reproducer/editor. Both include +/- 9%pitch control, Mon-

aural recording, Jog/shuttle wheel, Auto cue and Ready Function.

An optional RAM buffer BU-801 allows start-up in less than 0.1 seconds. Edit function features include: Divide, Erase track, Combine, Move, Erase A-B, Insert, Restore, Title.

Specifications (short): Stereo 2 Channel, 74 min/148 min recording time, ATRAC Compression System, 44.1KHz Sampling frequency.

RRP \$3999 for recording unit  
\$3800 for replay unit

• Contact Tascam, (03)9646 1733

## Yamaha's new CD-R

Yamaha have stepped up the pace within the realm of CD-ROM by releasing a new range of CD-ROM Mastering/Recorders. The Yamaha Expert Series now include the CDR102, CDE102, CDR 100 and the CDE100 MKII.

It is accepted that CD-ROM is becoming the main medium for the storage of megabyte data. Using a CD Recorder allows for the creation and storage of original work or data back up, creations of libraries or the presentation of multi-media titles.

CDR102 is an internal CD recording system with double speed writing and quad speed reading. The CDE 102 is an external stand-

alone device also with double speed writing and quad reading. The CDR100 internal CR recorder is capable of quad speed write/read whilst the CDE100MKII is the external version.

The Yamaha CD Expert Series is compatible with all standard CD formats and can mix different data formats onto the same disc, important when archiving or backing up large volumes of data. The series also allows multi session recording.

CDE102 \$2695

CDR100 \$4695

CDE100MKII \$4995

• Info from Yamaha Music Australia (03) 9699 2388



Subscriptions: call 1-800-635-514

## Mackie Do Concert Console

New SR 40:8 offers elegant alternative

The first thing that strikes the eye is the footprint, Mackie have condensed the mixer but not squeezed the control surface too much. Smaller knobs and logical layout are the order of the day on this professional 40 channel console.

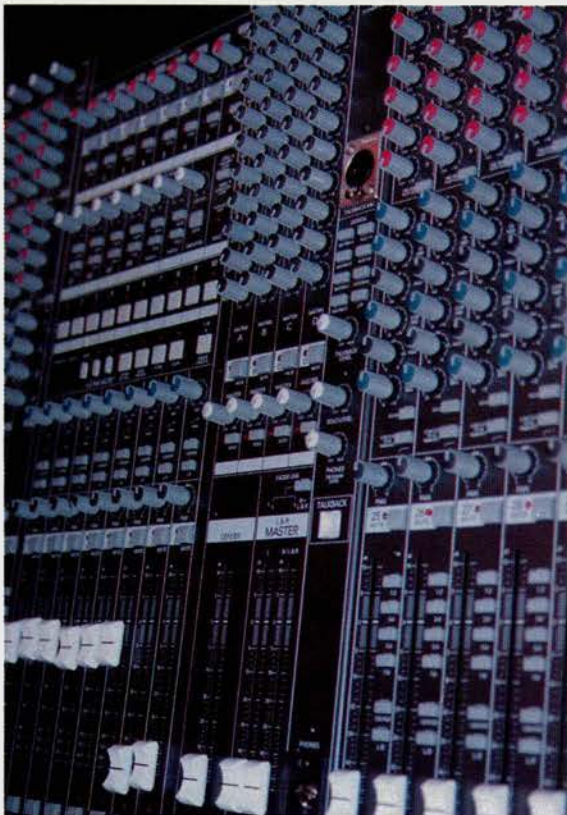
This is the second serious live sound mixer I've seen made in the USA which carries a real feature vs. size balance, the other is made by Crest and is pitched a little further up the feeding chain than this new Mackie. They both have at-

tention to detail in design, and the right feel for pernacious professional engineers.

It has 8 subgroups, 8 auxiliary sends, four band EQ with 2 sweeps, snapshot mutes with 99 memories, and left - centre - right outputs as first defined by Crest in the USA.

Not ready yet, say Mackie, but soon, and priced at somewhere less than \$20,000 is our guess.

• *Mackie: from Australian Audio Supplies, (043) 291-711*



**CROWN** are ramping up the marketing, here is part of their display at NAIM. Also of note, the sound system coming down for the Neil Diamond tour is powered by Macrotech 5000 and 3600 amps.

## TECHNOMAD GETS WET

Technomad make tough speakers, the latest is a fully waterproof creature which is pictured here at NAIM with gallons of the stuff they lessly call 'water' in LA pouring over it. Very useful for hire company use, or AV departments at exotic locations, or even installations where what are commonly called 'weather resistant' speakers are considered not resistant enough!

• *Call distributors ESA Audio for more, on (03) 9562-4602.*



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Write in Reader Service No. 123



**A stereo mixer with true LCR panning, a double advantage at half the price.**



The compact CS3 combines the classic "DDA Advantage" of sonic transparency with versatile, powerful features.

Its advanced stereo mixing performance at an affordable price gives you a major advantage for demanding concert and theatre applications. With simple operation, reliability and high audio quality it'll take on a multitude of tasks with minimum fuss.

Features are headed by true LCR (left/centre/right) panning. Unlike conventional stereo (left/right) panning, LCR panning moves the signal between three distinct positions allowing a more spatial sound stage to be created. True LCR panning – a feature of DDA's advanced QII console – can

really bring performances to life by providing greater control over vocal and effect positioning across the sound stage.

Flexible discrete group bus assignment, too, is rare on compact consoles, but comes as standard on the CS3. Any signal can be routed to the four groups, LCR or stereo mix buses, and the mono or centre mix bus. A mono signal can be panned or spread across a pair of groups or the stereo mix or, in LCR mode, between left centre and centre right. There's a full solo-in-place (SIP) system for truly flexible signal monitoring.

With LCR mixing, plus DDA reliability, audio transparency and a 3-Year Warranty, this is a console that doubles your advantage for half the price.



**CS3 Features**

- ▶ 40 Input Module Frame available
- ▶ Stereo and Left/Centre/Right Panning Modes
- ▶ Individual Routing to Groups



16, 24, 32, 40 Channels

- ▶ Solo In Place Mode in addition to PFL and AFL
- ▶ Parametric Mid Frequency Equaliser
- ▶ Remote Mute Switch Access
- ▶ 4 Stereo Inputs on each Console



## Audio Seminars Announced

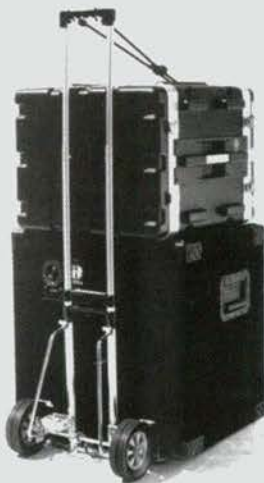


## Panasonic DAT

Panasonic announce the new SV3800, successor to the popular SV3700 which has been in the market for five years.

The SV3800 is a rack mount DAT with +4dBu/-10dBu switchable balanced analogue I/O on XLR connectors and multiple digital interfaces. These are AES/EBU, IEC 958 and Optical, and are all selectable from the front panel.

In addition the unit features error rate readout, shuttle wheel, hour meter (we like this feature - ed) and high performance A/D one bit converters. An optional wired remote control is available at extra cost. The unit is less expensive than the SV3700. Naughty Leon Hart at Studio Supplies didn't tell us HOW MUCH cheaper, so call him and ask. (02) 9957-5389.



## Cart A Bag down under

Each month Max Kay PR in London ship us about 200 news releases, mostly skewed towards the northworld.

One we can use is the announcement that Kart-A-Bag have an Australian distributor.

They are: **Le Mac Video**, (call (02) 9438-4488). The range includes such gems as the 'Super 600' (above), for feeble musicians or standard drummers. There is an extensive range of Kart A Bag products, and they look cool.

## Fairlight 2 Tracker

Fairlight, the Aussie technology exporters, introduce the DALI-2T, a 2 track recorder (below).

Originally conceived to create a cost effective platform for Fairlight's Time FX software, it also is good for 2 track sweetening, editing and mastering functions. Onboard DSP effects include realtime 4 band parametric EQ and a 4 stage digital dynamic range

processor. It will do neat time compression, expansion and varispeed things. It's touted as a time machine!

It does 2 track editing with adjustable crossfades, level management and PQ encoding for CD makers.

The retail price is US\$9990.00.

• **Call Fairlight for more, (02) 9975-1230.**



Connections Publishing and ENTECH are delighted to present Bruce Jackson, who embodies the versatility and the character which makes our technicians world-class. Bruce was soundman to Elvis, Bruce Springsteen and most recently won an EMMY for Barbara Striesand's live sound.

He is president of APOGEE Electronics in Los Angeles, and also hails from Sydney.

Bruce will present two audio Seminars during ENTECH. The Audio stream has been announced:

**Digital Audio:** A pioneer's perspective. Tuesday 10.45am. Ref: A1

Bruce Jackson talks about a subject dear to his heart. Discover where it started and ponder where it is going! What is YOUR digital audio future?

**Mic techniques** for acoustic instruments. Tues. 12.15pm. Ref: A2

How to best mike a piccolo? Studio and Live, we delve into the best techniques, mic types and likely results when confronted with that difficult scenario.

**Bruce Jackson**, the Super Star PA Session Wed 10.45am. Ref: A3

Hear how it was done by the Emmy award winning sound engineer for Elvis, Babara Striesand and Bruce Springsteen. Sound in the round, stereo imaging and lots of practical anecdotes.

**Mastering, CDR**, formats for archive. Wed 12.15pm. Ref: A4

Is CDR a mastering format? Come to think of it, is it the right format for long term archive? And what are your mastering options?

**Choosing studio monitors.** What makes a good speaker? Wed 1.45pm. Ref: A5

Nowadays it's almost all nearfield and midfield, but we throw some curve balls when we gather the experts to define what they think you need.

**Digital recording levels.** Wed 3.15pm. Ref: A6

What standard should we pursue? What is hot, cold and medium? Where do YOU mix?

**Gain before feedback.** Wed 4.45pm Ref: A7.

The EQ, compression and microphone technique supersession. Got to amplify dialogue when the subjects care little for mike technique? Need to find the right compression setting? Settle down for an hour while we get your level!

• **Other streams: AV/Video, Lighting, Business. Info: 1-800-635-514.**

# VENUES

With Natalie Apostolou

• New Zealand received an airshipment of 500 gaming machines. The recent arrival came from Sydney and occupied exclusive space on a Qantas jumbo. The machines which were a combination of poker, keno and slot machines are valued at \$5 million and are headed for **Harrah's Sky City Casino** which opened during January.

• **The Reef Hotel Casino in Cairns**, opened on January 31st. The \$220 million complex is the initial phase of infrastructure projects planned for Cairns during 1996. The ambitious developments include a \$55 million revamp of the airport and a convention centre.

• **Cessnock City Council** has received a development application from Sydney architects Figgis and Jefferson to construct an \$8 million dollar hotel conference centre and vineyard complex.

The development is proposed for a site in Pokolbin. The architects lodged the application for developers Votrait No 380 Pty Ltd, who have gained approval for a residential vineyard estate close by.

The tourist development, covering a 20 h area will include a hotel and function area, winery, small shopping village and holiday cabins. Merv Pyne, the Mayor of Cessnock, will call a special council meeting to be held in early February.

• Newly appointed General Manager of the **Wynyard Vista Hotel** is Gareth Saareman. Gareth was previously group general manager of Medina Apartments and was Virgin Group's Voyager Hotels and Clubs' (London), assistant general manager.

• Sydney's **Hopetoun Hotel** is recapturing its past glories. The venue's new management has been slowly re-introducing live bands which are now featured most nights. The January residency from Scarlet kept the drinks flowing. Bookings are made via venue management.

• **The Australia Asia Pacific Hotel**

group has assumed management of the **Holiday Inn Menzies**, as of the 1st of February. The Hotel will be renamed the All Seasons Premier Menzies Hotel and has recently had an \$8 million refurbishment. The Australia Asia company is the management wing of the hotel property group Thakral Holdings.

• **The Victorian Arts Centre** is awaiting final approval from the Victorian Arts Minister, Mr Storey, for a \$50 million redevelopment. The project has been prepared by the Buchanan group and has attained approval from the Victorian Arts Centre trust.

The \$225 million dollar centre is the hub of the Melbourne Arts community. Re-development will include extensive re-building, new buildings for the performing arts and a new gallery.

• Melbourne City is making strong moves for the preservation of law and order on **King Street**. They plan to spend \$360,000 towards installing 10 video surveillance cameras along King St's club boulevard.

• St Kilda's legendary **Esplanade Hotel** is currently in the process of changing owners. One of the new owners Bruce Mathieson, caused a buzz of concern as he reportedly controls a large proportion of gaming machines in Melbourne. Owners are insisting that the cardies will not take the place of live entertainment.

• A new appointment has been made at Melbourne's **Convention & Tourism Authority (MCTA)**. Gary Grimmer, one of the USA's leading convention and tourism executives, has been given the position of the MCTA's new CEO.

One of his immediate tasks will be to supervise the proposed merger of the MCTA with Melbourne City Marketing to create a 'new super marketing body' for Melbourne. The new body will be known as the Melbourne Convention and Marketing Bureau.

• The owners of Melbourne's **Tun-**

**nel night club** are reportedly opposing the construction of an 11 storey hotel being built on a near by site. Tunnel owners have expressed concern that the hotel development would cause on-going friction and potential risk to hotel guests. The Hotel's developers Salzer Constructions have countered the attack by stating that King St's problems were exaggerated. The matter is currently being heard by the Administrative Appeals Tribunal, who plan to inspect The Tunnel nightspot.

Controversy over King Street has escalated, particularly due to a Boxing Day incident outside the Tunnel, that left a 24-year old male hospitalised with a brain blood clot.

## Hire Suggestion

### Trocadero Dance Studio

The Trocadero Dance Studio in Burwood, (Sydney) opened in late 1995 and is enjoying immense popularity as a social and professional dance centre and studio.

The two storey complex boasts 600sq of uninterrupted dance floor space, ideal for competitions and shows. The sprung dancefloor is low-impact and is specified for non-injury.

Smaller areas are available on request. The studio is equipped with a variable speed sound system and is air-conditioned. Ceiling to floor mirrors and a Trocadero themed decor feature. Full facilities include change rooms, spacious bathroom, kitchen, lounge area, refreshments, overhead projector and keyboards.

The studio has been a focal point for rehearsals of the South Pacific Dance Championships and the Australian Ballroom and Latin Championships. Classes available cover Ballroom, Rock and Roll, Latin American, Jazz, Tap, Drama, Funk, New Vogue, Swing, Advanced Technique and Tea Dances. Teachers include the Australian Ballroom and Latin Champions. Instruction is specifically catered to social, modern and/or professional tuition.

The Trocadero hosts a Charity

Cancer Council ball on the 14th September 96, an annual event with all proceeds going directly to cancer research.

Capacity up to 1000. Free carpark (Westfield nearby)

Rates: Small Room \$20/ hour. 1/2 day \$50-\$60. Day \$95-\$120.

Shared floor space \$10 per hour. Rates include use of stereo and full facilities.

Contact Eleni Mitakos or Robert Imms on: (02) 744 7078.

## Events

• Hawaii will be buzzing from the 10-18 of February as it hosts the 1996 **World Conference on Club Management**. A strong contingent from Australia is on its way.

• Back in Sydney, the annual **Australian Hospitality industry exhibition** will be held at Darling Harbour from February 27-29. The event, sponsored by the Australian Hotels Association, aims to showcase innovations and developments from major industry suppliers, manufacturers and distributors. Technology, design, equipment services and more, from Australian and overseas will be featured. A national Cocktail championship will be held during the exhibition. For further info call: 02 436 3266.

• The Club Managers Association of Australia will be presenting a two day conference and trade exhibition on 'Technology-Advances & Effects'. Held on March 24 and 25 at the AJC Function Centre, the event will cover issues of future growth and productivity of Australian business as it reacts to changing technology. Contact the CMA on (02) 316 6788.

• And of course don't forget **ENTECH**, April 23- 25 at the Sydney Exhibition Centre. Call 1-800-635-514 for details.

Send your Venue news clearly marked "VENUES", to PO Box 439, Epping NSW 2121 or fax (02) 876-5715.

# Audio Visual

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## RENAISSANCE FOR SLIDE PROJECTORS?

*Sometimes the old way is better, Julius Grafton examines why people still stuff slides into magazines .....*

Almost all screen presentations use video data projectors, because most people like to prepare their material on a PC, right? But what of those persisting with multiple slide projectors? Are they luddites, or simply clinging to old technology?

Resolution is the answer, and the R-word which every savvy computer user likes to ignore - until they've spent a lot of money outputting their PowerPoint or Harvard files at a presentation, product launch, or seminar. Chances are their audience has done the collective grimace, because some scanned images look inferior, especially when projected up onto a large screen.

As magazine publishers, we know too well about resolution, and we're only dealing with an A4 sized page! The image you love on your 17" or 21" PC screen doesn't necessarily survive the trip to the printing press, let alone video projection. It's all about pixel's.

A recent case illustrates why the slide projector will be around for a lot longer than you think. Kevin Hammond, our AV consultant for ENTECH, tells of a seminar he worked where a visiting expert did  
*(continued over)*

**Neil Diamond to bring complete system.  
See page 27**



Pic Bob King

## Video for The Eagles

TOURING VIDEO ONLY WORKS WHEN DEPARTMENTS CO-OPERATE. CAT FORCER TELLS:

**T**he Eagles tour *When Hell Freezes Over* finally arrived at the Sydney Cricket Ground and the most notable technical aspect was the linking of the stage with the two flanking screens. The screens were designed to be an integral part of the show - in fact lighting designer Nick Sholem describes them as another two stages, not extensions to the main stage. The video is part of the whole flow of the show and the colour quality was exceptional.

"Because what you see colour wise to the live eye on stage is identical to what you see colour wise on the screens," said Nick. "It ends up three of the same and that's what I'm really impressed by. In the old days with the GE's there were col-



Carol Dodds (Video Director) with, Nick Sholem (left) and John Hicks



our problems so the footage looked like a video."

"Basically the GE was a projector that was developed for simulation situations for the government," explained John Hicks, Video Technician. "Because it was the largest projector manufactured it became used for concerts. Technicians learnt to adapt it the best they could.

John was using Hughes Video Projectors and he claims that Scott Chase from Hughes can see col-

our better than anybody he knows, even the subtlest of changes. He dials in the colour for the Hughes projectors, tells the two operators little changes to make and he balances the screens so that the colour on the screens is exactly the same as on the

*(continued over)*

# SOME AMPLIFIER MANUFACTURERS MAKE THEM TO A PRICE! AT AUDIO TELEX - WE MAKE THEM TO LAST!

Audio Telex design and make amplifiers in Australia, for Australian and New Zealand Sound Contractors - and we can say with all due modesty - "they like them"

To our surprise, so do Sound Contractors in Singapore, Malaysia, China and Saudi Arabia, which all goes to prove that when it comes to quality amplifiers - the choice is universal.

Audio Telex have a range of innovative quality mixer amplifiers, all with universal XLR balanced microphone and RCA phono inputs. They range from three up to six channels and all feature overload and short circuit protection, heavy duty approved transformers and generous heat sinks to ensure reliable operation even in high ambient temperatures.

When it comes to power amplifiers, we have an impressive range. All models are AC/DC operated and range from 120 up to 500watts. A feature of these amplifiers is their compact size for rack mounting and their ability to operate from 24 volts DC in emergency situations.

Audio Telex now have a 120watt receiver amplifier, which features a digital am/fm tuner and built-in monitor speaker. A version with both tuner and cassette player is also available.

Designed and made right here in Australia, we are developing an industry, employing Australians, and proving that Australians can compete with the best of the rest in any market. Ask for more information from Audio Telex.

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**AUDIO TELEX**  
COMMUNICATIONS PTY LTD

## SLIDES (continued)

a two hour presentation each day for a week.

"He arrived with 50 slides and a laptop, the slides were shots of X-rays and anatomy, which wouldn't scan well into a PC. The laptop had PowerPoint loaded, so he needed to run both slides and data projection. The question was, how do we control this? A script is the first thought, but it gets unworkable."

"We talked, and ended up with a system whereby I would operate the laptop and the slide remote from the back of the room, and he would cue me with a pushbutton cuebox. Red meant 'slide' and green meant 'data projector'. Then we had a fixed mic to one side with which he could mutter quick instructions to me, which I monitored through a little speaker next to the control position. Finally, we had a phone".

"He used the phone when he

needed 2-way communication with me, like to say 'I'm running behind, and so I will skip the next six slides, is that OK?' and so I could respond".



Hammond would dearly love the next version of PowerPoint and such programs to come with a hardware interface, so the computer can send a signal to the slide projector when it's time to show a slide. Kodak's new Ectapro slide projector has a P-bus slot for connection to multi-screen slide show

systems, which could take a computer signal too.

Clearly, the immediate access to your material is the major attraction when using a PC program. Slides are loaded in sequence, need to be processed, and are expensive. Furthermore slides are usually not backed up. How many times have you seen someone produce a tray of slides for a show and yet they don't have a duplicate set?

A slide in a cardboard mount is not an option, they get damp and open up, then jam and catch fire. Thin plastic mounts bend. Glass mounts are the only option, and even they can jam. There is always a technician on hand near the projector stack at a large multi screen presentation.

But the slide lives on, due to the R-word. Meantime, a new data projection technology may change this. Digital light Processing (DLP) is a new way to make pictures.

DLP utilises a microchip on whose surface is a grid of thousands of tiny silver surface mirrors. Each mirror in the grid can move 20°, so if mirrors are required to emulate Red, say, they swivel into the 'on' position. The light source has an R-G-B colour wheel in front of it, linked to the chip. When red light is flicked through, the mirrors work at high frequency, ie: they are faster than the office cat at feeding time! DLP is a development to watch for.

• A seminar at ENTECH '96 will deal with slides vs. data projection, and illustrate resolution concerns first hand. 'Slides Vs Data', seminar L3 starts at 4.45pm on Tuesday April 23, the first day of ENTECH. Further AV specific seminars (including one dealing with DLP) are scheduled in a program of 20 seminars during ENTECH, which runs for three days until Thursday April 25th. The trade show itself is open from 10am until 6pm, and entry is free, just walk up and register.



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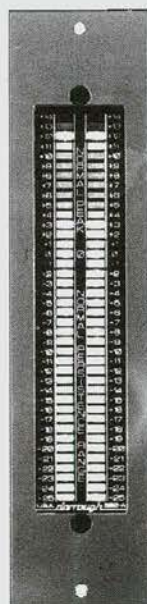
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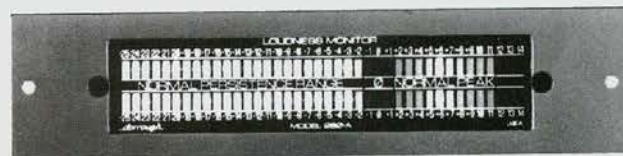
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Write in Reader Service number: 135

## Neil Diamond Tour to import production

**HOLLYWOOD:** The forthcoming Neil Diamond tour downunder seems set to exceed the previous outing in 1992 which proved to be the most sustainable tour that year.

This time out the tour has already sold more dates than any other act seen in Australia during 1995. With a large tour party expected to be in Australia for almost two months, the production equipment will ship from LA on February 17 for first dates late March.

Sound Engineer Stanley R. Miller told Connections it was a question of economy and also fitting the show, which is in the round with a turning stage.

"We will bring our entire system this time and are not using a local contractor for speakers and amps. Size of the speakers system and positioning with respect to other elements of the show is very important also".

"Our system consists of four speaker clusters positioned around the stage. Each cluster has a very wide dispersion (120°) and the system operates in a stereo mode. The loudspeakers are all JBL. The boxes are modified Concert Series product".

• **Stan Miller will conduct a technical tour of the Neil Diamond show during ENTECH. Cost: \$72 including a concert ticket. Book: 1-800-635-514.**

## EAGLES video

stage.

"During the show my intercom has the video director in one ear and Nick in the other!" said John. "I'm shading the cameras, listening to Nick's spot cues and waiting for drastic changes in the lights so that I can adjust the irises. When we have an imbalance happening on the stage from the local FOH spots, Nick and I make changes putting in MD filters.

"I really believe that the video crew that we have is one of the best in the world and we really gel. The combination puts together a really good show. The four camera operators serve up the shots for Carol Dodds our Video Director, and they go after the best shots they can. We have a hand held operator, Dave Neugebauer on the stage who is one of the best camera operators I've ever seen,

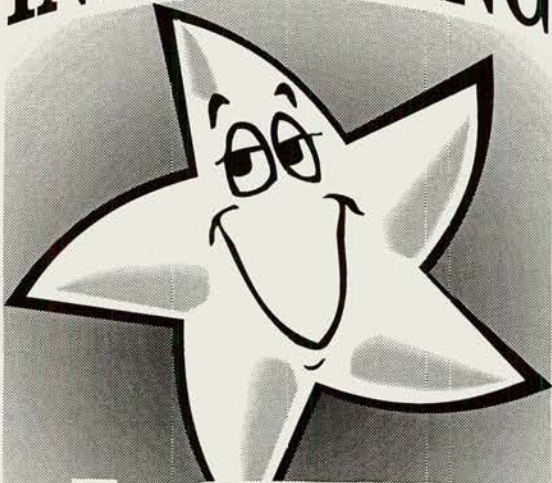
he can hold a camera so steady you'd swear it was on a tripod and move it with the grace of a ballet dancer. Jay Strausser operates the Jimmy jib which was brand new to him at rehearsals but now he's one with it. Skip Twitchell works on a dolly camera across the stage and Dave Driscoll does FOH. They really are the cream of the cream.

"Carol Dodds put this team together for Chris Lamb and he really expects the best from everyone on every show. It's not the kind of pressure where you feel you have to do it, you do it to do it."

One highlight of the show was the song *Ordinary Average Guy* written by Joe Walsh who wanted to run a slide show of pictures with the song. Now at every gig pictures of the crew and local crew are added, in fact the segment is

(continued)

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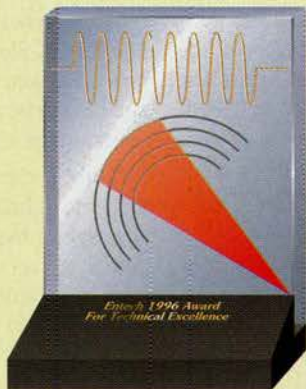
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# Connections



# AudioVisual

## Eagles. Video

(continued from previous page)

edited constantly.

"In the beginning we'd transfer the pictures onto a tape and then edit them onto the final tape with the music," said John. "It got to a point where we needed an easier way to do it so we ended up buying a Sony Stills Store machine which basically records frames on a computer disk. You can put the computer disk in a camera and we can use it to shoot whatever we want, immediately put it into the playback machine in the rack and edit it straight in. Instant pictures, good quality and a wonderful tool for us for this song."

Lighting is The Eagles is tricky as there are five stars on stage who all need to be equally lit at all times - not just so the cameras can go anywhere whenever they want to but also for the live audience who want to see them all. The show runs for nearly three hours.

Nick Sholem, LD, wanted to thank Bytecrafft and Jands for the support he received from them in Australia especially local crew chief Nicky Koumos from Jands. He also wanted to make sure that Nook Schoenfield, who looks after any technical requirements and runs the Wholehog during the show, got a mention.

"As for me - don't ever accuse me of working on this tour as I haven't done a days work yet!" joked Nick (John reckons he doesn't turn up until half an hour before the show!). "My responsibility is commander in chief of all things to do with lighting therefore if any of the band have a question, problem or comment then it's to me they'll go to. All I do during the show is call the spots. My two boys, Ken and Nook, are old enough and ugly enough to absolutely get on with it and deal with whatever problems occur. I do the spot meeting which is actually quite long (about half an hour) because I really have to clue the operators into what's happening. It's an easy show for spot operators but they have to pay great

attention to accuracy because of lighting for the cameras. We can't have spots drifting about the stage. The best spot operators in the world are the Japanese but I have to say the Melbourne operators were well up there."

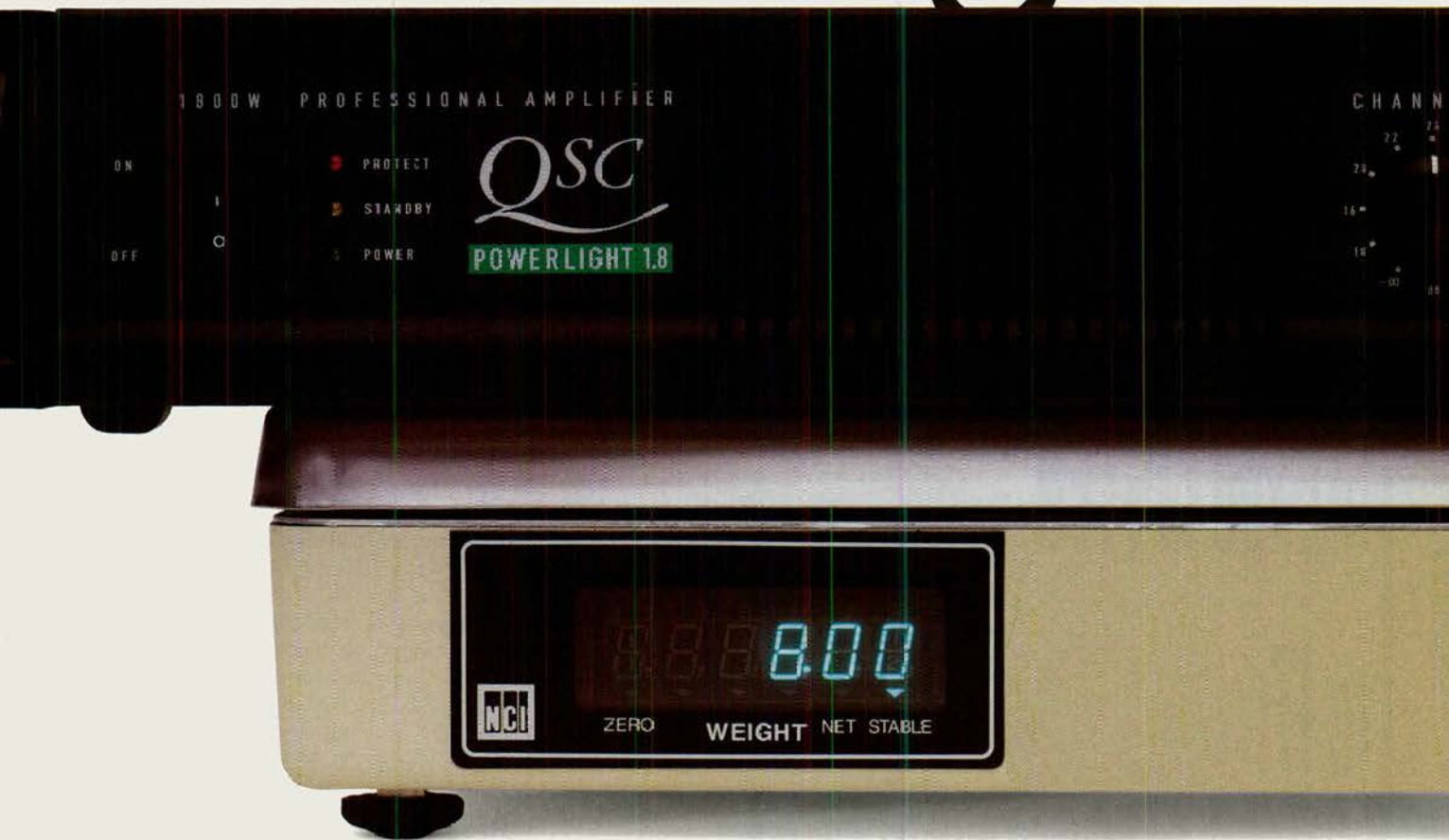
This is the first show where Nick doesn't use any colour on his spots apart from in *Boys of Summer* where there is a hint of red. Neutral density frames are used to even balance for the live eye and the camera during the first song *Hotel California* and by the second song the stage is dialled in.

Video Director Carol Dodds believes that everybody is getting more and more attuned to video orientation, if you enter a room you're most likely to look at the TV first if it's on. Consequently, coming from a lighting and theatrical background where the lighting is subjugated to the performer, she approaches the video aspect from the same direction on this particular project. It's a complete turnaround from U2 in which the video was the show. With The Eagles, where the screens are massive in perspective to the performers and the potential is there for complete and over riding power over the spectacle of the performance, Carol has worked to have the video integrated in to the performance.

"We've incorporated it into one and made it work as an entire unit," she said. "It never over takes what is happening on stage. It supports rather than over powers."

While on previous projects Carol has worked with the lighting designer to incorporate the video as a lighting tool, with Nick it has been done on a subtle level and the lighting has been incorporated into the video aspect.

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## AV ASSOCIATION NEWS

Presenting....FOCUS! The Federation of Communication Users and Suppliers - a new name for the merged association between the Australasian Presentation and Multi-Media Association and the International Television Association. The new name was chosen by the APMA committee of management and voted in at an extraordinary general meeting on November 30th.

So, what's different apart from the name? Well, with an expanded membership and responding to member needs, our Membership Services Subcommittee are concentrating on consolidating and improving the existing services, like adding a Membership Card, an incentive program linked to the card to accrue points for further discounts and freebies, a regular Blue Dog Club program, identifying training opportunities for FOCUS members from existing courses and seminars and making local contact with members in each city. Their mission is to make your association more meaningful for you and finding ways of encouraging you to play an active part in its success.

Today, we are a mature industry, our members communicate in a range of new media, but our core discipline - creative multi-media communications for our clients remains foremost. FOCUS is an organisation committed to the unique activity of creating meetings and presentations. We "focus" on no one delivery medium, rather on the end result - communicating the message to the audience.

Through our members' participation, we are able to annually judge, stage and reward major presentation media in the original format for which they were intended. These awards and accompanying seminars have enormous benefits to manufacturers of equipment, the producers and the attendees, be they experienced, novice or students who may otherwise never share our efforts.

Like all good associations, ours relies on members to share knowledge. Producers enter and allow their best works to be shown; equipment suppliers donate equipment and staging specialists to

bring out the best in these presentations; judges and organisers donate their time and travel money to make the event a success.

Even in today's increasing competitive environment, members and their employers are prepared to share these resources for the betterment of the industry and our livelihood. Our visions are based mostly on reality, we realise we have a long way to go to provide maximum value in our efforts, our advertising, our conference and education program. We are working on it and have a keen management committee.

This year we aim to provide opportunities for members to network on a regular basis and include educational elements through our Blue Dog Club. We are currently working through the re-branding of our association as FOCUS with a new logo and stationery as well as a Membership Kit. The Kit will include the Membership Card, code of ethics, industry discounts from suppliers and the use of the FOCUS logo on your stationery.

Our conference and awards judging is one of the few places producers and prospective clients can see new ideas, new media and a level of excellence they may not have experienced before. This year the annual Producer's Festival will be held in Sydney, around Sept.

We have initiated the following member services contacts to assist you with any enquiries on a local basis. In Brisbane, call Lester Jurrot at Stagecraft (07) 3847 3777, in Melbourne, call Victoria Maxwell-Davis at Australian Business Theatre (03) 9827 6511 and you can call Sharon Cartwright at FOCUS on (02) 9953 6768.

Investigating the policies of the major convention centres in Australia with regard to exclusion of private staging and production companies remains a commitment of the Venue Task Force. You are invited to comment on any experiences you may have had in this area by faxing the Task Force on (02) 356 4883 in the strictest of confidence, or you may be interested in joining the team.

-Russell Bennett, President

## NMS changes name

**New Media Systems** is now trading as **SOUND CONTROL AUSTRALIA PTY LTD.** The move in direction has brought with it a commitment to sales and marketing of Sound Control Technologies high quality teleconferencing products, they say. Additionally, SCA has commenced manufacturing a range of teleconference mixers and accessories in Australia. Sound Control Australia will continue to manufacture their logic-controlled motor and power interfaces which are extremely popular with AV integrators.

The address, phone and fax numbers stay

unchanged from those of NMS.

Secondly, the SSC-200 digital video split-screen encoder/decoder is now being manufactured under licence in the US and was featured recently in the PictureTel Connections guide for integrators.

They will be continuing manufacture of the SSC-200 for the local market. Video, audio and data communications has never been so healthy and SCA are dedicated to providing quality solutions for corporate and education markets and supporting their fledgling dealer base. Call Mike Dodds on (02) 418-6388.

## Audience Motivation win international award

"Taiwan - your next meeting destination", produced by Sydney based Audience Motivation, took first prize in the AV section of the worldwide awards made by the 1995 Association Internationale Des Palais De Congres (AIPC) in Sweden recently.

"The Taiwan Convention Association (TCA) were looking for a special approach with this project, not only superior production values but something unique in the message" said Audience Motivation producer David Smith.

In order to achieve the client's aim, the Audience Motivation crew had to quickly find out what made this emerging economy tick. The answer was - its people.

"With its educated English speaking workforce, Taiwan offered a unique cultural environment which we filmed in detail", commented David. "The dynamic mix of cultural influences combined with the people's genuine openness and warmth proved to be the hook that made this video a winner".

Audience Motivation recorded the soundtrack at its Sydney studios, using Chinese musicians who imported instruments especially for the occasion.

Multilingual versions of the final video were made for worldwide distribution, and Taiwan has already won major convention business as a result, say Audience Motivation.

•Audience Motivation, call (02) 332-2400.

## SA Music Industry Awards Goes Corporate

The world's of corporate theatre and rock and roll were united when Multivision staged the 1995 South Australian Music Industry Awards (SAMIA). Multivision had an open brief to supply staging services for this prestigious event at the Thebarton Theatre in late November.

Multivision Operations Manager Craig Williams said: "we were asked to assist in raising the profile of the event, so we turned it into a production. Most of our work is in corporate

theatre, but we work with bands all the time for awards evenings. The 'technical' were never an issue".

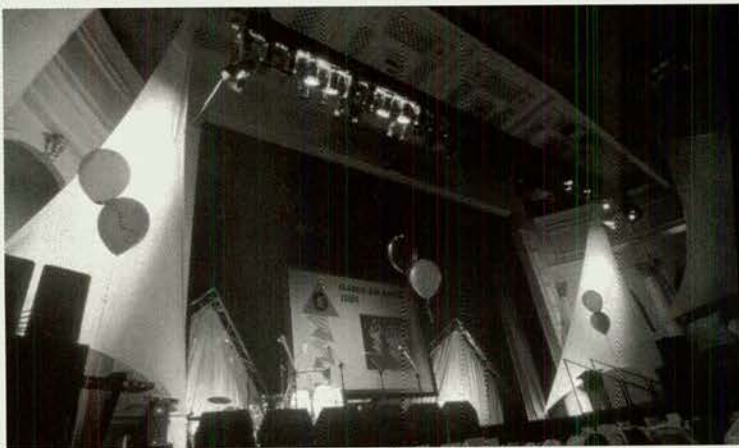
The 500 strong audience saw the nominees on a 16 x 12 screen, with visuals and music stings of the winners played as they made their way to the stage.

To add substance to the stage area, giant strips of lycra were stretched and lit, whilst other pieces were draped between internally lit aluminium

trussing. This material, as well as the Deltamax and Meyer sound system, lighting, and data projection was supplied directly from Multivision's warehouse.

A job well done, according to those there!

•Multivision, call (08) 371-1948.



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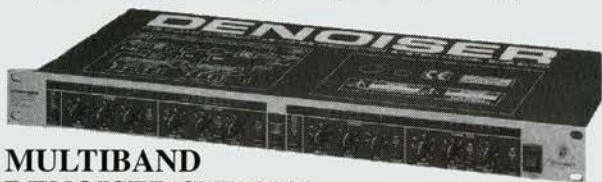
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## HIRE & PRODUCTION NEWS

◆ **Norwest Productions** in Sydney have added to inventory, with a new K3 Soundcraft 40:8 console, and a preloved Europa 40 channel console. EAW JF260 midhigh and EAW KF 650 3 way cabinets have also been added.

The firm reports a variety of work including corporate functions, NSW dates for Lee Kernaghan; and Vibes on a Summers Day. Call Damon Hartley, (02) 809-0244.

◆ **AAA Production Services** in Perth have supplied production for Buddy Guy at the Perth Concert Hall, Max Sharam, Weddings Parties Anything, and Vika and Linda Bull -all on WA tours. Call Simon Hunt, (09) 317-2055.

◆ **Concert Lighting Systems (CLS)** had a washout on New Years Eve in Melbourne's City Square, and fought mud at Rock Above The Falls in Lorne. They have also supplied a lighting rig for the Adelaide production of Cats. They despatched better than \$500,000 worth of gear to asia for the Les Mis tour. Call (03) 9646-8444.

◆ **Durham Audio Visual Hire** of Melbourne have just added two Barco 72" retro data monitors. These monsters deliver a 6' image from either data or video and are believed (by Durham) to be the largest self contained single screen monitors available in the land today. Call Gary Ashmore on (03) 9690-2288 for more.

*(continues over)*

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## HIRE & PRODUCTION NEWS

◆ **Production Works** in Tasmania recently purchased a new Midas XL200 to replace their tired PM3000. The new Midas has already done work with James Blundell, Julie Anthony and the Tasmanian Symphony Orchestra. Production Works on 002 311 505.

◆ **Nova Productions** in Canberra recently took over Topstage Productions and in doing so relocated to Unit 1, 41 Tennant st, Fyshwick. Tommy Powell moved across from Topstage. Call Nick Nonas at NOVA on 06 239-2722.

◆ **AVLA**, the Perth company, recently did the Entropy RAVE with a 30,000w PA. Turbo speakers and

MSR amps were used. Live linkup of the main stage was shown on a 9 screen TV wall, and a 12 x 9ft projection screen displayed the talent. Lights were Clay Paky and Martin moving lights. Call AVLA on (09) 227-1399.

◆ **Events (NSW)** located in Wollongong have been busy, and have added extra Deltamax systems. They say they did so many Christmas Carol Concerts they know all the words. They have also just moved, to 47 Auburn street Wollongong. Call 042-296-010.

◆ **System Sound** designed and operated Dame Kiri Te Kanawa's January 1996 outdoor concerts in

Queenstown and Hamilton, New Zealand. Also, the Summer Live Festival trialled System Sales' Meyer self powered loudspeaker system in Melbourne Concert Hall. 2 MTS-4s with 2 PSWs (as a left/right system) were run with 3 MSL 4s as a centre cluster. The Yamaha PM 3500 generated a lot of interest too. Call (03) 9529 2633.

◆ **Musicbox Entertainment** have been working their new Midas XL200 console hard, with tours for Rick Price and Tommy Emanuel, and work through January at the Sydney Festival at the Sydney Opera House. They operate a large EV system too. Call Musicbox on (02) 550-0522.

◆ **Graftons** in East Sydney (no relation to the editor) have new people: Paul Martin is Sound Hire Manager, Ves Campion is Sound Sales Manager, Kevin O'Connell is Lighting Production manager, and Chris Curran is Lighting Hire Manager. Sound have added extra AM amps and Spirit Powerstations, while lighting lit Sydney Tower last New Years Eve.

◆ **Black Express** in Sydney have added a neat swag of Martin Roboscans to hire, 6 Pro 1220's, 8 Pro 518's and another 8 Roboscan 812's. They have over 100 Roboscan's now. Call them on (02) 559-4363.

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# Behind the Screen



Well, actually in the projection room at Chatswood, where Cat Forcer went to see what Hoyts are using these days

**T**he opening of the Hoyts Cinema complex in Chatswood, Sydney was the third such complex opened by Hoyts in the space of six weeks.

Technical Manager Mike Davis, who describes his job as looking after everything that doesn't breathe, was responsible for all of the complexes.

"I look after Hoyt's investment in all new properties and over see the construction to Hoyt's standard," he said. "I co-ordinate all new technologies and installation maintenance. Lastly, I co-ordinate with the different services such as architects, hydraulic engineers, electrical engineers etc. I'm also responsible for budgeting."

Technically the three cinema complexes are very similar with only a variation in projection equipment. At Chatswood the projection equipment is predominantly Christie whereas one of the other complexes has Kineton equipment which had been refurbished. The sound systems, screens, acoustics are basically the same although visually, the buildings

are quite different.

Christie projection equipment comes from Los Angeles and they are the second largest projection supplier in North America.

"We are using a P35GTAT projector which means it's 35mm only," explained Mike. "They are fully automatic and decked out with reverse scanning LED optics for optical sound format. This gives us virtually a 20Hz to 20kHz response. We had the automation systems made locally by Penrywise Peripherals of Melbourne. It was a big step for us moving away from something we'd used for years and so we're very happy with the product."

The lights in the cinemas are automatically controlled by the projection equipment to dim at certain points. They are at one preset level when the slides start, dim further to another preset level when the trailers run and when the main feature starts, they go right down.

The projection room at Chatswood houses all eight projectors for the complex.



Technical Manager Mike Davis

## HOYTS (continued)

The sound system comprises Altec 9444B amplifiers, Electrovoice EV speakers and the sound processors are all based on a Model 4215 stereo made locally by Ray Derrick of Castle Hill. There are three different types of digital processors used at Chatswood.

"We haven't leapt into putting digitals through as the market place hasn't sorted out what is going to happen yet," said Mike. "We've got one Sony SDDS system in Cinema 3, one DTS system in Cinema 8 and one Dolby Digital SRD system in Cinema 1."

The Sony SDDS has a separate sound track contained on a CD type disk and there are two disks per film. On the DTS system the time code is inboard of the standard optical sound track so it's physically between the picture

area and the soundtrack contained on CD disks. With the Dolby Digital the sound track is on the film with the digital information contained between the perforations on the film. With the Sony SDDS, the two digital soundtracks are on the extreme left and right of the film outside of the perforation area.

Architect for the Chatswood complex was Scott Lamb of PMDL Architecture + Design who had to balance the architectural needs with other needs such as the electrical, mechanical, hydraulic and acoustics. Scott comes up with a general plan for an auditorium and within that there has to be a number of elements - air conditioning, lighting, speaker stage runs etc - which have to be balanced against the acoustics of the room. Scott has a good idea of the basic requirements and once they

are done, an acoustic consultant is bought in.

"We have to make sure the walls are treated so there's no sound transmission from one cinema to another," said Mike. "It also enhances the acoustics within the environment. We make sure there are no bad anomalies in the auditorium such as reverberation or diffraction of sound."

"When we look at a particular lease area we're going to have for a cinema complex we come up with the positions of everything and then look at the foyer to come up with a theme for the building," said Scott. "That concept involves everything that goes on both operationally and appearance wise. Lighting is one of the big points for us because it's the one controlling feature we have over the environment. We can make a dark space and then do anything we like with it with the use of lighting."

"So it's one of our primary tools in creating spaces. We have different theories for different areas, like we may create a reasonably dark environment in the foyer but highly illuminate the candy bar or the ticket area, drawing people's eyes to those spaces. In this particular location we were

dealing with a large foyer with a large natural light component so we were looking to create an open space with a strong ceiling line and columns.

"We wanted to create a lighting effect in the ceiling that would work in both day light and night. We chose to use fibre optics in craters set in a black ceiling giving us a strong night time sky effect. The red columns have very narrow beam spot lights on them to high light the effects of the material used on them which is a vinyl with a metallic fleck in it. The metallic fleck glints and shines with the light on it."

The tunnel which leads from the foyer to the cinemas is dark with a plasterboard wave ceiling housing fibre optic lights. A wheel cuts off the light to each fibre every second or so giving the appearance that the ceiling is moving and sparkling.

Light fittings behind the Candy Bar need special consideration because ordinary quartz halogen down lights tend to melt the chocolates! Instead Modus 56 watt vl fittings are used with a specially designed reflector which distributes the light almost horizontally out of the fitting towards the back wall. Fluoros are also used because they give off little heat. Colour rendition is another factor - ordinary daylight fluoro washes all the colour out of the candy wrappers, not very good marketing. •



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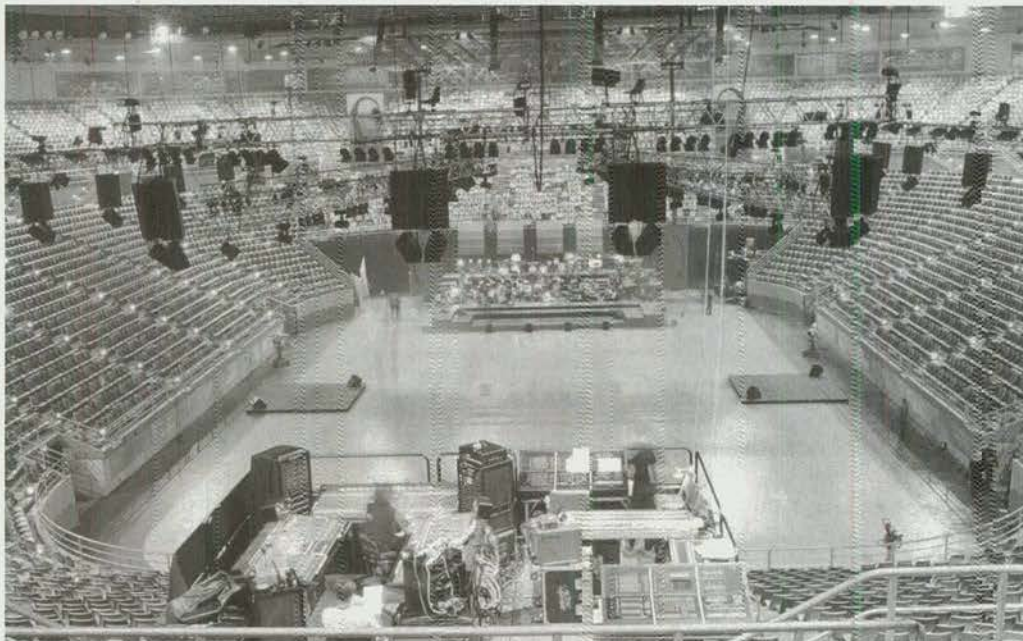
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# PUTTING IT TOGETHER

Marty Williams reports on a production which had the greatest potential to go very badly wrong.



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## PUTTING IT TOGETHER

The production encompassed forty two songs and approximately one hundred and sixty schools. Performing with a five piece professional rhythm section, one hundred and nine piece orchestra and a thirteen hundred voice choir. The stage managers job was taken by Paul Streefkirk. He initiated contact with Peter Trojkovic (Troy Balance Corporation) for audio production and Allan Parkinson for lighting design, who in turn contracted Active lighting for the Hardware.

The demands on lighting and sound for this production ranged from isolated solo performances to full scale multiple lead vocals including all three and half thousand participants. The theme used to link the large variety of songs was that three aliens called Doppelgangers who landed on earth to study the behavior of an average group of inhabitants. The subjects included the diversity of culture, diversity of lifestyles, diversity of climate, diversity of colour and the diversity of human relationships.

As the word Doppelganger means body double or copy, these alien characters expected to find everyone on earth to be clones like themselves which they did not. They were able to conclude through three hours of music lead-



ing with the title song, Putting It All Together and We Are Family. Both these songs were performed using the full cast, giving the production a very grand opening.

With only one full rehearsal on the morning of the first of two scheduled evening performances, the lighting and sound operators had a very difficult task of learning all the cues involved with the operation of the show.

### AUDIO

Grant Walsh's job was immediately apparent as he had to oper-

ate three forty channel PM3000 Yamaha consoles which were controlling the primary sound from three stage areas. The main stage area at the southern end of the auditorium provided the location for the majority of audio sources.

Effects units coupled to this system were a Lexicon 480L, Yamaha REV5, SFX 900/990 reverbs and Q1027 graphic Eqs, Drawmer gates and DBX 160 compressors. There were also two Yamaha DAT machines a cassette deck and CD player for adding sound effects such as sci fi sounding background

noise when the Doppelgangers were performing their often witty dialogue, led by the professional actor Geoff Payne, and the playback of some music, in particular the Art Of Noise's Close To The Edit.

The orchestra's sound was gathered using a combination of Bugs and two AKG 414 mics on the string instruments, Sennhieser 421s on the brass, EV 308s and 408s on the woodwind, two Neuman U89s and MZ205s on the percussion, and the most unusual instrument, a Farf, had a C-ducer

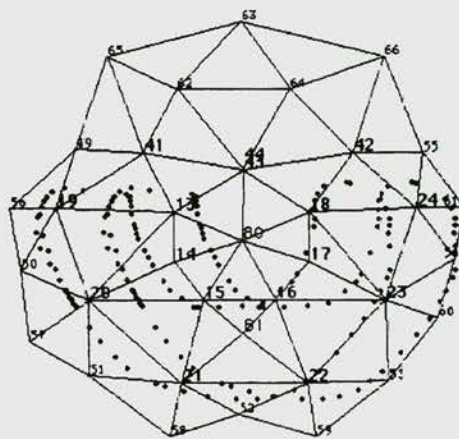
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and TLM 170 attached to it.

There was a grand piano which had two PZMs attached to its lid. The rhythm section had an M88 for the kick drum, SM57s for the snare and toms, two TLM 170s as overheads and a DI was used on the bass. The remaining two instruments were a guitar which had two SM57s on it and a keyboard which was DI'ed. To ensure that no detail was lost when the choir was performing, the mics comprised eight Neuman KM 84s, four AKG 747s and Sennhieser 816s. The vocal mics used on all four stages positioned on the other three points of the compass were all Beta 58s.

The two stages positioned east and west were used for a maximum of two singers often accompanied by dancers. These stages were barely raised from the floor.

The stage at the northern end of the auditorium was also close to ground level but was larger to accommodate a band that was more caberet in style, comprising drums, bass, guitar, keyboard and



a twelve piece brass section. The equipment used on these instruments was similar to that used on the main stage but the applications were varied slightly. The overhead mics were AKG 451s, the

five saxes used SM 58s, the trumpets and trombones had four SM 57s to cover the seven instruments. This band was used to provide the backing for an acapella song using only guitar and a strik-

ing rendition of As Time Goes By, which had only female vocal and a grand piano. This band and the orchestra were combined on two songs to make the close even big-

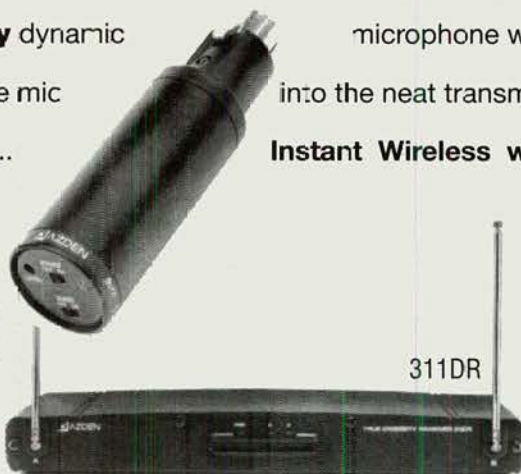
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## PUTTING IT TOGETHER

ger sounding than the opening. The most spectacular was "Its Raining Men" which sounded brassy and dynamic, and featured absailers landing in the choir.

To keep the staging assistants really busy the song Way Out West was performed by a four piece band on the back of a truck driven onto the main floor and then plugged into a multicore running to its own group of faders. The mic set-up for this varied from the others by having two Calrecs as over-heads.

This set-up contrasted with a number of solo performances one of which featured a male tap dancer in the centre of the floor. To ensure that the audience heard the taps, a lapel mic was hung from his back pocket. This was not the only use of radio equipment as ten Shure L4 receivers were used to gather the signals of seven lapel mics, six Beta 58s, four Countryman headsets, one guitar pick-up and something which is still a fairly unique experience for any performer, three sets of in-ear monitors were used to cover areas the foldback could not.

The foldback was contained both on the floor around the stages using Lord Nelson wedges. Flown in the trussing were Deltamax and JBL 1152 enclosures.

Primarily these were used just for the centre, however JBLs were also used for choir fills. This was controlled by two consoles a forty channel Midas XL3 Monitor and a Yamaha M3210. The outboard equipment connected to this was twenty eight Yamaha Q1027 equalisers, eight DBX 900 noise gates, twelve DBX 900 compressors and two Yamaha SPX 900 effect units.

### LIGHTING

The fold back flown in the trussing was made to look miniscule by the amount of lighting equipment needed to illuminate such a vast area. The rig was made up of 360 Par 64s, fourteen MoleFay 6 lights, fourteen colorset 5K scrollers and twentyeight 2K Fresnels. The main feature of the lighting was the use of sixtyfour Varilites to help decorate the floor using a large variety of Gobos and multiple colour changes to emphasise the different moods portrayed by the music.

During the first act these changes were often cued in rapid succession making for a visually very fast paced performance. The second act was more restrained in comparison matching well with the choice of songs, which ranged from light opera and a solo performer in the middle of the stage singing Summer Time to the full cast performing Its Raining Men. Whenever small groups or soloists performed, the Varilites were used to augment the truss mounted follow spots. For the main stage the house Xebex follow spots were used.

The ability of Paul Streef Kirk and his crew to organise three and half thousand high and primary school children to be at their designated marshalling points, be on and off the stage within the allotted amounts of time, and maintain their concentration was quite amazing. The confident performances displayed by all the cast, especially the young boy who sang a medley of Melbourne football club theme songs, were truly impressive. If you went along to this expecting a traditional school revue or pantomime type performance, you would have been incredibly suprised by the level of sophistication displayed by everyone involved.

They really did put it all together! •



All pictures by Marty Williams, who is Melbourne based. Marty also wrote this article. He is available for photography, call (018) 399-655

Sound engineer Grant Walsh (an ENTECH 1994 award winner) looking grumpy, but with three consoles to operate and several thousand school children on hand we guess that's OK.....



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## Those Outdoor Shows...

**Tom Benson tells a WET PA story about production at the Coffs Harbour Carnivale '95 in December...**

Ah yes, the joys of the outdoor concert. Balmy days and pleasant nights, good natured crowds and pleasant surrounds topped off with local cuisine and culture.

Hell, what a dream! Reality was something far removed, but all signs pointed to just such an event. After a week of rain and overcast weather, the day dawned perfect, not a cloud and the organiser's assurances that everything was OK on site buoyed me with confidence until I reached the stage site.

Coffs Harbour Marina, open stage (read semi-trailer), backing the water, power available (60 metres away) shared with food vendors, across two roads. To put up, 4k P.A. and 30 can light show. After a hurried conflagration with the promoter, food venues were to pack up as soon as it was necessary for the lighting to be turned on, and suitable barricades were to be erected to protect the cables, although as anyone will tell you, no amount of barriers will deter the determined idiot, who will just move them and have to be asked in letters of one syllable to stop.

The show began! Various local acts including the infamous "linedancers" entertained the gathering crowds and heralded the onset of clouds and wind straight off the sea. The wind, picked up by the mics, caused a jet engine roar straight through the P.A. At last the local talent abated while the ever-present compere tried to assure the crowd that the main act would appear shortly.

At this point the band, Zoo Bop, converged on the stage filling it to capacity with their equipment, due to its size, and theirs (7 piece including drums and percussion).

OK, we were off. A little behind time, but what a great band. It was still too light for the lighting yet, but it was getting darker and the converging clouds were moving fast.

Darker.....Darker....Darker...! The band was playing up a storm, literally. The wind was really bad now and all the vocal mics were shut down, except the necessary,

then..... the lightening! That's it! Strike the show - we're off!

The band moved faster than I had thought them capable and moved their equipment to the safety of their cars whilst the lighting guy and myself threw everything into open cases. In anticipation of the coming storm, we had set up all the amps and the lighting control in the truck which had been butted up to the stage end.

That's when it hit. Driving rain; 100km winds; small hail; pitch dark; disaster! They say that people rally in troubled times. Here is the proof. Out of nowhere the band appeared and started throwing equipment into the trucks. Punters braved the elements to help grab anything and take it to the waiting hands, literally jamming everything into any dry space possible. Tents flew away on all sides and the back truss came crashing down, only to be caught half way by a team of willing hands. All that was left were the leads and they were bundled up, shoved in the truck and the doors shut.

Standing drenched, with the lighting guy and the promoter, in the rain in front of the dispersed stage, I couldn't see how the pack was accomplished. "...see you tomorrow....Oh yeah!"

After a hot shower, a good meal and a few brews, we exited into the now quiet night and found stars in the skies and the prospect of another concert tomorrow. We went back to the hotel, pulled out some lighting and lit up the street. Emptied the trucks, what a mess. Just too hard to describe, but a few hours later everything was sorted out somewhat, but not dry.

The next day was hot and sunny, we got to the stage (different location) and laid everything out. Total outcome - a perfect show that day. The only storm losses were one desk lamp and a few gels and frames which blew away, never to be seen again. •

**Personnel:** Audio - Coastal Sound Systems - Tom Benson. Lighting - David Byrnes Lighting Production - David Byrnes.

# Do It Yourself. Paul Matthews reckons **YOU** can fix your power amp when it spams out!

**O**K so your favourite amp has just bitten the dust. You're a bit of a technician but not confident enough to lift the lid of your expensive monster. But you're scared that the repair shop will charge you a pile of money to fix what might be a simple fault. So read on! First we'll explore a short history of high powered amplifiers.

In the beginning, there was the VALVE. Then came different ways of wiring them up so we could get more power out of them. The established scheme is PUSH PULL, where an incoming sound signal would be split into positive and negative parts and applied to the inputs of a set of valves. These then controlled the current in a big output transformer, "Pushing" it one way and "Pulling" it the other. Our speakers connected to

the other side of the transformer. The output power depended on the number and type of valves used. A pair of the ubiquitous EL34s create a 25 watt amp, an additional pair was 50 watts etc. In the early '70s higher power valves like the 6880 arrived, giving us about 200 watts of audio with 4 valves.

Then the Transistor Amp came along, and the same principles applied. The first designs simply replaced the valves with a set of transistors, still using an output transformer. But the transformers were heavy, expensive and caused distortion. To get

higher power meant a huge transformer, so the push was on to eliminate it from the signal chain altogether. Since Transistors are

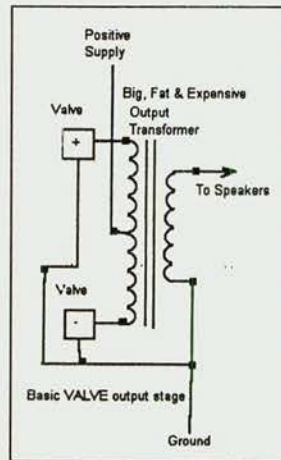
"current" controlled devices they are far more suited to driving low impedance speaker loads and so new designs came, using a large capacitor to isolate the DC power supply in the amp from the speakers while letting the AC sound signal through. Most 1960s transistor designs used this method, and many

still sound damn good.

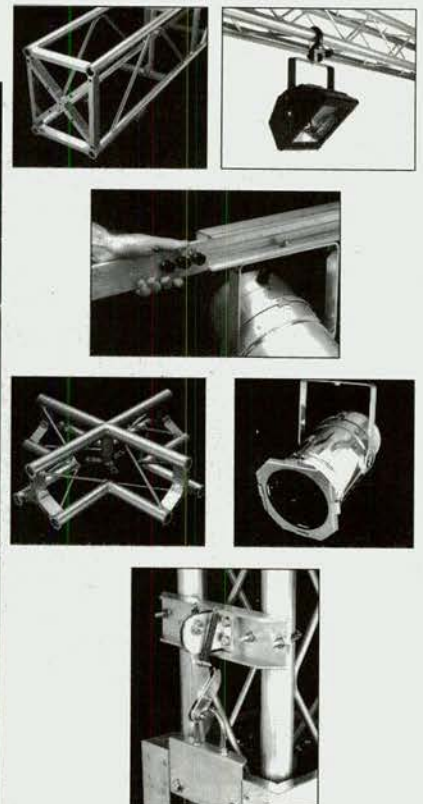
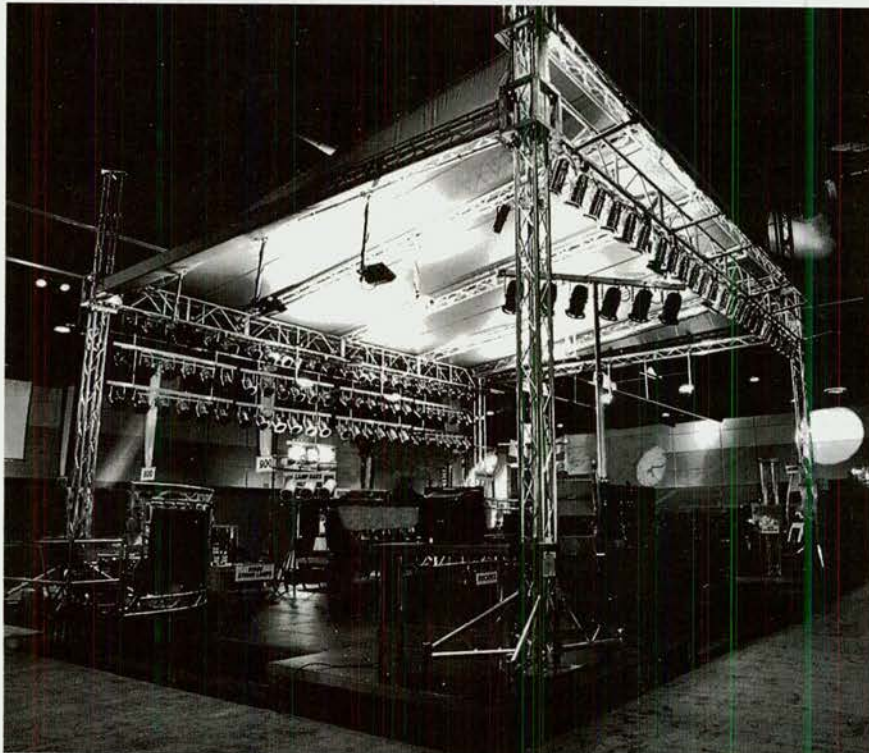
But we still couldn't get a power amp with really high power (about

300 watts) at a price and size which would allow them to be used easily. So along came the "direct coupled" design on which all of today's high power amplifiers are based. The trick was to remove the output capacitor by ensuring the DC output of the amplifier was zero, and thus would be safe to connect directly to speakers. This was done by changing the power supply to a two rail design, which supplied a separate positive and negative voltage to the respective positive and negative transistor sets in the amplifier output. The first commercial success using this method was the Crown DC300.

However by directly coupling the amp to the speakers, a potential for disaster erupted. Everything was fine as long as the amplifier worked OK. But if a fault



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## DIY amp repairs

developed in one side of the amplifier (either positive or negative) the full DC voltage from the power supply would suddenly be connected to the speakers frying the voicecoils in milliseconds, spawning a whole new industry of "speaker reconing". Indeed the cheap designs of the 1970s have destroyed thousands of expensive speakers as well as themselves. It wasn't until the early 1980s that active speaker protection circuits were installed in most high powered amplifiers. Indeed today many "cheap" musical instrument amplifiers still have no active speaker protection, meaning that the slightest fault inside renders the entire piece of equipment useless and rarely worth repair.

In the 1980s, Power MosFET devices became an attractive alternative to the older transistor designs. This was mainly because the MosFETS have a positive temperature curve, which means as they get hotter they become

less conductive and as such the amplifier is less likely to fail. This means the MosFET designs don't need complex temperature protection schemes. The older transistors worked in reverse, meaning they become more efficient when hot, which in turn makes them hotter and...well.. Bang! was usually the result. MosFETs also have a voltage controlled setup rather like Valves used to- and so they have gained favour with many purists as having a more valve-like sound.

But since the '70s most amps have used the same "Linear" power supply to provide the raunch. A heavy power transformer and massive filter capacitors. Although reliable, they are unregulated- meaning they depend on a solid mains supply to deliver their rated output. The most recent changes to power amplifiers have been to use "switching" power supplies. These work like a huge AC-DC-AC-DC converter. The mains comes in and gets con-

verted straight to DC WITHOUT a big fat 50Hz mains transformer. Then a high-tech MosFET inverts it back to AC again at about 80kHz, well above hearing range. At this frequency we can use small ferrite cored transformers to handle huge power levels. The output of this small transformer is rectified back to DC and applied to the amplifier circuits in the same old way. The same principle had been used in TV and computer power supplies since the late '70s to reduce weight and cost.

By controlling the pulse width of the 80kHz inverter, we can regulate the power supply output. A further development on this design has been "Varipower" circuits where the power supply output is actively varied by the input signal, this allowing even smaller, lower power output devices in the amp, reducing cost and weight whilst increasing power, performance and efficiency. Modern concert series amps such as Carver amps use this principle. While the ideas have been in military use since the '60s, it is only the development of very modern, mass produced and readily available high power devices which has led to it's dominance in the market today. On one hand these newer designs can be very frustrating to service- but the design is usually so bullet-proof as to never require service! One further advantage of switchmode amp designs is they are no longer dependent on a solid mains supply and can usually operate from a wide range of voltages, a definite plus on the road. These amps draw a constant current from the mains and thus makes it possible to run more amplifiers per power circuit. Many will even operate from a range of 100 to 260 volts giving them a total "universal" worldwide application. Indeed the principle is also used to rock the pavements at Bondi using 12vDC equivalents, producing upto 500w per channel and chugging over 150 amps from the poor car's power system when wound up..

But by far the standard "linear" push pull transistor or MosFET amplifier is still the major workhorse in the entertainment industry and will be for many years to come. The reliability of these units improved massively over the early '80s. They're powerful, cheap, quiet and easy to service. And there's a 95% chance that the one that's just stopped working for you, is in this category!

### FINDING FAULTS

Here we'll go through the process of looking for faults. If you find one, fix it! Naturally I don't have to warn you about the hazards of working on live equipment, so if you're testing, stand well clear! Make your test connections, power up and observe, then disconnect the mains and leave the amp to stand and discharge for about 20 seconds before touching it again.

And so your patient is admitted to casualty. The first thing to do is to try and get a history of the events that have just happened. If you were there, and in a fit state of mind then you

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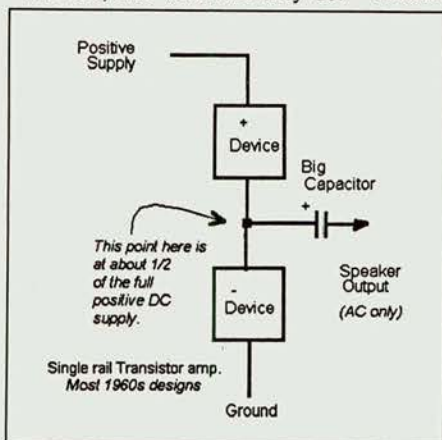
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should be able to remember. Otherwise interrogate the person who was using the amp when the injury was discovered. What was it driving? Speakers? Were they plugged in? Are they still OK? Have the connecting leads been checked? Was a short circuit found? Did it work at all or was it dead from startup? What noises did it make as it died? Who tried first aid, and what did they do?



Did anyone smell anything? Etc.

Try and guess the AGE of the unit. If it's prior to 1981 there's a sure bet it has little protection inside and therefore it's going to be a borderline case. It may just fail again, leaving an expensive and useless repair bill, and wasting your time. Unscrew and check ALL the fuses. Are they blown? Are they the right size? When servicing amps it's normal to substitute higher sizes, usually by about 1A, but don't forget to change them back when you're finished. If you don't have the right fuses then book the patient into bed while you get them, don't EVER use bits of copper wire or huge auto fuses. If the amp already contains these sins, then that says a lot about the previous history of the amp. Another reason perhaps to look at alternatives. Sometimes you've got nothin' to lose - so let's get going!

Resist the temptation to plug it in. First, carefully remove the covers and look around at the circuit boards. Look for burnt components, loose or broken wires, anything which looks out of place. Remove the dead rats if present (usually only applicable to dimmer racks...). If a broken wire is found you'll need to find where it came from. Look for telltale signs of terminals or solder blobs where the wire may have become detached.

Now here's where you need a few items of testgear. A good digital multimeter is essential. A "Variac" is highly recommended, along with an inline 240v ammeter or tong tester. Your favourite lighting crewmember may be able to help you here. Connect the power to the amp through the ammeter and variac. Turn the Variac right down to zero, and switch it all on.

Sloooowly bring up the variac voltage, watching the ammeter. It should hardly move. If it suddenly reads a few amps and you've only just started, switch off immediately. There's a short circuit, most likely a faulty PAIR of output transistors.

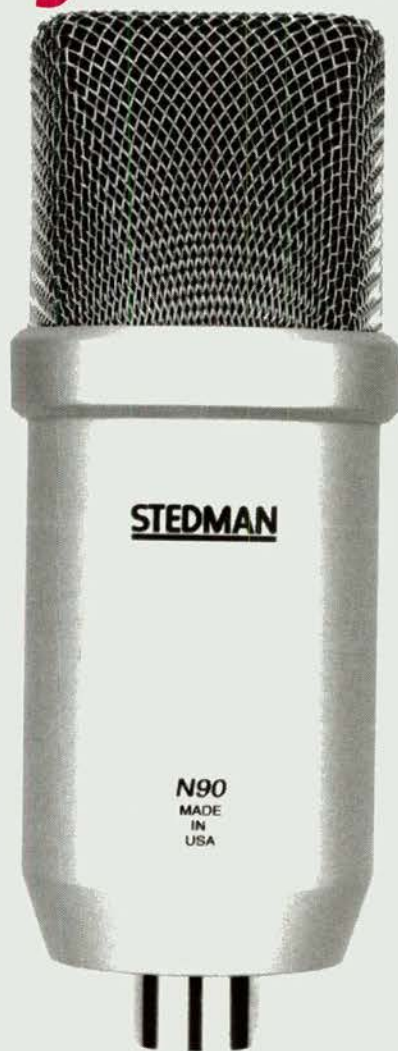
In some amps it's possible to isolate the output transistors by unplugging them from the circuit. This is handy because

you can test them individually. Set your multimeter to "200 ohms" or "Diode" range, and test across the pins in every possible combination. You should get some readings around "0.6" while others will be infinity. If all the pins read "Zero" (dead short) then the device is a dud. Replace it. Some amps use plug-in transistors - Easier still. Make sure that you restore the relevant heatsink washers and "white goo" if present. It's usually best to use a new washer to be sure. More modern amps use floppy, silicon heatsink washers which don't need any white heatsink goo. When done, and before reconnecting the transistor to the circuit, use the meter to test between the transistor case (or centre pin on flat packs) and the heatsink. It should be open circuit or "Infinity"

In other designs where the transistor is soldered onto the board it may be necessary to cut two of each transistor leg to isolate them for testing. The good ones can be re-soldered back using a small piece of jumper wire whilst the faulty ones are replaced. Otherwise if the replacements are not too expensive then replace the lot!

If no output transistors are faulty, check the power supply bridge rectifier using the meter. You should get around "0.6" across some of the pins. If the meter reg-

# Dynamic!

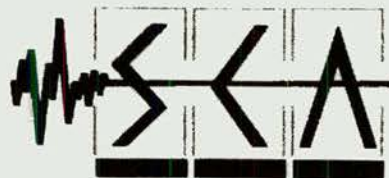


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- Studio Techniques
- 12 Gauge
- Studio Audio & Video

Write in Reader Service Number: 104

## DIY amp repairs

isters a dead short then replace the bridge. If still no-go then check the power switch, it may have been clobbered and be shorting out to the case.

If all has gone well, you should be able to bring the variac upto full mains level. If there's any smoke then switch off. Otherwise select 200vDC scale on the meter and test between the speaker output and ground. You may need to trace the wiring round the case to ensure you bypass any protection relays that might be operating. The voltage should be less than 0.01volts. If it's high (eg 40v, 80v etc) then two problems could be evident. We'll look at them later. Otherwise if it's a stereo amp then check the other channel. If it's OK, then find the fuses which correspond to the FAULTY channel and remove them. If there is a speaker protection relay, it should now click "IN". You should now be able to apply a signal and connect a (cheap!!) speaker to the output of the working (i.e. 0v) channel and test it with some music. If OK, then you're half there as you have a working channel from which you can make voltage comparisons with the faulty one!

Did you find any burnt components? Do they still burn? First try and determine their value. If you have a "good" channel then there will usually be a correspond-

ing component on the "good" board from which you can read a value and substitute a replacement for the faulty one. Otherwise you may have to try and find a circuit diagram and read it to determine the value.

If you have the luxury of a circuit diagram, then trace the path where the current flow caused the component to get hot. This current must have flowed from the power supply rails, and through to the component to burn it out. Chances are this path was through other transistors or diodes, which as a result, are also probably stuffed.

If smoking continues to be a problem, substitute 560 ohm, 10 watt resistors for the fuses on the faulty amp board. This should allow you to bring up the amp to full mains level without risking further damage, and should allow you to make a measurement of the speaker output for DC, which if not zero, will lead to the next paragraph. If it IS zero, then the job really is getting complex as it's a likely fault in the section of the amp which controls bias current, and this is almost impossible to troubleshoot without a circuit and some advanced electronics knowlege. Time to start saving.

One important note: A particular problem with older amps and "kit" designs is instability- the am-

plifier suddenly breaks out into high or low frequency oscillation. This is almost always caused by an earthing problem at the input. It could be a broken wire, or just the layout of cabling in the box. High frequency oscillation will usually burn out a capacitor / resistor combination located in paralell with the speaker output. Low frequency oscillation is sometimes due to nothing more than poor design, and if you're having troubles like this then consider the alternatives of buying a better second hand replacement.

If the speaker output is NOT zero volts, then two problems may be evident. the first test is to clear the power transistors of blame. The easiest way to do this is to disconnect the BASE lead to each output transistor by cutting or lifting the relevant pins in such a way that they can be soldered back easily. If this returns the output voltage to zero then the fault is in the driver electronics, and this again is pretty complex stuff best left to an advanced technician. In some cases it's cheaper and quicker to replace EVERY SINGLE signal transistor on a driver board rather than attempt to obtain a circuit diagram and troubleshoot it as signal transistors are very cheap, and this approach almost always works. If the voltage remains high then it's a faulty output transistor (only one) and these

can be tested as was outlined above.

Not all faults are of an "Output DC" variety. Some cause nuisance distortion and crackling problems. These are usually caused by dried out small value electrolytic capacitors on the driver board, or resistors "gone high", which are related to the negative feedback circuit. Sometimes just "shotgun" checking of resistors (in circuit) with a meter, will reveal an open circuit resistor. Sometimes going over all "suspect" solder joints will work wonders. And it's usually recommended to change low value electrolytics in amps over 10 years old.

One final solution for experimenters in repairing old amplifiers is to simply replace the entire output board and transistors with a suitable kitset, retaining the old (and expensive to replace) power supply components. There are a wide range of modules available from electronics retailers which can fit the task with the only requirement being a compatible voltage and power rating of the power supply. This aproach can be particularly cost effective when dealing with old instrument amplifiers for which there is no circuit diagram available and the manufacturer has long gone.

Happy troubleshooting!

• Paul Matthews runs OA Matthews Audio, (02) 623-2860.

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# LETTERS

#//@%XX -?!

## Arlec Auto Transformers

In the November issue of Connections, we ran a letter regarding Auto Transformers. Arlec respond:

1. We cannot argue that potential dangers exist in the use of Autotransformers; particularly through :

a) Active-neutral of supply being reversal.

b) Faulty insulation or hot chassis equipment being powered up.

c) Loss of neutral connection in equipment.

We are not familiar with the kinds of amplifiers mentioned so we cannot comment though it would seem that these are not very commonplace. However these hazards are related to the external influences - the transformer of itself is not hazardous.

2. The letter seems to suggest that we have tried to hide the fact they are Autotransformers. We do not use the word "Autotransformers" as we felt the average consumer may take this term as implying "automatic". We don't believe that the majority of users would understand the description "Autotransformer".

We do however use the IEC Autotransformer symbol, and our instruction sheet and markings go

into some detail about the types of equipment which are suitable for connection and makes a clear statement that the unit provides no isolation and the connected equipment must be double insulated or properly earthed.

3. Approvals - there is no mandatory requirement for approval. The letter explains this but makes it sound like we are being shonky. Our transformers have in fact been under considerable scrutiny by the Electrical Authorities, but they have only required that we improve the areas of marking and earthing continuity to its own housing.

4. The letter is incorrect on two points.

a) The transformer are made in Taiwan not China. (Perhaps he was confused in his ignorance by "Republic of China".)

b) A true isolating transformer must not have the earth connection as he indicates in his diagram, as the earth can in fact cause separate hazards in the case of wiring faults in the mains supply.

• **Michael Nimmervoll, Chief Engineer, Arlec Technical Products Division, Lilydale Vic.**

## Reviews, Payola .....

When are you going to start publishing reviews of new equipment in the magazine? I think that it's time for some debate of the issue...

Let me declare my interest straight away; Max Kay PR provides press releases to the world and I, in particular, secure reviews for the same company. This I do by phoning/faxing the mags wherever they are and asking if they want to see a particular item, some say that they've already seen it and done it, others say to send it along, and so on.

Julius Grafton expressed concern to me at a London trade show recently that there was an unhealthy link between advertisers and people whose products get reviewed and that his preference was to avoid this minefield altogether by not including reviews, except of equipment that has been tried and tested (Correct me if I got the wrong impression). He also didn't see the benefit of having reviews that just expressed the writer's personal gripes about a company and its products; on that there is no argument from me, but I can't believe that Australia suffers such a shortage of objective people, be they journalists or sound engineers.

I take his point though, that there is a very fine line between an item being reviewed then phoning

the manufacturer/distributor to ask if they have considered putting in an advert in the same issue, and telling the manufacturer/distributor upfront that they will not see a review unless they buy advertising. One is seen as sound business practice for a magazine, the other is seen as corrupt. Of the 100 or so mags that we deal with w/wide that carry reviews, only three have ever stated that they have a 'special relationship' with the manufacturer/distributor and as a consequence do not carry reviews from ourselves. Needless to say, these are very short phone calls and I don't bother to call them back. As a PR company we have nothing at all to do with the advertising budgets of the companies we represent, so we are in no position to secure reviews other than by our good name and the delightful nature of my character (How's yer shirt, Julius?) and the demand from those that wish to read them.

Australia should not be condemned to read about old equipment only, in the country's sole professional publication. Anyone else feel the same way?

• **Andy Parker, Max Kay PR, London.**

*\*Editor responds: we don't do REVIEWS full stop. Readers can review equipment they genuinely use. Call us for details.*

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Write in Reader Service Number:139

# Orland's splitter...yuk!

I read with dismay in your December issue that Michael Orland invited disaster with his splitterbox design. Horrors! What about microphone loading effects to LF response? What about phantom power? And what about earth-lifting the stage desk? Back in the dark ages we used custom wound Jensen multi-tap transformers for splitterboxes, (then a little-known outfit in a US backstreet garage). The transformer was a 1200Ω to 300Ω type that did not load the mic and kept noise down due to its low impedance secondary. The slight loss of gain would easily be made up at each desk. Michael was indeed correct in preferring a

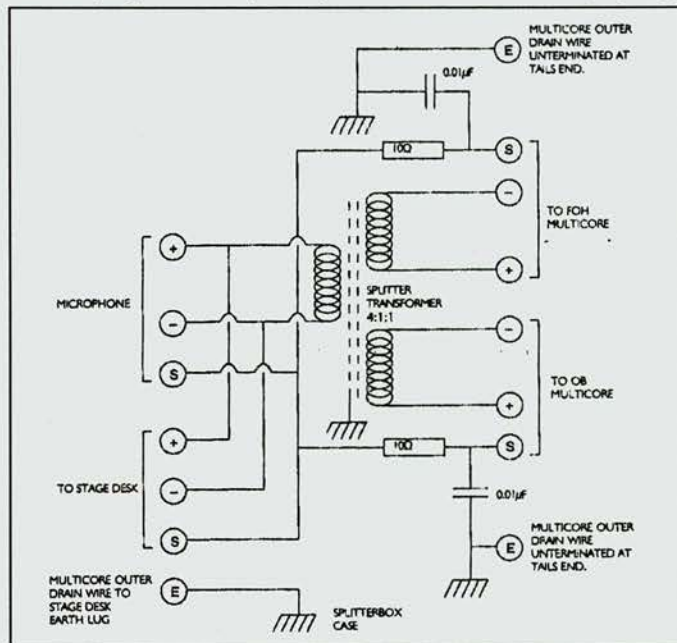
multiway connector but few others than mil spec or aviation types will provide the ruggedness and noise immunity, (as well as beer and sweat immunity), that the big square clunkers with gold pins provide. Using ribbon cable for wiring! Yuk! What about crosstalk?

Back to the earthing question. The stage desk should provide both technical and safety earth since it is generally on the same power as everything else. Who knows how good the earth is at FOH? A favourite splitterbox design is to put 10Ω 1W resistors in series with each pin 1 to the stage desk and the OB tapoff (Tut tut Michael you should *always* wire

pin 1's) and a 0.01μF cap to the case. This eliminates even the worst earth loops. No earth-lift switching is required and safety is maintained. The out screen of each multicore would be hardwired to the case (stage desk earth) to keep

RFI at bay. Naturally, a 37 way transformer splitterbox weighs a ton and many a time it would come in handy to stop the drumriser sliding across the stage.

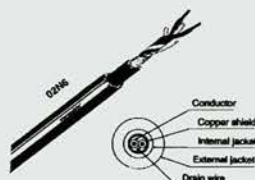
• **MIKE DODDS, Sound Control Australia, Sydney.**



## Letters & Articles wanted!

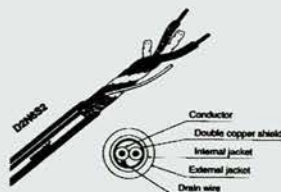
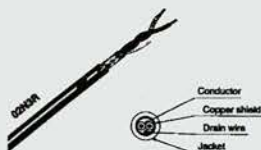
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# 10 Years Ago

Most of last year my '20 Years Ago' column was a popular read, triggering a lot of hippy reminiscences and some kind mail. While that era is now firmly purged, the 10th birthday of my daughter Jess leads me to 1976.

That year Caroline & I owned Graftons Sound and Lighting which operated from near Taylor's Square in East Sydney. We were booming, having built the business since 1980 - and were chronically undercapitalised. This means we had no capital except what was invested in stock, the bank, profits and our suppliers were funding growth. Problem was, we had a lot of growth.

Being loath to knock back business, we were forever buying more floor stock to sell, and adding more hire stock. Of course more sales and more hires followed, with more staff, more cars, more phone lines, more adverts in Sonics and

more lunches and dinners with customers.

If 1986 can be remembered for anything, it's the start of the two year crazy money borrowing boom, and let me assure you, dear reader, we were there as crazy money borrowers!

Jess was born this month in '86, and I'll never forget the situation, because she came two months premature. Caroline was the financial operator for the company, at that time employing 20. We had so much going on that only she could pay bills, because only she knew the state of the overdraft at a given moment. We were paying our bills about 75 - 90 days, which is over a month late, so we were on stop credit with a lot of suppliers. (They all got paid eventually!)

When you need stock, you pay the supplier for what you bought three months ago to get more today. How's about this list (where

are they today?) for a summary of some major creditors (we owed them) as at February 1986:

**Hawco Australia.** Operated by mysterious people on the Sunshine coast. They'd assumed the Hawco name in deference to their major Singaporean supplier whose name happened to be Hawco. When I asked them to supply goods in February '86 they refused unless all -every- cent of the account was paid OK, fair enough, we had given them some minor grief. But when done, they closed the account and insisted on bank cheques thereon. When I explained wife/partner in hospital with premature baby, no possibility of money that week, but gear needed for installation, I was told: "We don't care, pay or no gear". We changed suppliers after that.

**RH Cunningham.** They had Senhieser and Neutrik, two star brands which have always make

money here, but they still managed to go broke. Mystery to me.

**Rank Electronics.** The largest audio supplier that year, they had just gobbled up Klarion Electronics and in doing so were now offering me Soundcraft, Allen and Heath, Soundtracs and some German mixing consoles. All at once. They didn't know about that new fangled 'm' word: Marketing. So things got a bit contorted. But they were are major supplier and kind with their credit. We owed then at least \$75,000 at any minute.

So dear reader, there was a sense of unreality in the air in 1986, which was the year our industry grew strongly, as it did till it died in 1989 with the recession and the aftermath of Expo 88 and the bicentenary. Perhaps some of my reminiscences of 10 years ago will bring back some memories.

-Julius Grafton.

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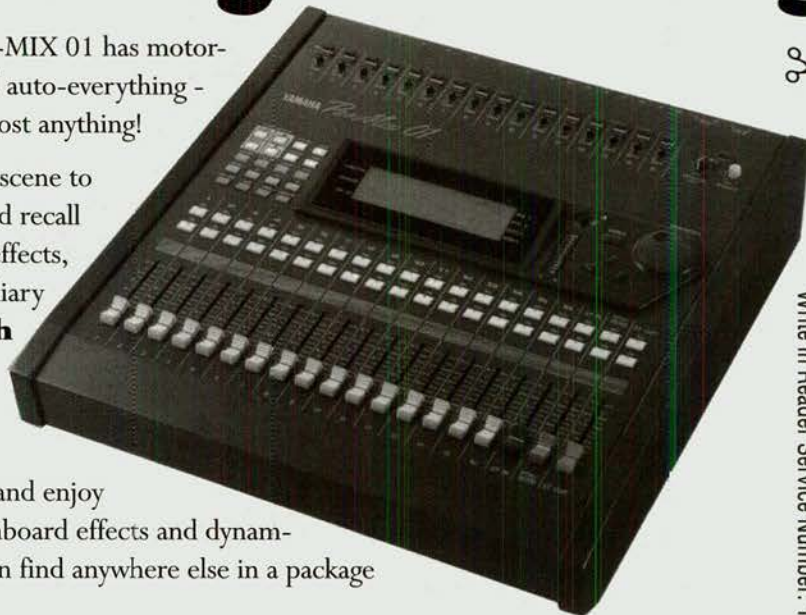
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# THEATRE LISTINGS for FEBRUARY

SHOW	THEATRE	COMPANY	STATUS	SHOW	THEATRE	COMPANY	STATUS
<b>New South Wales</b>				Steward of Christendom The Playhouse <b>A</b> Royel Court Theatre Feb 15 - Feb 24			
A View from the Bridge	Belvoir Street <b>S</b>	The Belvoir Co	Feb 6 - March 3	LovePuke	The Proscenium <b>A</b>	Ace Theatre Co.	Feb 23,24 28-Mar 2
The Makropulos Secret	SOH <b>S</b>	Australian Opera	Feb 3,6,9,13	Wadaiko Ichiro	Star Club <b>A</b>	-	Feb 23-27,29
Midsummer Nights Dream	SOH <b>S</b>	Australian Opera	Feb 3,8,16,20,23,29	Pablo Percusso	Fresh Fruit Theatre <b>A</b>	-	Feb 24 - March 3
Orpheus & Eurydice	SOH <b>S</b>	Australian Opera	Feb 1,5,10,15	Smells Like Bin Night	Gerard Theatre <b>A</b>	Rowan & Neil	Feb 23 - March 3
Phantom of the Opera	Theatre Royal <b>S</b>	Cam Mac	Indefinite run	Malestrom	Nexus Cabaret Th. <b>A</b>	Cloudburst	Feb 28 - March 9
Midsummer Nights Dream	Botanic Gardens <b>S</b>	Glen Elston	Through Feb	Decadance	Arts Theatre <b>A</b>	-	Feb 23 - March 16
Max	Playhouse SOH <b>S</b>	Max Gillies	Feb 3 - Feb 24	Lotus War	Gerard Theatre <b>A</b>	-	Feb 24 - March 4
As You Like It	Drama Theatre SOH <b>S</b>	STC	Until March 2	Islands In The Sun	Price Theatre <b>A</b>	-	Feb 16 - March 7
Miss Saigon	Capitol Theatre <b>S</b>	Cam Mac	Indefinite run	<b>Queensland</b>			
Love!Valour!Compassion!	Footbridge Theatre <b>S</b>	-	Opens Feb 2	Blithe Spirit	Suncorp Theatre <b>B</b>	QLD Th. Co.	From Feb 8
Pentecost	Wharf 1 <b>S</b>	STC	Until Feb 24	Rocky Horror Show	Lyric Theatre <b>B</b>	-	Opens Feb 10
Steward of Christendom	York Theatre <b>S</b>	Royal Court Theatre	Until Feb 10	African Heritage	Concert Hall <b>B</b>	Les Ballets Africains	Feb 1 - Feb 3
Flamenco Dreaming	Cat & Fiddle <b>S</b>	-	Until Feb 16	<b>Victoria</b>			
<b>South Australia</b>				Emma, Celebrazione!	Cub Malthouse <b>M</b>	Playbox	Feb 17 - March 9
Mama!	Festival Theatre <b>A</b>	Playhouse Co of SA	Feb 8 - Feb 17	Beauty & The Beast	Princess Theatre <b>M</b>	-	Indefinite Run
Stowaways	The Playhouse <b>A</b>	Philippe Gentry	Feb 2,3,6,7,8,9,10	Kid Stakes	Playhouse, VAC <b>M</b>	MTC	Feb 9 - March 16

A = Adelaide M = Melbourne S = Sydney B = Brisbane P = Perth H = Hobart

Submit show details, fax (02) 876-5715, PO Box 439, Epping NSW 2121

# TOURING ITINERARIES

BAND	DATE	VENUE	BAND	DATE	VENUE	BAND	DATE	VENUE
<b>INTERNATIONAL ACTS</b>			<b>INTERNATIONAL ACTS</b>			<b>INTERNATIONAL ACTS</b>		
<b>Bjork</b>	March 5	Hordern Pavilion <b>S</b>	<b>Green Day</b>	Feb 12	Thebarton Theatre <b>A</b>	<b>Primus</b>	Feb 9	Festival Hall Brisbane
	March 9	Festival Hall Brisbane	<b>Jeff Buckley</b>	Feb 12	Royal Theatre Canberra	<i>Lees &amp; West</i>	Feb 10	Hordern Pavillion <b>S</b>
	March 11	Ent Centre Adelaide	<i>Frontier Touring</i>	Feb 13	Newcastle Workers		Feb 11	Metro Melbourne
	March 12	Ent Centre Melbourne		Feb 15/16/17	Enmore Theatre S		Feb 13	Thebarton Theatre <b>A</b>
	March 16	Belvoir Amph Perth		Feb 18	Brisbane Festival Hall		Feb 14	Perth Metropolis
<b>Celine Dion</b>	March 18	Ent Centre Perth		Feb 20	Seagulls Gold Coast	<b>Sandra Bernhard</b>	Feb 27	Concert Hall <b>M</b>
<i>Michael Coppel</i>	March 21	Adelaide Ent Centre		Feb 22	Thebarton Theatre A		Feb 28-	Brisbane Concert Hall
	March 22/23	Flinders Park <b>M</b>		Feb 24	Belvoir Amph. Perth	<b>Smashing Pumpkins</b>	March 4	Perth Ent Centre
	March 25/26	Sydney Ent Centre		Feb 27/28	Palais Theatre Melbourne		March 7	Adelaide Ent Centre
	March 28	Newcastle Ent Centre	<b>Jimmy Page/Robert Plant</b>	Feb 24/25	Sydney Ent Centre		March 8/9	Melbourne Ent Centre
	March 30	Brisbane Ent Centre	<i>Frontier Touring</i>	Feb 27	Brisbane Ent Centre		March 11/12	Festival Hall Brisbane
<b>Chris Issak</b>	Feb 2	Festival Hall Brisbane		Feb 29/Mar 1	Flinders Park Melbourne		March 14/15	Hordern Pavillion <b>S</b>
	Feb 7	Sydney Ent Centre	<b>Merle Haggard</b>	Feb 4	Myer Music Bowl		March 20	Christchurch Town Hall
	Feb 9	Flinders Park <b>M</b>		Feb 9/10	Twin Towns Services Club		March 22	Wellington Sports Cen
<b>Dwight Yoakam</b>	Feb 17	Festival Hall Brisbane	<b>Neil Diamond</b>	March 29/30	Sydney Ent Centre		March 23	Auckland SuperTop
	Feb 20	Festival Theatre <b>A</b>		April 4/5/6	Brisbane Ent Centre	<b>LOCAL ACTS</b>		
	Feb 21	Palais Theatre <b>M</b>		April 9/10/11/13/14	Flinders Park M	<b>Hunters &amp; Collectors</b>	Feb 16	The Palace Melbourne
	Feb 23	Newcastle Ent Centre		April 18	Burswood Perth	<b>Skunkhour</b>	Feb 3	Playroom Gold Coast
	Feb 24	Sydney State Theatre	<b>Neil &amp; Tim Finn</b>	Feb 9	Belvoir Amph. Perth	<b>Tumbleweed</b>	March 3	Boans Warehouse Perth
<b>Green Day</b>	Feb 6	Festival Hall Brisbane		Feb 13	Dallas Brooks Melbourne	<b>Swoop</b>	Feb 16	Playroom Gold Coast
<i>Michael Coppel</i>	Feb 7/8	Hordern Pavillion <b>S</b>		Feb 22	Brisbane Concert Hall	<b>John Farnham</b>	March 22/23	Flinders Park <b>M</b>
	Feb 10/11	Festival Hall <b>M</b>	<b>Ozzy Osbourne</b>	March 25	Brisbane Ent Centre	<b>Tracy Bartram</b>	Feb 9/10	Regal Theatre Perth

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Write in Reader Service Number: 100

# STUDIOS & POST

STUDIO  
MONITORS:

Buyers  
Guide

Page 66

FEBRUARY 1996

Incorporating the **BASF** National Tracking Guide

Edited By Julius Grafton

## CD Snaffu's

*CD brokers irritate factories while CD-R increases in popularity - but is CD-R a mastering medium? Mastering engineer's caution that 'CD ready' can mean extra costs.*

Your short run CD is only a call away, with 8 fully fledged multi-million dollar CD plants now operating in Australia, CDs should be cheaper than ever. But cost aside, things do go wrong, as recent events in the expanding local replication market have proved

Publicity surrounding the release of Windows '95 software on CD detailed some users inadvertently getting useless audio CDs instead of software, but the bigger picture pre Christmas was serious lack of capacity at a major East Coast plant due to line speed not matching projections.

More ominously, installation of a new glass mastering machine valued at \$750,000 and considerably cheaper than established machines of this type, saw one local facility last year dupe thousands of CDs with track errors. Worse still, some CDs from this plant wouldn't play on certain domestic players. The player simply rejected the CD.

However, it seems diversity of plants in Australia means different procedures and pitfalls await the inexperienced. A myriad of brokers are springing up, advertising in music press across the land and creating the impression many of them are final manufacturers. Trusting your multi thousand dollar project in the hands of

others is something not to take lightly but a good broker can ease the way by ensuring all the elements add up to a good product.

A classic problem can be an otherwise excellent Recording Studio advertising 'CD-ready' - that they can prepare a project to mastering standard. If the CD plant makes its own glass master, the engineer may discard an improperly prepared master - but if the glass master is prepared in Asia, chances are it will come back wrong. Then the CD run will be wrong.

What can go wrong? First, the studio can screw up the timecode, which needs to be continuous throughout. The access sheet detailing the track start, finish and length will be out if the timecode is wrong. Digital 'black' needs to be inserted between tracks to avoid spurious noises in the track break, which can occur.

The issue of recording levels is also a hot one, each track naturally needs to be within a tight range and presented at greater than -2dB but less than 0dB. Many projects today are either too quiet or distort.

Then there is the matter of the medium, because if a studio chooses CD-R as a mastering format, then it is electing for what is considered at this time by serious mastering engineers as an infe-

rior format. Unlike mass produced music CDs, which are pressed by a machine, a CD-R is burnt with a laser changing the colour of a die layer. The light reflection is typically 60%, leading to possible reading errors. Some plants do insist on CD-R masters, so be prepared to produce them or pay a conversion fee.

Masters prepared on the long time industry standard 1630 Umatic format are more likely to be universally accepted.

On the other hand, DAT is known to be a medium where errors are not unknown, but these usually relate to the time since the heads were replaced. A DAT recorder, be it one offering time code (essential for mastering) or a bog standard machine, needs NEW HEADS each 1000 hours. Manufacturers could do us all a favour by building the things so they switch OFF at the magic hour, but do you think they will? Nah.

Replication in a perfect world. Visions of clones and the perfect body? Like ever, caveat emptor, or let the buyer beware.

By Julius Grafton.

• *CR-R is a Seminar topic at ENTECH, one of 20 Seminars. Date: Wednesday 24 April, time 12.15pm, cost \$10, reference Seminar A4.*

*Bookings: 1-800-635-514.*

## YAMAHA 02R SALES BOOM

Digital Mixer Kicks In

Sales of the new 02R digital mixing console, (starting price \$13,995) had hit 50 units in month one, with studios retailers and broadcasters all ordering units.

Initial sales were to Trackdown Studios, Digital City Studios, Foxtel, ATN-7 (Sydney); Mirage Studios, Digital Studio Processing, Albert Studios, SAE and Fairlight.

The 02R is a 40 input/8 buss fully automated mixing console featuring an open system structure, 4 band parametric EQ, and 50- compressors and 2 effects devices onboard.

• Info: Yamaha, 1-800-805-413.

## More FAIRLIGHT Devices Plugged-In

Fairlight have supplied and installed six MFX3's during the last quarter of 1995. These include TCN Channel 9 Sydney, QTQ Channel 9 Brisbane, Beyond Productions Sydney, Global Television Sydney, Zero 1 Zero Sydney and Audio Alive Sydney.

Recent overseas sales include eight systems and five upgrades to Todd AO Glen Glenn Hollywood, two systems to Warner Bros. Hollywood and one system to Nashville's MidTown Records.

The MFX3 is designed for both audio post production and general multitrack applications including music. MFX3 can sustain 24 tracks of audio including cross-fades, from a single hard disk. It introduces a new digital signal processing architecture to provide realtime EQ, time compression, level control and cross-fades.

• Fairlight is an Australian manufacturer and exporter. Call (02) 975-1230



## Eric Holroyd joins Connections

Leading computer columnist turns to home recording. Page 62

# MAKING TRACKS

# Four walls and a roof?

*Need a new recording or radio studio? A local firm have a modular solution which saves \$\$\$, is exported, and naturally proves yet again how smart and versatile Aussie technicians are. Julius Grafton reports:*

**R**ichard Priddle is an infuriating genius, tall, affable, balding, chain smoking and with little concept of the time of day. Because of all this, or despite it all, the demand for this acoustician outstrips time available.

Years of tinkering with acoustics in speaker and room design had led to a logical yet unique product made by International Technology and Communications (otherwise known as ITC), a company owned by Priddle and his partner, Bob Cronan. Their factory in Hornsby, north of Sydney uses a crew who once made road cases and speaker boxes, the facility now churns out modular soundproof studios.

The current practice elsewhere is to draw up a plan and get a builder in. You put in two walls separated by an air gap, with one independent of the floating floor. You do what you can with the ceil-

ing. Bricks, studs, gyprock, sand, insulation, and the electrician will be tearing his hair out trying to figure out what you are actually building! Priddle's solution is fabricated off the scene.

If you look at an ITC module, you see a five inch thick (120mm) panel measuring 1200 x 2700mm and weighing 100kg. It makes up the walls and the ceiling of your studio. If the job is upstairs or access is via a lift like at Studios 301, the modules are made half height. They are stepped at the end so they snuggle together. Like lego.

With custom board facings, they are also structural. You can screw straight in without finding a stud inside. In fact, it's what's inside that counts, because it results in a detuned surface. The secret herbs and spices, Priddle says.

He vaguely describes a monocoque sub frame with things going this way and that, odd computer algorithms were used to predict theory which relates to Yin and Yang somehow, and it all makes perfect sense. But you don't NEED to know WHAT is inside!

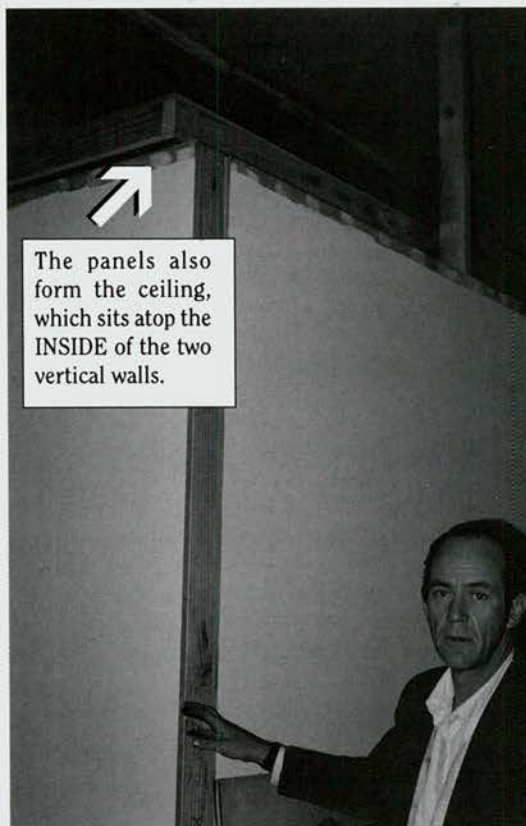
At Sony Music in East Sydney, a major internal rebuild is underway using the ITC system. Simply, everything is new inside the old walls.

associated booths, corridors and a super spacious kitchen. We hope to do a feature on the new studio sometime soon, when Ross is ready.

The ITC connection came at design phase, when Priddle got involved and assisted in the final layout discussions. The modular studio was fabricated and trucked down where it was installed by an ITC crew, who also handled electrical work. Detail and finishes were also installed by ITC, with some nice racking, joinery mitres and suchlike.

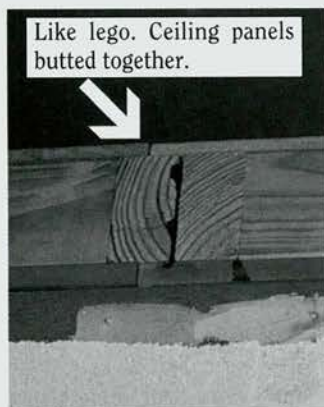
The internal finishing includes acoustic treatment, and a nice concept is the angled wall meeting the ceiling and containing air conditioning ducting, which ITC also installed. They have modules with windows, doors, and custom modules too, so the whole shebang is whacked together rather quickly.

When I was at Sony, wallpaper, paint, rack doors and a harried Ross A'Hern were all swirling around like in a vortex. The oh-so slick reception and receptionist patching what seemed like 200 phone calls a minute be-



*A pensive looking Richard Priddle, outside the studio where the workings of the system can be seen.*

Priddle worked with Sony studio boss Ross A'Hern and designed a new control room, video suite and audio production suite, with



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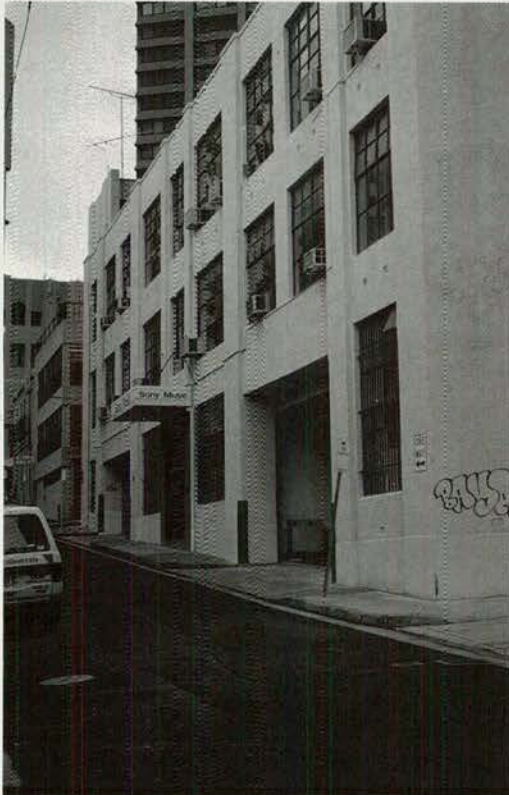
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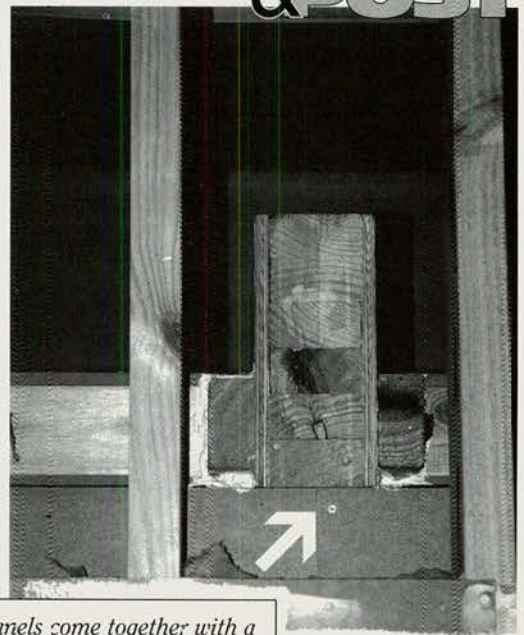
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*Sony Music in East Sydney (left), the dus'ere exterior hides a major music studio. We hope to profile this major upgrade soon. Sony Music Studio manager Ross A'Hern (above).*



*2700 x 1200mm Ceiling panels come together with a plate between them where a span is required. The plate is a bunch of pine laminated between 2 strips of customwood. You use it like you'd use a thumping great steel beam or a massive lump of hardwood. This way gives structural strength while saving a big tree.*

lied the flurry behind the wall, where all the electronic wiring had been done, and the actual studios were operational ahead of final commissioning sign-off - which Priddle admitted was a little behind time.

This is not a new product, ITC have done work with the modular system at 301, at Radio 2UE, at Radio Stations in Fiji and PNG, and elsewhere. Priddle says they are flexible as to what they can do. "Recording studios like to do electronics wiring, it's the culture. Radio on the other hand prefer a package job because they're all businessmen."

Years of audio has installed an understanding of audio technician and engineer psychology in

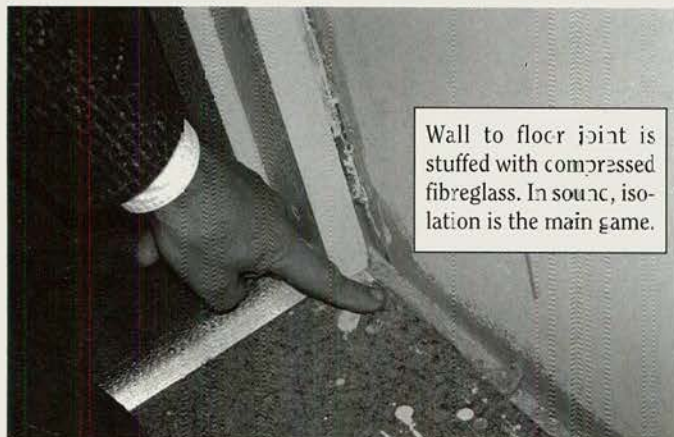
Priddle, who also has a bad used BMW vice which saw this story delayed a week when his beloved 2nd 325 blew up somewhere on the Hay plains over the holidays. I just thought I'd throw that into the story.

ITC seem to have all the bases covered with this one, because in theory a major construction job can be timed tight without a lot of trades bumbling about - which they do - and if need be, one firm (ITC) can handle the whole project. Cost seems reasonable on the surface of things, Priddle says Sony cost around \$350,000 which seems reasonable when you see the scale of Ros A'Hern's new facility. I certainly think doing it with bricks and all on site would have

taken longer and cost more.

Leighton Place, Hornsby.

• ITC are at factory 2, 35 Telephone: (02) 9482-1286.



Wall to floor joint is stuffed with compressed fibreglass. In sound, isolation is the main game.

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# New Studio in the Adelaide Hills

**M**ick Wordley, owner of Mixmaster Productions, has turned his skills of building-craft to the construction of a mud brick recording studio.

Mixmaster Productions is an on-going and successful enterprise currently based in the city of Adelaide. A number of local and interstate groups have recorded there, not because of price, but for the production process or ethos offered.

"The most important thing for me is to create an environment where all people involved can have an input into the thing being produced, without either personal or equipment obstacles."

"I did some work with Steve Albini [Nivana, Pixies, Big Black] He came here to record two albums for Lizardtrain, *Inertia* and *Everything Moves*. Mixed recorded naturally without processing."

Other bands recorded through Mixmaster include the Violets, Peter Coombs, Free Moving Curtis, Clowns of Decadence, Kinetic Playground, The Reckoning, Story Time.

The new studio is a 10 year project now nearing completion, the shell design and insulation is there, so too the plumbing and electrics (star earthing), but Mr

Wordley is not rushing to complete it: slowly, with detail and the right way seems to be his 'best practice'. Each piece of wood shaped by him; each mud-brick made and set by him — this is clearly the 'labour of love'.

"Every material used is either reclaimed or made. It's all my design. Mud bricks acoustically and environmentally are great — it's hard to find a good masonry product that you can leave without covering it. Because of its roughness (unlike concrete) mud brick surface texture diffuses upper-mids and high frequencies beautifully. Steve Albini when he saw it decided to use mud brick for his new studio in Chicago."

"I have also found laminating various layers of timber has worked out well acoustically, as a resonator, and I'm currently spending time on bass trapping. No sound can get out so I have spent time on dealing with acoustic reflection and frequency traps."

"To equip the room I'm looking for an old Neve console — hard to find but if I take my time it will turn up. I like analogue equipment; I love ribbon mikes, I record a lot with Coles brand microphones, I also have a range of TLMs', Neumanns.

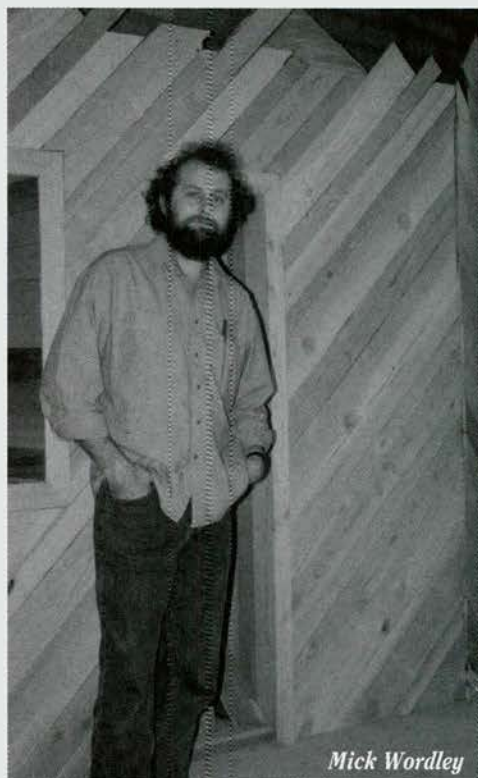
"I also keep an eye out for old mic amps from Neve boards, and I recently bought some mic amps from Chicago called Sytec — they are *very* good. As well, Ross Giles, who lives in Adelaide, builds tube compressors, mic amps and amplifier rebuilds. He also makes valve DIs. He *knows* about tubes."

At this point Mr Wordley is undecided whether to keep both facilities running when the new studio is built.

The design of the new studio is different as it allows for artists to settle in or live in the space. There will be areas for accommodation/relaxing next to the studio.

The location is a peaceful bush-suburb in the Adelaide hills so staying and recording there, I would imagine, might be quite inspirational.

Mr Wordley has promised to send pictures of the finished stu-



Mick Wordley

dio to Connections. Keep reading.  
By Daniel Cole.

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Write in Reader Service Number: 121

## The Studio Next Door

Daniel Cole visits one of the 'new breed' in Adelaide

Nesci Studios represents the new form of professional studio's: compact, relatively cheap capital investment, hi-end production values and capacity, booked up. Set up and owned by Tony Nesci, Nesci Studios has attracted a great respect from the local industry and interest from overseas.

It is a home studio: but not in the banal sense; outside is a sand-brick suburban house; inside is a pristine 48 track digital facility.

"I've been here for about six years. I've always played music so it started with a four track, songwriting, performing. I always liked recording sounds."

According to Tony, original music has been the key to his interest and success

"I don't care what

style it is, it's the sound that interests me, textures. I can listen to anything and I don't limit myself: I have done a lot of heavy music because Adelaide is full of heavy bands! In the early days, heaps of metal, these days its more grunge/Seattle stuff."

As with most first time recordings, most projects that use Nesci Studios are self funded, except for

Mark of Cain and a few others,

"Most get the cash together and come in, press 500 to 1000 copies maybe. I do all mastering from here, we send a DAT to the CD pressing plant. It's a small industry here; there isn't a record label



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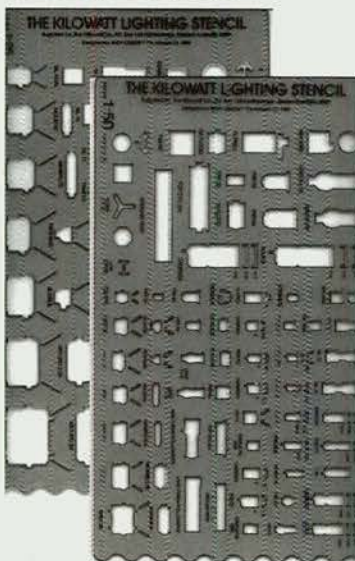
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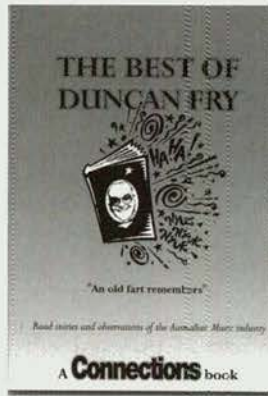
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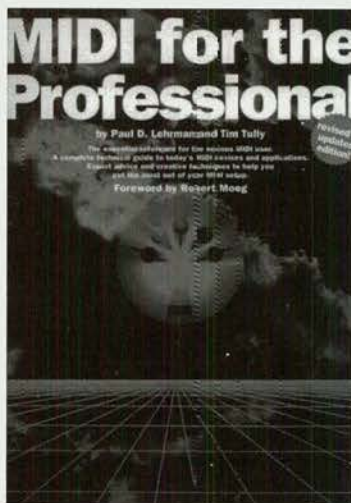


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Our popular columnist Duncan Fry chronicles his road stories, including many never before published! Dunk writes about life at the gig, after the gig, and nowhere near the gig- it is sometimes a chronicle of the world through Duncan's eyes. Usually very funny and often worse! **A fart remembers: \$15.00**

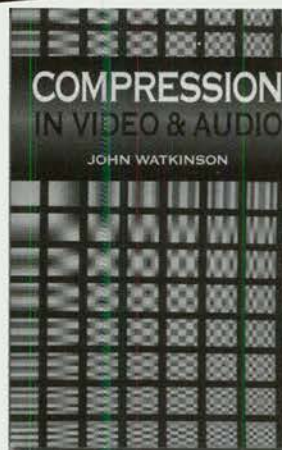
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MIDI for the Professional is an essential reference for the serious MIDI user. Full of illustrations, and plenty of handy tips, this is a 'plain language' book which is useful for anyone working with MIDI. Large format, 255p. **\$35**

LIGHTING BY DESIGN - A Technical Guide, is a weighty volume of 321 pages. Written by Brian Fitt and Joe Thornley, it is full of pix, charts and illustrations. For stage, TV, film. **\$55**

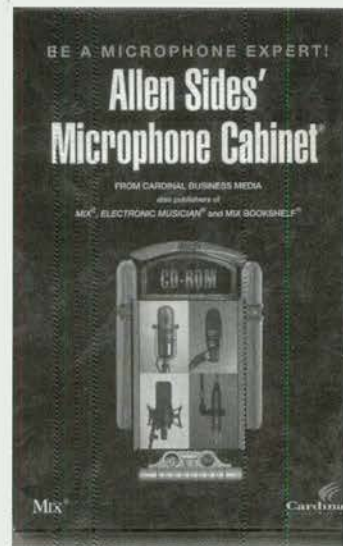
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Projects from Maplin Magazine. Over 20 IC projects, incl power amps, pre-amps & filters and more. 191pp, 1994. **\$41**

## NESCI (continued)

in Adelaide

Some of the local bands that Tony has recorded include, The Egg, Kickstart, Mark of Cain, Bordertown.

"Most of my reputation is by word of mouth, I'm known very well in Adelaide, and is now branching out. For this reason I'm not advertising."

"The Mark of Cain project attracted some overseas interest, with Henry Rollins, he said it [the studio] was so pure! He even wrote in Pop Metal magazine about it. He was great to work with, very courteous and polite, more so than the locals! cleaning up his cup etc. Between mixing times

we'd sit around listening to his stories, sometimes he would go and read because literature is his second love after music.

"Henry Rollin's last CD was recorded in a house, he said that recording studios was too sterile, and a lot of bands are doing just that, preferring the atmosphere of home studios."

When you listen to Mark of Cains single, *First Time*, try to picture a suburban lounge room where it was recorded.

Tony Nesci has at the moment a 48 track digital facility, preferring to use Alesis ADATS;

"Most bands don't even use 24 tracks, for most 12 to 18 tracks is the norm. A project in the new year may use 32 tracks but we'll see. The Alesis ADATS reproduce sound beautifully and they are reliable. I like analogue gear but it became a nightmare: everytime I checked the signal to tape the

sound was *never the same*, its mid, low and high always change.

Why go and pay \$40,000 for an analog machine when you can get an ADAT? Warmth comes from how you mix; its the fault of the engineer with overproduction if its cold or sterile.

"The desk is a Sound Tech ST 244 48/16/2, I modified it and put new amp chips in, the same chips that more expensive desks use which I like the sound of. I turned a good basic desk into something custom, and 100% better. Most are noisy or have poor EQ.

For monitoring it is pretty simple; I just use my ears. The myth is that you have to use brands. Mixing, engineering, producing is an art; I chose amps and speakers because of their sound. I use three types; Mordaunt-Short (hi-fi); Alesis; Acoustic Research. The Alesis are cloudy at about 200 cycles, the ARs are nice but I don't trust them entirely, so I use the Mordaunt-Short's, they're super accurate.

"Same with the amps, Marantz based on PM 80 and Alesis reference 100, which is accurate as well. Some of the Yamaha amps again had a cloudiness in the mid to top range."

"With processing, I use the Korg A1s, Ensoniq DP4s a lot; both are multi-effect processors but have great reverbs with a large range. The Lexicon was overpriced and overrated; it has a bass roll-off facility but I can do that elsewhere on the desk."

EQ and enhancers include Stereo BBE; "I like it on vocals.

The desk has parametrics on it, as well I have DOD and Yamaha stereo EQs. I like the rough edges of a regular graphic EQ, I find that there is more variation in the EQ curve. As well, I like the DBX compressors so I use them exclusively."

On the working process, Tony Nesci has some clear thoughts;

"I spend time with the sound at the source rather than put it all on tape and fix it in the mix. I spend three times the effort at the source rather than in mixing, recordingæ.

"This is the key: if you have good sound, the right microphone at the point of recording, things will be crystal clear *if you do it right*. Many people come to me and ask "how did you get these sounds?!" ; it just comes down to straightforward approaches and procedures." Simplicity.

"With microphones, after ten years I started listening to sounds of microphones, so again I used extensive trialing; I have an Equitek which is as good as a Neuman. I use it for vocals, acoustic instruments. I have a whole range of mics from Sennheiser, Beyer, AKGs, EV. All chosen because I liked the sound of them.

"It comes down to the "rules" thing: you have to do things by the rule. In my book, there are no rules; its all art — have fun with it!"

## Studio News

• **Rocking Horse** have hosted the Cruel Sea's latest demo session for their new album, recorded and engineered by Paul McKercher. Other tracking at Rocking Horse included "Gigs for Kids", and another young band Bindieye. Contact Sam for studio enquires (066)88 4131

• **Woolly Mammoth** is a recording facility in Newtown, Sydney. Charlie McMahon (he of the didge) has finished a few projects, so too Mockingbird with their debut album in, as they say, the can. Woolly Mammoth also provide video post, mulitmedia and computer graphics skills and facilities, recently completing jobs for Fairstar Computers and graphics for the Prince of Wales Children's Hospital. Contact Nik (02) 557 2721 for information and rates.

• **Damien Gerard** have been tracking in studio A with the Gadflys. Also, one of the 'Grow Your Own' bands Slur have been doing recording. (Contact 'Gerards for an express copy of the Grow Your Own CD!) Studio B has a new 2"24 track machine and currently doing pre-production is Bluebottle Kiss with American producer Jack Endino. Contact (02) 692 8776

• **Mirage Studios** in Surry Hills have purchased a Studer 820/24 track with the Studer 827/24 as its slave. An Otari MTR 90/24 track will be the stand by machine. Contact (02) 211 3915

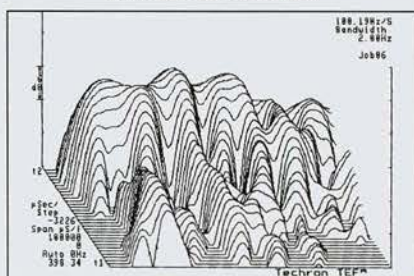
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**Fax: (02) 211 3141** requirements.

• **Pathways Studios** are now located at Suite 10, 301 Castlereagh St Sydney. Sound familiar? Yes, it's the EMI site. Owner of Pathways Studios Frank Kerestedshijan has moved from Mittagong and the new facility (Steve Rance designed) will be ready in February. On board: Soundtracs CP 6800 with SMPTE; Soundcraft SCM 760/24 track plus more. Rates start at \$400 per 10 hour day, including engineer. Contact Frank Kerestedshijan for information and rates on 0419-23 0008

• **Kiss Music Studios** have taken over the former Platinum Studios, South Yarra Melbourne. The new facility boasts a Sony 48 track digital machine and a Fairlight MFX3 hard disk recorder. They still have analogue recorders for personal taste. Paul Kosky is the new General Manager and Senior Producer. Andy Baldwin, formally of Metropolis Audio has joined the production team. Contact Paul Kosky (03) 9827 8000

• **Studio assistant wanted** in Sydney for the plush Mirage Studio - but beware. You must be a current or former student (and graduate) of SAE as well, you must not have human attributes such as an opinion or an ego. You should be able to, however, make coffee, food, be on call at all times, be invisible during a session, have a good ear for mixing and music. This is the first step to becoming an engineer (maybe) so you can be told off by someone else for the rest of your career. Contact Tom Misner.

• **Sony Music** in Hargrave Street, East Sydney have completed their refit and are joyous. The room has been extensively rewired with video and digital tie-lines and the room has been given light and air from nature. New rooms include a post production area with Pro Tools and a NEVE 8034 console and a on-line video edit suite featuring an Avid Media Composer 4000. Contact for rates, (02) 332 0320

• **RB-X Studios** in Richmond, Melbourne are an established presence in Melbourne studios since 1987. They have just completed installing a multicore between their studio and the club across the road, The Central Club. This will enable studio quality live recording and mixing. RB-X have also added a Sonic Solutions system to their extensive equipment list. Contact them on (03) 9429 6199

• The Australian Film, Television and Radio School (**AFTRS**) in Sydney announce the Sound Technology course. It runs February 13 through 4 June, on Tuesday nights between 6pm and 10.30pm. It will cover acoustic theory, maintenance and recorders. And naturally, Sync as well. The cost is \$800, and you can get more info on this number: (02) 805-6444. Further courses coming up include Music Recording.

## SSL Sponsors 'Prestige Studios Of The World' Showcase CD-Rom and Netsite

Solid State Logic, Oxford UK based makers of very sophisticated mixing consoles most of us only dream about, has put money into a CD Rom project which details ten leading recording facilities worldwide.

It comes as a CD-Rom, the CD-Rom allows users to explore each of the studios, exploring control rooms and live areas by means of a virtual reality technology called Quicktime Virtual Reality, from Apple Computer. From the CD-Rom, SSL say you can use enclosed software to directly log onto an internet site (via Compuserve) which allows you to use a special 'Prestige studios website'. An interesting concept, but we wonder why not just advertise the site address? Hmmmm.

The disk will be an 'enhanced CD' (E-CD), a new form of music and data delivery supported by Sony, Philips, Apple, Microsoft and the Recording Industry of America (RIAA). The CD will contain music tracks recorded at the studios playable in any domestic CD player, while also containing an interactive multimedia 'tour' of the facilities, playable on a Mac or PC equipped with a CD-Rom drive.

The studios featured include Oceanway (LA), Masterfonics (Nashville), Hit Factory (NY), The Twon House (London), Wisseloord (Holland), and Guillaume Tell (Paris).

The website will have regularly updated info on the studios, sponsors and products, and serve as a launch pad to other netsites of interest.

"We are very excited about this project", said Hazel Simpson, group marketing director at SSL. "As leading suppliers to the pro audio industry, we believe it is fitting SSL continues to support its clients by spearheading advances and utilising new creative delivery media". The CD will contain a Quicktime Virtual Reality tour of SSL's state-of-the-art demo studios, and interviews with SSL personnel.

The CD will be available from SSL free of charge except for shipping and handling. For more info, or to order a copy, call Judith Pennington at SSL, or email (this would be more appropriate given the time zone differences) judith@sslrnd.co.uk.

They also have a website which at this time simply has a promo for this, we logged on to check it out, and it seems to indicate the project is a little behind time, or net ready at January 28th. Go to <http://www.c21media.com/studios>.

# CAD

Conneaut Audio Devices

CAD are one of the oldest manufacturers of microphones in the USA. Their microphones are crafted to offer extraordinary transparency, flexibility, & ultra high-value for money. They are extremely durable, beautifully finished & offer a "2 Year Guarantee."

## PROFESSIONAL SERIES



The CAD Professional Series are high quality, virtually indestructible microphones. OK, they aren't real expensive. Don't let that fool you into thinking they sound like other 'so-called' affordable mics. Beautiful sounding, these mics are crafted in the traditional way - transparent with heaps of gain. There's the CAD 92 condenser (\$299), the HM-50VC crystal mic (\$159), and the CAD 28 dynamic vocal mic (\$159) just to name a few. Have a listen to the Professional Series. They work.



## CONTRACTOR SERIES



"Yes, we've tried cheap condensers before, and they don't work. You have to speak right into them. They sound so thin." There is an alternative. CAD have been crafting microphones longer than just about anyone. Their experience means affordably priced mics. Plus they sound so rich and natural AND they really work! The Contractor Series feature the MG 115 mini-gooseneck (\$299), the CM-100 hanging mini-gooseneck (\$329), and the ST-100 boundary microphone (\$329). Discover what many audio contractors and installation companies have already found out. You don't have to spend big bucks. There is an alternative.

## EQUITEK SERIES



Forget the price! The Equitek microphones are comparable in quality with any studio mic in the world today. Their extraordinary transparency resulting from CAD's unique servo design, underline their astounding quality. OK, back to the price. The supercardioid E100 side address condenser (\$995) and the multi-pattern E200 (\$1695) have created new 'bench-marks' for cost and performance. Designed for critical applications such as recording, sound reinforcement and broadcast, they out-perform studio microphones three times their price.

"The E200 has more warmth than most valve microphones"  
Joe Camilleri

Need more information? Call us on (043) 291 711 for the full information on the CAD range of professional quality microphones.



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Write in Reader Service Number: 132

ARTIST	PRODUCER	ENGINEER	PROJECT	ARTIST	PRODUCER	ENGINEER	PROJECT
<b>New South Wales</b>				<b>Eclipse Music Studios</b>			
<b>A# Sharp Studio</b> Jeff Cripps (02) 534 4440 24 Track 1*				Jodie Sharp (02) 264 7734 Mit. 32 Trk Digi/Studer 24 Trk Ar. (Studio A) SSL Suite			
Third Degree	Jeff Cripps	Jeff Cripps	Blues CD	Mark O'Shea	Mark Moffatt	Brent Clark	Album
Pleasure & Pain	Jeff Cripps	Jeff Cripps	Mini CD	Ghostwriters	Nick Launay	Nick Launay	Album
Martin Lei Band	Jeff Cripps	Jeff Cripps	Demo	The Mark of Cainb	Tim Rogers/Nick	Nick Launay	Album/S.Track
Ron Mey	Jeff Cripps	Jeff Cripps	Demo	You Am I	Tim Rogers/Nick	Nick Launay	Album/S.Track
<b>Albert Studios Leesa (02) 9953 2544 48 Digital</b>				Sharon Calabro	M.Szumowski	P.Munro/N.Mainsbridge	EP
Cactus Child	Craig Porteils	Craig Porteils	Album	<b>Festival Studios</b> Catherine Knapman (02) 660 4022 2 x Analogue Multi-Tracks or Digital Multi-Track			
Leoni McPherson	Craig Porteils	Craig Porteils	New Tracks	David Lane	David Lane	Mark Thomas	Demos
Wayne Jury	John Brewster		New Demos	Tumbleweed	Paul McKercher	Paul McKercher	EP
<b>Bush Traks</b> Ruth Miller (066) 891 290 24 Track Recording & Multimedia				Arizona Prodns.	Peter Kaldor	Mike Duffy	"Oasis" TV Com.
Vanya	Band/D.Highett	Dave Highett	Album	Futura Enterprises	Peter Casey	Glen Phimister	"Orchestral"
David Reeve	David	Dave Highett	Album Tracks	Arizona Prodns.	Peter Kaldor	Mike Duffy	"Optus" TV Com.
Glenn Brace	Glenn/Dave	Dave Highett	Demo	Jack Ellis	Jack Ellis	Mark Thomas	Demos
Flame Tree	Band/Dave	Dave Highett	Album Tracks	<b>Hullabaloo Music</b> Glenn Heaton (02) 9906 2933 24 Tk. Analogue/8T Digital/Pro-Tools			
<b>Charing Cross Studio</b> David Sykes (02)387 8362 - 24 Trk Neve				Pixie	Band/P.Jenkins	Glenn Heaton	Album
Wendy Matthews	Justin Stanley	Peter Jones	Mixing	Disney Live	Disney	Glenn Heaton	Live Show S/Tks
Diesel - Wilson	Diesel	Dave Trump	Mixing	Brescia	Andy Goldsmith	Geoff McGarvey	TVC
Russell Brown	Steve Balbi	Peter Jones	EP Trkg./Mixing	Retravisision	Andrew Marsh	Glenn Langford	TVC
Pollyanna	Dave Trump	Dave Trump	Album Mixing	Hullabaloo	Hullabaloo	Glenn Heaton	TV Themes
Sandpit	Greg Wales	Peter Jones	EP Trkg./Mixing	<b>Lucinda Street Recordings</b> Rick Mostyn (042) 291169 Digital Mobile Session 8 Studio			
Ghostwriters	Rob Hirst	Keith Cooper	Tracking/Mixing	'Opera By The Sea'	Rick Mostyn	Rick Mostyn	Live Rec.CD Alb.
<b>Cloud Studios</b> Liz Macleod (013) 532429 48 Tracks, CD Mastering, Super True Automation				<b>Main Street Studio</b> Rob Specogna 042 834 515 16 Track			
Wild Life	Band	Parris/Kim	CD Master	Allan Gumm	J.McCallum/Rob	Rob/J.Thomas	CD Album
Hound	Band	Kim/M.Wilson	Live to DAT	Shot to Pieces	Band/Rob	Rob Specogna	CD Single
Scott Leece	Parris Macleod	Parris/Kim	Mixing Album	Shifter	Band/Rob	Rob/J.Thomas	CD Album
Eddie Daniels	Eddie Daniels	Kim/Parris	CD Demo	Vaughans	Ben Robertson	Rob/J.Thomas	Demos
Amsterjam	Parris/Band	Parris/Kim	Mixing Album	Gairden Cook	Rob Specogna	Rob Specogna	CD Album
Red Back	Band	Kim/Parris	CD Demo	Rimana	Rob Specogna	Rob Specogna	CD Album
<b>Crystal Clear Studios</b> (02) 684 1152 David Tozer 24 Tk Digital ADAT System & BRC 32 Ch. (66 input) Console				<b>Mirage Studios</b> Gerald Nixon (02) 211 3915 16 Track Digital, 48 Tk. Digital 24 Track Analogue			
Jaded Vision	Dave Tozer	Dave Tozer	EP	Yothu Yindi	Lamar Louder	Mark Thomas	Mixing Album
Tyranny	Dave Tozer	Dave Tozer	EP	Power Supply	M.Kennedy/Tom Miser	Tom Misner	Mix. Album
Shattered Mass	Dave/Band	Dave Tozer	EP	Sara Kennedy	Russell Dunlop	Tom Misner	Rec. Album
Wishbone	Dave/Band	Dave Tozer	Trking/Mixing	John Gillard	John Gillard	John Bee	Pepsi Comm.
Toxic Blonde	Dave/Band	Dave Tozer	Demo	D.J. Foster	Spencer Lee	Spencer Lee	Rec. Album
Oz Rock Show	Dave Tozer	Dave Tozer	Demo	Handels Messiah	Walsingham Records	Mike Stavrou	Liv.Rec. Album
<b>Damien Gerard Studios</b> Contact Marshall (02) 660-8776 2 x 16/32 Track							
The Gadflies	Band	Russ Pilling	Album Tracks				
Once Upon A Time	Marshall Cullen	Marshall/Susan	Mixing				
Slur	Band/J.Carter	Jamie Carter	EP Tracking				
Potion	Band/Konrad	Konrad Skinlis	EP Tracking				
Desert Throat	Band	Dave Trump	EP Tracking				
Blue Bottle Kiss	Jack Endino		Pre Production				



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The 26 hour course runs on Monday nights (6-9) starting February 26th.

# HOWARD JONES WORKBENCH

## KRONING AND GROANING

I was doing the audio commissioning and debugging in an off-line video post suite recently. It involved the usual patching of tones through the router, switchers etc and seeing if they came out where they should.

This is not such a difficult task but it is fiddly work due to the number of channels involved. The routers in these suites are used to switch video and audio signals to predetermined destinations.

Usually, the person designing the facility, in consultation with the operators, will figure out what should normally be connected together for typical daily operations. These connections are then programmed into the router and may be called up with a few keystrokes. This reduces a time-consuming and error-prone job to a doddle.

Anyway, mostly this debugging went okay with the usual tracking down of connections which were 'one-legged' or intermittent. Another important facet of this commissioning work is tweaking all devices for correct reference level.

Together with another engineer, we ploughed through all this stuff over a period of days. Eventually, we came to one signal which was AWOL. This signal, supposedly coming out of the router had disappeared into the ether and wasn't turning up anywhere. These installations invariably use what are known as Krone blocks in the back of each rack. A Krone block is a multiway connector which uses an insulation displacement technique to make the connection to each wire poked into it. I say 'poked' but terminating a wire into a Krone block involves using a special tool to force the wire down into the well of the connector, where a set of sharp blades pierces the insulation and makes contact with the conductors. This is known as 'punching off' a wire.

Krone blocks are universally used in TV studios, edit suites and lots of other places. Instead of running a loom direct to the connectors of the equipment mounted in a rack, the loom is taken to the Krone block. Each individual wire is then punched off. A corresponding wire is punched off and goes as a tail to the rear panel connector on the equipment.

Anyway, long experience tells you that the first place to look for trouble is at the Krone block. If a wire is not punched off forcefully it may make only poor contact or no contact at all. However, when we checked the connections from the router at the Krone block end, all was well. We dragged a 'scope in back of the rack and started looking for our missing sine

wave. When we found no signal present at all, we buzzed out the line and found that it was a dead short. This was a bit of a pain because it was a bus-type signal which came from the router and went to several destinations, always through a Krone block. In a situation like this, you just have to pull off the punched wire at each destination Krone block one at a time. You then buzz the line again to see if the short is still present. Eventually, you pull off a punched wire and find that that was the line causing the short circuit.

As luck would have it, the last wire we pulled off was the one with the short. This was on a feed from the room we had been in to another edit suite elsewhere in the complex. So, we packed up our gear and trooped off to this other room to track down the source of our short. At this end, the loom bringing the feeds from the first room came to a set of Krone blocks known as an IDF (Intermediate Distribution Frame). From there, various wires fanned out to individual Krone blocks in the back of each rack - there were about 10 racks of equipment in this room.

A bit of line testing showed that the connection from the IDF to the individual Krone was okay - the short must be in the wiring within the rack. The only piece of gear that our missing signal went to in this rack was an audio DA, that is a distribution amplifier. A DA typically takes a stereo input and provides a large number of buffered outputs - copies if you like - from that input. This DA was mounted at the very bottom position in the rack, right at floor level, so it took a moment of stuffing around to get it out. We then disconnected the wire from the back panel of the DA and found that our short had cleared.

This meant that the short was actually on the input circuit of the DA - something neither of us had ever seen before. It's funny how these things go - with a fault like that you'd bet for sure that the installation wiring was faulty somewhere, rather than a piece of brand new equipment. And luckily, we were able to fix the problem on the spot.

When we opened up the DA we found that each back panel connection went on a flying lead to the underside of the mother circuit board. On our short circuit input, this flying lead wasn't well connected and was touching the metal chassis. It took only a few minutes work to tidy up the wiring and clear the problem.

• Howard runs Studio Solutions in Sydney, call (02) 906-4363.

Sound Information  
from  
**YAMAHA**

by Chris Steller

### GAIN STRUCTURE - THE OPTIMISING OF LEVELS

If you've ever wondered why your sound system is noisy or distorted when someone else with the same gear is getting great results, it may be because your gain structure is set up badly.

Gain structure involves the optimum setting of levels at all stages of your mixer from input to fader to output. This can involve the setting of at least three or four different controls, and then possibly the inserting of effects or using auxiliary sends and returns to add to this, the input and output levels of these effects, and the output levels of devices plugged into the mixer in the first place. That's a lot of levels to set up, and considering that all electronic components generate noise, anything along the signal path that is not adjusted to optimum can add noise to the final output.

'The more gain you get at the mic preamp, the less you'll need to add from the other stages in your system. The less you amplify the signal further down the line, the less you amplify the noise.'

If you want a few tips on setting up levels, there are factsheets available. Just call the number below.

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## ERIC HOLROYD MAKING TRACKS

*Eric's been around, as they say, and we mean in a musical sense. His new page here will explore home recording up to the minute!*

**G**'day! And welcome to the first of a brand new series on the fascinating subject of home recording - an ever expanding field of great interest to musicians, computer enthusiasts and others which has many facets.

I'm both musician and computer enthusiast, being involved with computers since Commodore 64 days, and have been a freelance writer of computer related articles and product reviews for the last ten years. I later used the very nice Commodore Amiga and graduated to the IBM PC five or six years ago, now working entirely on the PC. There won't be product reviews as such in this column, but where I'm telling of products and software I've used and grown to like (or dislike!) I'll endeavour to quote a source and price.

I spend half my working life as a professional musician and the other half as a freelance writer (and I'm still \$999,900 from being a millionaire!). My musical tastes are extremely wide as I started off on piano at age six; learned cornet and trombone in a North of England brass band in my early teens; switched to trumpet at age 16 and got my first pro gig as 3rd trumpet in a big band; played small group jazz there too; later switched to rock 'n roll guitar and played the clubs. Nowadays I play mainly jazz trumpet, but my listening tastes range through classical piano music to big band swing, small group jazz, ragtime a la Scott Joplin and rock 'n roll - where my personal heroes are Chuck Berry and Jerry Lee Lewis. You can see from all this that I'm not all that biased in my musical tastes, although I'm not overly fond of rap and some of the ultra modern trends in jazz - preferring mainstream and traditional personally.

My small office is just on 10 feet square and is bursting at the seams but I can't afford to relocate it, so any new recording gear or other equipment must fit in with my scheme physically as well as being affordable. I like to make tapes of various stuff like sound effects, music tracks and general audio, and have had good results already in making backing tracks for both rehearsal and "one man band" performance. If any of this sounds a bit like you then read on - we've already got something in common!

This column will be a sort of "journey of exploration" into home recording and I'll be looking at various ways of getting sound and

music onto various media. Any gear used will need to be small enough to fit my crowded office so the DAT recorder and the minidisc system fit the bill perfectly and I'll get onto both in the near future. In the meantime I want to look at hard disk recording using the existing computer as it's already set up pretty well to do just that.

I use a Pentium 100 with 16Mb RAM which is fitted with both a 16-bit Sound Blaster compatible sound card and a Roland Sound Canvas card. The sound card does audio recording and playback whilst the Sound Canvas has a great sounding set of sampled (digitally recorded) instruments which plays back my MIDI tracks beautifully.

Software installed on the computer includes Band in a box (RRP \$149 from Intellware - a great little music maker and recorder which builds a song file in your choice of style just from your typed in chord symbols); The Jammer Hit Session (RRP \$69 from Rhythmic Bytes), a knockout music studio where you build tracks which the program "writes" into a finished performance in 6 part harmony and in any one of a hundred music styles); Power Tracks (a well featured 48 track graphic sequencer with good editing facilities); DrumTrax (RRP \$229 from Intellware - a huge library of digitally recorded tracks in many styles which load straight into the sequencer); Encore (RRP \$795 from Intellware) a powerful sequencer which does professional quality printouts in real notation); plus the normal CD Player, Media Player and Sound Recorder which come with Windows 95. (Similar programs came with the 16-bit sound card too but for convenience I use the Win 95 ones). I love playing with the software and mix 'n match tracks from one to another to use the best features of all.

When researching prices for this month's column I discovered that Intellware have the Sound Canvas card bundled with Power Tracks and Band in a box for \$795, or bundled with the Musicator GS for Windows mentioned later at \$995. All this gives you an idea of the costs involved.

I've come to know many suppliers over the years I've been involved with computers, and one I've come to know as experts in computer sound and hard disk recording is Melbourne's "Mainly Multitrac". Dick Begley is the boss

there and I got some fascinating info from him for this first column. First off, it seems that the minimum PC suitable for recording is a 486/DX4/100 with 8Mb RAM and a 540 Mb hard drive. Recommended though is a faster machine with more of everything so that it processes data quicker and doesn't run out of space. Thus a Pentium 90 with 16 Mb RAM and 1-gigabyte drive is infinitely better - and very affordable at today's prices. (Incidentally, there's never going to be a "right time" to buy a new computer and you'll grow old and gray if you sit and wait.)

Recorded audio takes up huge amounts of disk space and one minute of CD quality sound (sample rate 44kHz) requires 10.4 Mb for a stereo track and 5.2 Mb for a mono track. Dick distributes Voyetra's "Digital Orchestrator" (RRP \$345, and works with any 16-bit sound card), software which lets you add audio to your recorded music tracks (ie put vocals atop your own instrumentals). Using this on a Pentium 90 with 16Mb RAM you could record 16 tracks of mono audio, a minute of which will take up 82.3 Mb and a 3-minute song taking 250Mb up. In stereo those figures are double.

As a general rule, music is recorded as a MIDI file which takes up very much less disk space whilst audio is done in WAV file format. Roland's "Musicator" (RRP \$495 from Intellware) is another software program which allows both formats to be mixed. It's also a pretty good sequencer and has a very good notation printout too.

Incidentally, the formula to determine disk space requirements is: Sample rate multiplied by number of channels multiplied by number of bits divided by 8 and multiplied by 60. It's not always necessary to use 44kHz sample rate for recording the voice either, and many people use 22kHz with quite satisfactory results. I'm told that those "messages on hold" you hear on business telephones whilst waiting for a connection are done at 11kHz and whilst they often infuriate me they do sound OK clarity wise.

When telling about my own system above I'd mentioned the two sound cards. Their functions are now available on a single card such as the new Turtle Beach "Tropéz Lite" (\$395 from Mainly Multitrac) which has proper mu-  
*(continued next page)*

ARTIST	PRODUCER	ENGINEER	PROJECT
Paradise Studios	Lien Chew(02) 357 1599 48 Track A'log,	Custom Mixer	
Mr. Blonde	Tim Whitten	Tim Whitten	EP
Duncan James	Garth Porter	Ted Howard	Tracking Album
Pollyanna	Dave Trump	Dave Trump	Tracking Album
Jackie Love	Sioban Cruise/Jackie	G.Phimister/T.Colley	Album
The Prophets	Herb Cannon	Lien Chew	Demo
Glen Terry	Andy Thompson	Lien Chew	Single
Paul Bryant Mastering	Paul Bryant 02.748 6055 Mastering Suite		
Shot to Pieces	Rob Specogna	Paul Bryant	CD Single
Ian Betteridge	Rod McCormack	Paul Bryant	CD Album
Pitt Family	Nash	Paul Bryant	CD Album
Brian Letton	Lindsay Butler	Paul Bryant	CD Album
Tanya Self	Rod McCormack	Paul Bryant	CD Single
Melinda Johnstone	Jeff Cripps	Paul Bryant	CD Album
Powerhouse Studios	Doug Henderson (02) 318 1220		
Platinum Munk	L.Berger/Doug	Doug Henderson	Album
Click	The Band	Boyde Moore	Album
Brass Monkey	Band/Boyde	Boyde Moore	EP
Cornerstone	Band/Boyde	Boyde Moore	EP
Trillian	Band/Craig Beck	Craig Beck	EP
R. & R. Recordings	Robert Zimola (02) 672 4494 16 Track 1' Format		
C.J.M	Mike Kerin	Robert Zimola	Album
Blinds Plus	Robert Zimola		Corporate
A.R.V. Parts	Robert Zimola		Corporate
Rockinghorse Studios	Samantha Currie (066) 884131 Studio A - 48 Trk.Anal. Studio B. 24 Trk. An.		
Gigs for Kids		Keith Williams	Tracks
Bindi Eye		Greg Courtney	EP
Donna Blackburn	Donna	Greg Courtney	Album
Hi Hime I'm Honey		Greg Courtney	Tracks
Gypsy Moon		Keith Williams	Tracks
Sony Music Studio	Ross Ahern (02) 332 0320 24 Track Analog/Digital		
Jim Kelly	Jim Kelly	Ross Ahern	Album
Doug Parkinson	Judy Nicholls	Simon Torx	Demo
Sound Level	John Soane (02) 9552 3200 16 Track Digital Tascam DAB8		
Duster	Jordan Brebach	Jordan Brebach	16 Tk. Dig.Demo
Paul Verma	Dave Rashleigh	Dave Rashleigh	Live to Dat
She	Joe Breen	Joe Breen	16 Tk.Dig.Demo
Mother Hubbard	Joe Breen	Joe Breen	Live to Dat
The Poor	Dave Rashleigh	Dave Rashleigh	16 Tk.Dig.Demo
Wayne T.Goodman	John B.	John B.	16 Tk.Dig.Demo
Soundwarp Audio Services	(02) 9905 7144 Meredith Brooks Mastering/Post Production		
Harpoon	M.Shepherd	Meredith Brooks	CD Alb.Master
Icehouse	Iva Davies	Meredith Brooks	CD Alb.Master
Greg Champion	Greg Champion	Meredith Brooks	CD Single
Run Silent	Andrew Joseph	Meredith Brooks	CD Alb.Master
Pix Jazz Classics	Various	Meredith Brooks	CD Alb.Master
Shirwell	Paul Bancon	Meredith Brooks	CD Single
Studio Arts Productions	(042) 849128 Ed Lee. Independent Recording Studio		
P. Harness	Band/Ed	Ed Lee	CD
Jillian	Jillian	Ed Lee	Demo
Ed Lee	Ed		S/Trk.Image Vid.
Broadcast	Band/Ed	Ed	CD
Ricr Manz	Rick	Ed	Demo
Studio Shift	Nonda (02) 398 4268 24 Trk. Analog.		
Me and My Big Mouth	Band	Nonda	Album
Robert Taylor Band	Band	Nonda	Demos
Helen Motti	Helen	Nonda	Tracking
Trackdown	Geoff Watson 02.550 6890 The All New All Digital 2-32 Track automated total recall facility!!		
Asha Kan	Tommy Mensah	Michelle Barry	Album
Samuel	Yoram Gross Film	Tim Ryan	TV Audio Post
Berlin	Sydney Dance Co/Iva Davies	Simon Lardly	Ballet Prods.
Tracking Station	Kylie McKenzie (02) 281 8899 24 Tk. Commercial Facility		
Gillian Eastoe	M.Cass/T.Murry	Martin Cass	Album Prod.
Wayne Law	Cass/Murry	Martin Cass	Production
The Wiggles	Band	Chris Brooks	Album
Troy Horse	Michael Lewis (02) 557 3129 48 Track Analogue Studio		
Satsuki Odamura	Tony Lewis	Michael Lewis	Alb.-Trad.Japan.
Mama Bird	Dave Reynolds	Will Sweet	EP
The Playthings	Colin Wright	Colin Wright	EP
Ashok Roy	Tony Lewis	Michael Lewis	Alb.-Trad.Indian
Sweet Lip	Band	Tim Whitten	EP
Harding Richards	Chris McBurnie	Big Rod	Las Vega N/Club Concept Album
Wirra Wirra Studios	Will Rout (02) 605 1203 24 Track Analogue.8 Trk. Dig.		
Steve Johnstone	Steve/G.Meredith	Will Rout	Album
Ted Evans	Rick Knowles	Will Rout	Album
Mark Matthews	Mark	Will Rout	Album
Bible Society	J.Hills/W.Dockerey	Will Rout	Spoken Wcrd Cass.
Warren Dockerey	Shane Duggan	Ian Cooper	Album Mastering
Kelvin	Dion Wilton	Will Rout	Video Post
Woolly Mammoth	Mik Sanning (02) 557 2721 16 Trk. Digital W/Midi		
Time	David Price	D.Price/N.Sanning	EP
Charlie McMahon	Charlie/M.Holden/T.Wedde	Nik Sanning	Album
Mockingbird	Mockingbird	Brett Sullivan	Album
Reb Baker & The Midniters	Jacob Cassar	Gavin Drew	Demo
Sledgehog	Jacob Cassar	Gavin Drew	Demo
Deluxe	Deluxe		Demo
Digital Paradise	Ian Peters (07) 5527 0722 32 Trk. Dig. Rec.Studios		
Various	Evan Hobster	Ian Peters	AV/Laser Show Jupiters
Arthur Blanch	Arthur/L.Carroll	Ian Peters	Alb."Homecoming"

Queensland



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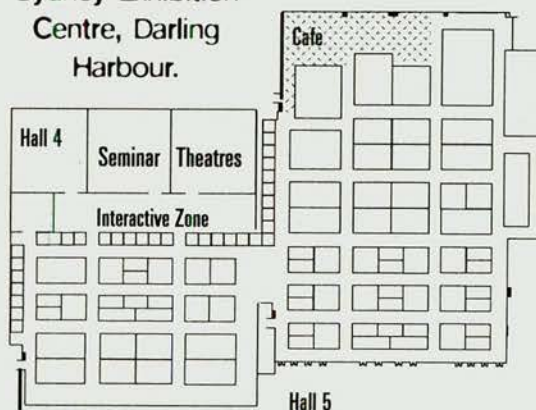
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## Making Tracks (continued)

sical instrument sounds as well as Sound Blaster compatibility for audio etc. Yet another "new generation" sound card (under \$600, also from Multitrac) includes 32 voice E-mu instruments etc, plus a fast fax modem and voice mail speakerphone so maybe I should look at updating my system too.

The object of all this is to end up with a recording for distribu-

tion to others - whether amateur or professional, give away or for sale - and we'll be talking much more about that in forthcoming issues. •

### Suppliers referred to in this story:

Intelliware (08) 271-9662  
Mainly Multitrac (03) 9558-1517  
Rhythmic Bytes (02) 9948-4025  
Roland Australia (02) 9982-8266

ARTIST	PRODUCER	ENGINEER	PROJECT
Mark Dunn	Ian/Mark	Ian Peters	6 Trk.Demo
Various	P.Sharratt	Ian Peters	Live Xmas Prod.
<b>Grevillea Recording Studios</b>	Malcolm Jacobson (07) 3262	8422 24 Trk. Analog/16 Digital/CD Mastering	
C.O.L.A.	C.O.L.A.	Mal.Jacobson	EP
C.O.L.A.	C.O.L.A.	Mal.Jacobson	CD Mastering
The Thorn Birds 2	G.McDonald/L.Stone	Bruce Jacobson	S/Trk. Mix
Webster	Magoo	Mal.Jacobson	CD Mastering
Big City	Big City	Mal.Jacobson	CD Mastering
Blanket	Blanket	Mal.Jacobson	Demos
<b>Outlaw Recording &amp; Records. 070 576 742 or 018 772 380</b>	<b>Jerry Reinisch</b>	Adat 16 Track	
Rob Malloy		Uncle Jerry	Album
Red Eye	J.Reinisch	Uncle Jerry	Album Proj.
Gypsy Admiral/Outlaw	Band	Uncle Jerry	Album Project
<b>Suite 16 Audio Productions Murray Lyons (07) 3369 8733</b>	<b>24 Tk. Analogue/Digital</b>		
12 Guage Disciples	Band	D.Derven/B.Clarka	EP Mix
Greg Hind	Garry Smith	David Richards	Album
Mark Allan	P.Jensen/D.Richards	D.Richards	Album
Kristie	Garry Smith	David Richards	Album
Sangria	David Richards	David Richards	Album
<b>Studio 19 Allan Castleton (077) 757 375</b>	<b>16 Track</b>		
Ben Hammer	Allen Castleton	Allen Castleton	Songwriter Demos
Lyn Woodgate	Lyn	Allen Castleton	Classical Auditions
Adrienne Burgess	Adrienne/Allen	Allen Castleton	Songwriters Demos
Bradley Newman	Bradley/Allen	Allen Castleton	Relaxation CD
Kate West	Allen Castleton	Allen Castleton	Demos

ARTIST	PRODUCER	ENGINEER	PROJECT
<b>Vandersound Studios</b>	Eric Vandersande (075) 468100		
Jules Fauckes	Eric	Jules Fauckes	Demo
Jeff Stratton	Eric	Jeff Stratton	Demo
Standing Room Only	Eric	Eric	Demo
Soliloquay	Eric	Eric	Demo
Jodi McDonald	Eric	Jody	Demo
Simon Milos	Eric	Simon	Demo
<b>Sunshine Studios Leon Prescott (07) 844 6844 36</b>	<b>Channel Neve</b>		
Regurgitator	Regurgitator	Lachlan Goold	Single
Andy McDonell	Magoo	L.Magoo Goold	Album
Linoleum	Leon Prescott	Leon Prescott	Demos
Distort Pigeons	Mark	Mark McElligott	EP
<b>South Australia</b>			
<b>Disk-Edits</b>	Neville Clark (08) 340 1377	Digital Editing & Mastering	
Double Wammy	B.Morrison	N.Clark	Mastering CD
Gary B	Gary B/Kubitzky	N. Clark	Ed/Mast.Single
Quire St.Nicolas		N. Clark	Location Rec.
Wishbone	Band/Wordley	N. Clark	Master CD
Something Snappy	Blark/Bradford	N. Clark	Master for CD
Catherine Lambert	Clark/Purling/Lambert	N.Clark	Master for CD
<b>Mixmaster Productions Mick Wordley (018) 822 986</b>	<b>24 Track 2"</b>		
Crisp	M.Wordley/Band	Mick & Evan	Album Mix
Loaded Zila	Mick/Band	Mick & Evan	Album Mix
Wishbone	Mick/Band	Mick & Evan	Album EP
Peter Coombe	P. Coombe	Mick	Album/Mix
Volition	Band	M. Rick	EP
Colour Wheel	S.Fieldhouse/Band	S.Fieldhouse	Album Mix
<b>Victoria</b>			
<b>C'est Ca Audio-Visual Services Moira McCourt (03) 419 1506</b>	<b>Auto 24 Trk.</b>		
Tim O'Connor	Tim/Siiri	Siiri Metsar	Single
Eleanor Raynor	Eleanor/Siiri	Siiri Metsar	Single
Jane McCracken	Girl Zone Rec.	Siiri Metsar	GZ. Comp.CD
Shirley Billing	Girl Zone Rec.	Siiri Metsar	GZ. Comp CD
Cloe Hall	Girl Zone Red.	Siiri Metsar	GZ Comp CD
Jenny Swain	Girl Zone Rec.	Siiri Metsar	GZ Comp CD



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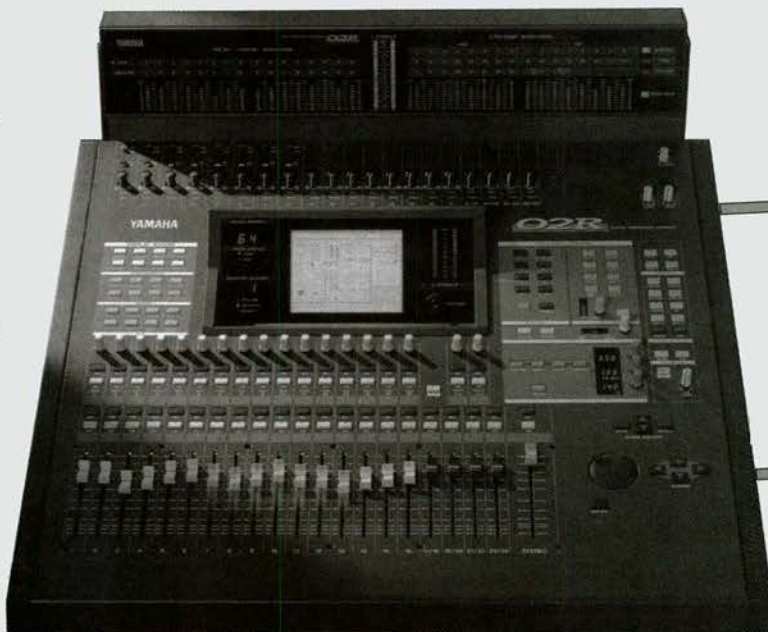
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ARTIST	PRODUCER	ENGINEER	PROJECT
<b>Gotham Audio</b>	Tom Kehoe (03) 987 99400	SSL Console/Sony 48 Track	Digital
John Farnham	Ross Fraser	Doug Brady	Album
<b>Newmarket Studios</b>	Joe Carra (03) 9329 2877	2 x 24 Track	
Paul Norton	Ern Rose	Ern Rose	Album
Fisk & Christian	Ern Rose	Ern Rose	Album
Dixie Jive	Daniel Desiere	Daniel Desiere	Album
Steve Boyd & the Preachers	Robert Dillon	Robert Dillon	Album
<b>SAE Studios</b>	Michael Pollard (03) 9534 4403	2 Tk. 2', 3 Tk. & 2 Tk. Hard Disk, Midi	
Reify	CharlesTurkmen	CharlesTurkmen	Album-Mixes
Kurgan	CharlesTurkmen	Charles Turkmen	CD/EP Tks.Mixes
<b>Sing Sing</b>	Kaj Dahlstrom (03) 9428 4622	SSL, Neve 24/48 Trk. Dig. & An.	
Diesel/C.Wilson		Doug Roberts	Album Mix
The Truth	Band		Mix
Fireballs	Mat Thomas	Mat Thomas	Alb.Rec/Mix
Nick Barker	Kalju Tonuma	Kalju Tonuma	Alb.Rec/Mix
Max-Q	Ollie Olsen	Kalju Tonuma	Mix
Monig Brumby	David Bridy	Simon Polinski	Alb.Rec/Mix
<b>Studio 52</b>	Paul Higgins (03) 9417 7707	Studio A - 32 Tk. Studio B Adat	
Marco Goldsmiths	Blue Heat	Trevor Carter	Album
Indian	Trevor Carter	Trevor Carter	Album
Tunari	Tunari	Trevor Carter	Backing Trks
Itch	Itch	Rowan Jarl	Trk.for Nu-Musik 12
Wheel	Rowan Jarl	Rowan Jarl	Alb. In Studio B
Mark Nolan	Mark	Trevor Carter	Didge Album
<b>RB -X (Australia)</b>	(03) 94296199	Bevan Quethurst 24/48 Trk. Rec. SSL Cons.	
AD Music	Robyn Payne	Mark McDougall	Hong Kong Cable TV
Genius	Matt Thomas	Matt Thomas	Rec.Alb.Trks
Bright Sparks	Band	Gus	Rec. EP 5 Trks
Chris Copping	Chris Copping	Melita Jagic	Jingle
Bib Productions	Mike Brady	Mark McDougall	Jingle
<b>True Form Music Services</b>	Neil Gray (03) 9391 0907	12 Track Analog, 8 Trk. Digital	
Thimbleye	Band	Neil Gray	Demo
Greg Mitchell	Greg Mitchell	Neil Gray	Single
Cane	Band	Neil Gray	EP
Junket	Band	Neil Gray	Demo
<b>Whirled Records</b>	Craig McArthur (02) 9427 1436		
Lamia	Jeremy Willingham	Jeremy	Album
<b>Wombat Road Studio</b>	(051) 454204	Barry Clissold 24 Trk. Plus full Midi Facilities	
S & A Castles	S. Castles	B. Clissold	Demo Tracks
Ms Agro	Band	B. Clissold	Demo Tracks
Brian Baker	Brian Baker	Baker/Clissold	Jingles(TV/Radio)
Big Head Little Body	B. Baker	B. Clissold	Demo Tape

ARTIST	PRODUCER	ENGINEER	PROJECT
Conrad Hocking	Band/Clissold	B.Clissold	Demo Tracks
Cross Roads	V.Garth/C.Twite	B. Clissold	Album Tracks
<b>Northern Territory</b>			
<b>Kakadu Studios</b>	Ken Hutton 089 411344	24 Track, Mobile, Digital Mastering	
Jeff Morris	K. Hutton	K. Hutton	Gospel Album
Paul Francis	Paul/Ken Hutton	Ken Hutton	Covers Album
Urshula Yovitch	Ken Hutton	Ken Hutton	Youth Album
The Penetrators	Ken Hutton	Ken Hutton	Heavy Metal Alb.
Mimi Band	Ken Hutton	Ken Hutton	Aboriginal Contemp.
Bleswick Community	Ken Hutton	Ken Hutton	Aboriginal Trad.
<b>Western Australia</b>			
<b>Bonsai Recording Studio</b>	Tom Thorpe (09) 349 6029	24 Track	
Kay-Redman	Tom Thorpe	Tom Thorpe	Jingles
John Pin	Tom Thorpe	Tom Thorpe	Album
The Early Hours	Tom Thorpe	Tom Thorpe	Album
PMFM	Tom Thorpe	Tom Thorpe	Jingles
<b>Planet Sound Studios</b>	Contact John Villani & Denise Preston (09) 382 2211	48 & 32 Trk. Digital/24 Trk Anal.	
Hank Marvin	Hank Marvin	Les Williams	Concert Mix-Down
Lyndsay Hammond	J.V/G.Goldsmith	John Villani	Demo
Junko	Les Williams	Les Williams	Demo
Chief Berko	John Villani	John Villani	EP Mixdown
Gary Edmonds	J.V/Nunzio Mondia	John Villani	Tracking (Album)
<b>Poons Head</b>	Rob Grant (09) 339 4791		
Spank	Rob Grant/Band	Rob Grant	Album
6 Mile High	Chris Dickey	Chris/Rob Grant	Album
<b>Troppo Sound</b>	Mick Connolly 091. 922 394.	24 Trk. Dolby S	Dat Master
Thunder Mutts	Band	James Edwards	Debut Album
Pigram Bros	Band	Brett Lyons	Album
<b>Witzend Recording Studio</b>	Alan Dawson (09) 3311818	16 Track	
Chief Berko	Band/Alan	Alan Dawson	Demo
Prickle	Band/Alan	Alan Dawson	EP
Norma Holmes	Alan Dawson	Alan Dawson	Demo
Greg Huntley	Greg/Alan	Alan Dawson	Demo


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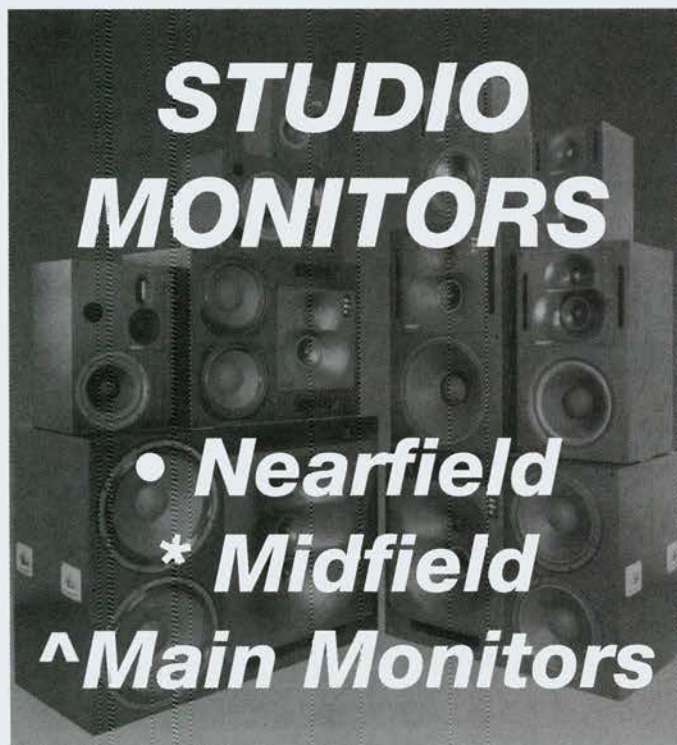
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# Buyers Guide

Introduction by Howard Jones



**T**hink about which elements of your studio equipment are 'mission critical and monitors would have to be close to the top of the list. Every musical evaluation you make, be it for tracking, mixing or mastering, will be channelled through your monitors. No matter whether you record to digital multitrack or portastudio, you will be relying heavily on your monitors to determine your critical decisions. And since every studio, large or small, needs 'em - we bring you the great Connections monitor review!

The subject of studio monitors is one of those arcane areas of audio theory and practice where every practitioner has his or her often strongly held opinions. This is a good thing and has encouraged a great diversity of products from different manufacturers, all

of whom have something interesting to offer. It also means that a buying decision is a real pleasure because it requires you to think very carefully about what you are listening for and which qualities are critical - as opposed to merely desirable - for your application. Unlike other decisions about which equipment to buy, the choice of studio monitors is very much determined by your own tastes and artistic considerations. Of course, as with any purchase of new equipment, cost is still a vital consideration and the news here is pretty good too - there is a great choice of monitors in a huge range of price/performance options.

In this review, we've separated monitors into near-field, mid-range and mains. Let's explain this terminology. Near-field monitors, as the name implies, are mounted

## Nearfield Studio Monitors

### ALESIS

Electric Factory (03) 483 5988  
**Monitor One** Overcomes typical small monitor "choking" with Superpart™ technology. High power handling - 120 watt program. Frequency response 45 Hz to 18 kHz, +/-3 dB. Sensitivity - 88dB SPL, 6.5" woofer, dimension: 15" x 9.25" x 8.5". \$999 pair.



### APOGEE SOUND

ESA Audio (03) 9562 4605  
**CSM-2** Designed for Near and Midfield monitoring in critical listening environments. 3-Way, Passive Xover with mechanically aligned drivers. Dedicated processor provides excellent stereo imaging, stunning depth and high accuracy. \$6975 per pair (Processor \$1769.)

### ATC

A.R. Audio Engineering (02) 810 5300  
**ATC SCM 10** 2-Way 41/2" Soft Dome Woofer/Mid & 1" Soft Dome Tweeter. 80dB @ 1W @ 1M 380 x 180 x 255 (H:WxD) \$3200.  
**ATC SCM 20** 2-Way 6 1/2" Soft Dome Woofer/Mid & 1" Soft Dome Tweeter. 83dB @ 1W @ 1M. 440 x 240 x 310 (HxWxD) \$5500.

### AUDIX CORP

Production Audio Services P/L (03) 9415 1585  
**Audix MM15** 5 x 1/4" woofer, 1 x 1" dome tweeter, sensitivity (1W, 1M) 86dB, power handling 100W. Powered version available. Dimen:

9" x 6" x 9". \$895. pr.  
**Audix MM25** 2 x 5 1/4", woofer, 1 x 1" dome tweeter, sensitivity (1W, 1M) 89dB, power handling 100W. Powered version available. Dimen: 15.5" x 7.5" x 10". \$1195. pr  
**Audix Studio 1A** 1 x 6.5" polycarbonate woofer, 1 x 1" cloth dome tweeter, sensitivity (1W, 1M) 87dB, power handling 250W. Dimen: 13" x 9" x 10" \$1695. pr.  
**Audix Studio 3A**, 2 x 6.5" polycarbonate woofer, 1 x 1" cloth dome tweeter, sensitivity (1W, 1M) 91dB, power handling 350W. Dimen: 19" x 10" x 11.5". \$2475. pr

### BAG END

Acoustisearch (03) 9568 4022  
**Time-aligned** mm-8 Studio Monitors for nearfield and distant monitoring. Feature a 203mm cone and co-axially mounted 25mm high frequency driver. Walnut finish. \$3295 pair.  
**Oval 250mm** ELF sub woofer and ELF processor with stereo CVR limited on the high-pass section. \$3249.

### CELESTION

Electric Factory (03) 9480 5988  
**KR1** Light, compact monitors for a wide variety of applications. 75 watts program. Frequency response 90Hz - 20kHz, sensitivity - 90dB SPL. 5 1/4" woofer, dimensions : 6.8" x 8.6" x 7". \$399.

### DYNAUDIO ACOUSTICS

Sound Supplies (02) 9957 5389  
**BM5** - 2-Way, 6" Bass Driver. 88dB Sens. (1W @ 1M) 102dB Max SPL @ 1.25M 310(H) 204(W) 252(D) \$1499.  
**BM10** 2-Way 7" Bass Driver. 82dB Sens. (1W @ 1M) 114dB Max SPL @ 1.25M. 315(H) 230(W) 289 (D) \$2199.  
**BM15** 2-Way 10" Bass Driver. 88dB Sens. (1W @ 1M) 108dB @ 1.25M. 435 (H) 270(W) 335 (D) \$3199

### EAW-Eastern Acoustic Works

Production Audio Services P/L (03) 9415 1585  
**EAW MS20** 1 x 6.5" woofer, 1 x 1" soft dome tweeter, sensitivity (1W, 1M) 89dB SPL, power handling 100W (AES). Constructed in pairs. Dimen: 14" x 10" x 9" \$1595. pr.  
**EAW MS30C** 1 x 8" woofer, 1 x 1" soft dome tweeter, sensitivity (1W, 1M) 90dB SPL, power handling 200W (AES). Constructed in pairs. Dimen: 17" x 14" x 12" \$1995. pr  
**EAW MS63** 1 x 12" vented LF, 1 x 7" carbon fibre cone MF, 33mm dome & WGP HF, sensitivity (1W, 1M) 95dB SPL, power handling 400W (AES). Dimen: 24" x 16" x 12". \$5795. pr.  
**EAW MS103** 1 x 15" vented LF, 1 x 7" carbon fibre cone MF, 33mm dome & WGP HF, sensitivity (1W, 1M) 95dB SPL, power handling 800W (AES). Dimen: 24" x 20" x 16" \$6745. pr.

### ELECTRO-VOICE

Mark IV Audio (Aust.) P/L (02) 648 3455  
**S40** - Small high performance compact monitor available in black or white. 5.25 low freq. 1" tweeter, 160 watts, 4 ohm, 85dB 1W/1M, 85Hz-20kHz, 100 x 100 deg. dispersion, (hwd) 24.9 x 17.8 x 15.0 cm. \$669. pair  
**S60** - Mid size compact monitor. 6.5" low freq, 1" tweeter, 100 watts, 8 ohm, 88dB 1W/1M, 70Hz-18kHz, 120 x 120 deg dispersion, (hwd) 35.0 x 22.0 x 21.1 cm. \$599. ea.  
**S80** Mid size compact monitor, 8" low freq, 1" tweeter, 100 watts, 8 ohm, 91dB 1W/1M, 80Hz-15kHz, 90 x 90 deg. dispersion (hwd) 40.0 x 27.2 x 21.5cm \$699 ea.  
**Sentry 100A Monitor** For a more critical monitoring environment, 8" low freq, 1" Super-Dome tweeter, 30 watts, 6 ohm, 91dB 1W/1M, 45Hz-18kHz, 158 x 140 deg. dispersion, (hwd) 43.8 x 30.5 x 28.2cm. \$976. ea.

### GENELEC

Studio Connections P/L (03) 9646 0544

**103A** Bi-amplified 6" Bass - 3/4" Metal dome tweeter - 100 Watts H: 312mm x W: 200mm x D: 240mm. \$3995

**1032A** Bi-amplified 10" Bass - 1" Metal dome Tweeter - 200 Watts H: 495mm x W: 320mm x D: 290mm. \$6995.

### HAYES

Australian Audio Supplies (043) 291711  
**F80 FSS** Radical new design which uses a specially designed reflector to achieve optimum response and dispersion. Australian designed and manufactured 87dB 1 Watt 5" woofer, 1" Tweeter. W: 16.5cm x H: 36cm x D: 25cm \$995.

### JBL

Jands Electronics P/L (02) 516 3622  
**JBL-Control 1** Personal Size 2-way System, 135mm (5-1/4") LF, 18mm (3/4") Polycarbonate Dome Tweeter, Moulded Enclosure. Shielded Magnet - Black. \$745. pr.  
**JBL-Control 5** Compact Size 2-way System, 165mm (6-1/2") LF, 25mm (1") Pure Titanium Dome Tweeter, Moulded Enclosure, Shielded Magnet - Black. \$1195. pr.  
**JBL-4206** 2-Way Console Top Studio Monitor, 165mm (6.5") Woofer, 25mm (1") Pure Titanium, Diamond Pattern Surround, Dome Tweeter, Multi Radial™ Sculptured Baffle. \$795. pr

### KRK

Syncrotech Systems Design P/L (02) 417 5088  
**K-ROK** Designed for the home recording studio. The cost effective K-ROK delivers the smooth response and high power handling capability that have made KRK monitors legendary. The components include a 7" proprietary latex-coated, long stroke woofer and a 1" Silk-dome tweeter. \$1235.

**6000B** The most competitively priced close-field monitor to join the renowned KRK line.

close to the listening position, within say one metre. Typically, they are mounted on the console meter bridge or on custom ledges immediately behind the console. In this position, the sound you hear at the mixer's sweet spot will consist largely of direct radiated sound from the monitor with little or no contribution to the perceived sound from room reflections.

The other important attribute of near-fields, of course, is that they are small, usually containing no more than 2 drivers - a woofer and a tweeter - with a passive crossover.

Historically, near-fields are supposed to have originated as an alternative to the main monitors, in order to allow the producer and engineer to understand what the music would sound like on a home hi-fi or car stereo. Near-fields are not exclusively passive and there are now some important models

from different manufacturers offering very good performance indeed by using powered monitors. More of this later.

Mid-range monitors are not big enough to be rated as main monitors but are large enough to be outside the scope of being considered near-fields. Mid-ranges enclose much larger volumes than near-fields with typically three drivers rather than two and because of their larger size, they may be mounted further away from the console. This means that when you listen to them, the sound you are hearing contains more colouration from the listening room acoustics than with near-fields.

Thus, your perception of the sound qualities of mid-range monitors will owe something to the room in which you are using them. With their larger volumes and larger drivers, mid-range monitors are able to achieve a smoother, more extended fre-

quency response than near-fields.

An important feature of both near-field and mid-range monitors is that they are portable - or at least luggable. This means that if you have to go work in a studio other than your own, you can take your personal monitors with you. Because you work with them all the time, you understand their strengths and weaknesses and this gives you a known starting point when working in an unknown environment.

Whilst this idea is perhaps not so common in Australia, freelance engineers in the US do this all the time.

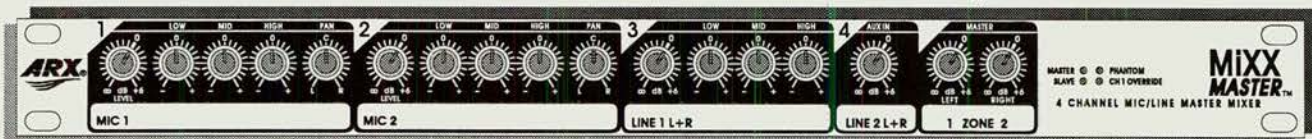
Main monitors in a studio are very large, enclosing a quite significant volume and mostly containing at least three drivers. Mains are frequently mounted into a wall cavity or soffit at some distance from the console and are capable of delivering very high quality sound at very high sound

pressure levels. Because of the financial commitment involved in both purchasing and installing main monitors, a great deal of effort is usually expended on matching the monitors and the room acoustics.

In order to work satisfactorily, main monitors need to couple to a large volume of air - they are quite able to move all the air in a control room and the perceived sound quality of main monitors will be heavily influenced by the room design. This will involve consideration of things like the size of the console ( a big console will reflect more ), the floor-to-ceiling dimension and the absorbancy of the wall coverings and acoustic treatment.

It's fair to say that when it comes to main monitors it is very hard to separate the performance of the monitors from the perception of the control room acoustics - music played on great monitors

## I need a Six Input Stereo Mixer in One Rack Unit, with EQ. Is there a problem?



Not for us there isn't. On the ARX MIXXMaster you get two great sounding Mic inputs, with 3 way EQ, a stereo line input with 3 way eq, and a stereo aux input, plus left and right master level controls. All of this in *one* rack unit.

### I need direct outs from the mic preamps

No problems - each of them has a balanced XLR input and a balanced jack line output on the back.

### How about Phantom power?

Just press the switch on the back

### I need more mic inputs

No problem. Thanks to the MIXXMaster's Open Buss circuitry, you can connect up its sister product, the MIXX, to give you Four

extra great sounding Mic Inputs! And we even *give* you the special lead to link up the busses. That way we know you won't be tempted to use bell wire!

### I need more line inputs

No problem. You can link up another MIXXMaster through the Open Buss connectors.

### I need more outputs

No problem. See above and get another set of outputs. You can even setup one MIXXMaster as a master and the other as a slave, just by pressing a switch.

### I need Priority Override

No problem. You can designate Mic Channel 1 as an override channel. As soon as you speak into it, everything

else ducks down. So it could be "Table 25 your meal is ready" or "The restaurant is on fire!" (Or maybe both!)

### I need something that's easy to use

Easy to use is our middle name.

### Will it make the coffee as well?

Well...this is a problem! In fact the MIXXMaster runs so cool you can't even use it as a coffee warmer! Like to know more? Then call or fax us, or use the reader service number below.



**Vic/Tas:** Tony Hosking 03 9888 6555; **NSW/Qld:** Iain Everington 041 118 3158; **SA:** Peter Asztalos 08 356 6601; **WA:** Ian Ross 09 354 3185; **NZ:** John Carter +64 (0)9 789 863 **ARX Systems**, 33 Advantage Road, Highett, Victoria 3192, Australia. Phone 03 9555 7859 Fax 03 9555 6747

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in a poor sounding room will give you poor sounding music.

You'll notice that there have been a lot of words like perception, sound quality and so on - all subjective terms. This is because monitors fall very much into the 'one man's meat is another man's poison category'.

It is generally accepted that different brands have identifiable sounds of their own, which you may or may not like. For example, any engineer worth her salt should be able to pick between the sound of US, British and Japanese monitors. But, outside these subjective questions, is there any method of objectively evaluating between various monitors? Funny you should ask...

No matter which category of monitors you are considering, they will all have certain operating parameters provided by the manufacturer.

First off is frequency response - namely the range of frequencies

which the monitor will faithfully reproduce. Now, it is not necessarily the case that a flat response corresponds to good sounding speakers, but it is highly likely to be the case that a poor response will correspond to poor sounding speakers.

Most manufacturers provide a frequency response chart with each of their models. By studying and understanding these charts, you will be able to correlate the information contained in them with what you hear when auditioning the monitors. The more you develop this habit, the more you will be able to understand how the stated frequency response is likely to relate to your perception of sound quality in any given monitor.

The rule of thumb is that a small enclosure with small drivers will not provide as flat, or as wide, a frequency response as a larger unit. Again, simply because one monitor has more drivers than

another is no guarantee that it will sound better. You will need to study the specs and use careful listening to decide which is right for you.

The second specification provided with each monitor will be the power rating of the model. You should study each manufacturer's literature carefully because different manufacturers are likely to attach different meanings to the term 'power rating'.

It's important to know, however, that a monitor with a rating of, say, 200 watts should not be connected to a power amp rated at 200 watts turned up full bore. This is a recipe for disaster. The question of the power rating is also related to the efficiency of the monitors, that is, the ability of the speakers to produce a given sound pressure level for a given input.

Different models will inevitably produce different SPLs for the same given input. This in itself is not necessarily a good or bad thing

- what it means is that you must give almost as much consideration to the amplifiers driving the monitors as to the monitors themselves. And so, in a monitor review, we come to amplifiers...

The amplifier you use has to be capable of driving your monitors to desired levels without going into distortion and clipping. If this happens, your precious speakers will be going to the re-cone shop before you can say 'Pass me the bong, man'.

You also have to determine how the interaction between your amplifier and your monitors will affect your perception of the sound of the monitors. To put this another way, a given set of monitors may sound better when driven by one amp than another.

Whilst these comments apply to all monitors, the factors tend to multiply when you are considering main monitors. These monitors generally have the possibility of tri-amping each side. All non-

## Nearfield Monitors (continued)

The 6000 utilize the latest in aerospace materials and the highest quality components. Components are comprised of a 6" Poly-glass woofer and 1" Kevlar inverted dome-tweeter. Sensitivity 89dB (1W @ 1M) \$1680

**700B** The unique phase-aligned enclosure physically aligns the low frequency transducer with the tweeter, eliminating audible phasing problems or sound coloration. Components are 1 7" Kevlar woofer and 1 Kevlar dome tweeter. Sensitivity: 91 dB (1W @ 1M) \$2542.

**9000B** The unique phase-aligned enclosure acoustically aligns the low frequency transducer with the tweeter, eliminating audible phasing problems or sound coloration. Components are 9" composite woofer and 1" Kevlar dome tweeter. Sensitivity: 92 dB (1W @ 1M) \$4323.

\*KRK's K-ROK monitors (below) will soon have a subwoofer (centre) added as an option.



### MEYER SOUND LABORATORIES

System Sales P/L (03) 529 7755

**HD-1** Self-powered, high definition. Applications: psychoacoustics research, CD mastering, music recording, video & film dubbing, Foley mixing and sound effects spotting. \$5385.

**833** Studio reference monitor system. Ultra-low distortion, wide dynamic range, excellent frequency and phase response. Applications: recording, broadcasting and post-production monitoring. Controller available. \$5700.

**834** Sub-woofer designed to extend low frequency response below 100Hz. Compatible with Meyer 833 studio monitor system. \$3755.

### ORPHEUS

Audio Sound Centre (02) 9901 4455

**CS18** Orpheus range of Australian made monitors including the CS-18 two way, bass reflex reference speakers. Users include ABC and EMI 301 Mastering. Exceptional sonic clarity and off axis response resulting in low colouration, fast transient response and high power rating. Dimension: 413 x 210 x 260mm, LF Driver: 113mm Woofer, 25mm Coil, HF Driver: 25mm Aluminium Dome Tweeter, Sensitivity: 86 dB, Cabinet: Seven layer wood veneered particle board. \$1600. per pair.

### PEAVEY

Australis Music Group (02) 698 4444

**PRM 308S** Switch selectable response modes (equalised and reference). Three way system: 8" low frequency driver, 5" midrange, 1" high frequency driver. Crossover Freq: 300Hz and 3kHz. Frequency Response: 45 Hz-18kHz 1/-3dB. Nominal Impedance: 4 ohms. Sensitivity: 88dB SPL (1W, 1M), Power Handling Cap.: 80 watts programme. Dimensions: 17.5" W x 12.25"H x 11.5"D. \$1795 per pair.

**PRM 308 SV** Magnetically shielded for video use. Switch selectable response modes (equalised and reference). Three way system: 8" low frequency driver, 5" midrange, 1" high frequency driver. Crossover Freq: 300Hz and 3kHz. Frequency Response: 45 Hz-18kHz 1/-3dB. Nominal Impedance: 4 ohms. Sensitivity: 88dB SPL (1W, 1M), Power Handling Cap.: 80 watts programme. Dimensions: 17.5" W x 12.25"H x 11.5"D. \$1995 per pair.

### SPENDOR

AWA Distribution (02) 898 7666

**LS3/5A** Passive 110mm 2 way based on BBC Standard. Sound surprising for a monitor so small. 305H x 190W x 165D mm, 90Hz to 20kHz +/- 3dB, sensitivity 82.5dB, 50 watts. \$1946

**SP2/3** Passive 200mm 2 way, bi-wired, magnetically shielded, matched to within 0.5dB, 545H x 275W x 325D, sensitivity 88dB, 80

watts, consistent sound throughout the Spendor range. \$2680.

### SPIRIT

Jands Electronics P/L (02) 516 3622

**Absolute 2** Professional Nearfield Monitor System. High Definition Linear Phase Design. Unparalleled Sonic Accuracy, High Quality Crossover, 1" soft Dome Tweeter, 170mm (6.5") Woofer, Magnetically Shielded, Quality Construction throughout. \$995. pr.

### TANNOY

Syntec International (02) 417 4700

**6NFM** is a dual concentric speaker with high sensitivity (91dB) and power handling (175w) which comes in a compact cabinet (345x230x223) made to last. \$1469.

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**DBM 6.5** Speaker with a perfect mix of price and performance. A good sensitivity of 90dB and power handling of 100w peak. A solid studio monitor. \$899.

**DEM8** A great studio monitor with a strong medite construction means it is built to last. Has a peak power handling of 125W and sensitivity of 92dB and comes in a compact case (401 x 277 x 274) \$1599.

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Dynamic Music (02) 9939 1299

**YSM-1** 90dB Sensitivity @ 1W/1M, with a 6.5" woofer and 1" dome tweeter. 70 watts, 6 ohm impedance finished in black wood and cloth. \$550 pair.

**YSM-2** 90dB sensitivity @ 1W/1M. A 5.25" woofer and a 7.5" dome tweeter, 50 watts, 6 ohm impedance. Finished in black wood & cloth. \$450 pair.

**YSM-3** 89dB sensitivity @ 1W/1M. 3-Way with 12" woofer, 5.5" midrange, 1" hyperbolic dome tweeter. 250 watts, 4 ohms. Finished in black wood & cloth. \$1995 pair.

**YSM-4** 88dB Sensitivity @ 1W/1M. 4" woofer & .75 dome. 60 watts, 8 ohms. Finished with metal grill & plastic enclosure. \$349. pair.

### YAMAHA

Yamaha Music Australia (03) 9699 2388

**NS10MST** Two-way configuration. Ideal for studio use. Flat frequency response from 60Hz-20kHz. 18cm woofer, 3.5cm tweeter. Sensitivity 90dB SPL. Cross-over frequency 2kHz (12dB/oct). Dimensions (WxHxD) 382 x 215 x 198mm. \$949 pair.

**S15** Two-way configuration. Features Yamaha Waveguide high-frequency horn for natural, distortion-free sound. Frequency response 65 - 40kHz. Low frequency horn - 12.5cm cone, high frequency - 2.5cm horn. Comfortably handles 80w continuous program power. Sensitivity 88dB/w/m. Can be mounted to wall, ceiling, speaker stand. Dimensions (WxHxD) 241 x 160 x 145mm. \$449 pair.

**S55** Two-way configuration. Features Yamaha Waveguide high-frequency horn for natural, distortion-free sound. Frequency response 60 - 40kHz. Handles 140w of continuous power, 250w max. Low-frequency 16.25 horn, high frequency 2.5cm horn. Sensitivity 90dB/w/m. Protection circuit on high-frequency horn. Dimensions (WxHxD) 370 x 250 x 215mm. \$399 each.

\*All prices include sales tax. Correct at 15/1/96

## Audition Nearfield Studio Monitors at the ENTECH Monitor Shootout!

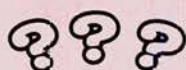
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A.R. Audio Engineering (02) 810 5300

**ATC SCM 50A** 3-Way 9" Bass, 3" Voice Coil Soft Dome Mid, 1" Tweeter, Active Tri-Amplification, 85dB @ 1W @ 1M 717 x 304 x 425 (HxWxD) \$15,900.

**1037A** Tri-amplified studio monitors. 12" Bass -5" Mid -1" Metal Dome. Full output 300 Watts. H: 680mm x W: 400mm x D: 380mm. \$9995.00

## ELECTRO-VOICE

Mark IV Audio (Aust.) P/L (02) 648 3455

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**Sentry 100EL** As per Sentry 100A with higher power capacity and built in 50 watt rms amplifier. \$2070 each.

## JBL

Jands Electronics P/L (02) 516 3622

**JBL-4208** 2-Way Console Top Studio Monitor, 200mm (8") Woofer, 25mm (1") Pure Titanium, Diamond Pattern Surround, Dome Tweeter, Multi Radial™ Sculptured Baffle. \$1095. pr.

**JBL-6208** 2-Way Console Top Powered Studio Monitor, 200mm (8") Woofer, 25mm (1") Pure Titanium, Diamond Pattern Surround, Dome Tweeter, Multi Radial™ Sculptured Baffle, Integral Active Crossover, Dual Discrete Amplifiers. \$2995. pr.

**JBL-4408A** 2-Way 200mm (9") Woofer, 25mm (1") Pure Titanium, Diamond Patt. Surround, Dome Tweeter, Matte Gray Lam. \$1695. pr.

**JBL-4410A** 3-Way 250mm (10") Woofer, 125mm (5") Cone Midrange, 25mm (1") Pure Titanium, Diamond Pattern Surround, Dome

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**JM-3A** Super Accurate Active 3-way midfield studio monitor. Unique anti-vibratory technology achieves absence of decay in the bass frequencies and transparency of sound. Close order loudspeakers optimise homogeneity. Dimension: 580 x 330 x 260mm. LF Driver: 10" Woofer, 2" Coil. MF Driver: 2" Dome, HF Driver: 1" Dome Tweeter, Max. continuous level @ 1M: 110dB SPL, Cabinet: Bass reflex, double back with quartz sans and JM bass absorption system. \$6037 per pair.

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AWA Distribution (02) 898 7666

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Yamaha Music Australia (03) 9699 2388

**NS40M** Dual woofer, 3-way configuration. Precise monitor sound from 50Hz - 20kHz. Sensitivity 90dB SPL. 18cm cone woofer, 6cm soft-dome mid-range, 3cm soft-dome tweeter. Handles 100w continuous power, 200w max. Crossover frequency 1.3kHz. Dimensions (WxHxD) 598 x 293 x 312mm. \$899 each.



JBL's series 4400 midfield and main studio monitors. Model 4412 at bottom right, 4410 at left, 4408 top.

powered monitors containing more than one driver are fitted with a crossover network. This is a passive circuit installed inside the speaker cabinet with the job, broadly speaking ( ha-ha ), of splitting the incoming music into frequency bands. Thus, the bass frequencies get sent to the woofer, the highs to the tweeter etc etc.

In main monitors the manufacturer, as well as fitting a crossover network to each enclosure, provides special connections on the rear panel to allow the operator to directly access each driver and bypass the crossover. To take advantage of this means using an external crossover connected to the mix output of the console.

This crossover is an active electronic device, more sophisticated than the passive unit inside the monitor. Nonetheless, it performs the same job of splitting the music into frequency bands. The various frequency outputs from the crossover must be fed to a bank of power amps which then drive the individual drivers directly. If the monitor contains a woofer, tweeter and mid-frequency driver then you would require 3 stereo power amps to drive both sides between them. With this comes a somewhat intricate number of possibilities as to choice of amplifiers, crossover etc.

Of course, you may prefer to have the monitor manufacturer do all this hard work for you. In fact, a number of monitors are now available which contain a power amplifier built in to the speaker enclosure or cantilevered off the rear panel. Some people inevitably feel that a degree of choice is being removed from them by the advent of powered monitors but there are some significant advantages which are becoming quite widely recognised.

Anyone bothering to make monitors cares deeply, ipso facto, about sound - especially their

sound. However, once the monitors ship from the factory, a lot of factors might come into play which make those monitors sound less than ideal. Since, the manufacturer has already done a great deal of R & D on the drivers and crossovers, it seems logical to go one step further and design the amplifier to drive the monitors.

This enables the monitor manufacturer to match all the elements in the amplifier/speaker chain and reduce the possibility of poor amplifier selection making his product sound bad. The success stories with powered monitors relate to near-field and mid-range units and are well worth checking out.

These are some of the technical issues to be pondered in choosing monitors. However, there are also other important considerations which revolve around intended applications and fall almost into the area of philosophy. Let's say that we use monitoring in three possible ways: when track-laying, mixing and mastering. Now, do you consider that a monitor suitable for one area will do for the other areas?

Well, realistically for a lot of us, this is not much of a worry - we can only afford one set of decent monitors and they will have to do for everything. Okay, then: do you want your monitors to sound good or sound honest? Will your monitors be used in a private studio or will paying customers be using them? If the latter, can you afford to buy something which you feel is great but your clients might regard as unknown or a bit of an adventure? These issues should be carefully thought about because monitors tend to be so defining in establishing your sound.

Well, read on - no matter what your taste or budget, you'll find something here to please you. And stay posted for our special Monitor Shootout at the upcoming ENTECH show. Be there! •

# Main Monitors

## ATC

A.R. Audio Engineering (02) 810 5300

**ATC SCM 100A** 3-Way 12" Bass, 3" Voice Coil Soft Dome Mid, 1" Tweeter, Active Tri-Amplification, 88 @ 1W @ 1M, 834 x 400 x 530 (HWD) \$19,000.

**ATC SCM 200A** 3-Way, Double 12" Bass, 3" Voice Coil Soft Dome Mid 1 1/4" Tweeter, Active Tri-Amped 91dB @ 1W @ 1M. 830 x 730 x 440 (HWD) \$37,500.

**ATC SCM 300A** 3-Way Double 15" Bass, 3" Voice Coil Soft Dome Mid 1 1/4" Tweeter, Active Tri-Amped 94dB @ 1W @ 1M. \$40,000.

## ELECTRO-VOICE

Mark IV Audio (Aust.) P/L (02) 648 3455

**Sentry 500** High power main studio monitor, 12" low freq, 1.5" Super-Dome tweeter, 100 watts, 8 ohms, 96dB 1W/1M, 40Hz-18kHz, 110 x 60 deg. dispersion (hwd) 60.3 x 68.6 x 33.0 cm. \$1960 ea.

**Sentry 505** As per Sentry 500 but angled front for wall mounting to give downward dispersion. \$1960 ea.

## GENELEC

Studio Connections P/L (03) 9646 0544

**1039A** Control Room Monitors 100 Watts. 2 x 15" Bass - 1 x 5" Mid - 1 x 1" Treble. H: 820mm x W: 1050mm x D: x 550mm. \$29,995.

## JBL

Jands Electronics P/L (02) 516 3622

**JBL-Control 10** 3-Way 300mm Portable Con-

trol Monitor, 300mm (12") LF, 130mm (5") MF, 25mm (1") Pure Titanium Dome Tweeter, Moulded Enclosure, Shielded Magnets - Black. \$2995. pr.

**JBL-4412A** 3-Way 300mm (12") Woofer, 125mm (5") Cone Midrange, 25mm (1") Pure Titanium, Diamond Pattern Surround, Dome Tweeter, Matte Gray Laminate \$2695. pr.

**JBL-4425** 2-Way, Single 300mm (12") Woofer with 75mm (3") Voice Coil, Bi-Radial Horn with 50mm (2") Titanium Diaphragm. \$4295. pr.

**JBL-DMS1-SD** Studio Monitor System - Digital. Contains: Mirror Image Matched Pair of Speakers. DSC280 Digital System Controller, 2 Ch, 2-Way Configuration with Equalization, Crossover, Delay and Phase Compensation Functions, 48kHz Sampling Rate, Configured for DMS-1. \$47,995. pr

## SPENDOR

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**Alesis Adat 8 Track.** \$3500. Neil Smith Cannon Sound Systems (02) 550 3828 or 1800 804 994.

**Alesis Data Sync** for ADAT. \$550. Contact Saul Mordaunt or Tom J. 066 855 322 or 014 661 830.

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**EMU Proteus 2** Synth Module \$750. Contact Saul Mordaunt or Tom J. 066 855 322 or 014 661 830.

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# Duncan Fry

## In search of the Hindenberg

*A traveller's Tale*

**T**he original dates for the 1995 AES show in New York were put back by a day because they realised it would have started on Yom Kippur, a major Jewish holiday. The new dates seemed to have been organised at fairly short notice, after I had already booked my tickets, so there was not much I could do about it.

Even New York is pretty quiet on a major holiday like that. The camera, hi fi, electronics stores were all closed, and I'd already done the typical tourist things like the Empire State building, cruised the subway looking to soak up some local ambience, and climbed all the way up the Statue of Liberty's skirts on previous trips.

Well, I reasoned, what else was there to do but to go and search for the Hindenburg! Or, to be more precise, where the old Hin had blown up. If you think of the cover of Led Zeppelin 1 and 2 you'll be familiar with the picture. I knew from being a keen fan of the airship genre that it had gone down somewhere called Lakewood (I thought) in New Jersey. So, sensing a documentary in the making, I armed myself with my video camera, walked down to the Port Authority Bus Terminal, elbowed my way past all the beggars, pickpockets and panhandlers, and hopped on a bus to Lakewood, New Jersey.

After you get past the first 30 or so miles of New Jersey, it becomes really pretty countryside. But before that, it's an industrial wasteland. Each side of the New Jersey Turnpike (one of the busiest and bumpiest roads I have ever seen) is surrounded by old heavy industry factories, old power generating plants, ruined buildings, and

swamps. It's a bit like a post nuclear film set or a mixture of leftovers from Blade Runner and Full Metal Jacket.

But past all that it's like being in the countryside. Past suburbs with odd sounding names like Manalapan and Cheesequake. Past a continuous succession of pubs and bars, advertising "Happy Hour 3 till 4", "Happy Hour 4 till 5", and a pre-emptive knockout - "Happy hour 3 till 7!"

Who said that Disneyland was the happiest place on earth? The good folk of Manalapan must be so happy they're permanently shitfaced!

The bus trip takes about 2 hours, and about 1.30 pm I arrived at Lakewood. It was quite a warm day and I engaged the guy at the bus station food counter in conversation while I downed a nice cold Coke. "Is there an airship museum around here?" I asked. "Nope, I don't think so," he replied. "Why do you ask?" "Isn't this where the Hindenburg exploded?" I said. His face looked blank, then lit up. "Oh," he replied, "This is LakeWOOD. You want LakeHURST! The Hindenburg blew up at the Navy Air Station at Lakehurst!"

Aaaagh - I felt like slapping myself on the forehead like Homer Simpson and shouting "DOH!", but I restrained myself. All the same, the shock must have shown on my face. "Don't worry, you're not too far away," he said. "Lakehurst is only about ten miles from here, and there's a bus that leaves here about 3 o'clock."

Three o'clock. That was an hour and a half away, plus half an hour to get there, plus probably a whole lot of walking, and a half hour back to the bus station as well. Time was running out if I wanted to see anything. "Thanks," I said and walked outside to get some fresh air while I waited.

Outside the bus station stood a lonely taxi, a mid '70's station wagon that had seen better much days. I walked over to it. There was no meter inside, and the

driver, an old black guy about 60 if he was a day, looked up at me. "How much to drive me to Lakehurst Navy Base and back?" I asked. "15 dollars," he replied without stopping to think. "OK let's go," I said and hopped in the back.

Well, good old Grady P. Donaldson, he knew the Lakewood/hurst area inside out. Once he had found out I was from Australia, he went out of his way to make me feel at home, spending more time on the left hand side of the road than the right, passing trucks uphill, passing into an inside corner, that sort of thing. As we whizzed along the back roads, I anxiously looked around for the seat belts. There weren't any.

"Lakehurst base comin' up," he announced. I switched on the video and aimed it out of the window. Sure enough, there was the famous hangar 1,000 feet long and 500 feet wide, large enough to hold the Hindenburg and the Graf Zeppelin side by side.

We pulled up at the main gate of the base, and the guard put his rifle on his shoulder and came over to us. "I'd like to see the airship museum" I said. He looked perplexed. "We don't have one," he said. "What?" I gasped. "But it says in all the books that you have a museum inside the big old hangar." "Oh yeah, I know they all say that, but we don't," he said. "But I've just come 10,000 miles to see it," I begged and pleaded. "Can I just come in and have a look around, anyway?" "Sorry sir," he said, "The President and the Pope are both in New Jersey today and the base is on a full security alert. No non military personnel allowed."

Shit. Well that was that. The taxi turned around and we headed out. Suddenly the guard came running after us. "Sir, sir," he called. "Wait - I just remembered, there is a museum in the town - inside the old church. You can't miss it."

Well, I renegotiated the taxi deal, and we headed into the town

of Lakehurst. Sure enough, there was a museum run by the historical society, and it even had a piece of the old Hindenburg, souveniered by someone the night it burnt down, and handed to the museum by their relatives after it was discovered in their garage. A large chunk of folded, drilled and rivetted aluminium almost as big as me, it weighed only about half a kilo. An amazing piece of engineering.

When we got back to the bus station, the Manhattan bus was waiting, so I hopped on and we headed back up the New Jersey turnpike.

About half way along, the traffic ground to a halt. All around us the everything was stopped. The bus driver spoke to his base on the radio, and then announced that the turnpike had been closed until the President and the Pope had cleared Newark airport. So, the driver shut off the engine, and we settled down to wait.

I got out of the bus and had a look around. On our side of the road all six lanes of traffic were banked up as far as I could see both in front and behind us. I've already mentioned how busy the road normally is, but now it was abnormally quiet. The silence was eerie, making the place look even more like a post apocalypse scene.

On the other side of the barrier there was absolutely no traffic, so pretty soon there were games of football and baseball starting, people pissing under the bridges, normal traffic jam stuff, as well as a whole lot of mightily upset truck drivers. One of them remarked to me is a real thick Noo Joisey accent, that "No-one wants to beeping hurt the Pope, but the beeping Pres better not show his beeping face in Newark or some beep's gonna beeping blow it off!" (The beeps are mine).

So even if I didn't get inside the base to see where the old girl had exploded, I did at least get to hold a piece of it in my hand. And captured it for posterity on WobblCam™.

# CLUBLAND & DJ NEWS

Edited by DJ Bald

## Australia, THE DJ Competition Is ON

DMC Records announces the 1996 Technics DJ Championships for each state, Aussie winner will compete in the World Grand Final in Italy this June.

The 1996 Technics DJ Championships starts shortly, DMC Records are pulling together the best DJs in the world. 30 DMC countries, including Australia, will run separate competitions with the national winners from each country flown to Italy to compete at the grand final during the first Nightwave exhibition early June.

In Australia DMC are offering local DJs the chance to compete in state heats underway shortly arranged with Central Station Records. State winners will converge on ENTECH 1996 tradeshow in Sydney for the Australian grand final on April 25th - Anzac day.

The Australian Champion DJ will then be flown to Bologna, Italy and transferred to Rimini, the sea-side resort town which will host the first Nightwave trade show. Rimini is the town which also hosts the SIB event every year, and is touted as the place with more beautiful people per metre than anywhere else in the world. We at Connections visit Rimini each year and can only agree.

During Nightwave, the Technics World DJ Championship Grand Final will be a major international

event. DMC have booked an entire 200 room hotel for finalists and personnel.

In addition to the Nightwave event, Rimini boasts some of the most exotic and adventurous clubs in the world.

Last years World DJ Championship was held at the Hippodrome in London. Roc Raider from the USA won, the runner up was DJ Noise from Denmark.

DMC say the 1995 competition proved the art of the DJ has matured. Previous years saw some pretty ordinary - OK, painful- sets from some backwater countries. In 1995 places like Finland, Hong Kong, Hungary, Croatia, South Africa and the Phillipines all produced class acts.

The level of competition here has also risen, according to DMC, who expect the National Grand Final at ENTECH to be a mega event.

ENTECH will hand over their Seminar Theatre for the Grand Final, which will be a fitting finale to the three day Entertainment Technology Trade Show.

Entry forms and info are available from Central Station Records, see box at right for more.



Winner of the 1995 World DJ Championship (held in London), Roc Raider (USA) centre, is congratulated by Mixmaster Mike and Q Bert.

## Mega Computerised Music System signs distributor in NZ

Databeat's digital music system (pictured below) was detailed in these pages late last year. The firm have announced a new Zealand distributor. They are:

• Cobalt Technologies Ltd,  
PO Box 62 Greenhithe,  
Auckland 1450, NZ.  
Call Geoff Durant, (64) 9 413-9070  
or fax 9 413-8484.



## DJ Competition. The DETAILS

**Competition:** World's leading one. Last grand final in London. This is the MAIN EVENT, the big international competition. It's ON!

**Promoted by:** DMC Records and Central Station Records. Sponsored world wide by TECHNICS.

**Official name:** The 1996 Technics World DJ Championships.

**State Heats:** Contact your Central Station Records store (below).

**Australian Grand Final:** Presented by Connections Magazine in association with DMC and Central Station Records, at ENTECH 1996 trade show, during the afternoon of Thursday April 25th - ANZAC DAY. Starts at 1pm, ends at 6pm. Watch these pages for more info in the March and April issues.

**Winner gets:** Transported to Rimini, Italy, for the 1996 Technics World DJ Championship Grand Final, held during Nightwave 1996.

**Nightwave 1996:** Dates: June 1 - 4. A massive event!

**To Enter:** call or visit any of these Central Station Records Stores:

WHERE	PHONE	FAX
Sydney	(02) 9331 3019	(02) 9331 4446
Newcastle	(049) 252 161	(049) 252 162
Gold Coast	(07) 5526 7111	(07) 5526 7575
Brisbane	(07) 3210 0550	(07) 3210 0370
Melbourne (City)	(03) 9629 8064	(03) 9629 3677
Melbourne (Prahran)	(03) 9827 0344	(03) 9827 0222
Adelaide	(08) 232 1202	(08) 224 0090
Perth	(09) 481 7881	(09) 481 7883

### DMC RECORDS MELBOURNE

Call (03) 9696 0069 office, (03) 9521 1211 Prahran store.

## Club Visit **The Planet**

**T**his is about a club which names itself after a planet; any planet: The Planet. Located in Adelaide city (Pirie Street) it has become a popular day and nocturnal haunt.

The Planet has been open since late October and is an alternative venue for Adelaidians looking for a night out. It caters for large groups up to 1800 or smaller intimate parties in its VIP lounge. There are also pool room, cocktail and cafe areas.

"We looking to provide an alternative feel, or, left of centre venue for people, our music is different, the decor is unique." Says the Planet's Janice Rutter

Alas, there is no interplanetary bistro (Marrickville R.S.L. in Sydney has one!), but there is the Planet Earth coffee shop, a very tasteful eatery/cafe. There is also a restaurant called Planet Thai.

The club's main feature spaces are the lower ground entrance, the upper deck and bar, and the sunken dance floor with various levels sur-

rounding it. This space features a translucent sky ceiling (for star gazing, an alternative to navel gazing). Architecturally, it is an impressive space.

Dance club is open every Wednesday to Saturday with different formats each night including live shows and bands. -Daniel Cole.

• **The Planet, 77 Pirie St, Adelaide City, 08 359 2797**



*Planet by night*

## JAMO AMPS AND SPEAKERS

The largest loudspeaker manufacturer in Europe is represented downunder by Scan Audio, who have just introduced the Pro-EX range.

The amplifier (below) is the A300, which gives a conservative 300 watts per channel, and costs around \$1799.

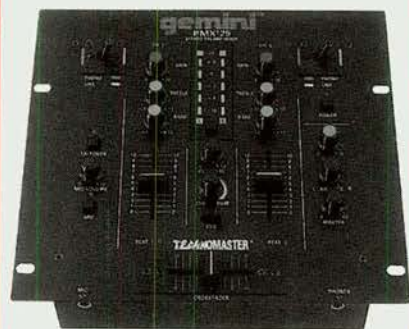
Speakers ideal for club use are the 200EX, 300EX, 400EX and the Pro-Sub 1000, (with 2 x 15" woofers on board) pictured right. Like any audio hardware a good audition is the best thing to do, arrange this by calling Michael Di Meglio at Scan, on (02) 9980-7922.

READER SERVICE NUMBER 201



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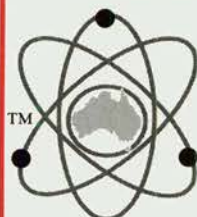
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Write in Reader Service Number: 108

# 3 Faces - the Total Venue

3 Faces - *The Total Venue* in Melbourne has had a Face-Lift .... or should that be a Faces-Lift. Caroline Grafton reports:

The totally gay owned and operated venue - though non-separatist - is one of THE places to be seen in Melbourne with regular visits by celeb's from Denise Drysdale to the Pet Shop Boys and Kylie Minogue.

The history of 3 Faces dates back to the mid eighties when owner Ken Payne sold the then Market Hotel to developers who gutted and extended the building to create the infamous 'Checkpoint Charlie'.

According to sources, one drug raid later Checkpoint Charlie closed in 1990 when Ken Payne bought the building back for less than he sold it for (this was not un-common at the time due to the national property crash). So Ken re-furnished and opened 3 Faces in November 1990.

The club is cleverly divided into specific though integrated areas, a must for a venue that not only has a dance theme but live performances (6-7 nights a week) as well.

Pool Table Area - is flanked by life size caricatures of past and present managers, owners and famous drags. An iron staircase leads to the Upstairs Gallery Lounge.

Downstairs Bar - is fairly empty and mostly used for drinking and cruising.

Dance Floor and Stage - is at the rear of the downstairs area. The floor is patterned steel plating and yet another staircase leads to the upper balcony.

Upstairs Gallery Lounge - is a chill area with sofas, table and chairs. The cocktail bar is adorned by heavily-touched photos of drag performers and some interesting leather bondage sculptures.

Upstairs Balcony- is a circular balcony overlooking the stage and dancefloor.

According to Technical/Lighting boss, Jamie Ivarsen, the previous lighting rig was "a nightmare" but the budget he was given to re-design was worse. The up-grade, not only technically but esoterically as well, was to cost the bare minimum - not to exceed \$50,000 - Jamie's new nightmare.

Jamie and the in-house crew decided they could cut costs by supplying the labour themselves and by utilising existing materials and equipment into the new rig, a re-vamp was possible.

Old looms, 240v power points, a Strand 60-way patch box and truss were re-cycled and restored. The team also managed to scrounge up second hand Strobes and Mini Scans.

The Lighting Spec List now reads like this.

3 x Golden Scan 3 575 HMI;  
3 x Mini Scan 150 HTI;  
8 x Prolite 1k Fresnels;  
18 x Coemar 15-28 1k Profile Spots;  
4 x Prolite 650w Wide Profile Spots;

2 x Optikinetics White Lighting Strobes;  
15 x Egg Strobes  
4 x 4' UV Tubes;  
Lots of Par 56s, 38s, Raylights and Disco Lighting Effects;  
1 x Showmaster MkII 72 Channel Lighting Board; 60 x 2.4kW dimmers;  
1 x PC running Multi Scan v8 DMX Moving Light Software;  
1 x Optikinetics Strobe Controller;  
1 x Selecon 1.2k medium Profile with Iris & Colour Mag as Followspot;  
1 x LSC Monopak Unit Dimmer;  
5 x DeMag 250kg Chain Hoists with 1 x CLS 8 Channel Chain Hoist Controller - (Yes, a fully motorised Tri-Truss System).

Of course there are other bits and pieces but Jamie didn't want to brag (much).

As Jamie says, "A little creative effort and a positive attitude" goes a long way.

3 Faces - *The Total Venue* is situated at 143 Commercial Road, South Yarra, (Melbourne) Victoria. Phone: (03) 9826-0933

**Manager:** Joe Hodson  
**Technical Manager:** Jamie Ivarsen



**Trading Nights:** 6 to 7 nights per week  
**Entertainment:** Every night except Saturdays when they usually have promotions such as CD launches  
**Cover Charge:** None





# LIGHTNING MONTHLY

February 1996

Edited by Catriona Force

## Shootout at ENTECH

Vendors line up products in interactive theatre zone

This years ENTECH trade show has something unique which no other trade show anywhere in the world has done yet, a Lighting Shootout. Two product groups will be on display, 650w zoomspots in one area, and DMX controllable moving lights in the other. Karl J. Ruling and Simon Jenkins are advising on the shootout.

The shootout came after Connections noted the visitor appeal of the video projector shootout held at the Incomm trade show. "It was a positive reason for many trade to visit that show", says Connections editor

Julius Grafton, "and we thought we could do something unique with lighting to attract extra visitors."

ENTECH occupies two halls at Darling Harbour this year, with a large area allocated for Seminar Theatres, and an interactive demo area in front of this. The shootout will comprise fixtures in place, projecting to a cyc, and all presented under common operating conditions. It will run continuously during the three day event

ENTECH opens Tuesday April 23, and runs 10am - 6pm daily. Entry is free.

## DELTA ENERGY CABLES

Multi-Contact Australia is pleased to advise that it now is introducing a complete range of lighting cables custom made for them by Delta Cables of the UK. Delta Energy Cables (previously Delta Crompton Cables) is one of the largest Cable Manufacturers in the UK.

Multi-Contact say that the quality of Delta's cable is a return to the standard of Kromberg & Schubert's multi-core cable (Kroschu) which became a benchmark for PVC lighting cables in the stage lighting and concert production fields.

Delta Energy cables provide the same thickness of insulation as the earlier Kromberg & Schubert versions which give the cable a test voltage of 3000 volts compared to the 2000 volt rating provided by the PVC cables being supplied to the market currently.

For the lighting industry stocks are available in 7, 12 and 18 core cables in 1.30 mm<sup>2</sup>, 1.5 mm<sup>2</sup> and 2.5 mm<sup>2</sup>.

Call: Multi-Contact (02) 438 3600.

READER SERVICE NUMBER 403



## CLAY PAKY AUSTRALIA PTY LTD

Clay Paky and Show Technology Get Together to Form a New Company

Clay Paky will be represented in Australia by a new company - Clay Paky Australia Pty Ltd.

For many years now Clay Paky has been represented in Australia by their sole distributors Show Technology Australia Pty Ltd and have a strong and long-standing association which has carried on from the days of Lights Audio Video Australia.

To cement their position even further and take the award winning Clay Paky range into 1996 and beyond, Show Technology Australia and Clay Paky have put their heads together and decided to start a new company to handle the Australian distribution, sales and marketing.

As the industry becomes more and more competitive, Show Technology and Clay Paky both decided that it was necessary to begin a separate operation to give Clay Paky the representation they feel it deserves.

Well-known industry identity, Peter McKenzie (formerly with Laser and Lightmoves Technologies) will be heading up Clay Paky Australia's sales department and is looking forward to the challenge.

The new company will be located in separate offices in Show Technology's ample premises in Rydalmere and formally begins trading on February 5th.

• **Details:** Clay Paky Australia Pty Ltd  
13-15 Bridge Street  
Rydalmere NSW 2119  
Tel: (02) 898 1666; Fax: (02) 898 1222.

## ULA to represent JB Lighting

Universal Lighting & Audio have announced a new addition to their range of lighting and sound products - the German made and engineered JB Lighting JB Lighting has been manufacturing lighting and control products for about 15 years servicing mainly the European and Asian market.

The Varycolour 2000 is a powerful DMX512 controlled colour changing spotlight featuring 36 colours which provide 4°, 7°, 14° and 21° beam angles plus 30° flood effect. It uses a long life 200 MSE discharge lamp which, claim ULA, delivers more light and cleaner



The Varycolour 2000

colours than a par 64 spot with colour scroll. Other features include microprocessor controlled stepper motors, high speed shutter, dimming fade to black and 4 motorised gobos. Price: \$1720 + tax.

Using 200W MSD technology the Varyscan 3 Special offers 24 colours based on dichroics and 20 motorised gobos. Other features include high speed shutter, conversion filter, dimming fade to black, full DMX512, force fan cooled. Price: \$1966 + tax.

The Varyscan 3 Special Plus offers the above except for 35 full colours based on dichroics, 12 gobos (5 fixed and 6 interchangeable with rotation in both directions), 2 conversion filters, quad prism, diffusion filter for flood effect. Price: \$2705 + tax.

JB Lighting recently introduced their Varyscan 4 HMI scanner which is provided with a 1200 HMI lamp. It features modular design for easy servicing and changing of

continued on next page



**ULA/JB Lighting (continued)**

gobos is also done fast and without the need of special tools. The Varyscan 4 1200 HMI provides 5 gobo projections whereby the images may be rotated with variable speed in both directions, locked in position and memorised.

A switchable quad prism enables splitting into 4 identical graphic patterns. Furthermore the Varyscan 4 1200 HMI features 24 colours and 24 semi colours strobing up to 11 flashes per second, 2 conversion filters, fast infinitely variable iris, rainbow effect and full DMX512 control. Price: \$7180 + tax.



*The Varyscan*

The Varyscan DMX Controller allows control of all the Varyscan Series and also scanners of other manufacturers using standard DMX512 input signals. All functions are manually operated via clearly arranged push buttons and digital joystick. Storage capacity

is 880 scenes by controlling 6 scanners. Price: \$1920 + tax.

Universal Lighting & Audio are now setting up JB Lighting distributors. If you would like to become a distributor or would like further information on the above products, please contact: ULA 1800 062 828 or fax (07) 5532 4155.

**READER SERVICE NUMBER 401**

**NEW MARTIN PRODUCT VIDEO**

Show Technology has just got its hands on the latest Martin Product Videos.

There are a number of videos in the range covering each of Martin's different product areas. Show Technology have put them all together on the one video tape for convenience.

The Martin corporate video takes you on a tour through Martin's factory and departments. This is followed by product information on the Roboscan range including the PRO1220, Martin lighting in promotional/retail applications and also features a 2308 video instruction manual.

If you'd like to receive a copy of the new Martin video, call your local Martin dealer or phone Suzie at Show Technology (02) 898 1111

**The Lighting Supply Company News**

The Lighting Supply Company is pleased to announce it has been awarded two double contracts, the 'Stage Lighting Systems' and 'Stage Draperies' for Auckland's two new theatre venues, both now under construction.

The Sky City Development has 384 x 2.5kw dimmers and 24 x 5kw dimmers for the stage, 225 luminaires, lighting bars, house lighting and ancillary controls. Stage control will be a Colortran Medallion. Draperies - manufactured by the Lighting Supply Company - include Velour Main Tabs, filled cloth Cyclorama and full sets of Dress Tabs and Blacks.

The second double is the Bruce Mason Theatre on Auckland's North Shore where the dimmer installation will include 360 x 2.5kw dimmers and the stage lighting control will be a Colortran Encore. Luminaires total 161. Draperies include Velour Main Tabs, full set of stage Blacks and a plastic Cyclorama.

The Lighting Supply Company, based in Auckland's Waitakere City, manufactures Stage Draperies, Stage Curtain Tracks, Lighting and Rigging Equipment and represent the following manufacturers - Wybron, Le Maitre, GAM, Colortran, Clay Paky and Pulsar. For further info call: 64 9 834 5305.

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# Miller to distribute GamColor & GamFusion

Miller Professional Products have been appointed Australian distributor for the Great American Market's two leading products: GamColor deep-dyed polyester colour filters and GamFusion a unique, calibrated series of ten light diffusion filters. Both GamColor gels and GamFusion diffusers are available through Miller's national dealer network in either sheet or roll form.

GamColor is one of Hollywood's most popular gels, with recent credits including Natural Born Killers and Batman Forever. Miller claim that GamColor boasts a greater colour range than its competitors with 21 new colours released for 1996.

The new filters include 18 theatrical and three correction filters. The broad range of new additions includes four magentas, five orange/ambers, two yellow/greens, one blue and two violets. Each GamColor filter is rated for the change in Kelvin and f stop it will produce. GamColor is optically clear and deep-dyed and the colour will not scratch off the surface. The polyester base and dyes are specially formulated to resist deterioration in high heat applications.

GamFusion is the latest development in diffusion and has been widely accepted overseas,

being awarded the 1995 Product of the Year by the British Association of Theatre Technicians. GamFusion is a sequentially graded series of high temperature polyester diffusion materials and boasts 11 stepped diffusion grades from the hardly perceptible 10-10 to the 10-90 which is ideal for light boxes and where an audience or camera looks into the light.

For further info call: Miller Professional Products (02) 439 6377.

## READER SERVICE NUMBER 400

★ *Active Lighting* of Melbourne have had one of their busiest six months ever with the following completed shows: Rock Eisteddfod, Melbourne Festival, Australian Film Industry Awards, Hells Angels, Putting It Together, Hard Rock Cafe Opening and a Def Leppard Industry Night. They also had five productions on New Years Eve.

★ *Active Lighting* have also purchased some new equipment including: 2 LSC 48 channel Tour Dimmers with full digital metering; 6 Colorset 5K/6 light Scrollers; 1500m New Weiland Looms; 40 Chrome par 64.

Call: *Active Lighting* (03)9819 6912.

## Bits

★ The conservatory in the new Cairns Reef Casino has chosen 8 **Selecon 800W Cyc 4 ways** and **MR16 Accent Spots** supplied by Jared Hawke of *PremierLighting* in Brisbane.

★ Also in Cairns, *Optima Lighting Design* are installing six **Selecon Acclaim** metal halide profiles with DHA water effect discs and gobos. These 150W metal halides produce effects such as rippling water and fire in a practical long life low heat package.

★ Jules Hasse of *Integrated Media* reports the supply of 40 **Selecon MR16** 'Accent framing profiles' to augment the lighting system in Darwin's Art Gallery and Museum.

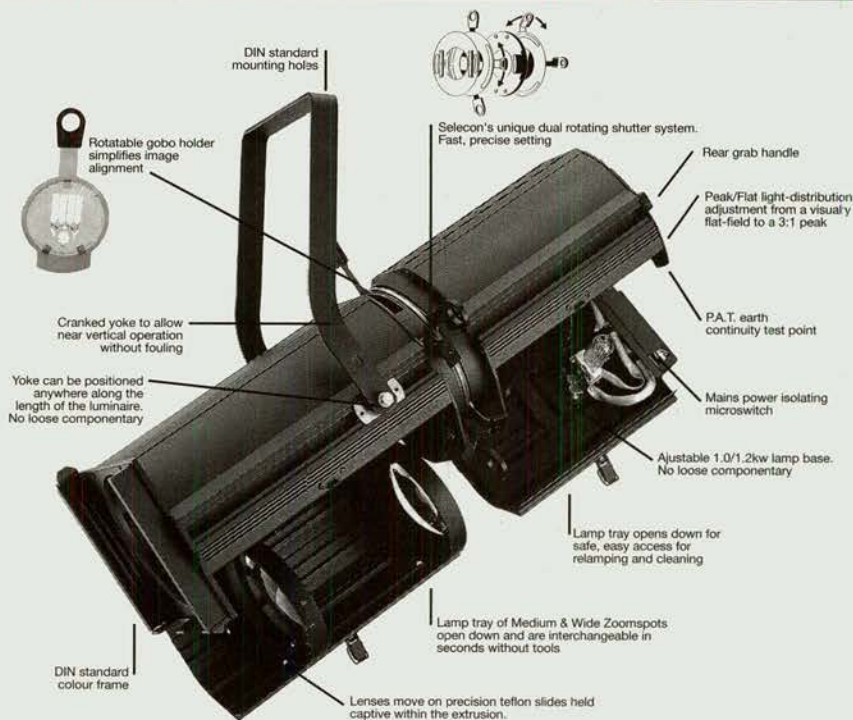
★ *Concert Lighting Systems* report the supply of two of **Selecons** purpose built 2500W tungsten followspots to Cam Mac for use on the latest Cats tour.

Contact your Selecon dealer for further info.

★ *Entertainment Installations* have supplied the lighting and sound equipment for a new nightclub in Newcastle including 4 **Martin PRO518 Roboscans**, 1 **Martin 2308 controller**.

★ They've also sold heaps of **neon and light boxes** for a couple of Civic Video Stores. Call *Entertainment Installations* 043 243873.

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Connections Sept. 1994  
Rohan Thornton Review.



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ACT Topstage Ph: 0-6-280 5710 WA Stagecraft Ph: 0-9-227 9000 Ashlons Ph: 0-9-478 3600 NT Top Ends Sounds Ph:0-89-81 7-44  
TAS KW McCulloch (Hobart) Ph: 002-266373 KW McCulloch (Launceston) Ph: 003-431 634  
Selecon New Zealand Ltd, 26 Putiki Street, Grey Lynn, Auckland, Ph: 64-9-360 1718, Fax: 64-9-360 1719.

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  resp. 6 gobos fixed, 6 rotating\*
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  2.000 h, 5.500° K, 13.700 lm
- high tech stepper motors
- 1 (2\*) conversion filter
- 4-way prism\*, flood effect\*
- black out, high speed strobe effect
- dimming fade to black
- overheat protect on
- channel-coöde dip-switches
- standard DMX 512/1990 control

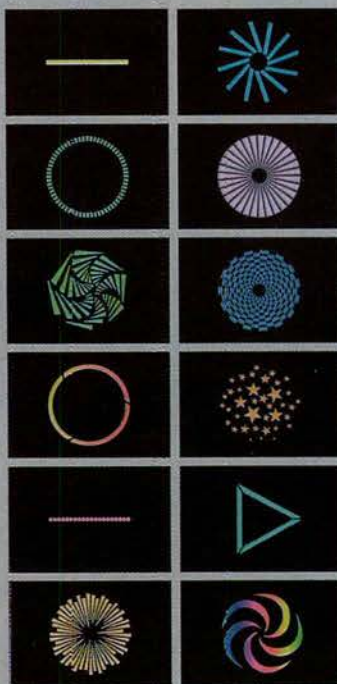


## VS 4 1200 HMI

JB takes pride in introducing the new  
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features meets all your needs for high  
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- 24 saturated colours (+ 24 mixed colours)
- 4 bi-directional variable speed rotating gobos, 68 mm diameter, M-size 66 mm possible
- dimming fade to black
- high speed shutter, up to 10 flashes/sec
- 4-way prism
- frost (diffusion) filter
- infinitely variable high speed iris
- double fan, low noise cooling system
- DMX 512/1990 standard
- 6 channel operation
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Manufactured by: JB-lighting  
Ottostraße 34 • 89134 Bauswein • Germany  
Phone: 00.49.(0).7304-3344 • Fax: 00.49.(0).7304-3641



# Creative Lighting at Planet X

Creative Lighting and Sound Systems in Brisbane has become only the fourth company in the past 15 years to win the highly coveted Award of Excellence in The Queensland Lighting Awards.

The highest award by the IES - The Award of Excellence - was given for Planet X, an innovative and futuristic themed clothing shop in Hastings Street, Noosa.

Control of the lighting is by Creative Lighting's own Showpro automated display controller (1024 channels dim or switch, 2 switch only, 256 shows, 6500 events, up to 127 soundtracks, 8 input triggers etc) which in turn directly controls 24 channels of Dyalite Dimtek dimmers.

The shopper activates any one of the 27 programmed random sound and light

shows by simply touching the Touch-Tell (also made by Creative Lighting). The shows themselves consist of humorous soundtracks recorded into the Showpro's 64 meg of Epronas. The soundtracks are then synchronised in the Showpro with shows which control the shop dichroics, as well as mirror balls, scanners, fibre optics, Abstract Wildstar neon and blacklights used throughout the shop.

When they are not being used in a show, the Dimmers are automatically controlled by a Dyalite PE cell which maintains contrast in the shop irrespective of ambient light conditions. This is an interesting departure by Creative Lighting from the usual use for these PE cells which is to maintain a target level (ie. normally more sunlight coming in means less artificial light needed, but in this case more sunlight means more intensity is needed from the artificial sources to maintain contrast - think about it).

Preset programming and manual over-rides are provided by a Dyalite 8 Preset Programming plate, manual night shows are assigned to a key press for closing activation, and shows



Planet X before.....



.....and after.

also run automatically when Showpro's internal time/day/month/year clock is used to link to shows.

At the end of any show, the Showpro automatically sends the Dimmers a Preset command to return to PE cell control.

The show sound is amplified by Showpro's built 25 watt RMS amp and plays through Bose speakers mounted in the 'X Man' - a sculptural piece which has the Touch-Tell plate on top.

For further info call: Creative Lighting (07) 3252 5686.



Creative Lightings Touch-Tell

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An open discussion on control with several leading lighting designers/board operators who ponder what the manufacturers actually think.....

**L3 MECHS & MOTORS** Tues 3.00pm  
Future directions in Staging and automation.

**L4 LIGHTING CAD** Tues 4.30  
Leading practitioners discuss the way they use CAD and the developments they would like to see.

**L5 UV FIX** Wed 12.00 midday  
Today's high powered blacklights coupled with UV sensitive materials allow designers to achieve a number of cutting edge effects, glowing make-up effects, atmospheric effects and more.

**L6 LUMINAIRE DESIGN & MANUFACTURE** Wed 1.30 pm  
Everyone wants luminaires that are cheap, efficient, accurate and don't burn gels! A designer discusses technology and compromises, and some predictions!

**L7 SMOKE** Wed 3.00pm  
Manufacturers and Work Cover people discuss the pros and cons of different machines available on the current market. Is smoke safe and wholesome?

**L8 CONVERGENCE OF LIGHTING** Wed 4.30pm  
Can lighting be categorised into either TV, Theatre or Rock'n'roll or are the boundaries diminishing? Lighting designers from these areas plan how they would light a given set. Features hands on LX with an actual set. Cheap? What do resolution and colour have to say about this?



# TAKING THE HEAT OFF STUDIO LIGHTING

By Brett Smith

**The Past.** The insulated environment of the television production studio has traditionally required massive air-conditioning plants to suck out heat generated by banks of tungsten light fixtures, while the low efficiency of tungsten lamps was also responsible for drawing as much power as a small country town.

And it wasn't just the tungsten lighting to blame - older tube-style video cameras demanded loads of lumens to produce quality images. Unfortunately, there was no alternative to these technologies, so you just had to sweat it out.

**The Present.** Accountants, it seems, now have as much say in equipment purchases as engineers, and running costs are one area that is often targeted by the omnipresent bean counter. On the camera side, the current generation of CCD devices need much less light to give great pictures.



Enter fluorescent, or 'cool' lighting, the only major development in studio lighting technology since tungsten/halogen hit the spotlight in 1960.

By keeping the techo's happy, the talent and audience cool, and the accountant ... "well, er...satisfied I suppose", fluorescent lighting fixtures are now hanging from the grids of Australia's four new pay television studios and dozens of corporate and high-end production facilities.

Improvements in lamp phosphor composition have satisfied the initial colour balance questions of camera operators while innovative housing design has ensured that fluorescent fixtures are highly efficient and designed to handle softlight, key-, foot- and back light applications.

### Fluorescent v. Tungsten

There are a range of technical and design features that set fluorescent lighting apart

from tungsten, or incandescent fixtures.

Firstly, fluorescent lamps are significantly more efficient than tungsten/halogen, drawing as little as 10% the power, or in light output terms, you'll get up to 10 times more light from an equivalent, correctly-designed fluorescent fixture.

Fluorescents are also 'cool' lights - they generate virtually no radiant heat in the light beam compared to tungsten which lose more than half their dissipated power as radiant heat in the beam. Fluorescent tubes also originate as a broad source of light rather than a point source and this reduces the glare and hence the discomfort of lighting for talent.

The initial outlay for a fluorescent housing is usually slightly higher than for tungsten and it's here where operating costs and longevuity must be weighed up against price. Costs incurred through power consumption, air-conditioning plant installation and power draw, lamp life and lamp replacement, should

all be taken into account.

Replacement fluorescent lamps cost the same or less than tungsten lamps yet last 100-150 times longer - or more than 10,000 hours. Osram also guarantees that the colour temperature and light output of their CRI 95+ tube remains in spec for colour and light output over its lifetime.

### Teething problems solved

While fluorescent lighting has been available for some years, it's in the last three years that former 'teething' problems have been addressed and solved. The development of lamp technology specifically for broadcast applications by Osram and Philips has combined with housing and ballast refinements by fixture manufacturers.

More specifically, these refinements include:  
★ Improved high frequency ballasts. Because of the problems of 50Hz flicker, fluorescent ballasts operate at around 56kHz. This main-



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tains a flicker-free light output across the full dimming range. Some fluorescent fixtures incorporate internal ballasts while others operate via DMX control cable from external ballast units.

★ Compact lamp design and the availability of daylight and tungsten colour temperature lamps have given rise to a wide choice of fixtures that can stand alone or be integrated with existing tungsten installations. Standard studio fluorescent lamps are around 36 watts and are generally multiplied to achieve the required light output.

★ Improved Colour Rendition. This is critical for television production, where cameras need to accurately reflect the visible colour spectrum. To do this they rely on lighting with the same colour temperature as the sensing electronics in the camera. Cameras must balance electronically and visually against both colour reference charts and, in a multi-camera studio, between each other.

A Colour Rendition Index, Ra, better than 70 is required for television lighting, while an Ra above 80 is preferred. The CRI 100 reference point is based on the colour spectrum reading from a 3100degK tungsten/halogen. The closer a fluorescent lamp's CRI is to 100 the better its ability to seamlessly mix with tungsten lighting. Osram's CRI 95+ guarantees a CRI of 98%.

**A matter of choice**

So, if you are attracted to concept of fluorescent lighting, how do you choose between the ever-increasing range of products now available? A rule of thumb for buying fluorescent is that the price of a fluorescent fixture is usually reflected in: light output; construction quality and materials; lamp quality and operational features.

Efficiency of the fixture is very important. The housing design must enhance the low power draw of fluorescent lamps. After all, in a four-lamp fluorescent fixture, you're asking four 36W lamps to replace a 1-2K tungsten lamp. A fixture with highly reflective barn door panels and the correct parabolic reflectors behind the lamps are essential to achieve optimum light output efficiency. A fixture that offers focussing grid spots to intensify the light beam should also be sought.

Compatibility with existing dimmers and a full dimming range are also factors that must be taken into account. Beware of fluorescent lights with switchable output settings - they cannot be modified to dim.

The weight and size of a fixture is important. The best of the new fluorescent housings are much lighter than their tungsten equivalent, and despite the lamp size and shape, are often more compact.

Pole operation is also a guarantee that the lighting is designed with the operator in mind

**Lamps ain't lamps**

The ability to mix fluorescent and tungsten lighting is also a very important factor in the case of upgrades to existing studios.

Certain manufacturers use "80+ CRI" 3-phosphor lamps which peak at the primary television colours of red, green and blue (RCB).

These lamps cost about 30% less, give 40% more light output, but they lack portions of the spectrum in the dips between the colour frequency peaks (see Diagram 1). This is most obvious in the important area of correctly matching skin tones and of course, mixing with tungsten.

Manufacturers such as Balcar use Osram CRI 95+ lamps which comprise 6-8 phosphors

and therefore provide an even frequency response across the spectrum and colour temperature matching with tungsten.

The final area which separates fluorescent manufacturers is fixture choice. It's not enough these days to just offer, say, a six lamp housing for fill light. Fluorescent fixtures need to handle all lighting requirements from key, backlight and fill, to focussed beam lighting. Otherwise, the full power and heat benefits are not realised.

Australia has been one of the fastest growing markets in the world for fluorescent studio lighting. With the installation of this new technology in Australia's pay television studios as well as into almost every major new studio, the evolution has well and truly begun.

★ Brett Smith works for Miller Professional Products (Balcar importers) call 02 439-6377.

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# TOM JONES

## Cat Forcer witness' a knicker throwing frenzy

Eric Swan, lighting designer for Tom Jones, worked for many years as a lighting technician gaining an invaluable background for his trade. His first break as a LD was with Tom and that was over two years ago. Working for an artist such as Tom is guaranteed full time employment as he usually tours about 230 days a year.



Eric Swan

"We play a large variety of gig," said Eric. "The shows we play in Las Vegas, because they're the same every year and we stay a couple of weeks, I can get detailed in how I want it set up. When we

do one night stands it's often a different rig every night. We did a run of US theatres in July

and the rig had to change every night due to the gear available and the building. We do a lot of in house stuff and a lot of gigs with lighting companies just using cans and lekos. When we do Vegas and overseas gigs we use the Vari\*lites, probably about 100 gigs every year."

The truss is usually configured into a diamond shape about 65ft wide covering the entire stage. It can be adapted into a proscenium mode, for venues with not so much width, by turning the diamond into a square 45ft wide. Equipment included twenty-four VL2c's, fourteen VL5's, three Smart Repeaters, four Repeaters, one VLD, one Artisan desk and one Mini Artisan. Conventional lighting consisted of twenty sections of black Thomas Truss, eight black corner blocks, 120 black pars, twelve motors, two cable picks, 60ft curtain truss with 60ft black curtain (no pleats) and two DF50 smoke machines.

After the Sydney shows at the SEC, Tom Jones was to perform a private 35 minute gig at the Regent Hotel Ballroom for a corporate function. Unfortunately they had provided a bright red, shiny linoleum set which was causing Eric a few headaches. Also the ceiling height was only about 15ft!



Photo: Mary Williams

One thing Eric tries to fit in at most cities is a sky dive with Kenny, the stage manager - something he took up in Vegas to stop him going to the casinos. In fact Eric and Kenny claim that they were trained by the Flying Elvis's (remember them in the film Honeymoon in Las Vegas) and that Kenny has a Flying Elvis outfit. Is this true or am I gullible?



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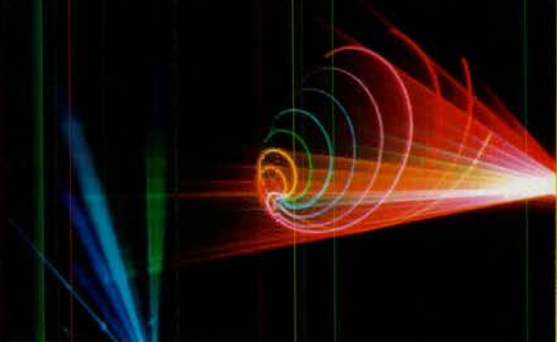
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# BASIC PRINCIPLES OF LIGHTING CONTROL

The first of a two part guide for students of lighting

We frequently talk and write about 'entertainment lighting' as a collective term for lighting performances in the theatre, for television, motion picture, concerts and others. One factor links these diverse activities together - creating a visual composition with light.

Where these areas of entertainment lighting diverge is on the subject of controlling the light. In the theatre and with concerts, the audience stays in one place. The action is live and continuous. Lighting is tuned to the response of the human eye, and is stylised, sometimes in contradiction to that of nature. Changes between one lighting 'state' and another can be complex and sophisticated, fast or imperceptibly slow.

In television, the audience views a scene through a camera from a variety of angles, dictating a different approach to lighting. A subtle change from one scene to another - a primary function for a theatre control - is performed by a vision mixer. A fade to blackout is rare.

Cinematography, motion picture lighting is different again, with each sequence be-

ing painstakingly set up and lit separately, in a similar manner to a portrait photographer.

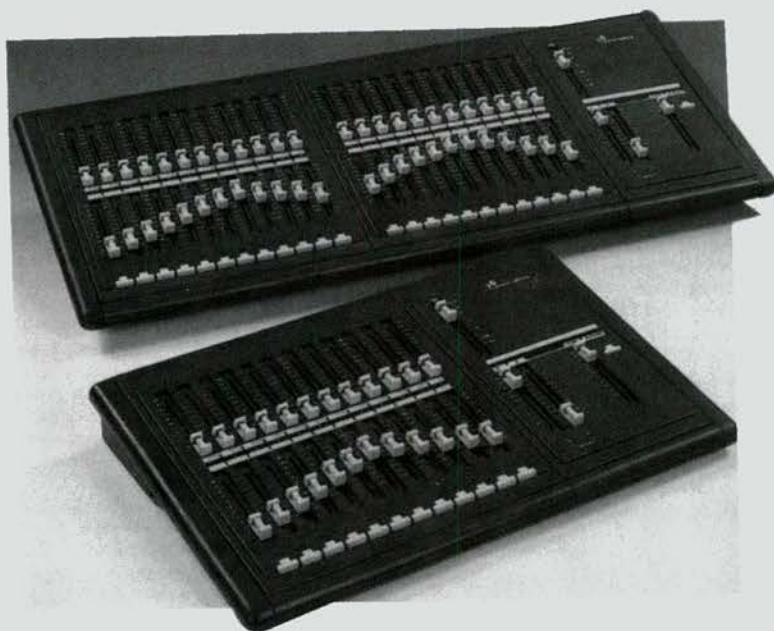
Thus the art of lighting for 'entertainment' consists of two elements - the static and the dynamic. It is the dynamic effects - the way the lights fade from one picture or 'state' to the next - that is the business of the lighting control system.

## TWO PRESET MANUAL CONTROL

In its simplest form, a lighting control desk changes intensities from the current 'state' to the succeeding one. This requires two settings or 'presets'. A manual control desk has two presets, each with its own master control slider. One preset can be active (ie. controlling the lighting currently on stage) by moving its master control to full, while the other is 'blind' (ie. inactive - a change to any channel fader will not affect the lighting on stage) by moving its master control to zero. This two-preset way of working allows each scene to be noted as a complete list of dimmer levels, and reproduced by manually pre-setting each new scene in sequence.

The change from one scene to the other is performed by reducing the master fader controlling the active preset and increasing the master fader on the 'blind' preset. This action is called a 'crossfade', and enables a smooth transition from one scene to another. Early manual control desks had a characteristic

*continued on page 94*



*The Strand LX12 and LX24 Manual Control desks*



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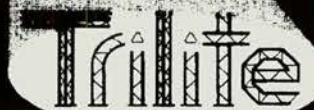
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# Els Comediants

The Devils, a medieval spectacular by the Catalan troupe Els Comediants, was to open the Sydney Festival but due to heavy rain-fall the opening had to be postponed a day. Not a good start but once the show started its run of several days it soon gained a reputation as one of the best events ever held by the Sydney Festival. The show was held on the Opera House Forecourt and was free to the public. By it's final night, after four performances, an amazing crowd of 30,000 turned up to witness the spectacle.

Els Comediants consist of 24 costumed performers who deliver an anarchic display featuring fireworks going off all over the place. The show begins on the purpose built stage before the troupe invite the audience to dance with the fire as they meander through the crowd to the beat of the drums. Ancient myths of devils, dragons and giants were bought to wild and raucous life with fire and fireworks, acrobatics and music. An enchanted crowd joined the revelry as the troupes hand held fireworks rained sparks down onto them.

The audience were warned prior to the event that they attended at their own risk. In fact



yours truly sustained a bit of a burn in her line of duty but caught up in the excitement, it didn't seem to matter. The odour of singed hair really wasn't that strong.

As the dance progressed the crowd were pursued with glee and mischief by masked troubadours as well as a large medieval dragon which caused a delightful panic. Bull headed creatures and maidens ablaze with pyros stood on platforms.

The show returned to the stage where a man wearing a giant phallus chased a large breasted woman until his phallus erupted in a blaze of pyros. This caused a few wincing from the men in the audience.

The Devils was an immensely powerful theatrical

event with a view to celebration and Sydneysiders were hypnotised.

Production manager for the festival, Yvonne Hockey, found the show one of her biggest challenges of the Festival due to the extensive use of fireworks and the situation of the event.

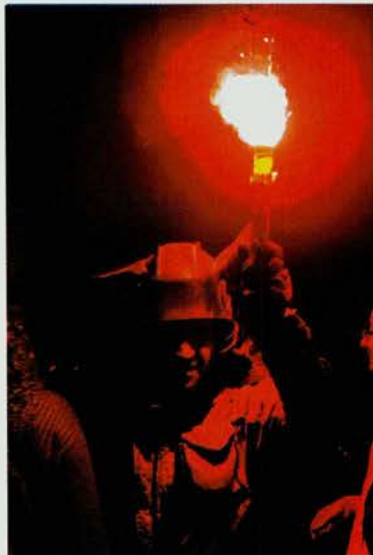
"It's basically a very simple lighting installation because the only place we use stage lighting at all is on the main stage and it's only foot lighting as an effect," she said. "There's also a little bit of audience lighting for before and after show. The lighting was supplied by Blue Dog Lighting. The rest of the production is lit by the hand held pyrotechnics which the company carry with them. It's a very professional performance."

Sid Howard supplied most of the pyrotechnics

importing some from a Catalan company in Spain because they are particular fireworks only made in Barcelona. The Sid Howard team also organised and ran the final firework display which erupted from the gardens behind the stage.

The music was live with heavy emphasis on percussion and included a wandering band. Audio was supplied by Jands Production Services.


★ Cat Forcer




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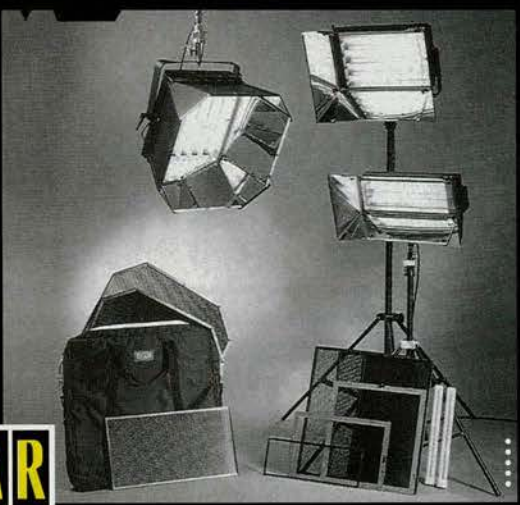
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## Basic Principles of Lighting Control *(continued from page 90)*

which could seriously affect the change of lighting, and ruin the planned effect. With two presets set up for two scenes, one is live and the other is blind, and a spotlight set to the same intensity in both scenes will begin and finish at the correct intensity. But during the crossfade the light will have dimmed (because the live master was moved down) and then brightened (because the blind master was moved up). This can destroy a picture where the actor is downstage centre for a soliloquy whilst the scene around him changes. If the light on him remains constant the audience will not notice the subtle change of mood or location but if the actor's light fades and then brightens the audience is distracted and the dramatic moment may be lost.

The problem of crossfade 'dip' has been resolved with modern manual controls incorporating dipless crossfade circuits. But to avoid the problem in performance with an older type of desk, two methods are possible: firstly if the lighting change is not very complicated (say, two or three lights have to change, with the remainder staying at their present levels), then the fade can be performed on the live preset only. This is called a 'move fade', and in the dictionary of lighting control definitions, it has a special characteristic. There can be many 'move fades' occurring at the same time. Depending on how many fingers the console operator has available, a series of moves can be plotted and performed with different fade times, all on the same preset. This is in contrast to the crossfade, of which only one may be performed at a time. The other method of minimising 'dip' is if the change is more complex (only one spotlight remains at a constant level) with all others moving to new levels, then a 'split' crossfade can be used. Moving the incoming preset master in advance of the live master enables the dip to be minimised.

Manual preset desks can give many special lighting effects to your performance. Some desks have a choice of manual or timed crossfades. A timed crossfade enables you to perform something like a dawn sequence or the change from day to night so smoothly that the audience is unaware of the change.

If your desk is fitted with flash buttons, the range of possible effects is enormous. A flash button causes a channel to be switched instantly to full, or to the level set by a flash master fader. This gives the opportunity for lightning effects, flickering firelight effects or chase effects, depending on your dexterity, of course!

In the past, the trend was for manual control desks to become larger and larger. More channels were required as lighting styles changed. More presets were added to allow a series of fast cues to be performed without frantic re-setting of two presets. However, the

time taken to adjust the lighting levels and note the positions of each fader (so that they could be reproduced during the show) was getting too long, and there was an obvious need for an automated system to relieve the console operator of this burden, and to speed up rehearsal time. Thus was born the concept of the memory console.

**Next Month: Memory Control and a Glossary of Terms.**

*This article first appeared in the September issue of Lights! magazine, published by Strand.*

### Martin's Opto Isolated Digital Splitter Box

As more and more equipment becomes digitally controlled, people are quite often running into 'communication glitches' in systems and spend a lot of time looking around for solutions. With Martin's new Opto Isolated Digital Splitter Box many of these headaches can be avoided before they occur. If you are running many digital signals in an installation or production and are feeding many different fixtures, it is a good idea to split your source signal. The Martin Splitter Box has a 'one in - four out' configuration and can be used for a number of digital signals including DMX512 and their own RS485 protocol. Call your local Martin dealer or *Show Technology* (02) 898 1111 for details. Price is \$599 inc tax.

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Write in Reader Service Number: 126



Cat Forcer talks to Nigel Levings about the Australian Opera production of

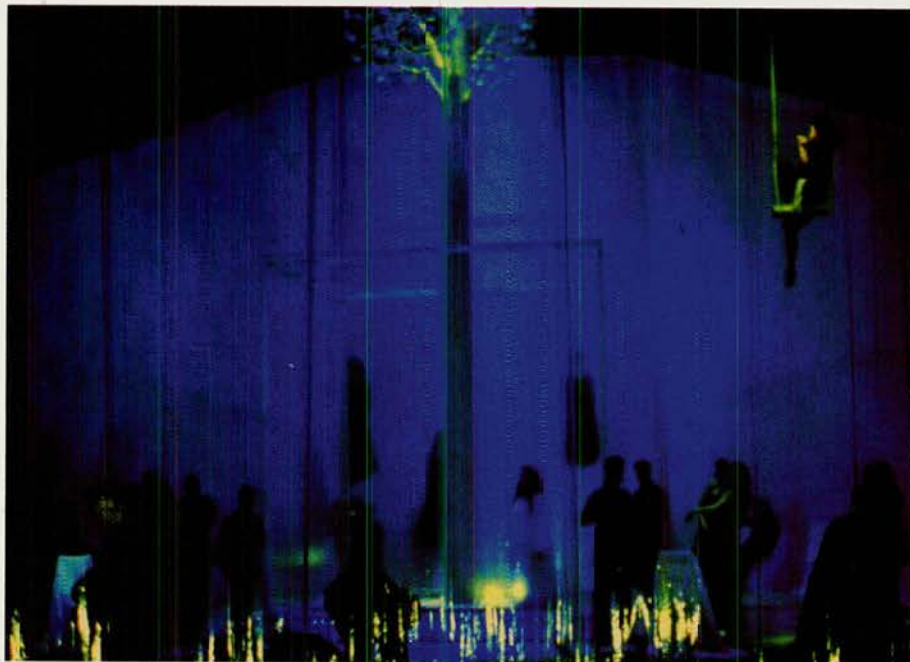
# Orpheus & Eurydice

Lighting designer Nigel Levings has been his usual busy self, in fact by the second week of February he would have had five shows opened this year already.

Three of the shows are for the Australian Opera - *A Midsummer Nights Dream*, *The Makropulos Secret* and *Orpheus & Eurydice*. The current production of *Orpheus* is a revival of a production held eighteen months ago.

"It was directed and designed by Stefanos Lazaridis who has been one of the worlds major influences in scenic design," said Nigel. "It's a very visual production due to his design background and very carefully worked out. It's also exciting due to his collaboration on the work with Meryl Tankard who is probably our most exciting, modern choreographer.

"The lighting is certainly very non-naturalistic with an abstracted feel to it. The lighting follows the emotional course of the opera with a lot of long slow lighting cues which meld very closely with the music of the opera and shift as the various tensions come and go."



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Orpheus & Eurydice (continued)

"We use quite a bit of UV with all the set surfaces having some UV paint treatment. It's actually a colour which is painted into the base paint colour and in other cases it's actually a clear which glows white. We've used a couple of different UV sources, the traditional blacklight UV tubes which give an overhead wash to the main stage area and we have also

chines. But we've tried to lay off the cracker this year as we've been having problems with oil deposits building up at the Opera House. With the dancers there were problems developing towards the end of the season due to oil deposits on the floor. So this year we have Le Maitre's G300 machines with haze fluid and they seem quite good. They're certainly punchy enough and it's also nice because we drive them off the switch board with the levels of smoke plotted into each cue.

"The added sophistication I'd like to see next time round is that I'd also like to control the fan level that we drive the smoke with. We have one level which gives you volumes of smoke on stage but it would be useful if we could also drive from the



used some large reflector floods with 400 watt mercury vapour blacklight lamps in them. We've also been using some MSR lamps with dichroic UV filters in them which have been proving very good this year as we're using some new glass which gives better UV transmission."

Also non standard to the Australian Opera rig are some par 56 battens which Nigel confesses to being particularly fond of.

"They have 110 volt vnsf lamps in them and they're very punchy," he said. "They give a thin, powerful beam of light which is about as wide and as tall as a human being. We use them out front as a punchy, flat angled side light in the floor stage area and also horizontally on trolleys to skim light the floor for a clean focus on the dancer's feet."

A walk way around and in front of the orchestra pit has some concealed MR16 lamps which uplight that particular section of the floor stage. Eight Svovodra lamps are flown very high in the rig to provide two huge, long columns of light through the smoke haze.

"It's smoke haze this time," said Nigel. "Last time we used a cracker and some smoke ma-

switch board the fan force as well.

"It's quite a big show for the crew to set up as there are some large boom towers either side of the stage which we use to light the upstage section of the stage and they are basically crammed with par cans, par 56 battens, profile spots, MSR UVs and UV tubes. It's an incredible mish mash but they do provide a major part of the side lighting for the stage which is quite important in this particular production."

At the end of February Nigel is off to Broadway to light the Australian production of *The King and I*.

"We're using a lot more equipment than we did in Australia," said Nigel. "I'm quite looking forward to it and it'll be nice getting a rig which is basically straight out of the show-room. It's all top range new gear."

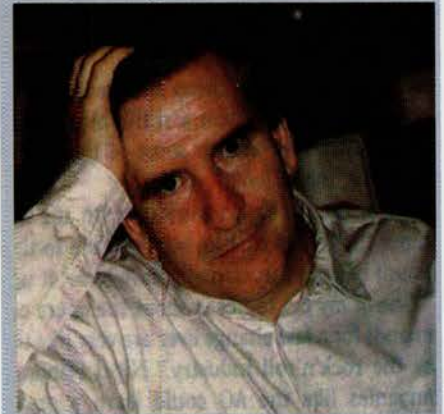
Nigel will be using ETC Source 4's with the rig being mostly profiles and par cans. The new Wybron scrollers will also be used.

"We've also managed to stretch the budget and get some wibbly wobbly lights in," said Nigel. "We've got some Cyberlights and it'll be

the first time I've worked with them. I've never had a show that's had the budget to use them before! We'll be using them pretty judiciously, not throwing them around. We'll be able to cope with the plotting of them ourselves. We won't need a separate desk as we're putting in an ETC Obsession for control and apparently it has an external pod which you can attach to drive moving lights.

"It's a daunting prospect but exciting never the less."

MEET THE LD'S



Nigel Levings will be at Entech (as long as work commitments allow!) to answer your questions on the MEET THE LD'S panel. This seminar will be held at 12.00 midday on Tuesday April 23rd.

Nigel will also be participating in the seminar LIGHTING CAD which will also be held on the Tuesday at 4.30pm.

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READER SERVICE NUMBER 402

Vari-Lite Holdings To Change Name

Vari-Lite Holdings Inc., a holding company for a group of several well-known entertainment service and technology companies is announcing the change of its name to: Vari-Lite International Inc.

Dallas-based Vari-Lite International is the parent company to the following US businesses: Showco Inc; Vari-Lite Inc; Ignition! Creative Group Inc; Irideon Inc; and Concert Producer Lightin, Inc.

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Write in Reader Service Number: 119



# ACCESS ARTS AT THE RNA

Or What To Do With The Left Over Alfoil From Home - by Geoff Squires

Not long after the production of 'She Of The Electrolux' at La Boite (which I lit), had closed, I received a phone call from Stage Manager, Lowana Moxham, asking if I was interested in lighting a show for Access Arts, which she was now working on.

Access Arts is a non profit professional arts company which supports people with disabilities both physical and intellectual to pursue their ambitions in the arts. The budget was a \$1000 and the design fee was \$500, not big money by any means, but the show held my curiosity anyway and so I said yes.

The show traced the life of Frida Kahlo, a Mexican artist of the 1920's, who suffered childhood polio and then a horrific bus and tram collision which left her with major injuries that would effect her for the rest of her life. Directed by Marcus Hughes, the cast consisted of both professional and disabled actors.

A large space known as the John Ried Pavilion managed by the Royal National Association was chosen as the venue. A building normally used for the Exhibition, the main space was about 15m by 40m of open area with a ceiling height to roof truss of about 6m. There was an alcove either side running the same length about 5m deep and a 3m ceiling. Adjoining buildings provided a FOH area and dressing rooms, with a concrete floor through out.

Kate Stewart designed a simple but effective set. Using an area of about 20m by 8m, it



*Alive Still Life, Access Arts '95*

featured upstage centre a 5m scaffolding tower. White muslin was draped over the towers and as cyc behind (which doubled as rear projection screens) while the floor was a white tarquette with a painted heart design.

For me the building provided a roof that could only take a little weight spread out, and large amounts of three phase terminating blocks arranged at regular intervals the length of both sides of the building. There was a three phase outlet at each end but oddly enough there was only one group of GPO's and they were at the wrong end of the building for us. The venue supplied three phase tails at a cost of \$75 each and had no rigging or lighting equipment of any sort.

My mission now that I had chosen to accept it was to design a rig that would make everyone go "OOCH!!" without actually pulling the roof in with it. As the show was in the last stage of evolving getting a feel for the show was a little tricky. Other work commitments (I had two other big shows going in before this one), the fact that it wasn't well paid (I have bills to pay too, I probably made less than \$2 an hour) and the fact that rehearsals were a little behind meant that I didn't get to see as many rehearsals as I would have liked (particularly the final scene). All of this meant my design had to be flexible.

My first task was to organise the gear. Having just lit a touring show using a few waggies to replace many specials, I was keen to do so

again. I decided to approach Brisbane lighting companies until I found someone mad enough to trust me with lots of their toys. I hit paydirt first go with Skypak Lighting. In fact they were so good to me I'll say it again - Skypak Lighting. Brian Story of Skypak Lighting agreed to give me six of their Golden Scan 2's for the ten days I would need them, free of charge. By far my best sponsor, thank you Skypak Lighting.

My next approach was to Pro-Nel Lighting, another company who were fantastic in their help. And so they should have been. Pro-Nel Lighting is my own company and after some serious negotiations with myself I agreed to give whatever I needed free. In fact I was so generous I'll say it again, Pro-Nel Lighting (I need the publicity). The only problem was my Encore 24/48 (a brilliant desk) and my Linklight were on hire for five weeks. But at least my racks and cans were still available. Fifty lights, 2 dimmers and shitloads of cable later I was on my way.

Lowana approached The Queensland Ballet and through Bruce Barker we scored thirty patt. 223, two 5k and one 2.4k Minipaks and a Linklight, bless their hearts. As the city council were sponsoring us we relieved them of about 400m of festoon, a dimmer rack and bits and pieces. QPAC was our last port of call for 20 cans and four Colourset Scrollers (thanks to Phil Bowman and Davis Hints).

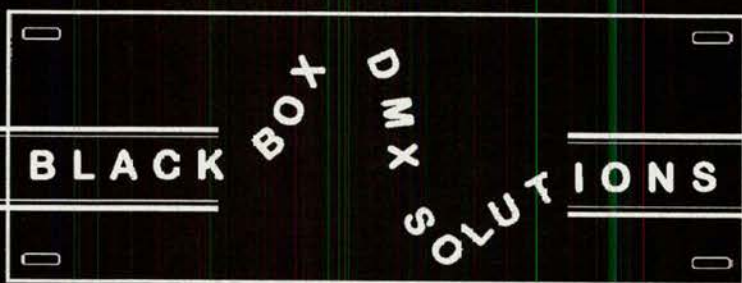
By now I was toying with the idea of shaping the rig in the form of a large cross made out of truss. The size and number of points meant that it had to be box and a few phone calls to David Whitworth Productions later I had 14 sections, chain blocks, and 16 cans. Thanks also to Jason Organ of JLX who helped out with another four cans free. An oil cracker from QTC, with thanks to Stafford Mortenson, finished me off.

I was now ready to design the grand plan. Due to the large area I decided on sixteen 64's mfl for FOH in four colours 158, 106, 119 and 139. Four vns 64's with scrollers would be truss warmers on the cross, leaving the remaining forty-eight 64's mfl and wide as backlight in three colours 106, 120 and 139. The patt.223 and two of my fresnels became side lighting in four colours 158, 106, 119 and 139, four by four per side.

The centre scaffolding would be lit with nine 56's in three colours and the two small ones would get three 56's in three colours 106, 120 and 139. It wasn't until the scaffolding was in place and decorated that I decided to uplight all three towers to pick up the designs and use six of the cans for the centre scaff to light the



*Alive Still Life, Access Arts '95*



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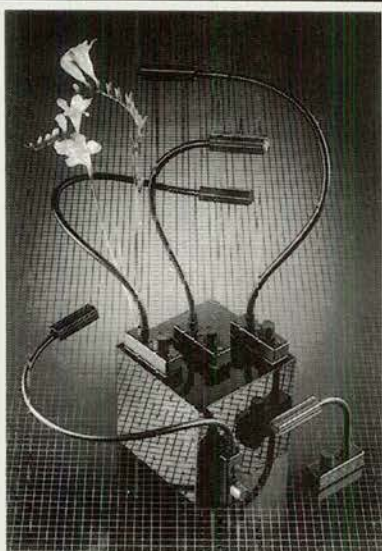
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## ACCESS ARTS (continued)

top section. I had decided on the deep colours through out because I felt the show could cope with strong colour saturation, after all it was about an artist.

To finish the design off, I put 200m of festoon around the scaffolding and the audience, who were sitting in a thrust arrangement, and 100m to highlight the outline of the cross truss. The remaining festoon went to the foyer. The Golden Scans went one on each end of the truss and two in the middle of the short run, each with a dwe duet. As a last minute thing a 4ft UV battern was placed on the op scaff tower to enable the signer for the deaf to be seen at all times (he wore white gloves).

To help the warmers bring the truss out, I decided to make it more reflective by covering the tops and sides with alfoil, in all about 100m gaffed in place. While it looked fantastic, it was a pain because crawling through the truss became a nightmare. Any wrong step would tear the foil. It became a lot of fun to get to the Golden Scans to re-assign them, or to the scrollers to swear at them.

I now had 120 lights to spread over six racks. Knowing I had large distances to run cable over and only one Linklight my problem was now control. My racks can run off either an analogue or d54 signal so I decided to run one rack FOH on d54 and the remaining racks off the linklight from a central position backstage. This meant I needed a desk with simultaneous DMX and d54 output. A Tempus M24



from Premier was the only desk that would do the job.

I can hear all the waggly heads out there gasp in horror as to my desk choice, but it was a desk I knew well and it actually controlled the waggles quite well, as long as I thought about what I was doing. Might I also say that Premier was the only company who didn't give us a decent discount, I didn't even get a 25% trade discount, only 10%. Not to mention that the new state manager was quite a rude little boy, way to get extra business, dude.

The three days of bump in were pretty much fun. My first mistake was to assume that the Tempus was a 120 channel model based on some

dark and dim memory. Reality check time. It was only 72 channels, which left me in the poo. By the time Premier got me the right video lead and I discovered my mistake it was too late to do anything other than make it all work.

The waggles chewed 36 channels before I even started, four for the scrollers to give me flexibility leaving me with 32 channels in which to cram 72 dimmers without the aid of a softpatch. Much swearing and number crunching later I did it. By running an analogue y split and using similar start numbers for both d54 and DMX I was able to control everything with only a little loss in freedom. Channels 1 to 8 ran FOH, 9 to 20 (2 racks running as one) ran side lights, houselights and p56 (as three channels). Channels 21 to 32 (3 racks running as one) ran the backlight, festoon and two dwe's.

Of course in the words of some great dick, life wasn't meant to be easy. My next problem was that the scrollers wouldn't listen to the desk. Self test was OK, but no command. As they didn't get rigged until 2am on Saturday night, I couldn't do anything about them until Monday morning, our first plotting session was done with guess work when it came to the truss. To top it off one of QB's 5k racks was playing up so Monday was a day for repairs.

The scroller problem turned out to be Strand (long known for doing their own thing) used a DMX signal with a longer than normal timing gap, thus the power supply couldn't understand the DMX. The answer was to replace the EPROM but it was an overnight trip for the new bits (thanks to Lee from Colourset). As I had by now blown the budget by \$500 thank god it was free. A controller got me through the second plot. The 5k racks were swapped for two 2.4k's and another Linklight made everything flow for a day. (I hate plugging two 10 amp leads into a 20 amp outlet).

The plotting sessions were late night things after rehearsals and were quite fun when we were tired. My favourite memory is Marcus sucking Lowana's toes. Don't ask.

Tuesday came and so did the EPROM. I learned that they work a lot better when you plug ALL of the pins of the IC into its socket, it also didn't help that my LSC data splitter decided to wig out on output 4. The fault showed up on output 3 (waggles) when ever the scrollers were plugged in. Much swearing and lead changing later I got it all sorted out and working. No more problems for the rest of the run.

The three shows went fantastically, all the

hair pulling and swearing was worth it. The lighting exceeded even my expectations and hopefully I will get to tour the show next year around Australia and New Zealand, so look out all you hire companies down south, I'm acoming beggin. That is of course if Access Arts recovered from the first time and can cope with a swearing and bald LD again. Thanks to everyone who helped including my loyal crew, Andrew Zurvas and co.

Geoff Squires can be contacted on 018 155 911.

## LIGHTING WORKSHOP opens in Perth

A new lighting production and repair company has sprung up in Perth which can boast of a vast amount of experience in both fields.

The Lighting Workshop is jointly owned and operated by three popular Perth industry figures - Brian Anslow, Anthony Littlewood-Johnson and Mike Bird.

The guys kicked off business with a few large contract sales which include supply to the Metropolis Nightclub in Fremantle: 8 Studio Due Stratos; and a MA Lighting Scancommander, as well as 8 Clay Paky Miniscan 300s and 6 Martin Robocolor PRO400s to the Leederville Hotel.

They say they are the first company in Perth to offer the new Studio Due Stratos units for hire with 8 units available. Also available for hire are 8 Clay Paky Miniscan 300. For control systems the guys have chosen MA Lighting Scancommanders and Pulsar Masterpiece 48s and 108s.

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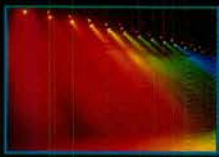
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Write in Reader Service Number: 111



# Rigging for Legs On The Wall

## Cat Forcer talks to the man responsible

By training Philip Toomer is actually a chemist and a geologist but from his hobby of caving, he developed his business. For many years Philip has also been involved with the Volunteer Rescue Association helping with vertical and cave rescue.

"My hobby and my business involves dangling on ropes," said Philip. "My partner Judith Bateman and I are qualified industrial riggers but our principle role is in training height safety and rescue as well as rope access - any difficult rigging."

In 1986 Philip first became involved with the physical theatre group Legs On The Wall and since then they have collaborated together on several productions.

In 1988 Legs conceived a show called *Legs In Limbo*, a suspension show performed in the Queen Victoria Building. Philip was required to work out the technical details which took so much time it made sense for him to rig the show for them - his first theatrical rigging job.

"I had to obviously know the requirements of rigging in a space like the QVB without actually damaging the building," he said. "I had to make sure that the show that they wanted looked exciting but was absolutely safe. The next show we did for them was a Cointreau Cocktail Party which had to be rigged in the entrance foyer of the State Theatre here in

Sydney. We had to rig around the big chandelier that's in there and be careful again not to damage the building. We had to manufacture some special suspension equipment. In fact the building owners required us to do the survey of the roof and provide the plans for their own engineers to approve the loadings we wanted to put in.

"The combination of coming out of a rescue environment where the problem has to be fixed means we can pretty much fix most things."

Although Philip would like to work more in theatre he acknowledges that most people who would benefit from his assistance simply can't afford his services.

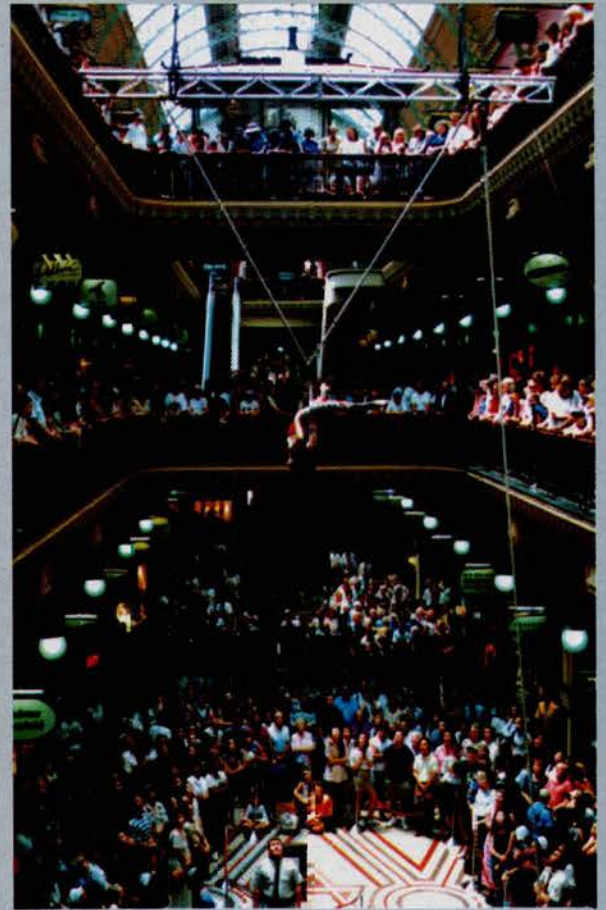
"Unfortunately we can't do any more favours for people as we've done a lot in the past," he told me. "We have to be a little bit more callous as I could spend 40 hours a week helping people but not earning my pay.

There are a lot of creative people out there with fantastic ideas but no money."

Last December Legs On The Wall performed a show called *From Here To There*

at the Wharf 2 Theatre and Philip was involved in the safety aspects of the production as well as some of the initial conceptualisation.

"Legs wanted to use the image of rock climbing as a metaphor for striving, struggling, achieving and failing," explained Philip. "They also saw that the rock climbing image was about relationships in that in every situation in rock climbing the person climbing relies on someone else to get their job right. They spent some time with us learning what climbing was all about. We provided technical advice like how steep the surface could be for them to be able to climb in repeatedly. To a certain extent we provided the designer with some of the constraints to make the work achievable. Following our advice, some of the performers went off to a couple of the climbing gyms for experience and came up with the idea of one of them falling to his death every night!"



*Legs in Limbo, State Theatre 1991*



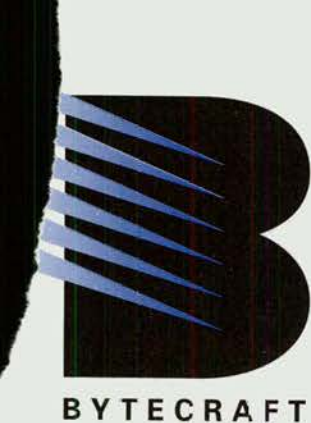
*Scott Grayson, Sydney Festival 1995*

"We then had to look at what was needed technically to do this in safety. We also had to make it look plausible in case there were any rock climbers in the audience. Falling safely is easy, falling safely so he can disconnect himself and be on the ground before the lights came up, about 15 seconds, was the complicated bit."

As part of the Sydney Festival Legs have just completed a series of shows in Australia Square, Sydney. From an earlier show they had done called *Temptations*, the performers really liked the image of kicking out from the surface of the building and effectively flying against the sky, as far as the audience were concerned.

"With this image to play with we worked out what level of Australia Square we could get access to which was level 19," said Philip. "So it was a case of establishing what the rigging constraints were, working with building manager to make sure they were happy with what we were planning to do to their building

*continued on the next page*



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Legs On The Wall (continued)

- this can be a problem because the out-sides of their building don't offer get walked on! having established that we worked out the usual production schedule rigging late at night as there's less pedestrian control needed."

Philip admits that over the years Legs have gained a lot of experience and although it's nice for them to have him around, he's superfluous once it's decided what to do in a show. With this show he did a safety briefing and training session.

Philip also rigged *Miss Haversaams Dream* which was performed in the QVB by Theatre Physical. Being the fifth time he's rigged the building it wasn't too difficult for him.

"One of the constraints of the QVB is that the curved beams between the glass of the roof are very strong if you hang loads vertically from the beams but it's very hard to get anyone to tell you how strong they are if you try to pull the two beams together," said Philip. "In *Miss Haversaams Dream* we move a large iron dress from ground level up into space and have people climb and hang off it. The way it was originally proposed it was very difficult to work out how not to have them end up side ways loading on the beam. We consulted with Pollards and we worked out a system using chain hoists to lift the dress and that kept the force vertical. In fact they did most of the high rigging in the show but the overall responsibility was ours. Once their pieces were in place we did the tuning with Theatre Physical."

Philip Toomer can be contacted at *Rescue Equipment* (02) 264 2902 or *Spelear* (02) 264 2994.



Miss Haversham's Dream, 1996

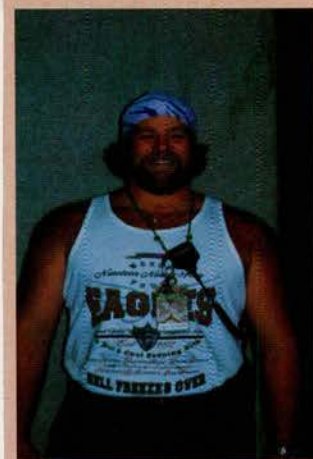
# RIGGING THE EAGLES

As this month's Lighting section was due to concentrate on rigging, I couldn't help but interview one of this industry's most famous riggers T J Thompson who was here with The Eagles as Head Rigger. Born and raised in Georgia, T J spoke with a slow Southern drawl as he told me about his illustrious career.



Photo: Bob King

"I started rigging back in 1979 moving to road rigging in '84", he said. "I've worked with Bon Jovi, David Lee Roth, David Bowie, U2, Scorpions, Def Leppard, Queensryche and



plenty more. I can't remember. I enjoy it, it's a lot of fun.

"I like this show very much, although it's a lot of work. It's challenging because it changes - we go from arenas to stadiums to sheds to amphitheatres. I'm constantly having to work different ways but I like that and I don't become bored easily.

"With today's show we came in at 5pm yesterday and I left at 1.30am but I was done physically working around 11pm. I wait until the PA and lights are up to trim and the screens are up. I do a lot of work then have to wait and so on but I'd rather be here when things are moving like the motors running."

Weather is the main thing T J has to cope with but he takes it in his stride and you get the impression that he is totally unflappable.

"It's a scientific thing but also a gut feeling," he told me. "I know how far this can be pushed before it's going to break. We haven't had any real disasters on this tour although we did have a couple of screens blow out. We did back to back shows in Phoenix and Vegas and during the first show a dust devil suddenly appeared and, as the screen had been sitting in strong sun all day and was very stretchable, it exploded when the devil hit. The next day the same thing happened. There was nothing we could do."

T J hasn't had too many accidents himself although he once fell 60ft from a rig, fortunately his safety line caught him.

"It was after a long day on a Bon Jovi tour and it was in a building where you had to climb an inch and a quarter ride," he said. "You had to climb it from the catwalk 30ft to the steel. I guess we were almost done and my arm just gave out. I pushed myself away so I didn't land on the catwalk and my safety line went around the catwalk so I swung out underneath it. I went back up in that ceiling that night so I wouldn't be afraid of it. I have a lot more respect for that building now!

"During Queensryche, one of the local guys had a fall. He was very out of shape and overweight and shouldn't have been climbing a ladder to start with but they sent him up before I got in. He climbed the ladder really fast and when he got to the top he passed out. He fell 42ft to the ground but only cracked his shoulder and hurt his hip. Trashed our stage though! The doctor said the aluminium ramps on the stage saved him because they gave when he hit."

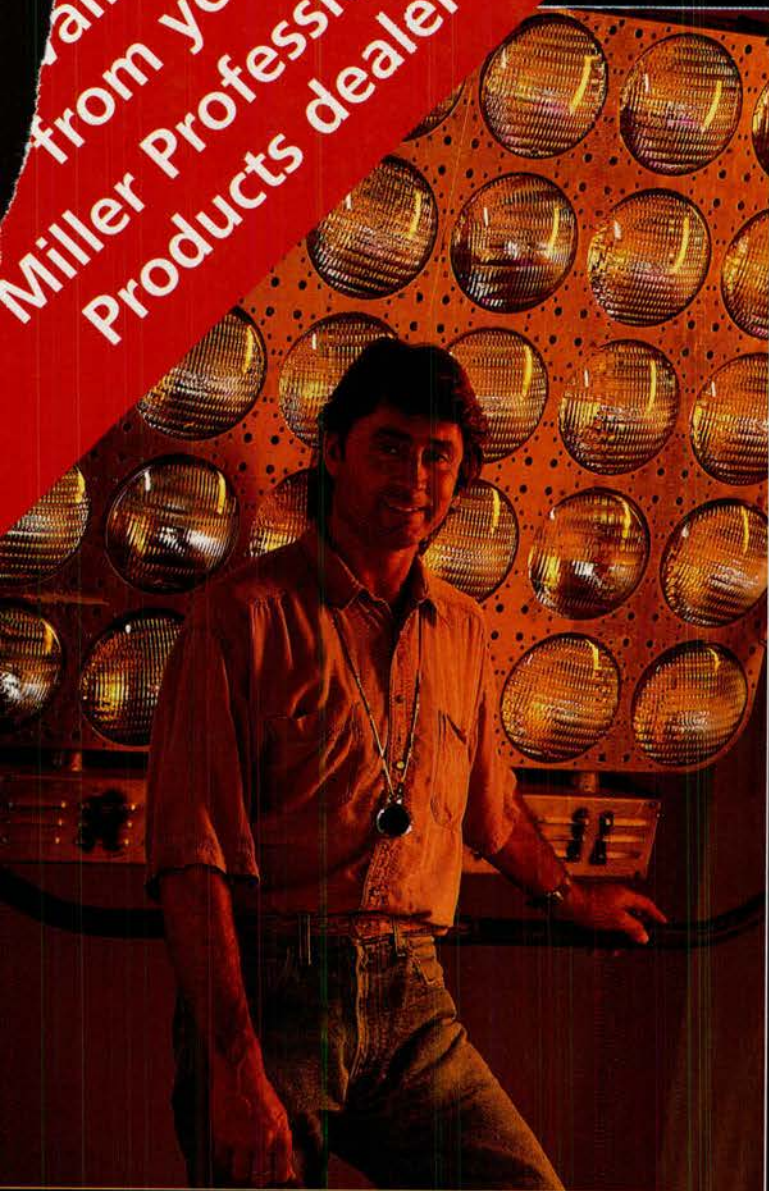
★ Cat Forcer

## Interested in Rigging?

Roger Cameron of Pollards Productions will be hosting a Seminar at Entech 96 on RIGGING. This will be held on Tuesday 23rd April at 10.30am. Roger is pictured below right, with Rod Nielsen on the Space Probe 7 ride at Australia's Wonderland, featured in last month's Connections.



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**REINHART PESCHKE**, ready to shoot with his Raybeam and Gold GamCloth.

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**REINHART PESCHKE**  
Gaffer

#### REINHART PESCHKE

‘Gaffer’ is an understated title for Peschke. He has over 20 years of experience as gaffer, lighting director and technical director, dividing his time between feature films, commercials and videos. Because they give him the opportunity to experiment with new ideas and technology, he finds that commercials and videos are vital to his professional growth.

Grass never grows under Peschke’s feet! His resume includes over 100 films, over 3000 commercials and over 400 music videos. Highlights of his film career include: NATURAL BORN KILLERS (Oliver Stone, for release in 1994), JFK, BORN ON THE 4th OF JULY, TEEN-AGE MUTANT NINJA TURTLES III, TALK RADIO, EIGHT MEN OUT, CABARET, LESS THAN ZERO, and ROLLERBALL.

He designed the versatile RAYBEAM fixture pictured here and rents it through his Rayteam Productions, Inc.

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## the new JEM ZR31E

Now available from Show Technology is the new JEM ZR31E DMX high power smoke machine. The ZR31E has an output three times the amount of the industry standard ZR20 thanks to a new 2.5kW heater block, a new 5mm high velocity cuprous helicoil and twin-pump, bi-phased system.

An integrated remote control is easily removed for remote operation which offers an output level control as well as timer.

The ZR31E also can accept external control via DMX512 or 0-10bV dc.

For a limited time only, Show Technology is offering a collectors edition of the machine finished in stainless steel at no extra charge.....as well as 27 litres of fog fluid for free.

Price is \$2,699 inc tax.

For further information call: Show Technology (02) 898 1111.

**READER SERVICE NUMBER 402**

## Bits

★ The *Victorian Arts Centre* have ordered two **Strand 530** Lighting Control Desks with offline edit facilities and networker system. The 530's will replace the Strand Galaxy desks in the State and Playhouse Theatres.

★ The *New Theatre* (Sydney) have taken delivery of a **Strand GSX** Lighting Control Desk with offline editor to allow lighting designers to plot the show before bump in.

★ The **Strand GSX** lighting desk at the *Australian Museum* in Sydney has just completed its first year in service running 9 hours a day, seven days a week.

★ **Bytecraft Hire** is supplying the lighting rig and crew for the upcoming 3 month tour of Australia by the *Moscow Circus* which kicks off in Perth. Info- call **Bytecraft (02) 550 3955**.

★ *Night Shift* of Sydney have provided 4 **Martin Roboscan PRO518s**, 8 **Robocolor 2s** and a **Martin 2308 Controller** to Nite Zone.

★ **Skypak Lighting** of Brisbane have purchased a **Studio Due Space Flower** a 3000W Xenon outdoor search light effect.

★ *Lots of Watts*, Sydney have purchased 8 **Studio Due Strators** 700W moving head intelligent lights.

★ **TCP** have taken delivery of 2 **Studio Due Predators** for Patricks nightclub.

Call: Show Technology (02) 898 1111.

★ *Intelight* of Perth have taken delivery of 8 of the new Coemar **Microscan 3's** with rotating gobos and LCD panels.

★ **ShowCAD** systems have been supplied to *Entertainment Warehouse* in Melbourne, *Premier Lighting* and **TCP** in Sydney.

★ Coemar **Testa 2K** and some **1200MSR followspots** have gone to *The PA People*, Melbourne and **TCP**, Sydney.

Call: CDA (03)9467 8666.

## PULSAR DATAPAKS

Now available ex-stock from Show Technology are Pulsar Datapaks. The Datapak 12 is a digital series dimmer that has been designed with cost effective permanent installations in mind. It can be either wall mounted or 19" rack mounted. The Datapak has a comprehensive choke/capacity interference suppression circuit as well as zero voltage switching. Each channel can be selected to switch mode allowing the pack to be used for non-dimming fixtures such as disco effects, strobes or motors for scenery, rigging etc.

Call: Show Technology (02) 898 1111.

**READER SERVICE NUMBER 402**

## CONSTELLA

**SHOW STRUCTURES PERTH** had a busy Festive Season installing complete New Lighting Systems for the 'Boulevard Alehouse' and the **NEWEST CLUB** to open in Perth 'The Post Office'. Naturally the two venues were adorned with an array of the latest English Manufactured **CONSTELLA** Lighting Effects.

**CONSTELLA PRODUCTS** were on the top of the Christmas Lists of ALL Leading Hire Companies in Perth. The two most popular units are the **CHAMELEON** which is a Dichroic Colour Changing Moonflower Effect providing amazing Light Output from it's 100w Dichroic Lamp and sells for \$589. The other favourite was the **TWIN ORBITER** which is a dual mirrored Moonflower Effect projecting richly coloured beams in both the X & Y axis using 2 x 100w Halogen Lamps and sells for \$1,149.

**CONSTELLA** customers are now eagerly awaiting the arrival of the **STARTRACKER** Intelligent Scanner that will be released in March at the Frankfurt Musik Messe and will retail in Australia for an estimated \$1,495 inc. tax and lamp. The **STARTRACKER** will feature a maximum output, long lamplife M33 250w/24v globe plus accurate changing of the separate colour and gobo plates and smooth movement of it's Pan and Tilt motors.

A number of **CONSTELLA** Lighting Effects have been supplied to other States already but there are still opportunities for further DEALERS in certain areas. So, if you would like further information on the complete **CONSTELLA** Product Range, please call:

David Clare at Show Structures on:  
**(09) 470 4707**

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The Hazemaker produces a texture in the air where vision is clear under normal lighting and focused beams of light are accentuated. The fluid is water soluble and does not leave oily residue on equipment, filters, and technicians lungs. Self-contained in a sturdy road case the Hazemaker requires no warm up time and is very economical to operate. For further details see your Rosco dealer.

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## CP 62

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**You serve the drinks, we'll provide the mixer.**

The CP 62 gives restaurants and lounges custom control of phone page, mic/announcement page, background music and priority/foreground music — with automatic over-ride and ducking. Priority over-rides background, and paging over-rides both.

**Stuffed to the gills.**

In addition to cutting four stereo sources and two paging inputs, the CP 62 provides individual programs to two separate zones each with its own 7-band EQ, source select switch, level control, remote control jack, insert loop, rear panel maximum volume limit control, and very flexible assign and ducking controls.

**Remotely capable.**

Remote wired volume and source select controls can be mounted where they're easily accessible to management or staff, allowing the CP 62 and other equipment to be located for convenience, security and minimum noise performance.

**Reach me at the office ... or the health club.**

The CP 62 is as effective at work as it is at entertainment. Multi-room medical/dental offices, health clubs, retailers and other commercial facilities can enjoy cost-effective and user-friendly control of background/foreground music and paging functions.



R1 & R2 hardwired remotes available for source, zone & level control.



The innocent-looking CP 62 is the key to locking up your next install. If you don't use it, it's a crime.

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573 Princes Highway St Peters NSW 2044  
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**PHILIPS**

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## BUYERS GUIDE

## Trussing, Stands &amp; Other Rigging

**LITESTRUCTURES***LSC Electronics Pty Ltd (03) 9561 5255.***Litestructures Truss**

Litestructures Truss is a high strength, light weight truss system with a full range of corners and curve sections available. Range consists of: BILITE (227mm flat truss); ASTRALITE (227mm tri truss) and QUATRALITE (227mm box truss). All components are compatible with 'THE KEY' unisex connection system which allows truss to be joined with a single joiner. This produces a strong and secure joint that can be rapidly assembled. Also available is a 450mm folding tri truss which saves on truck space. Prices for 3 metre sections - Bilite \$244.80, Astralite \$475.80, Quatralite \$668.30, Folding Truss POA ex tax.

**PENN TRUSS***Penn Fabrication Australia (03) 9646 7222.***ST2540**

Standard 4m x 250mm length of high quality UK made aluminium square truss. Other lengths, radius' and accessories also available. \$583 ex tax.

**TT2540**

High quality UK made Tri truss in a standard 4m x 250mm length. Many sizes and accessories available. \$455 ex tax.

**C.L.S.***Concert Lighting Systems (03) 9646 8444.***Alloy, Steel Trussing, Stands & Rigging****BYTECRAFT***Bytecraft Pty Ltd (03) 9587 2555.***State & Status Flying Systems****KUPO***Show Technology (02) 898 1111.*

**Chrome T stand** 9' long including T-bar. Collapsible legs make this stand sturdy and attractive. \$204 ex tax.

Aluminium heavy duty 2" clamp. Ideal for big scanners or other heavy fixtures. Tested up to 450kg. \$36 ex tax.

**Aluminium heavy duty 2" swivel clamp.** Any angle connection is possible. \$49 ex tax.

**2" Plastic clamp** (up to 50kg), attractive black finish for applications where the clamp is part of the overall look eg. video stores, retail outlets. \$7 ex tax.

**A.L.E.***Advanced Lighting Equipment (02) 310 5333.***300 Series Aluminium Tri Truss**

Medium strength modular framework system.

Wide range of components and accessories. Curves, circles and custom manufacture from \$195 per metre ex tax.

**227 Series Aluminium Tri Truss**

Similar to 300 series except slightly smaller cross section and less strength. More headroom and truckspace. From \$185 per metre ex tax.

**P Series Steel Box Truss**

Medium to high strength modular framework system. Lightweight steel tubular construction Powdercoat finish. From \$185 per metre ex tax.

**Mini Truss**

Lightweight steel for display, exhibition, shop fitting and nightclubs. Available in square, triangular and flat sections. Powdercoat or electroplated finish. Featuring custom design and manufacture. From \$45 per metre ex tax.

**5.45m (18') Winch Up Stand**

3 stage mast. Folding legs. Steel construction. Black powdercoat finish. Mass: 30kg. \$1050 ex tax.

**3.65m (12') Winch Up Stand**

3 stage mast. Folding legs. Steel construction. Black powdercoat finish. Mass: 24kg. \$900 ex tax.

**2.75m (9') Basic Push Up Stand**

2 stage mast. Removable Tri Pod base. Steel construction. Black powdercoat and chrome finish. Accepts 1" spigot. Mass: 9kg. \$195 ex tax.

**2.75m (9') Folding Push Up Stand**

2 stage mast. Folding legs. Steel construction. Black powdercoat and chrome finish. Accepts 1" spigot. Mass: 10.5kg. \$262.50 ex tax.

**Hook Clamp (Standard 2")**

Clamps single lantern to 2" (50.8mm) bar zinc plated mild steel. Mass 0.3kg \$6.30 ex tax.

**Hook Clamp (Heavy Duty 2")**

Clamps single lantern to 2" (50.8mm) bar zinc plated mild steel. Mass 0.4kg \$7.35 ex tax.

**Bar Hook (2" to 2")**

Clamps 2" (50.8mm) bar to 2" (50.8mm). Bar zinc plated mild steel. Mass 0.45kg \$8.95 ex tax.

**Bar Hook (2" to 1")**

Clamps 2" (50.8mm) bar to 1" (25.4mm). Bar zinc plated mild steel. Mass 0.4kg \$7.95 ex tax.

**COEMAR***Coemar De Sisti Australia Pty Ltd (03) 9467 8666.***Modo Truss**

Completely modular trussing system incorporating mechanical strength and high rigidity. Complete with accessories, this four beam system is finished in brushed aluminium. Commended at a recent PLASA show for its integral strength. Suitable for all installation and display purposes. From \$430 ex tax.

**Lightweight Stands**

A range of stands from 147cm lift to 235cm lift. The most popular are the 'Alex' lightweight stand (5kg max) and the 'Benny' followspot stand with a 50kg max. All stands finished in brushed aluminium. From \$195 ex tax.

**TRE-D ENGINEERING***Coemar De Sisti Australia Pty Ltd (03) 9467 8666.***Tre-D Clamps**

A range of clamps including multi-purpose locking clamps (V-jaws, rotating profiles, rotating cams) and standard TV clamps in brass and aluminium as well as barrel clamps and gaffer grips. From \$60 ex tax.

**Tre-D Stands**

Complete range of folding stands available in aluminium, stainless steel and high-resistance steel. Features levelling legs, steel hardware and brass bushings. Lifts from 150cm to 412cm. All Manfroto equivalents available. Other fixtures include telescopic telepoles and accessories. From \$120 ex tax.

**DOUGHTY***Coemar De Sisti Australia Pty Ltd (03) 9467 8666.***Doughty Supa-Clamps**

A complete range of clamps, couplers, joiners and truss adaptors available in a variety of configurations. Manufactured in extruded aluminium and available in natural or silk black finish. TUV tested to 500kg SWL. From \$11.50 ex tax.

**Bulldog Stands**

A complete range of 'Cine' and 'C' stands, gripheads, grip arms, scrims, flags and accessories. Range from 112cm to 670cm lifts to a maximum of 40kg in Cine stands and 20" to 60" C stands with 170cm to 480cm lifts. From \$252 ex tax.

**Note: All vendors have much more than the (maximum) four products illustrated here.**

**Next Issue's  
Buyers Guide:  
Moving Lights**

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# THE PA PAGE

The Importance of **KEEPING IT TOGETHER**

Part One in a series, by Michael Orland.

Every now and then I try and begin my contributions to this magazine by welcoming new readers and re-stating my aims in writing this page.

As a consequence of running a sound hire business, I am continually upgrading and selling used equipment which puts me in touch with many other system owners around the country.

Inevitably, during the course of such dealings, stories are exchanged; warnings of shonks who aren't paying their bills; spontaneous reviews of new toys; tips for dealing with common problems and generally improving business.

After 20 years, one can't help but amass quite a collection of tips. As I said way back in article number one, writing them down for both the current and future generation of system owner is my own small way of putting something back into a business that has been pretty good to me on the whole. Don't expect anything TOO technical. I am NOT a technician.

Howard Jones covers tech. tips nicely on his page. And don't expect too many campfire stories of "Tales from the gig", other than those I may use to illustrate points. I would never try to match Duncan Fry in that department. What I'm attempting on my page is a "nuts and bolts" guide to sound systems.

And so on to this month's article, a nuts and bolts guide to sound systems.

Ever ridden in a vehicle without a seat? Jumped in the back of a cargo van? Bounced around in an unpadded truck sleeper? Hung on tight on the back of a yahoo's ute while he dropped doughnuts in the carpark outside the local B&S?

Well, OK, neither have I, but me gran' has (the old dear was determined to see '96 in style) and she reckons they were pretty bone-rattling experiences. Such is life on the road from your gear's perspective. A large proportion of faults that occur in transportable sound systems can be directly attributed to vibration. A little pre-

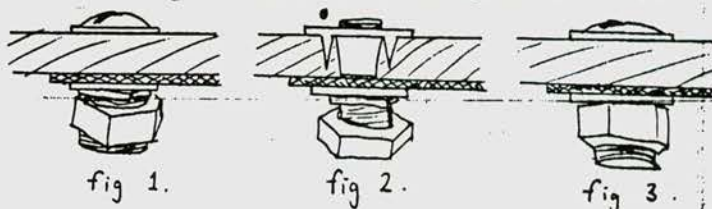
ventative maintenance will save a lot of hair pulling and it is on this that the next few articles are based.

When I was a kid, I spent hours in that great bastion of maleness, the shed, watching my father make stuff. As a result, I grew up knowing things about making stuff, and taking it for granted as common knowledge.

I soon realised that not everyone shared such a privileged background, and that under-privileged children of QCs, MPs and TCs never got to learn.

So for such poorer readers, we'll start with the basics. Let's put a wheel on a roadcase. Three methods. Refer to Fig. 1. Method One: Roundhead bolt through flat washer through wood through wheel base then another flat washer, through spring or split washer, through nut. Instead of spring washers there are also "shakeproof" or "star" washers, but although these seem to do the job fine on a smaller scale, like the lids of effects units, they seem to work loose easier on larger screws.

Method 2: Fig. 2. This utilises a



threaded spiked nut insert called a "T nut". Particularly useful for mounting wheels on speaker boxes where the inside of the box is awkward to get to. Once the appropriate hole has been drilled, the T nut can be hammered into place. Note we still use both a spring and flat washer. Hex head (six sided) bolts and socket wrenches are easiest to work with here and achieve the best tensioning. T nuts are also commonly used for screwing speakers into cabinets.

When installing them for this application, hammering them in will probably damage the baffle. Instead, simply "draw" them into place using a hex bolt through a large flat washer.

In both methods 1 and 2 the

spring washer will greatly reduce the chances of the bolt working loose, however, over a period of time the timber may compress just enough to relieve the necessary tension, with the bolt disappearing before you know it. If you want to never have to worry about bolts working loose, proceed to Method 3, Fig. 3. Roundhead bolt, flat washer, timber, wheel plate, flat washer, nylock nut. Nylock nuts are those nuts with integral bits of plastic. And I've never seen one work itself loose. Ever. They're relatively expensive in those annoying bubble packs from hardware stores, but bought in quantity from specialist fastener suppliers become quite economical.

I suppose you could use locktight or superglue on the threads in nut and bolt combinations, and they would certainly help keep things together, but I never have. I never know when I might want to change a damaged wheel in a hurry.

For small nut and bolt situations (like attaching multipin outlets to stageboxes), I usually just

drizzle a little adhesive around the nut. I use a drop at a time of the same adhesive on the tiny screws on EP or older type XLR connectors. Whenever I've done this, I've never lost a screw, yet always been able to easily peel the adhesive coating off when I've needed to dismantle the connector. Lots of adhesives are available, but I like using the clear Bostik type I get from Franklins supermarkets.

In fact, it's the same glue I use for most of my reconing work. Handy stuff. The name's Bond... Multi Bond.

Hope this has been a help for beginners. Subsequently more advanced tips to follow in the series.

Michael runs The Public Address Co in Sydney, call (02) 799-7219.

# THE ART OF LIGHT

*Stage Lighting*



OSRAM HMI®

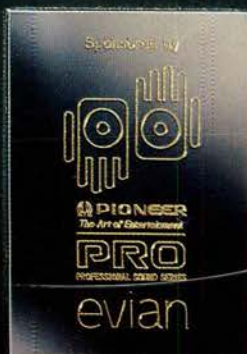
Theatres, opera houses and other show business venues have long been dazzled by the exciting possibilities of stage lighting on offer. OSRAM HMI® lamps are being used alongside incandescent lamps to interesting effect; they are also being installed in follow spotlights to cast glittering pools of light on the performers, and in large projectors to create powerful lighting effects. Success is based on innovation and OSRAM, as the leading supplier of specialty lamps, has innovative technologies at hand. For your nearest OSRAM distributor and lighting specialist call 02 - 481 8399.

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