

a fresh look at presentation & entertainment technology

Connections

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PRO OUTLETS: DIRECTORY IN THIS ISSUE

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Connections

THE PRESENTATION & ENTERTAINMENT TECHNOLOGY MAGAZINE - OCTOBER 1998 #59

Conspiracy Theory

Apogee claims Commonwealth Games coup. Was it?

By Julius Grafton

Kuala Lumpur: Barely had the Commonwealth Games opened, when an email from Apogee Sound USA arrived at Connections office.

Apogee President Jim Sides stated that: "A full Apogee rig was just installed for the games in the stadium as the installed system was not meeting expectations".

Installation company TCP (Malaysia) hotly refuted the claim, stating that the EV based system, detailed in last month's Connections, was used for all the track and field events during the Games, its primary design application.

"I'm mystified. The system worked well, we've been paid,

and the customer is happy" said TCP chief Tony Musico.

A hired concert system, featuring Apogee loudspeakers, was installed for the opening and closing ceremonies and concerts. This was always the intention of the organisers, says Musico.

Jim Sides agreed, but then went on to claim sabotage to the hired system at the games. The Malaysian military had then posted an armed guard at the control room, he says.

Sides says that the BBC also caused problems for the Singapore based hire company by insisting the system be moved, and the Prime Minister then became upset with the sound quality.

Sides also alleges that the PA tender process was corrupt.

SHOOTOUT!



CONNECTIONS has compared four amplified loudspeaker systems side by side in this issue.

The category is 15" and horn 2 way loudspeakers with inbuilt power amplifiers. Four models are compared, Meyer Sound's CQ-2, DAS DS15A, JBL EON 15p, and RCF ART 500A.

This is all that we found available at presstime, there are considerably more brands offering 12" and horn models, a category we will visit later.

Our testing entailed listening tests, which in turn require credible ears. A hunt was mounted

and five practitioners were identified. They are from different parts of the professional audio community.

Listening tests utilised CD's and DAT tapes, covering over 40 different tracks, tones, and passages. Allan Parson's sound check CD was popular, it contains sweeping sine wave, tones, and single musical passages.

The listening environment was outdoors, to minimise reverberant fields. This produced some unexpected results. •Turn to page 14

Entertainment Industry Conference boasts star speakers

Entertainment Conference 98 will be the first of its type anywhere in the world, says the organiser, the Entertainment Industry Employers Association (EIEA). It will be held at Crown Towers in Melbourne on October 15.

It will be preceded by another first, the inaugural James Cassius Award (named after James Cassius Williamson aka JCW) which will recognise the achievements of two living legends of Australian enter-

tainment. Who will they be?

"Entertainment Conference 98 is the industry's coming of age", says Sue Natrass, President of the EIEA and Artistic Director of the Melbourne International Festival of the Arts.

"The Conference and Awards night are truly star line-ups", says Jan Stoneham, EIEA Chief Executive, who will begin the Conference by pointing to recent industry developments, including an investment proposal the Association wants Government

and Opposition to consider.

"Speakers will address two main themes, in a panel and Q & A format", she says. They will examine where the industry is now, and where it is headed."

Speakers include Harvey Goldsmith (UK, promoter); Leo Schofield (Festival Director); Michael Gudinski (Record Co. owner); Tim Jacobs (head VAC); John Frost (Theatre producer, pictured); Kevin Jacobsen (producer, promoter); Peter Grosslight (William Morris Agency, LA);



and many more. • It costs A\$300 to attend the conference, (awards dinner extra), call EIEA on +61 3 9521-1900 to book.

**Pro outlets
where to buy gear**

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CONNECTIONS PUBLISHING

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We operate under the journalists code of ethics, as detailed by the Australian Media Entertainment and Arts Alliance. **Respect for truth and the public's right to information are over-riding principles for all journalists.** In pursuance of this principle we have always committed ourselves to these ethical and professional standards:

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

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Read about a **new water screen**, how **Caribiner** are on the war-path, how **very smart** convention speakers are actually dumb, and much much more!

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PRO AUDIO NEWS

New section: read about the audio in the new **Wollongong Entertainment Centre**, a new Australian designed **CODEC**, the **LARES** system at the Adelaide Festival Centre, a review of **CUBASE VST 4.0**, and MUCH, MUCH MORE!

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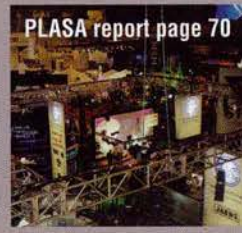
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NEXT MONTH: Shootout!

Yamaha 02R II vs Ramsa DA7 digital mixers

FEATURES: STUDIO, POST DIRECTORY

Buyers Guides: Loudspeaker systems; Fog Machines

• November issue mailed October 30th, on sale November 4th.

Forthcoming features: December/January: Show Control.

Buyer's Guides: Recorders, software. Scrollers, colour changers.

February: Hire, AV & Production Directory. Buyer's Guides: Studio Monitors, Truss & Rigging. Call +61 2 9876-3530 for listing info.

Watch for our **HUGE 1999 wall planner**, free in the DECEMBER issue! (Buy an advert on it, call us)



NEC TAKE ON BARCO REALITY

High output projection heats up

THE RACE FOR LUMENS

and resolution enters a new phase with the release of the NEC HiVid 6500 this month. Boasting 6,500 ansi lumens from a 1.6kw Xenon lamp with 1000 hour claimed life, the projector uses a new three chip DMD (digital mirror device) imaging system from Texas Instruments.

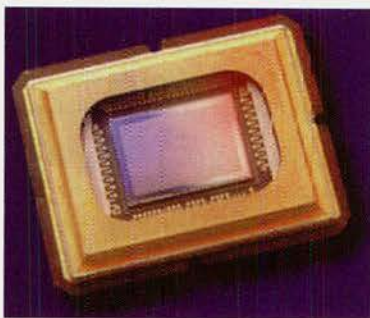
NEC claim that this Digital Light Processing (DLP) technology is superior to LCD panels - the system used in the Barco Reality 9200 (delivering 5,000 lumens).

DLP comprises a Digital Micromirror Device (DMD) chip (shown right at 100% scale) with an array of 508,000 hinged, microscopic mirrors attached to its upper surface. Each mirror repre-

sents a pixel, and operates as an ultra fast optical switch, to produce an image.

Major moving light manufacturers are understood to be working on future products utilising the DMD chip.

NEC say their push into the top end of projection is supported by on site service in all major cities. • +61 2 9930-2355

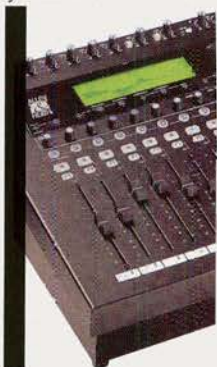


Small digital PA mixer spotted

LONDON: Seen by our reporter through a half closed door at the PLASA trade show last month, was an interesting prototype of a small PA digital mixer.

Alien & Heath say the Icon Series is a digital mixer for conventional (analogue) audio use. It has 6 mono and two stereo inputs, and comes as either a mixer with stereo (and effects) outputs, or as a powered mixer.

The idea is that by reducing the



front panel collection of knobs; then adding in a digital audio interface for comprehensive audio control; you get much more functionality in less space.

The recall ability will mean that musicians can switch settings using MIDI or a footswitch. It has two effectors and signal dynamic controls like noisegates on each channel. It appears to use a similar approach to the new Spirit 328 digital mixer, a strip of rotary encoders, hailed as very user friendly.

More on this soon!

Pacific Circle Music runs this month

SYDNEY: Michael Chugg's second Pacific Circle Music Convention opens this month with high hopes of commercial success. The event struggled to attract an audience last year, and it has been re-designed for 1993.

The primary part of Pacific Circle are the Conferences, where a variety of local and international speakers will participate. They include Bob Grossweiner from Pollstar Magazine, Roger Sovine from BMI (Nashville), and Harvey Goldsmith (UK Promoter) - who is also speaking at the EIEA Conference (see page 3).

The whole event runs for four days from Thursday 15th October, when the theme is "The US Market - An Insiders Look". Themes daily will cover each major world territory - the USA, Europe, South East Asia as well as Australia.

Pacific Circle is a multi faceted event, aside from four days of conferences there is a small music Expo, featuring some record company and associated exhibits from companies like Roland and Jands Production Services.

The expo promises to attract

punters via on site celebrity appearances at the venue, which is the Old Sydney Casino at Darling Harbour. This is directly opposite the new Star City Casino, and immediately accessible.

Pacific Circle also boasts many Showcase gigs around Sydney during the event. Conference Strand passes offers you access to a minimum of two relevant subjects per day for all four days. Strand subjects are: Dance Music: A\$180.00, A & R/Management: A\$150.00, Music Industry Issues A\$125.00, Marketing & Media: A\$125.00, and Legal & Accounting: A\$125.00.

A full registration provides you with access to the entire Convention program, plus all Showcases and the Music Expo. This costs A\$500.00.

A platinum registration provides you with access to all Pacific Circle Music events (Convention, Music Expo, Showcases) plus the 12th Annual ARIA Awards, at A\$700.00.

Pacific Circle runs Thurs. 15th through Sunday 18th October.

• Info at www.pcmc.com.au, or call +61 2 9211-1466.



Dolby for Aus D-TV standard

Australia has selected Dolby Digital as the audio standard for its digital television initiative. After a careful evaluation, Australia's Digital Terrestrial Television Broadcasting (DTTB) Selection Panel named Dolby Digital (AC-3) the preferred method of audio encoding prior to



The milestone decision will expedite the introduction of high-definition digital television broadcasting (HDTV) to Australia in January 2001.

The DTTB chose Dolby Digital coding based upon its superior technical performance, the widespread availability of con-

sumer products with Dolby Digital decoding, and the large number of Dolby licensing partners. Beginning in November 1996, Australia's Government Communications Lab evaluated two HDTV formats on behalf of the DTTB, then picked the internationally-developed digital video broadcast modulation system (DVB-T) as the recommended format.

• HDTV will occupy almost all the current VHF bandwidth used for **wireless microphone systems**. Users will need to buy new UHF systems instead, MOST VHF channels are affected. Ask your supplier.



Powered Monitors

Having set the standard with their NS-10 studio monitor speakers over a decade ago, **Yamaha's** latest offering is a biamped powered monitor.

The MS25 monitor speaker features built-in bi-amplification, with 2 separate amplifiers, powering the woofer and tweeter. A total of 57 watts, 40 to the woofer and 27 to the tweeter, generates a much larger sound field than would normally be expected from a system of this size, say Yamaha.

The speaker setup is a custom designed 5" woofer and 1" titanium tweeter.

A 4 position EQ switch for low frequency and a 3 position switch for high frequency match the system's response to the acoustic environment.

Priced at under A\$800 each, info from Yamaha Music Australia on 1300 805 413.

Mini Co-ax

Radian Audio Engineering, Inc has introduced new Super Compact 3" FOH & Stage Monitors to their CCAX-MAX range, utilising the company's "Cone-Loaded" coaxial technology.

Radian developed a new high power 8" (200mm) coaxial speaker from the ground up to give outstanding performance in a super compact enclosure - making it ideal for applications needing uncompromised sound quality in a very small cabinet.

The passively crossed cabinet featuring a full 1" throat HF

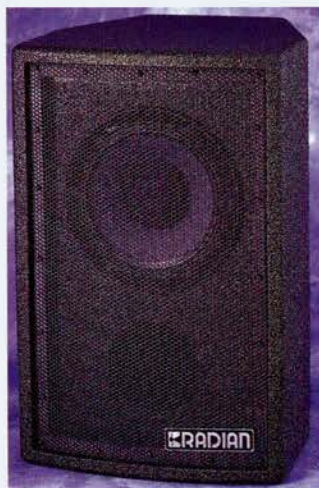
driver coupled to a high power 8" LF driver are available for FOH and Stage Monitor use for both permanent (Contractor) and temporary (Professional) use.

The FOH versions feature 12 pre-installed ATM flypoints with handles and pole cup for stand mounting on the Professional version.

The coaxial speaker generates peaks of 124dB with a power handling capacity of 400 watts continuous program, a sensitivity of 95.5dB (1 watt, 1 meter) and features 13-ply Baltic birch construction with Radian's exclusive Duradian cabinet finish on the Professional version, and black textured finish on the Contractor version.

Prices start at A\$1302 plus tax.

• **ESA Audio,**
+61 3 9562-4605.



Visit THE Most important website:
www.showsafe.com



EV X-Array Install Series

While the six touring versions of EV's X-Array are quickly finding favour with the touring audio community, the contracting market now has seven new X-Array models designed for fixed installation - the X-Array Install Family.

All models incorporate Ring Mode Decoupling techniques - which fix delayed resonances at their specific vertical coverage pattern, down to below 200Hz. The advantage of this wide-bandwidth directivity control to contractors and consultants is significantly improved speech and vocal intelligibility in reverberant spaces, where these designs greatly increase the ratio of direct to reflected sound.

The Xi-2153 is a triamped three way system loaded with two ElectroVoice EVX-180B 18 inch, 1,000 watt woofers.

All new X-Array Install sys-

tems are equipped with ElectroVoice's newly developed DH6 large-format compression driver. A new titanium diaphragm and reversed phase-plug to diaphragm geometry are RMD techniques which assist in providing remarkably crisp, clear intelligible vocals and augment output in the 1,000 to 20,000kHz range. All X-Array install transducers utilise proven ferrite magnetic structures and mechanical topologies capable of unusually high linear excursion - to reliably generate high sound pressure levels with a high degree of accuracy.

X-Array was first introduced in 1997, where they debuted to rave reviews as the FOH loudspeaker system on the Rolling Stones "Bridges to Babylon" Worldwide Tour.

• **EVI Audio (Aust) Pty Ltd,** call +61 2 9648-3455

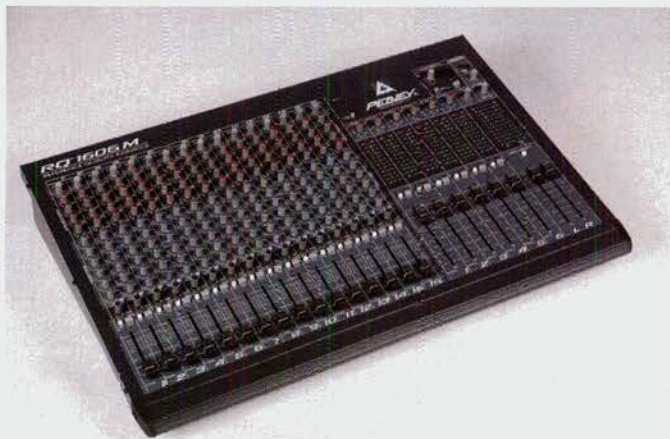


HBB introduce bulk CD-R media packages (left), for those who need a lot of blanks. Call **AWA Audio Products** +61 2 9578-0174

Electrosonic Systems

have a rude man in upper management who is unkind to us. However, this doesn't prevent us showing you their spunky Vector image manager for video displays. Call them on +61 2 9714-0400.





Monitor Desk

Peavey Electronics Corporation announces the new RQ 1606 M compact monitor console. The RQ 1606 M delivers a full-featured 16x6 monitor mixer at an unheard of price, they say. (*We think so too.... Ed*)

Beginning with the features set of the MD monitor and adding refinements, the RQ 1606 M includes the expected features as well as Peavey's exclusive channel FLS Feedback Locating System. An LED on each channel tells you which channel is loudest, making it easy to find which microphone is feeding back so the problem can be easily corrected.

It comes with 16 low noise mic inputs, a Balanced XLR "split" on all inputs, plus a -20 dB pad. A 1/4" jack insert is supplied on channels 1-8, with high impedance inputs on channels 9-

Compulsory C-Tick compliance will be in place in Australia from January 1st 1999. Readers are advised then NOT to buy ANY item of equipment which contains an active electronic circuit and which does NOT have the C-Tick sticker (above) clearly obvious



• *It is a shame that Australia could not simply assume CE guidelines and chooses to go alone on this compliance issue. - Ed*

16. There is 3 band EQ with mid sweep. Six mono monitor sends, Pre/post switch on sends 5 & 6 and a dedicated L/R bus.

Priced at A\$3,333.00 inc tax from **Audio Telex**. Call (02) 9647 1411 for more information.

Lexicon baby doll sets hearts a'flutter

It is a one rack space effects unit, which is almost a recipe for irrelevance in this digital plug-in era. But Lexicon's MPX-100 (A\$795) packs the hot stuff.

It comes with 240 factory programmes and 16 user programs, including reverb, tremolo, rotary, chorus, flange, pitch, detune and 5.7 seconds of delay. It also has dual effects, which means he/she/it will run two programmes simultaneously. MIDI control is there for idiots. Finally, 20 bit converters set the scene.

• **Call Studio Connections on +61 3 9874 7222 for more.**



Meyer hosts SIM school

Meyer Sound Australia recently held a SIM (Source Independent Monitoring) School at the Sydney Opera House.

The school was attended by: Duncan Thompson, Steve Le Roux, Neil McGary, Severin Seibin & Bruce Cook from the Sydney Opera House; John O'Donnell & Darren Gilding from the Victorian Arts Centre; Keith Livsey from the Adelaide Festival Theatre; Blair Marks,

from the Queensland Performing Arts Centre; Nick Riech from System Sound; Michael Wilkie, Stephen Peereboom & Ron Barlow from CODA Audio; Olaf De Ceuster & Russell Coffey from ODC Productions and from Meyer Sound Australia Harley Richardson.

James Anderson was assisted by a previous graduate, Glenn Helmet a freelance operator from Melbourne.

Venue manager blasts safety reporting scheme

Barely a month old, the **ShowSafe** Confidential Reporting Scheme (CRS) is already under fire from venue managers.

The CRS is a notification process which identifies potential or real risks in venues. Often staff have either failed to have a risk removed, or feel that their career or job security may be at risk by complaining.

ShowSafe has already received notification of several substantial risks, which were proven and corrected. The CRS protects the identity of the complainant, and the venue is contacted by ShowSafe to establish awareness of the risk.

One incident involved FOH spotlights not secured by a safety chain on a bar above an audience. Management accused ShowSafe of acting as an arm of the Media Entertainment and Arts Alliance - a claim rejected by ShowSafe.

'Instead of directly admitting a risk existed, and taking immediate steps to correct it, the manager was on the attack, demanding to know our source' said Glenn Bird from ShowSafe. 'We pointed out several ramifications of not immediately correcting the problem, and it was then fixed that afternoon'.

'We just do not care about venue politics, all we care about is removing safety risks. We can actually be arrogant about this, if required', says Bird. 'There is no defence, no argument'.

ShowSafe has also asked one audio visual company for a copy of its Operational Policy in regards to flying video projectors. At present time this matter was within 24 hours of conclusion.

The ShowSafe CRS is detailed on its new website at www.showsafe.com, or you can call +61 2 9617-0092 for an information sheet by fax or mail.

CueStation™ 2.0

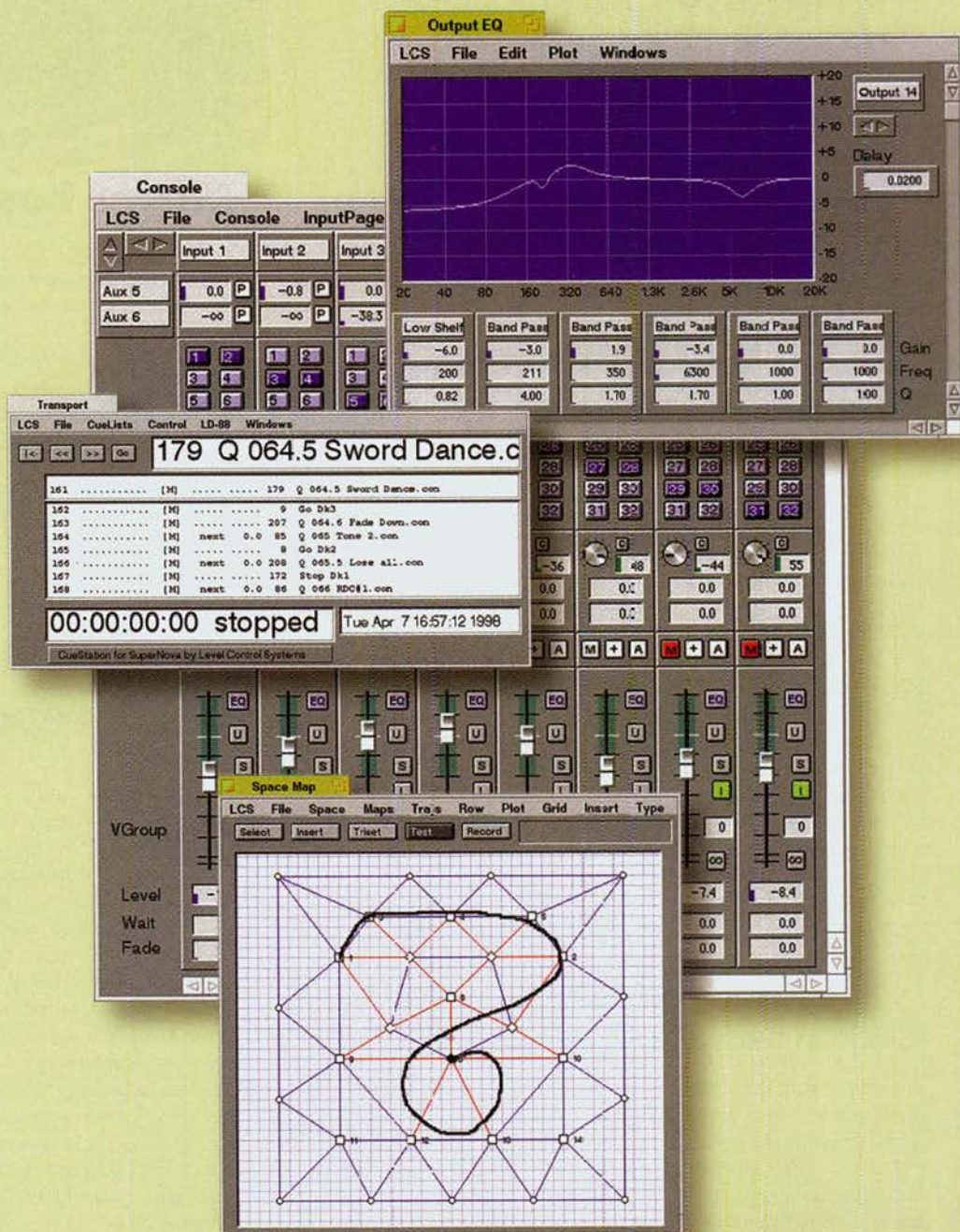
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The Meyer Sound Self-Powered Series

Since the 1995 introduction of the Self-Powered Series, over 13,000 units have been sold. With the advent of this new innovative series, Meyer Sound took a huge technological leap beyond all existing loudspeaker systems. Listen to what some of audio's top professionals have to say about these powerful, industry-defining tools...

"We really nailed it! Our new Self-Powered cabinets give us the flexibility to adapt to any environment on tour, and we now have the best stadium sound I've ever heard."

Jeff Thomas ◦ FOH Engineer, The Dave Matthews Band

"Self-Powered speakers mark a new beginning for both Meyer and the live sound industry."

Mark Frink ◦ MSL-4 Review ◦ Mix Magazine, August 1996

"Only Meyer Sound's Self-Powered Series guarantees us a world-class sound system preferred by most artists and producers."

Marcio, Nelson & Marcos Pilot ◦ Loudness Sonoriza, Brazil

"Setting up 18 stages in one week... we never could have done it without the Self-Powered Series. Nothing is easier to use, easier to maintain, or sounds as great."

Miguel Lourtie ◦ Systems Engineer - EXPO '98 ◦ Lisbon, Portugal

"Meyer Sound's Self-Powered Series met all three of our tough criteria for this design... excellent voice reproduction, good music quality and an SPL of at least 100-103 in the opposite end zone."

Gary White ◦ Wrightson, Johnson, Haddon & Williams, Inc. ◦

Sound System Designers - The Raymond James Stadium, Tampa, FL

"The sound was amazing, incredible... the music almost came at you in 3-D! ...Simply, I have never experienced speakers like these before."

Mike Klasco ◦ UPA-IP Review ◦ DJ Times Magazine, May 1998

Imagine what you'll be hearing...

Meyer Sound Australia • 4 Gordon Street • Newstead, QLD, Australia 4006 • PO Box 595, Albion, QLD, Australia 4006
phone: 37 3252 4433 • fax: 07 3252 3380 • email: meyeraus@powerup.com.au • web: www.meyersound.com



Meyer Sound

Write in Reader Service Number: 185

Stewart takes on QSC

Super light weight amplifiers make a lot of sense when carrying, as conventional amplifiers often weigh over 30kg.

The light weight amp trend started when Carver released a switch mode power supply amplifier in the mid 1980's. A controversy raged at the time which held that switch mode equalled inadequate bass response. It was alleged that a large (heavy) mains transformer provided infinitely superior feed for amplifier output devices, and that switch mode designs didn't/couldn't work properly - at least not at 240 volts.

Nowadays QSC have sold thousands of PowerLight amplifiers, and many 240v users report bass response is as good, or better, than many conventionally powered amplifiers.

Enter **Stewart**, a Californian manufacturer of power amps, with the World 1.6 and 2.1 power amps. They weigh little, and according to Peter Troy, they sound great. Connections will try to schedule an amplifier audition/comparison between similar ultra light weight amps and Stewart sometime soon.

Peter Troy is/was the Troy in Troy Balance Corporation. Today he is heading a new pro audio division at C.M.I. - the large Melbourne based musical equipment importer.

Both Stewart World amps are dual mono, sharing nothing except the power cord. This is best practice, because often both sides of a stereo amp require more summed power than one supply can deliver.

A 'high frequency' switch mode power supply design is used in the World amps, it refreshes 120,000 times per second, requiring less capacitance for storage.

Despite the dual mono design, you can still operate the amps in bridge mode, where you need one really high output.

The World 1.6 delivers 650w per channel at 4 ohms, expressed as maximum output power at 1% total harmonic distortion (THD). Refreshingly Stewart also quote an output power at 0.1% THD, this is 550w per channel at 4 ohms. Price is A\$3,499.

Bigger brother, the World 2.1, dishes out 775w per channel (4 ohms, 1% THD or 650w/ch at 0.1% THD). It costs A\$3,999.

Both amps are two rack spaces tall, have short circuit and thermal protection, and a



variable cooling fan.

For more info, call CMI on +61 3 9315-2244.



MAJOR TRADE SHOWS



Contemplating a study trip, possibly tax deductible, to any of these overseas shows? Feel free to call the editor if you need further information. Email julius@conpub.com.au, or call +61 2 9876-3530.

- **REPLitech Asia**, Oct 19-22, Singapore. Fax: +1 914-328-2020
- **IES 42rd**, Lighting Convention Nov 9-11 '98, Brisbane. www.esarzc.asn.au/light98
- **LDI**, Nov 13 - 15 '98, Phoenix. Ph +1 212 229-2965 web: www.etecync.net
- **NAMM**, 28-31 Jan 1999, LA. www.namm.com
- **AES 106th**, 13-16 Feb, Munich. Fax +1 212 682-0477. web: www.aes.org
- **REPLitech Europe**, 23-26 Feb, Vienna. Fax +1 914-328-2020
- **MusikMesse**, 3 - 7 March 1999, Frankfurt. www.messefrankfurt.com
- **Music Convention**, 29 April - 2 May, Gold Coast QLD. web: www.australianmusic.asn.au
- **NAB**, 19 - 22 April, 1999, Vegas, USA. www.nab.com
- **PLASA SHANGHAI**, 13 - 15 April 1999. Ph +44 171 370-8231. web: www.eco.co.uk
- **NSCA**, April 27 - May 1, 1999, Nashville. Ph +1 904 273-2760; web: www.nasca.org
- **InfoComm**, June 10-12, 1999, Orlando. Infoc fax +61 2 9531-6777; www.icia.org
- **SMPTE**, July 13-16 th, 1999, Sydney, Ph. +61 2 9977-0888.
- **LDI** November 15 - 21st, 1999, Orlando. Ph +1 212 229-2965 web: www.etecync.net
- **NAMM**, 3 - 6 Feb 2000, LA. www.namm.com
- **ENTECH 2000**, March 5th - 7th, 2000. Venue: Sydney Exhibition Complex at the Olympic site, Homebush. Show on sale from March. Fax + 61 2 9876-5715. web: www.conpub.com.au
- **MusikMesse**, March 15- 19th 2000, Frankfurt. www.messefrankfurt.com
- **SIB**, March 26 - 29th, 2000, Rimini, Italy. Ph +39 541 711711. web: www.fierarimini.it
- **NAB**, April 8-13th, 2000 Vegas, USA. www.nab.com
- **NSCA**, April 27 - May 1, 2000, Las Vegas. Ph +1 904 273-2760; web: www.nasca.org



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People

- Danny Black is the new Manufacturing Manager at **LSC Electronics** in Clayton.
- Shane Cannon has joined **Soundcorp** (Melbourne). He is in the Broadcast and Pro Video Sales area.
- Steve De Fina recently joined **Syncrotech Systems Design** in Sydney. He will be handling Beyer, KRK and Soundtracs national distribution.
- James Maclay joins **Amphenol Australia** as Sales Manager - Audio products, responsible for worldwide sales.

Moves

- **Stage & Screen Travel & Freight Services** are now located at Fox Studios Australia, FSA# 28, Driver Ave, Moore Park 1363. Call +61 2 9383-4544, fax +61 2 9383-4577.
- **Penn Fabrication (Aust)** has moved to: 15 Silicon Place, Tullamarine, 3043. Call +61 3 9335-6455, fax +61 3 9335-6466.
- **Caribiner Communications & Caribiner AV Services** Australian HQ have moved into one complex at 33 Mountain st, Ultimo NSW. Call +61 2 8218-1133.

Miscellaneous Bits

- New website for **Production Audio Services**: go to www.productionaudio.com.au
- Likewise, a new website for **ShowSafe** has that easiest of all addresses, www.showsafe.com which means if you simply key in *showsafe* in the location window, your browser will fill in the www and the com parts and take you straight there. Remember one word only: showsafe!
- New email address for **ICIA** Pacific Rim manager Brett Bower. Update your files, it's icia_sydney@msm.com.au

• **WINNERS** at the **WA Music Industry Awards** were: Rob Grant (*Best record producer*; and also *Best recording engineer*); Alex Manfrin (*Best lighting engineer*); and Anton Dykstra (*Best live sound engineer*). Congrats to all!

• Seminar for **VMA (Venue Management Association)** on October 20th in Sydney. It costs A\$150, and deals with issues affecting the venue industry. Call Shane on +61 3 9510-5109 for more information.

• Expo for **The Production Shop** in Brisbane, where Graeme Hicks and co will show their wares. Held at Global TV Studios, on 27th October from 10am. Call +61 7 3216-1340 for more.

• Changes for Sydney **AMPOWER** distributors, RHM & Associates. They say they will no longer represent AMPOWER, but will/do act as manufacturer's representatives for Philips CSS. Call them on +61 2 9820-3724 for more.

Screen Sound Awards gather big support

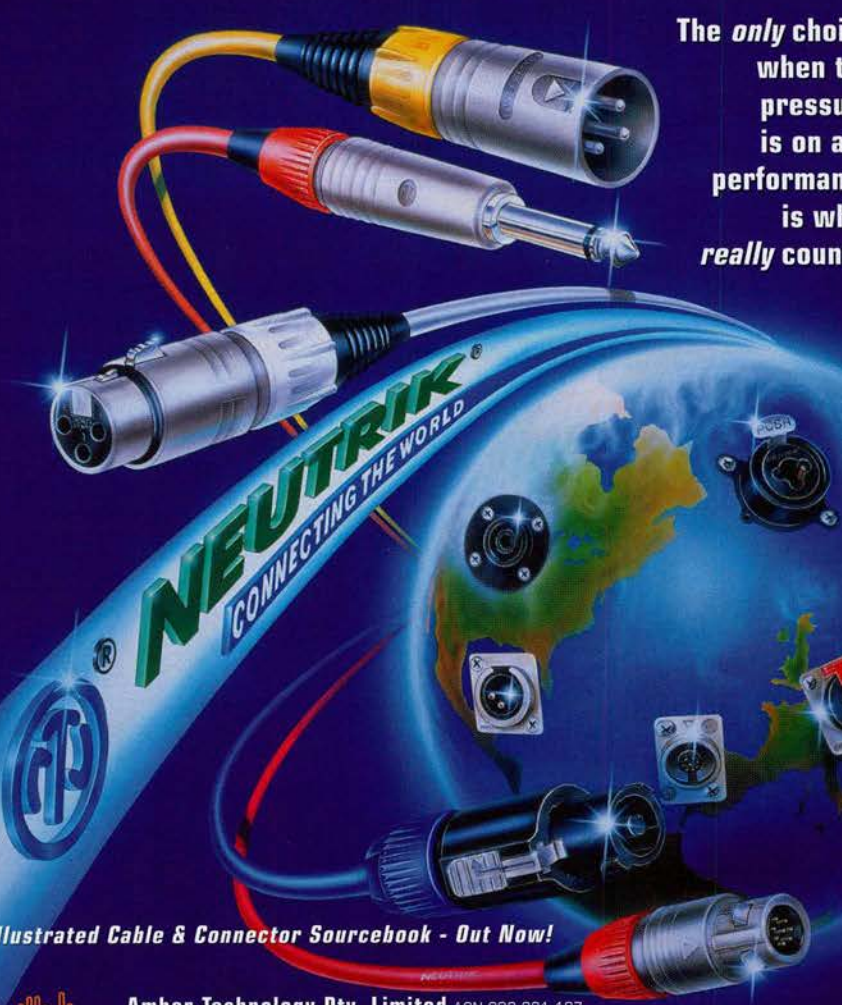
The inaugural Australian Screen Sound Awards Night hits the Sebel Ballroom in Sydney on October 16th. The Australian Screen Sound Guild have attracted a **great list of sponsors** for the Awards, including:

- Fairlight ESP Australia;
- Amber Technology;
- Zoomba Production Music;
- Audio Sound Centre;
- Syntec International;
- Fox Studios Australia;
- LEMAC film equipment;
- The Atlab Group;
- Connections Magazine;
- Caribiner Wavelength;
- Top Technicians;
- Wildcat;
- The Production Shop;
- Rocket Film Equipment;
- Lateral Thinking;
- Sound On Stage;
- Staging Rentals;
- Chameleon Touring;
- Quanteq; *-and-*
- Yamaha Music Australia.

The Awards will be covered by Connections with a full list of winners published next month.


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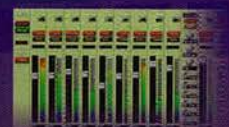
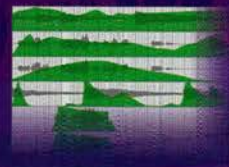
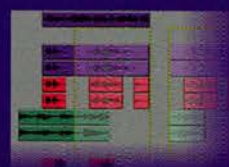
Each has features to match the differing needs of musicians. The scaling of these features adds functionality through the range. Steinberg does not arbitrarily strip, or mindlessly limit features to disable the smaller programs. They add new spheres of functionality for those who need it. The core functionality and power remain the same.

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Shootout!



JULIUS GRAFTON is the ringmaster, as we put four contenders through the hoops

Powered loudspeakers are a big trend these days, Connections chose the 15" 2 way variety for this test. The 15" refers to the diameter of the woofer, 2 way means there is a high frequency horn and compression driver.

We found just four manufacturers offer a 15" 2 way powered speaker, as opposed to many more offerings in the 12" 2 way category. This will need to wait for another day.

Our test entailed critical listening by five people, chosen as 'best of a bunch' by your editor, who doesn't think his ears are quite up to this particular job.

Powered loudspeakers have always been a good idea if you consider that this gives the designer more control over sound.

Putting the amp into the speaker box solves the problem of your speaker design being hooked to someone else's amp, and also gives the designer the chance to incorporate as much electronic trickery as they deem suitable, by way of equalisation curves and system limiting. One powered speaker cabinet will sound exactly the same as another one of the same kind, used anywhere else on earth. The only variable is the mains input voltage, the venue environment, and the input program.

The contenders

Least expensive of our bunch is the DS 15A from DAS Audio SA, the Spanish manufacturer. It sells for A\$1,700. JBL's popular EON 15P follows, at A\$2,295. RCF's ART 500A is somewhat hefty at A\$3,495, but there is a good reason for this, which comes later on. Meyer's CQ-2 (and CQ-1) probably shouldn't be in this comparison, because they are not designed to sit on top of a mounting stand like the others. The Meyer sells at about A\$11,000.

Including the CQ-2 gave us a theoretical quality benchmark, against which none of the other three would normally compete. The question is, how close do they come to the Meyer? So it is an excellent inclusion in this comparison.

Packages

DAS comes in a modern grey/black (white is an option) polypropylene cabinet with a rugged steel grill. A stand mount, hanging rings and wall mount bracket all make this do-able. The amplifier is one whole assembly complete with the input section, it removes directly by whizzing out a

POWERED 15" 2 WAY LOUDSPEAKER SYSTEMS

• ALSO CALLED 'ACTIVE' SPEAKER BOXES

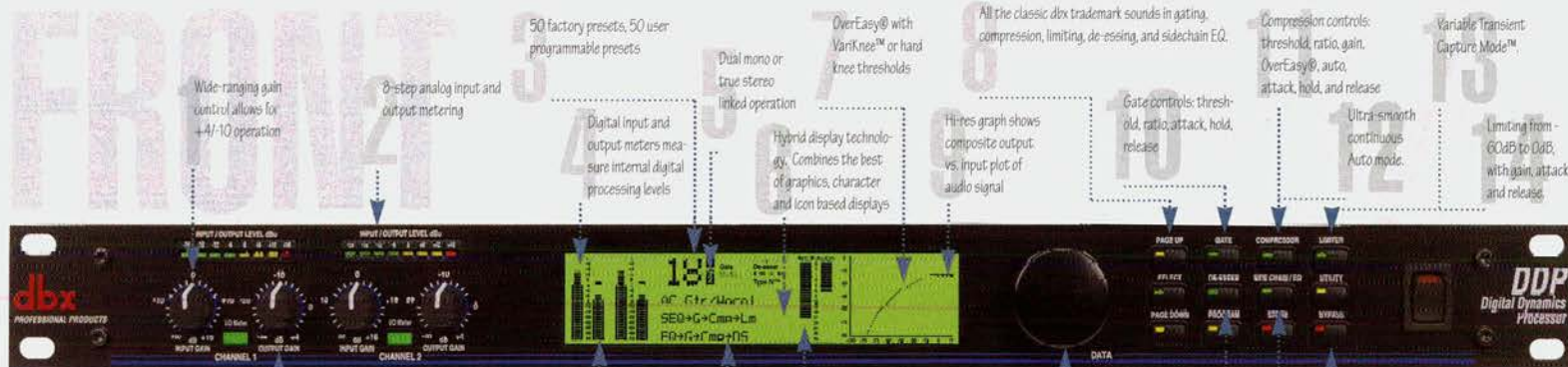
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Meyer CQ-2
RCF ART 500A
JBL EON 15p
DAS SA 15A



The compressor that forgives, but never forgets...

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Wide-ranging gain control allows for $\pm 4/10$ operation

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Dual mono or true stereo linked operation

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Compression controls: threshold, ratio, gain, OverEasy[®], auto, attack, hold, and release

Variable Transient Capture Mode[™]

Hybrid display technology. Combines the best of graphics, character and icon based displays

Times graph shows composite output vs. input plot of audio signal

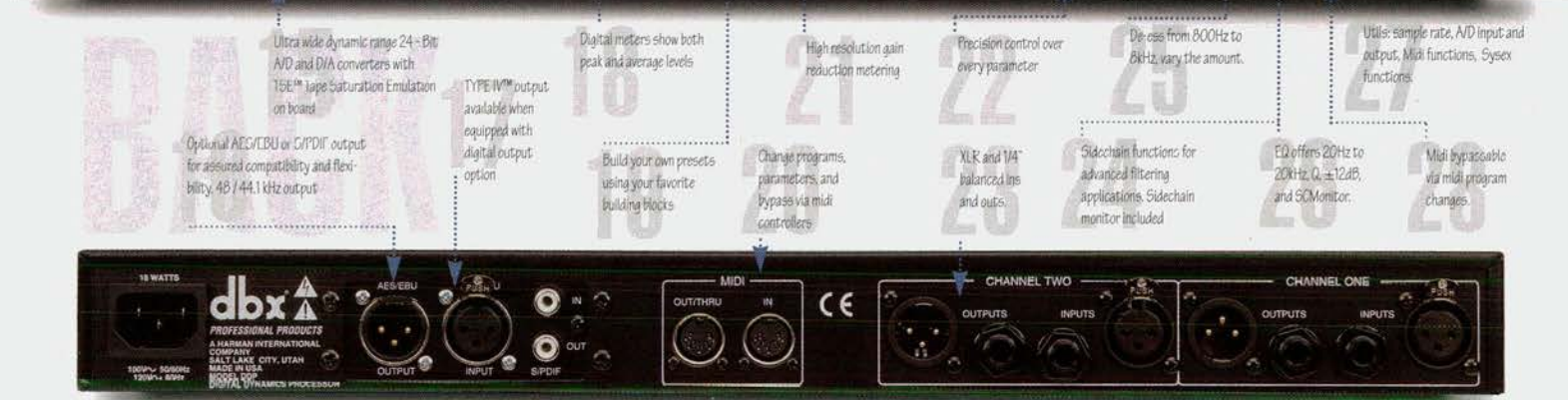
Gate controls: threshold, ratio, attack, hold, release

Ultra-smooth continuous Auto mode

Limiting from -60dB to 0dB, with gain, attack and release

Digital input and output meters measure internal digital processing levels

5-step analog input and output metering



Ultra wide dynamic range 24-bit A/D and D/A converters with TSE[™] Tape Saturation Emulation on board

Digital meters show both peak and average levels

High resolution gain reduction metering

Precision control over every parameter

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Utils: sample rate, A/D input and output, MIDI functions, SysEx functions

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XLR and 1/4" balanced ins and outs

Sidechain functions for advanced filtering applications. Sidechain monitor included

EQ offers 20Hz to 20kHz, Q = 12dB, and 6CMonitor.

MIDI bypassable via MIDI program changes

IT FORGIVES

- New dbx technology, the TYPE IV[™] Conversion System with TSE (tm) (Tape Saturation Emulation) gives you the pleasant overload characteristics of analog tape without the harsh distortion of most digital input systems. No more dancing around with the input levels to protect the integrity of your audio.
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- With the extensive metering of the DDP, you can see EXACTLY what is going on with ALL parts of your signal: input, internal processing, and output, with peak and VU, as well as gain reduction for both sides of the stereo image.
- And speaking of stereo, you can work in stereo with dbx's True RMS Power Summing[™] for phase-coherent tracking, or in dual mono mode, without the two channels interacting at all, making the DDP a great processing value.

IT NEVER FORGETS

- The DDP works right out of the box. It comes with 50 factory setups that are guaranteed to knock your socks off. There are presets for every application you can think of, and then some. dbx engineers are musicians and recording engineers. We know what a compressor is supposed to sound like, and we know it better than anyone else. We invented compression. We eat, sleep and breathe compression.
- Want to duplicate that perfect compressor set-up? Each processor in the chain has all the parameters you would expect. After you set the parameters the way you want them, save it as a processor preset, available to be recalled any time. These building blocks allow you to save entire setups just for the way you like to work. It doesn't matter that you are doing a live gig one night, then mixing the tracks in the studio the next night, the DDP will be there, just the way you left it.
- When you save a preset, you also save the information that makes it work behind the scenes, too. Digital output (optional), sample rate performance, MIDI setup, as well as any of the other utilities, like sidechain setup and monitor, EQ settings, and SysEx functions.
- When you make changes to any parameter, you can see where your adjustments are affecting the signal, simply by looking at the Hi-Res graphical display, which shows the processing curve in real time as you make your adjustments.

Check out the DDP at your local pro audio outfitter, and experience DIGITAL performance you'll never forget.

Gate

Start with the gate. Set parameters for threshold, ratio, attack, hold, release, and output gain. See the effect of your settings on the graphical display, as well as on the gate reduction and audio level meters. They all interact in real time with your manipulation of the parameters. Start with a threshold setting of about -20dB to clean off the noise in SPEAKER 100 vocal takes. You can save your final gate settings as a "gate preset" building block and recall it into any other setup you do.

Compressor

Then move to the compressor. The effects of the gate settings are still visible on the graphic display, so let that help you determine where to set your compression threshold. The parameters you change here will also affect the curve on the graphical display in real time. Move through all the regular parameters: rise, threshold, ratio, attack, release, and output gain. For vocals use a threshold of about -25dB, a ratio of about 3:1 or 4:1, and a slow attack and fast release for the most natural sounding effect. Your compressor settings can also be saved off as a building block to be called up into any other process.

Limiter

On to the limiter. Changes you make to the limiter settings are also seen on the graphical display. Adjust the level up or down to suit your needs. The flat top line of the display moves up and down as you adjust the level. You can also set the signal at which the limiter lets go of the signal as it goes below the threshold. This is a truly smooth limiting, with patented dbx PeakPlus[™] algorithm, so rock around that where ever you set your threshold level, your tape will not distort, and your signal will not get butchered as it goes across the threshold. And like the other parts of the processor, your limiter settings can be named and saved for later recall.

De-esser

De-essing works the same way: see the effects of your settings displayed on the graph. Parameters here are the common ones: threshold in frequency, 800Hz to 8kHz, and amount in percent. Other available processing includes EQ - both in-path and sidechain, for special-effect types of processing. When you are setting any of the building blocks, the icon is visible on the display, and the parameters are shown on the graph, so it's always easy to know where you are. Parameters are easy to see in this page driven operating system. When it's as complex as this, it's nice to know somebody was thinking when it was put together.

and More

You can also work in stereo, or set up a completely different and independent processing chain for the other channel. Also, notice that the audio meters are capable of showing both peak and average levels for input and output. Optional digital output with the TYPE IV[™] Conversion System with TSE[™] (Tape Saturation Emulation) provides up to 24-bit output in either AES/EBU or SPDIF formats with the trademark digital processing of TYPE IV[™]. The DDP also has full MIDI/Automation capability, with separate MIDI in and three jacks. Entire processing setups may also be saved into one of 50 user defined presets, or use one of the 50 factory setups.

E&OE

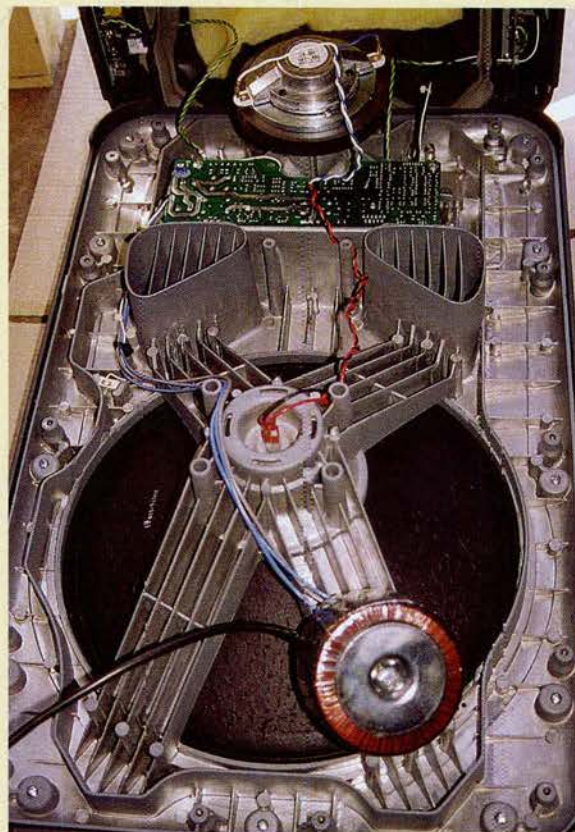
POWERED 15" & HORN LOUDSPEAKERS

bunch of screws. Weight is a comfortable 23kg.

JBL's EON is a space age looking device, made from grey coloured polypropylene. The actual front baffle is diecast aluminium, which is one assembly incorporating the high frequency horn and surprisingly the actual 15" woofer spider. This means the woofer is re-coned directly from the front of the box, it forms part of the whole baffle, which also acts as the heatsink for the amp - which is front mounted under the high frequency horn. JBL definitely ought to collect a design prize for the EON, which has cunningly featured cooling vents that also act as cabinet ports. To pull it apart you undo screws all the back around the back perimeter, and the whole back 'dome' of the cabinet comes clear of the front baffle. It weighs less than all the others, at 18kg.

RCF likewise use a polypropylene cabinet, this one is black. Interestingly it is birch ply reinforced internally with some very nifty brace work. The amp module comes out reasonably easily - but with more cable connections to undo than the rest, because the input module is separately mounted in the rear of the cabinet. The weight is a hefty 38kg, brought about because of the amplifier size. RCF offer a considerably larger amplifier than that found in the JBL or DAS, and this mainly makes up the weight increase.

Meyer of course take a totally different approach, this cabinet is somewhat larger and certainly heavier, at 59kg. It is made from birch ply, with a black textured finish. Flying rings top and bottom are reinforced internally with steel - it all says this is a contracting or serious sound reinforcement product. The amp module comes out readily enough, and is fully enclosed with two quiet cooling fans at the front baffle end.



JBL's EON is unique. The aluminum assembly above forms the front baffle, with 15" woofer, amp heatsink, cooling vents & horn all integrated.



*Glenn Leembruggen (left),
Wayne D'Chong (below).*



*Richard Priddle (left),
Greg Hicks, and John
McConnell (right).*



The Hearing Test

Good ears and different perspective's were the objectives. The test involved sitting two boxes on a concrete driveway, with the other two on top upside down - so that all horns were close together. The four boxes were then covered, so that our listeners didn't know which was which.

The test was outdoors to minimise environmental interference, it was of course flawed by stacking two boxes on top of the others, which were possibly assisted or hindered by being on the floor. But it isn't a perfect world, we were trying to keep the localisation tight, so our listeners needn't move too much, nor need to know which part of the 'stack' the sound was coming from.

In the perfect test, the four boxes are flown free of anything in an open field with ISA standard temperature relative to sea level at minimum humidity. Or it is all done inside an anechoic chamber. But our test wasn't.

Glenn Leembruggen is an acoustics consultant who is currently working on the sound system in the Sydney Opera House Concert Hall. Richard Priddle is also an acoustics consultant, notable for his work in recording studios. Greg Hicks is the service manager for Another Audio Distributor (not representing one of our four brands here). John McConnell is a sound engineer who works live and also owns House of Hits studio at Manly. Finally Wayne D'Chong sells pro audio at Lots Of Watts in Sydney. Formerly a professional musician, he represents the retailer perspective.

Sounds

We had multiple sessions as some of our testers couldn't be there at the same time. The sessions all went for about an hour, and used at least eight different tracks from CD or DAT.

Typically music CD's were brought by our testers, who also



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Risto Dukovski, Operations Manager Staging Connections Sydney

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POWERED 15" & HORN LOUDSPEAKERS

used single voices, piano, clarinet, classical and drum sounds. Glenn Leembruggen also has an old Philips HiFi test CD featuring The Dutch Swing Orchestra. The neighbours almost went insane!

Alan Parson's Sound Check CD was also a good medium, like the MIX Test CD, it features various test tones and gives you a quick idea what the frequency sweep of each box sounds like.

Our listeners would select a track, then listen to box 1 through to box 4, without knowing which was which brand. Five pairs of ears heard 40 tracks collectively. And they all guessed which one was the Meyer.

Glenn Leembruggen liked the Meyer but felt it was too forward in the low frequencies. "It may have been due to the floor mounting" he explained. "Instrument and vocal harmonics are all present and fairly well balanced. I'd like to repeat the test with the box flown". He scored the RCF second, although he didn't like some of the low midrange. "It got harsh when loud", comments Glenn.

Richard Priddle identified that the Meyer was suffering a little from the listening environment not being reverberant (because it was outdoors). He says it has a lot of 2kHz because this is the cornerstone of vocal intelligibility, and so it would cut the mustard better indoors. He chose the Meyer as his preference.

Greg Hicks liked the Meyer and the RCF, verging towards the Meyer due to its ability "to put voice out there".

John McConnell initially preferred the DAS, but then realised that it was attenuated more than the others in the high frequency department. Once he figured this out, he went for the RCF over the Meyer.

Wayne D'Chong was inclined towards RCF after he found out which was which. "I'm attracted towards things that offer more for less". Which is Wayne thinking like an audio salesman!

(Continued over)



Array modules: Meyer have it all integrated (left), RCF (above) and DAS (below).

Those things CONNECTIONS DIDN'T TEST!

1. Destruction point (when they quit in flames)

We couldn't do it to our neighbours. Who could?

2. Dispersion (equal high frequency output)

JBL and Meyer have technical papers about this, get a copy. Meyer's CQ-1 and CQ-2 have different dispersion.

3. Specification matching (the fibs, the fantasy)

We didn't have the time or facilities. Often, specifications are meaningless anyway. Use them as a guide only.

Component notes: 15" woofer (ALL RMS WATTS)

DAS DS-15A	3" voice coil, 300 w
JBL EON 15P	2" voice coil, 240 w
RCF ART 500A	3" voice coil, 400 w
Meyer CQ-2	4" voice coil, power un-stated

Component notes: high frequency compression driver

DAS DS-15A	2" titanium diaphragm
JBL EON 15P	1.75" titanium diaphragm
RCF ART 500A	3" titanium
Meyer CQ-2	4" type not specified

Amplifiers:

DAS DS-15A	bipolar devices, 150w/50w
EON 15P	bipolar low freq: 130w, monolithic h/f 50w
ART 500A	bipolar 400w/100w
Meyer CQ-2	not specified

The Laws of Physics

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• Servo balanced or unbalanced inputs & floating balanced or unbalanced outputs.

• Side chain jack for spectral compression and a separate sidechain jack for gate processing on every channel.

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• Front panel buttons include hard/soft knee compression, auto for automatic attack/release bypass, link and 2 position range for gate attenuation. The link feature uses a unique summing bus that provides multiple combinations of master/slave link setups. Link all 8 channels to one master, set up two 4 channel pairs, or four 2 channel pairs.

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OK, we all know there have been one too many drummer jokes. And we all know that it really does take more than a psychologist, tar barman, a cute corgi and the bass player's sister to make the drummer happy. The answer is simple. Give the drummer what he wants...great sounding microphones! About those corgis...

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PDK-5C
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- ▶ 2 X CM 15's for Cymbal, Percussion, & Overheads
- ▶ Heavy Duty Plastic case

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NDM 10

Designed for percussion (snare, toms, etc), as well as keyboard and guitar stacks, the **NDM 10** is a Neodymium Dynamic Microphone featuring a compact rugged die-cast body with an integral swivel mount, a rubber shock mount, and a Cardioid polar pattern.

NDM 11

Designed for kick drums and large toms, as well as bass stacks and similar applications, the **NDM 11** is a Neodymium Dynamic microphone featuring a compact rugged die-cast body with an integral swivel mount, a rubber shock mount, and a Cardioid pattern.

CM 15

Designed for percussion (cymbals, high-hat, snare drums, etc) as well as overhead applications, the **CM 15** is an Electro-Condenser Microphone featuring a slim aluminium body and a newly designed swivel mount adaptor. A special rubber sleeve securely holds and supports the CM 15 in combination with a strong plastic swivel, adjustable through 180 degrees with locking capabilities.



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POWERED 15" & HORN LOUDSPEAKERS

Practicalities

The back panels allow mic or line level input and has a volume control on all but the Meyer. Meyer just let you put in your line level XLR, and leave it at that.

All four boxes have various electronic protection circuits, the Meyer appears to be most capable of saving itself if assaulted with far too much signal. The other three will all expire if abused, but all make a valiant effort at self preservation.

Meyer has a big twist lock American mains connector, and comes complete with a heavy duty 10m mains cable. The other three have IEC cable inlets and also female IEC outlets, so you can plug in the next box in line.

RCF alone offer two EQ options, a 'music' switch appears to flavour the program with a low end rise around 60hz and a high frequency sizzle, while a speech switch appears to enhance the area around 2k. We left both these switches off for our test, and surprise – you can engage both of them at once.

Conclusions

Looking back over each listener's notes, what comes out is that you get what you pay for. This is not always true in pro audio, but this test came up this way.

DAS and JBL have made a box to a price. JBL have done a complete research job in designing EON, incorporating some radical technology like the dual voice coils on the woofer. The weight issue has been addressed by incorporating front baffle, woofer, horn and heatsink into one assembly. It's very high tech.

DAS have married good components into a neat box, to me the most attractive, but then under-amplified the package. It is fine for reproduction or voice but I'd draw the line at full on combo use. Installers and AV companies all like the DAS.

EON also suffers with somewhat minimal amplification, but JBL have managed to squeeze the cost - technology - power equation to wring as much as possible out of the EON. It gets used by musicians everywhere.

The RCF carries considerably more power amplifier; it has a decent toroidal transformer and more output devices than the EON or the DAS. The amp alone makes up a lot of the considerable extra weight over the other two, the Meyer is heavier again. RCF is the box you use when you need considerably more output than the first two.

I think this has been a very

instructional voyage. As Glenn Leembruggen said when first hearing all four speakers, "We've come a long way in ten years".

Here we have four different products, all modern and as contemporary as possible, and all at different price points. JBL and DAS are reasonably matched side by side taking into account that the DAS is around 20% cheaper. The RCF is a heavy duty box at a correspondingly dearer price where more power is required.

The Meyer is in a class all of its own.

DIMENSIONS

Model	tall-ness	front width	back width	depth	weight
DAS DS-15A	680mm	450mm	200mm	360mm	23.4kg
JBL EON 15P	686mm	445mm	340mm	422mm	18kg
RCF ART 500A	740mm	454mm	200mm	375mm	38kg
Meyer CQ-2	762mm	533mm	345mm	571mm	59kg

Georg Neumann GmbH Berlin

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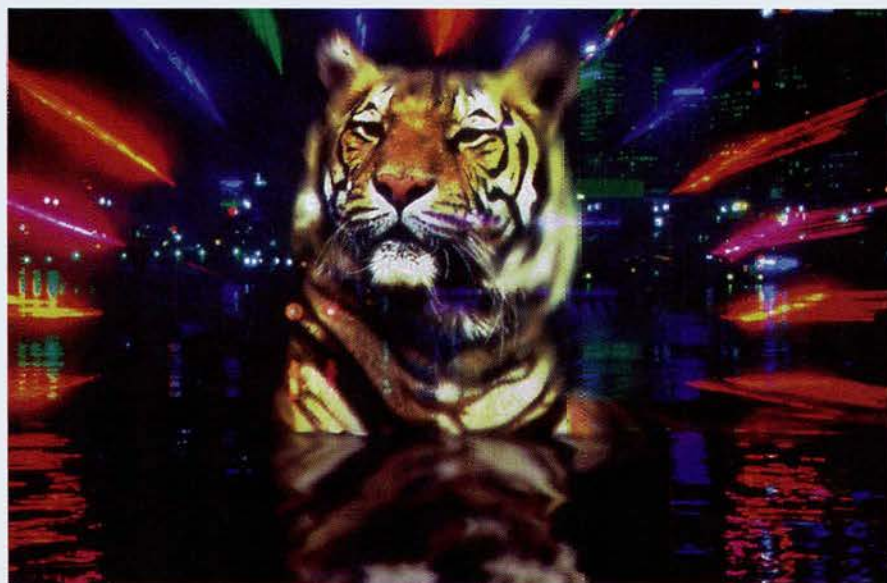
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Connections

AV PRESENTATION NEWS



Aqua Screen overcomes diesel pump noise

Laservision Macro-Media have launched their latest Aqua-Screen, a mobile water fountain specifically designed for high performance projection. Aqua-Screen provides a flat, stable, semi-circular liquid surface that will accept a focused image in addition to Laser graphics and lighting.

The Aqua-Screen is set apart from other water screen in many ways. The "Peacock Tail" shaped screen size can be altered to suite the venue/site without compromising the high clarity of its shimmering 'sweet spot' - where focused images are projected.

This Laservision Macro-Media pioneered technique has gained acceptance and increasing popularity, in all manner of productions, over the past few years, and has required Laservision's crews and engineers to tackle a variety of wet and wonderful new challenges, creating the astonishing illusion of pseudo holographic images floating above a body of water. There is still however the issue of Gaff tape not working underwater!

The Aqua-screen has inbuilt flotation that accurately positions the fountain heads at water level, making it virtually invisible to the audience, and doing away

with cumbersome rigging.

When fully submerged in any standing water (as shallow as 60 cm) the pumps operate almost silently, freeing the performance from the noise associated with conventional diesel pumps and motors.

"Anybody who has hired a conventional water screen has probably experienced the frustrating losses in image quality and definition", explains Laservision Macro-Media's John Eustace. "The Aqua-Screen has six pump and fountain head combinations, each produces a differing sized screen surface without jeopardising projection clarity".

The key to an effective water screen relies on the mastering of 'fluid dynamics', a science that requires more than a basic understanding of plumbing! The fountainhead must evenly atomise the water at the edges of the screen so no liquid falls back into the rising jet of water.

Aqua-Screen's sweet spot is optimised to carry a large focussed projection that appears above the water on a phantom surface".

"We are assisting film and video production companies looking to make the specialised presentations that work best in this display format" says Brett Starkey, Laservision Macro Media's General Manager.

• Details: +61 2 9658 1000

Caribiner step up

The Renaissance Sydney Hotel has appointed Caribiner AV Services to provide it with total in-house AV and Staging services.

A division of Caribiner, the recently formed Caribiner AV Services has offices in Sydney, Melbourne and Brisbane following a merger with  Stagecraft Corporate Theatre.

Caribiner AV Services pitched along side a number of other AV service companies to manage and maintain all AV and Staging services at the hotel. As part of its contract, Caribiner will provide the hotel with dedicated onsite personnel to maintain the world class standard of quality service for which Caribiner and Stagecraft are both renowned.

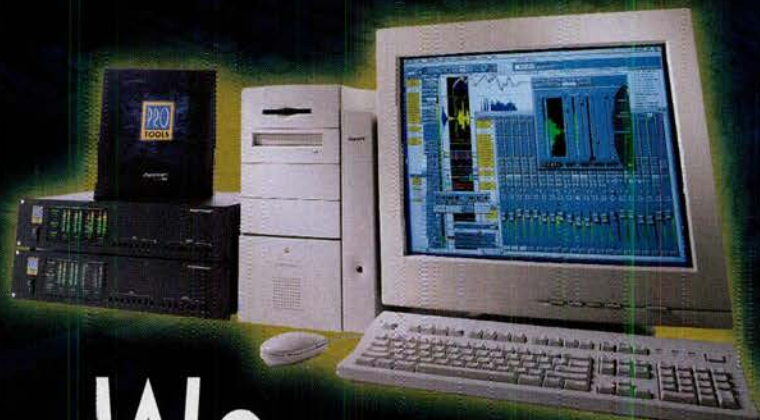
"This account is the first outsourcing contract that the company has pitched for and clearly establishes Caribiner AV services as the service provider of note in the hotel services field," stated Chief Executive, Paul Kenny.

Carolyn Fidler, Director of Hotel Services for Caribiner's Presentation Services in Chicago visited Australia for 6 weeks to help establish the account. Presentation Services, is an outsourcing division of Caribiner in the United States and is a worldwide leader in this specialist field with over 550 hotel accounts such as Marriott Group, Sheraton and The Hilton.

Carolyn Fidler



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Corporate Theatre goes Up Stage

Perth-based Corporate Theatre Productions has substantially expanded its hire operations in multimedia and audiovisual equipment.

Managing Director, Vaughan Emery, has moved the company into bigger and better premises at Belmont allowing more workshop production space to be created.

The 1100 sq metre, semi-circular building reflects the 'theatre' image and can now comfortably accommodate the 14-strong Corporate Theatre team. This includes General Manager, Geoffrey Swar, and event production specialist, Andrew Hiscox.

"The growth and sophistication of business theatre presentation and audiovisual technology has created a huge demand for specialist expertise, and Corporate Theatre has been at the leading edge of the industry for over 10 years," said Emery.

"Presentation Theatre is fast becoming an important part of doing business. Companies are realising that it is a way to differentiate themselves from their competitors and position their company at the forefront of new ideas."

• *Corporate Theatre Productions, 8 Belmont Avenue, Belmont, WA 6104. Call +61 8 9475 5678.*

AV Shorts

• *Don't we all LOVE new car launches?*
SAVI - Sound and Visual Innovators recently produced a local launch for the new Ford Falcon with the event taking place in a large marquee. The 200 guests mingled and drank cocktails, were addressed by Ford VIP's, and then a short video was then run. As the video finished, the marquee doors were opened for the reveal- the new Ford bathed in blue light, a large mirror ball (*please explain! - Ed*) turning above the cars, the large screen showing car images, while the high energy sound track blasted away. *SAVI +61 2 9417 4388.*

• *'FAT DIRECTOR' FIRES BACK~ YEAH!*
 READERS of Michael Orland's column this month will be agog at the lack of talkback manners exhibited by employee's of a large lighting company in Sydney. They were on contract with A Major AV Co, ironically at the gig where The Video Projector fell out of the roof. What more can go wrong at a gig?

• *VIDEO SOLUTIONS AT SHOWCORP*
 Showcorp now have a comprehensive range of shoot and edit packages for both corporate and live event productions. From slide or video production to full multi media capabilities, their claim is to provide multimedia solutions at an affordable rate.

Showcorp's multi media edit suite is located at their new Artarmon digs, five minutes from the Sydney CBD.

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Convention Curiosities

Peter Robins details just HOW frustrating it can be sharing the planet with highly developed life forms!

What happens during long Op's for major conventions, especially when you're dealing with highly intelligent medical scientists from around the world?

Here's a few that happened during the recent International Congress on Neuromuscular Diseases at the Adelaide Convention Centre:

I'll change my own slides thanks. Which button do I press? Oh, you mean the only one that's not taped up? But when they start, there's blank stares up to the op point as if to say, 'Now which button was it again?' So you hit the slide forward button to help them out, just as they dive for theirs. 2 slides go forward. You hit reverse just as they hit their forward only button again to try and make the slide go back by a sheer act of will-power. Finally they give up and allow you to reverse to the first slide, albeit with various mutterings.

Then there's the professor who forgot (or didn't understand) how to change his slides. He did have a most venerable laser pointer though, as he aimed it high into the audience and started clicking furiously to start the slides. The astute operator picked up on the good professor's attempts; so for the entire speech, every time the audience was zapped by the laser pointer, the slide changed. Ah, modern technology!

Then there's the more mundanely annoying episodes, like presenters who like to stand

completely off stage, out of all available light. And people with very low vocal volume and foreign accents, who love to ask questions from the audience, but won't use a question mic! Much low grumbling to be heard from the op point!

It can be almost hallucinogenic though, when you're sitting through a 10 hour op. Especially when you've got words flying around your head you've never heard before, like 'Mitochondrial Myoencephalopathies, Axonal Cytoskeleton, and Dystrophinopathies'!

So you begin to stare at things. All of a sudden, you imagine one of the pots on your audio desk is slowly and continually rotating through 360 degrees. This is very groovy, especially as the sound hasn't changed. But then you discover the awful truth—an ant, crawling non-stop around the pot. Damn, and you thought you were finally having some fun!

Peter Robins, email prlx@olis.net.au

We welcome news, stories and interesting things.

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Brett Bower's ICIA column



Australian Manufacturer Command Systems takes on the World

Anyone associated with AV knows the pros and cons associated with programmable AV control systems. Today, these systems are everywhere, controlling lights, projectors, motorised screens, video conferencing - in fact, all aspects of presentations.

Command Systems has been Australia's leading AV Control Systems manufacturer for around twenty years- and has recently solved a problem that has been plaguing Systems Integrators, Technicians and End Users of these systems for years.

Ian Robertson, Managing Director, explains 'With the technology available today you shouldn't have to be a programmer to

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AV TECHNOLOGY

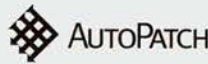
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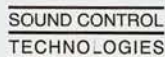
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use an AV control system."

It was after INFOCOMM International in Dallas this year that Command Systems released their new Theatre Commander Wizard.

At first glance, Command Systems' Theatre Commander wizard software (TCWizard) certainly *seems* to be very simple to use.

Starting from a choice of basic scenarios, a user is then allowed to choose from a comprehensive range of equipment to be incorporated into the system a bit like the Windows hardware

wizard. The control panel and system programs are then automatically created. The user can then print a connection list or AutoCad drawing and access information on how to connect the chosen equipment.

The programs created by TCWizard are quite easy to customise. It's particularly easy to change the wording on your control panel menus to suit your needs, just by editing a life-like representation of the panel on your PC.

For those who love to get down into the nuts and bolts,

things get even more interesting.

You can build endlessly sophisticated functions and programs simply by choosing natural language commands from a list. One example - "Send 'Play' to 'Sony VHS'". There are no "magic numbers" or arcane commands and programs.

Theatre Commander hardware that you load your programs into is also impressive.

Brett Bower
International Marketing and
Membership Representative
ICIA, Ph: (61) (2) 9531 6777

Haycom Staging - now largest 'independent' a/v company

Hay Communications have now officially become Haycom Staging across Australia.

With offices now in Melbourne (*Haycom Staging Vic*), Sydney (*Haycom Staging NSW*) and Brisbane (*Haycom Staging Qld*) and long term partners in Perth (*Haycom Staging/AVI*) and Adelaide (*Haycom Staging/Multivision*), they say they are the largest independently-owned, Australian audio-visual staging company.

Haycom Staging have been in audio-visual staging for well over 20 years now.

They boast the only Hughes projectors in Australia for hire, as well as a huge range of other video projectors, lighting and sound gear.

Haycom Staging are specialists at producing Big Screen images, such as seen at the Melbourne Moomba Festival and the Melbourne International Festival, with images in excess of 20 metres on virtually any screen surface.

Alan Hay (Managing Director) says "We firmly believe that to deliver absolute excellence you need to specialise in a particular field. We have stuck to this philosophy all along and instead of trying to be all things to all people we have continued to operate as a specialist audio-visual staging company."

"We have no conflicts of interest, no venue ties, and no loss of focus that can beset the so-called one-stop shops. We work with absolute commitment, trust and effectiveness with a range of specialists to get the job done right everytime. People know that when Haycom Staging is on the job, they are getting the best, most experienced operators in the business and equipment that is ideally suited to their show."

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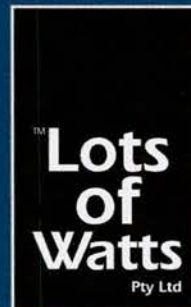
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PRO AUDIO NEWS

OCTOBER 1998



Peavey PA in 'Gong EC

The Wollongong Entertainment Centre is now open. The new 6000 seat arena has audio systems which were supplied and installed by Complete Technical Solutions (CTS).

The FOH system is based around 14 x Peavey Architectural Acoustics HV1582 speaker enclosures, each comprising of a 15" woofer and 2" (4" dome) compression driver.

6 of the speakers are installed as a central cluster (pictured) and are complimented by 2 additional clusters, each with 4 speakers.

The Entertainment Centre is truly a multi purpose complex with the audio system needing to cater for a wide variety of functions. System flexibility is achieved using 2 moveable clus-

ters which can be relocated to various points of the complex to cater for different events. Some smaller functions require only half, or even a quarter of the venues capacity.

To cover all options, 8 different modes of operation are available. Some operating modes require the relocation of the 2 moveable clusters which is simply a matter of lowering the cluster onto a custom fabricated trolley. Once lowered onto the trolley, the cluster is then rolled to the desired position and then raised to a preset height. CTS developed this innovative, simple to use system especially for this project.

The FOH speakers are powered by 5 x Peavey CS1800G dual

>please turn to page 30

Audio algorithm breakthrough

Perth company developing new audio codec to send 15kHz audio over ordinary telephone lines

Technology advances in audio compression algorithms, combined with faster signal processing chips and high bit-rate modems, means high quality audio can now be passed over low bandwidth transmission systems such as common telephone lines. (The interface to do this is generically called a *codec*.)

True high fidelity uncompressed digital audio, requires hundreds of megabytes of data for only a few minutes of material, making transmission of digital audio over a low bandwidth very difficult. Two of the greatest challenges in delivering real time transfer of broadcast quality audio over a low bandwidth transmission system are data compression and modem transfer rate.

In recognition of the importance of this technology, the

Western Australian Government has awarded a \$50,000 grant to broadcast engineering firm **AV Communications Pty Ltd**, (AVC) to develop a codec.

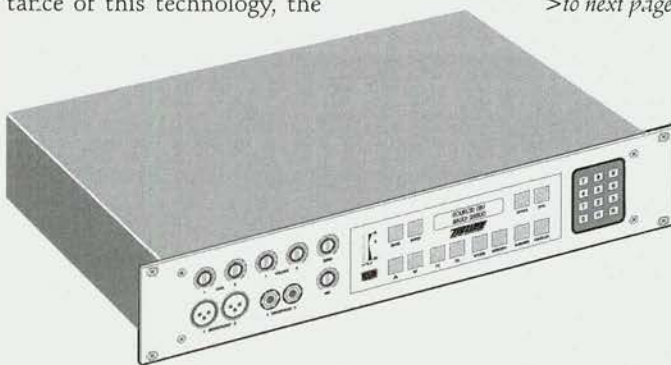
AVC's refinement of a new compression algorithm in combination with a more powerful floating point digital signal processor techniques has enabled them to create a new, high quality codec called the TieLine.

The new codec will enable up to 15kHz of broadcast quality digital audio to be sent over a common 3 kHz phone line in real time anywhere in the world.

The algorithm used in TieLine technology and refined by AVC is very robust, unlike most of the audio compression algorithms.

This is important in transmission over the PSTN network as the links are error-prone.

>to next page



thismonth

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- Three great microphones **REVIEWED** page 36
- REVIEW:** Allen & Heath GL 3000 recording console page 40

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PRO AUDIO NEWS

Austalian Codec

continued from previous page

Errors introduced over the phone line would normally lead to audible distortion in the reproduced signal at the receiver, however, the TieLine system is much more resistant.

For the technically minded, the analogue audio signal passes through a filter to remove all frequencies above 15kHz before being sampled at 32kHz and digitised. The signal is then converted from the sinewave time domain to the frequency domain using "modified discrete cosine transform" (MDCT) and overlapping windows of data blocks.

The resulting digitised signal representation contains many sharp frequency peaks and troughs which are flattened (smoothed) using special mathematical averaging techniques to reduce the dynamic range of the encoded signal.

Imagine the flattened result now as an "audio picture" of many different sound images (or specific clusters of sounds) represented by numbers. The audio picture is now broken up into a series of puzzle pieces with each puzzle piece representing a defined cluster of sound images.

The individual puzzle pieces are now compared against a multi-dimensional look-up table containing numerical representations of all the possible combinations of sound image clusters that have been optimised for music and speech in a process called Vector Quantisation.

Each puzzle piece of audio data is assigned the number of the sound image cluster that

most closely matches it from the look-up table.

A copy of the look-up table exists at each end of the link and therefore only the reference number from the look-up table needs to be transmitted over the telephone line- instead of the whole signal.

Then the whole process is reversed at the receiving end where the look-up table is used to decode the transmitted puzzle pieces. The data is then unflattened and converted back into the time domain, before being converted back into an analog signal.

The multidimensional look-up table is the secret of maintaining a robust high quality audio signal. Because almost every imaginable music/speech sound has been recorded and encoded within the table at both ends of the line, only very small amounts of information containing references to the tables needs to be transmitted over the modem line. This allows the designer to achieve real time transmission.

This feature is especially important considering telephone line conditions affect the modem connection speed.

With a TieLine at each end of a normal telephone line, high quality audio can be achieved for the cost of a telephone call. The line is bi-directional (which means operators at both ends can communicate) and the units are fully portable.

• **Audio Video Communications, +61 8 9249 6688 or see www.avcom.com.au.**

Audio Traveller

There are TWO great forums this time of year for Pro Audio. The first is over as this issue hits the streets and byways of the region, and it is off course the AES. Held in San Francisco this year, a team of Connections journalists poured over and through the exhibits and behind the doors marked 'Secret - keep out!'

• The other place to go is NAMM in Los Angeles, held January 28 through 31. Get details at www.namm.com and book a hotel downtown now. The show is held at the LA Convention Centre, so hire a car and stay in Beverly Hills or Malibu.

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Gentner Intro new callin system

Everyone knows that talkback radio is fun, but its more fun when the on air staff and technical crew need not worry about calls getting spammed.

Enter the Gentner TS612 DCT multi line phone system, which has been Austel approved for use in Australia.

It starts as a six line unit and can grow to 12.

It generates a 'mix minus' feed to callers by digitally subtracting the callers audio from the program audio fed to the on air console. You can talk to a caller off air, while another caller is on air. So you could, at a pinch, be your own producer. Perish the thought.

The hardware comprises a control

surface which looks like a telephone on steroids. A 2 rack height Mainframe does the work.

Dual DCD 'Superhybrids' are built into the Mainframe. They are used for conferencing of callers, or can be dedicated to specific studios if additional control surfaces are connected to the Mainframe.

It works intuitively - pickup a call with the handset and it is private, but if you select a call without the handset, it is placed on the hybrid. You can connect to a PC via an RS232 connection.

- Prices start at A\$10,000.

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RADIO

Peavey for the 'Gong

(continued from page 27)

channel Concert Series power amplifiers. Each amplifier channel is fed from an output of a MediaMatrix X-Frame, which in turn is fed by a Peavey SRC6024 (24-6-2) mixer.

An additional Break-Out-Box is used with the X-Frame to provide up to 10 inputs and 12 outputs.

The beauty of the X-Frame is that you are not locked into any preset configurations. The entire signal path within the X-Frame was designed and implemented on site using the hundreds of audio devices available within the X-Frame software. In this application, the mixer outputs are fed into the X-Frame which provides Parametric EQ, Compression, Mixing, All Pass Filters, CD Horn EQ, Delays, Graphic EQ's, Limiting and the 8 Preset configurations. Any of the 8 different modes of operation can be instantly recalled at the touch of a button.

Hitting the desired preset recalls every setting within the X-Frame, which may be as simple as muting a couple of speakers, or recalling every setting within the complex delay matrix. (The delay matrix ensures that all enclosures are perfectly time aligned wherever positioned).

The X-Frame also provides a broadcast and Assisted Hearing feed. The hearing impaired sys-

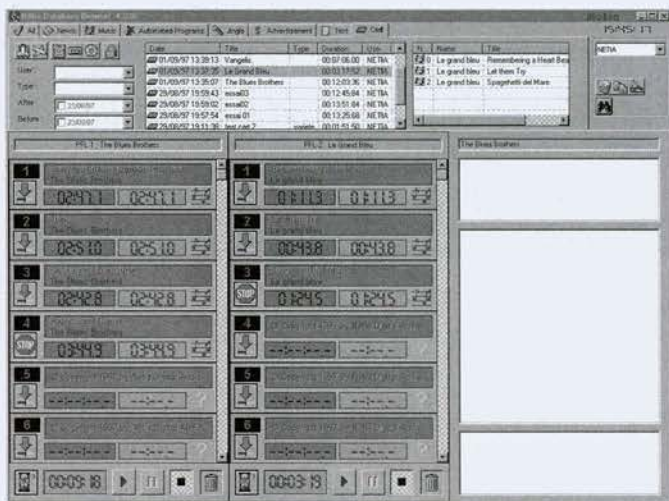
tem consists of a Telex Sound Mate FM transmitter and a quantity of wireless belt packs with both headphone and neck-loop options.

Depending on the event, audio can be mixed from either the control room or from the main floor. Patch points are available right throughout the complex allowing either the whole mixer or just a couple of inputs (such as their REX UHF wireless mics) to be connected to the main system.

A second portable audio system doubles as a foldback system. This package includes a Peavey Unity mixer, Adverb III effects unit, CS800S amplifier, Impulse 200 speakers and SP112M foldback wedges.

The Back of House system is based around an Audio Telex PageNet Zone Paging System. A number of background music sources and zone paging mics all connect to the PageNet Matrix where they can be routed to any combination of the 8 different zones.

The PageNet provides remote priority paging, pre-announce chimes and an emergency input. Each zone is powered by an Audio Telex DCM120 or DCM250 100v line power amplifier which feed over 100 Audio Telex ceiling speakers.



Netia RadioAssist enters AAsia market

Netia Digital Audio announces the arrival of Radio-Assist, a complete range of digital audio products covering all stages essential to the smooth running of a radio station.

From production to broadcast, Radio-Assist deals with each activity, including management and production of commercials and music, recording and editing of sound documents and texts, and manual or automatic broadcast.

Radio-Assist is not only a range of products which manages sound documents, but it also processes associated data (text, images, videos etc).

Netia Digital Audio also introduces its fully interlinked range called News-Assist, entirely dedicated to news production. It does automatic recording of tel-

ephone correspondence, logging of external feeds, recording live, and it links with a news text production system.

NDA runs on Windows NT, and is multitasking for recording and editing simultaneously, the operating mode can be compressed and linear, and it interfaces with a dedicated control panel.

All NDA workstations incorporate Digigram PC audio cards.

All software are fully integrated and from one single screen, the User has access to all the functionalities he needs.

Netia Digital Audio has more than five years of experience, and their products are marketed in over twenty countries worldwide.

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LARES SYSTEM FOR FESTIVAL CENTRE

Complex audio system allows digital reconfiguration of performance venue acoustics, and uses 204 channels of Australian Monitor amplification

Adelaide: The Festival Centre has a new Lexicon Acoustic Reinforcement and Enhancement System (LARES). It is a high calibre reverberant control system where the acoustics can be manipulated to emulate the acoustic environment sympathetic to the performance.

The system is quite vast and complex, both in a hardware sense, a software sense and acoustic alignment sense.

It allows the acoustics to be 'livened' - and anyone who knows the trouble acoustics designers take to get a space dead will wonder why. Simply, some orchestral and opera performances require a 'live' set of acoustics. Just adding some reverb to the mix is not an option.

An offshoot of Lexicon, the LARES processors are basically 480L studio digital reverberators running custom software ROM's.

Logistics Manager at the Centre, John Matheson, told Connections how the selection and installation process came about.

"LARES Inc. allow complete freedom in the specification of the system peripheral equipment, and we have chosen to implement the system using Peavey Media Matrix, Australian Monitor amplifiers, Vaf loudspeakers and Crestron control, which is also used for the amplifier remote control".

"LARES badge engineer their own speakers (PSB) and ampli-

fiers (Bryston), but allowed us to develop equipment locally to a suitable spec for the system".

John asked Adelaide based manufacturers Krix Loudspeaker Engineers and Vaf Research (known for their high quality kit systems) to prototype speakers to a spec he wrote. Both prototypes were sent to Boston for evaluation, and were rated as superior to the LARES benchmark.

In the end the contract went to tender and was awarded to Vaf. However LARES have already spec'ed Krix speakers for a new install in the USA.

The system uses 51 Australian Monitor AFC 800 amplifiers (a quad design offering 100 watts per channel + remote monitoring and control), with a Crestron colour touchscreen interface. Each amplifier has an on-board microprocessor monitoring critical functions.

"The system is now operational with three "demo" presets. With a fifty second reverb time it's awesome; you can whistle, leave the auditorium and make a cup of coffee, return and still hear the sound decaying!" says John.

The EQ is done with parametrics in Peavey's Media Matrix, mostly 5 band.

The tolerance LARES allowed on loudspeaker frequency response is ± 1 dB; tolerance on level across the room is ± 0.5 dB!

"Where speakers were mounted in an unobstructed 1/

2space configuration, we were able to get a power response of ± 1 dB with a three band parametric.

The system was conceived and designed by e-mail between John and Steve Barbar of LARES, with help on AutoCad drawings from Bassett Acoustics. Bassetts and Julien Gibson (Centre Sound Department) and John developed the tender specifications.

"Bassetts placed the speakers on a 3D drawing of the auditorium based on Steve's idealised XYZ plot for uniform power distribution, and we adjusted locations on site to allow for physical obstructions such as air conditioning ducts".

"In all there were nearly 100 speaker penetrations in 8 inch concrete slabs, all of which have to be air tight and sound proof. Another 56 are cut into 4 inch concrete. After five weeks of getting no-where fast, the contractors brought in a hydraulic chainsaw with diamond chain... now that's cooking with gas!"

Another 130 or so speakers are concealed in gaps or on stage.

The whole project from design to installation has taken just under five months from state government go-ahead, and was completed in time for the production of Wagner's Ring Cycle of operas.

Given the amount of innovation and development involved this is quite outstanding!

Steve Barbar of LARES was apparently very impressed with the standard of the installation when he arrived to make preliminary adjustments in early September.

"Inevitably one of these installations leads to a lot of interest and eventually more installations. You can be sure that there will be more Australian product going into future LARES installs, certainly in SE Asia, and probably the other side of the world as well", says John.

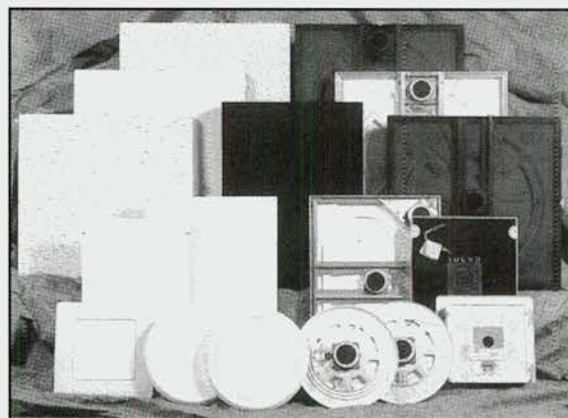
AmpTown

Australian Monitor Design Engineer Stuart McLean on the unique amplifiers:

Driving the 287 speakers on 20 kilometres of cabling is 204 channels of amplification derived from 51 specially adapted AM1200 4 channel amplifiers, with additional remote monitoring and control circuitry installed internally in the amplifiers.

One of the largest stumbling blocks with such large installations, is the ability to recognise, locate and trouble shoot a fault, or for operators to be simply convinced that everything is all right. If something goes wrong, operators want to be the first to know, and / or redundancy programs should be in place monitoring

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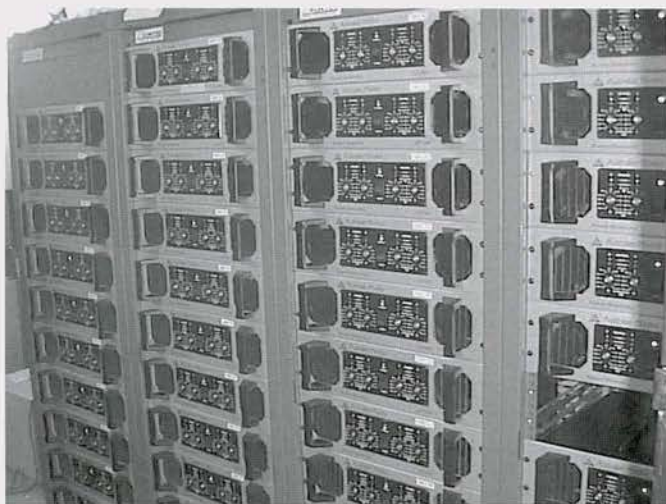
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Amptown *(continued)*

for fault situations, taking action when necessary- and minimising disturbance to system operation.

To this end Australian Monitor developed an interface to the Crestron control system used in the installation. Each amplifier channel utilises detectors to monitor:

1) Its quiescent state (output, drive and pre-amp rails). A very useful feature as it acts as an

(Left) 51 AM quad amplifiers for 204 channels total.

early warning system as this type of failure usually occurs at power up but may not be noticed until signal is applied.

2) Input to output faults (these include sustained clipping, oscillation, out of specification noise etc).

3) Load current fault detection. This basically alerts the operator to an open circuit load or open circuit load connection.

Both in/out fault and load fault circuitry is supervised by a micro-computer, and detects dynamically in real time across the audio frequency spectrum.

The micro is used to minimise false reports to the system by utilising complex routines which analyse the fault condition before reporting to the control system.

Each amplifier remotely indicates an amp/ready amp/ok flag, fan speed, thermal condition and also provides service indication.

Each channel of the amplifier has a mute facility as well as an output isolate facility. The amplifiers have remote power up and down and plug directly into the Crest-Net network via an internally fitted Crestron CNPI custom interface card.

This was been Australian Monitors most ambitious design and build project to date, where design and development, procuring, fabrication, building 51 units from scratch and delivery was completed in less than 8 weeks.

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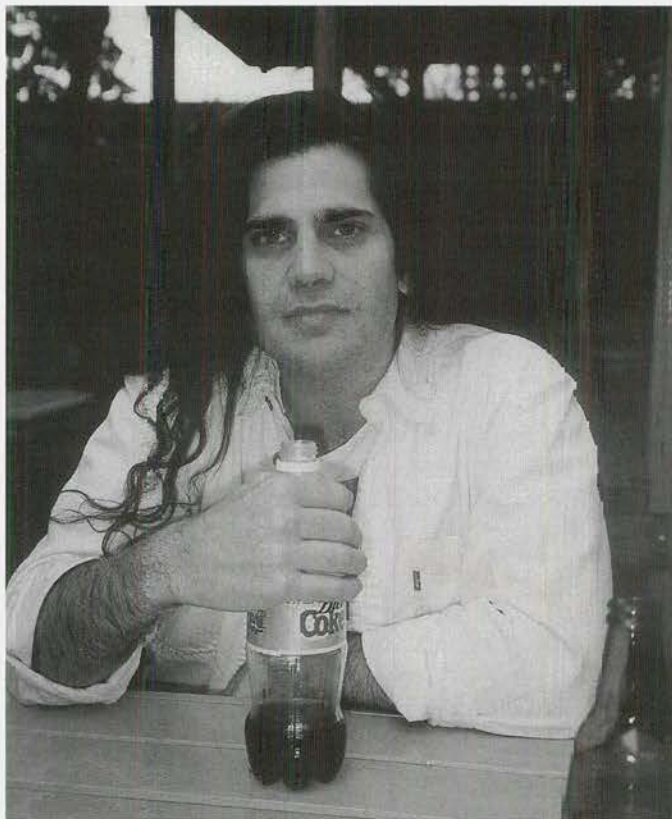
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Musicians Stiffed in Studio

Typical LA experience... but then a happy ending is had by all.

Heard it before? Four idealistic young musicians borrowed money, maxed their credit cards, sold instruments and went to LA, hoping to find a production deal.

"Machene hadn't been getting anywhere in Australia, so they went to the States," LA Producer Roger Sommers (above) said. "They didn't really realise that the sheer volume of people trying to get to people at record labels in the US makes it exponentially harder. So they came up with absolutely nothing."

In the City of Angels, they eventually found a producer who was happy to take their money. Upfront. A week later, they were barely able to get their badly engineered tapes back.

Enter Roger Sommers, and Michael Davenport. "When the panic call came, and I heard the details, I had no choice but to help them, from a karma perspective!" Sommers said.

They asked Sommers, "Will you listen to our tapes, if we can get them back, and just make sure it's us on them?"

As Sommers and the band listened to the tapes, the boys realised they had been badly doused. We put the tapes up on the desk, and I tried to do a little balancing, do a few tricks to see if there was any way to salvage anything. There wasn't."

But Sommers thought the band had talent, and good musical ideas. After working with them in an LA rehearsal space, he suggested they go back to Australia and keep developing the music.

Machene kept sending tapes to Sommers, "and the tapes got better and better."

In May '97, Sommers flew out here to see the band. "I thought we were going to end up with a three song demo. Within ten days, we had the first five songs for a record. Things went really well!"

With some debut songs, Machene were the first band to be asked to play at the North by Northwest music festival last August. As well as the festival, Machene played 17 other US gigs.

-Ma:elene Murray

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Cubase VST/24 4.0 for Mac

by Andrew Broadhead

An anyone who remembers running Steinberg's Cubase on a humble Atari, back in the audio dark ages, I'm sure will agree that this program has come a long way since then. The latest offering, version 4.0 on review here is another significant advance.

As with any major hard disk recording package, a fast system is recommended. The version tested here runs on Apple Mac. As an absolute minimum VST 4.0 will run on a 601/120 MHz system with 32 MB RAM but Steinberg suggest a G3/300MHz with 64 megs RAM -or more- to really get the most out of the program. As well as this you'll need a large, fast external SCSI hard drive to hold the audio data, plus an audio interface/sound card although it is possible to use the Mac's built in audio connections for very basic use.

The concept behind VST (Virtual Studio Technology), is to provide an all in one Midi + Audio recording, editing and mixing package housed in your personal computer. To mention every feature of this program would fill up this whole magazine (the manual is so big they included it within the program) so I will be concentrating on the main features starting with the audio side.

AUDIO:

Cubase started out as a midi only program but it's audio features have been developed to the point where they out shine some dedicated audio editing software programs. Version 4.0's big step forward is its support of 24 bit recording at sampling rates of up to 96 kHz if your interface (card) supports it. (Note that recording at this resolution eats up over twice as much hard drive space as conventional 44.1kHz/16 bit recordings).

A whopping maximum 96 channels of audio are available this time but whether you can access all these depends on your hardware. Recording involves creating an audio track in the main arrange window, assigning it to a channel, enabling it and hitting record. (Audio files should all be recorded to your external drive). Once finished, Cubase creates a wave form on the screen ready for editing and processing.

Whilst basic cut, copy and paste editing can be performed on the audio parts in the arrange window, double clicking on a part takes you into the audio edit window. All editing done in here is non-destructive and can be completed much more accurately than on the main screen. Moving and trimming the start and end points of an audio file is quick and easy and the ability to quantise an audio part by setting a Q-point within the file is particularly handy when matching up audio and midi to a commonly set tempo. Double clicking again on an audio part again takes you into the wave editor which is where destructive editing begins (ie. changes made to the audio are permanent).

Cutting and pasting operations can be carried out here as well as DSP functions such as fade in and out, invert phase, normalise, reverse, time stretch, pitch shift and silence.

All this is fine and dandy but the monitor/ mixer window is where VST really starts to shine. Once all the parts are recorded the monitor option in the audio menu takes you to a display of VST's wonderful virtual mixer which gives you all the controls found on a conventional mixer; but with far superior graphics.

There is a fader, pan, solo and mute control for each track plus up to four fully parametric EQ module per channel (system dependant). In addition to this there are eight auxiliary sends and four insert points per channel. The eight aux. sends can

access VST's eight unit effects rack which includes chorus, echo, delay, auto pan and of course reverb. Those who are familiar with hardware effect processors will have no problems operating the VST effects as their interfaces closely resemble the real life thing. The effects provide a good basic palette when used judiciously but I'd be tempted to go for some high end plug-in's supported by VST for more critical work, particularly any involving reverb use. The effects can also be accessed via each channel's insert points. As well as this there is a master window which gives you control over the stereo buss's level and provides four insert points for processing the whole mix. To cap off the mixer window, mix automation is available on practically every control, faders, mutes, EQ, solo, effects sends, master level and more.

MIDI

With all the amazing audio editing and mixing capabilities in VST, it's easy to forget that it's a mighty fine midi editing tool as well. VST's midi editors perform everything from simple recording procedures to more intricate editing functions. Midi can be edited as text based information in the list editor, as notation in the score editor or, in the superb drum editor, you can set up your own custom drum kit for percussion tracks where each drum sound has it's own row, settings and note information.

The key edit is probably the most powerful of the editors.

Information is displayed as rectangular blocks on a piano roll edit screen that makes great use of colour and is very intuitive to use. The midi mixer closely resembles the audio mixer and performs much the same function, giving you control over volume and pan for each midi channel and can also act as an editor for external midi devices such as synths and effects units.

VST version 4.0 offers unlimited midi tracks, as well as 1920 PPQN internal resolution - add to this the amazing graphics that this program offers, and you have, arguably the best midi editor your likely to see.

I have always found Cubase to be a very intuitive program and the addition of audio features has not changed my opinion. VST is one of the few top end programs that can be used effectively by novices and experts for professional results. My only quibbles are that you need a serious system to get up and running and the built in Mac audio hardware isn't up to professional standard so you need a separate interface which adds to the cost significantly, particularly if you wish to take advantage of the 24 bit recording option.

The fact that the majority of the manual for the program can only be accessed from within VST is also rather annoying and tiring on the eyes. However, these complaints aside, I must admit to being a big fan of the program. With ever growing support from interface manufacturers and third party plug-in writers, Cubase VST looks to be the platform to go for no matter what your requirements.

When you consider that the hardware equivalent of what VST offers would cost many times more than the program plus computer, you begin to realise just what a great value tool it is.

For me, it is the pick of the Midi + Audio program bunch.

**Cubase distributed by Music Technology,
+61 2 9369-49890. Retail A\$1,295**

Upgrades: from CuBase VST: A\$199, Score \$299, Cubase \$399



The Poor work hard

Billy Thorpe's new studio
by Madeleine Murray

I spent an exhilarating Saturday afternoon at Electric Mountain studio, listening to The Poor work on their new album. As befitting a band that has toured the world with AC/DC, and Van Halen, the boys have the metallic lock.

They not only play in a band together, but they all live together in an inner city house. They are self funding this project, and coproducing it with Greg Clarke.

Skenie has a fiercely luxuriant voice. As he stood in the booth, belting and wailing their new song, *Anna Nicole's old man*, the others gently prodded, suggested, and joked.

I was amazed at how well they all got on in a lachoric, funny way. For boys who made an EP called *Rude, Crude and Tattooed* they were strangely polite, charming and considerate.

They were working in Billy Thorpe's nine month old studio, Electric Mountain, in an Ultimo (Sydney) cul-de-sac. Thorpe brought a lot of the equipment from his LA studio. Greg Clarke, the in-house engineer, is very enthusiastic about the gear.

The console, an Artek Argela, was designed by Rupert Neve just after he stopped building Focus Rite consoles. "It was built after he sold the Neve company to AMS," Clarke explained. "In a way, it's more of a Neve sound than a later console. It's got a

very simple signal path, and really doesn't change things too much at all. It's very true."

The tape machine is an MCI JH24, one of the last made by MCI before they sold the company to Sony. It comes the Record Plant in LA. "It also has a solid signal path. It works really well with the console."

For outboard gear, they have a Focus Rite ISA 115HD dual preamp equaliser, designed by Neve. Also a Summit dual tube equaliser, and compressor. They have Urei compressors, DBX compressors, 12 channels of Drawmer gating, and six channels of Valley People gating. "It's classic gear," Clarke beams.

Effects wise, they have stacks of Lexicon reverbs.

There is a Lexicon Prime Time, a Super Prime Time, EC2 delay, a Roland SDE3000, 2 Roland SDE330s, a Marshall time modulator, an Ensoniq DF4 effects processor, an Eventide H3000, Eventide H910, Eventide instant phaser, an ART dual dynamics processor, and 2 Alessis 3630 dual compressors.

They also have 2 Macs running Cubase VST, Sample Cell, Digidesign Sound Designer and Mark of the Unicorn performer.

Clarke feels that "it's unusual to find a place that has so much analogue and digital gear." They also have a stack of MIDI gear.

Electric Mountain plans to cater for commercial jingles, film music, and bands like The Poor.

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3 very nice microphones ~ compared

When told the editor prefers to compare products, Sid Kidman discovered several VERY nice microphones lurking in his home studio. Here is what he thinks of them all...

And the winner is

No contest really. The clear winner is the Microtech Gefell UM900 — if you have the \$7000.00 or so required to purchase one.

In this article, the relative merits of the Beyerdynamic MC740, the Microtech Gefell UMT800, and the Microtech Gefell UM900 are discussed.

The former two can be purchased for around \$3000.00 each.

Beyerdynamic MC740

On opening the compact plastic case, my first reaction was; "what a beautiful, neat, piece of equipment!"

The MC740 weighs in at 600 g, and is 220mm in length. The top 98mm section is the mesh grill housing of the condenser element.

This large double membrane (gold vaporized) element, mounted on an anti-shock peduncle, can be seen through the grill. The front to back profile of the grill is that of a truncated diamond, (flat on top), and the side profile, a slightly tapered rectangle. Strangely enough, it is slightly asymmetrical.

A center hub section separates this acoustic chamber section from the main barrel, and houses three continuous rotary knurls at 120 degree spacing. These knurls switch polar pattern, (omni, wide cardioid, cardioid, hyper cardioid, and figure of eight,) sensitivity, (0dB/ -10dB) and flat /bass roll off. Strong fingernails are required to move these switches to different positions.

On unscrewing a large flange washer at the base, the barrel slides off, revealing a really beautifully engineered construction, and electronics assembled by skilled technicians.

One would be advised to spend ten minutes reading the owners manual to check out the frequency responses and specs. Rather puzzling is the first stated spec: "Transducer Type: Dynamic moving coil" - HUH?

The Beyer MC740 is a dual membrane condenser mic and requires a 48V power supply. Its on axis frequency response is basically flat from 40Hz to 20kHz, with a low upwards curve between 4k and 20k, maximally +5dB at 10k. This is pretty similar in all its polar response patterns, according to the published specs. The mic is a solid anodized mat black finish with white printing. The cradle is also very neat, and is suspended from the outer mounting by four rubber rings, which allow controlled slippage, giving very fine positioning control.

The Microtech Gefell UMT800

Weighing in at 540 g, the UMT800 stands 195mm tall and is 70mm at its widest diameter, and has a satin nickel finish. The top 2/3 is rugged metal grill, ellipsoidal, with top and bottom

sections separated by a solid ring. The lower 1/3 is a solid, machined and sculptured housing, for the electronics. The electronics extend into the middle third grill section.

The top 1/3 houses the transducer unit. This is a dual gold plated membrane of 25mm diameter with a center brass back plate, supported on a clear stalagmite like polycarbonate structure, which also forms the floor of the acoustic chamber.

This acoustic chamber is not fully isolated from the rest of the internal cavity.

The rugged but superbly finished barrel, has a large knurl in the front, above which the housing blank has the polar patterns etched, and below this is a neat pair of well recessed miniature switches for 0/-10dB, and flat/bass roll off.

The UMT800 is a pressure gradient transducer type powered conveniently by a

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Microtech Gefell UMT800 (top), UM 900 (above, centre), and the **Beyerdynamic MC740** right.



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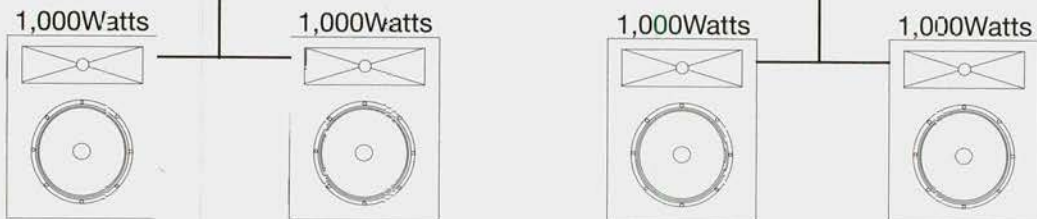
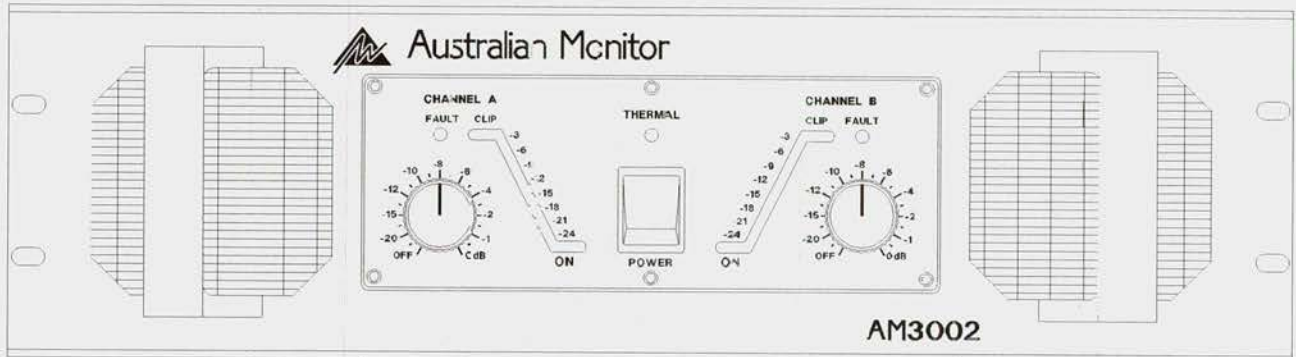
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3 Mics compared

48V phantom supply, and the electronics are transformerless with a symmetrical output stage. The manufacturer claims a wide dynamic range and a low self noise floor.

There was no contradiction of this during testing.

The actual electronic construction is pretty whiz-bang with the circuitry appearing to be something like nickel coated copper, and the holes in the board having similar ring inserts. It was hard to tell if some of the joints were meant to be soldered.

The engineering is so solid it will never break.

Published frequency responses are pretty flat for omni and wide cardioid, with a little peakiness around 12kHz. There is a slight overall high pass roll off for the other polar patterns, being most pronounced at about 2dB/active for the figure of eight position.

In testing, most of which was done in the fig.8 setting, I found the mic to sound flatter than the specs would indicate.

A word about the cradle that this mic came equipped with - the elastic suspension was beautifully tuned to 250Hz!

It would really need some careful adjustment. Also I found it an awkward structure for close micing.

The Microtech Gefell UM900

Well here is a truly beautiful piece of equipment, having both form and function.

The reason for possessing such a mic goes a lot deeper than - "I own one, because I can."

The UM900 weighs 900g, which is pretty solid for its size, being 200mm tall and 75mm maximum diameter. Shaped like some fine piece of miniature chinaware emulating a single rose, the body is surmounted by a large flat disk which houses one of the most sophisticated large dual membrane capacitive pressure gradient transducers that is available.

At the top of the bulbous part of the body, spaced at 120 degree intervals, are the continuous rotary knurls which select the polar patterns, dB output level, and flat/bass roll off. The polar patterns are omni, wide cardioid, cardioid, hyper-cardioid, and figure of eight.

Sensitivity levels are -10dB, 0dB, and +4dB.

Roll off provides the option of flat or -10dB at 70Hz.

The front of the mic is defined by a very discretely engraved UM900.

Microtech claim this is a genuine valve mic, but this is hard to believe from the external appearance. It works straight off 48V phantom power. Internal examination does reveal a miniature valve, which is completely shielded in neoprene rubber, and then isolated in more neoprene foam rubber. The rest of the electronics, and circuit construction is immaculate.

The published specs are a quite desirable series of numbers, with a quoted frequency response of 40Hz to 18kHz. In the omni mode, the response is almost flat, with a +4dB peak between 9kHz and 12kHz. In the fig.8 mode, 200Hz to 50Hz is rolled off at 4dB/octave, whilst 200Hz to 6kHz is high pass filtered at 1dB/octave.

The response then falls about 1db by 14kHz, and then rolls off sharply. Once again, most of the testing was done in the fig.8 mode.

The elaborately designed cradle supplied would cover most applications, but has only one degree of freedom. Another rotating joint would be much more useful. The UM900 is also finished in satin nickel, which really adds to the discrete understatement of this mic.

How do they shape up?

Physically, the shapes and sizes of microphones are quite important. A good mic is of no use if it can't be gotten into the right spot.

Usually, overcrowded drum kits provide the most problems, but occasionally an arm or a bow, or some other structure can impede the placement of a mic.

As with cradles supplied, the rankings were: MC740 easily the best. UM900 reasonably good, UMT800 not so good.

The size and shape of the MC740, and the neat compact cradle allowed quick and easy placement/adjustment.

The UMT 800 is a little awkward with the large ellipsoidal head, and especially the EA92 cradle supplied. It proved a little

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difficult to get close to quiet sound sources. It would be cumbersome to get in amongst drums.

On the other hand, overhead placement would present no problems. (Apart from that resonance in the elastic suspension.) The UM900, although a strange shape, is actually quite skinny where it counts, and probably could get into tight spots.

Functions

The winner in this category is the UM900. The 900 and 740 both have one extra feature over the 800. The knurls on the 900 were the most comfortable to operate, while the other two both tended to leave the finger tip a little sore, prompting the use of a finger nail.

Each mic has a choice of five polar patterns, but differ in the other choices.

The UMT800 offers levels of -10/0dB, and flat or -10dB at 90Hz frequency response. The UM900 provides levels of -10/0/+4dB, and these were quite effective changes. Its frequency response offers flat or -10dB at 70Hz.

The MC740 can be switched between -10/0dB sensitivities, and provides two levels of bass attenuation. These are 8dB/octave at either 80Hz or 180Hz. This feature would add versatility around a drum kit.

All mics are pretty respectable in terms of maximum SPL, noise floor, sensitivity, and total dynamic range. It appears from current research that in the professional situation, human ears can benefit from a dynamic range of 120dB. The best performer here is the UMT800.

These choices give each of the mics great versatility; for example, an operatic vocal recording may be best done using the omni response, whereas one of the cardioid positions may well suit a jazz performance requiring a singing technique which exploits proximity effect. Perhaps the figure of 8 polar response could be used from the center of a pair of sources.

The sounds

It is here that the UM900 comes out the clear winner.

As expected, there is usually some correlation between price and benefit. Each sounds superb in isolation, and each can sound pretty similar to one or both others, or quite different, depending on the sound source and complexity.

Starting with the Beyerdynamic MC740, early impressions were of clinical accuracy; maintaining its flat response well into the bass region and showing no compressive character what so ever at any level below the mixer input headroom limit.

If the spectrum is split into three broad bands of low, mid, and high, then mid and high are best described as "dead accurate". The low response appears full of energy. The diaphragm element is extremely sensitive to movement of air, even at very low frequency - hence watch your nearfield monitor's bass speaker's if you bump the mic.

Allan Sides, an acknowledged expert on microphones, describes one very reputable ruler flat mic as sounding "metallic".

The 740 could be a candidate for such a description. This really does not detract from its usefulness. It would be an ideal choice for bass guitar or streetscape scenes.

Other uses would depend upon the desired result.

The Microtech Gefell UMT800 is a fair competitor price wise for the MC740, but here the similarities stop.

The differences in quoted specs are minimal in most respects, but in general the UMT800 sounds brighter. This is due to an over all slight but high pass filter response. This would be perceived as sounding cleaner on signals such as

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speech, and in one test, called "walk around the studio babbling speech", the 800 came up trumps. It would be well suited to radio broadcast applications.

Both of these two mics have some coloration, due to many design parameters. Of particular significance is the design of the acoustic chamber, and I believe this to be the major weakness of the UMT800.

The Microtech Gefell UM900 is a real success story, putting price aside for the moment. The shape is not some whim of art design, but according to the makers, one that minimizes interference with the sound waves impinging on the diaphragm.

Suffice it to say that it works.

Surprisingly, if one was unaware that it was a valve mic, that's the way it would probably remain. Any compression is extremely subtle with normal use.

When it comes to tough signals to record well, the two that immediately come to mind are speech and piano. It was the results of speech recording that put the UM900 another magnitude ahead in my estimation.

The other two mics sound natural only to a degree — when compared to the 900. *Natural* is defined as the source sound.

In the struck metal plate test, there is sufficient detail in the recorded result to differentiate the strike position; detail which neither of the other two mics could illuminate.

Summing up

All three mics are highly desirable, however, in my opinion the Microtech Gefell UM 900 (nice bulges, shame about the price) is a clear winner, based the quality of its manufacture and operating features, its appearance, and its sonic fidelity. The Beyerdynamic MC740 is neck and neck with the Microtech Gefell UMT800, but I would believe the MC740 to be a little more versatile.

One would be advised to choose according to the projected usage.

Beyer: Syncrotech Systems Design,
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Allen & Heath GS3000

Music recording is being offered an affordable analogue desk with valves in it.

Zenon Schoepe gets comfortable with the idea

At a time when so many manufacturers are turning their attentions to matters digital it is surprising to see an all-new analogue music recording console taking a bow.

The GS3000 is not just a rehash or scaling up of an existing model, it's a bold attempt at looking again at the role an analogue console can still play when it plays to its strengths. Thus we are presented with a good old traditional 8-bus in-line desk that is available in 24 and 32-channel sizes with stereo inputs, MIDI muting, MMC and the curious inclusion of two valve channels.

There is little that is shared in this board with any other A&H board and for all intents and purposes it should be regarded as an all-new design with in particular a new mic amp and altogether improved noise performance front to back.

Strong points include new mic pres, a new EQ circuit which is remarkable for its flexibility, and that now rarest of commodities - long and short throw faders for the in-line channel strip.

But what sets the GS3000 apart from: just about every other

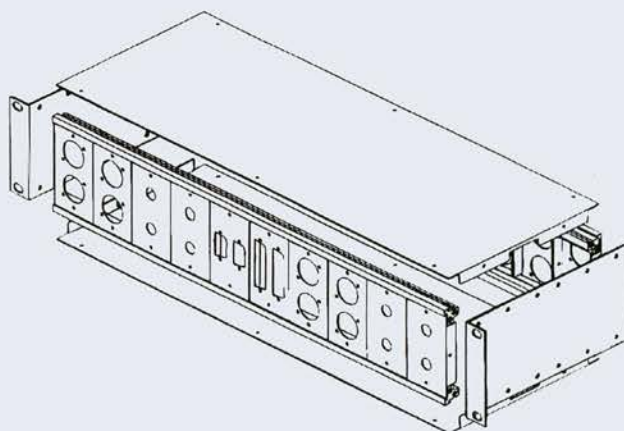


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console is the onboard inclusion of two channels of valve processing.

While not exactly earth shattering, it is still innovative and much more than a gimmick. It's also a practical solution for its target market that adds quantifiable value. This provides a mic/line amplifier with the double triodes working in differential mode and a single ended mode for a guitar input to replicate the valve behaviour in guitar amps. In the mic/line mode you can work the circuit comfortably in to compression while the instrument level transcends the concept of DI and enters an area where constructive guitar distortions can be introduced.

The desk is built in blocks of eight channels with nipped pots throughout. It's about big enough to command the sort of respect that analogue boards still can visually, especially when it has the optional meter bridge.

I can't tell you how nice it is to sit behind an affordable proper analogue desk again. It's a very reassuring feeling.

All I-Os, with the exception of some 2-track phonos and the TRS channel inserts, are balanced on XLR or TRS jacks. Inserts are also provided on the 8 groups.

Each channel has a gain pot, phantom power switching, phase reverse, line selector, and a 4-band EQ section that can be split HF/LF and twin parametric mids between the channel and monitor paths.

You're offered +/-15dB at 12kHz and 60Hz shelving and 2dB better each way on the mids which cover 300Hz-18kHz and woofer-unseating 18Hz-1kHz. Q for these bands is fully variable from 0.6 to a not too sharp 2. I'm still not convinced about super wide ranging sweepable bands as I find resetting a problem ~ although I'd have to admit that the GS3000's arrangement also boasts immense flexibility by being fully parametric in the mids.

The overlap also means you can ignore part of the HMF's travel if you care to.

It's decidedly modern sounding with lots of low and high end activity if you need it but it's easily up to corrective work.

Aux arrangement is neat in providing six mono auxes accessible from four pots. The first two are globally switched pre/post for channels, while the remainder are post fader and can be flipped in pairs between channel and monitor paths with an additional switch changing the assignment of two of the pots between auxes 3-4 and 5-6.

An XFX switch takes the source for the short fader from the long fader output which is useful in mixdown as it uses Mix B - yes, the GS3000 adopts the now seemingly acceptable practice of providing two main stereo buses that can be split for main stereo and stereo monitor mixes - as a post fade stereo effects send.

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~ REVIEW ~

Allen & Heath GS3000

Mix A is the main stereo bus with Mix B taking the monitor bus and able to be summed into Mix A on a switch in the main section.

Each channel also has a Group/Direct switch for doing what that suggests in the context of an in-line. Paired 8-bus routing can be switched between the monitor and channel paths and that basically sums up the main features of the GS3000 input strip.

MIDI capabilities offer automated muting on channel, monitor, stereo channels and aux masters 5 and 6. Four mute groups are supplemented by 128 additional patches and includes Safe status for channel and monitor mutes. Operation is simple and you activate patches with up-down keys and a Recall switch or via external MIDI command. Each mute corresponds to a MIDI note so it would also be possible to run the muting from a sequencer.

More surprising is the inclusion of MMC transport keys, arranged unnaturally in a column, and track record arming is performed by pressing the relevant channel Mute.

All frame sizes come with four stereo input channels - two basic and two fuller featured. The more elaborate stereos have 4-band, Q-less EQ, gain control, six-aux access, and full routing while the more basic stereo inputs retain only two auxes, input level switching, Mix A-B switching, balance, PFL, automated mute and a short fader.

A cluster of 8 long-throw faders handle the group functions, each with individual AFL, and either mono or stereo routing to the main stereo output and these work in conjunction with corresponding bargraph metering. Group output levels can be

switch-selected for -10/+4 operation globally. The main stereo bargraph meters can be supplemented by a meterbridge to display channel or monitor paths and the desk undoubtedly looks its best with this fitted.

Three 2-tracks can be connected, with dubbing switching incorporated and the lot goes out via two pairs of monitors via mono switch, level control and mute switch.

For all this, it's the presence of the two valve channels that has drawn most attention to the GS3000 - valves on any desk is rare but their inclusion at this level is all the more remarkable. I'll start by explaining that the two identical valve channels in question should be regarded as patchable processing commodities that have to be physically plugged in to and out of. They'll go nowhere on their own from the top panel.

At the back of the desk you'll find each valve channel's connectors for mic (XLR), line and instrument inputs plus a TRS socket for patching the output of the valve section into any channel insert. Look at the two valve channels as patchable tube front ends. Each valve input has phantom power, a wide ranging gain pot, line selector, guitar mode selector with associated single-band bell EQ, a high cut switch, output level pot and PFL.

However, central to it all is a chicken-headed pot controlling valve drive which works in conjunction with a tri-colour LED to give an indication of how hard the bulb is being made to work.

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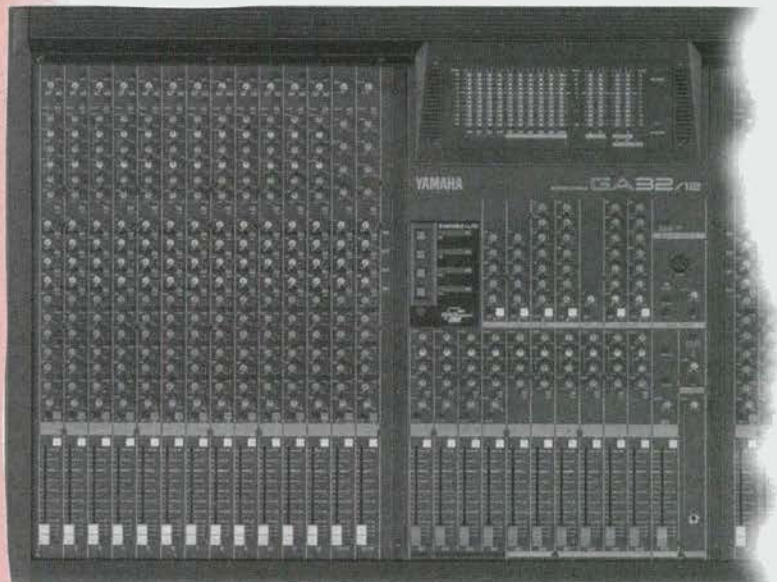
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It's been an interesting month. Someone actually paid money to have The Old Farts On Heat play at a gig - proving once and for all that there's no accounting for taste (or lack of it). And someone else dragged me out of semi retirement and paid me to miss out on the evening's TV and mix a couple of bands. Tim Rand, ARX's guru of cool and mixer to the aurally challenged found himself double booked, so naturally he kept the best paying one and handed the other one over to me!

The gig was at a club in Collingwood where I'd previously worked with Bo Diddley, a bunch of heavy metal bands, and the Pete Best Beatles, making this the fourth revision of the original layout that I've worked with. And the worst!

Do you ever ask yourself 'where does all the old equipment go?' We used to say Perth or New Zealand - not to be nasty or anything, but geographically they were the places that tours down this end of the world typically ended, and selling off the equipment was often a far more profitable option than the cost of shipping it back (I bought a purple Marshall speaker box Pete Townsend left behind after The Who's 1969 tour).

A fair amount of old stuff seemed to have never left the state and ended up at this club! At a rough estimate most of the PA was older than the bands, starting with the Yamaha 916 mixer, never very high on my list of favourites. Built like a battleship and weighing about as much, I guess some people must like them, but I hate mixers with switchable gain. The -35dB setting is too low and you run out of headroom easily, but the next setting is -20dB - too high and there's not enough grunt.

The mixing desk was the least of my problems, though.

I'll be the first to admit that I may not be the best mixer in the world, or even the 30th best, or whatever. (*Such modesty is unbecoming, Dunk. Ed*)

But I know what I like to hear, and I can make a pretty good stab at what the audience likes to hear.

It's like that old joke about comedy. You say to someone: "Ask me 'what's the most important thing in comedy?'"

So they say "What's the most important thi -"

"Timing" you interrupt!

Well, if timing is the most important thing in comedy, then being able to hear what's going on is the most important thing in mixing.

Look, I can mix on a bad system; I can mix with a hard limiter set on -10dB by the headline band; I can even mix with a noise meter that shuts off with the on-stage level before I've even touched a fader.

But before I can do any of those, I've got to be able to hear what's going on.

At this club, the mixing setup was at the side of the stage. Not just at the side, though, but tucked away inside what would have been the DJ booth in the 80's, surrounded by plexiglass windows that pulsed in and out in time with the bass. Perhaps we Live Sound people have been a little harsh on DJ's in the past, because now I know what they had to put up with!

Mixing inside this little booth was like mixing inside a 44 gallon drum and sounded like shit. It was truly impossible to pull any kind of a decent sound out of the system because you had no idea what was going on out front.

No wonder Randy took the other gig. This one was truly a lose-lose situation.

Why any band would want to play there is beyond me.

But what about the Old Farts' gig, I hear you ask?

Well, that was a bit more fun. I've no idea how it sounded out front, or anywhere, since the first few crashes of the drummer's ride cymbal in my ear left me with a case of temporary hearing shift that lasted a couple of days!

It was a combined gig where we would be the support act to a

band of young spurters fronted by both our other guitarist's son, and our drummer's son (drumming, naturally. A dose of father and son bonding over a discussion of what sticks to use! In the interests of them still talking to me I'll refrain from IQ jokes here!).

But jeez you know you're getting old when you play in a support band for your kids!

The concept worked tolerably well; we played nothing with more than three chords for folks to dance to, and the young guys played a deafening selection of music to jump off bridges to while we perched at their girlfriends!

The highlight of the evening was planned to be a super session with the Old Farts and the Young Spurters playing on stage together. So, we all got up there, plugged in, looked at each other and said:

"Um, er, what'll we play?"

Bruce, our bass player, grabbed the bull by the horns as he could see the audience was getting restless, and said "OK, let's play Johnny B Goode."

"Huh?" said the youngsters

"Johnny B Goode - it's a Chuck Berry song"

"Who?"

"Just a 12 bar in A"

"Huh?"

"A 12 bar - you know, a 12 bar blues?"

"Huh?"

"Forget it; just follow us!"

Well, call me a traditionalist if you like, but what are these guys learning? I just can't imagine **any** kind of musician **not** knowing what a 12 bar is. I know what it was that night, though.

It was chaos at a truly excruciating SPL!

Theatre

Backstage News

Compiled by Mandy Jones

Venues

□ The **Sidney Myer Music Bowl** in Melbourne will undergo a major facelift in 1999 to the tune of \$20 million. A plan for refurbishments prepared by Gregory Burgess Architects, Arup Acoustics and Entertech, was recently approved by the Victorian Arts Centre Trust. Work includes improved under cover-seating, re-cladding of the canopy, and extensive front of house amenities. Technical installations will feature a new loading dock and store, enlarged wing space, three ground-supported lighting bridges, a new control room plus basic stage management, lighting and sound systems. Tenders are still to be decided. The works will be conducted in two separate phases so that the bowl's biggest annual event *Carols by Candlelight* will not be affected.

□ Construction is well underway for the new **Recital Hall** in Angel Place, Sydney, on the site of the old Palings build-

ing. The hall will have a seating capacity of 1250, and is designed for classical music under the guidance of Arup Acoustics. The open staging has infrastructure for other events. Builders are Leighton Contractors, Architects Peddle Thorp, theatre consultants Entertech. Theatre and audio installation contractor is Total Concept Projects.

□ A heritage wharf and two shore-sheds will be demolished to make way for a \$650 million development at Sydney's **Walsh Bay**. Features of the redevelopment include a 1000 seat drama and dance theatre, 290 new dwellings, a new restaurant and retail precinct, as well as upgraded facilities for the Australian Theatre for Young People, the Arts Council and the Sydney Philharmonia Choir. Work will begin early next year and is expected to take up to seven years for staged completion.

□ A 25 year master plan for the **Sydney Opera House** will be

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SHOWS WE'VE SEEN LATELY A PUNTER'S PERSPECTIVE

Les Misérables



Ten years since it last toured, *Les Misérables* hasn't lost any of that original magic.

The plot is of epic proportions - a criminal on the run makes a pledge to change his life and raise the daughter of a dying prostitute. Add to that a revolution and a 'love at first sight' love triangle and you get a pretty good idea of what it's all about (which I wish someone could have explained to the two old ladies sitting next to me who gave running commentaries throughout the whole performance!)

Just about everyone dies. And you can't tell when someone's going to get it because the big beamlights start warming up, and they intensify as they focus in on the victim getting brighter and brighter until they're dead. Certainly more sophisticated than a blackout or some other dramatic device. Most of the deaths were met with applause and the occasional group laugh from the audience, although I'm sure this was not a comment on the acting.

Les Misérables is a visually stunning show. From the cloud effects and show logo projected on the act curtain at the beginning, to the brilliant array of lighting effects achieved through gobos and smoke.

The show relies heavily on staging technology with revolves, trucks, flies and hydraulics used to transform the setting. The most spectacular transformation occurring when the barricade is formed out of two massive set pieces which tip and truck to centre where they join to create the massive barrier of debris. Just the scale of it all is incredible.

Les Misérables is lavish in all senses of the word - from the big sound of the cast and the orchestra to the detail in the props and costumes. The Princess is probably the perfect venue for it from an audience perspective with the auditorium being so compact.

Looking around the matinee audience there were lots of grandmothers and school children so age doesn't seem to be a barrier with *Les Misérables*. Obviously there are some sexual and political references children won't understand, but it's nothing that can't be explained during the car trip home.

The running time is a draining three hours plus a fifteen minute interval, even more draining for the cast who have to do it again at 8.00 that night.

Ticket prices vary according to the performance day and time, and of course which reserve, but to give you an idea, an A Reserve ticket on a Saturday night will cost you \$78.50, or you can join all the grannies on a Wednesday matinee and only pay \$43.50. A family ticket is available for \$164 and student discounts are also available.

The thirty plus productions of *Les Misérables* playing in fourteen different languages have entertained more than 40 million people worldwide. Call Ticketmaster, 132 612.

- Mandy Jones

developed by architects Denton Corker Marshall. While there will be "no significant external changes" to the Sydney landmark, technical facilities will be upgraded including the orchestra pit in the Opera Theatre, improved lighting and acoustics in both major halls, and improved access.

□ Melbourne University's **Union Theatre** has re-opened after undergoing a major re-development. Works included a new flytower and counterweight system, full technical installations, and backstage and FOH construction. Connections will be covering this in detail in a future issue.

Shows

A recent report in the Herald-Sun suggested that a mass-walk-out was being planned by the crew of the Melbourne production of **Fiddler on the Roof**. The report came about following the sacking of Production Manager David Worthy from the \$8 million production. It was stated that Worthy was sacked because he had over-staffed the backstage crew, and that remaining crew members were concerned when the position of Production Manager was not going to be filled. An ex-Producer of the show suggested that the situation may have been financially motivated considering the show's lead Topol is being paid in American dollars. Show publicist, James McPherson told me that the issue has been resolved and the cast and crew are enjoying a successful run.

□ **Sydney Theatre Company** have launched their 1999 program. The eleven productions cover a diverse range of themes and styles incorporating world premiere productions *Fred* by Beatrix Christian, *Secret Bride-maid's Business* by Elizabeth Coleman, and David Williamson's latest *Corporate Vibes*. Current Broadway hit and Tony Award winner *Art* also features in the STC collection, as does a new production of the Lloyd-Webber musical *Sunset Boulevard*. This scale-down version of the mega-musical features a new set design by Brian Thomson and lighting design by Nigel Levings.

□ The **13th annual Melbourne Festival** opens this

month and runs from October 15 - November 1. International highlights include the return of The Abbey Theatre with *The Secret Fall of Constance Wilde*, Gesher Theatre of Israel, and acclaimed actress Claire Bloom performing staged readings.

People & Misc.

□ **System Sound** are busy as usual. They are currently installing the audio for the opening of RENT in Sydney at the Theatre Royal in November. Based on the original American design, the system is made up of a mixture of EAW and Meyer speakers, a Cadac mixer, and an 18 channel radio mic system. The mixer and radio mics have just finished the final performances of Phantom of the Opera in Perth.

System Sound co-director Peter Grubb is also audio designer for **A Little Night Music** which recently opened at Sydney's Theatre Royal. Peter used the same design he created for the successful Melbourne season which featured an automated Yamaha PM4000. And **John Scandrett** is preparing for a series of international gigs including designing an audio system for Jose Carreras' concerts in Beijing and Hong Kong, the Hong Kong Philharmonic at the Happy Valley Racecourse in Hong Kong, as well as David Helfgott's concerts in Singapore.

□ **Anne Warwick** has resigned as General Manager of Hobart's Theatre Royal and will take up the position of Manager at the City Hall Cultural Precinct in Brisbane.

□ **Sally Jacobs** has replaced Paul Streefkerk as Operations Manager at the Darebin Arts and Entertainment Centre.

□ **ShowSafe** are holding a meeting at the Members Room of the Victorian Arts Centre on Thursday October 15 at 3.00

□ A \$10,000 **Theatre Design fellowship** has been set up by United Water at the State Theatre in South Australia. The fellowship is open to designers who have completed their training in the past five years in set, costume, lighting, sound, and visual/projection design.

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Tamin	Jeff Cripps	Jeff Cripps	CD				
Albert Studios Leesa (02) 9953 2544.							
The Wiggles	Band	Chris Brooks	Christmas Album				
Grinspoon	Phil McKellar	Rob Taylor	Mix B-Side Single				
Ratcat with JPY			Film Release				
Krowpie	Matt Ellis	Dave Price	Record & Mix				
Exa Supernova	Christopher Whyte	James Cadsky					
Holly	Craig Portells	Rob Taylor	Single - Mix				
Aphek Studio Greg Dixon (02) 9876 8170. 16 Tracks to 1" Analogue							
Tom Llewellyn	Band	Greg Dixon	EP				
Logosdor	Libby Hume	Greg Dixon	Kid's Album				
Sam Guthrie	Artist	Greg Dixon	Demo				
Bastian	Band	Greg Dixon	Demo				
Charing Cross Studio David Sykes (02) 9387 8362. 24 Track Neve - Valve Mics, Valve Outboard							
Bernie Hayes	Paul McKercher/Peter Jones	P. McKercher/P. Jones	Album Track and Mix				
Amr Abdallah	David Trump	David Trump	Album Mix				
Drop City	Jason Blackwell	J. Blackwell/D. Coullhard-Clark	Album Mixing				
Hoolahan	Wayne Connelly	Wayne Connelly	Album Track and Mix				
3 Squire	Jamie Carter	Jamie Carter	Album Mixing				
2 Litre Dolby	Steve Foster	Steve Foster	Album Track and Mix				
Damien Gerard Studios Marshall Cullen (02) 9660 8776. Analog Recording							
"Grow your own 4"	Marshall Cullen	Pilling/Carter/Bach/Pickworth/Trump	Album				
Steve Lucas	Artist/Russell Pilling	Russell Pilling	EP				
Powerplant	Russell Pilling	Russell Pilling	EP				
Flywheel	Russell Pilling	Russell Pilling	Album				
Krossen	Band	Russell Pilling	EP				
Bullrush	Artist	Jamie Carter	EP				
Darling Harbour Studios Ike (02) 9211 1474. 24 Track MCI, 32 Channel SUIIS MCI							
Steve Prestwich	Ike/Artist	Ike	Tracking				
Zeitgeist	Ike	Ike	Mixing				
Peter Hunt	Artist	Lachlan	Tracking				
Swirl	Band	Frazer	Tracking				
Dream Time Escorts	Band	Tim	Demos				
Wahdat	Band	Tim	Tracking				
David Hinds Recording Studios David & Lyn Hinds (02) 6581 1235. 16 Track Digital							
"Balance"	David & Lyn Hinds	David & Lyn Hinds	Anti Drug Anthem				
The Groms	David & Lyn Hinds	David & Lyn Hinds	Drugs Aren't Cool				
David & Lyn Hinds	David & Lyn Hinds	David & Lyn Hinds	Taree RSL Jingle				
Enrec Studio Steve Newton (02) 9858 2686 Analog/Digital							
John Williamson	John Williamson	Steve Newton	Album Tracking				
Festival Mastering Bianca Vukelic (02) 9395 8070. Mastering							
Olivia Newton-John	Glenn "Magoo" Aird	William Bowden	Remastering Back Catalogue				
Josh Abrahams	Josh	William Bowden	Album				
The Mables	Chris Crouch	William Bowden	Album				
Flight 47	Band	William Bowden	EP				
Acoustica	Paul Cussen	William Bowden	Compilation Album				
12 Twenty-Four	Band	William Bowden	EP				
Festival Studio Bianca Vukelic (02) 9395 8070. Recording							
Silverchair	Nick Launay	Nick/Matt Lovell	Album				
Mark Stockley	Mark Ovenden	Mark Thomas/Matt Lovell	Album				
Swirl	Daniel Denholm	Daniel/Matt Lovell	Album				
Primary	Nick Launay	Nick/Matt Lovell	Album				
Rah	Band	Matt Lovell	Demo				
Hullabaloo Glen (02) 9906 2933 Music/Audio Post - 2 x 32 Trk ProTools							
Strum	Heaton/McGarvey	Heaton	Radio Indents				
ABC Enterprises	ABC	Heaton/McGarvey	Talking Books				
Becker Group	Patrick	Heaton	TV Documentary				
Netwrok	John	Heaton	Demo				
TCN Nine	Various	Heaton	TV Series Post				
Igloo Recording Studios Chris Davies (02) 4927 6822 16 Trk Pre-prod-media							
The Dreamcatchers	Steven Pickett	David Carter	Pre-prod for album				
Guy DeVillie	Artist	Chris Davies	Songwriting - Midi				
Glad	Band	Chris Davies	Demo				
Dave Romeo	Artist	Chris Davies	Demo				
Infinity James/Stef (02) 9672 3513 Recording, Production							
Cairns Casino	Paul Venables	James Novak	CD Mix				
St Gertrudes	Stefan Novak	James Novak	Music Production				
Jody Stubbs	Stefan Novak	James Novak	EP				
Amanda Webb	Stefan Novak	James Novak	Album				
ARCB	Band	James Novak	Demos				
JMF Sound Studio Fran Esther (02) 9790 4097. X850, 24 ADAT, 24 Track Analogue							
Jeff Galea	Jeff Galea	Ralph Esther	Film Score				
Neil Diamond Show Band	Al James	Ralph Esther	Video Score				
Vinyl Revival	Band	Guy Saminaden	Demo				
Cold Turkey	Band	Guy Saminaden	Demo				
Paul Turner	Paul Turner	Mike Ward	EP				
Remy Australia	Ralph Esther	Mike Ward	Music On Hold				
Nu-Town Studio Greg Hopping (02) 9516 3306. 16 Ana/32 Digital							
Navigator	Greg Hopping	Hopping/Worrall	Album				
Shield	Hopping/Nevin	Loizou/Worrall	Album				
Terry Bergan	Bergan/Loizou	Sophie Loizou	Demos				
Daydream	Band	Mark Worrall	Single				
Kelly Ophal	Greg Hopping	Greg Hopping	Demos				
Elie	Greg Hopping	Sophie Loizou	Album				

Paradise Studios Billy Field (02) 9357 1599. Custom Mixer, Studer A800, MCI JH114 and Valve Outboard							
Lee Kernaghan	Garth Porter	Ted Howard	Album				
John Wiberly	Artist	Ted Howard	Album				
silverchair	Nick Launay	Nick Launay	Album Tracking				
Hoolahan	Band/Connolly	Wayne Connolly	Album Tracking				
Marilane De Mellow	Artist/Don Burrows	Jason Lea	Album				
Tania Kernaghan	Garth Porter	Ted Howard	Album Tracking				
Paul Bryant Mastering Paul Bryant (02) 9748 0222. Mastering Suite							
Big Toy	Steve Zitkus	Paul Bryant	CD Master				
Corinna Cordwell	Lindsay Butler	Paul Bryant	CD Album				
Big New Sounds	Guy Dickerson	Paul Bryant	CD Album				
Ian Betteridge	Jack Pledge	Paul Bryant	CD Master				
Super phonic	Greg Clarke	Paul Bryant	CD Master				
Brian Letton	Lindsay Butler	Paul Bryant	CD Album				
Powerhouse Studios Doug Henderson (02) 9318 1220 Neve Console & Studer 24 Trk 2"							
The Cleveland		Marc Worrell	CD				
Terina	Leon Berger/Doug Henderson	Doug Henderson	CD Album				
Victor Talima	Victor Talima	Greg Stace	CD EP				
The Bone Heads	Peter Blyton	Peter Blyton	CD				
Julius Sorensen		Marc Worrell	CD				
Brenda Starr		Peter Blyton	CD				
R & R Recordings Studio Robert Zimola (02) 9672 4494. 16 Tracks							
Kristy Lee		Rob Zimola	Demos				
Eye Cue	Peter Saunders	Rob Zimola	Corporate AV				
Ed Murphy	Artist	Rob Zimola	Demos				
David Cazalet	David C. Rob Zimola	Rob Zimola	Live Album Tracks				
Rathouse Studios Mark Macedone (02) 6962 2307. 24 Track Analogue/Digital							
Janine	Chris Campbell	Chris Campbell	Vocal Tracking Album				
EV3	Chris Campbell	Chris Campbell/Mark Macedone	Demos for				
New Album							
Raw Studios Kevin Ballard (02) 6557 0667 16 Track Digital Studios. CD Burning. One offs							
Weeve	Band	Brad Mavin/Donna Bellard	EP Tracks				
Peter Burton	Kevin Ballard	Kevin Ballard	Album				
Profecy	Kevin Ballard	Kevin Ballard	Demo				
James Bulley	Kevin Ballard	Kevin Ballard	Demos				
Ben Johnson	Reebs/Kevin Ballard	Kevin Ballard	Single				
Rockinghorse Zubin Henner (02) 6688 4005. 48 Channel Neve, Studer, Pro Tools 24							
Liz Nankervis	Jo-Soledad, Zubin & Liz	Zubin Henner	Album Tracking				
Joegg	Tim Northam/Ben Moore	Zubin Henner	Album Mastering				
Enryg	Jo-Soledad	Zubin Henner	Album Mastering				
Firesign	Band	Zubin Henner	EP Mastering				
Deidi Vine	David & Lyn Hinds	Zubin Henner	Demo				
Dr John		Zubin Henner	Album Remastering				
Skylab David Russell (02) 9310 4774 24 Analog & 32 Digital							
Chrissy Amplett, Dyvinyls	John Powers	David Russell	Single				
Sanctuary	Josh McLeod	Josh McLeod	Album				
Tantalus	Band	David Russell	Debut EP				
Roisin	Martin Doherty	David Russell	Album				
Freyja	Rebecca Rennie	David Russell	Album				
Hippos	John Powers	David Russell	Album				
Sony Studio Sarah (02) 9383 6461. 24 Track Recording Studio							
Atmosphere	Band	Ross A'Hern	Recording Album				
Bluebottle Kiss	Tim Whitten	Tim Whitten	Recording CD				
Orpheus	Tim McLean	Tod Beely	Record/Mix EP				
Voice Of Love	Simon Tonx	Simon Tonx	Record/Mix Album				
Atlantic Slide	Simon Tonx	Simon Tonx	Record Album				
The Passionflowers	Kathy Naughton	Kathy Naughton	Mixing Album				
Soundwarp Meredith Brooks (02) 9905 7144. Mastering							
Cunning Stunt	David Loery	Meredith Brooks	Album				
Grisl	Simon	Meredith Brooks	Demo				
The Hamiltons	Meredith Brooks	Meredith Brooks	Single				
pH Balance	John	Meredith Brooks	Single				
Seamus	Band	Meredith Brooks	Single				
Playthings	Band	Meredith Brooks	EP				
Studios 301 F. Simpson (02) 9211 7301. Mixing - 32 Tk. Digital, 24 Tk. Analogue							
Spiderbait	Phillip McKellar	Phillip McKellar	Album Mixes				
Tumbleweed	Phillip McKellar	Phillip McKellar	Album Mixes				
Swirl	Daniel Denholm	Daniel Denholm	Mixes				
Diana Ah Naid	Daniel Denholm	Daniel Denholm	Mixes				
Lee Kernaghan	Garth Porter	Ted Howard	Album Mixes				
Studios 301 Mastering Jacqui Espie (02) 9211 7301. CD Mastering Facility							
Tim Rogers	Paul McKercher	Don Bartley	Solo Acoustic Album				
Hunters & Collectors	Band	Don Bartley	Live Album				
Regurgitator	Band	Steve Smart	Single				
Antennae	Antennae	Steve Smart	Album				
Hoodoo Gurus	Band	Don Bartley	Live Album				
Suzi De Marchi		Don Bartley	Single				
Velvet Sound Recording Studios Dave McCunn (02) 9283 5968. 32 Ch. Automated + 2" 24 Track							
Flyspeak	Lachlan Mitchell	Lachlan Mitchell	EP Tracking				
Cassanova Meers	Tony/Cassandra	Tony Wall	EP Track & Mix				
Sugarmoth	Jamie Carter	Jamie Carter	Album Tracking				
Universe	Steve Balbi	Tony Wall	"Children Of The Revolution"				
Diana Ah Naid	Buzz Bidstrup	Buzz Bidstrup	EP Tracking				
Equals Three	Heath Nicolson	Tony Wall	Album Mixing				

continued on page 54



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By Stacy Zemon. For both the newcomer and the experienced DJ, the book contains helpful tips, advice and ideas on how to develop and expand your business, covering marketing, bookings, buying equipment and music, and running parties and dances. 170 pgs. 1997.

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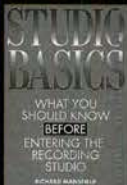
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By Tom Misner. Includes a bonus CD, a practical demonstration of a complete mixdown session including setting up effects, uses of the compressor, gating of sound, various types of equalisation, selecting reverb settings & more. 102 pgs. 1994.

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By Kave & LeBecht. Covers the complete process of sound design from original concept through to finished plan. Looks at development, research, cues, recording and various techniques. 195 pgs. 1992.

NEW! STUDIO BASICS \$34



By Richard Mansfield. Subtitled 'What You Should Know BEFORE Entering The Recording Studio', this book covers what happens on the studio side of the glass, from the artist's point of view. It's about the studio, not the booth; production, not engineering; music, not sound. Subjects covered include logistics, preparation, repertoire, instruments, and how to listen to tapes. 164 pgs. 1998.

SOUND ENGINEER'S POCKET BOOK \$50

Edited by Michael Talbot-Smith. Compact source of essential data for every sound technician. Covers noise measurement, acoustics, microphones, loudspeakers, mixing equipment, CDs, DAT and MIDI, telephony, ISDN, digital interfacing, ultrasonics. 157 pgs. 1995.

PROFESSIONAL LX HANDBOOK \$105

By Verne & Sylvia E. Carlson. Details technical foundations, equipment and methods of lighting for film and video productions. Packed with practical insights, tips and troubleshooting techniques useful on the set. 224 pgs. 1991.

CONCERT LIGHTING \$70

By James Moody. 2nd Edition covers every aspect of rock & roll concert lighting equipment and techniques, including CAD, moving lights, hi-bred consoles, rigging safety and special effects. 279 pgs. 1998. WAS \$94

STAGE LX CONTROLS \$89

By Jif Sandstrom. Explains the general principles of modern computerised lighting consoles and the relevant control standards such as DMX512, MIDI and Ethernet. Covers the basic aspects of controlling moving lights and scrollers. 215 pgs. 1997.

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By Huber & Runstein. Addresses the area of project studio recording, the new base of home music production, using multitrack, Hard Disk and MIDI technologies. Descriptions of the toys, tools and practices of music recording and production. 4th ed. 500 pgs. 1995.

LIVE SOUND MIXING \$39

By Duncan Fry. 3rd Edition addresses the basics on how a PA system works, and details on troubleshooting when it doesn't. Covers EQ, processing, mixing, sound-checks, effects, monitors. 176 pgs. 1997.

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BASF National Tracking Guide

ARTIST	PRODUCER	ENGINEER	PROJECT	ARTIST	PRODUCER	ENGINEER	PROJECT
Queensland							
Big Time Recording Studio	Dave Fitzgerald (07) 4772 1822	(018) 154 243 16 Trk ADAT		Dogbox	Chris Young/Ben Ben/Hurt	Ben Hurt	Album
Red Zed	Band/D.Fitzgerald	D.Fitzgerald	CD	The Zimbausts	Ben/Band	Ben Hurt	EP
Brian Waters	B.Waters/D.Fitzgerald	D.Fitzgerald	CD	Petrophonic Productions	Petros (03) 9553 0176. 16 Tk. Digital	Multitrack/Midi Suite	
Women in Docs	Band/D.Fitzgerald	D.Fitzgerald	CD	Mark Joseph	Petros	Petros	Solo CD
Burbank Productions	John Ryan (07) 3245 4314. 16 Track Analog	32 Channel Automated		Nick Charles	Artist	Petros	Solo CD
Hot Diggity	John Ryan	John Ryan, Renee Barloe	Single	Dr. Jan Hall	Petros	Petros	Sex Series Audio Tapes
Michael King	John Ryan	John Ryan	Demo	Mahogany	Petros	Petros	Demo Tracks
Adrienne Burgess	John Ryan/Renee Barlow	Renee Barlow, John Ryan	Demo	Anthony Cargill	Petros	Petros	Solo CD
Digital Paradise Studios	Ian Peters/Barry (07) 5527 0722. 32 Track Digital			Hey Sister	Petros	Petros	KYB Programming
Bananna Benders	Jim Gatt/Ian Peters	Ian Peters/Barry Pearson	Full Album Project	True Form Music Services	Neil Gray 0500 509 509. 24 Tk. Digital, 12 Tk. Analogue		
Tully	Ian Peters	Ian Peters	5 Demo Tracks	Big Things Flying	Band	Neil Gray	E.P.
Various	Lee Conway	Ian Peters	Radio Commercials	Blackseed	Ross/Band	Ross O'Driscoll	Album
Various	Barry Pearson	Barry Pearson	National Radio Commercials	Smoke	Neil/Band	Neil Gray	Demo
Brian Cadd	Artist	Ian Peters	Mix Live Album Tracks	Roy James	Neil/Band	Neil Gray	Jazz - Live to DAT
Various	Mike Taylor	Ian Peters	Amway Motivational Tapes	To the Bone	Ross/Band	Ross O'Driscoll	Album
Suite 16 Audio Productions	Murray Lyons (07) 3369 8733. 24 Tk. Analogue, 8 Tk. Digital, Pro Tools			Dolly Blitz	Neil/Band	Neil Gray	E.P.
Misery Guts	Garry Smith	David Champion	Television Series	Western Australia			
Sally Hollingdale	Garry Smith	David Champion	Album	Bonsai Recording Studio	Tom Thorpe (08) 9246 4408. 24 Track Analogue, 32 Track Digital		
John Rowe	Garry Smith	David Champion	Song	John Meyer	Thorpe/Meyer	Tom Thorpe	Album
Total Advertising Productions	Duncan Wood (07) 5479 2277. 48 Trk Digital Studio			Sue Black	Thorpe/Artist/Meyer	Tom Thorpe	Album
Jo-Dee	Duncan Wood	Duncan Wood	Album Tracking	Zins (Twins)		Tom Thorpe	Demo
Umbrab Embraced	Duncan Wood	Duncan Wood	Album Tracking	Redgate		Tom Thorpe	Tracking
TAP Team	Dave Atkin	Duncan Wood	Coastal Motors Ad campaign	Brett Greenfield		Tom Thorpe	Demo
TAP Team	Barrie Morrison	Duncan Wood	Betta Birthday Campaign	Kay/Redman		Tom Thorpe	Jingles
South Australia				Planet Sound Studio	John Villani (08) 9382 2211. 48 Track, 32 Track & 24 Track Analogue		
ATD Master Suite	Al Sankauskas (08) 8212 7111. CD Master Facility			Ginger Meggs	Tubor ICA Prod	Les Williams	Cartoon Series
The Lift Dwellers	Dave Lokau	Dave Lokau	CD Release	Vennessa Raspa	Lou Raspa	Les Williams	Demo
In Stillness I Heal	Nicky Page	Al Sankauskas	CD Release	Oz Connection	John Villani/Band	John Villani	Album Mix
SUV Sampler #4	Don/Al Sankauskas	Al Sankauskas	CD Release	Mood	Band	John Villani	EP Mix
K.G./Comesy/Friends	Al Sankauskas	Al Sankauskas	CD Release	Italian Album	Ninzio Mondina/J.V.	John Villani/Les Williams	Album
Cassandra	Kai Richmond	Kai Richmond	CD Rom	Exteria	John Villani	Les Williams	Mastering Album
Tropical Dreams	John Lastra	Ruben Ravanal	CD Release	Poons Head	Rob/Sam/Bush (08) 9339 4791. 32 + Track		
JR Recording	Darren Conway (08) 8410 6488. 24 Trk Recording Studio			Cinema Prague	Rob Grant	Rob Grant	Album
Samantha McDonald	E. Sikorski	E. Sikorski	Demo/Video	Air Ensemble	Rob Grant/Steve Dart	Rob Grant/Steve Dart	Album
Swell	Band/E. Sikorski	E. Sikorski	Demo	Externals	Rob Grant	Rob Grant	Album
The Tell Tails	Band/E. Sikorski	E. Sikorski	CD for Kids	Zanic Art	Rob Grant	Rob Grant	
Driven	E. Sikorski	E. Sikorski	Demo	Paradox	Alfredo Malabello	Rob Grant	
Birdwave	E. Sikorski	E. Sikorski	Demo	Honey	Rob Grant	Rob Grant	
Riff Raff	E. Sikorski	E. Sikorski	Demo	Satellite Recording Studio	Darren Halifax (08) 9470 4003. Protocols		
Mixmasters Productions	Mick Wordley (08) 8278 8506. 24 Track Analogue 2"			Mutt	Band	Darren Halifax	CD
Element	Mick Wordley	Mick Wordley	EP	Atlas	Band	Darren Halifax	Demo
Cliff Milne	Artist/Mick Wordley	Mick Wordley	Album	Gasquaa	Band	Darren Halifax	CD
Gilmore	Band	S.Fieldhouse	EP	Bill Reid	Darren Halifax	James Hewgill	CD
Janet Seidel	David Seidel	Mick Wordley	Album Tracking	Splinta	Band	Darren Halifax	CD
Jannette Wormald	Mick Wordley	Mick Wordley	Album	Stick	Dean Lillee	Darren Halifax	Demo
Keep the Change	Band	Mick Wordley	Tracking	Northern Territory			
Victoria				Masters Studio & Production	Lindsay Masters (08) 8932 1754. 8 Tk. Digital & MIDI		
Ambivert	Adrian Akkerman (03) 9480 1211 8 Track ADAT - 24 Channel Desk			The Territory Boys	Band	Lindsay Masters	EP
Jerry James	Adrian Akkerman	Adrian Akkerman	Demo	Annamiek Wilson	Rob Wilson/Lindsay Masters	Rob Wilson	Album
Joe Geia		David Jobe	Bed Tracks	Jack Moberg	Lindsay Masters	Lindsay Masters	Demos
Monica Weightman	Karroc	Joelian Benford	Demo				
Joshdance (feat. J. Reece)		Adrian Akkerman	Demo				
Sek (members of...)		David Jobe	Bed Tracks				
Westgarth	Band	Joelian Benford	Demo				
Cloudburst Studio	Bruce Jacques (03) 9416 1038 Music Recording/Production						
Roundstone	Bruce Jacques	Bruce Jacques	Demo				
Jeremy Cox	Dale Warren	Dale Warren	Demo				
Bruce Watson	Bruce Jacques	Bruce Jacques	Edits/Mastering				
Andrew Taylor	Artist	Bruce Jacques	Demo				
Deb Morrow	K.Gilmartin	Bruce Jacques	CD Album				
Dex Mastering	Adam Dempsey (03) 9372 2266 All formats. Mastering & Restoration						
The Stream	Band	Adam Dempsey	Album				
Mark "Chopper" Reed"	Colin Dix	Adam Dempsey	Album & Bonus CD				
Fred Rowan	Artist	Jasmine Burke	Comedy Demo				
Lisa Young	Artist	Adam Dempsey	EP				
Speed Demons	Band	Adam Dempsey	Album				
Little Murders	Rob Griffiths	Ben Hurt	Single				
Fortissimo	Siiri/Andy (03) 9699 5811. 24 Track 2" Analog & Pro Tools						
The Disappointments	Andy Parsons/Band	Andy Parsons	Album				
Claymore	Siiri Metsar	Siiri Metsar	Album				
Judy Small	Siiri Metsar	Siiri Metsar	Album				
Les Gyori	Artist/Adam Quaife	Adam Quaife	Demos				
Beanflipper	Ernie	Ernie	Album				
Len Lane Line	Greg Hunt/Siiri Metsar	Siiri Metsar	EP				
Metropolis Audio	Fleur Colvin (03) 9696 2111. Music & Post						
Adam Thompson	Tony Faranda/Artist	Tony Faranda	Album				
Thermal	Band/Tony Faranda	Tony Faranda/Hayden Buxton	Album				
Matt Walker	Matt Thomas	Matt Thomas & Assistant	Live O/B RRR				
Cruel Sea	Ern Rose	Ern Rose/Brian McMahon	Live O/B RRR				
Human Nature	Band/Doug Brady	Doug Brady	Mixing Album Track				
Newmarket Studios	Ben Hurt (03) 9329 2877 24 Track 2" Analogue						
Cosmic Dreams	Ben/Vito	Ben Hurt	Album				
Anita Harris		Chris Corr	Album				
Petra Sarjo		Ben Hurt	Demos				
Cazary Skublewsky	Cezary	Ben Hurt	TV Soundtrack				

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Chapple Tape (03) 9580-6620
DEX Audio (03) 9372-2266
MTA & Assoc. (03) 9819-6455
- SA:** Adelaide Tape Duplicators (08) 8212-7111
Pro Media (08) 8276-6793
- WA:** Ausmag (09)314-1953
Pro Copy (09)375-3902
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Tek (07) 3239-4000



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BUYER'S GUIDE

amplifiers

Prices INCLUDE sales tax and were correct on 15th September 1998. All care taken, no responsibility for errors. Four models only are shown in each category although these manufacturers have many more. Indicative only.

COMMERCIAL/100W

APOGEE SOUND INC

ESA Audio (03) 9562 4605

MA Series 240B W Module The Apogee Sound Modular Amplifier (MA) Series provides complete flexibility for commercial projects requiring multiple amplifier ch.s. Each mainframe can provide up to 8 ch.s each of 240W into 4 Ω s & optional 70/100V output. \$670.

MA Series Mainframe The Apogee Sound MA Mainframe provides an E-input for over-riding normal inputs for emergency applications and optionally provides automatic switchover in the case of module failure for total system redundancy. \$3,845.

MA Series 240A W Module The Apogee Sound MA-240A module provides complete 240W into 4 Ω s combined with complete computer mon.ing and control for remotely located units. Control can be from anywhere in the world via modem. \$1,120.

CA Series (Contractor Amplifiers) The Apogee Sound CA Series of amplifiers are available from 525 - 1100 Ws into 4 Ω s and feature rear panel connectors and volume controls for commercial installations. The split rail bipolar transistor topology and massive power supply provides extremely high fidelity sound for the most demanding requirements. \$4,700. - 6,380.

ARX

ARX Systems (03) 9555 7859

ZR350C Dual ch. 100v line amplifier. 2RU, Bal. jack and XLR in, Speakons out, Signal and clip LEDs, level controls. 100 Ws RMS/ch. into a 100v line. ZR550C and ZR850C also available. \$1692.75.

Cinema Pro CP550 Dual ch. cinema amplifier with onboard 2 way 24db/octave crossover. 2RU, Bal. XLR in, Speakons out, Signal and clip LEDs, rear panel level controls. 200 Ws RMS/ch. into 8 Ω s. CP850 also available. \$1972.75.

PowerDrive LITE Unique Three ch. (A, B and Sub) amplifier with onboard speaker processing. 2RU, Bal. jack and XLR in, Speakons out, Signal and clip LEDs, level controls. Separate access to Sub ch. for full bandwidth use, eg. mon.s. A and B 250 Ws RMS/ 8 Ω s, Sub 460 Ws RMS/ 4 Ω s. \$2702.

MicroDrive Unique Three ch. (A, B and Sub) amplifier with onboard speaker processing. 2RU, Bal. jack and XLR in, Speakons out, Signal and clip LEDs, level controls. Separate access to Sub ch. for full bandwidth use, eg. mon.s. A and B 250 Ws RMS/ 4 Ω s, Sub 320 Ws RMS/ 4 Ω s. \$2536.50.

AUDIO TELEX

Audio Telex Communications (02) 9647 1411

SA120 120 W mixer amp. 6 dual bal. mic/line inputs. 100, 70 volt, 8 & 4 Ω , 10K bal., tape outputs. 240 VAC, 24 VDC. 2RU, Auto limit protection. Over-all bass, treble & master. Insert point. \$953.

AT120RC 120 W mixer amplifier. 4 dual mic/line inputs, AM/FM tuner c/w 6 presets, auto reverse cassette deck. Also includes mon. speaker, inbuilt bell, evac, alert & pre-announcement signal generators with front and rear panel access. \$1102.

DCM250 250 W amplifier. 100 volt, 4 Ω output. 10K bal. input/output. 240 VAC, 24 VDC. 2RU. Includes auto limit protection. Fan cooled for added reliability. \$1142.

DCM500 500 W amplifier 100 & 70 volt, 4 Ω output 10K bal. input/output. 240 VAC, 24 VDC. 2RU. Includes auto limit protection and 'soft start'. Fan cooled for added reliability. \$1597.

AUSTRALIAN MONITOR

Australian Monitor (02) 9874 9355

CX 100 6 ch. multi zone slave unit at 100w per ch. at 8 or 4 Ω . Fan assisted convection cooled. Bal inputs, binding post out, detented attenuators, fully protected. 5 year warranty. 2ru. \$3,030.

AM 2100 Dedicated bridged AM 1600 for high power output to 2,500w at 100v line. Bal. in and out /XLR in/Bi Post out/led metering/FET output/fully protected with indication. 5 year warranty. 3ru. \$3,475.

RM 1200 4 ch.s at 200,300 or 400w per ch. at 4 Ω . Fully featured as per AM series. Plus control in/out mon.ing. Directly interfacing to AMX or Creston control systems. 3u POA.

CLOUD

Lightmoves Technologies (02) 9560 0000

CXA200 Innovation four Ch. Amplifier delivering 50 Ws ch.. All Ch controlled by remote plates if required all inputs are bal.. Optional TRX modules allow 70v & 100v output. \$1579.90.

CXA4 Ch.s at row each. All Cloud amps have fan cooling led peak indicators and provide optional VLA module for remote plates and TRX for 70v & 100v output. \$2555.90.

CXA6 6 Ch.s at 120w each. All inputs have adjustment, each ch. accepts own input or shared from another ch. Full flexibility allows multi-combinations of input/output. \$3355.

44/50 offers simple, direct connections of up to two microphones and four music sources which can be mixed and fed to four different output zones in any combination, with up to 50 Ws (@ 4 Ω s) of crisp, clean audio power available for each zone. Optional line transformer module with 70 or 100 volt line. \$2189.90.

CREST AUDIO

Production Audio Services (03) 9415 1585

CKV800 CKV and CKS Series incorporate comprehensive tour class protection along with power save and sequential turn on/off as standard. A list of optional modules are available including: Nexsys; computer control, 400XPC, 70-7v. \$5495.

CKX400 CKX Series offers all the advantages and features available from the CK family at 100v line output voltage CKX400 200WPC 100v. \$4355.

CROWN

Bose (02) 9204 6111

Crown Com-Tech CT2110 Output Power: 2 x 110 Ws 8 Ω , 2 x 150 Ws 4 Ω ; 2 x 110 Ws 70 volt; Bridged Mono 1 x 300 Ws 8 Ω , 1 x 205 Ws 70 volt; Weight: 13.3.Kgs. Features: Reduced power consumption at idle; Soft Start Circuit; 70 Volt or 4-8 Ω operation; 3 Year Warranty; PIP Module compatible. \$1829.

Crown Com-Tech CT410 Output Power: 2 x 220 Ws 8 Ω , 2 x 240 Ws 4 Ω ; 2 x 225 Ws 70 volt; Bridged Mono 1 x 475 Ws 8 Ω , 1 x 455 Ws 70 volt; Weight: 14.5Kgs. Features: Reduced power consumption at idle; Soft Start Circuit; 70 Volt or 4-8 Ω operation; 3 Year Warranty; PIP Module compatible. \$2546.

Crown Com-Tech CT810 Output Power: 2 x 305 Ws 8 Ω , 2 x 490 Ws 4 Ω ; 2 x 460 Ws 70 volt; Bridged Mono 1 x 975 Ws 8 Ω , 1 x 920 Ws 70 volt; Weight: 22.9Kgs. Features: Reduced power consumption at idle; Soft Start Circuit; 70 Volt or 4-8 Ω operation; 3 Year Warranty; PIP Module compatible. \$3722.

Crown Com-Tech CT1610 Output Power: 2 x 540 Ws 8 Ω , 2 x 870 Ws 4 Ω ; 2 x 960 Ws 70 volt; Bridged Mono 1 x 1745 Ws 8 Ω , 1 x 1805 Ws 70 volt; Weight: 29.4Kgs. Features: Reduced power consumption at idle; Soft Start Circuit; 70 Volt or 4-8 Ω operation; 3 Year Warranty; PIP Module compatible. \$4834.

ELECTRO-VOICE

TELEX/EVI (02) 9648 3455

Q44T stereo power amplifier; 450w per ch. @ 4 Ω s; 410w per ch. @ 100v; 820w @ 200v in bridge mode; 20.5kg. \$1999.

Q66T stereo power amplifier; 600w per ch. @ 4 Ω s; 590w per ch. @ 100v; 1180w @ 200v in bridge mode; 22.5kg. \$2599.

MILES

Horwood Australia (02) 9585 1011

MPR-450 distribution amp; 6 ch.s each 60 Ws @ 8 Ω s or 75w @ 4 Ω s; bal. inputs; varispeed fan; high-energy R-Core transformer; replaces 3 separate amps. \$2954.

PEAVEY ARCHITECTURAL ACOUSTICS

Audio Telex Communications (02) 9647 1411

IA200V Dual 100 Ws into 100 volt line. Includes SPS speaker protection. 2 RU. 240 VAC. MediaMatrix compatible via accessory module, AC12. \$2394.

IA400V Dual 200 Ws into 100 volt line. Includes SPS speaker protection. 2 RU. 240VAC. MediaMatrix compatible via accessory module, AC12. \$3033.

IA800V Dual 400 Ws into 100 volt line. Includes SPS speaker protection. 2 RU. 240VAC. MediaMatrix compatible via accessory module, AC12. \$3677.

PHILIPS

Philips Australia (02) 9805 4143

SM25 sound management system with 9 callstation inputs and 12 speaker zones. Modular plug-and-play. Available in 120w, 180w and 240w versions. 180w has 2 amplifiers. From \$2032.

PHONIC

CMC Music (02) 9905 2511

ICON 1.3 2 x 140w 100v/75v; 2 x 230w 4 Ω s; each ch. has it's own secondary transformers; 3 RU; dual-speed cooling fan; built-in protection from DC faults, overheating and short circuits; power-on muting; XLR/barrier Strip inputs; barrier strip x 2 outputs. \$1150.

ICON 2.7 as above 2 x 300w 100v/75v; 2 x 425w 4 Ω s; 3 RU; 2 x dual-speed cooling fans. \$1550.

ICON 4.0 as above 2 x 420w 100v/75v; 2 x 650w 4 Ω s; 3 RU; 2 x dual-speed cooling fans. \$1995.

QSC AUDIO

Technical Audio Group (02) 9810 5300

USA900 two ch.; 550w/2 Ω s, 450w/4 Ω s, 270w/8 Ω s; 3RU; 15kg; two speed fan; Neutrik combo inputs; switchable limiter and low-frequency filter; short-circuit, open-circuit, thermal, ultrasonic and RF protection. \$1695.

CX4T two ch. with internal output transformers; 175w/ch @ 100v; 2RU; 18kg; two speed fan; low-frequency filter; short-circuit, open-circuit, thermal, ultrasonic and RF protection. \$2395.

CX6T two ch. with internal output transformers; 250w/ch @ 100v; 3RU; 25kg; two speed fan; low-frequency filter; short-circuit, open-circuit, thermal, ultrasonic and RF protection. \$2995.

CX12T two ch. with internal output transformers; 500w/ch @ 100v; 3RU; 35kg; two speed fan; low-frequency filter; short-circuit, open-circuit, thermal, ultrasonic and RF protection. \$3995.

RANE CORPORATION

Jands Electronics (02) 9582 0909

MA3 Multich. Amplifier: 3x40W @ 8 Ω s; Input Limiters; Quiet Fan; Euroblock In/Out. 70.7/100V transformers also available. 2RU. \$2195.

MA6S Multich. Amplifier: 6x150W @ 4 Ω s; Input Limiters; Quiet Fan; Euroblock In/Out. DC Power Kit adapts MA6s for +/- 24VDC Operation and output 70.7/100V transformers also available. 3RU. \$4995.

PA AMPLIFIERS

ACOUSTIC TECHNOLOGIES

Acoustic Technologies (07) 3376 4122

M-500B Series 2 stereo MOSFET. 250w per ch. 4 Ω s. Input Level Controls, Output Indicators, XLR Input and Output, Bridge Switch, Fan cooled. 2RU x 380mm deep, 12kgs. \$1765.

M-1000B Series 2 stereo MOSFET. 500w per ch. 4

Ω s. Input Level Controls, Output Indicators, XLR Input and Output, Bridge Switch, Fan cooled. 2RU x 430mm deep, 16.5kgs. \$2777.

AMERICAN DJ

American DJ 1800 643 111

AMDJ V2000 AMDJ "V" Series amplifier is 2 rack units high and offer 250 Ws per side with a full compliment of status indicators, output level LED dB ramps, XLR and 1/4 inch MONO inputs, reset on front of Amp, dual thermostatically controlled variable speed fans, LED clip indicators, built in limiting and low cut filter options. \$749.

AMDJ V1000 AMDJ V1000 "V" Series amplifier has all of the same features of the AMDJ V2000 but offers 150W RMS per ch., LED clip indicators, output level LED dB ramps, XLR and 1/4 inch MONO inputs and dual thermostatically controlled variable speed fans. \$549.

APOGEE SOUND INC

ESA Audio (03) 9562 4605

DA Series Digitally Controlled Amplifiers The DA Series represents Apogee Sound's finest high fidelity technology combined with full digital control and mon.ing of all the amplifier parameters making it possible to control and mon. very remote and/or very large amplifier installations easily. The 2RU amplifiers have power outputs range from 750 to 1000 Ws into 4 Ω s per ch.. \$6,975. - \$7,885.

SA Series Amplifiers The Apogee Sound SA Series feature the same high fidelity bipolar split output technology of the DA Series amplifiers but without the computer control and mon.ing facilities. The 2RU amplifiers have power outputs range from 545 to 1000 Ws into 4 Ω s per ch.. \$5,250.00 - \$7,128.00

CS Amplifiers The Contractor Series to be released at AES in September '98 will feature the sonic purity synonymous of all Apogee Sound amplifiers in a cost effective 2RU package. Power outputs range from 230 - 720 Ws into 4 Ω s per ch.. \$TBA

ARX

ARX Systems (03) 9555 7859

ZR350 Dual ch. power amplifier. 2RU, Bal. jack/XLR in, Speakons out, status LEDs, level controls. 'Headroom Enhance' circuitry, PlugIn crossover or speaker processor modules. 150 Ws RMS/ 4 Ω s per ch.. ZR550 and ZR850 also available. \$1440.

SX1500 Powerful Dual ch. power amplifier. 2RU, Bal. XLR in and loop out, Speakons out, Status LEDs, level controls, massive power supply. 'Headroom Enhance' circuitry. 650 Ws RMS/ 4 Ω s per ch.. SX3000 @ 1,000 W RMS/ 4 Ω s also available. \$2487.

PowerDrive Powerful Three ch. (A, B and Sub) amplifier with onboard ISC speaker processing. 2RU, XLR in, Speakons out, Signal and clip LEDs, level controls. Separate line outs for connecting other amps. A and B 580 Ws RMS/ 4 Ω s, Sub 1050 Ws RMS/ 2 Ω s. \$3718.50.

AUSTRALIAN MONITOR

Australian Monitor (02) 9874 9355

AM 3002 Big brother to AM 1600. 1200 + 1200 RE 4 Ω /2,000 + 2,000 RE 2 Ω . XLR. Bal. in/ Detented attenuators/extended class A FET output/high energy linear supply/speakon + Bi Post out/led metering/fully protected + indication/5 year warranty. 3ru. \$4,520.

AM 2400 High power dual bi-amp at 800 + 400 and 800 + 400 at 4 Ω . Fully featured as per AM series. 24dB linkwitz riley x-over filters, level presets, limiters + indicators, multi-mode operation from slave to bi-amp to bridged. 5 year warranty. 3ru. \$5,670.

PA 1200 600 + 600 RE 4 Ω /XLR bal in + loop thru inputs/ dual speed fan cooling/extended class A FET output/high energy linear supply/fully protected +

indication/bridging facility/plug ins/2ru. \$1,895.
PA 800 As above but 400 + 400 RE 4 Ω. features as per our K series. \$1,595.

CERWIN-VEGA!

Ashton Admor (08) 9478 3800, (02) 9690 0991
HED-270 Two ch. 270 Ws/ch @ 8 Ωs, 425 Ws/ch @ 4 Ωs, 425 Ws/ch @ 2 Ωs, 750 Ws bridged mono @ 8 Ωs. Bal. inputs, mono bridge, ground lift, externally fan cooled. \$1,467.

HED-400 Two ch. 400 Ws/ch @ 8 Ωs, 600 Ws/ch @ 4 Ωs, 600 Ws/ch @ 2 Ωs, 925 Ws bridged mono @ 8 Ωs. Bal. inputs, mono bridge, ground lift, internally fan cooled. \$1,891.

HED-500 Two ch. 525 Ws/ch @ 8 Ωs, 850 Ws/ch @ 4 Ωs, 1125 Ws/ch @ 2 Ωs, 1300 Ws bridged mono @ 8 Ωs, 1700 Ws/ch @ 4 Ωs. Bal. inputs, mono bridge, ground lift, turbo power supply. \$2,734.

CREST AUDIO

Production Audio Services (03) 9415 1585

Vs9000 there are five models in the Vs Series offering cost effective power for price conscious applications. Vs900 450WPC 4 Ωs. 2 Ωs rated, bridgable, 16kg. \$1795.

CA-12 the CA Series ranges from the CA-2 to the CA-18. The CA Series offers tour class protection and reliability at an affordable price. CA-12 1200WPC 4 Ωs, 30.4kg. \$4995.

7301LX is from the Pro Series and it offers high power and low power ch.s for bi-amp applications. The LX version is supplied with a crossover card. CHA 940W 4 Ωs, CHB 240W 4 Ωs, 23kg. \$5385.

8002 Crest's first lightweight amplifier, utilises Powerlok technology. Featuring: active clip; limiting; IGM to mon.; speaker loads for safe 2 Ωs operation. 1400WPC 4 Ωs, 4000W bridged 4 Ωs. \$8995.

CROWN

Bose (02) 9204 6111

Crown K2 Output Power: 2 x 475 Ws 8 Ωs, 2 x 800 Ws 4 Ωs, 2 x 1250 Ws 2 Ωs; Bridged Mono 1 x 1600 Ws 8 Ωs, 1 x 2500 Ws 4 Ωs; Weight: 17.3 Kg. Features: No Fan; Drives very low impedance loads; 3 year Warranty. The K2 continues Crowns Tradition of excellence with superior sonic performance. \$3902.

Crown Macro-tech MA2400 Output Power: 2 x 520 Ws 8 Ωs, 2 x 800 Ws 4 Ωs, 2 x 1050 Ws 2 Ωs; Bridged Mono: 1 x 1585 Ws 8 Ωs, 1 x 2070 Ws 4 Ωs. Features: ODEP protection; Full Three Year Warranty. The Macro-Tech 2400 is designed to provide high power with extremely low distortion for use in touring and high end applications. \$4658.

Crown CE 1000 Output Power: 2 x 275 Ws 8 Ωs, 2 x 450 Ws 4 Ωs, 2 x 560 Ws 2 Ωs; Bridged Mono: 1 x 900 Ws 8 Ωs, 1 x 1100 Ws 4 Ωs. Features: Proportional speed cooling fan; Advanced protection circuitry; Neutrik Speakon (speaker connections; Full Three Year Warranty. The CE 1000 is designed for small bands through to contractors. \$1390.

Crown CE2000 Output Power: 2 x 275 Ws 8 Ωs, 2 x 450 Ws 4 Ωs, 2 x 560 Ws 2 Ωs; Bridged Mono: 1 x 900 Ws 8 Ωs, 1 x 1100 Ws 4 Ωs. Features: Proportional speed cooling fan; Advanced protection circuitry; Neutrik Speakon (speaker connections; Full Three Year Warranty. The CE 2000 is designed for small bands through to contractors. \$1946.

CYBERLOGIC

System Sales (03) 9529 7755

NC812 up to 8 ch.s up to 1400w into 2 Ωs; excellent headroom; hifi fidelity; robust compact; 5RU; 68kg. Touring and installation versions. Voltage rail headroom setting for each ch. independently. \$18,694.

NC807 up to 8 ch.s up to 900w into 2 Ωs; excellent headroom; hifi fidelity; robust compact; 5RU; 58kg. Touring and installation versions. Voltage rail headroom setting for each ch. independently. \$15,337.

NC412 up to 8 ch.s up to 1400w into 2 Ωs; excel-

lent headroom; hifi fidelity; robust compact; 3RU; 48kg. Touring and installation versions. Voltage rail headroom setting for each ch. independently. \$9833.

NC407 up to 8 ch.s up to 900w into 2 Ωs; excellent headroom; hifi fidelity; robust compact; 3RU; 43kg. Touring and installation versions. Voltage rail headroom setting for each ch. independently. \$8173.

db TECHNOLOGIES

Central Musical Instruments (03) 9315 2244

MPA-1004 Stereo Amp. 500w RMS @ 4Ω/310w RMS @ 8Ω. Bridged 1000w RMS @ 8Ω DC, RFI, Soft Start and Short Circuit Protected/Mains, Peak, Audi Signal, Protection LED indicators plus Hi & Lo Temperature/ Input Connectors, 6.35mm Jack & XLR/ Output, Speakon 4/19 kg Weight/2 RU/Ground - Lift. \$2,199.

MPA-504 Stereo Amp. 250w RMS @ 4W/180w RMS @ 8Ω. Bridged 500w RMS @ 8Ω DC, RFI, Soft Start and Short Circuit Protected/Mains, Peak, Audi Signal, Protection LED indicators plus Hi & Lo Temperature/ Input Connectors, 6.35mm Jack & XLR/Output, Speakon 4/13 kg Weight/2 RU/ Ground - Lift. \$1,299.

MPA-204 Stereo Amp. 100w RMS @ 4Ω/75w RMS @ 8Ω. Bridged 200w RMS @ 8Ω DC, RFI, Soft Start and Short Circuit Protected/Mains, Peak, Audi Signal, Protection LED indicators plus Hi & Lo Temperature/ Input Connectors, 6.35mm Jack & XLR/Output, Speakon 4/7 kg Weight/1 RU/Ground - Lift. \$799.

ELECTRO-VOICE

TELEX/EVI (02) 9648 3455

Q44 stereo power amplifier; 450w per ch. @ 4 Ωs @ 1kHz; 15kg. \$1749. Also available 066.

7100 dual mode; 4 Ωs 100w @ 8 Ωs 200w @ 16 Ωs 150w; amplifier protection; convection cooled; 8.16kg. \$1359. Also available 7200.

P1200 370w/ch. @ 8 Ωs; 550w @ 4 Ωs; 650w @ 2 Ωs; output limiting; hi/lo cut filter; fan cooled; 14kg. \$2799.

P2000 2 ch.; 560w @ 8 Ωs; 900w @ 4 Ωs; 1200w @ 2 Ωs; switchable hi/lo cut filter; dual toroidal transformers; 26kg. \$3899. Also available P3000.

ESP TECHNOLOGY

ELSTA (02) 9568 2100

PA150 3RU, in-built fan cooling, output protection circuitry with low impedance load handling. Featuring 150Ws of power, relay controlled Turn-On (3-6 secs), short and mismatch protection, thermal protection circuits, DC and Overload protection circuitry, jack inputs, Cannon and Bare wire outputs, full front panel status indicato. \$499.

PA300 Offers all aspects of the PA150 but with a 300W output per ch. Features XLR inputs/ outputs, short and mismatched protection circuit, thermal protection circuit plus DC and overload protection circuits. Employs a toroidal transformer, cannon inputs and outputs and bridging capabilities. \$749.

ESP Power 500 features exclusive interchangeable input processing cards, auto distortion and signal management system, dual turn on delay relays, DC & thermal overload protection on both ch.s, clip and fault status indicators, XLR and 1/4 inch jack inputs and dual cannon outputs. Plus the ESP Power 500 is Australian made, 5-year warranty. \$1199.

ESP Power 1000 Designed and manufactured completely in Australia, features all the features of the ESP Power 500 with XLR inputs and outputs, dual fans plus wicked graphics and it offers 500 Ws plus a side. Weighs 18kg, 5-year warranty. \$1899.

FENDER

Fender Australia (02) 9666 5077

SPL6000 2 x 300w @ 4 Ωs stereo or 600w @ 8 Ωs bridged; 2 speed fan; jack or XLR ips; jack or binding posts output; Delta-comp limiting; 5 year warranty. \$1499.

SPL9000 2 x 450w @ 4 Ωs stereo or 900w @ 8 Ωs bridged; 2 speed fan; jack or XLR ips; jack or binding posts output; Delta-comp limiting; 5 year war-

ranty. \$2099.
SPLM500 500w @ 2 Ωs, 3 band sweepable notch filtering; bal. in/out; variable low pass/hi pass filters; Delta-comp protection ideal for mon.s; 5 year warranty. \$1399.

GENINI

Disco World (03) 9735 0588

XG-2000 160w per ch. @ 8 Ωs; 250w @ 4 Ωs RMS power; 500w @ 8 Ωs bridged mono; fan cooled; level controls; A/B speaker selection; 10 kgs. \$899.

XG-3000 200w per ch. @ 8 Ωs; 320w @ 4 Ωs; 640w @ 8 Ωs bridged mono; power protection circuitry; level controls; A/B speaker selection. \$979.

XP-800 250w per ch. @ 8 Ωs; 400w @ 4 Ωs RMS; 800w @ 8 Ωs bridged mono; protection short circuit, DC, overheat; sub/ultrasonic filter; 19kgs. \$1296.

XP-1200 400w per ch. @ 8 Ωs; 600w @ 4 Ωs RMS; 1200w @ 8 Ωs bridged mono; protection short circuit, DC, overheat; sub/ultrasonic filter; 9kgs. \$1595.

HAFLER

Australian Audio Supplies (02) 4388 4666

Hafler P4000 Two ch.s, 200w + 200w @ 8 Ωs, 275w + 275w @ 4 Ωs, 550w bridged mono @ 8 Ωs, No Fan! Convection Cooled, Mosfet Output Devices, 100V/uS Slew Rate, New LED Indicators, Clip Indicators, Deep wide soundstage. \$1995.

JBL

Jands Electronics (02) 9582 0909

MPX Series amplifiers feature - XLR and barrier strip inputs, and binding post outputs. Fan cooled and fully protected. High pass filters on all ch.s, 3RU. Power ratings from 300 w/ch to 1200 w/ch (4 Ωs). From \$2195.

MPA Series amplifiers feature optional input modules that incorporate crossovers, CD Horn EQ, limiting etc., Output connectors are barrier strips, inputs - jacks and XLRs. Fully protected and variable speed fan cooling. 2RU and 3RU high. Power ratings from 275 w/ch to 1200 w/ch (4 Ωs). From \$2995.

MPC Series amplifiers feature - XLR and barrier strip inputs, and binding post outputs. Fan cooled and fully protected. High pass filters on all ch.s, 3RU. Power ratings: 350 w/ch (2 Ωs)/175 w/ch (100v), 450 w/ch (2 Ωs)/250 w/ch (100v), 900 w/ch (2 Ωs) /500 w/ch (100v). From \$2195.

LEEM

Central Musical Instruments (03) 9315 2244

LA-1200 Stereo Amp. 600w RMS @ 4Ω/330w RMS @ 8Ω. Bridged 1200w RMS @ 4Ω Two-speed fan cooling/Clip, Limit, Signal, Protect, Active LED indicators/DC, Over load & short Circuit Protected/ 2 RU. \$1,599.

LA-900 Stereo Amp. 450w RMS @ 4Ω/250w RMS @ 8Ω. Bridged 900w RMS @ 4Ω Two-speed fan cooling/Clip, Limit, Signal, Protect, Active LED indicators/ DC, Over load & short Circuit Protected /2 RU. \$1,499.

LA-600 Stereo Amp. 300w RMS @ 4Ω/160w RMS @ 8Ω. Bridged 600w RMS @ 4Ω Two-speed fan cooling/Clip, Limit, Signal, Protect, Active LED indicators/DC, Over load & short Circuit Protected/ 2 RU. \$1,299.

MACKIE

Australian Audio Supplies (02) 4388 4666

Mackie M1400 Two ch.s, 1400 w @ 4 Ωs bridged, 700W + 700W @ 2 Ωs stereo, Switchable 63Hz/ 120Hz Electronic Subwoofer Crossover, Sweepable 5Hz-170Hz Low Cut Filters, Sweepable 2kHz-6kHz Constant Directivity Horn Compensation & 'Air' EQ, Subsonic Stabiliser, T-Design Cooling, Short Circuit & Temperature Indicators, 16kgs, 2 RU. \$1795.

Mackie M2600 Two ch.s, T-Design Cooling, True 24 dB/Oct Linkwitz/Riley Sub Woofer Crossover with 3 Selectable Frequencies, Variable Low-Cut Filters, XLR Outputs Switched by Daisy Chaining, and Crossover Low and High Outputs, 2600W @ 4 Ωs

bridged, 1700W @ 8 Ωs bridged, 1300W + 1300W @ 2 Ωs stereo, 850W + 850W @ 4 Ωs stereo, 500W + 500W @ 8 Ωs stereo, 3RU, 25kgs. \$2995.

PEAVEY

Audio Telex Communications (02) 9647 1411

CS800S Dual 420 Ws @ 4 Ωs, 2 x 600 Ws @ 2 Ωs. 1200 Ws @ 4 Ωs mono bridged. 2RU. 10kg. DDT Speaker protection. Modular inputs and outputs. \$2428.

CS1800G Dual 600 Ws @ 4 Ωs, 1800 Ws @ 4 Ωs bridged, 2 x 900 Ws @ 2 Ωs, 2 x 350 Ws @ 8 Ωs. 2RU. DDT Speaker protection. \$3797.

CS3000G Dual 1000 Ws @ 4 Ωs, 2 x 1500 Ws @ 2 Ωs, 2 x 600 Ws @ 8 Ωs, 3000 Ws @ 4 Ωs bridged, 2000 Ws @ 8 Ωs bridged. 3RU. DDT Speaker protection. \$5966.

DPC1400X Dual 500 Ws @ 4 Ωs, 2 x 700 Ws @ 2 Ωs, 1400 Ws @ 4 Ωs bridged, 1RU, 7kg. One of the most compact and lightest high power amplifiers on the market. \$3800.

PHILIPS

Philips Australia (02) 9805 4143

LHM 0245/00 300w high performance stereo power amplifier. 2 x 150w at 8 Ωs bridgable. 10Hz to 30kHz. Distortion 0.01%. S/N ratio 95dB. \$1146.

LHM 0246/00 600w high performance stereo power amplifier. 2 x 300w at 8 Ωs bridgable. 10Hz to 30kHz. Distortion 0.01%. S/N ratio 95dB. \$2110.

PHONIC

CMC Music (02) 9905 2511

MAR 2 2 x 230w into 4 Ωs, 2 x 150w 8 Ωs, 2 x 300w 2 Ωs; 2 RU; dual-speed cooling fan; toroidal transformer for increased efficiency zero hum; Neutrik combo connectors; stereo/bridged operation; built-in protection system. \$1095.

MAR 4 as above 2 x 425w into 4 Ωs, 2 x 270w 8 Ωs, 2 x 550w 2 Ωs; 2 RU; 2 x dual-speed cooling fan; switchable limiting, stereo/bridged/parallel operation. \$1350.

MAR 6 as MAR 4, 2 x 650w into 4 Ωs, 2 x 400w 8 Ωs, 2 x 1000w 2 Ωs; 3 RU. \$1695.

QSC AUDIO

Technical Audio Group (02) 9810 5300

PLX Range four models: 400, 600, 800 and 1050w/ch @ 4 Ωs; 9.5kg featuring PowerLight technology; XLR in/Speakon out; clip limiter; HP filters; variable speed fan; full protection; 2RU. From \$1895-\$3795.

MaX Series stereo; four models: 400, 600, 725 and 1300w/ch @ 4 Ωs; conventional heavyweight amps featuring open input architecture for internal limiters, crossovers, EQ etc. Two speed fan; short circuit, open circuit, thermal, ultrasonic and RF protection, 2/3 RU. Entech Award Winner. From \$2595-\$4995.

PowerLight Series lightweight 8.2kg; 10 models: 400-1600w/ch @ 4 Ωs; dual variable speed fans; Neutrik combo inputs; data-port; DC, sub audio and thermal protection, 2/3 RU. Entech Award Winner. From \$3295-\$7295.

PL9.OPFC 3200w/ch @ 4 Ωs; very high power amplifier weighing only 23kg and 3 RU; Neutrik combo inputs; data-port; DC, sub audio and thermal protection, variable speed fans. \$14,495.

ROLAND

Roland Corporation Australia (02) 9982 8266

SRA-260 provides 130W + 130W of stereo power in a 2U rackspace for a variety of live sound applications. Features: 130W + 130W output (8 Ω load, 1 kHz, 1% or less THD); Protective circuits safeguard the amplifier and speaker system; Three input jacks (TRS 1/4", XLR and Barrier strip types); Mode switch (stereo/BTL) and GND switch (GND/LIFT). \$1095.

SRA-540 The SRA-540 offers 270W + 270W of stereo power in a 2U rackspace. Like the SRA-800 and 260, the SRA-540 is housed in a sturdy, road-worthy casing. Features: 270W + 270W output (8 Ω load, 1 kHz, 1% or less THD); Limiter circuit elimi-

BUYER'S GUIDE

amplifiers

nates output distortion even with input overload; Protective circuits safeguard the amplifier and speaker system; Three input jacks (TRS 1/4", XLR and Barrier strip types); Mode switch (stereo/BTL), GND switch (GND/LIFT) and Limiter switch (ON/OFF). \$1395.

SRA-800 3RU, 400W + 400W output (8 Ω load, 1 kHz, 1% or less THD); Limiter circuit eliminates output distortion even with input overload; Protective circuits safeguard the amplifier and speaker system; Three input jacks (TRS 1/4", XLR and Barrier strip types); Mode switch (stereo/BTL), GND switch (GND/LIFT) and Limiter switch (ON/OFF). \$1895.

STEWART

Central Musical Instruments (03) 9315 2244
Pro Reference 100 Stereo Power Amp. 420w RMS @ 4 Ω / 225w RMS @ 8 Ω . Bridged 725w RMS @ 4 Ω Switch Mode Power Supply Amps. Weight 5kg, 1 RU, with Polished Chrome front face plate, Gold Plated inputs, World class reliability plus Harmonic Shift Correction and Superior Sonic Performance. \$2,799.

Pro Reference 50 Stereo Power Amp. 230w RMS @ 4 Ω / 130w RMS @ 8 Ω . Bridged 400w RMS @ 4 Ω Switch Mode Power Supply Amps. Weight 4.5kg, 1 RU, with Polished Chrome front face plate, Gold Plated inputs, World class reliability plus Harmonic Shift Correction and Superior Sonic Performance. \$1,999.

WORLD 2.1 Stereo Power Amp. 1050w RMS @ 2 Ω / 775w RMS @ 4 Ω / 450w RMS @ 8 Ω . Bridged 2,100w RMS @ 4 Ω . Switch Mode Power Supply Amps. Weight 7.7kg, 2 RU, with INTELLIGENT SHORT CIRCUIT PROTECTION, World class reliability plus Harmonic Shift Correction and Superior Sonic Performance. \$3,999.

WORLD 1.6 Stereo Power Amp. 880w RMS @ 2 Ω / 650w RMS @ 4 Ω / 390w RMS @ 8 Ω . Bridged 1,600w RMS @ 4 Ω . Switch Mode Power Supply Amps. Weight 7.3kg, 2 RU, with Intelligent Short Circuit Protection, World class reliability plus Harmonic Shift Correction and Superior Sonic Performance. \$3,499.

YAMAHA

Yamaha Music Australia (03) 9693 5164
P1600 Stereo 160W / CH @ 8 Ω s, 200 W / CH @ 4 Ω s, 400 W bridged. 12Kg, 2RU w/EEE Technology. \$1095.

P3200 Stereo 340W / CH @ 8 Ω s, 440 W / CH @ 4 Ω s, 880 W bridged. 15Kg, 2RU w/EEE Technology. \$1495.

P4500 Stereo 460W / CH @ 8 Ω s, 620 W / CH @ 4 Ω s, 1240 W bridged. 15Kg, 2RU w/EEE Technology. \$1795.

H7000 Stereo 750 W / CH @ 8 Ω s, 950 W / CH @ 4 Ω s, 1900 W bridged. 26.5Kg, 2RU w/EEE Technology. \$4995.

STUDIO AMPLIFIERS

APOGEE SOUND INC

ESA Audio (03) 9562 4605
DA Series Digitally Controlled Amplifiers represents Apogee Sound's finest high fidelity technology combined with full digital control and monitoring of all the amplifier parameters making it possible to control and monitor very remote and/or very large amplifier installations easily. The 2RU amplifiers have power outputs range from 750 to 1000 Ws into 4 Ω s per ch. \$6,975 - 7,885.

SA Series Amplifiers feature the same high fidelity bipolar split output technology of the DA Series amplifiers but without the computer control and monitoring facilities. The 2RU amplifiers have power outputs range from 545 to 1000 Ws into 4 Ω s per ch. \$5,250 - 7,128.

CS Amplifiers The Contractor Series to be released at AES in September '98 will feature the sonic purity synonymous of all Apogee Sound amplifiers in

a cost effective 2RU package. Power outputs range from 230 - 720 Ws into 4 Ω s per ch. \$7BA.

AUSTRALIAN MONITOR

Australian Monitor (02) 9874 9355
1K2 Studio Acclaimed critical reference unit at 600 + 600 RE 4 Ω . Bal in/detented attenuators, extended class A FET output/ high energy linear supply/fully protected with indication/5 year warranty/2ru. \$3,100.

AM 1600 Studio As used by the record plant. 800 + 800 RE 4 Ω . Bal in/detented attenuators/extended class A FET output/high energy linear supply/ramp metering/fully protected + indication/bridged + ground lift modes/5 year warranty/3ru. \$3,700.

HAFLER

Australian Audio Supplies (02) 4388 4666
Hafler P1000 Two ch.s, 50w + 50w @ 8 Ω s, 55w + 55w @ 4 Ω s, 110w bridged mono @ 8 Ω s, No Fan! Convection Cooled, Mosfet Output Devices, 20V/uS Slew Rate, Chassis Float Ground Switch, 1RU, 5.5kg. \$1095

Hafler P1500 Two ch.s, 75w + 75w @ 8 Ω s, 85w + 85w @ 4 Ω s, 150w bridged mono @ 8 Ω s, No Fan! Convection Cooled, Mosfet Output Devices, 100V/uS Slew Rate, Chassis Float Ground Switch, 2RU, 9kg. \$1395.

Hafler P3000 Two ch.s, 150w + 150w @ 8 Ω s, 200w + 200w @ 4 Ω s, 400w bridged mono @ 8 Ω s, No Fan! Convection Cooled, Mosfet Output Devices, 100V/uS Slew Rate, Chassis Float Ground Switch, 2RU, 11kg. \$1695.

Hafler P4000 Two ch.s, 200w + 200w @ 8 Ω s, 275w + 275w @ 4 Ω s, 550w bridged mono @ 8 Ω s, No Fan! Convection Cooled, Mosfet Output Devices, 100V/uS Slew Rate, New LED Indicators, Clip Indicators, Deep wide soundstage. \$1995.

OMNIPHONICS

Production Audio Services (03) 9415 1585
Footprint 150 built in the UK, Omniphonics have a reputation for sound quality. The FP150 is a 1RU reference amplifier, 75WPC @ 4 Ω s, 7kg. \$2042.
Footprint 300 1RU; 150WPC @ 4 Ω s. Features include output load sensing, DC and thermal protection. Convection cooled. \$3145.

PHONIC

CMC Music (02) 9905 2511
MAF 1 2 x 150w into 4 Ω s, 2 x 100w 8 Ω s, 1 RU; Neutrik combo connectors; convection cooled; power-up muting; built-in protection for short circuit DC, temperature monitoring; stereo/parallel switch; ground floating switch; low noise. \$699.

QSC AUDIO

Technical Audio Group (02) 9810 5300
USA400 two ch.; 250w/2 Ω s, 200w/4 Ω s, 125w/8 Ω s; 3RU; 11kg; convection cooled; Neutrik combo inputs; switchable limiter and low-frequency filter; short-circuit, open-circuit, thermal, ultrasonic and RF protection. \$1395.

PLX Range four models: 400, 600, 800 and 1050w/ch @ 4 Ω s; 9.5kg featuring PowerLight technology; XLR in/Speak out; clip limiter; HP filters; variable speed fan; full protection; 2RU. From \$1895-\$3795.

SYMETRIX

Audio Telex Communications (02) 9647 1411
420 Dual 20 W into 4 or 8 Ω . Designed for near field mon.s, small reference speakers, headphones etc. 1RU. \$1128.

TASCAM

TEAC Australia (03) 9644 2442
PA-20MkII 1U; 25w x 2 into 4 Ω s - bal. and unbal. connections; input sensitivity control and protection circuitry w/ indicator lamp; stereo/BTL mode select (bridged mono - 50w). \$539.
PA-150 2U; 150w x 2 into 4 Ω s - XLR and RCA

connections - stereo/BTL mode select switch. Fan cooled, rack mounting. \$899.

YAMAHA

Yamaha Music Australia (03) 9693 5164
P1600 Stereo 160W / CH @ 8 Ω s, 200 W / CH @ 4 Ω s, 400 W bridged. 12Kg, 2RU, EEE (energy efficient engine) technology allows the amplifier to produce the same amount of output power with about half the input power required. \$1095.

P3200 Stereo 340W / CH @ 8 Ω s, 440 W / CH @ 4 Ω s, 880 W bridged. 15Kg, 2RU w/EEE Technology. \$1495.

P4500 Stereo 460W / CH @ 8 Ω s, 620 W / CH @ 4 Ω s, 1240 W bridged. 15Kg, 2RU w/EEE Technology. \$1795.

A100a Stereo amplifier, 50 W @ 8 Ω , headphone socket, RCA/jack inputs, VU meters. \$795.

MIXER AMPS

ALLEN & HEATH

Technical Audio Group (02) 9810 5300
ICON digital powered mixer; 8 mic/2 stereo line inputs; dual digital effects and song parameter save/recall; 600w @ 4 Ω s power amplifier; 4 band parametric EQ; four aux; MIDI/foot switch control. \$3495.

DYNACORD

EVI Audio (02) 9648 3455
Powermate 1000 12 ch. dual 500w powered mixer; 2 separate, built-in 18 bit stereo FX sections; 99 presets each; low cut filter; feedback filter; 20kg. \$4499.
Powermate 1600 16 ch. dual 500w powered mixer; 3 band tone control; low cut filter; 18 bit stereo FX sections with 99 presets each; 24kg. \$4899.

FENDER

Fender Australia (02) 9666 5077
PASSPORT P150 2 x 75w, 3 mono ch.s; 1 stereo ch.; digital reverb; priority ducking feature on ch. 1 comes with 1 mic, cable, speakers and speaker leads; 14kg; 5 year warranty. \$1699.
SRM6302 6 ch.; 2 x 150w at 4 Ω s; 3 band EQ; power amps can be run tandem or mains/mon.; 9 band graphic; spring reverb; 15.9kg; 5 year warranty; available in 8 ch. version. \$1299.
SR6520P 6 ch. mono mixer amp; 520w at 2 Ω s; 3 band EQ; 9 band graphic EQ; spring reverb; fan cooled; 1 eff; 1 mono send; 5 year warranty; available in 8 ch. version. \$1799.
PASSPORT P250 portable complete PA system; 2 x 125w, digital reverb; 4 mono ch.s; 2 stereo ch.; comes with 2 mics, cables, speaker stands and covers; 5 year warranty. \$2299.

LEEM

Central Musical Instruments (03) 9315 2244
PM-4RV 4 ch. Mono 80w RMS Amp. @ 4 Ω . With Reverb, individual channel equalization, 1/4" and XLR inputs, RCA jacks for Recording and play plus 3 ban master Eq. \$499.
PM-401D 4 ch. Mono 100w RMS Amp. @ 4 Ω . With Digital Delay, individual channel equalization, 1/4" and XLR inputs, RCA jacks for Recording and play plus 3 ban master Eq. \$ 569.
PM-602D 6 ch. Stereo 100w RMS Amps. @ 4 Ω . With individual ch. equalisation, 1/4" and XLR inputs, individual Mon. level control, Delay effect level control, 1/4"headphone jack and level control, RCA Tape/CD Record and Play jacks with level control, plus 5 ban master Eq. \$849.
PM-602D 8 ch. Stereo 150w RMS Amps. @ 4W with individual channel equalization, 1/4" and XLR inputs, individual Monitor level control, Delay effect level control, 1/4" headphone jack and level control, RCA Tape/CD Record and Play jacks with level control, plus 5 ban master Eq. \$969.

PEAVEY

Audio Telex Communications (02) 9647 1411

XR560 150 W @ 4 Ω mixer amp, 5 mic inputs, 1 line input, 2 band EQ per ch., 7 band EQ with Feedback Locating System. Digital reverb. Supplied in rugged toolbox for portability. \$1347.

XR684 Dual 200 W @ 4 Ω mixer amp. 8 mic/line inputs, 1 stereo input. 3 band EQ per ch., dual 9 band master graphics with FLS, digital reverb. Supplied in rugged toolbox for portability. \$2092.

XR886 Dual 300 W @ 4 Ω console mixer amp. 8 mic/line inputs, 4 stereo inputs. 3 and EQ with mid-sweep. 2 Auxs, 2 Mon sends, dual 9 band graphic EQ's with FLS. \$4313.

XR2012 Dual 420 W @ 4 Ω console mixer amp. 12 mic/line inputs, 4 stereo inputs. 3 and EQ with mid-sweep. 2 Auxs, 2 Mon sends, dual 9 band graphic EQ's with FLS. 19.5kg. \$5504.

PHILIPS

Philips Australia (02) 9805 4143
LHM 0301/00 flexi-line II system amplifier. 120w with 4 bal. microphone inputs and 1 line input. Attention chime and 2-zone switching. Output at 100v at 8 Ω s. \$745.

PHONIC

CMC Music (02) 9905 2511
Powerpod 7 brick-style, 2 x 200w/400w bridged into 8 Ω s, selectable main + main, main + mon., bridged; 7 mic ch.; 3 stereo ch.s, 2 x 7 band graphic main/mon.; phantom power; digital effects; 3 band EQ each ch. \$895.

ROLAND

Roland Corporation Australia (02) 9982 8266
PA-410 The PA-410 is a versatile 10-ch. powered desktop mixer with 400 Ws of total output power. Features: 10-ch. (6-mono/2-stereo) desktop-style powered mixer with 200W + 200W output (4 Ω load); Built-in digital reverb; Each ch. offers individual EQ (mono ch.s: 3-band; stereo ch.s: 2-band); 7-band graphic EQ provided for left and right ch.s; Limiter circuit in the power amp section eliminates output distortion even with input overload. \$2495.

SPIRIT

Jands Electronics (02) 9582 0909
Power Station Range consists of 10/2, 12/2, and 20/2 Powered Mixers, Mono & Stereo inputs, 175W, 300W, or 600W per ch (4 Ω s), Lexicon Digital Effects processor inbuilt, 7 band Stereo Graphic. Fully protected varispeed fan cooled amplifier sections, versatile patchbay for easy setup. Rack mountable. From \$2995.
PowerPad 10/2 Compact Powered Mixer: Folio NotePad mixer stage, 4 Mono & 2 Stereo inputs, Phantom Power, Fully protected varispeed fan cooled amplifier sections - 30W per ch. \$1195.

YAMAHA

Yamaha Music Australia (03) 9693 5164
EMX640 11 input powered mixer (4 mono, 2 twin (stereo) 1 mono sub in & stereo tape in). 3 band EQ, mor., and effects send with digital effects & 7 band graphic on FOH & mon. outputs, XLR Mic inputs with phantom power, 2 * 200 W amplifiers switchable to bridge mode; w/EEE Technology. \$1095.
EMX2000 18 input powered mixer (8 mono, 2 stereo, 2 stereo sub in & stereo tape in). 3 band EQ, PFL, AFL, 2 mon. and effects send with 16 program digital effects & 7 band GEQ, XLR Mic inputs with phantom power, 2 x 200 W amplifiers switchable stereo FOH, FOH/Mon. and bridge FOH. 2 stereo, one mono & stereo tape output, 14 Kg; w/EEE Technology. \$1995.

next month

LOUDSPEAKERS

How to do it

DUNCAN FRY'S LIVE SOUND MIXING

- EQUALIZERS (Part 8)

OTHER EQ TOOLS

Feedback Eliminators

Feedback Eliminators are digital signal processing devices that automatically hunt down feedback. They isolate the particular frequency that is feeding back and pull it out completely. Like most things in audio, some do it a lot better than others, and people either love them or hate them.

The Sabine FBX Feedback Exterminator is a typical unit. It's a patented circuit that works pretty well in most cases. It has filters that are one tenth of an octave wide, compared to one third of an octave on a 30 or 31 band Graphic EQ, so it should have less of an effect on the overall sound.



SABINE 2020 FEEDBACK EXTERMINATOR. YOU'LL PROBABLY COME ACROSS THE EARLIER 901 SINGLE CHANNEL AND THE 1802 DUAL CHANNEL UNIT

How do you get it to work?

Each model is different, but here are some general rules.

1. Set the microphones up as you would normally.
2. Adjust the Graphic Equalizer so that the system sounds the way you think it should. Don't pull out any feedback frequencies.
3. Press in the enabling switch for at least 4 seconds.
4. Gradually start to push up the master faders. As each feedback ring appears, the FBX will identify it and pull it down until the feedback stops.
5. Keep going until all the feedback rings (up to 6) have been eliminated.

The FBX unit will leave an extra 3 filters floating to pull out any further feedback rings as they occur. If the performer with a microphone walks in front of a speaker box it will pull out the inevitable squeal, and then go back to normal once they have moved away from the speaker.

Feedback eliminators are made by several companies - Sabine, Roland, Shure; and ARX make the Anti Feedback Workstation, which combines an FBX module, a 30 band Graphic EQ, and a peak limiter all in the one package.



EQUALIZERS WITH FEEDBACK INDICATION

These are a combination of a simple analyzer (see below) and a Graphic EQ. Each EQ fader has an LED above it that lights up if that frequency is feeding back.

Originally this appeared on an EQ from a UK company called PA:CE back in the seventies, but the concept has reappeared on a range of EQs from Peavey, so it's quite likely that you'll come across one of them.

How do you use it?

Use it as you would any other Graphic Equalizer. If you hear a feedback ring, and an LED lights up, pull down that frequency just enough to stop the ring. Don't be heavy handed - any more cut than is necessary will put a big hole in the sound at that particular frequency.

Some of the digitally controlled equalizers that are coming onto the market now often have some form of feedback elimination built in.

However, unlike analog EQs, there is no common interface or layout for any of them. They're all different, so if you come across one, you'll

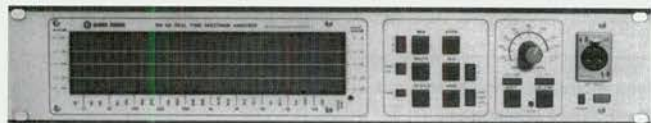
need to read its manual from cover to cover and to have used one before to be able to do much with it!

If you are placed in this position - say as a guest mixer or support band mixer, try and have as much time as possible to run right through the operation of the unit with the system's engineer.

SPECTRUM ANALYZER

Also known as Real Time Analyzers, or RTA's, these are very sophisticated devices using rows of LEDs to give you a visual indication of the sound. They are usually available in 10 band (1 octave) or 31 band (1/3 octave) versions.

An analyzer listens to the sound through its own microphone, and displays the exact amount level for each frequency that it hears.



Why do we need one?

Well, your aim is to get the sound of the room and PA acoustically flat, removing all the peaks and dips in their combined response. Then, and only then, can you start to 'colour' the sound to the way you like to hear it. The analyzer is a useful tool for finding those peaks and dips quickly, so you can get to work faster.

The 10 band models are usually hand held and reasonably priced, but are not really accurate enough for our purposes. They are OK for checking out your stereo at home but you wouldn't really want to earn your living with one!

The 31 band models are more expensive and come in hand held versions and rack mounted. You get what you pay for. The best of them will have memories to store readings for later comparison, variable attack times, peak hold function, and 1, 2 or 3 dB settings. This last feature will give you a super accurate reading at 1 dB steps, and a more general reading at 3 dB steps, which is similar to the way your ears would hear things.

SETTING UP THE EQUALIZER (ROOM TUNING)

Your main mix equalizer is the interface between the sound of the PA system and the sound of the room. Ideally it should be used to correct the room response, but in many cases it is used to correct deficiencies in the PA system as well.

Theoretical sound considerations are fine for the studio, because a studio is usually a near perfect acoustic environment.

A live gig, on the other hand, is about as far from a perfect acoustic environment as you can get. Drastic problems call for drastic solutions, and pretty quickly, too. There is no rolling the tape back in live sound! A polished hardwood stage with mirrors all around and a loud band playing on it is going to call for some pretty harsh EQ if the singer is ever going to hear himself or be heard by the audience. And, if he can't hear himself, no matter what the reason, you're going to get the blame!

Highly polished stages and dance floors, hard brick walls, galvanized iron roofing; combine these with a PA system that will often have a few good peaks of its own, and if you haven't got your EQ skills together you'd better hope and pray for a good sized crowd to help soak up some of that boom and bounce.

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

How to do it

TOM MISNER'S PRACTICAL STUDIO TECHNIQUES

- BASIC SOUND THEORY (Part 8)

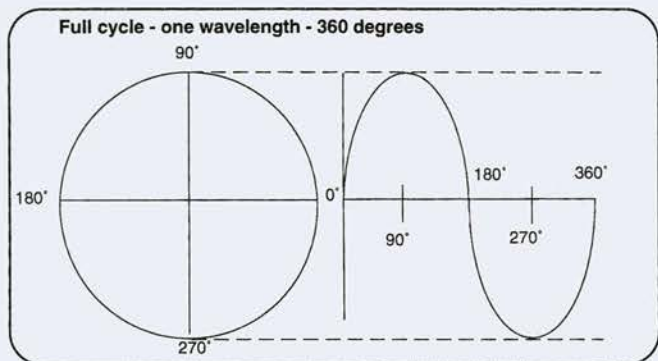
The vibrations from a musical instrument move the surrounding air molecules in a back-and-forth motion, causing compression and rarefaction of the air pressure. A completed movement, or cycle, of compression and rarefaction is called a wave. These waves travel in an outward motion similar to the waves created on the surface of a pond after a stone has been thrown in.

Frequency

The speed at which the air molecules vibrate is called the frequency (f) and is measured in cycles per second (cps) or, more commonly, Hertz (Hz). Frequency is closely related to pitch. The lowest 'E' note from an electric bass guitar corresponds to a frequency of approximately 40 Hz - The human ear responds to frequencies from 20 Hz to 20 kHz.

Velocity

The speed of sound is known as its velocity (v), and is determined by



the medium the sound is travelling through. The velocity of sound in air is:

$$v = 331.4 \text{ metres per second (at } 0^\circ \text{ C)}$$

Notice that the velocity was stated at a particular temperature? The velocity of sound in air is affected by the air temperature, increasing by 0.6 meters per second for every 1° C temperature increase.

Therefore:

$$\text{Velocity at } 0^\circ \text{ C} = 331.4 \text{ m/sec.}$$

$$\text{Velocity at } 10^\circ \text{ C} = 337.4 \text{ m/sec.}$$

$$\text{Velocity at } 20^\circ \text{ C} = 343.4 \text{ m/sec.}$$

$$\text{Velocity at } 30^\circ \text{ C} = 349.4 \text{ m/sec.}$$

Wavelength

The distance a wave travels through the air in one complete cycle is called the wavelength and has the symbol ' λ ' (lambda). The wavelength of a sound wave can be calculated if you know the sound's frequency and velocity:

$$I = v/f$$

From the formula we can see that as the frequency increases the wavelength decreases, therefore high frequencies have much shorter wavelengths than low frequencies. Assuming the air temperature is 20° C , we can calculate the wavelength for a number of different frequencies:

- 1) Wavelength at 50 Hz = $343.4 / 50 = 6.86 \text{ m}$
- 2) Wavelength at 100 Hz = $343.4 / 100 = 3.43 \text{ m}$
- 3) Wavelength at 440 Hz = $343.4 / 440 = 0.78 \text{ m}$
- 4) Wavelength at 20 kHz = $343.4 / 20,000 = 0.017 \text{ m}$

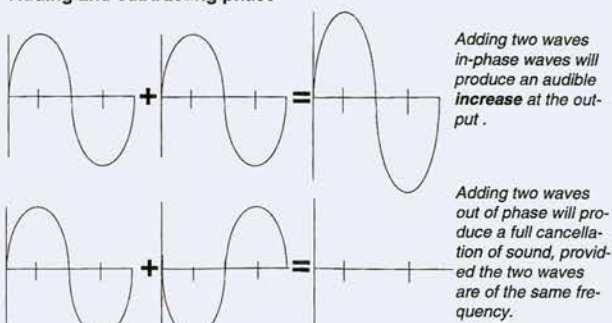
Amplitude

The distance between full compression and full rarefaction is called amplitude and is commonly measured in either volts or decibels. Amplitude roughly corresponds to the perceived loudness of a signal.

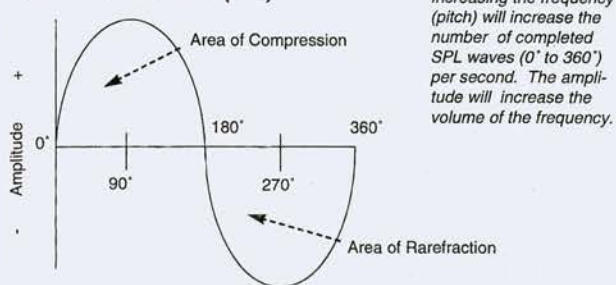
Phase

The repetitive nature of sound waves allows them to be divided into equal intervals and measured in degrees, with 360 degrees in one full cycle. Waves of the same frequency which commence at the same time are said to be in phase, while those commencing at different times are out of phase. Adding two 'in phase' waves produces an amplitude increase. Adding two 'out of phase' waves often produces an amplitude decrease.

Adding and subtracting phase



Sound Pressure Wave (SPL)



Most phase problems result in a loss of low frequencies and coloration of high frequencies. Blending a delayed signal with the original signal creates phase shifts because the delayed signal contains the same information as the original, yet it begins at a different time. A delay of 1 ms will create phase shifts for the following frequencies:

$$250 \text{ Hz delayed by } 1 \text{ ms} = 90^\circ \text{ phase shift}$$

$$500 \text{ Hz delayed by } 1 \text{ ms} = 180^\circ \text{ phase shift}$$

$$750 \text{ Hz delayed by } 1 \text{ ms} = 270^\circ \text{ phase shift}$$

$$1 \text{ kHz delayed by } 1 \text{ ms} = 360^\circ \text{ phase shift}$$

In electronic terms phase shift is also known as phase lag, and exists in many electronic circuits (especially equalizers). Even small amounts of phase lag will affect the signal's frequency response.

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

Midnight Oil's

Redneck Wonderland Tour

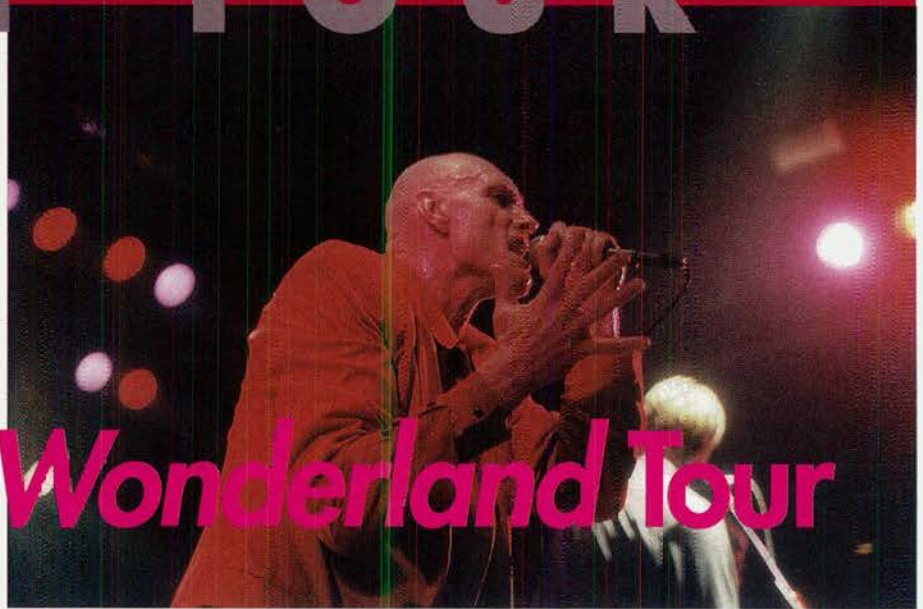


Photo: Jesse Marlow

The Oils are back doing what they do best. Touring. Known for their 'in your face' style of music and political comment, the *Redneck Wonderland* Tour is no exception. Touring extensively throughout Australia, the concert is broken up into two parts - the first is *20,000 Watt RSL* which is the 'greatest hits' set, and the second half features all new music from the band's current album *Redneck Wonderland*.

I caught up with the crew at the half way point of the tour, at their shows at The Palace in Melbourne.

There was more to the *Redneck* Tour than just a couple of hours of Aussie rock. Support acts The Pale Riders and Steady Eddie provided pre-show entertainment, and a screening of legendary surf-flick *Big Wednesday* on a 9 x 12 foot screen kept the crowd occupied until show time.

The staging featured several prominent props related to the show's themes. In the first half the RSL theme was established through poker machines, a mirrorball, a spinning wheel, and an LED message board displaying messages such as 'Steak and Veg \$3.99', and 'Please Explain?'

Following the set change the props became more political - anti Fitzroy River dam signs, a water tower with *Redneck Wonderland* sprayed across it, and protest tripods used by demonstrators at Jabiluka. Midnight Oil frontman Peter Garrett was in his element with so many causes to champion.

LIGHTING

Lighting Designer Rocco Anzelotti has spent a lot of time on the road with Midnight Oil, in between tour managing for other bands such as Skunkhour, Cheap Trick and Bad Religion.

"I've done two previous tours with Midnight Oil, so it was great when I got the call to come out and do the *Redneck Wonderland* tour. The band and management came up

with the concept for the show, and after hearing the album I designed the light show around the music."

Rocco explained that the band have a big input into all technical aspects of the tour.

"Before the first show, we had a couple of days pre-production in Toowoomba where I basically played the CD and then went through the scenes that I had and they all sat around and told me what they did and didn't like. I'm totally cool with that approach - I prefer it when the band have an idea of what they want, and I've got my own idea as well, then it's just a matter of

lot of parts in the second show to create something a bit different and also so I don't wash out the gobos."

Being a real rock and roll show, Rocco created a balance between strong and soft colours such as red, magenta, primary blue and plenty of gold as a highlight. Whereas the *Redneck* set was heavily programmed to include the movement and rotation of the customised gobos on the HPEs, the greatest hits set allowed Rocco the freedom to create the scenes as he went.

"The greatest hits set varies so much each night that there's no point having it all programmed. I know most of the songs they play so I just pick up on the mood of it and create a scene that way."

Rocco's design was asymmetrical but balanced, incorporating a back, mic and front truss.

"I'm running Par Cans, 5 Six Lighters, 5 Clay Paky Mini Scan HPE's and 5 Mega Strobes which are pretty much the basis of the show."

Rocco used the ray and par cans on the back and mid truss, sixlights with colour scrollers on the floor, and the strobes spread throughout the rig.

"The band love the strobes - they haven't really been used to working with them a lot. Last tour we used some White Lightnings but now we've gone up to the Mega Strobes. In smaller venues I may only use three of them because their intensity is so great. Initially we had a bit of trouble with the DMX for the strobes and the HPE's, and we were getting some conflicting errors where we'd bring up an HPE channel and a strobe would start to do a slow flicker. The way around that was to run the strobes straight into a dimmer channel and set the speed and rotations at the lamp during focus and that worked fine."

Rocco chose a 60 channel Jands Event Plus to control the conventional lights and HPEs.

continued over



putting them both together. It worked out really well.

"It only took us those couple of days and we sorted it all out. We moved a few things around, focussed them to the right spots and then we were right. It's pretty much been the same since."

To achieve different looks for the two halves of the show, Rocco changed the style and structure of the lighting dramatically.

"The first half of the show is all ray cans and par cans in washes, whereas the second half is more moody with the HPE's on the backdrops and customised gobos of 'Planet Redneck' and 'Redneck Wonderland' rotating on the cyc, and sixlights down the front with nice dark colours. I don't use a

"We take our own desk rather than relying on house desks from venue to venue because it's so heavily programmed, especially for the *Redneck* set. Because I'm using all the scrollers and the HPE's, it's all got to be exactly the way it's set out. I could have got a more advanced desk but the Event Plus is doing the job really well.

"It took me a while to grasp how to re-do the moving lights every night because I'm running them in my normal scenes. What I have to do at the end of every show is go through all my scenes and pull out all my pan and tilts out of every scene so when I come in today I can just bring up a scene, the gobos or rotators or whatever, are all still running, I just use the pan and tilt to then get them into their final positions for that show, hit record and move onto the next scene. The hardest thing with the set up is just doing that. Every day it takes me an hour to reprogram the show. Once we do the focus, it's just a matter of getting the HPE's into position because it changes every night."

Rocco explained it probably would have been easier to have a separate desk to look after the moving lights but said he preferred running it all through the Event Plus. He used a dedicated controller for the colour scrollers and found it a challenge making sure all the numbers corresponded in the programming of scenes.

Rocco ran the Event Plus on wide mode giving him 120 channels - most of which were used, given that the first 35 were allocated to the HPE's.

"We're running analogue racks rather than digital - more on availability than anything, because **Chameleon** are such a busy com-



pany that by the time our order came in they only had analogue racks left. We've had a few little problems with some of the equipment but Chameleon have an excellent back up service, so pretty much the next day we've got something else. We had a scroller go down in Perth and we had to get a tech out to fix that literally just before the band walked out on stage. I was freaking because I've got so many scenes with the two sixlighters on the front already programmed in as front wash. If I couldn't scroll them and they were going to be stuck on open white, I had everything ready to do a blind edit in the desk and drop them out and put a par wash in. That was a bit of a hairy day!"

AUDIO

David Vinnicombe from Australian Concert Productions in Queensland is System Engineer for the *Redneck Wonderlana* Tour. After working on the last three Midnight Oil tours, David went with a 'tried and true' touring spec for the band.

"It's a Turbosound Floodlight speaker system Midas XL200/50 channels out front, Crown amps, TC delays, Eventide harmo-

nisers, Yamaha SPX 990s, dbx 900 series compressors, and BSS gates. There's a couple of JBL drumfill for rear effects. That's about it."

At the monitor position, Kevin Farrant used a Midas XL250 to look after three in-ear sends, one of which was for Peter Garrett, as well as six sends to foldback wedges.

"We're using the bands own Garwood in-ear monitors which we're really happy with."

David explained that although the band use pretty standard mics such as SM58s and SM57s, and some Sennheiser 421s, it was a pretty extensive mic-up because the greatest hits set could be quite spontaneous.

"Whatever song they choose we've got to have the right instruments miked and ready to go."

David explained that there was very little in the way of treatment on lead vocal. He said that Peter's vocals are always mixed pretty dry with only the odd delay effect or distortion added.

"It's all very simple - that's the way they sound the best."

Drummer Rob Hirst had a "feast of gear" on stage, taking up most of the channels. "There's also a few more guitars and keyboards than usual."

David said there were about 40 lines running from stage to FOH and about 30 to monitors.

With a crew of ten and a midday load in, most days the system was line checked and ready to go by 5.00.

"It's been a good touring system. It's quick to set up and it's really reliable. The whole system is quite small and light so fitting it into 14 feet of truck space hasn't been a problem."

● Mandy Jones

ROUGH RIDERS

My good mate Mitch has played bass guitar in a band since the early seventies and Mitch is an optimistic kind of bloke, eternally convinced that the big break is just around the corner. But whilst waiting for the lucky break the band members have still had to earn a living, hence the inclusion of about twenty different versions of hits such as *Volaré* and *Hava Nagila* on their song list. Mitch's band, let's call them *The Laughing Lounge Lizards* to protect their real identities, are a fixture on the Barmitzvah, Christening, Wedding and 21st Birthday Party circuit and are greatly in demand, partly because of their midnight blue velvet dinner suits with flared pants. They've been wearing the exact same outfits since the seventies and have suddenly found themselves in demand again after spending the whole of the 80's relegated to touring those regional RSL's whose members still talk about the great show that Col Joy put on back in '73.

Now that seventies retro is back in, Mitch and the boys and their blue suits are in hot demand, in fact their success has risen to such a level that they've recently supported a couple of major acts on national tours.

Now I've spent a lot of time dissecting the rider's of the rich and egotistical and I thought it was time we took a look at the rider for those further down the pecking order: namely the support band. Most of us are aware of the technical discrimination against support acts: little inconveniences like having to mix front of house on the last seven channels of the foldback desk and only being allowed one lighting state or perhaps being limited to worklights only. Then there's the business where three of the headline act's keyboard techs, dressed in unspeakable Hawaiian shirts, perform emergency repairs to a synth on stage using angle grinders, TIG welders and a twelve-battery Maglite during the support act's most heart-rending ballad.

Where the headline act's rider insists on single-malt whisky, vintage champagne and boutique beers the support act will usually wind up with a slab of warm VB, frequently past its use-by date. And while the search is on for a pastry chef who can make a walnut brioche with *exactly* the texture demanded by Ms Headline before she will leave her dressing-room, Mitch reckons that the Lizard lads haven't been given anything but soggy curried-egg and lettuce sandwiches before a gig for years. There is one perk that they got onto years ago which no-one has ever figured out: Mitch always adds twelve litres of milk to the Lizard's rider, which, although it's the cause of much disbelief from cynical promoters, has meant that no Lizard member has had to buy milk for their breakfast cereal since 1985!

Rufus B.



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LIGHTING

October 1998

MONTHLY

Edited by Catriona Forcer

LXbizzBITS

PRODUCTS

LKS LIGHTING CONNECTORS

The Resource Corporation now stock the new LKS lighting connectors especially designed for professional lighting applications. Configuration is 19 pin, compatible with Socapex 19 pin connectors. The body, locking ring and backshell are aluminium alloy finished in black. The gold-plated removable pins are available in crimp and solder versions. With operator safety in mind, the 7 central grounding contacts are positioned forward of the remaining pins to achieve earth contact before signal/power contact.

All gender variants are available and the heavily ribbed locking ring allows easy and positive coupling and uncoupling, even with gloved hands. Two sizes of cable gland are available to accommodate most cable diameters. LKS connectors are waterproof to the IP67 standard, thus allowing their use under water.

Call The Resource Corporation +61 3 9877 8233.



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This DMX-controlled switching device allows you to turn on and off up to six 350 watt devices with the Martin 2518 DMX controller or any other DMX board. You can control non-intelligent lights and it is ideal for combining fixtures from Martin's DJ Series with intelligent lights. Price \$839 inc tax.

Call Show Technology (02) 9898 1111.

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INSIDE LIGHTING

Brisbanes new lighting studio
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Lighting consultants Barry Webb & Associates have unveiled their lighting design of the Olympic Figures on Sydney's AMP Tower.

"It was a complex job," said Barry. "The brief was to give a strong image, at night, to the three figures. The difficulty with that is that the figures are not solid, they're made of metal struts so that in daylight they are partially transparent. At night, there wasn't much material to hit and so we suggested to AMP that they light them with colour in a special way where the colour keeps subtly shifting."

Just before dusk, the figures are lit in their natural silver colour and as twilight comes they can be seen quite strongly. At 7pm they gradually fade to gold. The colours are not static and have constantly changing hues of colour within the base colour.

"It's really two golds," added Barry. "We mix the gold together at a fairly fast mixing rate and then half an hour later we fade that away and change to blue. Again it's a mixture of two colours of blue mixed fairly fast so that if you're close to it you'll see it mixing."

"As the night goes on, so the mixing rate falls off. The mixing becomes slower, reflecting the fact that the city is slowing

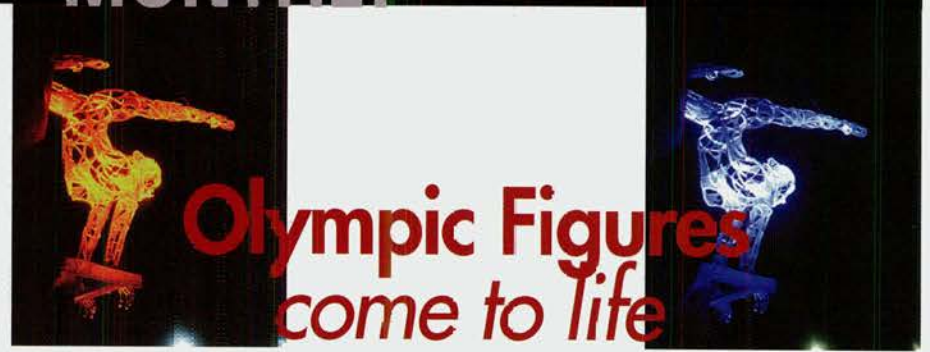
down. At 1am the lighting stabilises in a quiet, ultra-violet blue. It then sits there until dawn."

Some of the colours projected onto the Olympic Figures contain significant amounts of ultra violet light to create a "haze" around the figure.

"We've tried to make it something that graces Sydney and somehow reflects the city," said Barry.

The light source is a 2000w metal halide Sylvania fixture located in a colour slide-changing machine designed and constructed by Showcraft in Sydney - the ACC2000 Architectural colour changer. The fifteen

continued on next page



Olympic Figures come to life

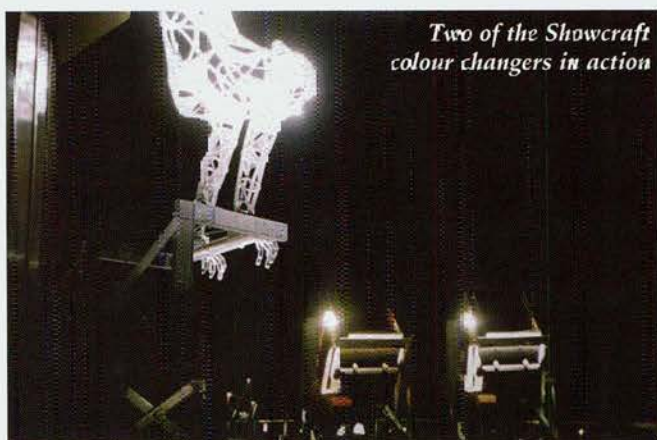


changers containing five controlled colour filters each plus a blackout for the 2kw Stadium Pro lanterns provide a total of 75 DMX channels of lighting control and 30,000 watts of light. The control system was developed and made by Bytecraft in Melbourne.

"I think it's very important that the only element in the system that's not Australian made are the actual lamps," stated Barry. "I'm very proud of the fact that it's very good and advanced technology that is Australian."

The unveiling ceremony was a spectacular event staged and conceived by David Grant Special Events for AMP. David's team, headed up by Keri Murray, commissioned Oracle Lasers to execute David's laser concept which was an amazing show starting with the image of a green laser sprinter running across the city buildings until it reached the sprinter figure on the tower. At that moment, the sprinter figure was lit in green. That idea was repeated with the wheelchair basketball player and then the gymnast.

"Paul Mazlin of Oracle Lasers is actually an electrical engineer who, I'm proud to say, once did work experience in our office," said Barry. "Now he's a wonderful exponent of the best lasers I've ever seen. If anything im-



Two of the Showcraft colour changers in action

pressed people at the opening, it was the extraordinary laser show which was his work."

Oracle specially constructed a 40W Argon laser system for the show. Some of the images were over 100m high and projected from the Star City Casino over 2km away. Over 250 frames of hand drawn laser animation was used to create the lifelike movement of the athletes. The show was produced to audio on an 8 track DAT machine with SMPTE time code to synchronize the laser with the fireworks.

Oracle's 40W Argon laser system was constructed using two large frame 20W Argon lasers bolted side by side with their beams combined to give a single 40W laser beam. The system running at full power uses around 110A three phase and 40 liters of water per minute for cooling water. Oracle's director Paul Mazlin commented that this was the most powerful Argon laser system they have ever built.

Robert McDermott from Syd Howard Fireworks International worked to Keri's brief to create another famous firework show converting the tower into a giant torch. As the fireworks and smoke receded, the three Olympic Figures emerged in a scorching red and yellow

● Cat Forcer

Extensive testing was carried out



Re: Women in lighting department at Opera House

In my September story on Catherine O'Shea, I quoted her as saying, "There are 2 out of 20 [women] in the lighting department." In fact, the quote referred back to a chat we were having about women supervisors, and thus gives the wrong impression. There are 2 women out of 6 permanent supervisors in the technical depart-

ment, but 10 women work in the lighting department, from a crew of 30. There is also a fluctuating number of casuals, many female.

I apologise to these women, for implying they do not exist, and to the Opera House, which has a good EO track record.

● Madeleine Murray

LXbizzBITS

PRODUCTS

LIGHTJOCKEY^{DMX}

LightJockey^{DMX} is a PC-based DMX controller which uses all the benefits of the Windows 95/98 environment such as resizing of windows and drag and drop technology. It consists of an easy to install program and an ISA-card with either 1024 or 2048 DMX channels. Aimed at the club and mobile DJ market the LightJockey^{DMX} can control up to 100 Martin or generic DMX fixtures and users of the 3032 controller will be able to quickly familiarise themselves with the programming. The LightJockey^{DMX} also has an advanced shape generator for fast and intuitive automated movement programming.
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GLP MAX

Designed and manufactured in Germany, the GLP MAX is the latest addition to the range of intelligent lighting from ELSTA. This new moving body luminaire weighs 10kg and is no bigger than a standard par can. It rotates at 360 degrees on both axis at 120 turns per minute plus it's DMX512 controllable with 8 DMX channels. It features sound activation, a high speed shutter that delivers 16 flashes per second, variable speeds, 120 rpm of pan and 60 rpm of tilt, and comes complete with built in programs to get you started. There are 20 dichroic colours plus 21 gobos. Price is \$1990, inc tax.
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CLEARLIGHT GOBOS

Clearlight Shows, in association with Mastercut Australia, have produced a range of catalogue gobos which are Australian owned and manufactured. The range consists of effects patterns, break ups, clouds, trees as well as some uniquely Australian designs. Large stock holdings will be held at Clearlight Shows Melbourne office in A, B, M and E sizes with custom sizes available within 48hrs of an order being placed. Clearlight Shows are currently seeking distributors in all states. Anyone interested in receiving a poster call (03) 9553 1688 or email: clearlight@clearlight.com.au.

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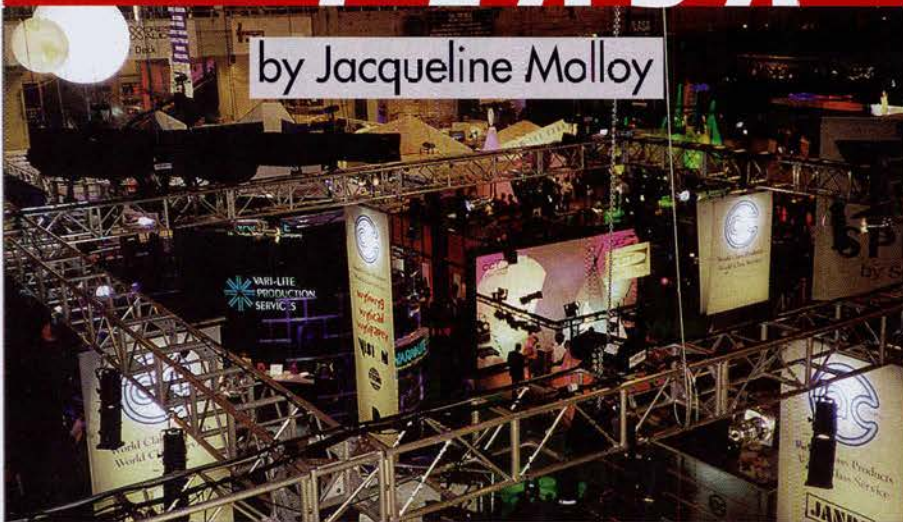
Martin

Martin Professional Lighting Australia: A division of Show Technology Australia Pty Ltd, 13-15 Bridge Street, RYDALMERE NSW 2116
Postal Address: PO Box 480, RYDALMERE NSW 1701

Phone: +61 2 9898 1111 • Fax: +61 2 9898 1222 • Internet: www.martin.dk • Website: <http://www.showtech.com.au>

Write in Reader Service Number: 152

by Jacqueline Molloy



The PLASA trade show celebrated its 21st birthday this year at Earls Court, London with 325 exhibitors stands filling the massive space. With several hundred new products on display it was hardwork on the feet making the rounds and unfortunately the airconditioning at Earls Court seemed to be experiencing a meltdown which induced serious sweating in attendees and exhibitors alike. It wasn't quite a case of stripping down to singlet and thongs but it came close! Thousands of visitors attended the show over the four days and the day one attendance figures showed an increase of 700 compared to last years show which made the organisers very pleased.

It was interesting to note that the current

Asian economic crisis didn't deter visitors from that part of the world and many exhibitors were surprised by their strong presence and eagerness to spend. A delegation of the industry attended from China as a result of the successful PLASA Presents Light & Sound show held in Shanghai earlier this year. Day one of the show was industry only and this gave exhibitors the opportunity to spend quality time with the serious buyers. Many of the exhibitors had actually made sales by the end of the show and were extremely pleased with this result, as several pointed out trade shows are really about showing your wares and making new contacts and if you actually sell it's an added bonus.

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Write in Reader Service Number: 133

BYTECRAFT

A product that definitely attracted interest (and a PLASA award for excellence) was Bytecraft's new Solution Sine dimmer. New technology is at the basis of this dimmer and it allows an AC input voltage to be dimmed with very little change in frequency or waveform.

Call Bytecraft +61 3 9587 2555.



ETC

ETC released their Source 4 zoom profile with the first batch quite literally just off the production line two days before PLASA opened. The fixture comes as either a 15/30 degree or a 25/30 degree and is designed for one-handed operation with all the controls easy to access and a rather innovative focus knob for precise and quick focussing. Most parts are interchangeable between the two fixtures for flexibility. ETC were also showing their new Sensor CE touring rack designed specifically for the European market.

Australian distributor:
Jands Electronics +61 2
9582 0779.



MARTIN PROFESSIONAL

Martin Professional got the ball rolling at their press conference on day one of the show where they announced they were launching no less than 29 new products and their new managing director, Kristian Kolding, who pointed out that it was fortunate that the company weren't launching 29 new directors and one new product!



Included in the Martin lineup was the MAC 250, the baby companion to the MAC 500. Martin estimate that these days they roll a moving light fixture off their assembly line every 7 minutes with the MAC 250 being the latest.

The MAC 250 uses a MSD 250 lamp and features a rotating, eight position gobo wheel, 12 colour plus white colour wheel, motorised focus and a rotating 3 facet prism or optional frost effect.

The Martin Lighting Director 2.0, a performer controlled followspot system was also on display: the system interfaces with DMX and allows control of up to 64 fixtures, including all parameters of a moving light, by a performer.

Other Martin launches included the RoboScan Pro 918, Exterior 600 outdoor light, Case+Wing and the LightJockey controller. Martin also announced that they would be launching the MAC 300 washlight later in the year.

Australian distributor: Show Technology +61 2 9898 1111.

COMPULITE

Compulite launched CompuCAD V1.5 at PLASA, the latest version of their lighting package aimed at lighting designers and directors and also board operators. They also launched their Yoke MY + Sunset, a combined HMI dimmer, colour scroller and motorised yoke created to drive a 4kw HMI luminaire.

Australian distributor: Coemar De Sisti +61 3 9467 8666.

SELECON

Hailed by theatre professionals as the product of the Show, the full Pacific range received a warm welcome after a detailed going over at this year's PLASA Show. The full range was presented for the first time, this includes the 12 - 28 Zoom, 22 - 50 Zoom, fixed angle 20,30, 40, 50 degree and the various light sources - 600w and 1000w tungsten halogen, 575w MSR and 70w or 150w CDM.

Comments made included the quality and 'whiteness' of the beam, the cool operating controls, the easy lamp adjustment etc. Interest came from all parts of our industry including some of Europe's leading theatres, production companies and studios.

Samples of the wider angle Zoom - 22 to 50 degrees are now with all of Selecon's Australia wide network.

LIGHTING ON A BUDGET

One of the things I shall always lament about school plays is that there are never enough extension leads available when you come to the rigging stage of the procedure. No matter how many times I tell a director (usually the Head of the Drama Dept. at that particular school) to buy more leads they never listen, so why bother bitching about it?

Another "feature" of this chapel-cum-theatre is its huge windows, which allow masses of light to come streaming into the acting space during the day. This meant that any focusing of the fixtures had to be done while it was dark outside. During daylight savings, this can mean that it is too light even at 8.00pm, which means that long nights are spent rigging and focusing, just another part of the job.

The end result of all this work was that the play came off very well, receiving rave reviews from all who came to see it - which was quite a few people as the place was packed to the rafters every one of the three performance nights. All judged it to be a great success.

At the moment I am preparing for the school's next major musical, *Godspell*, which is being performed at Stonnington Theatre, in Glenferrie Road, Toorak. This musical is quite different from *Macbeth* both in style and the number of lighting effects required. The lights that I will be using include the standard array of fresnels and profiles, and also two moving light fixtures - Highend System's Trackspots. This will be the first time that I have used the Trackspots but everything should go well as both my crew and I have quite a few plays under belts by this stage. That is another difference - in *Macbeth* my crew consisted of myself and two followspot operators. In *Godspell* I work with an operator for the Trackspots, two followspot operators and an assistant desk operator, a total of five, the biggest crew I've ever worked with.

I will be using a Jands Event Plus 48/96 DMX desk for the main lighting and a Theatrelight 24/48 DMX desk for the Trackspots. This musical should be the best that the school has performed. The director has decided to go for an over the top style and this is reflected in the types of lighting cues that he has requested. In one scene he wants a *Wheel of Fortune* look, with the Trackspots scanning over the audience; in another scene he wants the stage washed in dark red with the silhouette of the crucifix falling over the stage and audience. It should be a very attractive musical.

At this stage I would like to give some advice to any aspiring lighting designers who may be reading this article. Firstly, read every book that you can about lighting. You may have to shop around for these, as not all book stores stock them, or you could try the Connections book store. Also, read trade magazines such as this one as they are full of advice and information about the trade. Finally, talk to some established lighting designers and try to undertake work experience with them or either become an apprentice to one. Which option you take depends on the designer.

Bryan Nolan is currently completing Year 12 at Xavier College in Melbourne and is freelancing as a lighting designer and sound engineer. You can contact him by Fax at (03) 9854 5436 or on e-mail at bnolan@xavier.vic.edu.au

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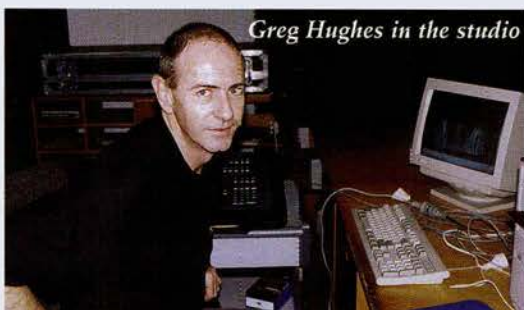
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LIGHTING DESIGN STUDIO IN BRISBANE



NEWS

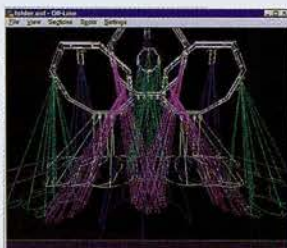
East Coast Lighting in Brisbane have established a theatrical lighting design studio which will be used for training on any moving light console and enables lighting designers to visualise, design and plot lighting - especially moving lights - at a realistic cost.



Greg Hughes in the studio

"There is a reason why they made flight simulators - it costs a lot of money to train a pilot in a real 747. It also costs money to stage a complete production, however now we can simulate all of this - plot shows, train people in the use of consoles and moving lights without the cost of equipment hire or inconvenience to venues" said Greg Hughes, Managing Director at East Coast.

Utilising Martin ShowDesigner* software - which Greg made look easy to use with the aid of a Cyberlight, a Jands Hog 600 and a large projection screen - East Coast Lighting is



currently building a library of venues on ShowDesigner which will enable the studio to be fast and efficient.

"Usually the only time you have available to program your show is when the equipment is in final place. If delays occur during fit up, the time that is allocated for this is normally reduced, often causing stress. Our design studio provides a relaxed environment for the user to program and plot. It is then a simple process of setting up the lights as per the plan, addressing them correctly, and plugging in the console".

"We have school hires where students require the lighting equipment for sometimes two weeks in advance just to learn how the equipment works for their one night per-

formance. The idea is for them to spend studio time to learn the gear rather than using the actual equipment." Any DMX console will operate on the Martin ShowDesigner software and this allows the user to bring their own console if they wish.

The Design Studio (run in conjunction with Peter Stubbs from Iris Lighting) is already operating and console training courses are planned to commence in January 1999. The Studio offers Lighting & Set Designers the highest level of computer simulation available in Queensland and is only limited by your imagination.

* Highlights of the Martin ShowDesigner software include: on and off line editing; stand alone PC mode; efficient coordinating of set, lighting and programming; visual control of position, colour, iris, beam angle, gobo's etc; direct control and monitoring of any console using the Martin DMX in/out card; advanced rendering capacities enables high quality print-



outs in any perspective. Please call East Coast Lighting -61 7 3252 9198 for info sheet or check out their web page www.eastcoastlighting.com

• Cat Forcer

LSC NEWS

Since the release of the new TS Dimmers and Touring Systems at Entech '98 sales have steadily increased. They can now be found at Geelong Performing Arts Centre (sold through Music Workshop, Geelong), Amsterdam Concert Hall in Holland, Ballarat University Performing Arts Centre (sold through Sound and Light Concepts, Ballarat) and Townsville Entertainment Centre (sold through Wild Gravity, Townsville).

LSC lighting Systems new website went on line recently, check it out - www.lscighting.com.au.

CLEARLIGHT NEWS

Clearlight Shows have supplied 5 x Selecon Aurora four way cyc floods and 10 x Pacific 12-28 profiles to the Malthouse Theatre in Melbourne.

They have also supplied 20 x Thomas outdoor par 64 fixtures to light the entrance to the Ansett Australia Temporary Departures hall at Sydney Airport. The Thomas fixture is IP65 rated and is being specified by numerous Architectural Lighting Consultants for outdoor use around Australia.

AVL ELECTRONICS NIGHT

A combined Numark and Martin presentation night was on the agenda at AVL Electronics. DJ Peril, one of Melbourne's big name DJ's, showed off the Numark 2002X mixer.

Next was the Martin Light Show, presented by Martin Professional's Steve Kokkinis. Set to music and featuring the new Roboscan Pro 918, MAC 500 and 600. After a little technical talk and news on new Martin products like the ProScenium DMX, everybody was free to touch and play with all the equipment supplied by Numark and Martin Professional.

Call AVL Electronics +61 3 9387 1055.

SLICK SYSTEMS IN AUSTRALIA

Trussing company Slick Systems have announced the establishment of manufacturing facilities in Australia. Based in Sydney, the company will manufacture the complete range of Slick Systems products and contribute to future Group Product research and development. The new venture will be headed by Ian Messner, formerly of Jands, who has 27 years experience of engineering. Ian intends to follow through with an integrated service aimed at the rigging/engineering side of the industry featuring products such as motors, control etc.

Call Slick +61 2 9144 7971.

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AC LIGHTING

AC Lighting were showing a host of new products and one that was causing a great deal of interest was the debut of Flying Pig Systems handheld remote unit for the WholeHog II lighting desk. The remote control comes in a very handy size, allowing the operator to perform a vast number of functions without having to be at the console location. The remote control is particularly useful in focusing situations where a lighting designer needs



local control over the rig, yet also has to be on stage to supervise the focus, and has a console placed in a remote position. The new remote control plugs directly into the back of the WholeHog II and is able to control any fixture that may be patched into the main console.

If working with intelligent lighting, the remote control will allow you to recall and update preset focuses as well as record new ones, whilst always giving you full control over all of the functions of the fixtures that you have patched. The remote control features a smaller version of the WholeHog II keypad with a LCD screen, scrolling menus and an in-built trackball. And just for those times when the rig goes to a blackout, there's even a desklight fitted so that you can continue working uninterrupted.

Another product that was on display but which won't be having its official launch until later this year goes by the working title of BEACON and is an automated focus tool for lighting designers.

The award-winning WYS:WYG V3 software was shown for the first time, with constant presentations running on a large screen system, for all to experience.

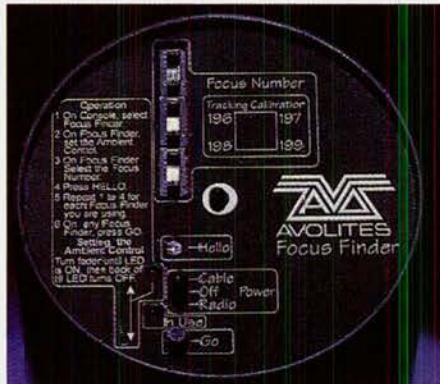
The Jands Echelon received a lot of attention. Australian distributor: Jands Electronics +61 2 9582 0909.

DOUGHTY

Doughty have developed two new clamps: the Cobra and the Super Lightweight Coupler. The Cobra is a heavy duty hanging clamp designed to fit tubes from 48-51mm. Constructed from high tensile extruded aluminium, it has a safe working load of 75kg, making it ideal for medium to heavy fixtures. When mounted, it will encircle the suspension tube so supporting the fixture before locking off.

The Super Lightweight Coupler adds to Doughty's range of aluminium scaffold fittings. Constructed from high tensile extruded aluminium for maximum strength, the Super Lightweight Coupler has an extremely thin profile to keep weight to a minimum. The clamp will securely fit diameters from 48-51mm and has a safe working load of 75kg, making it suitable for suspending smaller luminaires and scanners.

Australian distributor: Coemar De Sisti +61 3 9467 8666.



AVOLITES

Avolites launched three new, innovative products. The Sapphire 2000 console represents the third generation of Rolacue consoles - a completely new desk based on the popular Pearl and Azure technology which aligns this product with the 2000 family. A powerful, streamlined, stylish console offering 2,048 channels and 100 pages of 20 playbacks, Sapphire 2000 now offers electronic legending showing page contents and preset focus palette on both desk and VGA monitor.

Also new and unique is the Avolites Focus Finder, an expediently sized box that can be placed on-stage wherever the LD desires the lights to be focused. Pressing the 'Focus' button on the top of the unit makes the fixtures scan the stage and locate the Focus Finder. Winner of a 1998 PLASA Excellence Award.

The third product was the Avolites Visualiser simulation programme, a combined software and hardware package allowing lighting designers and programmers the opportunity to pre-programme the lighting rig without having direct access to the instruments, the rig or the venue - in effect, a virtual production rehearsal. This is designed to work as an integral component with all Avolites series 2000 consoles.

Australian distributor: ULA +61 7 5532 9922.

JAMES THOMAS

New to the James Thomas truss range this year is the 40cm Superlite triangular truss and the 30.5cm arc 40cm Squarelite box truss, designed for conference and exhibition environments, where a clean look, combined with relatively high load-carrying capacity and ease of assembly are important requirements.

Australian distributor: Clearlight Shows +61 3 9553 1688.

STRAND

Strand Lighting invited visitors to experience their comprehensive product range within the company's new, fully-networked mobile showroom, which had been designed for hands-on demonstration of lighting control and dimming systems, and also provided an extensive selection of luminaires. The showroom, which doubles as a presentation area for seminars, workshops and Strand Academy courses, featured a 500 Series control desk networked with EC90 and LD90 dimmer systems. Premiere and Outlook architectural systems were also fitted.

Exhibited for the first time was the new 510i, Strand's high-capacity show controller. The rack mounting controller may be used as a stand alone 'show control' system or as a back-up for any 500 series desk. Finally, the wide range of luminaires on display included Brio, Pirouette, Cantata, Bambino 500 and 650 and Videolux 72.

Australian distributor: Bytecraft +61 3 9587 2555

ANYTRONICS

Anytronics exhibited a number of new products this year. Lightwire electroluminescent fibre, shown in pre-production form last year, was displayed with its switch packs, which can be supplied with a built-in chaser or in slave form for analogue or DMX control. New versions of the Minidesk 6 and Minidesk 12 were shown, offering multi-function DMX outputs using up to 240 channels of DMX. A modular Demux unit was on show for the first time. Occupying just 1U of rack space, it consists of a mother board and PSU, to which may be added up to six of Anytronics' 16-channel DMX cards with either analogue/switching or strobe outputs.

The Light Blender, a four-channel crossfade module, is replaced by the new Crossfade 8. This is a channel-selectable crossfade unit getting its power from the dimmer pack to which it is connected. It has fade time from one second to eight minutes in four ranges, external input facility and multi-function DMX output using 80 channels of DMX. The 10-channel DMX Strobe Interface is replaced by a 16-channel version supplied with both jack and XLR output sockets. Addressing, double edge triggering and the ability to change outputs 13-16 from pulsing to switching, are all selected by easily accessible DIL switches mounted in the lid.

Australian distributor: Techscape +61 7 3358 5118

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Write in Reader Service Number: 157

HIGH END SYSTEMS' TECHNOBEAM

By Andy Ciddor

The Technobeam is High End Systems mid-range robotic luminaire, offering quite a few of the features found in High End's top-of-the-line Cyberlights but at a size, weight and price which makes them much more accessible for general use. Perth's Lighting Workshop have now been using their Technobeams for both hire and production work for several months and Mike Bird is pretty impressed with the bang-for-the-buck. Bird is of the opinion that: "They've got lots of fruity bits compared to what else is around." In late May, in conjunction with DC's night-club, Lighting Workshop held a *High End Long Weekend* to showcase the Technobeam and its sibling the Technoray (a Technobeam without the mirror assembly) alongside Cyberlights, Studio Colours and Trackspots. "It was interesting to see how favourably the light output of the Technobeam compares with the Cyberlight" recalls Bird. DC's lighting technician Steve Mason was very impressed with the Technobeams "If I had the budget I'd love to put some in the club permanently." says Mason.

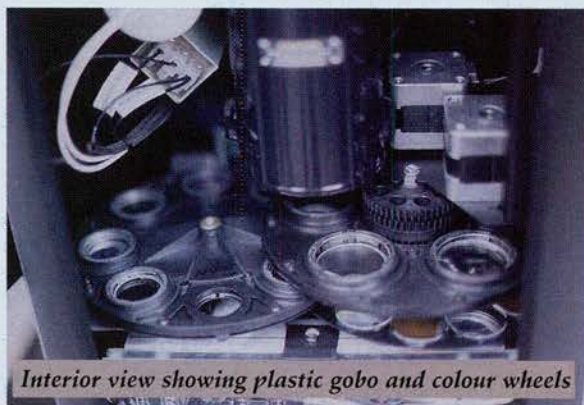


really has to be done with the unit lying flat on its back. Fortunately the Technobeam is light enough for it to be acceptable to de-rig and re-rig it occasionally to change lens configuration, but as it's impossible to tell the beamangle of the luminaire without disassembling the tube, it will no doubt become imperative for Technobeam users to label the units in order to avoid unwanted trips to the floor for modification. High End would be wise to consider putting some method of identification on the outside of the unit.

A further problem which may not be immediately apparent is that the tables of lens positions are documented in the usual excellent quality user manual that accompanies High End products. While Lighting Workshop have managed thus far to hold on to their manuals, it's only a matter of time before the manuals don't come back from a hire or are rendered useless by immersion in fog juice, beer or any of the bodily outpourings splashed around when people are "enjoying themselves". Now it must be said that the removable front panel of the Technobeam is silk-screened with a vast amount of useful information about operating the luminaire, (together with some pithy excerpts from The Book of Common Prayer, The Koran and the Austin, Texas Yellow Pages,) but unfortunately it doesn't include the lens tables.

OPTICS

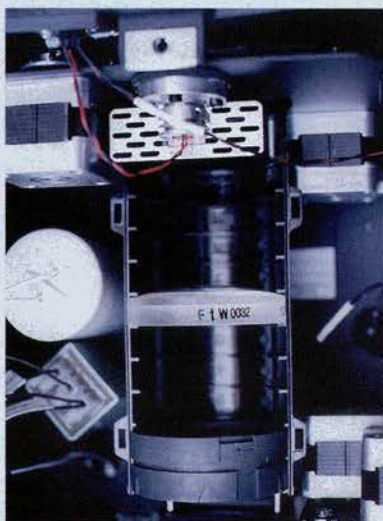
The Technobeam is powered by the long-life Philips MSD 250/2 metal halide (cold strike only) discharge lamp, axially aligned in a newly-developed reflector which surrounds the lamp rather more than is usual, an arrangement which gets a lot of light pumping out through the optics. In having an axial lamp there is also the bonus of rear access for quick and simple relamping. Whilst the lamp can be adjusted, something not possible with the very first production runs of this luminaire, the adjustment only serves



Interior view showing plastic gobo and colour wheels

ONBOARD LASER

Technobeam's Laser Aiming Device at first glance appears to be a bonus five milliWatt laser effects system, and while it is possible to wave the laser around to achieve a few basic effects,



Cover open, lamp is behind PC board. Tube top centre is lens tube.

to allow for centring of a rather pronounced hot-spot. This is certainly one area where some additional development work is needed.

Although there is robotic focus, the beamangle of the Technobeam is not remotely adjustable, but with the combinations possible with two lenses in the ten-slot lens tube it may be varied from 11 to 17 degrees and with the optional narrow lens set can be varied between 8 and 12 degrees*. Changing lens positions is very straight forward with the tube which High End have developed for Technobeam/ray/pro family, but it

a robotic fitting isn't really designed as a laser display, aside from the fact that the laser is at its most efficient when cool, which is fine for setting up, but runs at reduced output when the MSD lamp has warmed things up during a show. The serious purpose of the laser, which certainly justifies its extra cost, is to aid in the programming of shows and even more importantly in the alignment of the Technobeams when touring productions between venues.

MECHANICALS

High End / Lightwave Research have clearly put a major development effort into the Technobeam. The application of engineering plastics to functions previously associated with metals, such as the end castings of the luminaire body, the access panel and even the effects wheels has reduced the weight to the point where, at 19 kilos, it's as easy to rig as many of its less powerful predecessors. The clever incorporation into the aluminium body extrusion of a slot to carry the yoke enables a great deal of rigging flexibility, including the possibility of hanging the luminaire vertically from its base which allows for precise focus adjustment. "We're very pleased with their versatility," says Mike Bird, "The focussing accuracy you can get from vertical hanging makes them really useful for stage and

corporate production work and being able to stand them on their bases has been great for live catwalk shows. Vertical hanging generally makes up for the limitation of the 180 degree pan and 90 degree tilt." Another sensible design touch is the ability to invert the data on the front panel LED display for legibility when the unit is rigged vertically.

For Lighting Workshop, one serious shortcoming of the pan and tilt mechanism is its speed, "They just aren't up to club work," explains Bird, "They don't keep up with the pan and tilt chases used in dance clubs. We tried using them in a rig alongside Clay Paky MiniScans but they weren't fast enough, so we resorted to using the shutters to 'fake' the rhythm of the dance beat. They feel to me that they're almost as slow as a moving-bucket type head**."

EFFECTS

A vast variety of effects are possible with the Technobeam: there are strobing shutters, a 13 position (12 dichroic colours plus open) colour wheel, an 8 position (7 gobos/ichos plus open) rotating litho/gobo wheel, a 5 position (prism, lenticular break-up, 'slow glass' break-up, frost and open) rotating effects wheel and various bi-colour, colour-blink and spin settings. All of the wheels and associated gearing for rotating effects are constructed from the rigid plastics found throughout this luminaire, allowing the use of smaller, light-weight stepper motors and/or faster rotational speeds for the wheels. The optics on the Technobeam are accurate enough to show the details on Lightwave Research's new 3300 dpi high resolution photo-lithographic images, making them ideal units for projecting gobos and photo-lithographs of logos and marketing materials for corporate production. All colours, patterns and effects are designed to be changed easily, although it still isn't a task to be willingly undertaken on the top of a 'scope or hanging by your toes from a truss.

CONTROL

In order to access and program all of its effects, movement and speed controls, the Technobeam soaks up a substantial 18 channels on a DMX512 control system, although a reduced control 14 channel mode is available at the cost of fine adjustments for pan, tilt, gobo rotation and the complete loss of Laser aiming. Additionally, the 28 built-in macro effects are only available if the Laser Aiming Device is disabled. Control functions are allocated in a way that would make the Technobeam extremely difficult to drive off a fader-only control desk or indeed a robotics desk without the necessary *personality* program. Mike Bird and Steve Mason agree that the Technobeam takes some time to come to grips with. "We've used them on both our Scan Commander II and DC's Elektralite CP100 and though all the functions are right there in front of you, they're initially very fiddly to program," says Bird "You certainly just can't walk up to the desk and get results, but once you finally get your head around the relationships between control channels they've got amazing flexibility."

The Technobeam can be run without a con-

Front panel showing control panel and exhaustive instructions



troller by using the internal snapshot store which allows eight control states to be stored in the Technobeam's memory and played back as a sequence with individual timings for each step. Snapshots can be copied from one Technobeam to another via the control cables and groups of Technobeams can be slaved to a master luminaire for sequence synchronisation. "We see heaps of uses for standalone operation in the corporate area," says Bird, "Exhibitions, trade shows and point-of-sale displays are simpler and more reliable if there isn't a control desk around." The control cabling can also be used to update the Technobeam's internal control firmware, allowing an entire rig to get a firmware upgrade from a single updated fixture.

SUMMARY

An innovative, compact and flexible luminaire with a punchy light output that belies its size, the Technobeam seems to have an assured place in stage shows and corporate productions, or as DC's Steve Mason put it: "I'll have a half a dozen to do my stage shows with any day."

* Techscape say: A wide-angle lens set is also available as option to achieve a maximum 28 degree beam angle.

** Techscape say: Technobeam mirror size is larger than Trackspot and Intellabean and closer to that of Cyberlight. In setting motor speed the considerations given in order were reliability, smoothness, precision and speed. Technobeam mirror speed is faster than Cyberlight. For the technically minded, speed measured by observing motor waveforms on an oscilloscope are for pan 200 degrees/second and 180 degrees/second for tilt.

- Basic Technobeam \$6,540.95 ex tax
- With Optional Laser Aiming Device \$7072.02 ex tax
- Replacement Lamp \$456.71 ex tax

Manufacturer: High End Systems Inc. Austin Tx, USA + 1 512 836 2242

<http://www.highend.com>

Australian Distributor: TechScape Lighting and Audio +61 7 3358 5118

Singapore and Hong Kong Distributor: High End Systems Singapore +65 742 8266

New Zealand Distributor: GUVT New Zealand +64 9579 4082



Lens tube with cover removed to show lenses and slots for adjustments

TALENTED PRODUCTS

Picture of a Technobeam impersonating a penguin on his holidays. Do you have a piece of lighting equipment that does impersonations or any other tricks? Let us know.



BUYER'S GUIDE

followspots

Prices EXCLUDE sales tax and were correct on 15th September 1998. All care taken, no responsibility for errors. Four models only are shown in each category although these manufacturers have many more. Indicative only.

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ALTMAN

Chameleon (02) 9310 5222

Explorer has an output comparable with a 2000w xenon. Units are supplied with ballast, stand, lamp and integral colour magazine. \$17,600.

Voyager available in short or long throw versions and uses a 400w HTI lamp providing an output similar to MSR 1200 units. Units are supplied with internal ballast, stand, lamp and internal colour magazine. \$12,300.

Luminator latest in compact, economy follow spots from Altman. Provides an output comparable to 2.5K tungsten units due to its unique optical design. Choice of three MR16 lamps to suit budget and application. Supplied complete with lamp, stand and colour magazine. \$2000.

COEMAR

Coemar De Sisti Australia (03) 9467 8666

Pilota 1200 Professional followspot. Axial mounted MSR1200/SA lamp. Beam Angle 7° - 12° 10m - 70m working distance, in-built yoke-mounted ballast, smooth iris, separate dimming shutter, framing shutters, 6 dichroic colour inbuilt semaphore magazine + optional external gel magazine. 42.5kg weight, easy lamp replacement, standby mode, full-length handles, compact size (approx 1.2m long). From \$6375.

Testa 1200 MSR1200 lamp. Beam Angle 6° - 11.5° 20m - 50m working distance, smooth iris, separate dimming shutter, 5 colour semaphore magazine option. 18.2kg weight, 17.1kg ballast, easy lamp replacement, standby mode. From \$5090.

Testa 575 MSR575 lamp. Beam Angle 6° - 11.5° 5m - 30m working distance, smooth iris, separate dimming shutter, 5 colour semaphore magazine option. 18.2kg weight, 14kg ballast, easy lamp replacement. From \$3990.

Testa 2500 2500HMI/SE lamp. Beam Angle 7° - 13.5° 20m - 70m working distance, smooth iris, separate louvered dimmer, 4 colour semaphore magazine. 41.3kg weight, 28kg ballast, easy lamp replacement, standby mode. From \$13,000.

DOUGHTY

Coemar De Sisti Australia (03) 9467 8666

Roller Race Spigot Bearing mounted spigot to suit most followspots allows for totally smooth pan of any weight followspot. Variable tension allows for custom adjustment. Suits all professional applications. From \$330.



Selecon Chorus 1200

Professional Followspot Stand Heavy duty steel and aluminium construction, locking castors, height adjustment, legs fold up for storage, excellent stability. Suits all professional applications. From \$1660.

LYCIAN

Jands Electronics (02) 9582 0909

Superarc 1267 HTI 400/24 lamp long throw. Truss or stand mounts c/w internal PSU, 7 colour internal magazine, nichrome steel iris and coated optics. Price include adjustable stand. \$14,750.

Superarc 1266 HTI 400/24 lamp medium throw. Truss or stand mounts c/w internal PSU, 7 colour internal magazine, nichrome steel it is and coated optics. Price include adjustable stand. \$13,110.66

Starklite II 1272 1200w single ended HMI. 7 colour internal magazine, gobo slot for patterns and rotators and internal power supply. Price includes adjustable stand. \$14422.13

1290XLT 2000W Arena Spot 2kw xenon long throw arena spot. Dichroic cold mirror reflector, gobo slot, dual control for left or right hand operation. Price includes adjustable stand. \$27045.08.

SPOTLIGHT

Ashton Admor (08) 9478 3800, (02) 9690 0991

VD25MHR Vedette 2500 watt for MSR / HMI G38 hot restrike lamps. 400 lux @ 100 metres. Accessories; manual automatic semaphore colour changer and lazy leg stand. \$10,330.

VD12MHR Vedette 1200 watt for MSR / HMI G38 hot restrike lamps. Accessories; manual automatic colour changer and lazy leg stand. \$3910.

VD12MCR Vedette 1200 watt for MSR G22 cold restrike lamp. Accessories; manual automatic colour changer and lazy leg stand. \$3070.

VD1CID Vedette (Quadro) 1000 IP for 1000 watt discharge lamps with iris, zoom, colour changer and ballast included. \$2473.

TAS

Coemar De Sisti Australia (03) 9467 8666

Inse 1200 MSR1200 lamp. Beam Angle 8° - 22° 15m - 40m working distance, smooth iris, 4 colour semaphore magazine option, mechanical louvered dimmer option. 13.4kg weight, 13.2kg ballast, easy lamp replacement. From \$2445.

TEATRO

Lightmoves Technologies (02) 9560 0000

Teatro Talento 2500 HMI Talento 2500 HMI is a high-power, long-throw followspot for professional use in theatre, concert halls and touring shows with throws of up to 90m. Supplied with 2500 HMI lamp, blackout/iris diaphragm, mechanical dimmer, cable spigot and ballast unit. Beam shaping shutters, 4 colour change unit & tripod available as accessories. \$16,183.30.

Teatro Talento-2 1200 MSR Talento-2 is a medium to long range followspot for use in professional theatre, concert halls & touring shows of up to 40m. Easy to use; size to power ration, its instant stand by / full-power switching, its four easily accessible grab handles, conveniently situated iris ad dimmer, the single focus knob and its smooth tilting fork with adjustable balance point. \$6679.50.

CONVENTIONAL UNDER 2K

AMERICAN DJ

American DJ 1800 643 111

American DJ Followspot is a bright 150W new high powered, affordable followspot using an MBI discharge lamp. Uses a new specially designed reflector that produces more light output than a standard 1000W lamp. Features new iris design with a blackout feature, extruded aluminium casing. Weighs 11kg. \$654.90.

COEMAR

Coemar De Sisti Australia (03) 9467 8666

Testa 1000/1200 1000/1200W lamp. Beam Angle 7° - 13° 7m - 25m working distance, smooth iris, separate dimming shutter, 5 colour magazine option. 17kg weight, easy lamp replacement, comes complete with lamp. From \$2170.

FAL

ELSTA (02) 9568 2100

FAL Scala 575 followspot is ideal for professional theatre use where beam divergence is a specific requirement. Features optional gobo holder for 66mm gobo, optimum efficiency parabolic mirror, interchangeable iris, forced cooling by noiseless axial fan, and uses a HMI575 lamp. Weighs 23kg. \$1802.50.

FAL Professional HMI575 features extruded aluminium casing, 4 x 96mm dichroic filters plus clear, forced cooling by 2 axial fans, and uses a HMI575 discharge lamp. Weighs 25kg. Beam divergence 14 degrees. \$982.80.

FAL Professional 1000W followspot is one of the most popular products in the INSE series. Features 240V, 1000W halogen lamp, forced cooling by 2 axial fans, 4 x 96mm dichroic filters or coloured gels plus clear, extruded aluminium casing, and weighs 13.5kg. \$1474.60.

FAL Starlight 1200 professional followspot and a long-throw colour changer. Although it was designed as a theatre projector, it is also suitable for discotheque applications. Features 7 dichroic filters with high chromatic yield, motorised iris, strobe effect fully adjustable from 1 to 7 flashes per second, one colour correction filter, forced cooling by axial fans, etc. Weighs 48kg. \$4913.95.

LYCIAN

Jands Electronics (02) 9582 0909

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www.laservision.com.au

Clubspot 1236 Compact 82V 360w spot including internal colour magazine, nichrome steel iris. Supplied complete with adjustable stand. 100ft candles @ 18 metres. \$2127.05.

Super Clubspot 1238 82V 360w spot c/w variable focal length, internal colour magazine, and adjustable stand. 100foot candles @ 24 metres. \$2946.72.

SELECON

Aust wide dealer network

Chorus 1200 Quartz For the smaller theatre, school stage and entertainment venue. 1.2kw tungsten halogen, condensor optics with beam angle adjustable 9 - 21 degrees. Provides 1000 lux at 18m. Includes adjustable iris, braced yoke and platen spigot for smooth operation, adjustable front and rear guide handles. Accessories include four colour changer, dimmer module and control, fold down stand. Auto mains power disconnect. L - 915mm, W - 220mm. Wgt 13.0kg. \$1200.

Performer 1200 MSR With a choice of Long throw and Short throw the Performer MSR range meets the needs of the larger theatre, out door venues etc. The Long throw model provides 1000 lux at 57m, the Short throw at 37m. Fully featured Followspot with adjustable iris, dimmer, adjustable balance point etc. Accessories include - 6 colour changer, fold down and professional followspot stand, front and rear handles. Wgt 25.5 kg. \$5640.

SPOTLIGHT

Ashton Admor (08) 9478 3800, (02) 9690 0991

PICHS Piccolo S Ultra compact short throw followspot for 1000 watt halogen lamp. \$1200.

PICMS Piccolo S Ultra compact short throw followspot for 1000/1200 watt metal iodide lamp. Complete with ballast. \$2662.

VD1AP Vedette (Quadro) 1000 AP for 1000 watt halogen lamp with iris, zoom and colour changer included. \$1137.

VD1AS Vedette (Quadro) 1000 AS for 1000 watt halogen lamps with iris only. \$616.

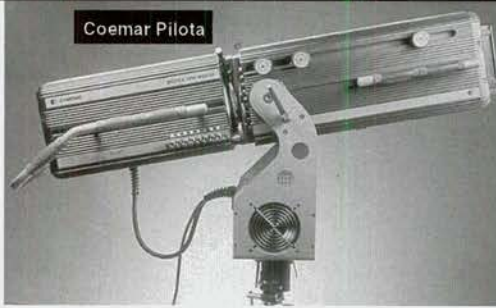
TAS

Coemar De Sisti Australia (03) 9467 8666
Inse 1000/1200 650/1000/1200W lamp. Beam Angle 8° - 22° 8m - 23m working distance, smooth iris, 4 colour magazine option. 12.8kg weight, easy lamp replacement, convection cooled, completely silent. From \$1250.

CONVENTIONAL 2K and over

CLAY PAKY

Show Lighting Australia (02) 9898 1666
Shadow QS-LT QS stands for quick selection giving you up to date technology with push buttons and sliders. Built-in wide-angle lens, suitable for application range of 15 to 50 metres. Can be remote controlled, using the most common control signals including DMX 512. HMI 1200 long



Coemar Pilota

life lamp. \$10,037.

Shadow QS-ST The Power and brightness of the model make it suited for television and cinema use Inter-changeable lenses of normal or optical wide-angle, luminosity, within a range of 10 to 30 metres. Size and compact form is highly recommended for truss mount. HMI 1200 Long-life Lamp. \$ 8,653.

Shadow Basic Adapted to fit a smaller budget. The Shadow. Basic can be operated from built-in analog control panel and is available in normal angle or wide-angle version application range of 10 to 30 metres. Ideal for theatres hotels, schools and churches. HMI 575 or HMI 1200 Lamps. \$5,650.

COEMAR

Coemar De Sisti Australia (03) 9467 8666
Testa 2000 2000W lamp. Beam Angle 5.5° - 12° 15m - 35m working distance, smooth iris, separate dimming shutter, 5 colour magazine option. 20.5kg weight, easy lamp replacement, comes complete with lamp. From \$3850.

FAL

ELSTA (02) 9568 2100

FAL Opera 2500 uses a HMI2500 watt discharge lamp. Dimmer is variable from 0 to 100%, has a holder for 5 filters, zoom from 4.5 degrees to 10.5 degrees, and is 1550 x 500 x 400mm. \$6146.72.

SELECON

Aust wide dealer network

Performer Quartz 2000 or 2500w Followspot for the larger school hall, mid size theatre etc designed for throws of 25 - 30 metres. Provides 1000 lux at 22m. Fully featured Followspot with adjustable iris, dimmer, adjustable balance point etc. Accessories include - 6 colour changer, fold down and professional followspot stand, front and rear handles, dimmer module and control. Wgt 25.5 kg. \$2,750.

SPOTLIGHT

Ashton Admor (08) 9478 3800, (02) 9690 0991

VD25H Vedette for 2000 or 2500 watt G22 halogen lamps All accessories available. \$2226.

VD2AP Vedette (Quadro) 2000 AP for 2000 watt halogen lamps with iris, zoom and colour changer included. \$1816.

next month

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Projected sharks



Fibre optic display

Illuminating Sharks

Southport Sharks AFL Club on the Gold Coast has recently completed a large Gaming Room Extension for which Universal Audio & Lighting designed the entertainment lighting system.

The modern building has a high, domed ceiling in the centre of which is a mass of fibre optics supplied by Digilin. The rim of the dome acts as a surface for moving light projection.

"We looked at all the different lighting sources suitable for the space," said Justin Knox, Sales/Project Manager. "We changed the electrical engineers idea of what room lighting should be from compact fluorescents and dimmable 50w dichroic to moving lights, fibre optics, neon and colour changing down lights."

ing down lights."

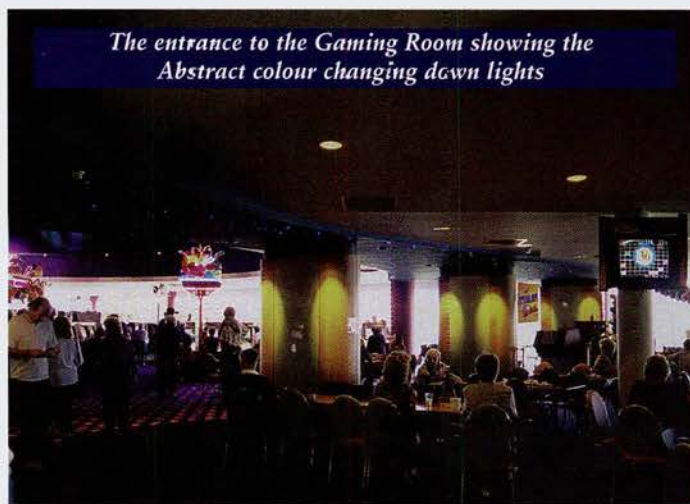
The colour changing down lights are a new architectural lighting product from Abstract, in fact this is the first project they

have ever been used on. They can either be fronted vertically or installed in the ceiling and angled onto a wall.

The room is themed as a 'Galactic Carnival', during the day with the older crowd there is a carnival theme incorporating balloons and abstract shapes whilst at night it becomes more space orientated with projected stars and moons.

Not surprisingly, ULA opted for JB Lighting Varyscans for the moving lights, a product which they just happen to distribute! The six Varyscan 5's have 12 patterns, unlimited colours and a 1200HMI lamp.

"We're using Varyscan 5's because they are a new fitting with a 360° head on them which means we can bring the lighting round onto the roof," said Justin. "It just



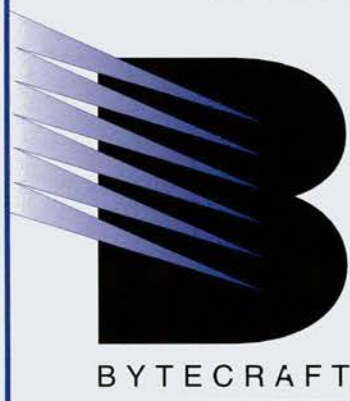
The entrance to the Gaming Room showing the Abstract colour changing down lights

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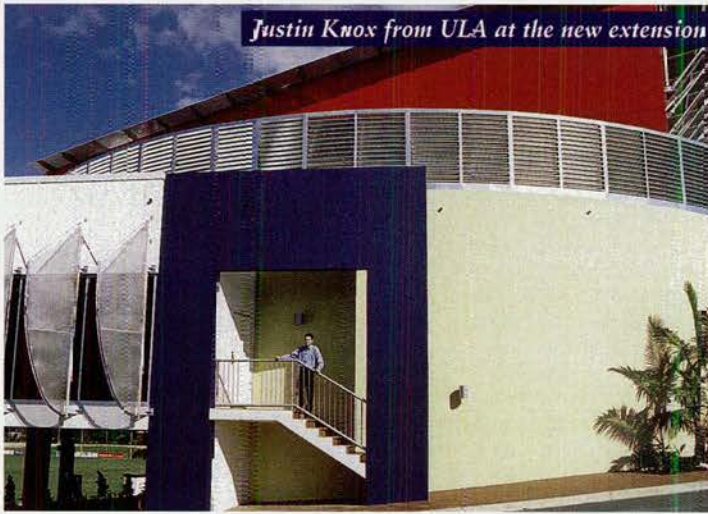
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Justin Knox from ULA at the new extension



gives us a bit more dynamics in terms of where we can project the lights. In terms of features, the client was looking for something quite dramatic so glass patterns were needed and the ability to change patterns. Custom gobos include sharks which swim around the room perimeter. We've left 'spare slots' so that at programme maintenance times towards Christmas we'll change the patterns to a Christmas theme. The client was very proactive in wanting a system that wasn't going to be a dead end. Whilst the fibre optics are a fixed effect, the moving lights and the ability to change the colours on the fibre optics as well as the chases on the neon was important."

The fibre optic display incorporates about 500 ends of various different sizes with DMX light sources on them. Every half hour a show is run with the fibre optics - two comet trails blaze across the space, colliding and exploding. Out of the explosion the

colour changers.

"The lighting commences at 9.30am, the club opens at 10am and the lighting shuts itself down at midnight," said Justin. "When the jackpot goes off from the gaming system, a signal goes to the Azure and that causes the lighting to react. We've set up six stages of jackpot from inhouse jackpot where a particular sequence of lights go to a state wide jackpot where the whole system goes completely nuts! It's a new state wide system going in and this is the first site, it hasn't been finally implemented but it's all there ready to go."

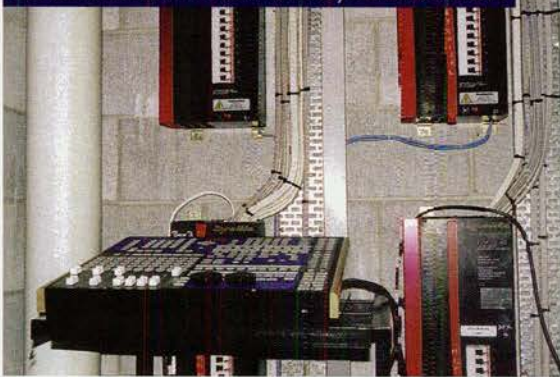
Dynalite did the dimming system controlled by the Azure and including a switch pack and a neon sequencing unit. Touch panels are used to turn the ambient room lighting on and off for when the cleaners come in at night.

"The idea behind using the Azure was not only to use it to control all the DMX devices, but I was also very conscious that at venues like this there is not qualified personnel to handle lighting," said Justin. "So 'hands-free' was a must. You couldn't rely on someone to once an hour hit a button to start a show or change the mood of the room when the sun sets. We ran an experiment

here for a while - we left the neon on or a touch panel and let them turn it on and off but it was a disaster, they couldn't do it! Consequently everything is automated, they only have control of the ambient room lighting. It's a big factor in non-traditional venues for this kind of project."

• Cat Forcer

The Avolites Azure 2000 and Dynalite dimmers



form of a sharks head grows. The DMX light source enables the colours to be changed.

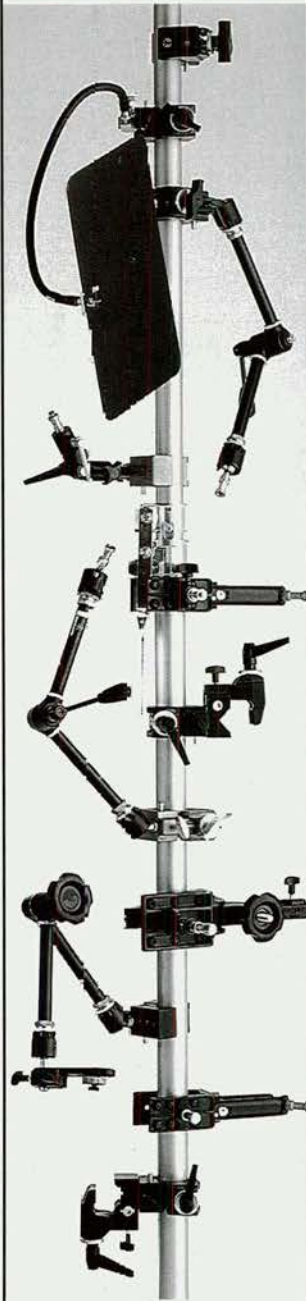
The fact that the lamp life of the HMI120C is only 750 hours didn't seem to bother Justin

"It's the shortest lamp life of any fixture we've got in here," he said "The DMX sources for the fibre optics have 6000 hours in them and the down lighting colour changers have Osram 12V, 50W bulbs with 4000 hours of life. We've set up a separate maintenance contract with a dealer and they keep the lamps up to date as well as changing the patterns."

An Avolites Azure console controls all the dimmers, moving lights, DMX fibre optic light sources, and the DMX down lighting

Client Southport Sharks AFL Club, Gaming Room Extension Project, Southport, Gold Coast, Qld **Architect** MPS Architects **Head Contract** Cordukes Entertainment Lighting Systems Consultants, Design & Commissioning **Universal Lighting & Audio Installation** Digil'n, Dynalight Qld, Access Audio.

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AVENGERMANFROTTO

LSC LIGHTING SYSTEMS



PLASA saw the launch of the new ePAK dimmer from LSC, designed for the budget conscious market such as schools, hire/rental companies.

The ePAK offers 12 x 10 amp channels each protected by a fast acting MCB, discrete DMX 512 address or bank selection, scene build capability for stand alone use, and is housed in a sturdy zinc steel 3RU 19" rack mount box complete with rack ears. The dimmer will be available with Weiland or Socapex connectors and a Schuko version. Call LSC Lighting +61 3 9561 5255.

JEM

JEM Smoke Machine Co Ltd released their Stage Hazer a high output hazer designed for use in large venues. It is designed with twin fans wide angle dispersion fins plus a 9.5 litre fluid capacity, continuous loop fluid system.

Also on show was the JEM Club Smoke - a nightclub smoke system which is easy to install, lightweight and compact. It's supplied with a bracket that allows the head to be mounted at any angle while the wall mounted Club Smoke Service Module can be installed up to 100 metres from the heads.

Australian distributor: Show Technology +61 2 9893 1111.



PLASA TITBITS

● **ADB** launched their PHOENIX range of control desks which is based around their new ISIS (Integrated Software for Intelligent Systems) platform: a real-time 32-bit operating system. A test version of ISIS was on show at PLASA and the formal release of the platform will be in October of this year.

● **Celco** were showing their Explorer lighting console for the first time in its new improved guise as Explorer II: additional features include an integral floppy disk drive and a sleek new design. Also on show was the new Fusion rackmount dimmer which combines the digital technology of the Fusion wall mount with a new front end. 30 of the racks have just been commissioned for the worlds next biggest cruise liner currently under construction. Australian distributor: Electrosonic +61 2 9714 0400

● **Clay Paky** presented its innovative and revolutionary new range of moving body fixtures launched at IADI last year. The range is composed of Stage Color 1000 and Stage Color 575, the washlights allowing total mastery of colour; Stage Color 3000 and Stage Light 300, the pint-size fixtures with big personalities; and Stage Color 1200 and Stage Zoom 1200. The latter two products are developed around exactly the same basic system, so, using the appropriate convention kit, Stage Color 1200 can be transformed into Stage Zoom 1200, or vice versa. Australian distributor: Show Lighting +61 7 3369 3399.

● **Le Maitre** promoted its professional range of pyrotechnics, smoke machines and hazer products. Seen for the first time at PLASA was the flight-cased Touring LSG (Low Smoke Generator) which uses a half-size touring CO2 container. New from the Pyro Range was the Sure Fire System, a multi-firing system for both stage and outdoor shows. Australian distributor smoke: ULA +61 7 5532 9922, Australian distributor pyro: Lightmoves +61 2 9560 0000.

● **DHA** launched its Digital Beamlight 2, a high precision, fully-automated 500 watt luminaire. Using a 500 watt 24V Crown silvered E40 lamp, powered by a compact toroidal transformer, and a specially developed and highly efficient parabolic reflector, the Digital Beamlight's output approaches that of most 1kW units while maintaining the tight spot and optical qualities typical of 500 watt units. The product is capable of rotating through 380° in pan and 320° in tilt at a maximum speed of 60° per second.

● PLASA '98 marked the birth of a new national sales distribution company. **ELX Limited** is the

new exclusive UK distributor for Selecon luminaires and LSC control and dimming products.

● **High End Systems** showed the Studio Spot, an automated hard edged beam fixture designed to compliment the highly-successful Studio Color wash luminaire for television, live and architectural applications, particularly where space is limited and precludes the use of moving mirror lights. Australian distributor: Techscape +61 7 3358 5118

● **Penn Fabrication** - new to PLASA 98 was the budget-priced Cub Stand Series of lighting support systems for the mobile market. Australian distributor: Penn Australia +61 3 9646 7222.

● **Rosco** showed the new Alpha 900 fog machine together with Clearcolour invisible fluorescent paints and new flooring. New Supergel and E colour filters were also featured, with new gobo designs also on the stand. Australian distributor: Rosco Australia +61 2 9906 6262

● PLASA 98 marked the official launch of **Zero 88's** two new desks - the Elara and Alcora lighting control desks. These 12-channel, two-preset DMX memory desks are suited to the education and small production markets. The desks feature fully programmable memories, flash buttons, wide mode and chase facilities. The Alcora operates with a memory stack system, whilst the Elara uses memory submasters.

Also on show was the 'Sirius Off-Stage' - the new off-line editing package for the Sirius 250 and 500. Australian distributor: Mediavision Australia +61 2 9816 4055.

● For the first time at PLASA there was a dedicated area for architectural lighting and **Enliten**, who are specialists in the area hosted several seminars, one of which examined the use of theatrical lighting in the architectural arena. They also released two exterior spotlight ranges at PLASA: the Callisto 150w metal halide and the Juno 75w low voltage series.

Enliten also showed the existing range of logo projection, colour change and effects luminaires in its specialist portfolio of theatrical style luminaires and effects for architectural applications.

● This year, **Abstract** showed the full range of products from the highly acclaimed VR8 projector - now with rotating gobos - to DJ's favourites including the Galactic Moon CE and Twister III Gobo.

The Micro Slide - a new display projector - made its debut at PLASA 98. Australian distributor: ULA +61 7 5532 9922.

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PLASA AWARDS

The 1998 PLASA Excellence Awards were given to four companies with products that stood out as innovative solutions likely to have a major impact on the industry. 70 products from different companies were entered into the Excellence Awards and three stand awards were also given. The winners of the **1998 Excellence Awards** were: Spirit by Soundcraft - Digital 328; Wharfedale - WXT-04 Loudpanel; Avolites - Focus Finder; Bytecrafft - The Solution Sine **Commendations** were awarded to: Le Mark for Slipway Tape; The CD146 Multi Truss Adapter by PJ Lighting; DNH Worldwide for the Aqua 30; The CM Prostar from PCM; The Source 4 Zoom from ETC.

GRIVEN

Receiving its worldwide launch at PLASA 98, was Griven's Kolorado, a mood-creating luminaire designed primarily for external architectural lighting applications. The DMX-controlled Kolorado combines a wide angle, 1800W discharge-lamped floodlight with the added benefits of a CYM colour changer, giving the ability to create virtually any desired colour. A patented optical system gives, from a single projector at five metres, an extraordinary lighting coverage of 30sq.m
Australian distributor: ULA +61 7 5532 9922.

VIDEOS

Among the video systems companies exhibiting their high quality wares were Screenco with its Sony JumboTron CRT and newer LED screen technology, the Big Screen Hire Company with its Invision LED screens, and Owl Video Systems with the high brightness SDV 1300 digital projector and Seleo projection cubes and monitors.

PRODUCTS

ANTARI'S SMOKIN'

Antari have just released a new line of smoke machines called the Z-Series. Four products make up the new flagship of Antari foggers - the Z-800, Z-1000, Z-1500 and Z-3000. They're lightweight and portable - meaning they can be hung from fixtures, stacked alongside floor equipment or simply hidden from view. Each unit comes equipped with a timer and wireless remote control. With the implementation of a fuzzy logic control system means these smoke machines will never pause at those crucial reheating moments.

LASERS

Oracle Superscan 360

Oracle Laser Productions Sydney have recently released the production model of their unique Superscan 360 laser scan head following a successful product launch at Entech 98. The Superscan 360 allows laser graphics, animation and effects to be projected or animated anywhere across 3600 horizontally and 2700 vertically. Basically it's a moving light for laser able to smoothly pan graphics and animation around the venue, for example an animated bird can be made to gently fly around the room.

The Superscan 360 made its debut at the Mardi Gras dance party, suspended on a moving truss over 13,000 people and fed by a 100m optical fibre from a 20w Argon laser system.

The Superscan 360 is an Australian product fully designed by Oracle Laser's technical team from scratch and was the brainchild of Oracle Technician Harry Gcdley.

"It is fed laser light by a fibre optic cable from a conventional laser system, explained Paul Mazlin, Director of Oracle Laser. "The



head operates in a similar fashion to other moving heads in that it can turn about 4000 horizontally and then must return. The pan and tilt movements are done by powerful servo drive systems which allows for accurate positioning and smooth movements that you can't get from stepper motor based moving heads".

The Superscan 360 can rotate a full 3600 in half a second and tilt 2700 in 1.5 seconds. It weighs in at 22kg and may be floor or truss mounted. The head is controlled by the Oracle 3D laser controller or by DMX. It can then be fully integrated into a moving light show or added on to an existing laser installation.

"The first customer to install a Superscan 360 is the Rocky Horror Show at Sydney's Star City Casino's Showroom" said Paul. "The Superscan is fed from a 8w Argon laser and is used for various effects that could not be accomplished with a conventional fixed laser system".

Call Oracle Laser +61 2 9938 4466.

PRODUCTS

LXbizzBITS

\$1000; and Z-3000 \$1,499.
Call ELSTA on +61 2 9568 2100.

ADJ SKYLIGHT II

Skylight II is a lighting effect which has 18 clear optical lenses and inner dichro colour wheels. 36 beams of light swing back and forth, changing colours to the throb of the music. The compact unit has a multitude of colours including red, yellow, green, blue, pink and white. It takes 2 x 24V, 150w lamps. Price is \$599 RRP.
Call Show Technology +61 2 9898 1111.

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THE PA PAGE

With Michael Orland

YAKKETY YAK, DO TALK BACK PT. 2

I like women's breasts. I still do a doubletake at gigs when confronted with cleavage. Maybe it's just me. My tastes have always been a little outside the norm. (while all the other guys at school were ogling at Ginger, my fantasy preference was always Mary-Anne, but I digress!) The point is, there is a time and place for everything. And frankly, I think grown men using talkback systems to do nothing more than point out hooters to each other is a little boring. (*Huh!Ed*)

The second thing I've got to say about talkback etiquette is best illustrated by an incident that occurred about a month ago in a five star Sydney hotel ballroom where one of the major AV companies had set up for a big corporate do. During the presentation, two of the lighting crew were talking to each other with headsets saying things like 'The fat bitch director wants this' and 'Now the fat bitch director wants that', when suddenly a stern female voice came on the line saying 'Actually, the fat bitch director wants you both out of here. Now.' Overall lesson (I'd need crayons to draw it any clearer): don't use talkback systems to broadcast your ignorance.

Last month I detailed how to add a talkback system to your sound or lighting rig for under \$500 by using a kit power supply. Of course, this could theoretically be almost halved again by assembling your own kit intercom stations as well, also available through Altronic, but these are not recommended for beginners.

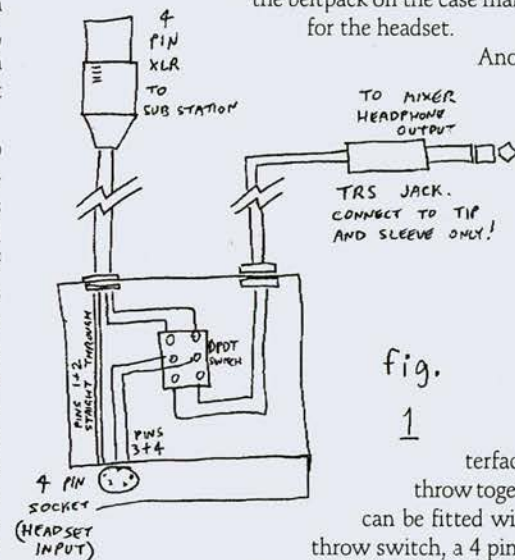
A couple of options to consider when purchasing stations/beltpacks: Sometimes the mic on/off switch will have three positions: on, off and ptt, which stands for press to talk. Ptt position will be spring loaded so that a mic connection is only made with your finger holding it down. This feature is preferred by many in broadcast or theatre applications where up to twenty stations may be connected at a time. Too many open mics, especially with the odd heavy breather can get a little rowdy. Secondary operators (followspots, etc) should always leave mics off when not required. Professional crew frown on unnecessary chatter.

Another beltpack option is having a method for grabbing attention. They mostly all feature call lights but you'd be surprised how often these are just not noticed, especially in rock and roll conditions. Even with the beltpack gaffed to the top of a console's meterbridge, the call light can often go unnoticed when the desk is lit up like a Christmas tree. Interestingly enough, I've found when the call light flashes instead of simply staying on, it has a better chance of being noticed. If your beltpack has a LED which sim-

ply stays on a few seconds, it can probably easily be replaced with a LED with a self contained flasher.

Creative Audio beltpacks feature two call LEDs which flash between each other when activated, almost always grabbing attention. However, the ultimate answer is to add a beeper. Even in the loudest conditions it only takes a tiny sound at the right frequency to slice through and demand a response. Adding one to a beltpack is easy enough. If it is the Jands TB/S, Sound Developments, etc. type where the call light is within the call button, then the globe will be a 12 volt type. Meaning any 12 volt beeper wired in series with a diode, say a 1N4746, together wired in parallel across the contacts which lead to the globe, will work fine. The beeper can then be glued against a small hole drilled in the lid of the beltpack or even between the XLR connectors if it will fit. Maybe even a two position miniature toggle switch as well for turning the beeper function off during quiet sit-down type gigs.

Once a beeper is installed, the substitution can then be positioned out of the way at the FOH desk. If the substitution is fitted with a beltclip, this will usually clip into the slot within the smaller section of a Session type latch, assuming your console rests in this part of the case when set up. A small S hook next to the beltpack on the case makes an ideal resting place for the headset.



Another cool idea for your headset at the FOH desk is to have it double up as your desk cueing headphones. More and more desks, like the Mackie SR40s coming onto the market these days are Clearcom (Jands, etc.) compatible. Meaning this much neater option is built in.

Nevertheless, an interface box is easy enough to throw together. A sturdy plastic box can be fitted with a double pole double throw switch, a 4 pin XLR panel mount connector and a couple of fly leads, one leading to a 4 pin XLR line connector and the other leading to a TRS (stereo) jack plug, all wired up as per fig 1. Note you will not be able to use the headphones for stereo monitoring, only for cueing and pre/post fade listening, but this is all I'd ever use them for in live circumstances anyway. The main advantage of this setup is neatness, without a mad tangle juggling headsets and headphones during an urgent call.

If you have any problems or further suggestions, as always, telephone me within normal business hours, or better still, Email me anytime on the address below.

Michael Orland runs T-PAC Sound and Light
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