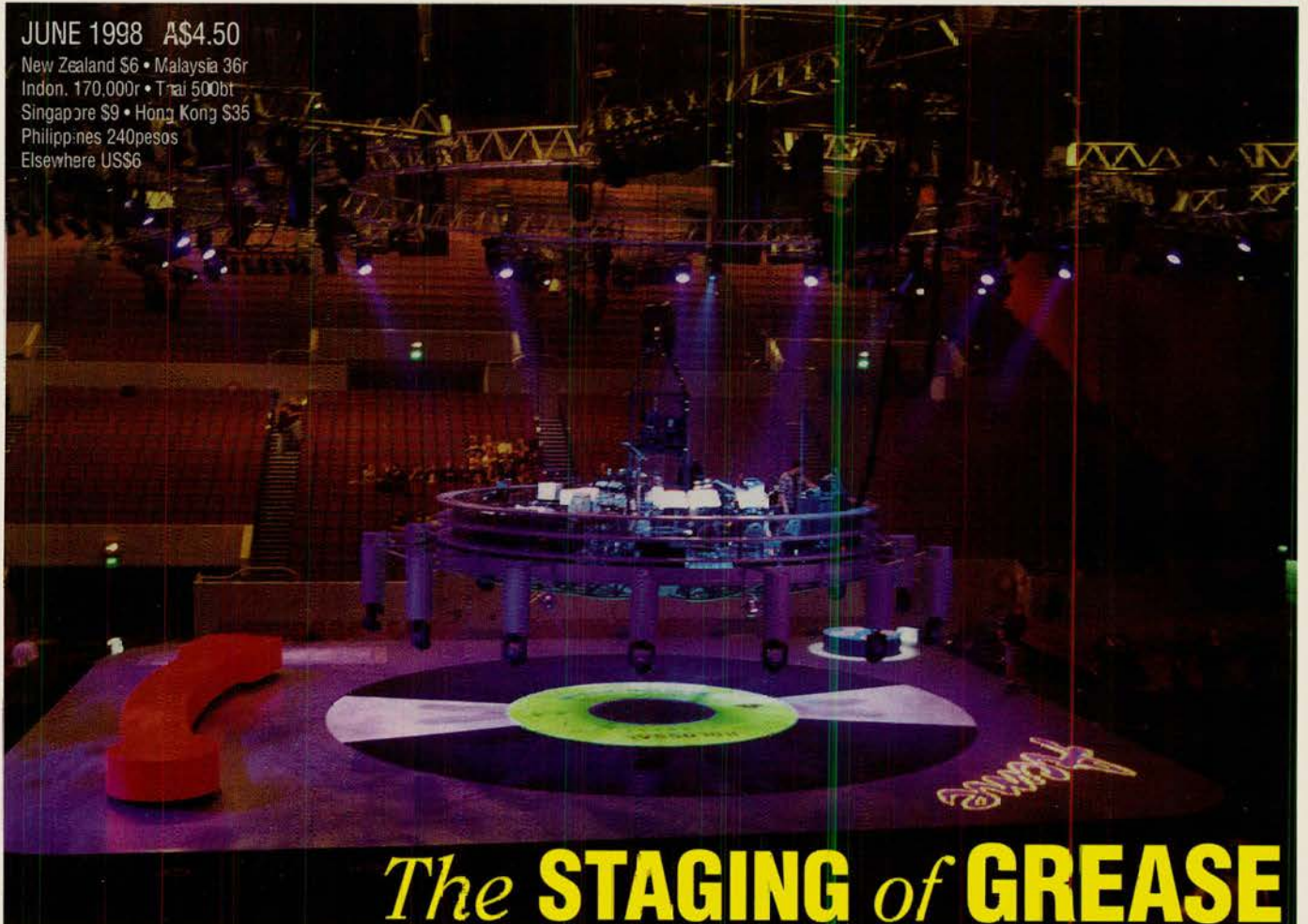


Connections

THE ENTERTAINMENT TECHNOLOGY MAGAZINE

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The STAGING of GREASE

~REVIEWS~

- WAVELAB
- SHAKESPEARE
- ROSCO HORIZON

The Boy
from Oz:
AUDIO

ON TOUR WITH
THE WHITLAMS

BUYERS ♦ LIVE MIXERS
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Feature: Cables & Connectors

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Connections

JUNE 1998 #55

THE ENTERTAINMENT TECHNOLOGY MAGAZINE

PRO TOOLS NEW 32t CONTROL



Seminar record, but facilities 'poor'

Call for better theatre environment at ENTECH

A record 2,005 seminar tickets were sold at ENTECH 1998. The 18 Seminars were mainly well received, but the temporary theatre facility itself attracted wide criticism.

ENTECH has always suffered from the current design limitations of the Sydney Exhibition Centre, where the five exhibition halls are located quite a considerable distance from the Convention centre.

This has resulted in Seminars being held in makeshift theatres, this year in the mezzanine under Hall One. Rigid walls were built to form two theatres, each seating 130. Temporary air conditioning

> continued next page

DigiDesign have moved ProTools up to Fairlight territory with the introduction of the new Pro Control surface.

This is, for all intents and purposes, an expandable control surface for ProTools, which gives you recording and mixing on a tactile 'mixer' surface-breaking away from the mouse and keyboard which typify PC and Mac based digital audio workstations.

Pro Control is, in short, a very sexy, modular control panel with faders that move by themselves and encoders that show you the way. ProTools itself hasn't changed since the release late last year of ProTools 24, the 24 bit version of ProTools 4, with complementary hardware including new input and output boxes. It is still based on a PC card system hosted by an Apple Mac, using the Mac operating

system. The Mac OS has had a resurgence of late and is destined to continue as the operating system of choice for many people - particularly on the new Mac G3 models which offer the best processing power available in anything less expensive than a Silicon Graphics workstation.

The Mackie HUI, short for human user interface, was introduced at the same time as ProTools 24, and gives users a starting option for hardware control of ProTools. But Pro Control goes a lot further.

Pro Control links to your Mac via an Ethernet connection, and it can control ProTools version 3 as well as the latest versions. Being an Ethernet connection, there is no reason why you cannot remote control your ProTools installation.

Interestingly, DigiDesign do not mention the Mac when

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CLAY PAKY STAGE RANGE



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The **STAGING** of **GREASE**
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Seminars

(from previous page)

was created with an inflatable 'sausage' duct through the areas.

"The seminar was held in a tent" complained **Michael Arrigi**, of Newtown. "Intelligibility was marred by amplified music spilling in".

Martin Pullan from Edensound Productions (South Melbourne) echoed the complaint, objecting to "The ambient noise levels, air conditioning and interference".

Seminar organiser **Julius Grafton** (editor of Connections) admitted that the environment was compromised.

"We spent \$16,500 building and air conditioning the two theatre spaces, but they suffered from being placed behind an 'active' display - where audio and fog intruded into Seminars", he said. "I concede that we didn't deliver a good environment".

Despite the criticism, the programme was generally well received, with highlights being the 24 bit audio session, TV set lighting, and ShowSafe sessions.

"This is the last time we need to compromise", said Grafton. "The Sydney Exhibition Centre is building a convention area directly off Hall 5, which for future events will guarantee properly constructed rooms".

In addition, the new Sydney Showground and Exhibition Complex at the Olympic site has just opened to rave reviews.

ENTECH 2000 will be held in either complex, with proper theatre spaces and presentation areas available directly off the trade show floor for the first time.

-Connections

Performing Arts Industry rallies behind ShowSafe

◆ **Theatre and Events professionals gather at ENTECH**

By **ANTHONY J. MUZIK**, Safety & OHS writer

Let's face it, folks in our industry need to learn more when it comes to communicating. As **Liz Pain**, the well-known technical director (Event Logistics, Melbourne) says "events become a living breathing thing", so communication is crucial, especially where occupational safety is concerned.

Pain was one of the presenters, a crowd pleaser in fact, at the standing-room-only safety seminars held at ENTECH 1998. Pain was part of a quality brains trust bringing years of experience and common sense to the highly informative sessions.

Up to 140 people crammed each workshop, featuring subjects dealing with electrical safety and rigging. The Outdoor events seminar also proved very popular with an extremely attentive audience.

The Seminars were presented by ShowSafe and capably chaired by **Simon Jenkins** (Sydney Opera House). The sessions were popular because they put event planners, equipment manufacturers and crews under the one roof.

There was also a healthy cross-pollination of panel members attending other sessions with vigorous and good-natured Q & A's at the end of the presentations.

70 people attended a ShowSafe conference at the Sydney Opera House prior to ENTECH. The conference dealt with issues such as Manual Handling and the Industry, Accidents/Incidents, Safety Training and the regulations affecting Noise Standards.

The talk is that no one will be able to move on any construction site after the year 2000 without the appropriate Workcover tickets.

This will undoubtedly impact on the entertainment industry with a great deal of confusion. All agree, the same laws of physics apply to metal stress and electricity but as **Tiny Good** (ShowTech Rigging) indicated, Workcover Assessors primarily have a grounding in the construction industry, with little appreciation of entertainment technology.

Seeing things they would never witness on a construction site, they are incredulous when they are told of, or witness, a large production in full swing.

20 "major players" signed up as members at the ShowSafe booth and according to Chairman, **Byron Conninos** this will help implement some of ShowSafe's objectives.

Some of these objectives are:

- To hold meetings with Workcover (NSW), with a view to co-operation in the workplace.
- Transposing guidelines to other states.
- Conducting more workshops.
- Guidelines for safe work practices to become state standards.
- Producing guidelines for risk management.

There was even talk that "event planners" should meet a minimum industry check list of requirements before they get their business cards printed.

So if an event does, as Liz Pain said, become a living breathing thing, let's hope at the end of day we too are all living and breathing. And with ShowSafe still alive and kicking, there's greater chance we will be.

There's no signing off on safety. It's everyone's responsibility.

• **ShowSafe: +61 2 9241-5000.**

INAPAC Network at Entech

Members of the Incorporation of NSW and ACT Performing Arts Centres (INAPAC) used Entech as an opportunity to network and discuss issues of relevance to Performing Arts Centres.

Bernd Neumann from the Illawarra Performing Arts Centre and Chairperson of INAPAC described it as an umbrella organisation for all Technical Managers in NSW and ACT.

"Technical Managers is a suitable broad term for our members.

Some very small venues only have one technician who does the lot, while others have departments."

"Safety is an issue that is of great concern to all of us - now that we have a platform for discussion we can facilitate some of the answers."

"INAPAC is all about breaking the ice between smaller venues and larger venues."

For enquiries about INAPAC contact **Bernd Neumann** (02) 4226 3699. **- Mandy Jones**

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Pro Control

from page 3

talking about Pro Control. This tends to lend weight to the rumour that ProTools will shortly be available for either Windows NT or Silicon Graphics workstations. I'd favour the latter in terms of processing power, and also as Steinberg have released a system on SG.

Your standard Pro Control is an 8 channel unit with master control section. Optional extender boards can be built on each side, to make a 32 track monster system. Total recall of every session parameter is promised, the Pro Control is complete with machine control section, and trackpad.

There is a 'stack' of encoders with activation keys and a scribble strip for control of whatever TDM plug-ins you have. Very neat indeed! If you are unfamiliar with Pro Tools, a great part of its strength is the army of co-developers who offer 'plug in' extensions, these emulate via software and dsp control various famous (and some downright outthere) audio processors - from Lexicon reverbs, through tube eq emulation to spurious noise generators.

ProTools is a very hot product in the new audio order, and the Pro Control surface moves it further upmarket - but of course it is still perfectly OK to run ProTools the old way - on your keyboard, with a mouse!

Connections will review Pro Control in full as soon as possible.

-By Julius Grafton, from the AES convention in Amsterdam

Dateline Holland as the Euro emerges

Dutch women on pushbikes, millions of them. I could watch all day. The plaza outside Centraal Station in Amsterdam is a parking lot, thousands of bikes chained up.

Holland is the perfect gateway to Europe for people from our region. The Dutch speak English, prices are reasonable and in May, spring has sprung. The people also look very alluring, whatever your persuasion.

I was there briefly last month to attend the European edition of the Audio Engineering Society (AES) convention.

Amsterdam is truly a great destination, forget the coffee shops and the girls in the windows. These are well represented, but the essence of the Neverlands is the Dutch pragmatism, the way they get things done without drama. Great pub-

lic transport, food, entertainment, canals, beer and sights to see.

Try it before you get too much older.

• *Two airlines can fly you direct from Singapore, but I took a Thai Airways flight from Bangkok - after a seven hour delay. It was then cancelled in Zurich, but not after a long further delay. Try Singapore Airlines, or KLM, both are more punctual than Thai.*



English spoken here: The German guy on the Sentury stand at AES addressed me in English - as did most others at AES Amsterdam. I tested this by turning my name badge backwards, so I was not apparently from Australia.

Europe will be the largest global economy soon. The Euro will be the strongest currency. And English will be the standard language there.

The photo on the left tells it all: European product, Euro price, and English spoken.

Today's world order has the USA first and Japan second in economic strength.

With Germany, France, Holland, Italy and Belgium already unified, the UK and others poised to enter, the EU will become more important to our region than ever before.

-Julius Grafton



EAW debut amplified speaker at AES

Amsterdam: EAW have moved with the times and put the amplifier in the box. The trend, started mainly by Meyer Sound, is growing.

At AES in Amsterdam, EAW showed the KF400a, an active 3 way system which has a CyberLogic amplifier module fitted neatly into the rear lower quarter.

CyberLogic is a brilliant choice for EAW, as that company make modular amplifiers. They have made a name for themselves with neat 4, 6 and 8 channel amplifiers which are virtually military specification. Or put another way, somewhat bomb proof.

The KF400a is a trapezoidal enclosure, loaded with a 15 inch woofer, a horn loaded 8" midrange cone and a 1.4 inch throat compression driver on a 60 x 45 degree constant directivity

continues >

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EAW (continued)

horn. Although a three way system, it is bi-amped, with one amp channel feeding the low and the mids, which are passively crossed over. The second amp channel powers the high frequency driver, and the crossover function is done inside the box.

Comparable to a Meyer MSL 2, the KF400a just requires mains power and signal. The power supply is auto sensing, so the one cabinet will work in Minnesota, Melbourne or Moscow, all you need is the correct mains plug. When will the world settle on one mains plug design, we ask?

The CyberLogic amp module is of a Class H Mosfet design, with various protection modes. KF4500a is still under development, but EAW can quote 126dB full range peak SPL, or 122dB constant.

Interestingly, the first application on the usual long list of 'suitable' gigs for the new box is listed as 'Corporate Events', which is where a serious amount of live audio work originates these days.

EAW quote 62Hz to 20kHz response at plus or minus 3dB, and the cabinet weight is around 73kg.

• **Julius Grafton**

✓ **PEOPLE NEWS**

◆ **Show Technology** have introduced a new internal sales representative to their team - **Anthony Zibara** +61 2 9898 1111, quiz his knowledge and introduce yourself!

◆ **Sontec** (VIC) announce the appointment of **David Benge** to the new position of Wholesale Manager. Sontec Wholesale will sub distribute AWA, and products from Magna, Altronics, etc. +61 3 9570-7020.

◆ **Jands** introduce **Jeff Porter**, new to the crucial role of Manager, Pro Lighting. Jeff comes with 8 years experience. Call him on +61 2 9582-0909.

◆ **Janet MacDonald** has moved from Three Arts Services to **Bytecraft**. She has taken up an internal sales and admin position in their Distribution operation, made available when **Shirley Jensen** left to go on maternity leave a few weeks ago.

◆ **SAVI** in Sydney have two new people, **James Pavey**, and **Kristian Winter**. They both have technical backgrounds, natch. Former Hire Co-ordinator David Cowling was recently diagnosed with 'Liinitis Syndrome', a rare cancer - has had the big op,

and is doing well. Best wishes David from all at Connections. SAVI: +61 2 9417-4388.

◆ **Dataton Australia** say that **Ross Parker** has left to establish his own operation. +61 2 9416-6555.

BIRTHS AND WEDDINGS

◆ **Show Lighting's** General Manager **Peter McKenzie** has finally settled down with the lovely **Jane Sutherland** - on 2nd May, 1998. Congrats!

◆ **Phil Conroy** from **Metro Productions** in Wellington has tied the knot with the lovely **Helen**. We wish them all the best!

◆ Late March **Katrina Gear** and **Graham Ironside** got married in Brisbane. Graham works for **Staging Conections** and Katrina works for a promotional products company called **Motif Australia**. Enjoy life, guys!

WEB UPDATE

◆ **Bytecraft** have revamped their web page. Check it out on www.bytecraft.com.au (not to be confused with www.bytecraft.com, a Canadian software firm.)

More news, page 8 >

30 years
of entertainment technology
'68 - '98

- 1968** AWA are kings of the live sound scene.
- 1969** The pattern 243 Fresnel at 2000 watts is the brightest light in common use.
- 1970** Howl - round is a major problem, people rename it 'feed-back'. Billy Thorpe and the Aztecs solve the problem, by making feedback PART of the song!
- 1971** Strand introduce the Pattern 23 II, featuring a faceted reflector!
- 1972** Jands and Nova build the first horn loaded PA systems in Australia, the transistor replaced the valve in our first amplifiers.
- 1973** Jands buy two big green trucks. Well, it was big news back then...
- 1974** Sony develop the first stationary digital audio recorder, the X-12 DTC, working at 12 bit resolution!

• These are random and fractured events from the Connections archives. Email us your historial highlights or corrections now, to- mail@conpub.com.au or fax to 'Historian', +61 2 9876-5715.



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**, June 2-4, San Francisco. Ph +1 914 328-9157
- **InfoComm**, June 9-13, Dallas. Info fax +61 2 9531-6777
- **World Lighting Fair**, June 18-20, Tokyo. Ph +81 3 3706-5687
- **Vision & Sound Expo '98**, July 1-3, Auckland. CANCELLED
- **PALA**, July 17-19, Singapore. Ph +65 227-0688.
- **PLASA 98**, 6 - 9 Sept, London. Call +44 323 410-335. web: www.plasa.org.uk
- **AES 105th**, Sept 26-29, San Francisco. Fax +1 212 682-0477. web: www.aes.org
- **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
- **NAB**, 19 - 22 April, 1999, Vegas, USA. www.nab.com
- **MusikMesse**, 3 - 7 March 1999, Frankfurt. www.messefrankfurt.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
- **SMPTE**, July 13-16 th, 1999, Sydney, Ph. +61 2 9977-0888.
- **LDI** November 19 - 21st, 1999, Orlando. Ph +1 212 229-2965 web: www.etecync.net
- **NAMM**, 3 - 6 Feb 2000, LA. www.namm.com
- **ENTECH 2k**, March 5th - 7th, 2000, Sydney. 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
- **LDI**, 20 - 22 October, 2000, Las Vegas. Ph +1 212 229-2965 web: www.etecync.net

SEC'S 15 YEARS OF SHOWBIZ

*** HOW HAS THE PERFORMANCE INDUSTRY CHANGED IN 15 YEARS? CAT FORCER VISITS THE SYDNEY ENTERTAINMENT CENTRE TO FIND OUT**

The Sydney Entertainment Centre has just celebrated its 15th birthday and during that period, Arthur Carruthers has been employed by the centre in various capacities.

"I was here prior to the grand opening on May 1st 1983," he told me. "And I have been Operations Manager for the past five years."

During this time Arthur has certainly seen some strange things at the venue and has had to deal with all manner of calamities.

"James Morrison was once playing a Senior Citizens concert and it was planned for him to abseil down onto the stage to perform a duet with Judy Stone," said Arthur. "Unfortunately he got stuck and had to perform the duet hanging from the roof. During the event we had to come out with a Tallscope and rescue him."

"The latest fun thing was during a Kiss concert when Gene Simmons got on a high reach lifter which went out over the audience. It got stuck over the audience and he was stranded there - it was straight out of Spinal Tap!"

Some incidents are more tragic like when Shirley Bassey lost her voice half way through her concert and the show had to be cancelled, the only time a show has been cancelled midway at the SEC.

One of Elton John's concerts was nearly cancelled when he left the building after a tiff with a well-known Australian music industry identity. His manager caught him at the gate and talked him into doing the show. Then there was the Rod Stewart show where part of the act including kicking footballs into the audience. Not surprisingly one of the patrons was hit pretty hard in the face.

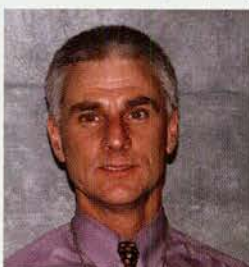
Then there was the time when two robbers armed with knives and machetes held up a restaurant in China Town deciding to escape through the SEC building. One of

Arthur's employees was threatened with a knife whilst the gateman, an ex-Vietnam veteran, disarmed the man with the machete and held him until the police arrived.

One of the most unusual set-ups that Arthur had to oversee was for the recent Sumo wrestling competition.

"It was a sacred site and no women were allowed to go within a certain area of the stage," said Arthur. "It was probably the toughest job we've ever done. If we had got paid for all the meetings we had to attend, we would have made a million bucks! They conducted two entire rehearsals - without anybody there - but in real time! It was absolutely bizarre."

In Arthur's opinion, the best concert ever staged at the SEC was, without a doubt, Pink Floyd and the worst mix he has ever heard was M.C. Hammer. It was so bad, you couldn't even recognise a hit song. The worst concert was Billy Ray Cyrus...



Arthur Carruthers

the truss came down and THAT SONG just went on for ever.

"One of the strangest gigs we've done was for an Italian band called Pook. The Australian promoter, for reasons only he knows, insisted the show go ahead in full concert mode, with a full production, and full crew

despite selling only 400 tickets. The band were actually very good but nobody knew who they were."

Over the years the mix of events has changed with blockbuster musicals and 'arena events' happening more and more. A larger variety of corporate and family events book out the venue for much of the year.

"Despite the fact that popular music might be falling apart, we've had one of our best years ever for rock'n'roll," Arthur said. "Here we are in our 15th year but it's still like our first as far as popular music is concerned. We've got an extremely full calendar but with a bigger variety of events so we've had to adapt the building to suit. We can now do for 800 people, fully enclosed, up to 12,000 people and anything in between."

The next few months see a variety of events from a return season of Grease, Disney on Ice, indoor snow boarding, faith healers, tennis and award shows.

With the building of a 20,000 seat arena at Homebush there have been rumours about the demise of the SEC post-Olympics. Contrary to those rumours, the SEC will be continuing and expanding in it's traditional role of providing a multi-purpose venue.

"It will be business as usual for us understanding that there is a lot more competition in the industry especially with the Hordern re-opening and a new venue called the Stardome being built at Liverpool," said Arthur. "We've got no doubt that the multi-use arena at Homebush will win events from us but that's the way competition goes. There are on-going refurbishments here at the SEC and we hope to do a major refurbishment prior to 2000."

One of Elton John's concerts was nearly cancelled when he left the building after a tiff with a well-known Australian music industry identity.

"The show wouldn't end as he wouldn't leave the stage," said Arthur. "People were actually pulling the stage down and he still wouldn't leave. I think he left when the

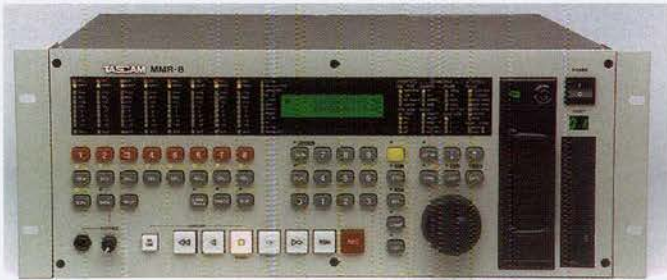


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Tascam MMR-8



Timeline have given Tascam world rights to sell the MMR-8, an 8 channel hard disk recorder / player. Basic editing can be done from the front panel, but the real attraction is using multiple machines, and taking files from ProTools and other supported formats. There is space for one internal drive and up to six additional SCSI drives can be used. MMR-8 is cross platform - ie: take files from .Mac or PC. Details from your nearest Tascam outlet.



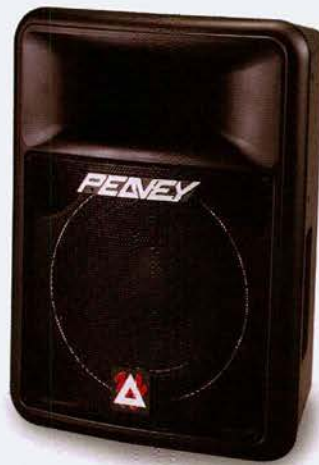
Comrex HOTLINE

This hot looking red box is a Radio engineer's best friend. The Comrex HOTLINE gives you two way audio on ONE bog standard, vanilla telephone line. It does the duplex, two way thingo and allows you to connect your little audio mixer or a mic to a HOTLINE at either end of the line, and do The Radio Thing. Great for outside broadcasts, a remote occasion, or setting up a min. news room somewhere! The regional radio stations love this because they go and do an OB from an advertiser's premises - and it sounds WAY better than just using a telephone to call in. The advertisers love it too.

When Connections was based in The Bush, our least favourite regional radio station had an advertising scheme whereby the show would cross 'live' to the advertiser - say a car yard - where an off duty DJ would be doing a cross while rendering a sausage sizzle. With Hotline, you'd hear the actual sizzle, and catch the explosion when the snag blows up. As they do. Pcp!

Comrex HOTLINE gives you up to 10kHz frequency range, which is quite adequate for voice. Comrex have some broader bandwidth solutions coming too. • From A\$14k, Austel approved.

• **Production Audio Services, +61 3 9415-1585**



Peavey Impulse

Peavey are now shipping the powered version of the popular Impulse 200 speaker. The 200P is bi-amped, capable of peaking at over 128dB SPL.

It is loaded with a weather resistant 12" woofer, and a 1" compression driver on a 90° x 45° dispersion flare. The bi amp delivers 200w to the woofer, and 125w to the horn.

There are two distributors offering this product in Australia and NZ, the rec. retail is A\$1695 or A\$1669 depending on where sourced.

• Call **Australis**, on +61 2 9698-4444 -or-

• **Audio Telex Communications**, +61 2 9647-1411



ARX EXPAND CONCERT SERIES RANGE

The new 122 SK mid-high installer pack is designed for clubs, churches and high SPL paging systems. It has a 12" mid driver and a 2" throat h/f driver, and delivers 180Hz to 20KHz. • Call **ARX: +61 3 9555-7859**

✓ CHANGES

◆ New entity to distribute for AWA

Well established Australian hi-fi distributors, **Audio Products International (Australia)** will form a new entity called **AWA Audio Products** - to take on the business formerly handed by AWA Distribution.

The AWA Distribution business has under performed recently in a highly competitive market, they say. AWA distribute TOA, AKG, Denon, HNB and others.

◆ MOVED: dB Audio Visual

are now at 8 Guest street Hawthorn VICTORIA 3122 Australia, call +61 3 9819-3630, fax 9819-3636.

◆ Amphenol acquires Alcatel Components Div

Alcatel and **Amphenol Corporation** have announced Amphenol's acquisition of Alcatel's Melbourne based components division. The new entity will trade from the existing Alcatel location, and retain Alcatel staff.

◆ MUSICIANS INSURANCE: A NEW TUNE

The insurance services supplied for the past decade by Hannan Group now have a new identity. **J&H Marsh & McLennan** now handle that business. Call +61 2 9375-0500.

◆ IN HOUSE SERVICE:

Studio Connections is pleased to announce full in house service, in conjunction with Quicktronics Pty Ltd. Call +61 3 9874-4377.

✓ TRAINING

◆ JANDS INDUSTRY NIGHTS:

A new **FREE** and **REGULAR** industry training night by Jands!

When: 1st Tuesday of the month, starting July 7. July topic: **DIGITAL MIXING** with the Spirit 328.

At: The Globe, 379 King st, Newtown NSW, 6.30 - 8.30.

Snacks served: just roll up!



MACKIE DESIGNS SETS NEW STANDARDS IN PROFESSIONAL SOUND REINFORCEMENT VALUE...

MACKIE HAS REVOLUTIONISED THE PRO AUDIO INDUSTRY WITH HIGH-QUALITY, AFFORDABLE AUDIO EQUIPMENT BUILT USING STATE-OF-THE-ART MANUFACTURING PROCESSES IN WASHINGTON STATE, USA • DEMO ONE OF THESE NEW MACKIE SOUND REINFORCEMENT PRODUCTS • DISCOVER QUALITY NO LONGER COMES WITH A HIGH PRICE TAG



M-1400 FR SERIES AMP.IFIER

- 1400 WATTS, 4 OHMS BRIDGED
- 700 + 700 WATTS INTO 2 OHMS
- CONSTANT GRADIENT T-DESIGN COOLING
- BUILT-IN SWEEPABLE CONSTANT DIRECTIVITY HORN COMPENSATION
- SWEEPABLE HIGH PASS FILTER
- BUILT-IN SWEEPABLE LOW-PASS SUBWOOFER CROSSOVER
- \$1795 RRP

There were good mixers around before Mackie started making them. They just cost too much. Until now a really good reliable amp was by definition expensive. Just as Mackie's mixers redefined the mixer market by combining high performance and great value, Mackie's FR Series amplifiers set a new benchmark for sound reinforcement amplifier value. In terms of specs, features, durability and build quality the M-1400 is a "money is no object" amplifier. Yet in terms of "watts per dollar" it is far better value than comparably priced stripped down models.



The FR Series Engineering Team is supervised by Greg Mackie and headed by Cal Perkins. Cal has definitely written his share of modern amplifier history. He received a degree in electrical engineering at CalPoly After a stint at JBL, where he specialised in 'blowing up speakers', Cal went on to design and build mics for Marantz, amps and powered mixers for Fender, and contributed to what eventually became Ramsa's line highly respected contractor amps. Cal went back to JBL and helped develop their EON™ line.

Compare the feature set, compare the specs, compare the price, but most of all, let your ears be the guide. You'll pick the Mackie FR Series amplifier.



SR24-4 AND SR32-4

MORE HEADROOM • BETTER PREAMPS • 60MM FADERS
GREAT EQ • LOW CUT FILTER • VLZ CIRCUITRY
SR24-4 \$3995 RRP • SR32-4 \$4995 RRP

If you don't have a good mixer, you don't have good sound. The mixer is the absolute centre of your sound universe. Everything is plugged into it. Everything goes through it. Its sound quality is an indelible part of anything you record, mix down and perform.

Whether it's an acoustic set at a local club, a huge concert, the best possible mix at next Sunday's worship service, or a self-produced album, your work deserves the finest mixer that you can afford.

That's where Mackie Designs comes in. Our mixers deliver impeccable sound quality without costing an arm or a leg, or an ear. That combination - plus a reputation for making rugged, bulletproof gear - has made Mackie the overwhelming choice of professional worldwide.

Mackie designed the SR24-4 and SR32-4 mixing consoles to be

the best value 4-bus, live-sound mixers ever offered. Mackie also knew that almost everyone who performs music live wants to record it too. So they made sure that the SR Series could do both equally well.

Once you've weighed all your options you'll choose a Mackie SR24-4 or SR32-4. And when you find yourself sporting your new board at gigs and in your home studio, or your church, community centre, or wherever, you'll be glad you made it a Mackie.

The SR24-4 and SR32-4 include the following features:
Ultra-Compact 4-Bus Design • EQ:

Sweet Mid (100Hz - 8 kHz); 12kHz Hi Shelving; 30Hz Low Shelving • Low Cut Filter @ 75Hz • High Headroom Microphone Preamps • AFL/PFL • 6 Separate Aux Sends Per Channel • Channel Mutes • Channel Solo • Tape assign to Monitor or L/R mix switch • Double bussing to feed 8 racks at once • 50mm Faders • Global Phantom Power • Balanced XLR and 1/4" Main Outputs • RCA Tape Inputs and Outputs



SR40-8 LARGE FORMAT CONSOLE

CENTRE-MASTER SECTION • 40x8x3 CONFIGURATION PLUS 4 EXTRA STEREO AUX RETURNS • 12x4 MATRIX MIXER • 8 AUX SENDS • ELABORATE EQ • ULTRAMUTE™ MUTE SECTION • PLUS MANY MORE FEATURES • \$17,995 RRP



ULTRAMUTE™ MUTE SECTION

Both the SR40-8 and SR56-8 feature UltraMute, a computerised group muting system that stores and recalls the particular mute states of the console. UltraMute encompasses all mic inputs and stereo inputs A1-A4, as well as aux, sub and matrix outputs. In Group mode you can assign inputs to a mute group and turn that group on and off at any time, and you can mute multiple groups simultaneously.

Snapshot mode comes in handy for things like plays, musicals, corporate presentations, etc. Since these events are scripted (planned in advance), in Snapshot mode you can store a sequence of mute groups which correspond to scenes, dialog or other cues during an event and recall them in that order.

The world's first affordable large-format live sound mixers!

With features normally found on \$60,000+ mixers, Mackie Designs' new SR40-8 and SR56-8 large-format, centre-master-section mixing consoles break the high-feature/high-price barrier. From elaborate EQ and routing flexibility to group muting and a built-in matrix mixer, these no-compromise consoles are loaded.

How can Mackie offer these feature-packed mixing consoles at such unheard-of prices? Because

they specialise in mixers - not pianos, motorcycles, powered water skis and mixers. Their investment in modern world-class manufacturing technologies, including radial, axial and surface-mount parts insertion machines, keeps their manufacturing costs low. These consoles are equally at home as the prime front of house mixer in an auditorium, church or other large venue.

Call (02) 4388 4666 for detailed information and the location of your nearest Authorised Mackie Dealer.

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For more information contact:

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DS-15



Active power



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Easy to carry, transport, setup and use, this internally bi-amped system shares the advanced design technology and outstanding sound quality that gives all D.A.S. products the winning feature you depend on... absolute value.

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- > Line Volume Control
- > Mic Volume Control
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- > Male/Female IEC Power Connector
- > Effects Insert
- > Line Out
- > Female XLR Input
- > 35 mm Speaker Stand Socket
- > Ergonomic Handle located at centre of gravity
- > Floor Monitor Position
- > Rigging Points
- > Optional FUN-15A Protection Cover with Cable Collection System
- > Input Type: Balanced Differential for Line and Mic
- > Input Impedance: Line - 20 k Mic - 2 k
- > Sensitivity: Line - 0.75V (-0.28 dBu)
Mic - [3mV, 150mV] (-48 dBu, -14 dBu)
- > Acoustic Frequency Response: 50 Hz to 20 kHz
- > Maximum SPL at 1 metre: 121 dB
- > AC Power Requirements: US - 120V, 50 Hz/60 Hz
Europe/Asia - 230V, 50 Hz/60 Hz
- > Dimensions (H x W x D): 68 x 44.2 x 36 cm
- > Weight: 23.4 kg
- > Low Frequency Power Amplifier: Rated Power 150 W RMS
- > Rated Load Impedance 8 : Rated THD 0.01%
- > High Frequency Power Amplifier: Rated Power 50 W RMS
- > Rated Load Impedance 8 : Rated THD 0.01%

D.A.S.
SOUND PRODUCTS

Lexicon 'Studio' arrives

AMSTERDAM: Lexicon's Studio has arrived, at the same time as Steinberg released the 24 bit version of Cubase VST for Mac.

Studio is possibly the most powerful PCI audio card yet released, with a base hardware solution which offers 8 inputs and 8 outputs. It comes as a bundle, with the LDI-12 breakout box, the Core 32/32 PCI card, and Lexicon's PC-90 'Lexi-chip' dedicated reverb daughter board.

Ultimately, up to 32 inputs and outputs can be run at once.

Reverb is one of the most memory intensive functions when done via software, Lexicon say the PC-90 reverb with the Studio card system will release processor cycles for VST on the host computer.

Studio is a hardware solution for PC or Mac, an alternative to using common sound cards, with their fans of cables and mini-connectors.

Studio is also a way to connect an ADAT direct to your computer - and your software. A standard LDI-12T interface has ADAT TDIF and Sony 9 pin interfaces, while the optional LDI-16S interface will link to DA-XX MDM's via TOSLINK.

CuBase are the first development partner for Studio, but others are coming, at presstime Emagic were mooted to be 'Studio' friendly.

In Australia Studio sells for around \$6,995, as a bundle with one card, one LDI-12 breakout box, and the PC-90 reverb. Additional hardware can be optioned to allow up to 32 inputs and outputs.

This product will probably find a home with the majority of serious CuBase VST users, who probably represent the greatest installed base of DAW users in our region today.

Lexicon's digital audio heritage goes all the way back to 1971, and your editor has fresh memories of how the Lexicon Prime Time confused many sound engineers in the late 1970's. But when mastered, it was ahead of its time! Currently, Lexicon state that the 'Lexicon Sound' is heard on 80% of the world's most successful albums and soundtracks.

Lexicon's Studio was first previewed in Connections' October issue, also available on our website at www.conpub.com.au

-Julius Grafton



SAE chief Tom Misner, pictured in Amsterdam with Australian SSL distributor Robert Sloss, chief of Syntec International

Tom Misner buys 4 x SSL's at AES

SAE owner Tom Misner has purchased a 56 channel SSL C+ console for his new studio development in Sydney. In a deal concluded at AES Amsterdam, Misner announced a further three SSL consoles would be introduced in his worldwide family of studios.

Sydney based Misner is, to the recording studio business, what Rupert Murdoch is to media. Misner has built the world's largest network of studios in 12 countries, mainly serving his SAE Technology College.

A recent deal with Walt Disney corporation will see SAE open training colleges for Walt Disney staff in the USA.

Misner is the consummate deal maker, having purchased Baby Studios in Milano, and now plans to open an SAE in Athens.

The major Sydney redevelopment of Mirage Studio's will now be based at Alexandria, near Sydney airport, after the previous site in Artarron was ruled out due to council restrictions.

Misner expects Mirage to move early in 1999. **-JG**

Sony ASDG 16 track H/D recorder

◆ NEW PRO AUDIO

Sony released an interesting audio disk recorder at AES in Amsterdam. The System 5000 offers 16 tracks of hard disk recording without compression, direct to what appears to be a pair of Jaz 2GB drives.

This is where it gets interesting, because the Sony device wears the acronym ASDG, which one could mistake to be the model number. This is, in fact, the Advanced Digital Systems Group, a California based research house from whom Sony have purchased the rights to this product.

Naturally being a Sony, or at



least wearing the imprimatur of Sony, it'll work. You can record at 16, 20 or 24 bit resolution, with each of the two pseudo Jaz drives holding 8 tracks of information. ASDG say these are actually their own versions of Jaz drives, and of course it pays to realise these are the new 2GB version of the Jaz.

It has the usual connectivity, Sony P-2 or 9 pin, with digital input and output via AES-EBU.

Sony have promoted this machine at the film and post market, but anyone seeking professional 16 track digital recording should consider it. •

Lake DSP go Euro

Lake DSP are, like Fairlight and the company also known as dsp, Australian audio here's. Lake were exhibiting at the AES show in Amsterdam, and looking poised for great things.

They operate at the pointy end of audio technology, having devised the Huron high end digital audio workstation, which analyses and analyses, performing complex acoustic modelling where required.

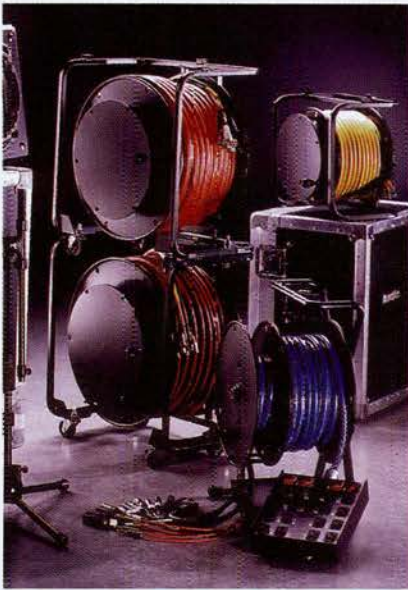
At AES Lake were showing their Immersive Headphone Technology, which is a consumer product allowing surround sound program to be realistically piped into stereo

headphones.

The demo involved hearing a DVD 5.1 soundtrack in ordinary stereo, then using the Lake system. It was impressive - the sound swirled and moved in complete synchronisation, gain was maintained consistently.

It was as if someone had invented a 5.1 headset, which would be physically impossible.

I can see airlines jumping onto this one, with true surround sound now possible from DVD - and thanks to Lake DSP, from ordinary headphones. **-JG**



Hannay Audio & Video Reels

If you're looking for a better way to organise, store, and transport all those cables you use in studio production, live events or broadcasts, look no further!

Hannay make reels.

The AV, AVX and AVC series are non reflective black reels, durable and light weight too.

Ergonomic carry handles allow for one or two people to lift, and the AV models are even stackable, as our picture shows.

They also have a removable side panel for customisation of XLR and BNC connector patterns.

• **Call Pipe Support Systems on +61 3 9583-2368 for details.**

This is our snapshot feature on Cables and connectors. It doesn't pretend to detail everything out there, (the whole magazine would be needed for that!)

Also have a look at page 22 for our Primer on Computer Video Cables.



BELDEN AUDIOFLEX: 10 COLOURS

BELDEN Australia has introduced an addition to its popular AudioFLEX family of shielded twisted cables.

The AudioFLEX 1901A is a single pair (19/0.079 mm) analogue audio cable for all audio uses. Belden's exclusive French Braid double serve shield is key to the 1901A's high flexibility, long flex life, and excellent EMI/RFI protection.

The 1901A is similar in construction to multichannel AudioFLEX snake cables.

SDI VIDEO CO AX CABLES

Belden Australia recently added two new 75 ohm video coaxial cables to the Brilliance broadcast lineup.

The Brilliance 1855A SDI Precision Video Coax has a 30% smaller diameter and lighter weight than standard RG-59/U type cables. This size/weight factor makes this new cable ideal for analogue and serial digital signal transmissions in either mobile trucks - where space and weight restrictions really count - or in production and post production studios.

This cable will transmit SMPTE 292 M serial digital signals up to 61 metres.

For further distances, use Brilliance 7731A (RG-11/U type) low loss Serial Digital Video coax. It can deliver 1.45 Gbps HDTV signals up to 152 metres.

These cables come in ten colours too!
• **Belden Australia, call +61 3 9928-0866 or visit www.belden.com.**

Proplex data cables

Used in the Victorian Arts Centre, Regent Theatre and by a variety of production companies, Proplex Control Cables are made to withstand years of pulling, twisting and hard knocks. The cables coil and handle well in all conditions and have superior transmission and noise rejection characteristics.

Proplex cables are available for installation or portable use in single, two or three pair configurations with industry black polyurethane jackets, conforming to DMX512 specifications.

Proplex shielded Twisted Pairs are made with fine stranding copper conductors and covered with insulation rated at 200C. A hi-spec Scroler cable with power and shielded data conductors is also available. The cable can be purchased in rolls or as premade lengths complete with connectors.

• **Enquiries call LSC Lighting Systems +61 3-9561 5255**

Watch out for copies: Neutrik

Declaring that 'it is the fate of a leader to be copied', Neutrik say that 3000 copies of the Speakon connector from China and Korea are now Out There.

The most serious problems that poor keying due to use of soft and cheap materials can result in the cable connector being inserted into the chassis 180° reversed. Naturally, horrible things would be the result!

'No Name' XLR type connectors are also made from low cost ABS, have low quality plating, and often the latch doesn't engage.

PRO CO CABLES FROM HORWOOD AUSTRALIA

The ProCo range of 'EXCELLINES' interface cables suit Alesis ADAT and Tascam DAXX, and other brands.

The 'Excellines' come in a variety of combinations and lengths, for example:

- Elco/Edac connector, to multiple TRS connectors;
- DB25 connector to male or female XLR connectors;
- XLR connectors to TRS jacks.

This very useful range of cables saves you the chore of making the damn things yourself! Of course we know you can solder too

Multicore cables are also available from ProCo, featuring Neutrik terminations, strain relief on the stagebox, and of course, high quality cable. ProCo are imported from the USA.

• **Details: Horwood Australia, call +61 2 9585-1011.**

Eurocable: balanced line with mains too

These cables are in fashion for powered loudspeakers, and also DMX - anywhere you need mains and signal together. The DMX-1 cable has one balanced line with mains, at A\$9.50 per metre retail. DMX 2 has two balanced lines with mains, at A\$10.60/m.

• **From TRC, call +61 3 9877-8233**

Computer cable primer: See page 22

Jacqueline goes to Shanghai

The Connections on-the-spot guide to business opportunities in China : PLASA Shanghai reviewed

By Jacqueline Molloy

Before I left to check out the inaugural PLASA Light and Sound trade show in Shanghai I did what every traveller does, I read up on the place I was about to visit. *Rolling Stone* magazine is not usually the publication I'd turn to for travel hints but their correspondent PJ O'Rourke had recently been to Shanghai and I was keen to get his impressions of the city. One image stuck firmly in my mind: bamboo scaffolding. According to O'Rourke, Shanghai is a city under constant construction: a bit like Pamela Anderson's breasts, I thought.

I experienced this construction frenzy first hand at the hotel on my second day in Shanghai as I came down to the pool-side café for breakfast. On stepping from the lift I stopped dead in my tracks: it appeared that I had been moved to another hotel as I slept. Instead of facing the aforementioned café, today I stood in a palatial lobby, complete with baby grand piano and marble-tiled floor. A place I had never been before.

Now, I will admit to having a few drinks the previous night with a posse of British sound guys, but nothing I had taken could induce such an incredible hallucination. The concierge, on seeing that I was having an attack of some kind, led me to a leather couch by the fountain, which also hadn't been there the previous night. He gently explained that a sound-proofed wall had been in place for several weeks and workers had been toiling behind it twenty-four hours a day to construct a new lobby which they had finally completed the night before. A low trick to play on their unsuspecting guests!

I share this with you because it gives an insight into the economic boom that Shanghai is currently experiencing: it has one of the fastest growing economies in the world and a population of 16 million people to support. When something needs building in China this considerable workforce can be called upon to make sure it happens quickly. For a country emerging from the economic yoke of communism, the level of economic activity suggests its relationship with capitalism has become more than a passing flirtation. The Chinese appear keen to embrace those elements of Western culture and technology that will enhance their economy.

This is a positive development for their entertainment industry and a plus for those countries and companies wishing to do business in China. Shanghai itself boasts 1,483 night-clubs, eighty-eight theatres and eighty-nine film studios. However, according to the *China Daily* newspaper many of China's film studios are operating at a loss and are planning on investing in state-of-the-

art Western technologies such as digital effects to rejuvenate their sluggish industry.

This appears to be a good time to go knocking on China's doors to show off your wares. Several of the European companies to exhibit at Light and Sound Shanghai are already involved in Chinese projects such as the design and installation of systems in the soon-to-be-completed Shanghai Opera House.



The trade show featured eighty-five exhibitors, thirty-seven of them Chinese, and according to the locals it was unlike any Chinese trade show. They were particularly impressed by the way the trade floor looked and the efficient organisation of the show by P&O Events in partnership with PLASA. The carpet on the floor was a big hit as it is almost unheard of in Chinese-run shows. Another innovation was the imposed 75dB sound level limit (ENTECH exhibitors take note!), as traditionally, Chinese trade show noise levels are deafening.

Over the three days of the show 4,845 visitors attended: most were Chinese but there was the occasional stray from Siberia, Argentina and Australia. The international exhibitors were impressed with the quality of visitor attending and many felt optimistic about business deals eventuating, though they realised that the Chinese conduct business in a style which tends to be slower and a lot more personal than in the West. One British exhibitor, who has been doing business in China for years, said that it took him several visits to China before a deal was complete and that the Chinese company he was working with expected to spend a lot of time getting to know him before committing to business transactions.

Pomp at the opening ceremony (left), then 'all inside' as the carpet technicians attack the red carpet (below)



Many of the international exhibitors I spoke to revealed reservations about coming to Shanghai, having made the trip without knowing whether or not a market exists for their products. I think the majority of them returned home optimistic about future dealings and aware that the Chinese interest in Western products is extremely high. The Chinese exhibitors were

pleased to have the opportunity to view and test Western products and believed that the international presence assisted in keeping the standard of visitor high, a bonus for all exhibitors.

It was fascinating to see the differences between Chinese and Western design and technology. Many of the Chinese manufactured luminaires on display were larger and chunkier than their Western counterparts, revealing substantially less sophisticated optical systems. The Chinese were displaying some impressive moving lights and control desks that were on a par with Western technology, but the quality of their equipment did seem to vary greatly. This diversity of quality also applied to sound equipment. Several of the major Chinese sound companies were exhibiting locally-manufactured state-of-the-art equipment, but equipment that would be deemed out of date by Western standards was also on display.

Chinese training institutions are frustrated at having to train their students on outmoded equipment, preventing the next generation of technicians from understanding current technolo-

gies and keeping the local industry at a disadvantage. Perhaps this was one of the reasons that the internationally run seminars proved so popular, attracting 810 visitors to the nine seminars offered. Seminar topics included *Designing & Programming a Light Show*, *Why Digital Audio?*, *Theatre Design and Installation* and *Rigging the Perfect Truss*.

Local companies were prohibited from exhibiting imported equipment and this rule was rigidly policed. Most international exhibitors were showing equipment that was at ENTECH this year or had been seen at LDI or PLASA in 1997. Few, if any of them, were using Shanghai to launch new products. As one British exhibitor pointed out when asked if he was exhibiting anything new, "Everything is new to Shanghai".

A major point of cultural difference that struck me was that the Chinese appear to have little appreciation of the notion of lingering: to them once something is finished you leave. This was particularly noticeable at the opening ceremony for the show when the welcoming Red Carpet was whipped out from under the feet of the twenty or so dignitaries present immediately they stepped off it to move into the exhibition hall.

At the first night dinner the host declared the "opening dinner closed" and the Chinese immediately departed in droves while the staff packed up around the lingering international guests. On the final day of the show several of the Chinese exhibitors started packing up at lunchtime and no amount of argument from the organisers could persuade them to wait until the 5pm closing time. (ENTECH exhibitors would probably be beheaded for attempting to open a roadcase or undo a locking bolt before the official 6pm finish!).

PLASA presents Light and Sound Shanghai appeared to enjoy a successful premiere and by the end of the three days many of the exhibitors were planning for their 1999 return. Shanghai is a vital city undergoing an enormous economic growth spurt, making it an ideal location to host a technology show. The people were friendly and, though the language barrier proved a challenge at times, it didn't prevent potential business relationships developing. If you are planning to attend in 1999 just be prepared for a city that literally does metamorphose before your very eyes.

• PLASA presents Light and Sound Shanghai will run from April 13th-15th, 1999 at the Intex Shanghai Exhibition Centre.

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Royal Albert Hall, London, UK. Concert Sound, 74 LAB 2000C's

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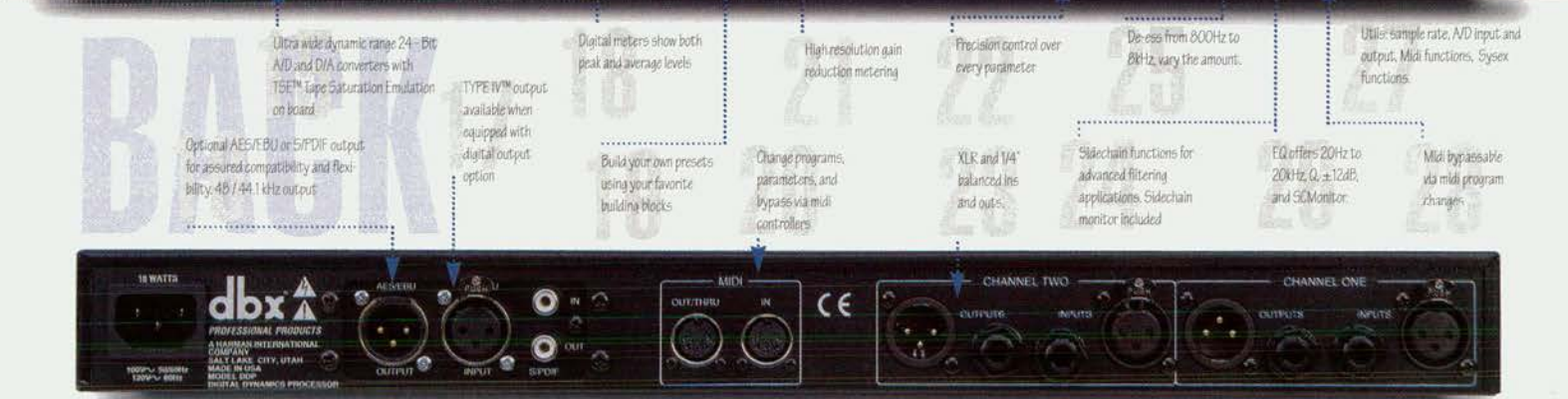
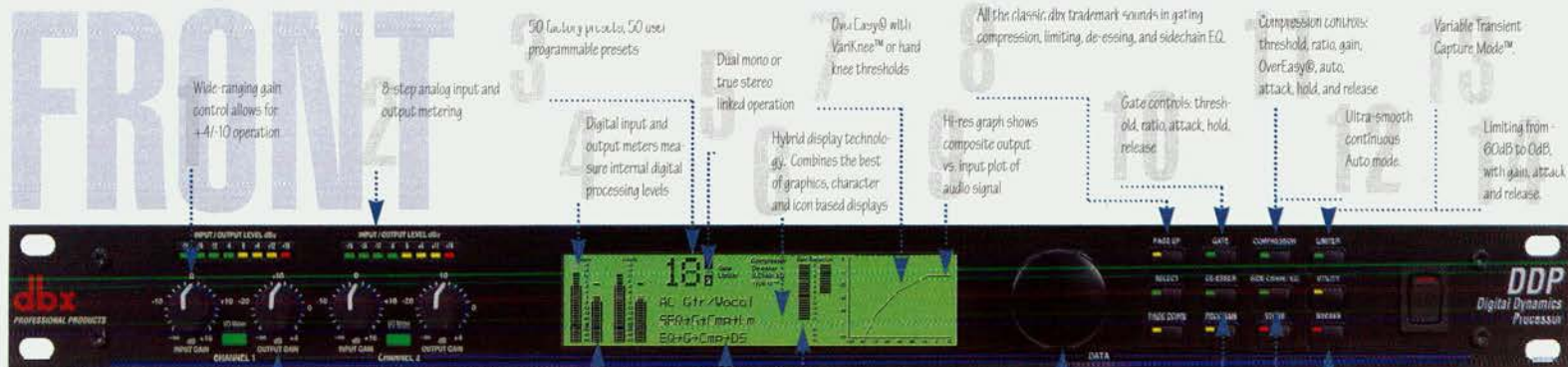
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- IT FORGIVES**
- New dbx technology, the TYPE IV™ Conversion System with TSE (tm) (Tape Saturation Emulation) gives you the pleasant overload characteristics of analog tape without the harsh distortion of most digital input systems. No more dancing around with the input levels to protect the integrity of your audio.
 - Ultra-wide dynamic range 24 bit A to D converters with TYPE IV™ make your signal sound better than you ever thought possible. Capturing the full dynamic range of your analog signal and coupling it with the powerful dynamic range of this patent-pending dbx process, TYPE IV™ will make your digital signal sound like it came from the quietest high-quality analog source you could imagine.
 - 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.

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 gain reduction and audio level meters, they all interact in real time with your manipulation of the parameters. Start with a threshold setting of about -60dB to clean off the noise in between the 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 compressor threshold. The parameters you change here will also effect the curve on the graphical display in real time. Move through all the regular parameters, like 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 preset.

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 apex at which the limiter lets go of the signal as it goes below the threshold. This is "knee" or "soft" limiting, with patented "dbx track™" algorithms, so rest assured 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 isolates EQ paths in path and stretch, for special-effect types of processing. When you are setting any of the building blocks, its 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 S/PDIF format with the trademark digital processing of TYPE IV™. The DDP also has full MIDI/Automation capability, with separate midi in and thru jacks. Entire processing setups may also be saved into one of 50 user defined presets, or one of the 50 factory setups.

- 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 setups, 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.

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E&OE

SHOWS WE'VE SEEN LATELY A PUNTER'S PERSPECTIVE



The New Amsterdam theatre on 42nd street is just off Times Square. Truly magnificently renovated, it is rewarding to see. But the army of very small children lined up to see *The Lion King* put this punter into an apprehensive mood before the curtain rose. It was the kind of mood you get before you take your kid to a crappy pantomime in the holidays. I was at least fortified by the fact that the previous Disney musical I'd seen was *Beauty and the Beast*, which was a great show.

Unlike *Beast*, *The Lion King* uses practically no sets.

The opening act completely sets the scene. Just three minutes in, people were applauding - some in tears.

Variety magazine tells how. "Julie Taymor's production is a spectacularly sophisticated platform for underiable artistic genius, proving real theatre is not about blowing the mind with special effects, but teasing the mind into a state of wonder".

While the set is minimal, the audio is massive. The 21 piece orchestra are hidden away except for two percussionists on full show in the boxes either side of the proscenium. Sound designer Tony Meola ended up with three Cadac J-Type mixers, for a total of 117 inputs. 45 of these are Sennheiser radio mic's. ProMix in New York supplied the system used on Broadway.

"The sound effects are a big part of the show, it relies very much on recreating the jungle atmosphere for dramatic effect, with the chorus playing a big part", Meola told Connections.

Lighting is a tour de force, with Donald Holder creating one of the greatest moments in theatre lighting with his Mufasa's Ghost scene.

With the stage props sometimes just relying on bamboo sticks and rice paper, the challenge was definitely of the highest order.

Costumes and greatness in direction make this show, which truly projects the magic and wonder of Africa, as such a story may do, given the subject matter. It is a faithful adaptation of the movie plot, but the music takes a more African flavour. You still get all the songs.

The production tested in Minneapolis for 8 weeks before opening in New York last November. It was an instant hit, and soon was sold out seven months ahead.

Being a new hit, I am certain Disney plan to tour *The Lion King*. It will travel well, fitting different stages easily. The hardest part to replicate will be the 100% African-American cast.

See it somewhere, one year. Take your kids AND your parents too!

• Bookings for New York: +1 212 282-2907 or agencies.

-Julius Grafton

THEATRE

Refurbishments

◆ The cultured buttocks of **Adelaide's Festival Theatre** audiences are now parking on new, magenta velvet seats while their well-shod heels are clattering on wooden parquetry rather than carpeted aisles. Aside from looking more attractive these improvements are part of the Adelaide Festival Trust's move to enhance the acoustics of the theatre.

◆ The **Geelong Performing Arts Centre** is undergoing a two million upgrade across all areas. Production facilities have been improved by the purchase of a Strand 520 lighting control desk for each of the theatres, with other upgrades planned to include a complete cabling infrastructure upgrade, closed circuit video, stage communications console upgrades and a reworking of the audio system for the Ford theatre. As always, there's a bit of concern backstage that work on the front of house areas will take the lion's share of the funds.

◆ NAISDA, the **National Aboriginal & Islander Skills Development Association**, which runs a training institution in Sydney for indigenous performers, has received a \$500,000 grant from the Federal Government to build four sound-isolated dance studios, but it's still not enough funding to complete the project which has been designed to reflect the history of the Eora people, the traditional owners of the land on which the school is built.

◆ Victorian College for the Arts has reopened its **Grant Street Theatre** after upgrades to the bio box and lighting grid. There are now eight hand-winchd lighting bars at two metre centres over the acting area. Lighting control is a 125 Channel ETC Express with DMX outputs which is converted to Strand D54 and finally to analog to feed the IDS and indestructible JTM dimmers. New sound cabling enables a custom designed sound system to be configured for each production. The 164 seat venue is available for hire, the proceeds of which will probably be ploughed back into further venue improvements.

◆ The **Cummins Theatre** in Merredin, WA, Australia's fourth oldest operational theatre and proudly the sole surviving wood and hemp fly-tower in the country, is to undergo an update to its flying system, but in keeping with its heritage listing will not be including any wire rope in the new flies. Engineering consultants have been engaged to design a counterweight flying system to meet both heritage and technical production requirements. Let's hope they don't try to use wooden counterweights.

◆ St Kilda's **National Theatre** has recently upgraded both its main house and the 120 seat Drama School Theatre. The mainstage fly tower has been refurbished, the legs, borders and smother replaced, a new stage tarket purchased and long overdue work is soon to commence on the Front of House lighting positions. New sound and lighting systems have been installed in the theatre. The stage baby grand and pit pianos have also been replaced. The National is currently seeking funds for extensive auditorium and Front-of-House improvements.

◆ Noel Staunton, **Opera Australia's** technical director has been overseeing the design and renovation of their new facilities in Melbourne, just up the road from the Australian Ballet and the Victorian Arts Centre. The ground floor of the old building is still a construction site, while upstairs, what was a car-park, has been transformed into rehearsal space complete with sprung floors and acoustic wall panelling. A bonus legacy from its original incarnation as a car-park is that the former access ramp can be used to transport scenery directly into the rehearsal spaces by simply flipping up sections of the studio floor.

Clippings

◆ **Grease, the Arena Spectacular**, has been touring the country playing short seasons in big venues. Produced by John Frost and the Queensland Performing Arts Centre Trust, it's directed by David Gilmore. The Australian design team consists of Trudy Dagleish, Lighting Designer, Brian Thompson, Sets and Angus Strathie, costumes. Musical direction is by Peter Casey and the choreographer is Ross Coleman.

◆ Lunchtime Theatre, a program of half hour performances at the **Athenaeum** in Melbourne created to entertain and fill the stomachs of city workers for only \$5.00, has had it's funding and support reduced, forcing the organisers to cut back the number of plays offered. One of the aims of the program was to offer designers, writers, directors and performers the opportunity to experiment.

◆ **Geelong Performing Arts Centre** is having its first ever dance season this year featuring three companies: Bangarra Dance Theatre, Rishile Gumboot Dancers of Soweto and Leigh Warren and Dancers. The season kicked off with Bangarra's production *Fish*, with lighting by Mark Howett, costume design by Jennifer Irwin, sets by Peter England and cultural design by Djakapurra Munyarryun. The season will finish up in December with *Quiver* by Leigh Warren, set



Bangarra: for Geelong

and costume design by Mary Moore and lighting design by Geoff Cobham.

◆ Melbourne based **Company in Space** have been doing innovative work with computers and communication technologies to create new pathways between audience and performer. They have even used teleconferencing to link up audiences in Perth, Brisbane and Sydney whilst performing in Melbourne. Their latest production *I@here You@there* utilises lasers and video in conjunction with live movement performed to an electronic soundscape designed by Garth Paine. The production Concept/Design is by Hellen Sky and John McCormick.



◆ In a move to encourage local use of the **Albury Convention and Performing Arts Centre**, the Albury Council is providing subsidies of 75% for community use of the centre. A business plan for each project must be submitted and approved to receive the subsidy. Applications for projects in 1999 remain open until November 1998.

Now Playing


◆ If you happen to be rollerblading down Santa Monica Boulevard in Hollywood CA be sure to check out these shows playing the Celebration Theatre: *Naked Boys Singing*, (an original musical revue) and *Darling Quints: A Dark Comedy About the Dionne Quintuplets!*

This page is about what you're doing in the theatre so don't be shy about passing on your news to news@kilowatt.com.au or by fax to +61 8 9227 8190.

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Write in Reader Service Number: 195

The presentation superhighway- Bill Gates on tour in Australia

Few corporate presenters work as hard as Microsoft's Bill Gates, who presented at nine separate events in seven venues in Sydney and Melbourne during two days in March. Audiences of thousands flocked to hear his views on the future of information technology, and queued for the chance to ask probing questions.

The event was a major logistical challenge for Staging Connections, who were staging their third Gates roadshow since 1994. The Gates schedule leaves no room for rehearsals, and the Microsoft image demands events with no technical errors. On top of this, Gates is very particular about screen display quality - his new high-tech home is heavily equipped with state-of-the-art screens.

After winning a competitive pitch against competitor Gearhouse, Staging Connections' Vicken Hekimian had five weeks to pull the tour together. His primary concerns were meeting Microsoft's standards for image quality, and designing a system with backup for everything imaginable.

The only video/data projector that measured up to Microsoft specifications was the Barco 9200 Reality. It delivers 6000 ANSI lumen brightness with screen resolution up to 1280x1024 pixels. The major auditorium shows - Sydney Entertainment Centre and Melbourne Sports and Entertainment Centre - used three screens with two Barco Realities on each screen. The brightness of the twinned Realities was fearsome,

continues >



Gearhouse add DLP Video Cubes

by Mandy Jones

The Synelec Lite Master is the first rear projection display wall to incorporate DLP and DMD, says Gearhouse. Using Digital Micromirrors Device (DMD) technology of tiny, tiltable mirrors representing the pixels in the video pictures, the Synelec cubes are capable of the highest quality image.

Gearhouse in Melbourne have recently taken delivery of ten of the new Synelec Lite Masters. I spoke to Video Wall Manager Craig Bramley (*below*) about their newest acquisition, the first DLP cubes in Australia.

"The Synelec Lite Masters use a two-chip DLP projection system of dichroic mirrors which split red from green and blue. Red light is directed through a prism system to its own DMD while blue and green light are sequentially sent to the other

DMD, making cyan. The different red and cyan light combinations produce a well-balanced full colour image."

The video screen is a sheet of Lenticular which is made up of vertical triangles which stop the light being directed straight on and throw it off on an angle.

"The screen depth is amazing - at only 26 inches it has basically cut all the other screens in half. When you do an exhibition at a trade show and you've never got a lot of room, these are ideal because they are half the depth with a bigger screen size."

Set up time will be cut in half with the DLP cubes being more portable and easier to align.

"It says in the manual that there is no convergence and no colour balance for these cubes, but there is some slight convergence - nowhere near as much as the standard CRT three gun projector. The LCD projectors have one lens so they're going to be a hell of a lot easier to align. With the reduction in the weight of the cubes, each cube will only require two people to carry".

"We will be hiring them out at \$800 per cube per day as opposed to \$400 per cube per day for the old CRT cubes, but the difference is that you are getting double the picture size, in other words a 3x3 in the new DLP screens is the same as a 4x4 in the old CRT cubes. •



Andrew Smith backstage



Young Producers lead the way

To 2000 and beyond. By Brett Bower, ICIA



Greg Bowman awarded by Bob Downe at MIAA

winning such a prestigious award.

Greg said, "It is always great to be recognised by your peers within the industry, and to win such an award means a great deal to our

team. I was on the phone to them as I walked off stage. It was very exciting for us all."

"Above all, it was pleasing to see the event held such a significance within Australia".

He continued: "The event attracted a huge amount of world media at the time. The inquiry into the Stolen Generations and the governments' decision on Wik were all very fresh in our minds. The emotion attached

to this event affected us all very much. It was the sort of event that changes your life."

Another young Event Producer that I spent some time with in Darwin was **Danny Yezerki** Director of Sydney's **Technical Productions**.

Danny has earned himself a reputation for producing quality events around Australia.

>continues

I was in Darwin recently with about 550 other industry professionals for the (MIAA) Meetings Industry Association of Australia annual National Conference and awards.

Apart from all the tropical fun, it was a great opportunity to meet up with our colleagues, competitors and mates to discuss the industry as we approach the new millennium.

And yes we did talk about things other than the 2000 Olympics!

The highlight of course is always the awards night, an evening under the stars sipping champagne and dancing under the palm trees.

I do have a tough job!



Danny Yezerki

The award for Event of the year was tied between the Ceremonies Program of the Australian Reconciliation Convention produced by **Great Big Events**, and AIME 1997 produced by the **Melbourne Convention and Marketing Bureau**.

I spoke to **Greg Bowman** from Great Big Events after receiving the award in Darwin and asked him what it meant to him:

Lots of bargains

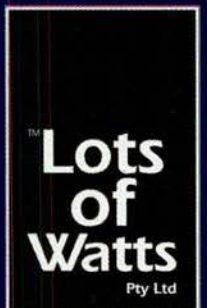
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Multivision turns 20!



To 2000 and beyond. By Brett Bawer, ICIA

(continued)

winning an Award of Excellence at the NSW MIAA Awards last September for 'Special Event Organiser 1997/98.

It is interesting to note that both Greg and Danny choose to work with a number of staging and AV companies across Australia. Both have a strong knowledge of staging techniques and often take on the role of Technical Director on their events. A role not usually reserved for your average Event Producer.

I also caught up with Danny at ENTECH this year where he said: "As a Producer, you need to keep up with advances in presentation technology. Knowing how to be creative with technology gives us an edge over our competition."

I could not finish the article without mentioning the AV team from the **Hotel Sofitel** in Melbourne who won the MIAA National Award for Excellence in Stage Management and/or audiovisual Production. Great effort guys!

MULTIVISION recently celebrated 20 years ~ and 7,000 shows! More than one each day, and there's no sign of respite on the horizon.

Formed in 1978 by **Richard Creasy**, Multivision (Adelaide) once worked on the minimum three day charge system, at that time common in the industry. One day for setup, showday, then one bumpout day. They would like the industry to consider reintroducing this!

An early show in Adelaide featured four Visonic David 80's - sat on the stage. 'Now, we would fly a Meyer system'.

In 1984, **Craig Williams** joined as operations manager. He says the core business is still 'putting on a show' for people.

Events manager **Richard Watson** says that repeat business is 96%, which must be the highest in the industry.

The firm has worked major conventions in China, India, Indonesia - and worked shows in the USA, NZ, Taipei, Sweden, Germany, and even Adelaide!

Today, the clients look to Multivision for a complete event concept.

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Gates (continued)

with the images unhindered by broadcast-level stage lighting.

Four video cameras provided image magnification. The sixteen speaker support computers were run on a portable network in groups of two, with each show machine having a backup. The backup machines were linked to the projectors through a separate RGB system, allowing a fall-back in case of computer or cabling difficulties. All the computers, camera images and videotapes were run through RGB scan converters to provide a constant resolution RGB signal. This allowed clean, glitch-free switching through an Extron Matrix 200 RGB switcher.

Audiences at the back of the auditoriums were covered by six additional screens in pairs, showing live camera and computer images.

Stage lighting was designed by Staging Connections' Richard Grenfell, supervising a crew from Jands. He used eight Martin PAL's to create a moving, dappled colour wash on the large set during walk-in. During the show, the set was lit in stark white. Richard selected the PALs for their remote control shutters, allowing the critical focusing needed to avoid directly washing the screens.

Six separate crews were scheduled to handle the major venues in Sydney and Melbourne, with timings specified down to the minute. As Gates seldom arrives at a venue more than a few minutes before the presentation, 'Gates doubles' were used to rehearse the sound, lighting and speaker support. When he ar-

rived, the on-site computer network allowed him to plug in his notebook PC and download any updates to his presentation into the show PC's. Speaking entirely without notes, he kept the crew on their toes.

Special lens shift kits had been ordered from Barco in Belgium to allow image doubling for the Realities. Five days before Gates' arrival, Vicken received a horrifying call. Part of the Barco factory had burned down, with the shift kits among the casualties. After Vicken placed desperate calls around the world, salvation came from the obliging Joe Bonnano of Big Picture in Sydney, who allowed his Barco 8100's to be cannibalised for shifters.

This minor trauma out of the way, the entire tour ran without incident. None of the elaborate backup systems needed to be used, although their presence boosted the confidence of a crew keen not to incur the displeasure of the world's richest man.

Microsoft's Events Manager Scott Wilson commented afterward:

"Everyone, including Bill, was impressed with the stage sets and audiovisual impact at each venue. The whole tour went without incident, which was due, in full, to the continued professionalism of Vicken and Staging Connections."

Vicken paid tribute to the depth of talent in the Staging Connections crew:

"It isn't easy to put together seven separate crews who are all good enough to run a Gates show. The guys did a fantastic job, on an event where any errors would have featured heavily on the evening news."



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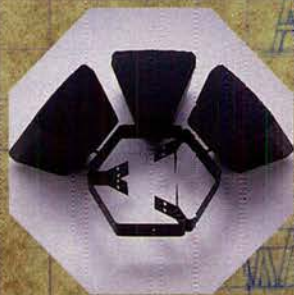
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CABLES for computer video

By Gerry Raffault

Today's Audio Visual environment has undergone many changes, the one area that has seen a lot of change is computers. These marvels of technology have come a long way, their computing power are now at astronomical levels when you think back to those units that were available just 3-5 years ago. In these last few years the display capabilities of the humble PC has increased enormously. At the start of the decade the common video standard contained just 16 colours, today VGA and SVGA are the minimum with XGA becoming more prevalent everyday. With these higher resolutions comes a need for higher spec display devices but what is often neglected is the cable attaching the computer to these displays.

As the old adage goes, "A chain is as strong as its weakest link" and in the AV environment, the weakest link is most often the cable. Before delving into cable characteristics, let's look at the make up of today's computer signal.

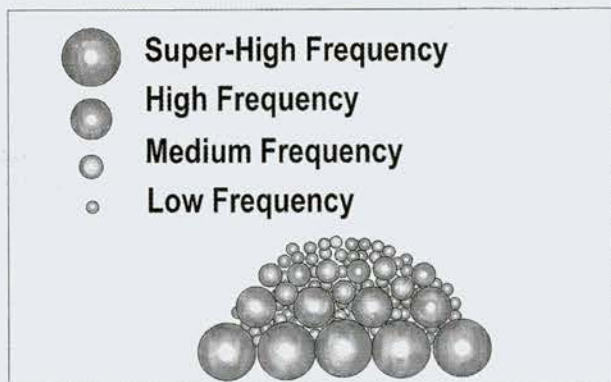
A computer image is created by mixing three primary colours Red, Green and Blue (RGB). From this palette all other colours are made. There are two types of computer signals, analog and digital. Digital signals were used with the old CGA/EGA type PC's, because of their low resolution, they are not in use any more. Analog signals are used by most computer manufactures. VGA, MAC and hi-res workstations use this type of signal because of the high resolutions that are achieved. Resolutions typically available are 640x480 (VGA), 800x600 (SVGA), 1024x768 (XGA), 1280x1024 (workstations) and so on. The bandwidth requirement for each resolution will vary markedly, for example VGA has a bandwidth of 27 MHz where XGA is around 70MHz. Basically the higher the resolution the higher the bandwidth requirement.

To further complicate things, computer video signals come in three main forms Sync on Green (RGsB), composite sync (RGBS) and separate sync (RGBHV). Some workstations use sync on all colours (RsGsBs) for their display output. Of these signals, they are further broken down into two distinct components, the colour information and the synchronising (sync) signals.

The sync information does not require as much bandwidth as the colour information as it is running at a lower frequency. Hence you will often find that in VGA cables that contain RGBHV signals, the RGB portion will be on coax where the sync signals, H & V are on twisted pair. For medium to long cable runs up to about 150 ft (45.8M) metres this is fine but longer runs will require the H & V signals to be on higher quality coax. Runs beyond this will see the H & V signals start to degrade, this can be seen by the display device not locking on to the video signal properly.

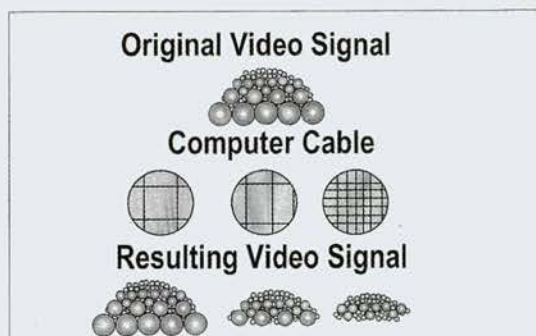
Colour information is the critical component of the video signal, which accounts for most of the signal bandwidth. The governing factor determining whether a cable will faithfully carry the video signal is its bandwidth limitation. To better understand bandwidth and cable the following analogy will help illustrate their relationship. (See pic at right)

An analog video signal is a continuously variable waveform containing all information displayed on a monitors screen. Each part of the waveform (ie letters and drawings) have varying frequencies which when combined make up the final image.

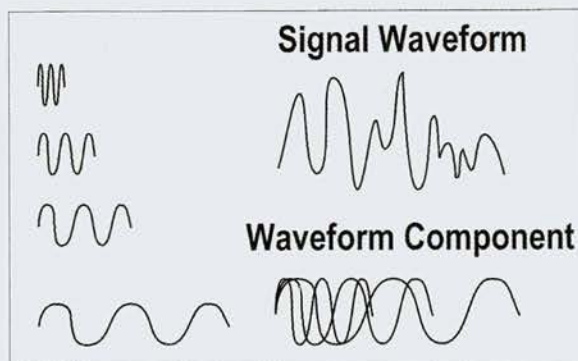


If we look at these waveforms as a pile of rocks of various sizes, larger rocks representing high frequencies and smaller rocks representing lower frequencies we can use the analogy of a sieve to demonstrate.

Cables will have a bandwidth specification stating the bandwidth it is capable of passing. In the sieve analogy, the sieve is the cable and the rocks are the frequencies it must pass.



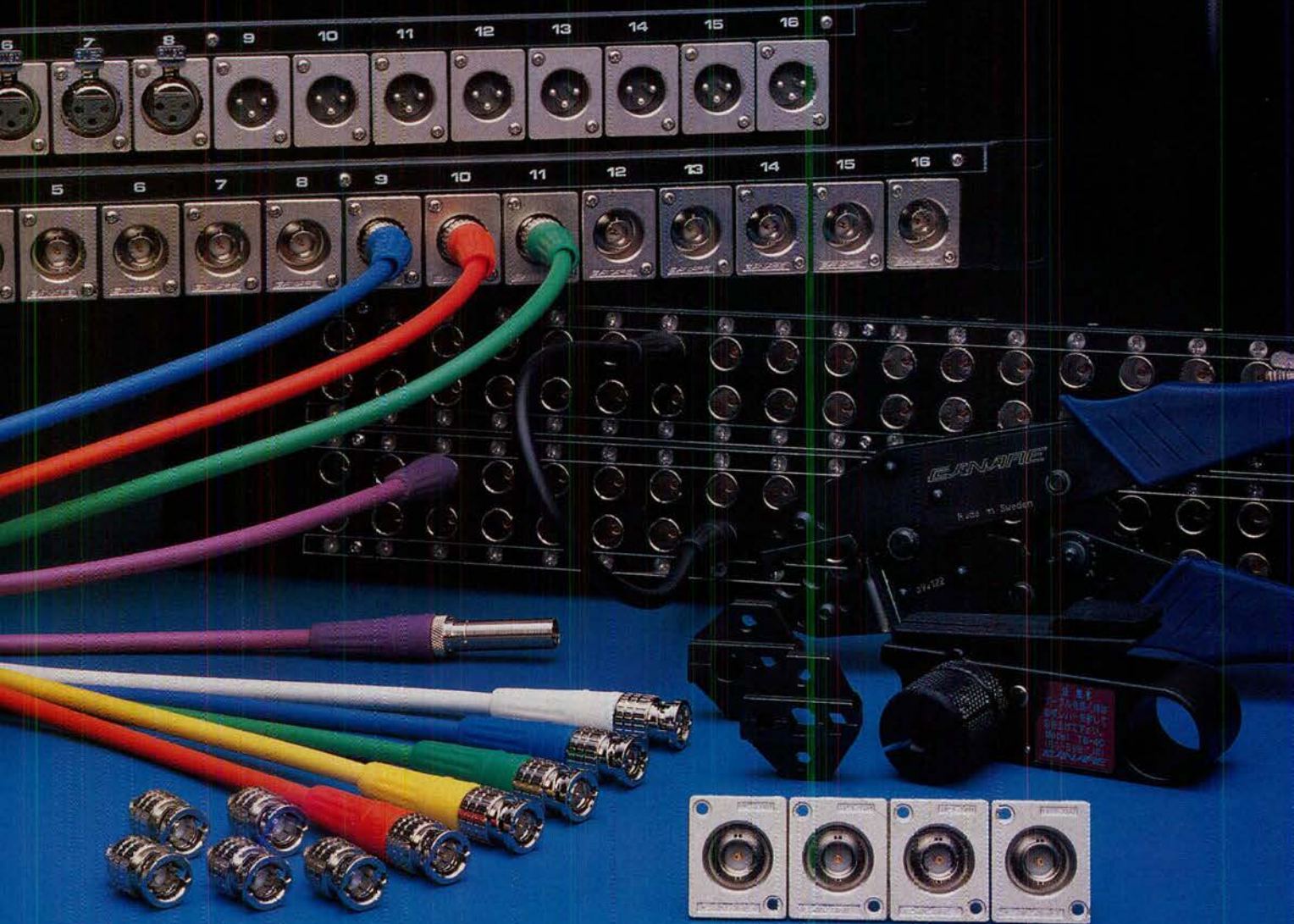
From the above diagram, you can see that the sieve with a larger mesh is able to pass all the rocks. When the mesh size is constricted, less rocks are passed thus leaving some behind. Computer cable can be seen as doing the same. High resolution cable will be able to pass all frequencies, resulting in no degradation of the signal. In a system where the cable does not pass all frequencies, visible losses can be seen on the screen. The visible result of a cable that does not pass the entire video signal can be observed by viewing the thin vertical lines and the edges of the vertical thick lines of an image. The thin lines will be less bright or will disappear altogether. The vertical edges of the thick vertical lines will be fuzzy.



continued >

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Computer cables (continued)

The ability of a cable to faithfully carry a computer video signal will depend largely on its construction. The capacitance, resistance (attenuation) and impedance of the cable will all influence the result of the displayed image. The impedance of the cable must be 75 ohms like all video equipment, otherwise an impedance mismatch will result. The capacitance of the cable influences the rate of change of the signal waveform. If a fast changing waveform ie high frequency (resolution) signal, is applied to a cable with high capacitance the cable will not be able to keep up with the changes and image distortion will result. The resistance will effect the distance the cable can be run. Signal distortion will increase when long runs are used with cables with higher resistance values. Therefore an ideal cable would have low capacitance, low resistance and have an impedance of 75 Ohms.

In deciding which type of cable would best suit your application, three main factors must be considered.

1) Type of installation – Cable flexibility will vary for different installations. If the cable was run without conduit, a plenum cable may be more appropriate as it has a fire rating. If you are running cable through walls, a stiffer cable will be easier to pull through. If routing cable around obstacles, a more flexible cable would be more desirable.

2) Other AV equipment – If the cable is used in conjunction with other AV components eg. a Computer Video Interface, these products will compensate for some of the loss in the cable. This means that a lower resolution cable would be able to handle a higher resolution signal with this product than if the cable was used by itself.

3) Length of cable run – The distance from the source to the display device is a critical issue. As with most electrical signals, the video signal degrades dramatically when the length increases. Using high resolution signals further exacerbates this.

The most important specification when choosing a cable is the bandwidth attenuation figure. This figure is useful for comparing different cables. Expressed in terms of bandwidth per set distance, a figure of 100MHz per 100 foot at -3dB shows that a cable with this figure will successfully pass a 100MHz signal 100 feet without any significant degradation. This specification is important in determining cable distance as discussed above in point 3.

Care must be taken when perusing cable spec sheets as the claimed bandwidth figure can vary markedly from results obtained in the real world. Plotted graph curves of the cable bandwidth attenuation will truly determine what it is able to pass.

For most of us, the cost factor will unfortunately determine what type of cable will be used in a system. Not all installations require a “super duper” high resolution cable, considering what other AV components will be used and the intended resolution will help determine the right cable. (It may even save you some \$\$\$ ~ or whatever currency it is that you use!)

Another great way to finding a solution is to get hold of spec sheets of the products to be used. Some will show you what distances are achievable using a certain cable, but again beware of inflated figures, look for plotted bandwidth graph curves. Take care when selecting computer cables for your system, a little research before hand can save many headaches and \$\$\$ later on down the track.

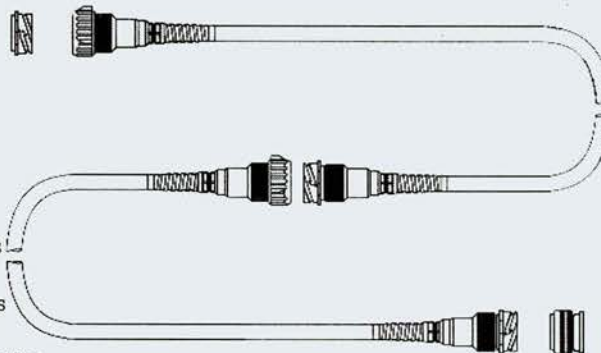
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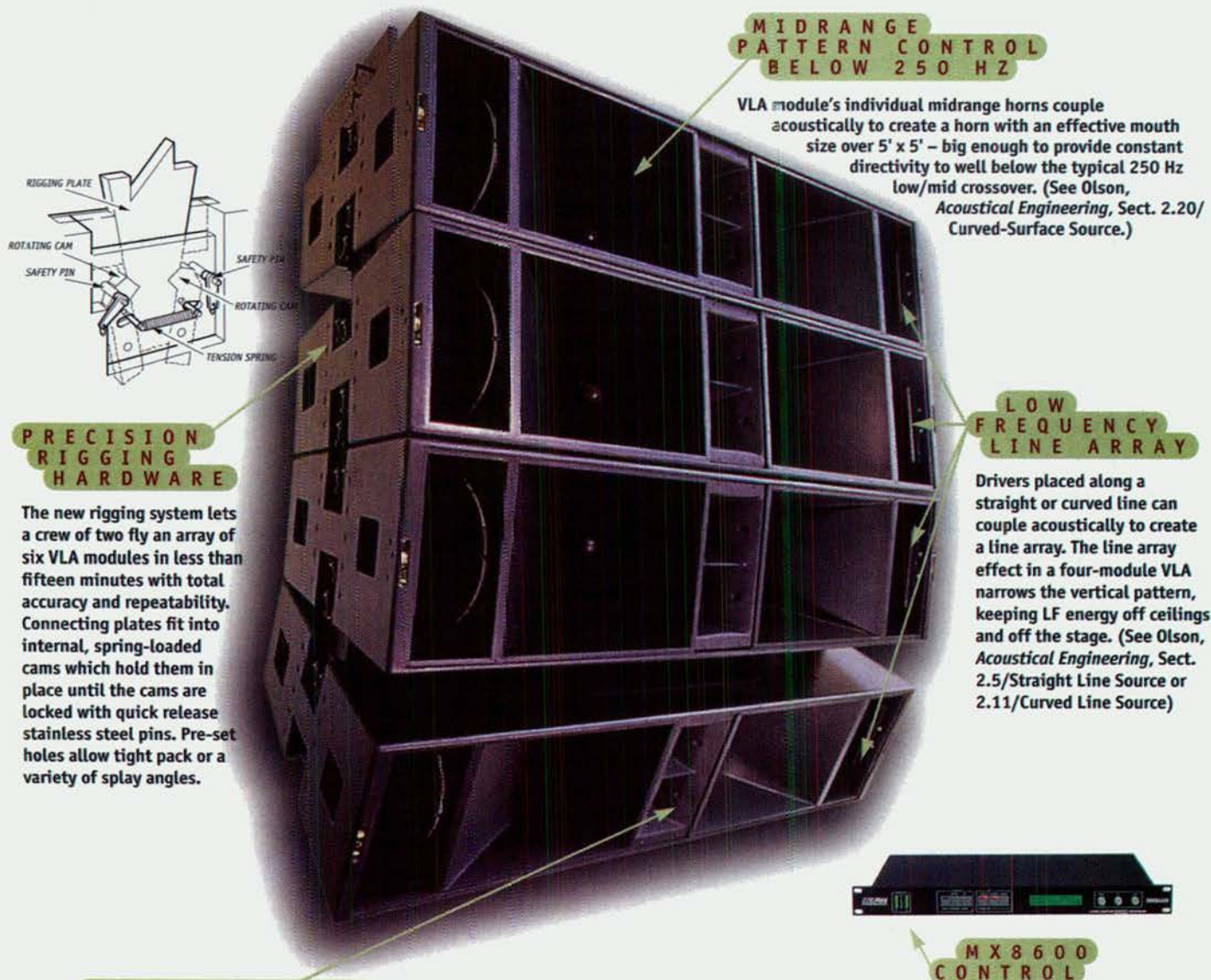
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Write in Reader Service Number: 131

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EAW's KF860 Series Virtual Line Array



MIDRANGE PATTERN CONTROL BELOW 250 HZ

VLA module's individual midrange horns couple acoustically to create a horn with an effective mouth size over 5' x 5' – big enough to provide constant directivity to well below the typical 250 Hz low/mid crossover. (See Olson, *Acoustical Engineering*, Sect. 2.20/ Curved-Surface Source.)

LOW FREQUENCY LINE ARRAY

Drivers placed along a straight or curved line can couple acoustically to create a line array. The line array effect in a four-module VLA narrows the vertical pattern, keeping LF energy off ceilings and off the stage. (See Olson, *Acoustical Engineering*, Sect. 2.5/Straight Line Source or 2.11/Curved Line Source)

HIGH FREQUENCY LINE ARRAY

The high powered HF compression drivers couple acoustically to create a line array, improving pattern control as well as increasing output. (See Olson, *Acoustical Engineering*, Sect. 2.5/ Straight Line Source or 2.11/Curved Line Source)

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Steinberg Wavelab V 1.6

By Andrew Broadhead



Even in these days of Midi plus audic sequencers offering more and more real time audio processing facilities, the day of the two-track software editor is not past. The need for some form of compiling/ mastering tool is still there.

When Wavelab, version 1.0, first appeared in mid-1996 it provided high quality, efficient stereo editing for the PC user who, up until that time, had to make do with rather "gimmicky" editors that were bundled with their sound card (with the exception of Wave For Windows).

Wavelab's first major upgrade (v.1.5) added, amongst other things, real time processing and 20/24 bit resolution. These features alone took it to the forefront of two track PC editing and now, with version 1.6 (a free upgrade to 1.5 owners) it takes another major step forward.

V1.6 FEATURE SET

As in version 1.5, the real time processing exists within a master section that can insert up to six plug-in effects across the stereo track. Effects supplied with the program include, amongst others, a useful 3-band EQ, a re-sampler, a very flexible chorus and a slightly disappointing reverb. The good news is though, version 1.6 includes Direct X plug in support for third party products such as the Waves Native Power Pack and Steinberg's own Cubase VST compatible De-noiser, De-clicker and Magneto Tape Simulator.

The master section insert points function just like those over a mixing console's stereo buss. Effects can be used as conventional processors or they can be "applied" to the soundfile permanently. The master section also controls dithering in real time.

CD WRITING

However the major feature of Wavelab 1.6 is red book CD writing capabilities. You can set index and sub-index markers, program each

track's pause time and do PQ adjustments to set the amount of silence at track boundary points. To create a CD you need to open a CD program from the file menu. This program is basically just a list of WAV. files with a user definable pause between them. When a CD program is active, a new menu called CD wizard is added and advanced settings, such as those mentioned above, can be altered from here. Files are added to the playlist by choosing Add Tracks from this menu also. Then it's just a matter of dropping a blank CD-R in your burner and off you go. It is possible to test each track or the whole list before proceeding and you can also save the playlist as a separate file. Another useful feature of 1.6 is it's ability to pull audio files directly off a CD sitting in a SCSI CD-ROM drive, which is handy for those who do a lot of work with drum and instrument loops from CD's.

HOUSEKEEPING

All the basic, non-real time editing and processing features in Wavelab (crossfading, normalising, compression etc.) are all of a high quality and are intuitive. The FFT graph and time-stretching are stand out attractions. However it is the real time processing and CD writing capabilities which make Wavelab hard to go past. In these days of affordable CD burners, Wavelab is a great all in one mastering and writing package. When used with Direct X plug-in's it becomes a dream to work with.

Whilst the manufacturer recommends a Pentium 90 or better with 16 MB RAM, realise that the more processing power you have the more you can take advantage of what Wavelab has to offer. I'd recommend a Pentium 166 or higher with 32 MB RAM to get the best from the real time processing functions. Perhaps some things Steinberg could improve on are synchronisation capabilities, wave form re-drawing and sampler support, however, I believe this is coming on version 2.0.

Wavelab does all it's appointed tasks very well. I use it mainly for mastering purposes and at that, it excels. The further Steinberg go with Wavelab the better it seems to get.

Wavelab v.1.6 from Steinberg rrp A\$995.

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www.steinberg.de *Andrew Broadhead is a freelance and Mastering Engineer. Call him on +61 3 9525 3890.

V2.0

- V2.0 has two new PlugIns: Peakmaster for adding a soft, real-time compression to recordings, and a Puncher for giving more attack to over-compressed rhythmic material.
- V 2.0 now supports an additional file format - MPEG 1 Layer 3 - making the publication of music on the Internet easy.
- V 2.0 also offers direct Sampler Support with detailed looping functions, enabling processed recordings to be transferred directly as samples into an appropriate device. For this WaveLabuses the actual sample driver created by the Re-Cycle team Propellerheads, they say!
- Furthermore, the audio file analysis and editing functions have been completely revised. Using the new Marker function you can now create a number of different edits of a particular title for CD production, without having to generate a completely new file each time.

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*Jeff Meyer holds numerous patents including a low distortion driver/horn combination which is utilized in the UM-P, and one for the perfectly aligned phase response through crossover (zero-pole crossover) utilized in both the UPA-P and UM-P.

Write in Reader Service Number: 185

Lab.Gruppen Lab 4000 amplifier

The Swedish amplifier, reviewed by Sid Kidman



Pictures by Shaun Ashkanasy

A Swedish monster in disguise! Masquerading as a small amplifier, in the ten kilo division, it will blow most larger and heavier amps away. Those who are getting older will appreciate the ease with which it can be lifted around. One can imagine a rack of four; still a one person 'gorilla' lift — but with 20,000 watts of power!

To begin with, Mr. John Gipps, of Gipps Electronics (Phone +61 7 3569 7728), an electrical engineer with 25 years experience, has delivered the following technical report:

BENCH REPORT

The Lab. Gruppen. LAB 4000 is a high tech amplifier which achieves high power output and high efficiency yet is lightweight and compact - two rack units.

The case is made entirely of black anodized aluminium. The fascia has two slotted air intakes, two rotary level controls, and two columns of LEDs. The LEDs display output power, clipping, over temperature, and "vhf" - excessive high frequency signal. On the right hand side is an on/off rocker switch and two LEDs - one indicates that mains voltage is present and the other is marked "AFS" for adaptive fuse saver - more about this later.

The rear panel has slotted air outlets, Neutrik Speakon sockets, and both XLR and 6.3 mm input connectors. "MLS" switches allow separate power limiting of each channel with a choice of four levels. Other switches select bridging, stereo-mono, clip limiting, and a choice of gain.

With the top and bottom covers removed, it's obvious that this amplifier is far from conventional. The switched mode power supply occupies the frontmost half of the chassis. In the middle of this is a large U1 ferrite cored transformer. The windings that are visible use plastic insulated wire and mylar

film. Creepage distances are generous. This is a very safe transformer.

Two circuit boards contain the circuitry of the supply which is a flyback type operating at 25 KHz. Output from this supply is plus and minus 152V which feeds each of the two amplifiers via 15 A fuses.

The two power amplifiers occupy the other half of the chassis, and each have ten TO3P bipolar transistors mounted on copper heat-sinks. Each amplifier is screened within a copper case. The amplifier topology is of a linear amplifier operating between power supply rails which are modulated by the audio signal. This technique keeps the voltage drop across the output transistors low, and hence has low dissipation.

To verify the manufacturer's specifications, power output was measured at 1KHz and 1% distortion both channels driven. RMS mains current was simultaneously measured. The following results were obtained.

| Load | Output Power Watts | Current: Amps RMS |
|----------------------------------|--------------------|-------------------|
| 8 Ohm | 1340W per ch. | 20.5A |
| 4 Ohm | 2150W per ch. | 35.0A |
| 2 Ohm | 2440W per ch.* | 39.4A* |
| * AFS made measurement difficult | | |

The results are in agreement with the manufacturer's specifications.

Distortion was less than 0.1% from 20Hz to 20KHz at 500W into 4 Ohms.

AFS is Lab. Gruppen's name for circuitry that reduces the

continued >

HEAR WHAT YOU'VE BEEN MISSING WITH AKG'S NEW INDIVIDUAL VIRTUAL MONITOR SYSTEM

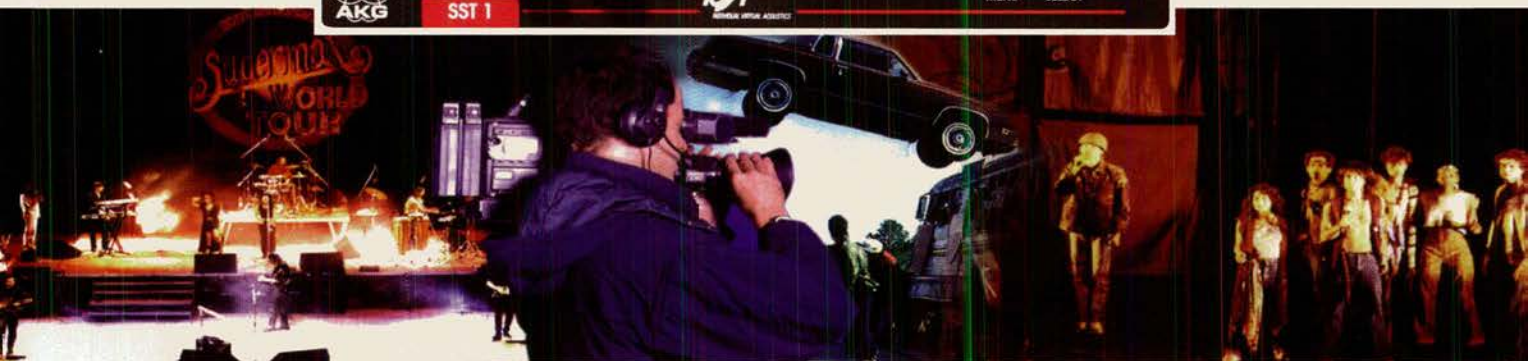
IVM 1 INDIVIDUAL VIRTUAL MONITOR SYSTEM

The good news is that in-ear-monitor (IEM) technology has significantly improved the performance of on-stage monitor mix systems. The bad news has been a localizing of the mix in the center of the artists head rather than a more dimensional mix from the outside. This psycho-acoustic phenomenon is known as in-head localization of sound (IHL), and has prevented the artist from hearing a natural representation of the on-stage mix ... until now.

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Lab.Gruppen Lab 4000 amplifier

(continued)

output power of the amplifier if it is being used so hard that rupture of the power supply fuses is imminent. The MLS switches on the rear panel allow the user to limit the size of each channel in accordance with the speakers being driven. These are both features that are likely to be useful on some occasions.

The constructional quality of the amplifier is high as is the printed circuit and component quality. The amplifier has all the signs of fairly small quantity production and a fair amount of hand building is evident. At no time during the tests did the amplifier get any more than gently warm. All of this implies that it should be very reliable.

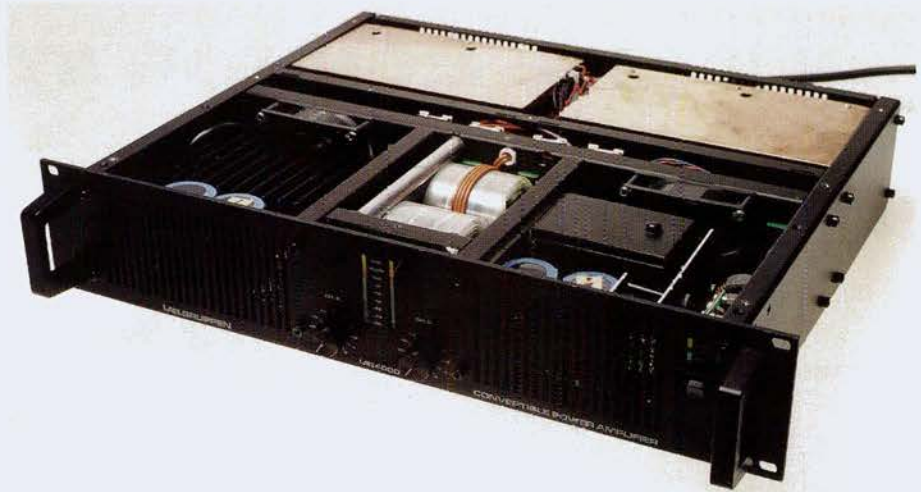
The only negative comments that can be made relate to the prospect of repairing the unit if it does break down or is damaged. Firstly, as this technology is not yet commonplace, few repairers would be familiar with some of the techniques used. Secondly, because of the complexity of the unit, repairs would not be inexpensive. But if you want heaps of power from a compact and light amplifier, maybe this is one of the prices that needs to be paid. This last observation concludes the technical report.

WORKING TEST

So how good is the LAB 4000 in use? To find this out, it was

put through listening tests in the studio, and then subjected to live gig trials and in both situations performed impressively.

The first trial was to drive one side into a drum fill "bin" containing a JBL2226, and passively crossed Celestion bullet



tweeter. Sequenced bed material was used as a sound source. The input level was increased in stages, until the 2226 was driven hard- very hard!

dB SPL was tactile to the point of stinging; a level not achieved with any other amp previously used on this speaker bin, and the 4000 was no where near clipping. A decision was made to preserve the 2226 for further use rather than find its limit.

This intense sound was clean.

Next step - some "Hi Fi" listening. Operatic soprano voice, orchestral suite music, and "OK Computer" were enjoyed at unprecedented listening levels, on a pair of B&W Matrix 3 monitors. Fan noise was audible only in quite orchestral passages. For sheer listening pleasure, let it be noted that I prefer my Denon amp, but the LAB4000 is accurate enough to enjoyably reproduce a wide variety of music.

Next question — will the LAB4000 deliver the goodies live?

Gordon Wylie, of Gordon Wylie Productions, satisfied this question while supplying sound to Nick Seirlis of "clubmm" Entertainment, and using the LAB4000 on two occasions. At a school dance party, (600 students), the 4000 did the whole front house.

Side A was loaded to 2 ohms with four Peavey Impulse boxes, and side B with a pair of JBL triple chamber band pass subs (2 ohms). The MLS switches were engaged to limit each side to 1600 watts, to contain the D.J.'s passion for dB SPLs. On sound check, it was obvious that there was plenty of power for the subs, a job normally reserved for a Jands SR3000. ("Ya don't put light weight amps on subs") The LAB powered the entire night without even getting warm.

Next, 2500 partying youths at a "clubmm Coca-Cola" dance party (Kipper Ring Xtreme Youth Center), got off on what Nick Seirlis described as the most solid pumping sound that he had heard from the double system that is normally supplied by Gordon Wylie. This time, the mono switch was used, and the 4000 powered double subs at 2 ohms on each side, with the MLS switches set to 0dB (full power). Once again the LAB barely warmed up. (Nick Seirlis can be contacted at "clubmm" on 0500 555 330).

Obviously this amp can supply large quantities of clear power, and at the same time run very cool - a desirable situation - but a word of warning; It would be wise to clean the air pathway on a regular maintenance schedule, when the amp is being used in smoky pub and club situations.

Lab Gruppen is almost a secret in this region, but it is handled in these parts by Jansen Agencies Limited, and it certainly deserves recognition. At the suggested RRP of around A\$7500, eyebrows will be raised, but get a Lab Gruppen LAB4000 in your hands even for a short while, and this price just might start to look very good. The amp does!

• www.labgruppen.se

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THE NEW BREED

Digital Mixers : Who is offering what

By Julius Grafton

Yamaha are the true pioneers of affordable digital audio mixing, releasing the Pro Mix 01 in 1994 to a stunned audio industry. I was at the debut and the reaction of competitors was that Yamaha were selling the baby mixer at a roaring loss.

Four years later we have the fourth iteration in this new class of mixer from Yamaha: the 01V - first seen at ENTECH in April.

Putting aside mixers costing considerably more, which have been with us for a while now, Yamaha have only now been joined in the market by serious competition - and much of this competition is still subject to tweaking, fine tuning and is having extra lines of code written.

A frantic race is on to actually ship what has been already seen, previewed, and written about.

I visited the AES convention in Amsterdam last month to talk to the manufacturers, dealers, users and press. The dominant subject was Digital Mixers, and Who is offering What - and more importantly: WHEN.

YAMAHA CAME FIRST

Yamaha have been good at keeping their powder dry, with the baby ProMix 01 shipped within weeks of my sighting it at the APRS convention in London. It wasn't the first Yamaha digital mixer either, they have now had models on the market for ten years. But ProMix 01 was the first really useable model.

It was followed by the 02R, which offered 20 bit analogue audio converters - a quantum leap from the 16 bit ProMix 01. 02R fast found favour with people mixing audio for post, but also can be seen anywhere recallable audio is used. Fading American rock singer Todd Rundgren is using two for live sound on his current tour. Fourteen ProMix 01's were used for live sound on the last Neil Diamond tour.

Then last year Yamaha released the 03D, first previewed in Connections March 1997. Like the 02R, it will do 'automix', or in other words, it has dynamic automation. This is as opposed

to 'snapshot' automation - which is all you get on the brand new 01V, an upmarket replacement for the ProMix 01. Dynamic automation allows timed crossfades, for example.

As I reported back in March 1997, these are mainstream products.

PROMISES, PROMISES

Soundtracs, Tascam and Mackie then announced, in January 1997, new digital audio mixing consoles, positioned slightly above the 02R.

Soundtracs actually came closest to matching promises, and released the Virtua last year, after showing it in late 1996. Virtua is positioned in the vast middle ground between all the mixers in this report, and Euphonix - who make a very popular analogue-controlled-by-digital mixer, the CS3000.

Virtua sits alone, offering 48 channels and 8 groups - because fully optioned it allows one fader for each of the 48 channels. It is favoured by post production types, who may consider a pair of Yamaha 02R slaved together, or a Mackie Digital 8 Bus - which is still not yet shipping.

AVAILABLE VS. 'COMING SOON'

Yamaha have 03D and 02R in stock now, with the 01V dribbling off the line as we go to press. They state it is available

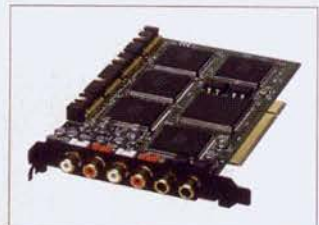


Mackie Digital 8 Bus

Yamaha DSP Factory

First detailed in Connections April, this PC card with software allows you to do digital mixing, in 02R fashion, and recording on the PC. Yamaha are rolling out the DSP Factory next month, at a suspected retail price of under A\$2,000.

• **This genre:** watch for the Lexicon Studio card also.



now in Europe.

Spirit have a new entrant, the Spirit Digital 328, slated for initial shipment within weeks. It is all but complete, the version I have appraised has all its functions except for onboard dynamics, the code for which is now being finalised. The Spirit Digital 328 is passing audio now.

Tascam have finally got their TD-8000 to market, after a respectable wait. They did state at the launch that there would be a reasonable time frame before shipment. It is available. Tascam also have just shown a mini digital mixer, the D1000. More on this later.

Ramsa first allowed us a sneak preview of their DA-7 late last year, and are understood to have production examples shipping to the USA early this month. It seems well developed.

Mackie have had no end of delays for the Digital 8 Bus, a situation which has caused the firm considerable embarrassment. It was claimed that the D8B was shipping last month - however this is not the case. To their credit they have held the product back until it is right, and in the process redefined some of the features.

Digital 8 Bus offers 48 channels - 8 more than Tascam's TM D-8000 (more on this in a minute). The Mackie also promises much, and because of this many people are patiently waiting for it. It has an onboard hard disk, floppy and modem - to call Mackie for new software version download.

Onboard 'plug-ins' are also available with Mackie offering plug-in options from Apogee (UV22), TC Electronics, IVL

Technologies, and others. The notion is that you can immediately upgrade your DSP effects, and indeed possibly do so using the inbuilt modem - and a credit card!

The Mackie is potentially the mixer technology to watch. Connections will do a full review once the Mackie is settled in with some users - hopefully real soon now!

TASCAM'S DIGITAL DEBUTANTE

Tascam are up there with Sony as a brand which usually inspires a lot of respect. Aside from occupying a serious share of the market with the DA88/98/38 MDM's (modular digital multitrack), there are a lot of Tascam analogue mixers in continual use around the planet.

The Tascam Digital Mixer, model TM D8000 is in many ways typical of Tascam - well engineered, with a lot of clever innovations. But it is not selling to projections.

This is because someone at Tascam took what now looks like an insanely dumb decision to shave a few dollars off the cost, by not fitting moving faders.

Wondering why, I went to the Tascam stand at AES in Amsterdam to get a first hand demonstration.

Not only was the D8000 unloved and lonely, but the predominantly German Tascam crew were scarce when it came to getting a hands on demo. I asked three times, but was left at the altar. The brochure says that the D8000 is a breakthrough: a mixer "easier to use than a conventional analogue one".

It's obviously been a damn long time since I used an analogue mixer, and of course I am limited to mixing on things that are

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Tascam TM - D8000

simple: like Midas XL-3's and PM 4000's. So naturally I wasn't qualified to get the D8000 to do anything at all - I simply could not get my head around the control surface.

In short, the D8000 is a 4C input, 24 track capable digital mixer with some apparently neat functionality. It does really require an external Mac computer to see what is going on, as the faders do not move.

This is not to say it will not function as a fully recallable digital mixer. It will certainly operate like a Yamaha 02R, and indeed has features in addition to the market leading Yamaha.

By day three of AES my German mates at the Tascam stand were getting sick of me asking 'why' the faders didn't move. One of them suggested that there wasn't a moving fader good enough for Tascam yet available, that those out there shudder, judder, and break down.

Connecting direct to three DA XX family machines via three TDIF ports, it will certainly find some sales with people who are not worried about needing a Mac computer as well.

The D8000 doesn't do too well in ergonomic terms either. To my eyes the D8000 looks dumpy. Retro styled for possible use as a prop in a movie about a soviet space mission, the D8000 has two racks, with the top section somewhat taller than it should be. Much spare space is provided, possibly for notes on how to work it.

Watch for a moving fader version sooner rather than later.

TASCAM TM-D1000 CLAIMS FIRSTS

Tascam released a mini digital mixer in Amsterdam, which is advertised as 'the only affordable 24 bit digital recording console'. Given that Yamaha's new 01V is only 50 quid dearer in the UK, this is a spurious claim.

Once again Tascam have decided not to utilise moving faders, so the D1000 still lets you guess what level your snapshot is.

This little guy has four analogue audio inputs, T-DIF and AES/EBU digital I/Os mean hooking up a DA XX or DAT is



Tascam TM D-1000, hi-by digital mixer - but no moving faders!

Soundtracs Virtua: offers the option of one fader for each of 48 channels



easy. Unlike the big D8000, I could at least get some functions happening on the control centre.

The EQ button brings four operable bands onto the little screen, so the four encoders below become EQ controls. The console has 128 snapshot memories, and future firmware revisions can be introduced via MIDI.

Once again, the Tascam PR department strain credibility by claiming in their D1000 brochure that Tascam 'introduced the first and only professional modular digital multitrack medium', - which suggests that the ADAT was never invented!

D1000 will probably be joined by a slightly dearer baby with moving faders, once Tascam hear what people are saying.

RAMSA'S DA-7 TAKES ON 02R

Ramsa have a winner in the DA-7, which offers 24 bit in/out conversion, moving faders (of course), and a good user interface. As Buck Freeman first reported in Connections (November 1997), the 32 input 8 bus mixer offers selection of EQ by hitting the 'select' button on each channel, with dedicated master rotary controls making the task easy.

While DA-7 has extensive onboard dynamics (limiting, gating, etc), it is a bit short on effects - with a delay available on every channel, but no reverb. Ramsa say people are particular about reverb, and can connect to reverb and effectors using an auxiliary bus, which is what you do when using a normal mixer anyway.

Optical interface with ADAT or Tascam comes in the form of 8 channel I/O cards, hook up to three MDM's on to one DA-7 for 24 track recording, or slave another DA-7 for more.

Ramsa DA-7, with optional meter bridge



COSTS & FEATURES

This is an overview of the devices discussed in this story. Prices are projected only, shown in AUD, and may differ at any time.

Euphonix: CS3000, mentioned in story, occupies unique & different place in market.

Mackie Digital 8 Bus: 48 channels, 8 groups, 12 aux sends, 100mm motorised faders, dynamic automation. Possibly the most advanced design concept for the money. A\$19,995 inc tax

Ramsa DA7: 32 channels, 8 groups, 6 auxiliary sends, mix automation, optional ADAT and Tascam interfaces, surround sound, easy interface A\$12,498 inc tax

Soundtracs Virtua: 48 channels, up to 64 inputs on mixdown, expander options, one fader per channel with optional wingboards, firm favourite in audio post world. from A\$47,000 ex tax

Spirit Digital 328: 32 ch, 8 bus, 6 aux, Standard ADAT and Tascam digital inputs, possibly best user interface yet devised. Drawback: req. sequencer for automation A\$14,995.00 inc tax

Tascam TM-D1000: 16ch, machine control, faders not automated. A\$3,500 - our guess only

Tascam TM-D8000: 40ch, 8 bus, 6 aux, 4 stereo effectors, surround sound. Drawback: dynamic automation requires external Mac computer, faders not automated. A\$17,200.00 inc. tax

Yamaha 01V: New. 16 ch, snapshot automation, two effectors & more A\$3,995.00 inc tax

Yamaha 03D: 24 ch, 4 bus, 4 aux, surround sound, automation A\$5,995.00 inc tax

Yamaha 02R version II: 24ch, 40 input, 8 bus, 6 aux, powerful effects, auto mix, dynamic automation, optional meter bridge, surround sound. A\$13,995.00 inc tax



Spirit 328 (left) should ship next month. It offers possibly the most friendly user interface of all. We were able to walk up and use it within about a minute! See our Preview in the APRIL issue for more on Spirit (and Yamaha 01V). We will review the Spirit here soon.

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| Ramsa | +61 2 9477 7377 |
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HOW TO DO IT

TOM MISNER'S PRACTICAL STUDIO TECHNIQUES

- STUDIO REFERENCE LEVELS (Part 5)

THE DECIBEL

Engineers need a reference point if they are to have a unit of comparison other than subjective volume descriptions such as 'loud', 'soft', or 'very soft'. When dealing with acoustic or electronic measurements we need to express our calculations in a more accurate form.

The intensity of a sound field is defined as the flow of acoustic power (measured in watts) through a given area (measured in square metres). The human ear is sensitive to a vast range of sound intensities, from a faint breathing sound measuring only 0.000000000001 watts per square metre to an explosion (at close range) measuring 1,000 watts per square metre. If everyday sounds were measured by the intensities they produced, we would require a metre with a scale containing so many billions of values that it would be unreadable!

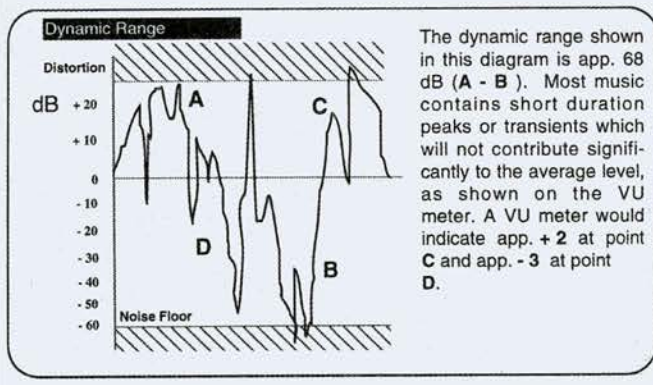
To make these measurements simpler and easier to understand, a system of representing the vast range of values with a much smaller range of values was invented. The system is based on the 'bel', named after Alexander Graham Bell. One bel is too large for accurately measuring sound pressure variations, thus the introduction of 'deci', meaning one tenth of a bel. The system we use is called the decibel.

There are numerous types of decibel, or 'dB', available to correctly express electrical and acoustic values:

| | |
|--------|---------------------------------------|
| dBa | = absolute (acoustic) |
| dBm | = 0.001 watt (broadcast) |
| dBm | = 0.775 volt (studio level) |
| dBv | = 0.775 volt RMS |
| dBu | = 0.775 volt RMS (studio) |
| dBV | = 1 volt RMS |
| dBr | = relative voltage level (studio) |
| dBp | = 1pW (acoustic) |
| dBe | = 1 micro V/m (broadcast) |
| dB SPL | = 2 x 10 ⁻⁵ Pa (acoustics) |
| dBc | = C weighted (70 phons) |
| dba | = A weighted (40 phons) |

WHAT IS DYNAMIC RANGE?

Dynamic range is the maximum difference in levels between a loud and soft passage of music. A rock band playing loud music does not have a large dynamic range, but if an acoustic guitar played a quiet solo during the song, there would be a large dynamic range at that point. If the band was playing at a volume of 100 dB and the acoustic guitar solo was at a volume of 65 dB, there would be an effective dynamic range of 35 dB. Most commercial music is mixed with a very restricted dynamic range because of the dynamic range losses which will be incurred when the song is broadcast. Within an audio system, dynamic range is measured as the difference between a specified distortion at the high end, and the 'noise floor' - the inherent noise of the system's electronics or the tape hiss - at the low end.



STUDIO GAIN STRUCTURE

If the engineer uses the correct gain structure, the accompanying noise created by the various amplifiers, microphones and tape hiss will be negligible. It is important that certain rules are observed when setting the gain stages in a typical mixing console are: input gain, channel output gain, sub-master and master gain stages. Note that there are many different console designs, and the main gain stages may be different from console to console.

As a general rule, the final gain stage of the mixing console should have the highest output level, thus creating the best compromise between noise and distortion. Professional consoles have a maximum output level around +24 dB.

REFERENCE LEVELS

The reference level is the actual voltage level that is output from a piece of audio equipment when the meters read 0 VU. The difference between the reference level and the distortion level is known as the headroom, while the difference between the reference level and the noise floor is known as the signal-to-noise ratio.

Raising the reference level decreases the headroom and increases the signal-to-noise ratio, resulting in less noise but a greater risk of distortion. Decreasing the reference level increases the headroom and decreases the signal-to-noise ratio, resulting in more noise but less possibility of distortion.

A good comparison of different reference levels exists between the multitrack recording studio and a radio or TV broadcast station. A broadcast station must restrict its dynamic range to compensate for transmission power losses, so it can therefore operate at a higher reference level. In contrast, the recording studio reference level is set lower in order to gain more headroom. The values are:

Studio reference level 0 VU = +4 dBm = 1.23 volt

Broadcast reference level 0 VU = +6 dBm = 1.55 volt

Why do we need meters?

Meters are a visual representation of an audio signal, a sort of reassurance that we are using the correct level from one point of the audio chain to another. Meters should only be used as a reference and not as the final judge. If a signal looks low on the meter but nevertheless distorts, turn it down. Uses for the various metering devices are:

1. To check that there is no loss or gain in level from the studio to the transmitter (broadcast).
2. To check that the maximum level, prior to distortion, is going onto tape.
3. To compare relative levels between incoming and outgoing signals.
4. To check the attack time of certain signals in order to adjust the compressor/limiter.
5. A reassurance that a signal has been recorded onto tape and is coming back off tape.
6. To check level relationships (VU and PPM) and phase relationships (phase meter) for the purpose of disc cutting.

The VU Meter

The VU meter is the most common form of metering in a recording studio. 'VU' stand for volume units, and the VU meter's reading often corresponds with the perceived loudness of a sound.

Due to its relatively slow response (300 ms time-constant), the VU meter indicates average signal levels only and is not able to react to transient peaks. Traditionally, when the VU meter indicates 0 VU on its scale, the signal level corresponds to 1 milliwatt into 600 ohms (0 dBm). For the recording studio, the VU meter is usually re-calibrated to read 0 VU at +4 dBm, corresponding to a voltage of 1.23 volts.

PRACTICAL STUDIO TECHNIQUES - STUDIO REFERENCE LEVELS

The VU meter's accuracy depends very much upon the program material. Because of its slow response, the VU meter tends to 'under-read' percussive sounds and speech program - if we allowed these sounds to go to 100% modulation (0 VU) they would distort. More attention should be given to audible distortion rather than visual meter overload.

The VU meter becomes even less accurate after it has reached 80% modulation due to its mechanical properties, or ballistics. This is especially true for semi professional consoles, where you should be very careful of the meter reading as it rarely represents an accurate visual reference.

PPM Meter (Peak Program Meter)

The PPM is technically more accurate than the VU meter. However, it can be difficult to use because it indicates peak signals which, unlike the VU meter, are not relevant to the perceived loudness of the sound. Essentially, the PPM is a voltmeter which has been converted to read logarithmically. The PPM's ballistics give it a very fast rise time and a slow decay time. Although most engineers prefer to work with loudness related meters (i.e. VU), the PPM provides a more accurate indication of what is actually being recorded. If a percussive signal is connected to both a VU and a PPM meter, the difference could be as high as 15 to 25 dB. An engineer using only a VU meter would run the danger of tape saturation or amplifier clipping. Most studios today use a combination of VU and PPM meters, with the VU meter being the clear favourite.

Electronic Meters

Some meters use electronic elements such as LEDs and other electro-luminescent elements to create a display. The most significant advantage of these meters is that they don't have any moving parts, and thus no inaccuracies due to incorrect ballistics. Furthermore, because these devices are driven by electronic circuits, their ballistics and dynamic ranges can be specified by the meter designers. Most electronic meters have characteristics switchable between VU and PPM, and a feature called 'peak hold' which freezes peak level readings for several seconds. Another very important feature is the dynamic range of the electronic meter - in the order of 60 dB - as compared to the VU meter's 23 dB. This increased dynamic range is very important to visually display the quiet passages of music, especially when recording on a digital medium.

In practice, the engineer should allow sufficient margin, above the average VU level, to record program material without any form of distortion or tape saturation. This requires a knowledge of which musical instruments have excessive peaks. With digital tape recorders, peak metering is important to prevent overloading the input stage of the analogue-to-digital converter.

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 1-800-635-514. Tom Misner is the owner of SAE International.

HOW TO DO IT

DUNCAN FRY'S LIVE SOUND MIXING

- MIXING CONSOLES (Continued from last month) (Part 5)

PFL and SOLO

Sometimes called Cue

On most consoles other than really basic ones, each channel will have a switch marked PFL or SOLO, and the Master section should also have a meter with the same words.

This switch lets you listen in the headphones to each channel individually. As a *general rule*:

PFL stands for Pre Fade Listening, and lets you listen to the channel irrespective of where the channel fader is positioned.

SOLO lets you listen to the channel Post Fade, so you will have to push the channel fader up to hear something. On some consoles there is a Global (affects the whole console) switch to change the Solo from AFL (After Fade Listening) to PFL.

This type of control is very handy when you need to listen to something on its own during the gig, to identify a problem, or just to check that something is coming through to the channel.

Some consoles will also have a switch in the Master section marked PFL (SOLO) to Left/Right or something similar. This is for individual listening through the system during a sound check. When it is switched IN and you press a PFL/SOLO switch, it sends that individual channel straight to the L/R masters, shutting off every other channel.

Here's a tip - make sure this switch is OUT when the band starts



to play, otherwise the first PFL/SOLO switch you hit will turn off everything but that channel! Very embarrassing.

Channel On/Off

This is pretty self explanatory! If the channel has this switch, then there is usually a Green LED next to it to indicate the channel has been switched on.

Auxiliary Sends

What are they?

An Auxiliary send is a control that sends the signal from the channel out of the console, separate from the main channel fader (or slider - same thing). It can send the channel signal out to the monitor amps and speakers, or to various effects units, which can then send the signal back into the mix via either the effects returns or a spare channel.

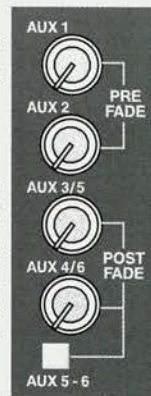
Basic mixers have one or maybe two aux sends - one for monitors, one for effects (Echo, Reverb). Larger consoles have 4 or more, often designated as being Pre Fade or Post Fade; Pre Fade usually being used for monitors, Post Fade for effects.

Pre Fade

Means that the position of the channel fader has no effect on the Aux Send. It should ideally be Pre EQ as well as if it is to be used to run the monitors.

Post Fade

Means that the channel fader has to be up before anything gets sent out of the Aux Send. It is usually used as an Effects send, so that



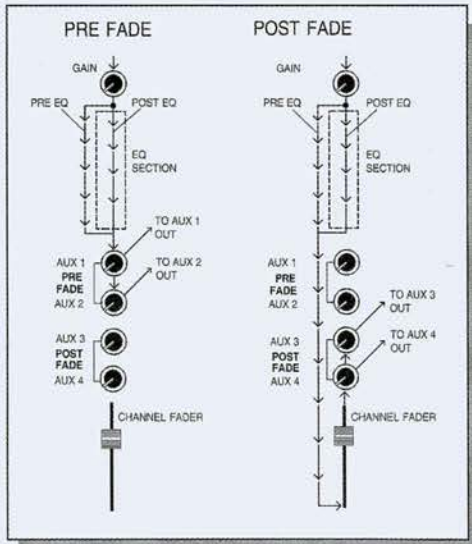
DUNCAN FRY'S LIVE SOUND MIXING

- MIXING CONSOLES (Continued from last month) (Part 5)

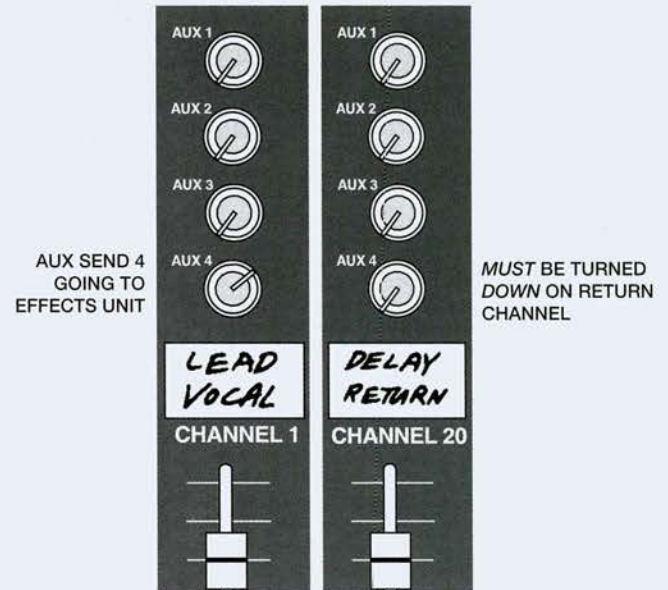
when correctly set up the channel fader can control the effects send as well. This may sound fiddly, but if you have 32 microphone channels plus stereo effects returns to keep a close eye on during the mix, it can save your fingers a lot of walking!

Since Post Fade sends follow the channel fader exactly, they can also be used to send a separate mix, based on your House mix, to something else - TV or Radio feed, for example, or when running a central cluster of speakers plus the normal Left and Right.

DIAGRAM SHOWING SIGNAL PATH OF PRE AND POST FADE SENDS, AND ALSO THE DIFFERENCE BETWEEN PRE EQ AND POST EQ



turned OFF on the channel you are bringing the effect back IN on. Yes, appalling grammar, I know, but have a look at this example and it should be clear.



Be careful. Even if it is turned up just a little bit, it can feed the effect back into itself causing uncontrollable squeals. It's hard to track down in a hurry and, once again, it's very embarrassing!

Auxiliary Masters

These are overriding Master controls for the Auxiliary sends. There will be one of them for each Aux send, and they should be located somewhere on the console, usually in the Master section.

Look for Aux Masters, Effects Masters, Monitor Masters or something similar. Find them and set them at about 2 o'clock for a start. If that's not enough, wind them up; if it's too much, pull them back.

Differences

We've worked our way through just about all the basic controls you can expect to find on mixing consoles, but remember, they won't necessarily be laid out in the same order. Each manufacturer has their own design and layout ideas.

For example, some Yamaha consoles have a multi position rotary switch for Gain trimming instead of a continuously variable control, and instead of being near the top of the channel, it's down near the fader.

On others the EQ section is nearest the fader, and the auxiliaries are up near the top of the channel along with the channel Group assign controls. The theory is that once these are set you rarely change them during the set, whereas you are continually adjusting the EQ so it's placed closer to you.

Also, not all the knobs work the same way. On Yamaha PM 1000 and some older Gamble/Crest consoles the controls are calibrated so that the pointer sweeps around the bottom of the knob, not at the top.

These variations in layout don't necessarily mean that the console works differently - all it means is that if you're unused to a particular layout you have to concentrate harder until you're familiar with it.



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.

Using it with Subs

A post fade auxiliary is also useful to run as a Sub-bass send. Sub bass is very powerful thing to use; but you don't necessarily want it in every song, or on every instrument.

By running Subs on a post fade auxiliary send you can control it much better - add it to Bass, Drums, Gongs, maybe some Keyboards, and keep it out of acoustic guitar and Vocals, except as a special effect. Bring it in by pushing up the auxiliary master, pull it out by bringing down the master/ and since it is post fade it follows the position of the faders in the mix.

There are no hard and fast rules for using Auxiliary sends - you should just use them whichever way suits your needs.

For example, using a Pre Fade send on effects lets you keep the effect level up while dropping the original signal (great for singers who go flat on long notes!). Using a Post Fade send lets you control the original signal and the effect at the same time. When you fade down a solo, for example, you fade down the effect as well.

Some consoles, for reasons of economy and space, have 6 Aux sends but only 4 knobs. A switch near Aux 3 and Aux 4 changes them to Aux 5 and Aux 6. Great for when you need to run a lot of effects on different channels.

Auxiliary Returns

The signals that you send off to your effects (delays, reverbs, etc) need to be returned to the console so they can be mixed in with the original signals at the appropriate levels.

Although most mixing consoles have specific Effects Return Inputs and controls, these controls are not usually sliders. If you have the spare channels available it is often easier from a mixing point of view to bring the effects back in via a standard microphone input channel. In this way you can control the level of the effect with a slider, the same as the original signal. It also makes it much easier to pull down the effects in between songs.

Most Important: If you decide to bring the returns back via microphone channels, remember this. You must make sure that the Aux send that you are using to send the signal OUT on is completely

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Write in Reader Service Number: 124

Venue AV policy

We respond to a recent letters in March and April Connections, regarding Hotels applying a policy in relation to external Audio Visual companies who provide services at those establishments.

We would appreciate your inclusion of the following in relation to this matter, in the next publication, so as to clarify the correct and legal standpoint on the issue.

This Hotel has received advice from the Australian Competition and Consumer Commission (A.C.C.C.), who have advised the following:

"...the arrangement that Carlton Crest Hotel has in respect of its conference facilities is unlikely to breach the provisions of section 47(6) or 47(7) of the Trade Practices Act 1974 ('the act')".

As a result of this advise, claims of "Third line forcing" or breaches of the Trade Practices Act are in fact incorrect.

The Hotel intends to uphold this decision, further supported on advise from the A.C.C.C..

**- Peter Croasdaile
General Manager
Carlton Crest Hotel, Melb.**

Spot Caller

After reading the article on Metallica (Connections, May) there was something I had to say. I have been working at the Sydney Entertainment Centre for two years as a followspot operator, and in that time I have come across none better than John Broderick (LD).

All his cues had at least 3 standbys, they were easy to understand, and no-one made any mistakes.

John Broderick is one of the best spot callers in the industry and he put on a damn fine show.

- Rick Bishop, email, Syd.

E98 Support

I noted your comments about local magazines not supporting ENTECH with interest. (*Connections ENTECH feature, May*)

As I am in trade publishing myself, and not being in the entertainment industry, I can offer an observation.

You've run four successful trade shows without wide support from other 'trade' magazines in your industry.

If other trade magazines choose to ignore their own customers, who are your exhibitors, then surely they are the losers.

So why does it matter now?

- Julian Pascoe, General Press (Aust) Ltd, Sydney

Too Old

In the article about JJJ's un-earthed program, Grinspoon were mentioned as one of their successes. I just wanted to point out that the name is 'Grinspoon', not 'Greenspoon'!

Julius, you are sooooo old!

- Alex Mair, email, Sydney

• I know. -ed

VHF wireless

Why does it take Connections to break the news that every VHF wireless system will be useless very soon? Where is the information from the Govt?

- R. Mentham, Cairns QLD

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Write in Reader Service Number: 141

Duncan Fry

DOCTOR DOCTOR, GIMME THE NEWS *I got a bad case of alcohol overload*

At the Entech 98 exhibition several hundred uninvited doctors, radiographers and assorted hangers-on descended like a plague of locusts at what became known as 'The Great Cockle Bar disaster of 98'. Devoured all our food, drank all our drink, and then disappeared.

But this sort of behaviour would surely come as no surprise to anyone who's ever worked providing entertainment for the medical profession. I've done many gigs for them, and *carpe diem* (or seize the bottle) is definitely the order of the day.

Medical Students ball, 1984. I can vaguely remember a bearded student, rather the worse for wear, hanging around the mixing bunker most of the evening, and listening to his rather tuneless singing. As the night grinds on, and he becomes more and more plastered, his singing gets worse.

I suspect he had some hidden issues to resolve, since during Robert Palmer's Doctor doctor song he sang: "Doctor doctor, gimme the news, I got a bad case of foreskin blues. Foreskin, foreskin blues..." and so on!

The frightening thing about medical students is that they grow up to become doctors. That's the theory, anyway.

Picture this. It's the late seventies, and I am the sole road crew for Nat Prick's World o' Disco. And he has a gig at a hospital- the place is chock full of doctors, nurses, consultants, surgeons, and to a man (and woman) they are absolutely shitfaced.

The big song of the evening was Ian Drury's 'Hit me with your rhythm stick', (*are you really old enough to remember that song, Dunk & Ed*) which was requested regularly every ten or fifteen minutes by this raging loony waving a bottle and wearing a kilt. Whenever the song was played he would stagger around the room kicking his legs in the air yelling and spluttering 'Hit meeee' in everyone's face.

"Who's that dickhead?" I asked the organiser.

"Oh, that's the chief medical registrar. Enjoys a party, he does!"

Inevitably, he sprayed 'Hit meee' in the wrong person's face, who took him at his word and promptly laid him out cold on the floor!

Of course, in a room full of the medical profession's finest, help was immediately at hand for this emergency, which consisted of everyone coming up to have a look at him and then laughing themselves silly! Eventually they dragged him out into the kitchen, where he spent the rest of the night snoring peacefully under one of the benches.

Alcohol and doctors, like alcohol and drivers, can be a worrying combination. In a previous lifetime, when I was the proprietor of Dunk's

Disks 'The smoothest sounds in the South' I was suddenly struck down with a raging nose/throat/chest infection. Being on my own in the shop, I could ill afford a week off, so I thought I'd better get some urgent medical help. I locked up the shop, stuck the 'Back in 5 Minutes' sign out the front, and wheezed my way down to the doctor on the corner.

"Hmm, it doesn't look too good," he said, peering down my throat. "I think you've got glandular fever! We'd better hit it on the head straight away with a penicillin injection."

He drew back a curtain revealing a little annexe with a couch.

"Just drop your pants and wait there, and I'll get it from the fridge."

So I dropped my pants, sat down, and waited. And waited.

After about 5 minutes I heard voices in the doctor's office.

Shit, the silly bastards forgotten about me, I thought, so I opened the curtains and said "Hey, doc, what about that penicillin?"

Mrs Front Porch, sitting in the chair rabbiting on while the doctor scribbled her next prescription for Mother's Little Helper, took one look at a semi naked Dunk, screamed, grabbed her prescription and ran out of the surgery!

The doctor scratched his head, opened a file and flicked through the papers inside. "Yes, well, how is the gastric problem?" he asked.

"Gastric problem? You told me it was glandular fever and I needed a penicillin shot," I replied somewhat tersely.

"Oh yes, the penicillin," he said, "Ah, here it is. Now just bend over there," and he jabbed a syringe full of freezing cold penicillin into my left gluteus maximus.

"You'd better come back in a couple of days for a check up to see how it's progressing," he said while I pulled my pants up. "Just make an appointment with the receptionist and she'll organise it."

He handed my the manila file. "Could you give her your file on your way out? Thanks."

As I walked down the hallway of the surgery, I opened up the file. It had half a dozen A4 pieces of paper inside. All blank!

Jeez I'm not coming back here in a hurry, I said to myself as I walked out of the door.

Glandular fever my arse (no pun intended)! I got better within a couple of days, despite this world's best practice medical attention, as it was obviously one of those irritating bugs that go around occasionally.

About a month later, I read in the local paper that he'd died of alcohol poisoning!



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Recording



Picture: David Sievers

EPIQ Vocalist Liz Hooper and co-founder Andrew Eojanic, with Tom Garneau and assistant engineer Travis Grace

Paisley Park engineer works in Adelaide

Adelaide band **EPIQ** recently had their second album mixed by veteran US engineer Tom Garneau. You hear of major record companies spending the artist advance on expensive mixing sessions in the USA. But in the case of Epic, Tom came to them.

Tom Garneau is a recording engineer from Minneapolis. He started in the late 1980's recording obscure bands in the basement on his 8 track. One day there was a trade show in town and: "I got into the Paisley Park studio managers face".

Usually a studio manager has a lot of young aspirants knocking at the door, in this case Tom's CV joined about 100 others in a big heap. He didn't give it too much thought.

A week later he was second engineer at the lavish facility, and in

years to come first engineered many Prince albums as well as others when the facility was open to all comers.

"It was just the right combination of availability and people skills. Anyone can buy gear...."

Mixing on a DeMeco or SSL console pretty well is the upper limit, so flying down to Adelaide he knew the gig wouldn't utilise exotic gear. Sure enough, the band pulled together whatever they could for the mixing session, which was to finalise 18 songs they had recorded on CuBase VST.

Cool, up and coming bands is what Tom mixes right now. He balances international projects with new music.

continues >

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Recording

EPIQ found him on the internet somehow, and ended up inviting him down to mix their music. He had by then heard their tapes, so he was 'with them' in musical terms. "I wasn't interested in working long distance - then they invited me down! I'm an adventurer.... also I wouldn't have come down to work on crap."

Tom hit town on April 23, and left May 6th.

"They were quote forthright that we wouldn't be mixing on an SSL, but there would be plenty of creative time. I'm pretty happy mixing a song a day, then sleeping on it and listening to it again in the morning and putting it to bed. Then starting on the next one."

Tom bought a spare suitcase with some comfort devices, like an API compressor, an Apogee A/D converter, and Dorrrough digital meters. They begged, borrowed and stole a bunch of equipment and we cobbled together a nice little guerilla studio".

There sure wasn't an SSL, the console was a Yamaha 02R II, in a converted space the band rented. CuBase VST on a PC ran the tracks out through some midi devices, some tracks were doubled and remixed, the whole lot went down to DAT, track by track.

The band lineup is guitar, drums keys and bass, then "Liz Hooper, she has a great voice". 11 final mixed songs are a result of the project.

EPIQ will shop the final result around, hoping for a label release of their completed product. According to Tom, this is a common approach in the USA, where he has seen plenty of bands get signed to major label ~ but then loose control of their destiny.

• EPIQ asked Connections to mention these suppliers who kindly loaned equipment for their project: Neville Clark at Disk Edits, Amber Technology, GUVT, and Darren Sheldon of Future Music SA.

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Write in Reader Service Number: 145

Studio News

◆ **Planet Studios** in Perth have installed a complete SADie Octavia System (see Octavia review, Connections last month). The Planet system includes a moving fader control surface, SADie Portia JPEG video capture card, removable SCSI drives and an internal CD writer.

◆ **Bonsai Recording**, also from WA, have installed a new ProTools 24 installation, capable of 32 track recording and editing. They are keeping the existing 24 track analogue machine, so they can offer analogue, analogue with digital mix, or a total digital domain. Contact Tom Thorpe, +61 9 9246-4408.

◆ **Dex** is the word, according to Artist Services in Melbourne - who approached Dex Audio to get the live Australian cast recording of the sell out show 'Mum's the Word' released in time for the opening of an extended season at the Athenium Theatre. Dex was able to edit, master, design art and manufacture - all during the closing week, ahead of the extended season.

Producer Ewan Burnett is a happy man - everything turned out so well, and he'd been so involved in 'Mum's the Word' - his wife even became a mum during the production!

DEX: +61 3 9372-2266.

◆ **Roam Around Sound** will do just that - it is a 16 track mobile, with Tascam DA-38 Modular Digital Multitracks. They've already recorded a variety of Sydney bands and acts from regional NSW, including a singing nun!

Roam Around was created by former SBS engineer Angus Kingston, whose credits include The Simpletons, The Whitlams and The Lucksmiths. Angus has a working relationship with Damien Gerard Sound Studios, which will allow artists to record live shows, conduct pre production or track in their desired location, then mix at Damien Gerards to get the best of both worlds.

Roam Around Sound multitracks are syncable to timecode and MIDI. Call them on +61 2 9810-8121.

◆ **Big Splash Studio** is a new venture for Sydney SAE manager Jason de Wilde and his partner Rebecca. He says: "though it may be classified as a 'home studio', I am working here on commercial projects". Jason and Rebecca are lucky enough to live in a waterfront home at Oyster Bay, 45 minutes south of the Sydney CBD. We are **green** with envy! (Like the special green effect!)

The studio is very well equipped, with a Yamaha 02R (V2) mixer, a ProTools 24 system, Cubase VST, Genelec Monitors, CD burning and lots of software plug-ins and do-dads.

Full multimedia facilities include Director 6, Premiere, Photoshop and all that other stuff you need. Jason says he intends to stay at SAE, but he was already spending too many hours there on demos, EPs and albums. So now it's done at home, with the BBQ and the beer nearby.

Call Big Splash on +61 2 9589-1324 or 014 420-690.

◆ After our story that **Charing Cross** would close (Connections, May 1998), they had a change of heart. Manager David Sykes will lease the facility while owner Gordon Heavey will move into other things. The vintage NEVE console and outboard equipment will remain, rather than being sold to wealthy overseas buyers, they say. Dial +61 2 9387-8362.

◆ **Satelite Studio** in Perth recently recorded a CD for Geo Takoma, the Power yoga/meditation guru during a Perth visit. Geo spent three days recording the CD with his assistant - then decided to launch the product on the Oprah show last month. Satelite owner Darren Halifax now has an international release to his credit. Call him on +61 9 9470-4003.

AUDIO for The Boy from Oz

Her Majesty's Theatre, Sydney, Australia

It is exceedingly rare that an "all-Australian" musical is ever a success story, but this appears to be the case with *The Boy from Oz*.

John Scandrett, Managing Director of System Sound Pty. Ltd. was selected to provide sound design, equipment and staff services for this thrilling new Australian production. **Julian Spink** is System's Sound Supervisor for the show and worked closely with John in the design process.

The show is a "celebratory stage musical that traces the life of Peter Allen using a concert theme, with theatrical-style flash-backs". In order to realise this concept, John Scandrett's sound design required a system with the capability of wide dynamic range, encompassing theatrical and concert reinforcement styles and using both handheld and body pack style radio systems.

John specified Meyer CQ-1(4), CQ-2(3) and JSW(2) self-powered speakers for the job. Frontfill, stalls and delay reinforcement consist of 8 Meyer UPM-2 speakers & 15 Apogee SSM speakers. Meyer USM(2) and UM-1(2) speakers rigged in the onstage wings, are designed to service both as sound effects sources and provide foldback for the concert performers. Amplification of all "non-self-powered" speakers is by Yamaha

(PC4002M, PC2002M, H3000) and CyberLogic NC307 frames all located in a sub-stage area.

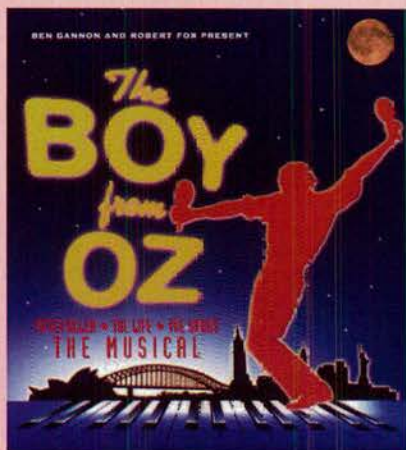
Installation of the Meyer CQ speakers required the design and manufacture of custom brackets to enable discrete mounting to the walls and ceiling. Likewise, all frontfill and delay speaker mounting systems were manufactured prior to installation by **Clive Hammond** at System.

The severe space restriction in the rear of the theatre meant that 82 channels of mixing consoles and processing equipment had to be squeezed into quite a small area. At System's warehouse, before 'bump-in' at the theatre, the consoles were configured to fit the available space with customised mounting and cabling.

Automation systems are considered mandatory if a sound company is to replicate a high standard of sound production every performance, and especially when controlling a total of 32 radio microphone systems. With this in mind, System Sound has developed its own proprietary automation retro-fit for the Yamaha PM4000 console.

The main console is a Yamaha PM4000-48C (with VCA and channel muting and MIDI automation), and auxiliary consoles are Yamaha Promix-01 and Yamaha O3D, controlled by MIDI from the automation.

continued>



The Boy from Oz

computers. This allows the many different mix states to be recalled during the show. The Promix -01 mixes Brass Reed and Percussion mics, while the 0ED combines the function of Sound Effects and Foldback mixing.

Fault tolerant *IBM Thinkpad 360C* laptops are mounted on a swing arm over the PM4000 and are programmed to step through cue states during the show mixed by **David Tonion** (Head Sound Operator). Reverb functions are handled by two *Lexicon* devices (a PCM80 and a LXP-15) as well as a *Yamaha SPX-100C*. The reverb units are also controlled by MIDI from the automation system. The MIDI control of these devices allows various effects to be used at different times during specific scenes. All sound system delay and equalization functions are performed digitally by *Yamaha D-2040* and *YDP-2006* devices.

Todd McKenney, who plays the part of Peter Allen, mimes piano playing on any one of four replica pianos that are used on stage. To assist with this illusion, Todd uses a *Garwood LV-1* miniature "In-Ear" Radio Monitor system with a automated audio mix including sampled piano fed from the orchestra pit. Only a single earpiece is used and the style of receiver is



Radio mic technicians: Ondine Savage (left) and Sally Battese

extremely small such that it can be hidden under the performers' costume along with 2 radio mics.

The pit band of twelve musicians:

- 2 keyboard players,
- 3 Reeds (doubling),
- 3 Brass (doubling),
- 1 Guitar (doubling),
- 1 Bass (doubling),
- Drums (kit) and Percussionist.

Microphones used in the pit are:

- *AKG 451EB/CK1, AKG 414*
- *Neumann KM84i, TLM 170*
- *Sennheiser MD441*
- *Shure SM 98*

The stage set uses a custom show-deck with a large revolve and a 9 metre high steel spiral staircase at one edge. During the show, replica pianos are wheeled on and off the revolve. Since all piano playing is mimed, (to enable consistent sound quality) a 'locating' of the grand piano

sound on stage is achieved by a combination of 2 *Yamaha DMP-11* programmable digital mixers.

Five *Shure U* series handheld radios with a combination of Beta 53A and Beta 87 capsules are used in the show, together with 28 *Sennheiser UC36/SK2012* UHF body pack systems with *MKE-2* microphones. The radio receiver rack is customised so that it can be remotely monitored using the *Sennheiser Remote Display Computer*. This remote system, (combined with closed circuit video and house audio program monitoring), enables backstage radio technicians Mark Hostetler and Sally Battese to continuously monitor relevant RF & AF levels during the performance from a room located well off stage.

On Thursday, March 5 1998, *The Boy from Oz* held its lavish Gala Premiere. Advance sales at the box-office indicate that the production "has legs" and will be staying at Her Majesty's Theatre, Sydney, Australia for quite some time.

- Written by Julian Spink (System Sound's production sound supervisor for *The Boy from Oz*.)

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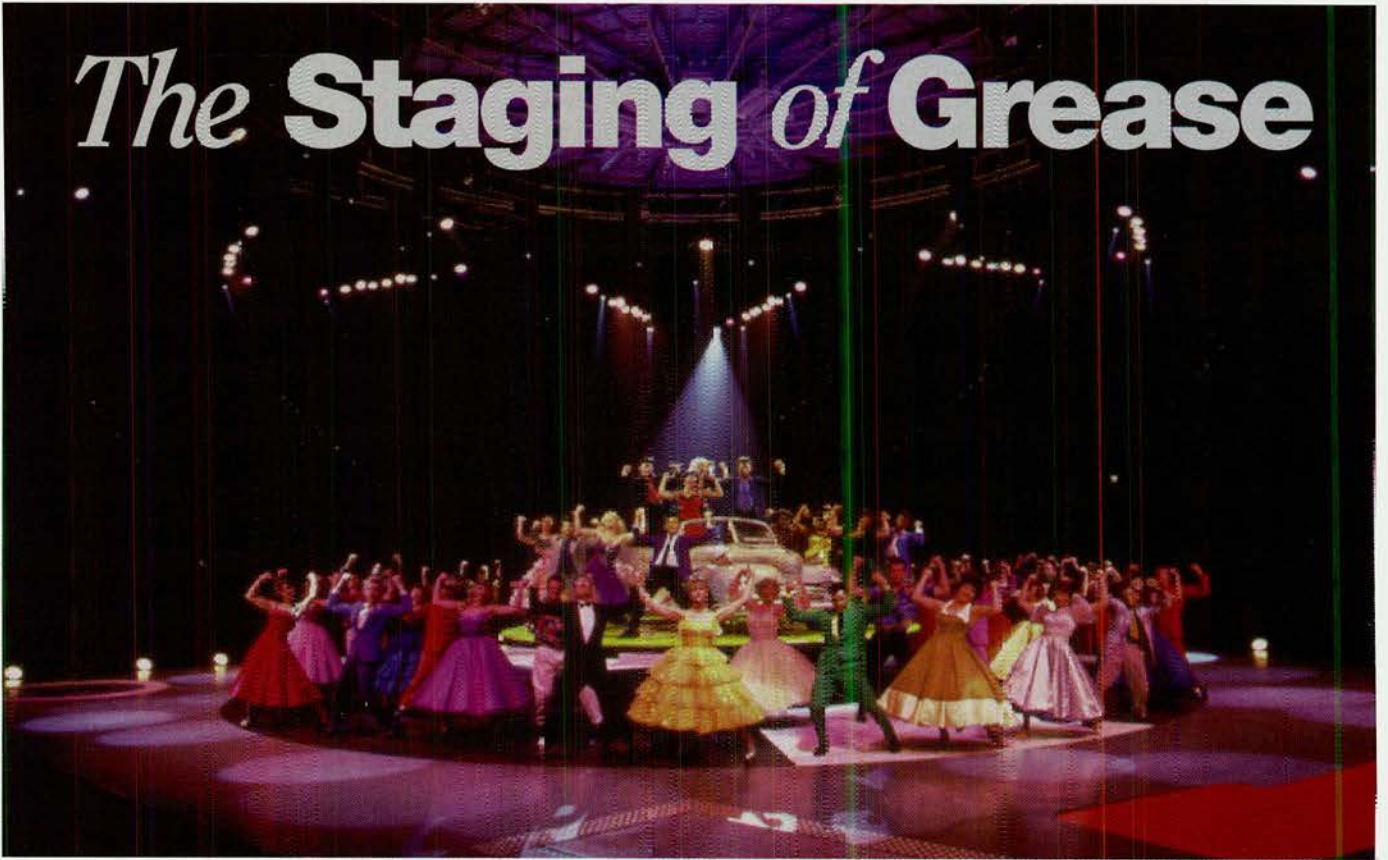
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Down in The Sound Dept



The Staging of Grease



Performing arts industry veteran John Frost has produced *Grease* - the arena spectacular, alongside James Erskine and Tony Cochrane of Sports & Entertainment Ltd (SEL). The Queensland Performing Arts Trust are also stakeholders.

At presstime the tour was well into The Second Season, which finishes on July 11 at Hobart. Connections understands that there will be a Third Season, whether this is the Encore Season we do not yet know. There is a strong chance that *Grease* will exceed *Superstar* as the most patronised show in Australia.

John Frost and SEL recently announced an initial three year joint venture to produce and fund international productions in Australia and throughout the world.

This feature details the audio and lighting of *Grease*, by Jands Production Services; and the Staging - supplied by QPAT.

The AUDIO

Interview with sound designers **Peter Ratcliffe** and **Wyn Milsom** by Mark Cunningham, Publishing Editor of Total Production magazine.

MC: You're well-known for distributed sound system designs.

PR: That's basically what we try to do when designing for theatre/corporate or special events. We look at speakers and horns covering every area and have a distributed system instead of blasting the audience from a point source.

MC: What are the elements and configuration of the system you've designed for this tour of *Grease*?

WM: As the system is in the round, to fit in with the lighting and set pieces involved, there had to be an eight-point sound system. Each of those eight points consists of six Clair Brothers S4 Series II cabinets and two Series III R4s. So in each cluster there are four long-throw S4 (F) boxes, underneath which are two S4 (F) boxes and then the two R4s. For the people in the first eight or so rows of seating there is a distributed system of 28 Clair 12AM monitors which are used as infill boxes, positioned at equal distances around the base of the stage area. Then there are 28 JPS 1 x 13-inch front-loaded sub bass enclosures on the floor. Everything is designed so that each box is pointing at the relevant areas and is taken up to as high a trim height as possible so as to give the stage a wide open look, and remove the need for large

hanging columns of boxes which would harm sightlines, as in standard concerts.

MC: Have there been any restrictions placed on you by set design?

WM: Well, everyone would love to have a system that sounded fantastic, and also weighed next to nothing and was invisible. The only restrictions have been to do with the weight loading in some venues. The band members are situated in an eight square metre structure which we call the spaceship, the band start the show at stage level and later they are raised up into the air. The weight of the spaceship had to be taken into consideration as well as the weight of the speaker rig and cable trusses. So by using our combined experience in these venues we were able to overcome any potential problems.

MC: How have you aligned the speakers?

PR: We are using lasers. The SIM Engineer, Greg Rosman, marks the points on the ground, and in the various levels of seating in the arena then the north column of speakers is flown. We attach a laser to the front of each box where the centre of the relevant horn is and then set the boxes at the angles where we believe they should be. When the boxes are taken up we can see by the laser beam into the previously marked seating areas if the vertical angle is exactly how we want it. From that point onwards, the speaker columns are brought down and readjusted until the laser beam is focused correctly. Meanwhile, another team will be working on the east or west cluster, so there'll be two sets of lasers in operation at that moment. Of course, the laser doesn't lie, whereas when using the naked eye it is our experience this

is often not 100% accurate. In fact, it could be out by up to seven rows of seating. So although we don't feel it's necessary on all arena productions, we do use lasers on all the theatre and special event shows, whether the speaker system is Clair Bros, Meyer, JBL or whatever. We can spend hours working with the lasers depending on the complexity of the system. By utilising the lasers and flying the cabinets high and angling them down precisely you're increasing the direct to the reverberant sound – instead of just putting them up there and saying, 'Hmm, that's about right!' The result is we can 100% confirm that all the speakers are in the right position, and anything else is just an EQ or delay problem which we tune and align using the Meyer SIM system. For the Grease system all 12 x speaker zones are all separately equalised and time aligned, and are then delayed using Klark Teknik DN728 units back to the performance area. Zero time (0 ms) is the centre of this area.

MC: What prompted the use of lasers for this purpose?

PR: I first started doing it about two years ago when I designed the sound system for Disney's Beauty And The Beast theatrical production. It came about through past experiences working in theatres where you have to be very exact about speaker coverage to ensure intelligible dialogue. If you're 2° out at the top of a balcony that could mean three rows of seats aren't within the horn pattern and you risk getting complaints throughout the run of the show season that people can't hear the speech properly in that particular seating area. We used to do it with a level meter and try to position the cabinets visually. So, for Beauty & the Beast we decided to try the laser method and it's about as foolproof as you can get. The next step would be to have a laser beam that creates the horn pattern, and then we could fill the room with smoke and see the entire coverage pattern on the seats. That would be the ultimate wouldn't it?!

MC: Which amplifiers are driving the system?

PR: All the S4s are powered by the Clair-modified Carvers, all the R4s are driven by Crest 9001s and 10004s. The Array boxes are driven by Jands SR3000s which are an amplifier Jands Electronics built up to a few years ago. Meyer CP10S Parametric Equalisers are used along with the SIM system to fine tune the different zones. It's an eight-channel SIM system which incorporates B&K [DPA] mics left out in the hall when the audience are in, so that we can monitor the frequency response and levels in all those zones, and adjustments are made by the SIM Engineer during the show.

MC: You're using both a Soundcraft Series Five and an SM24 on monitors. How are those consoles interacting?

WM: To start with, we have a very unusual situation in that the front-of-house and monitor control setups are adjacent to each other on an eight metre wide platform in the arena. All the music comes from the band in the spaceship and the signals are fed down a multicore to a Whirlwind transformer isolated splitter system which is positioned between the two sets of boards. All the vocal inputs are via Sennheiser 1046 radio transmitters, using AKG C420B headsets. They are then split between the FOH and monitor desks. Both operators are sitting side by side - the FOH engineer is mixing for the traditional FOH speakers; the monitor engineer mixes the in-ear monitors for the performers and headphones for the band. Because people are constantly coming on and off stage, and 50% of the show is dialogue and the rest is musical numbers, there are a lot of very tight cues for vocal mics to turn on and off. Owing to the incredibly busy nature of the show it would be impossible to do it without some form of automation. The Monitor Engineer, Bob Daniels, was concerned that as we were using in-ears, he didn't want a performer walking on stage with their microphone on and hearing in their in-ear mix someone who just walked off and is talking, for example, to the wardrobe department backstage. The plan, therefore, was that there would be one console - the Series Five - to control all the monitor mixes.

All the inputs are fed into the Series Five and each channel direct output is sent out, post-EQ and post-fade, to the channel inputs of the SM24. By using the mute scenes on the Series Five, you can then turn on and off the channels and create the automation that's needed to

mute those actors who have walked off stage. The operator has a script with all the scenes and MIDI scene numbers mapped out, and as he's switching from one scene to the next it's turning on and off the mics. By using the VCAs in the centre section of the Series Five, he's then creating a mix that's not only affecting all the people whose channels are on the Series Five, being the musicians, he's also affecting all those on the in-ears who are fed by the SM24. He really just concentrates on mixing via the VCAs. Every output is used on both the Series Five and SM24. They're both totally crammed!

MC: The SM24 has been around a while, but what led to your choice of the Series Five?

WM: We could have used the SM24 plus a side board - maybe another SM24. But we were looking towards the automation which the Series Five has, as far as MIDI muting. It also has superior EQ and the facilities on there, and the fact that it has the VCAs handy to mix, it proved to be a much more user-friendly board in this case. We didn't want to go completely automated and use something like an XL4 because that has its own set of parameters and you'd end up having to use two XL4s. It was either full automation or go this way where you can reduce all the manual handling. But you couldn't run the monitors on this show without the MIDI muting on the Series Five. This desk also has the advantage of having a full four-band EQ. So what actually happens is that the channel is EQ'd on the Series Five and when it's sent to the SM24, if the EQ that was good for the headphones is not exactly right for the in-ears, then he has another EQ stage which he can punch in on the SM24 and touch it up.

MC: What else have you used the Series Five on?

WM: We've had it since March and we first used it for the support band playing with U2.

MC: Have you tended to use Soundcraft consoles much in the past?

WM: Well apart from the K1, I haven't used any since the Europa. The idea behind choosing the Series Five was to find something that fitted snugly in between the full-on Midas XL4 and the old Yamaha PM3000, in terms of facilities. In that sense, we don't see it as being a competitor to either of those boards because it serves a specific area of application. I started talking to Ian Staddon at Soundcraft in 1995 about what would be good from a console layout and facilities point of view, and the resulting Series Five has Penny & Giles channel faders and centre section VCA faders which was something we wanted to see, or more importantly feel. By all accounts, the console does what it was supposed to do and in that respect it's a big success.

MC: You couldn't have got away without automation at front-of-house?

WM: No. The way the automation works with a Midas XL4 is critical in this instance. We are using all moving input channel faders, and have the automation to turn on effects sends, to alter the level of channels, and to basically re-route all the channels of the various performers back to a central VCA section. It's set up so that you have in one scene, four or five microphones in the sub principal VCA. In the next scene, perhaps a few seconds later, one of those mics would have been re-routed to the main principal VCA for a solo line, so the operator can ride that person. So the automation is not only altering the level, but it's also turning the mics on and off, altering the VCA sub-group assignment, turning on the effects sends, in some cases switching between mic and line inputs, and turning on speaker sends. For example, as the performers go up on the central lift, underneath the only monitor speakers on the stage, their mics for that cue are turned off to avoid feedback and are turned back on again when the lift descends. There's also a Midas XL3 40-channel side board which controls the majority of the band input signals and that provides group feeds into the XL4. I am using up to around 150 memories in the XL4, and in some scenes I am stepping through something like 30 memory recalls, often some only lasting a second or less each time.

I first mixed on the XL4 during Beauty And The Beast where the scene changes were very quick because there were often 35 live radio mics on stage and there were performers interjecting solo lines all the time, so the only way to get clarity was to turn mics on only when



Wyn Milsom (ENTECH award winner)

they were needed. This arena production of Grease is a different challenge to a traditional theatre show where you have to make it sound lightly reinforced. This is an arena show on a much bigger scale - the musical numbers have to be at a reasonably good level and when it drops down to pure dialogue you have to place it forward in the mix to keep the audience aware of

what's being said. The Midas XL4 automation helps to achieve that smooth transition between the two extremes of the performance.

MC: Which songs on Grease are the most demanding from an automation memory perspective?



Peter Ratcliffe

WM: 'Summer Nights' as in this song there are 18 performers on stage who have quite a few solo lines.

MC: What is the extent of the in-ear monitoring?

WM: All the principals and sub principals are using Garwood in-ear systems with their own custom ear moulds. The ensemble use a point source monitor system

of eight JBL 4392 Array boxes in an arc which is positioned underneath the spaceship, giving a tight 45° coverage to the performance area. This provides all the ensemble who aren't on in-ears a monitoring source to work with but it also centralises the sound coming off the stage. If you sit in the front row, the sound is coming from the performance area centre and not from a wall of wedges that are hidden underneath the floor as you might find on other shows. In these sorts of applications the hardest thing is to keep the spill into the

microphones down and reduce the ambient level coming from the stage. You can't get dynamic range in an arena if you have a constant smearing coming from monitors. That's precisely why all the band are on Sony 7506 headphones with Shure FP12 personal beltpack mixers, and even the guitar amplifier is sealed in a box with an air vent and a hole in it for the microphone, and the box is completely filled with Sonex. The only acoustic spill coming from the spaceship is the brass and the drums, but even they have perspex screens around them.

MC: Are the headset mics disguised like they would be in regular theatre?

PR: Yes, they and the windsocks are painted a flesh colour. The mics are the AKG 420Bs which I began using on 'Sisterella' (Michael Jackson's theatre production) earlier this year. It fits behind the user's ears like a pair of sunglasses, rather than having a wire band that goes over the head. That makes it a lot easier for quick changes of wigs and costumes. It's a very impressive headset vocal mic which we use in conjunction with the Sennheiser 1046 radio systems which have an excellent computer interface. There are RF video monitor screens at FOH and at the side of the stage near the dressing rooms to enable everyone to know exactly which mics are transmitting and battery levels at any given moment.

MC: What do you have for your communications system?

PR: We're running two Motorola Base Stations in Duplex fashion. There are 24 Motorola GP300 walkie-talkies, and between them they are running on 12 separate UHF frequencies. There are over 30 Clear-Com beltpacks, using either a single muff or double muff headsets. There are 2 x four-channel Clear-Com Master Stations, and video cameras and monitors spread around the venue. The Comms/RF technician (Jim Karatasoulis) uses an RF spectrum analyser to constantly scan the frequencies in the building, because with all the walkie talkies/radio microphones and in-ears we are working on 62 different frequencies across the whole band, from VHF to UHF. It's wireless heaven and hell! It requires a lot of pre-production work and research to sort all that out - on tour it's a full time job for the Video/Comms technician. •

JANDS GREASE AUDIO CREW

FOH Engineer/Designer - **Wyn Milsom**; Sim Engineer/FOH - **Greg Rosman**; Monitor Engineer - **Bob Daniels**; System Engineer - **Mats Frankl**; Comms/Video/Technician - **Jim Karatasoulis**; Band/Sound - **Daryl Carmen**; Radio Mics/In-Ears - **Elio De Risio/Amanda Thompson**; Sound Rigger - **Nick Giameos**.

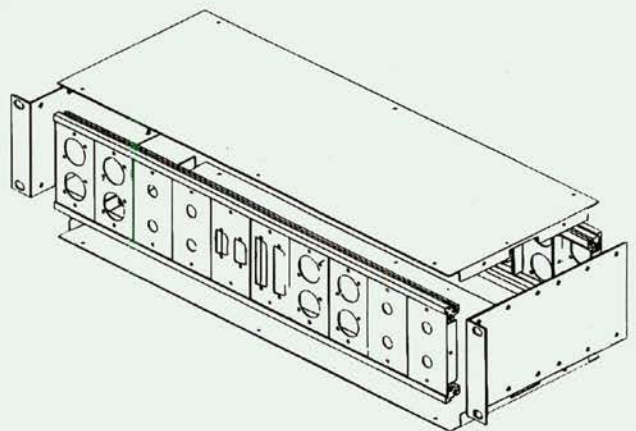
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The LIGHTING

By **Catriona Forcer**

The biggest hurdle that lighting designer Trudy Dalgleish (*pictured*) had to overcome when planning for *Grease* was the weight constraints placed on the rig. As well as the lights and PA, there is a sixteen-member band and eight follow spot operators to taken into consideration. The worst venue for weight restrictions is Melbourne Tennis Centre which has a limit of 36 ton.

"To try get the level of light plus having to fly all these people was a real challenge," Trudy admitted. "Still the Director was calling for 'more light, more light' but this is all we can put up. The stage is huge - a 70ft by 50ft rectangle with only a few lights."

Trudy added floor lights - 24 VL5's surround the stage - which help considerably with the brightness on stage.

"I've found them really helpful for lighting people's faces," said Trudy. "I rely on them a quite a lot in the show. There are not many conventionals in the rig, only 114 Par 64 mediums, and that's what we rely on to do all the ensemble lighting. Otherwise, it's really a dream rig with over 130 Vari*lites up there. There's also a couple of thousand dollars worth of custom-made gobos."

Most of the set is painted in luminous colours so, depending on what colour is thrown on the stage, Trudy uses the floor to bounce light up onto peoples faces.

Lighting such a large stage in the round has been a difficult task especially when the Director wants to see all the actors faces from the back row of the arena in every book scene.



"Getting the 'rock' look as well as a normal 'theatre' look was quite a feat," said Trudy. "I'm still not very happy with the book scenes, as I think they're a little over lit, but to get the level of intensity the Director wanted that's the way we had to go."

Like many lighting designers who light a show in the round Trudy opted for a circular truss with eight triangles fanning out

from it. It was a natural configuration to incorporate the eight sets of hanging PA stacks. She also needed a 45° angle to the stage which is why the triangles come out so far.

"We have eight follow spots on the end of each triangle which is also keylight for all the principles," said Trudy. "Originally the 'spaceship' which carries the band was a lot smaller so we actually had some more truss rings. The original concept I saw was the set and the spaceship, so all of the trussing configuration grew out of the shape of the spaceship which was circular."

"We did have a lot of underneath stage electrics but we found that the revolve kept chewing it up," said Trudy. "When the lifts are at their highest during 'Grease Lightning' we used to have several molefays coming out of the centre lift. It looked fabulous but one day the revolve decided to chew them up and we're donating them to the Jands Museum of Chewed Equipment. The only other set electrics are on the car which has an amazing 37 kilometres of fibre optics on it run off two tractor batteries. One of my poor follow spot operators had to drill every hole in the car body to stick the fibre optics through. It's operated by a guy lying in the boot!"

Another problem Trudy had was trying to stop the spaceship containing the band from moving too much during the performance. If the band got too raunchy, the Vari*lites hung under the spaceship would jiggle along too.

"We've tried the usual things like carpet under the drum risers but the next thing we're going to try is to actually tie the spaceship off in its upright position but I'm having a bit of resistance from the technical departments about how to do that," Trudy said. "I think it's the only way we're going to stop the amount of shaking we get on the VL6's under the spaceship". •

SET CONSTRUCTION

By **Sid Kidman**

Big is beautiful, but bigger is more beautiful, and this show is designed to work into arenas of twelve to twenty thousand people capacity, and to tour from one such venue to another. To do this well, the very foundation of the show - the stage upon which *Grease* is played - had to be quite special.

Sydney set designer, Brian Thomson, and his team, produced the concept, models, and working drawings. The concept was that of a giant 1950's record player as a performance stage, complete with rotating platter with record in place, the playing arm, and the speed control button.

The "record player" stage measures 19 meters wide, by 16 meters deep, and 1.2 meters high. The record is sectioned into eight independently variable risers, the playing arm rises and swings across the record, and the speed control button rises. Each of these areas can then give three dimensional enhancement to the performance. The orchestra rotund is 10.5 meters in diameter, and flies up 9 meters high to become part of the lighting rig.

At the design briefing, the backers of the show accepted Brian's design, as well as the artistic model and drawings produced by his team, and tenders were let for the set construction.

QPAT WIN THE JOB

Iain Audsley, (*pictured*) Project Manager of the Set Construction



Workshop section of Q.P.A.T., was the successful tenderer. Iain, and Marcia King, Executive Manager of Commercial Development for Q.P.A.T., told me about the process. In the tendering process, Iain and his team of specialists, produced a quote even before complete analyses of certain engineering detail. One totally critical factor was time. Iain's ability to deliver on the deadline, at a realistic cost, was a

substantial factor in the awarding of the contract to Q.P.A.T.

Immediately the contract was let, Iain pulled out all stops to meet the set construction deadline.

A specialist team, including outside consultants, worked for two weeks to complete the engineering design work. This left eight weeks to complete fabrication, and Iain personally took over the project management.

The decision was made to go with a hydraulic scissor lifts because of the power requirements for lifting the large number of cast and a three ton car. Touring requirements dictated that the set had to break down into discrete components, and smaller pieces, which could be palletised, in order to be fork-lifted onto four trucks, and then be re-assembled at the next venue.

At the start of week three, other projects were rescheduled



where possible, and this one given top priority. All available personal were brought into the construction. The manufacture of the scissors had a lead time of six weeks, and was completed off site.

FITTING IT ALL TOGETHER

One of the biggest challenges was to fit the lifts, which had to extend 1.5 meters (2 meters for the centre lift) above the stage, into the 1.2 meter height of the stage and this was admirably met.

The decision was made to go with inverted casters for the revolve (176 at 500Kg each). This saved drilling for cabling, and made levelling very precise, allowing very critical tolerances for the revolve lifts.

Fabrication of the hub assembly included the slew ring, and the slip ring to bring power on board, and the control box. An 11 kilowatt power pack to drive the sixteen scissors, and the motor, to climb around a chain, to turn the revolve, were assembled on the revolve. A separate off board 5 kilowatt motor drives the arm and speed control button. In Iain's words, the set is very "butch".

The orchestral rotunda was designed to lift it's own weight of four tons, along with four ton of instruments, equipment, and players, and a substantial amount of the lighting, and of course be perfectly safe. "Grease Lightning", the modified but genuine 1940's Dodge sedan, was tricked up with three ton of equipment on board including thirty two kilometres of fibre optics, installed by Big City in Sydney, in order to undergo it's spectacular metamorphoses. At week eight, the scissors were installed, and the hydraulics, along with the proximity switches, and controllers (standard and proven industrial Program Logic Circuitry) were fitted off, as staff moved into hyper drive.

At the end of week ten, the completed set was dismantled, and trucked to Newcastle, spot on schedule. Here teething problems would be solved, including due care to the hydraulics, and fine

tuning the sequencing of lift events, during a two week rehearsal period.

Two previews went off without a hitch. This set is thirty two ton of precision equipment and requires some specialist crew to operate and maintain. It was to last nineteen performances, but by popular demand will be set up, performed on, struck, and transported to the next gig many more times, and possibly will tour South East Asia.

DISASTER STRIKES

On opening night in Melbourne, after dress rehearsal and just one hour before the show was to start, Murphy's law struck. Power failed at the control box within the hub area, and the set refused to operate.

A dozen people, including suits and techs., crowded around offering advice (at best conflicting) as one technician valiantly strove to follow testing procedure. Much confusion and some danger was present (with open scissors lifts), and the decision was made to shut the set down.

Subsequently it took just twenty minutes to replace a Delta Contactor unit when it was discovered that by plain bad luck, a piece of snipped off cable tie had lodged between a pair of contact points, preventing their closure, thus disabling power switching.

Craig McLachlan, and Anthony Warlow went on stage to speak to the audience and put them on side, and say that Grease would be performed in concert mode. They offered complimentary tickets to a return performance.

Without their full set, the cast played their hearts out and the audience loved the show, and it received a very good review the next day. Since then the set has operated precisely as it should, show after show, and Ian, his team, and Q.P.A.T. take pride in their Grease Set Construction.

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|--|--------------------------|-------------------------|---------------------------|--|------------------------|---------------------------------|--------------------------|
| New South Wales | | | | | | | |
| Apeh Greg Dixon (C2) 9876 8170. 16 Tracks to 1* Analogue | | | | The Real Matilda | Jeff Debnam | Jeff Debnam/Band | Demos |
| Rob Brown | Artist | Greg Dixon | Album | R&R Recordings Robert Zimola (02) 9672 4494 16 Track 1* | | M. Mariasson/R.Zimola | EP |
| Dr Rock | Band | Greg Dixon | Demo | Jargon | Band | R.Zimola | Demos |
| KTHWACK | Band | Greg Dixon | Demo | Q Stick | Greg/Matt (Q Sticks) | Kevin Ballard/Donna Ballard | EP |
| Vermishus | Band/Greg Dixon | Greg Dixon | Demo | Raw Demos Studios Kevin Ballard (02) 6557 0667 16 Trk Digital Facility/CD Burning for Bands Duos etc. | | Kevin Ballard | Album |
| Logosdor | Phil Watson | Greg Dixon | Kids Songs | Weeve | Band | Kevin Ballard | Demo |
| Mr Nobody | Band/Greg Dixon | Greg Dixon | Demo | Peter Burton | Artist/Kevin Ballard | Kevin Ballard | EP |
| A# Sharp Studio Jeff Cripps (02) 9153 9988. 24 Track 1* | | | | Mr Steenky | Band/Kevin Ballard | Kevin Ballard | EP |
| Cool Calm Collected | Jeff Cripps | Jeff Cripps | CD PreProduction | Rob McQ | Rob McQ | Kevin Ballard | Album |
| St Josephs College | Jeff Cripps | Jeff Cripps | CD | The Reebes | Band/Kevin Ballard | Kevin Ballard | Demos |
| Eddie Youngblood | Jeff Cripps | Jeff Cripps | CD Tracking | Thuggery | Kevin Ballard | Kevin Ballard | Demos |
| 38 Express | Jeff Cripps | Jeff Cripps | Demo | Rockinghorse Studios A. Lycenko/Z. Henner (02) 6688 4005 24trk Analogue/ 24trk Digital Neve Console | | Zubin Henner | Album Tracking |
| Crystal Clear Studios Dave Tozer (02) 9684 1152, 015 106 776. 24 Trk. (ADATS) 32Ch AMEK BIG Console | | | | Seven | Zubin Henner/Band | Greg Courney | Album Demos |
| Deb Baker & House Shakers | Dave Tozer/Band | Dave Tozer | Album | Frenzal Rhomb | Band | Anthony Lycenko | Album Mix, Recordings |
| Women of Rock | Dave Tozer/Band | Dave Tozer | Demo | Terry Nelson | Anthony Lycenko/Terry | Michael Worthington | Album Tracking/Mix |
| EVAIL | Dave Tozer/Band | Dave Tozer | Demo | Fork | Band | Zubin Henner | EP |
| Roadkill | Dave Tozer/Band | Dave Tozer | Album | Defect | Zubin Henner/Band | Zubin Henner | EP |
| Toggle | Dave Tozer/Band | Dave Tozer | Demo | SkyLab David Russell (02) 9310 4774 24 Trk Analogue, 32 Trk Digital/Analogue | | David Russell | Album |
| Rattle & Hum (U2 Show) | Dave Tozer/Band | Dave Tozer | Demo | Maximum | Matt Hanley | David Russell | Album |
| Damien Gerard Russell Pilling (02) 9660 8776. 2' 24 1/2' 16/32 | | | | Felicity | John Cane | David Russell | EP |
| Asteroid B612 | Kent Steedman | Russell Pilling | Album | RedFish BlueFish | Daniel Workium | Matt Fell | Album |
| Jimmy Vargas | Artist | Russell Pilling | EP | Sam Hawksley | Matt Fell | Matt Fell | EP |
| Noogie | | Jaime Carter | EP | Copasetic | Band | Josh Mac Leod | Album |
| Blank | | Russell Pilling | EP | EPI Tombi | Criss Gudu | Josh Mac Leod | Album |
| Krune | | Simon Pickworth | EP | Sound Level John Soane (02) 9552 3200. 24 Track Digital | | | |
| Darling Harbour Studios Ike (02) 9211 1474. 24Trk MCI 32 Channel Sound Workshop | | | | Lunar Sea Boat People | Ian Perdrie | Hugh Wilson | Demos |
| Midnight Oil | Band | Tim Newson | Demos | Stichface | | Jordan Brebach | Demos |
| T Shirt | | Ike | DAT | John Field | | Jordan Brebach | Demos |
| Waxjambu | Alex | Tim Newson | EP | John Holland | | High Wilson | Demos |
| 1 \$ Short | Band/Ike | Ike | EP | Simon Fenton | | Jordan Brebach | Demos |
| Steve Prestwich | Steve/Ike | Ike | Demos | Brendon Farrell | | Jordan Brebach | Demos |
| Hurl | Band | James Caosky | EP | Soundwarp Meredith Brooks (02) 9905 7144 Mastering | | | |
| David Hinds Recording Studios David & Lyn Hinds (02) 6581 1235 16 Trk Digital | | | | Michael Durkan | Artist | Meredith Brooks | Album |
| Balance | David & Lyn Hinds | David & Lyn Hinds | Album Tracks | Thunderbirds | Band | Meredith Brooks | Album |
| Port Macquarie Hotel | David & Lyn Hinds | David & Lyn Hinds | Jingle | Rising Tide | Band | Meredith Brooks | EP |
| Brians Bedding & Furniture | David & Lyn Hinds | David & Lyn Hinds | Jingle | Black Smith Hopkins | Band | Meredith Brooks | Album |
| Rox FM/Radio ZMC | David & Lyn Hinds | David & Lyn Hinds | Station ID Dubs | Tzenzing Tsewang | Band | Meredith Brooks | Album |
| David Lawrence Music Promotions David Lawrence (02) 6559 8766 24 Ch Mackie/Dig 8 Trk/ MIDI Sequencing/Jingles/Demos | | | | Penny Burden | Artist | Meredith Brooks | Album |
| New England Credit Union | David Lawrence | David Lawrence | Advertising Jingle | Studios 301 P/L Fiona Simpson (02) 9211 7301 Recording Studio | | | |
| Mary's Machine | David Lawrence | David Lawrence | Band Demo | Primary | Nick Launay | Nick Launay | Album Mixes |
| Paice Faint | David Lawrence | David Lawrence | Band Demo | Van Halen | Eddy Van Halen | Robbes | Live Concert Mixes |
| ESAB | Richard Leigh | David Lawrence | Voiceover-Corporate Video | Stereophonics | Band | Paul McKercher | Mix |
| Festival Mastering Bianka Vukelic (02) 9395 8070 Mastering | | | | Violette | Paul McKercher | Paul McKercher | Re-Mix |
| Sedgewick Pie | William Bowden | William Bowden | Album | SuperJesus | Paul McKercher | Paul McKercher | Live Mixes |
| The Eastern Dark | William Bowden | William Bowden | Album | Sun Studios Peter Cotini (02) 9212 3933 48 Trk Music Studio | | | |
| Voices from the Vacant Lot | William Bowden | William Bowden | Album | Cob | Rockmelons | Peter Contini | Mixing |
| Killers on the Loose | William Bowden | William Bowden | Album | Marcia Hines | Rockmelons | Peter Contini | Album Tracking-Vocals |
| The Navigator | William Bowden | William Bowden | Album | Steel City (Show) | Tim Finn/Peter Contini | Peter Contini | Album Production |
| Gravel | Wayne Connolly | William Bowden | EP | Angie Cox | Paul Bgraud | Peter Contini | Single Tracking |
| Festival Studio B anka Vukelic (02) 9395 8070 Recording Studio | | | | Trackdown Digital Geoff Watson (02) 9550 6890 2-32 Track Digital | | | |
| Sister Green | Mark Thomas/Matt Lovell | Mark Thomas/Matt Lovell | Album | Boy From Oz | Max Lambert | Simon Leadley/Torei Lista' | Cast Album |
| Rumanastone | Matt Lovell | Mark Thomas/Matt Lovell | EP | Gay & Lesbian Mardi Gras | Gary Leeson | Leon Horrocks | Sleaze Ball Tid Bits |
| Gadffys | Mark Thomas/Matt Lovell | Mark Thomas/Matt Lovell | Album | Lee Cotelie | Lee | Kathy Naunton/Katrina Schillier | Album Tracks |
| Martin Plaza | Mark Thomas/Matt Lovell | Mark Thomas/Matt Lovell | Album | Flipper | Yoram Gross | Tim Ryan/Leon Horrocks | Dialogue Record |
| Igloo Recording Studio David Carter (02) 4962 1855 16 Trk Analogue, MIDI Workstation | | | | Bananas in Pyjamas | Chris Harriott | Kathy Naunton | Album |
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| Oscar | Andrew McAlister | Andrew McAlister | Single | Troy Horse Mickey Levis (02) 9319 1799 24Trk Fully Automated | | | |
| Shank'd | Band | Craig Foster | PreProd | D.I.G. | Allom/Band | Jeremy Allom | Mix Album |
| JMF Recording Studio Fran Esther (02) 9790 4097. 32Trk Digital, 24 Trk ADAT Grand Piano | | | | Front End Loader | Chi Chi Claymore | Mickey Levis | EP |
| Green Valley Choir | Warren Barnett | Guy Saminaden | Demo | Show Pony | Dave Orwell | Jason Blackwell | EP |
| Animation | Band | Ralph Esther | Demo | Eskimo Joe | Worrall/Band | Mark Worrall | Album |
| Shiloh Choir | Cytha Hobson | Ralph Esther | CD Album | Peg | Tony Boonza | Jason Blackwell | Album |
| David Schlesinger | Artist | Ralph Esther | Demo | Grimace | Inge Lass | Tom Kazas | Album |
| McDonald Health Care Svces | John McDonald | Mike Ward | Promo Video | Velvet Sound Recording Studios Dave McCunn (02) 9283 5968 32Ch. 24Trk. 2' + 32Ch. ProTools IV | | | |
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| Julie Lacey | Rick Mostyn | Rick Mostyn | CD | Holly-Go-Lightly | Darren Fenton | Craig Portells | Mixing EP |
| Megaphon Guy Dickerson (02) 9550 6576 Sound Recording | | | | Montana | Paul Scott | Tony Wall | Tracking |
| Accorn | Badn/Fahey | Shane Fahey | Album | Stinkbug | Band/Tony | Tony Wall | Track/Mix EP |
| Alien Christ | Band/Dickerson | Guy Dickerson | Album | Freudian Trip | Band/Tony | Tony Wall | Track/Mix EP |
| Jack Orszaczky | | Guy Dickerson | EP | The Flowerpot Men | D.P. | David Price | Track/Mix EP |
| Michele Morgan | Tony Gorman | Guy Dickerson | Album | Northern Territory | | | |
| Stevie Wishhart | Abrahams/Fahey | Shane Fahey | Album | Masters Studio & Production Lindsay Masters (08) 8932 1754 8 Trk Digital and Midi | | | |
| Skulker | | Lachlan Mitchell | Album | B.Ireland | L.Masters | Self | Demos |
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| Sea Green | Hopping/Dennis | Hopping/Loizou | Single | Queensland | | | |
| Navigator | Hopping/Agrillo/Loizou | Hopping/Worrall | Album | Domenic Sound Shane Hughes (07) 3216 5187. 32 Trk ADAT/48 CH Soundtracks Console | | | |
| Paul Nee | Hopping/Loizou | Hopping/Loizou | Single/Demo | Midnight Highway | Rob Stevenson | Shane Hughes | Album Debut-Country |
| Daydream | Daydream | Band/Worrall | EP | High Priests | Shane Hughes | Shane Hughes | Debut Album-Grunge/Metal |
| Tony Eleninovski | Hopping/Loizou/Elenovski | Hopping/Loizou | Single/Demo | Wilf Montan | Artist | Shane Hughes | Contry Debut Album |
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| The Poor | Simon Tonx | Paul Bryant | CD Single | WIN TV | Shane Hughes | Shane Hughes | Jingle Production |
| Karen Lynne | Cletis Carr | Paul Bryant | CD Album | Grevillea Studios Bruce Jacobson (07) 3262 8422 Analogue & Digital Recording | | | |
| Stephen Cheney | Rob Specogna | Paul Bryant | CD Album | The COundowns | Band | Bruce Jacobson | Album |
| Soda Caesars | Geoff Lee | Paul Bryant | CD Single | Spot the Dog | John Sayers | Malcolm Jacobson | Album |
| Buckets of Blood | John Tucker | Paul Bryant | CD Album | Spot the Dog | John Sayers | Malcolm Jacobson | CD Mastering |
| Q Recording Roy Mallace (02) 9212 4851. 24 Trk Recording Facility | | | | Fairly Lovely | Band | Malcolm Jacobson | Album |
| Pretty Violet Stain | Daniel Denholm | Daniel Denholm | Demos | Suite 16 Audio Productions Murray Lyons (07) 3369 8733 24 Trk Analogue/Digital | | | |
| Suzu Dein | Roy Mollace | Roy Mollace/Mick Seage | Album | | | | |
| Christ Art Museum | Christ Art Museum | Mick Seage | Demos | | | | |



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| Miles from Nowhere | Garry Smith | David Champion | Album & Demos | Dutch Tilders | Barry Hills | Trevor Carter | Album |
| Dan Vogler | Dan Vogler | David Champion | Album | Peter Cupples | Artist | Trevor Carter | Album/Single |
| T.A.P. Studios Duncan Wood (07) 5479 2277 48 Trk Digital Post & Music Studio | | | | Acumen Multimedia | Sue Yardley | Trevor Carter | V/Overs for CDR |
| Umbrabra Embraced | Duncan Wood | Duncan Wood | Album Tracking | Jan Cooper | Trevor Carter | Trevor Carter | Track for CD |
| T.A.P. Team | Barrie Morrisson | Duncan Wood | Solutions 2000 | The Ranch Norman (03) 9712 0136 Digital 24 Trk/Mastering | | | |
| Jodie Joy | Duncan Wood/Barrie Morrisson | Duncan Wood | PreProduction Album | Travis Hammond | Artist | N.J.McCourt | Live CD |
| T.A.P. Team | Barrie Morrisson | Duncan Wood | Imparja ID Package | Driveway Service | Band | N.J.McCourt | Album |
| Taramalin Sound Allan Lahey (07) 5479 2277 | | | | Footscray/Yarraville City Band | | N.J.McCourt | N.J.McCourt |
| Mind Matters | Allan Lahey | Allan Lahey | Album | Mastering/Editing | | | |
| Purple Sneaker | Band | Allan Lahey | Demo | Ted Bardeo | Artist | N.J.McCourt | Album |
| Open Arms | Chris Foenanader | Allan Lahey | Album | A.M.M.A. | N.J.McCourt | N.J.McCourt | Mastering/Editing CDs |
| South Australia | | | | Toyland Adam Calaitzis (02) 9482 2111. 24 Track Analogue, 24 Track Digital | | | |
| JR Recording Darren Conway (08) 8410 6488 16 Trk Music Recording | | | | Brill | Brian Canaham | Adam Calaitzis | Single |
| Element | Band/Eddie Sikorski | Eddie Sikorski | JJJ Unearthed Demo | Ikon | Chris McCarter | Adam Calaitzis | Remix |
| Needle Faeries | Band/Eddie Sikorski | Eddie Sikorski | JJJ Unearthed Demo | Real Life | Adam Calaitzis | Adam Calaitzis | Recording Vocals |
| Blind Trauma | Band/Eddie Sikorski | Eddie Sikorski | JJJ Unearthed Demo | Held on Hold | Caroline Held | Adam Calaitzis | On Hold Messages |
| Down Pour | Band/Eddie Sikorski | Eddie Sikorski | JJJ Unearthed Demo | Melbourne Storm | Adam Calaitzis | Adam Calaitzis | Music Editing |
| Ghite Prey | Band/Eddie Sikorski | Eddie Sikorski | Sydney Olympic Submission | Honey Dip | Adam Calaitzis | Adam Calaitzis | Album |
| LeFevre High School | Band/Eddie Sikorski | Eddie Sikorski | CD Single | True Form Music Services Neil Gray (03) 9391 0907. 24 Tk. Digital, 12 Tk. Analogue, 72 input inline console | | | |
| Mixmasters Productions Mick Wordley (08) 8278 8506 24 Trk 2" | | | | Push | Band | Neil Gray | Demo |
| Jeff Lang | K.Tolhurst | Mick Wordley | Album | Sodatov | Band/Finn | Finn Keane | EP |
| Richard Gillard | K.Tolhurst | Mick Wordley | Mix | The Tribe | Band/Neil | Neil Gray | Demo |
| Chris Finnen | Artist/Mick Wordley | Mick Wordley | Album | Pallyanna | Matt Handley | Neil Gray | Single Intro |
| Simon Edhopause | Artist/Mick Wordley | Mick Wordley | Album | Autumn | Neil/Band | Neil Gray | EP |
| Youth Reconciliation | Mick Wordley/A.Reineib | Mick Wordley | Album | Marc Welsh | Band/Ross | Ross O'Driscoll | Demos |
| hiPPOCRANE | Mick Wordley/Band | Mick Wordley | EP | Wombab Rd Recording Studio Barrie Clissold (03) 5145 4204. 32 Tk. Digital + 16 Trk Analogue | | | |
| Nick Love Productions Nick Love (08) 8297 6519 16-24 Trk Digital, 16 Trk Analogue | | | | Choice | Clissold/Band | Barrie Clissold | Demo Tape |
| Boombox | Nick Love | Nick Love | Demo | John Couzens | Artist/Barrie Clissold | Barrie Clissold | Album Mixing/Mastering |
| Revolar | Nick Love | Nick Love | CD EP | Gaye Lynn | Artist/Barrie Clissold | Barrie Clissold | Album Production |
| Pariah | Nick Love | Nick Love/Walrus | CD EP | BCMC | G.Batcock | Barrie Clissold | CD Album |
| Lessie Does | Nick Love | Nick Love | CD Album | Matt-Peter Fry | Artist/Barrie Clissold | Barrie Clissold | Demo Album |
| Fine Lines | Nick Love | Nick Love/Walrus | CD Album | Cris Wood | Artist | Barrie Clissold | Album Tracking |
| ASD | Nick Love/ASD | Nick Love/Walrus | CD Album | Western Australia | | | |
| SA Recording Avalon Sperring (08) 8281 9900 24Trk ADAT Yamaha 02R Console | | | | Bonsai Recording Studio Tom Thorpe (08) 9246 4408. 24 Analogue/32 Digital | | | |
| Push Button Sun | | Louis Panaylotou | Demo | The 2-ins | Tom Thorpe | Tom Thorpe | Demo |
| Tantra | Band/Louis Panaylotou | Louis Panaylotou | EP | Kay-Redman | Tom Thorpe | Tom Thorpe | Jingles |
| Magnolia | | Louis Panaylotou | Demo | Redgate | Tom Thorpe | Tom Thorpe | Album |
| King Krill | Band/Louis Panaylotou | Louis Panaylotou | Album | Keith McDonald | Tom Thorpe | Tom Thorpe | Corporate |
| Bureau Darb | | Louis Panaylotou | Demo | John Meyer | Tom Thorpe/Artist | Tom Thorpe | Jingles |
| Villis SA Footy Show | Brian Dutton | Louis Panaylotou | Post Production | John Terpkos | Tom Thorpe | Tom Thorpe | Demo |
| "The Fridge" Nigel Sweeting (08) 8231 3588. 16Tk HD Digital/16 Tk 2" Analogue, full Automation | | | | Pinnacle Recording Studio Anthony B. Kitson (08) 9382 1528 24Track 2" Analog, AMEK Angela | | | |
| Nigel Davidson | Artist/Nigel Sweeting | Nigel Sweeting | CD Tracking | Whitebread | Anthony B. Kitson | Anthony B. Kitson | Demo |
| Samba Suave | Band | Nigel Sweeting | CD | Southern Comfort | Anthony B. Kitson | Anthony B. Kitson | Demo |
| Jelayla | Band | Nigel Sweeting | CD | Iron Youth | Anthony B. Kitson | Anthony B. Kitson | Tracking |
| Giraffe | Band/Nigel Sweeting | Nigel Sweeting | CD | Planet Sound Studio John Villani (08) 9382 2211 48 Track, 32 Track & 24 Track Analogue | | | |
| Novri Spagnoletti | Novri | Nigel Sweeting | Demo | Delirium | Band | John Villani | Album Mix |
| Victoria | | | | Kerrienne Cox | Band/John Villani | John Villani | Album Mix |
| Dex Mastering Adam Dempsey (03) 9372 2266 2 Suites, Sonic Solutions No Noise, Day Rates Available | | | | X-Cel | Band/John Villani | John Villani | EP Mix |
| Jamie Fielding | Martin Jackson | Adam Dempsey | Post Album | Mike Cornell | G.H. & M.C. | John Villani | Album Track |
| Unbenumb | Brett Orr | Ben Hurt | EP | ICA Productions | Kevin Peek | Les Williams | Ginger Meggs Cartoon Series |
| Cate Bailey | | Ben Hurt | Album | Michael Volelli | M.Volelli/Les Williams | Les Williams | Album Mix |
| Artist Services | Ewan Burnett | Adam Dempsey | "Mums the Word" Posting | Poons Head Rob/Samara/Bush (08) 9339 4791 32 + Track | | | |
| Tilt | Band | Adam Dempsey | EP | Alton Tebbut | Rob Grant | Rob Grant | Album |
| Moscow Circus | Doug MacValley | Adam Dempsey | "Globe of Death" Music | Richard Lefrom | Rob Grant | Rob Grant | EP |
| Edensound Mastering Martin or Robbie (03) 9682 9066 CD Mastering | | | | Martin Moon | Alan Dawson | Rob Grant | Mastering |
| Colin Hay | Colin Hay | Martin Pullan | Album: Master | Martin Gambie | Alan Dawson | Rob Grant | Mastering |
| Mike Brady/Wendy Matthews | Mike Brady | Martin Pullan | Single Master | T.Cells | Rob Grant | Rob Grant | Mixing |
| Brill | Brian Canham | Martin Pullan | Album/Single Master | Seahorse Radio | Rob Grant | Rob Grant | Mastering |
| Shonky Tonk | Fred Negro/Oysters | Martin Pullan | Album/Single Master | Revolver Sound Studio Vic Manfrin (08) 9272 7505 32 Trk Automated | | | |
| Mike Rudd/Bill Putt | Mike Rudd/Bill Putt | Martin Pullan | Single Master | Beaverloop | Band/Ben Glatzer | Ben Glatzer | Album |
| Richard Pleasance | Artist | Martin Pullan | Single/Soundtrack | Kin | Band/Ben Glatzer | Ben Glatzer | EP |
| Fortissimo Andy Parsons/Siiri Metsar (03) 9699 5811 Music Studio, 24 Track, ProTools Editing | | | | Thundershuffle | Band/Ben Glatzer | Ben Glatzer | Album |
| Paul Keely/Uncle Bill | | Lawrence Maddy | Compilation Track | Dystonia | Band/Ben Glatzer | Ben Glatzer | Album |
| Camel Magic | Siiri Metsar | Siiri Metsar | Album | Team Jedi | Band/Ben Glatzer | Ben Glatzer | Demos |
| Metropolis Audio Fleur Colvin (03) 9696 2111 Music, Post, 48 Trk | | | | Terry Bennets | Artist/John Short | Vic Manfrin | Demos |
| Tommy Emmanuel | Chong Lim | Timmy Johnston | Album | Satellite Recording Studio Darren Halifax (08) 9470 4003. ProTools | | | |
| Logies (Various Art) | Chong Lim | Doug Brady | | Earth | Jon Edwards | Darren Halifax | Demo |
| Sisterella | Larry Hart | Doug Brady | Show Mix & Album | Splinta | Band | Darren Halifax | Demo |
| Paul Kelly | | | Live Performance & Mix | Earshot | Band | Darren Halifax | Demo |
| Hunters & Collectors | Mark Opitz | Kalju | Mix | Bill Reid | Darren Halifax | Darren Halifax | cd |
| Weddings Parties Anything | | Chris Dickie | Mix | Joel Smoker | Lucky Oceans | James Hewgill | CD |
| Music & Effects Victor DeKoster (03) 9827 3348 Post Sound (Films/Shows) | | | | Resolution | Joan Edwards | Darren Halifax | Demo |
| Road to Nhill | Sue Maslin | Peter Smith | 1997 Feature | Witzend Recording Studio Alan Dawson (08) 9331 1818 16 Trk Automated | | | |
| Dags | Sue Maslin | Dean Gawen | 1997 Feature | Mardi Picasso | Martin Gambie/Alan Dawson | Alan Dawson | Album |
| Amy | David Parker | Dean Gawen | 1997 Feature | Matin Moon | Artist/Alan Dawson | Alan Dawson | Album |
| Exile in Saregevo | | Doron Kipen | Feature Doco | Blue Rinse | Band | Alan Dawson | Demo |
| Dead End | B&B Films | Doron Kipen | 1993 Feature | Frank | Band | Alan Dawson | Demo |
| Hurrah | Julie Marlow | Gethan Creagh | 1993 Feature | Niall Fenix | Artist/Alan | Alan Dawson | Single |
| SAE Melbourne Neil Goudge (03) 9534 4403 | | | | YOUR BASF TRADE SALES OUTLETS: | | | |
| Soul Class | Neil Goudge | Neil Goudge | EP | NSW: Audio Visual Designs (02) 9281-2444, Silver & Ballard (02) 9439-5355, Independent | | | |
| Smokin Joker | Neil Goudge | Neil Goudge | EP | Tape Services (02) 9436-0666 VIC: CATS (03) 9529-3177, Chapple Tape (03) 9580-6620, | | | |
| Karl Wesols | Ben Holland | Andrew Broadhead | EP | DEX Audio (03) 9372-2266, MTA & Assoc. (03) 9819-6455 SA: Adelaide Tape Duplicators | | | |
| Guy Danials | Neil Goudge | Neil Goudge | LP | (08) 8212-7111, Pro Media (08) 8276-6793 WA: Ausmag (09)314-1953, Pro Copy | | | |
| Sing Sing Phil or Kaj (03) 9428 4622 48Trk Analogue, 48 Trk Digital Neve/SSC | | | | (09)375-3902 QLD: Musiclub (07) 3862-1633, Tek (07) 3239-4000 | | | |
| Living End | Lindsay Gravina | Lindsay/Matt Voigt | Album Mix & Record | | | | |
| Automatic | McGoo | McGoo | Album | | | | |
| Bazrk | Band/Adam | Adam Rhodes | Album | | | | |
| Dirty Three | Band | Adam Rhodes | Film Music | | | | |
| Roland Howard | Tony Cohen | Tony Cohen | EP | | | | |
| Studio 52 Paul Higgins (03) 9417 7707 Studio A: 32 Track Automated | | | | | | | |
| The Music Men | Trevor Carter | Trevor Carter | Focty Songs Album | | | | |



BASF YOUR MUSIC IS SAFE WITH US

BUYER'S GUIDE

live mixing consoles

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

UNDER \$5000

ALESIS

Electric Factory (03) 9480 5988

Studio 32 inline console for 16 track studios. Low noise pre amps - 60dB range. 16 XLR mic inputs, 1/4" line inputs and inserts on every channel. 3 band EQ with fully parametric midrange. \$3199.

Studio 24 console for 8 track studios. Inline design for simultaneous monitoring of inputs and taped tracks. Low noise pre amps - 60dB range. 8 XLR mic inputs, 1/4" line inputs and inserts on every channel. 3 band EQ with sweepable mid. \$1799.

Studio 12R mixer for recording or live mixing. Inline design for simultaneous monitoring of inputs and taped tracks. Low noise pre amps - 60dB range. 8 XLR mic inputs, 1/4" line inputs and inserts on every channel. 2 band EQ with two aux sends. \$1049.

ALLEN & HEATH

Technical Audio Group (02) 9810 5300

MixWizard 16:2 16 mono input desk top or rack mount mixer, left/right/mono outputs, 6 aux sends, 4 band EQ with 2 mid sweeps, 2 stereo returns, 100mm faders, direct outs, vertical individual PCB construction. \$2995.

MixWizard 14:4:2 16 mono input desk top or rack mount mixer, left/right/mono outputs, 6 aux sends, 4 band EQ with 2 mid sweeps, 2 stereo returns, 100mm faders, direct outs, vertical individual PCB construction. \$3295.

MixWizard 20:8:2 8 mono/6 stereo input desk top or rack mount mixer, 8 recording busses plus left/right/mono outputs, 6 aux, 4 band EQ with 2 mid sweeps, 100mm faders, direct outs, vertical individual PCB construction. \$3295.

GL-2000/16 16 input (14 mono/2 stereo) FOH mixer, 4 sub-groups, left/right/mono outputs, 6 aux sends, 4 band EQ with 2 sweeps, 100mm faders. \$4995.

AUDIO TECHNICA

Yamaha Music Australia (03) 9693 5164

ATMX341A 4 channel automatic mic mixer with priority logic. Switchable mic/line inputs, 12v phantom power, individual gain controls, function indicators and manual override.

BEHRINGER

Musiclink (03) 9429 9299

MX2442 24 channels (16 mono with XLR and mic preamps, 4 stereo) 4 buss, 6 aux sends, 16 inserts, external 2v power supply, 3 band EQ with swept mids. \$2499.

MX3282 32 channels (24 mono with XLR and mic preamps, 4 stereo) 8

buss, 8 aux sends, 8 tape outs, 24 inserts, 3 band EQ with swept mids. \$3499.

EV/DYNACORD

EVI Audio Aust. (02) 9648 3455

SM 100 12 microphone inputs plus 2 stereo's, 6 auxiliaries, 4 band EQ, individual phantom power, separate power supply. \$4799.

SM 200 16 microphone inputs plus 4 stereo's, 6 auxiliaries, 4 band EQ, individual phantom power, separate power supply. \$4999.

FENDER

Fender Australia (02) 9666 5077

PX2208D multi-featured 8 channel mixer amp with onboard stereo digital FX and graphic EQ. 2 x 150w at 4 ohms amp all built into its own road case/stand. 5 year warranty. \$3499.

PX2212D as above but 12 channels and 2 x 300w at 4 ohms. \$3999.

PX2216D as above but 16 channels and 2 x 300w at 4 ohms. \$4499.



Crest Century LMx

LEEM

C.M.I. (02) 9315 2244

LEEM CS-1604 16 Channel Compact 4 bus Multi Function Mic/Line Mixer 8 studio-grade mic/line input, 3 band EQ on individual channels, 4 stereo or 8 line inputs, balanced inputs & output circuits, phantom power, dual 12 LED level display, high quality fader controls on each channel, rack mount kit included. \$749.

LEEM LM-144 14 Channel Stereo Studio-grade Mic/Line Mixer 10 XLR and 2 stereo line inputs, insert inputs on all XLR channels, 3 band active EQ with parametric mic control, -20dB pad on each channel, stereo aux returns, left and right balanced XLR outputs, individual channel PFL facility, active 9 band master EQ (in/out function), 100mm long throw faders, selectable phantom power (48v), left/right sub groups and effects on individual faders, 2 pairs of RCA inputs plus one pair of jack inputs per stereo channel. \$1,299.

LEEM LM-144ME 14 Channel Stereo Studio-grade Mic/Line Mixer This is the LM-144 consoles (listed above) with an ART 16-bit Stereo Digital Effects Processor providing 256 resident programs or reverb, delay, echo, flanger, chorus, panner effects,

plus many multi-effect combinations. \$1,599.

MACKIE DESIGNS

Australian Audio Supplies (02) 4388 4666

Mackie SR32.4 Mackie's new SR32, 4 has been designed to make a serious impact on the 4-bus mixer market, 32 channels, 28 mic/line and 2 stereo line inputs, True 4 x 2 x 1 bus with mutes and AFL/PFLs solo, Swept mids from 200Hz-12kHz, Low Cut Filter, 60mm faders, UnityPlus Gain structure. \$4995.

Mackie SR24.4 24 channel version of the SR Series, 24 channels, 20 mic/line and 2 stereo inputs, True 4 x 2 x 1 bus with mutes and AFL/PFLs solo-60mm faders, UnityPlus Gain structure. \$3995.

MicroSeries 1202-VLZ Ultra Compact 12 x 2 Mic/Line Mixer, 4 mic/line channels, 4 stereo line channels, very Low Impedance (VLZ) design, -60dB of gain, Low Cut Filter on channels 1-

UNI10028RQ 8 channel, dual mic/line inputs. Each channel features gain, 3-band Eq, monitor send, effects send, pan. Master includes effects master send, effects return level, effects pan, effects to monitor, dual effects returns, tape in/out, L & R main outputs, dual 60mm faders, stereo headphone out, headphone level, dual 12 segment LED level display. Switchable +48 volt phantom power. UNI10028 only is rack mountable via accessory UNI10028RMK. \$990.

UNI200216RQ 16 channel, dual mic/line inputs. Each channel features gain, 3-band Eq, 2 monitor sends, 2 effects sends, pan. Master includes effects master send, effects return level, effects pan, effects to monitor, dual effects returns, tape in/out, L & R main outputs, dual 60mm faders, stereo headphone out, headphone level, dual 12 segment LED level display. Switchable +48 volt phantom power. \$1612.

RQ3014 6 mono, 4 stereo inputs, 3 band EQ with sweep on mic channels, Insert points, Mute and PFL on each channel, single subgroup and master L,R outputs. Switchable phantom power Optional rack kit available. \$1612.

PHONIC

CMC Music (02) 9905 2511

Impact 8 8 channels each with XLR and 1/4" inputs plus insert, 3 band EQ, 4 aux, mute and cue each channel. Left/right/mix output, 2 aux returns with pan, high headroom, very low noise. \$950.

Impact 16 as Impact 8 but 12 channels. \$1250.

Impact 16 16 channel version. \$1550.

Impact 24 24 channel version. \$1950.

RAMSA

Ramsaudio (02) 9477 7377

WR-S4412A 12 channel, 4 group and 4 auxiliary, A and B switchable inputs, individual phantom power on A inputs, flexible 3 band EQ, 4 stereo aux returns, aux send multiplier. \$2990.

WR-S4416A same as above but 16 channel. \$3490.

WR-S4424A same as above but 24 channel. \$4280.

RANE CORPORATION

Jands Electronics (02) 9582 0909

RAN-MLM82 Mic/Line Mixer: 4 Mic/Line Inputs, 4 Mono/Stereo Line Inputs, 2 Mic/Line Level Outputs XLR and 6.5mm Jack Inputs, XLR Outputs. \$1595.

RAN-SRM66 Programmable Splitter/Router/Mixer: 6 Inputs, Split, Route or Mix to 6 Outputs, SR1 Smart Remote Control, Limiters on all outputs, 6 VCA groups to allow for room combining applications. \$3145.

RAN-SM82 Stereo Mixer: 18 Line Level (9 Stereo) Inputs, L&R and Aux

BUYER'S GUIDE

live mixing consoles

Outputs. \$1895.

RAN-MP22x Mixer Preamplifier with Active Crossfader: High Specification Disco Mixer, 6 Stereo Inputs; 2 Mixing Buses; 2 Loops; Zone/Booth Outputs; 2 Mic Inputs; Front Replaceable Crossfader. \$2995.

SHURE BROTHERS INC.

Jands Electronics (02) 9582 0909

SCM262 5 channel Mixer: 1 x XLR Mic, 1 x XLR Mic and 6.5mm (1/4") TRS Line Jack, 3 x stereo input channels, treble and bass controls and mic/line balanced output. \$845.

SCM268 5 channel Mixer: 4 x XLR Mic inputs with transformers, 5 x RCA Aux inputs, Aux RCA out and mic/line transformer balanced output. \$795.

SCM810 8 Input Mono Automatic Mixer with EQ on all channels, and Shure's Intellimix auto mixer circuitry, allowing automatic gating from any microphone or line source. Full access to all logic functions makes this unit very flexible in many differing applications. Also available in non-automatic model SCM800. \$4196.

SOUNDCRAFT

Jands Electronics (02) 9582 0909

Dmix 300 4/2 DJ Console: 3 x stereo channels, 1 x mono mic/line channels, asymmetrical EQ with 20 dB of cut available, dipless crossfader as well as transform buttons. \$1195.

DMIX 500 7/2 DJ Console: 5 x stereo channels (either line or phono), 2 x mono microphone or line level channels, asymmetrical EQ with 20 dB of cut available, multiple outputs for zoning or recording. \$2995.

SOUNDTRACS

Synchrotech Systems (02) 98*9 0800

QX8 24 or 32 channels, 8 groups, 6 aux sends, 4 effects return, 4-band EQ, PFL, in place solo, Hi-pass filters in all input channels. \$4650 (24 ch), \$5998 (32 ch).

MAXI 24 or 32 channels, 8 groups, 8 aux sends, 4 effects returns, 4-band EQ, PFL. \$4900 (32 ch), \$4200 (24 ch).

SPIRIT

Jands Electronics (02) 9582 0909

Folio Notepad Smallest and most affordable mixer in the Spirit Folio range for Home Studios, Multimedia, Video Post, Location Mixing. DAT quality; impressive EIN and high RF rejection. Four mic and two stereo inputs; Separate Mix and Monitor outputs. \$795.

Folio FX8 Compact utility console featuring 8 Mono mic/line inputs w/ Ultramic preamps, 3 bands swept mid EQ and HPF, 3 Aux with internal Lexicon dual Fx processor, 4 Stereo Returns and 2 subgroups. \$1895.

Folio FX16 Compact utility console featuring 16 Mono mic/line inputs w/ Ultramic preamps, 3 bands swept mid EQ and HPF, 4 Aux with internal Lexicon dual Fx processor 4 Stereo Returns and 2 subgroups. Connector

panel can be rotated to back of mixer for rack mounting. \$3395.

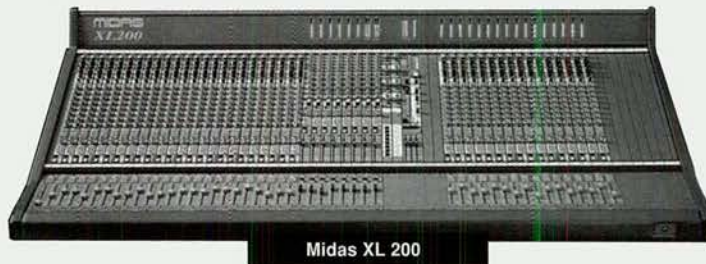
Folio Sx Compact utility console featuring 12 Mono mic/line inputs w/ Ultramic preamps, 3 bands swept mid EQ and HPF, 3 Aux, 4 Stereo Returns and 2 subgroups. \$2495.

STUDIO MASTER

Moore Music (03) 9419 0344

Trilogy 166 10 mono, 2 stereo channels, expandable. 3 band EQ with S/Mids. 6 aux sends with EQ. 4 subgroups, phantom power. All mic/line inputs balanced. \$1995.

PRO2/203 14 mono, 2 stereo channels. 3 band EQ with S/Mids. 5 aux sends with EQ. Left/right and mono



Midas XL 200

outputs assignable as subgroups. All mic/line inputs balanced. \$2195.

Trilogy 206 14 mono, 2 stereo channels, expandable. 3 band EQ with S/Mids. 6 aux sends with EQ. 4 subgroups, phantom power. All mic/line inputs balanced. \$2795.

Mixdown Classic 16 16 channels, 6 aux sends, 8 subgroups, 5 band EQ. Full size meter bridge included. Rackmount power supply. MIDI muting. \$4995.

YAMAHA

Yamaha Music Australia (03) 9693 5164

MX12/4 compact 12 input/4 bus console. 8 mono channels with balanced XLR, 4 with inserts. 2 stereo inputs. All inputs with 3 band EQ. 7 band graphic EQ and built-in DSP effects. \$1095.

O1V digital mixing console, 12 mic/line + 2 stereo inputs. All inputs have dynamics processor + 4 band parametric EQ. 4 buss + 4 aux. Built in SPX990 quality effects. \$3995.

MX200 8 to 24 channel desk, 4 aux, LRC outputs, 3 band EQ + HPF on all inputs, inserts on all channels. XLR and balanced TRS input. \$1295 - \$2595.

GA24/12 24 input/12 sends. Switchable group/aux function (operate as 10 aux up to 4 bus/6 aux), 4 band EQ, HPF, EQ bypass on all input channels. 2 x 6 matrix, 3 band EQ on aux/busses. \$4495.

YORKVILLE

Dynamic Music (02) 9939 1299

AP812 2 x 400w amps @ 4 ohms, 8 mono, 2 stereo channels. Switchable mains/monitor assignment. Two 9-band assignable EQ. 255 preset ef-

fects. 3-band EQ per channel. Phantom power. \$2995.

MP8DX 400w amps @ 4 ohms, 200w @ 2 ohms. 255 preset effects. 9-band EQ-mains. 5-band EQ-monitors. Phantom power. 3 way EQ per channel. Effects send and monitor send. \$1995.

PM16 2 x 800w + 2 x 275w amps @ 4 ohms, 12 mono mic/line, 2 stereo line channels. Switchable hi-pass filter. 255 preset effects. Phantom power. 3 auxiliary, 2 monitor sends. \$4895.

AP312 2 x 160w amps @ 4 ohms, 8 mono, 2 stereo channels. Switchable mains/monitor assignment. Two 9-band assignable EQ. 255 preset effects. 3-band EQ per channel. Phantom power. \$2395.

to 8, 12 or 16 input channels, aux sends cans be configured to operate in pre or post fade by reversing PCB jumper. \$7200.

DDA

EVI Audio Aust. (02) 9648 3455

CS3 available in 16, 24, 32 and 40 ch frames. 3 band EQ with full parametric mid, 6 aux, 4 sub groups. Consoles feature unique left/centre/right assign. All outputs balanced on XLR. Modular design. Rack mount power supply. \$8799.

Interface available in 8, 16, 24, 32 and 40 ch input frames. 4 band EQ with dual mid sweeps, 6 aux on 4 knobs, 4 sub groups. Available with either effects return or matrix group modules.

Large array of input module options. Fully modular design. Rack mount power supply. 8 ch - \$8399.

PEAVEY

Audio Telex (02) 9647 1411

SRC4026FC 26 input, 4 subgroup mixer built into an SKB flight case. 3 band EQ with mid sweep per channel, 6 sends, 4 stereo returns. Includes 2 super channels with pad and phase switches. \$5256.

SRC6024 24 channel, 6 subgroup mixer. Each channel features 4 band EQ with hi and low mid sweep, 6 Aux sends. Master section includes 6 stereo returns with EQ and routing, 100mm faders. \$7160.

SRC6032 32 channel, 6 subgroup mixer. Each channel features 4 band EQ with hi and low mid sweep, 6 Aux sends. Master section includes 6 stereo returns with EQ and routing, 100 mm faders. \$8833.

SOUNDCRAFT

Jands Electronics (02) 9582 0909/22

K1 4 buss live production console featuring range mic preamps, 4 band EQ with sweep mids, 6 aux sends, 4 matrix outputs and 4 subgroups. Console can be configured with either stereo or mono inputs (or a combination of both). Available in 8, 16, 24 and 32 channel frame sizes. From \$4995.

SPIRIT

Jands Electronics (02) 9582 0909

Spirit LX7 The LX7 features include Spirit's Ultramic preamps, 18dB per oct HPF, 4 band EQ with mid sweeps, 6 aux sends and 4 groups. Additionally, direct outputs are available on the first 16 channels (32 ch version) for direct location recording. Available in either 24 or 32 input versions. From \$4595

Live 3 MKII The Live 3 mkII features include Spirit's Ultramic plus preamps, 18dB per oct HPF, 4 band EQ with mid sweeps, 4 aux sends and a 3 buss output section, allowing left right, and a mono discrete mono output. Available in 8, 12, 16, and 24 channel sizes. From \$2995.

Live 4 MKII The Live 4 mkII features

continued over

UNDER \$10,000

ALLEN & HEATH

Technical Audio Group (02) 9810 5300

GL-2000/24 24 input (22 mono/2 stereo) FOH/Fo dback/Dual Role Mixer, 4 sub-groups, left/right/mono outputs, 6 aux sends, 4 band EQ with 2 sweeps, 100mm faders. \$6595.

GL-2000/32 32 input (30 mono/2 stereo) FOH/Fo dback/Dual Role Mixer, 4 sub-groups, left/right/mono outputs, 6 aux sends, 4 band EQ with 2 sweeps, 100mm faders. \$8195.

GL-3300/16A 16 mono input FOH/Foldback/Dual Role Mixer, 8 subgroups, left/right/mono outputs, 8 aux sends, 4 mute groups, 4 band EQ with 2 sweeps, 100mm faders, 2 stereo returns, 10x2 matrix. \$7995.

GL-3300/24S 24 input (8,4 or 0 stereo ch) FOH/Foldback/Dual Role Mixer, 8 sub-groups, left/right/mono outputs, 8 aux sends, 4 mute groups, 4 band EQ with 2 sweeps, 100mm faders, 2 stereo returns, 10x2 matrix. \$9995.

BEHRINGER

Musiclinc (03) 9429 9299

MX8000 in line 8 buss, 48 input, 24 channel, 4 band EQ, 6 auxiliaries, 24 direct outs and inserts, extensive monitoring and talkback options. \$5999.

CLOUD

Lightmoves Technologies (02) 9560 0000

CXF 8 Music Channels, provides input for up to 16 stereo channels. 1xAux. Pre fade, 2xAux, Post fade. 100mm channel faders. \$4550.

CXM A modular mixer that enables up

BUYER'S GUIDE

live mixing consoles

include Spirit's Ultramic plus preamps, 18dB per oct HPF, 4 band EQ with mid sweeps, 6 aux sends, 4 mute groups, 4 subgroups and 2 matrix outputs. Available in 12, 16, and 24 channel sizes. From \$5495.

STUDIO MASTER

Moore Music (03) 9419 0344
Mixdown Classic 24 24 channels, 6 aux sends, 8 subgroups, 5 band EQ. Full size meter bridge included. Rackmount power supply. MIDI muting. \$5695.

Mixdown Classic 32 32 channels, 6 aux sends, 8 subgroups, 5 band EQ. Full size meter bridge included. Rackmount power supply. MIDI muting. \$6595.

YAMAHA

Yamaha Music Australia (03) 9693 5164

GA32/12 32 input/12 sends. Switchable group/aux function (operate as 10 aux to 4 bus/6 aux) 4 band EQ, HPF, EQ bypass on all input channels. 2x6 matrix. 3 band EQ on aux/bus. \$5495.

OVER \$10,000

ALLEN & HEATH

Technical Audio Group (02) 9810 5300

GL-3300/32 32 input (8, 4 or 0 stereo ch) FOH/Foldback/Dual Role Mixer, 8 sub-groups, left/right/mono outputs, 8 aux sends, 4 mute groups, 4 band EQ with 2 sweeps, 100mm faders, 2 stereo returns, 10x2 matrix. \$13,495.

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Jands Electronics (02) 9582 0909

K2 Console features include range preamps, 4 band EQ with sweeps and Q switches, 8 aux sends, MIDI scene and mute control, 8 groups and a 8 x 11 matrix as standard. Console can flip its groups and auxes to perform as a monitor consoles. Available in 24, 32 and 40 channel frame sizes. From \$27,995.

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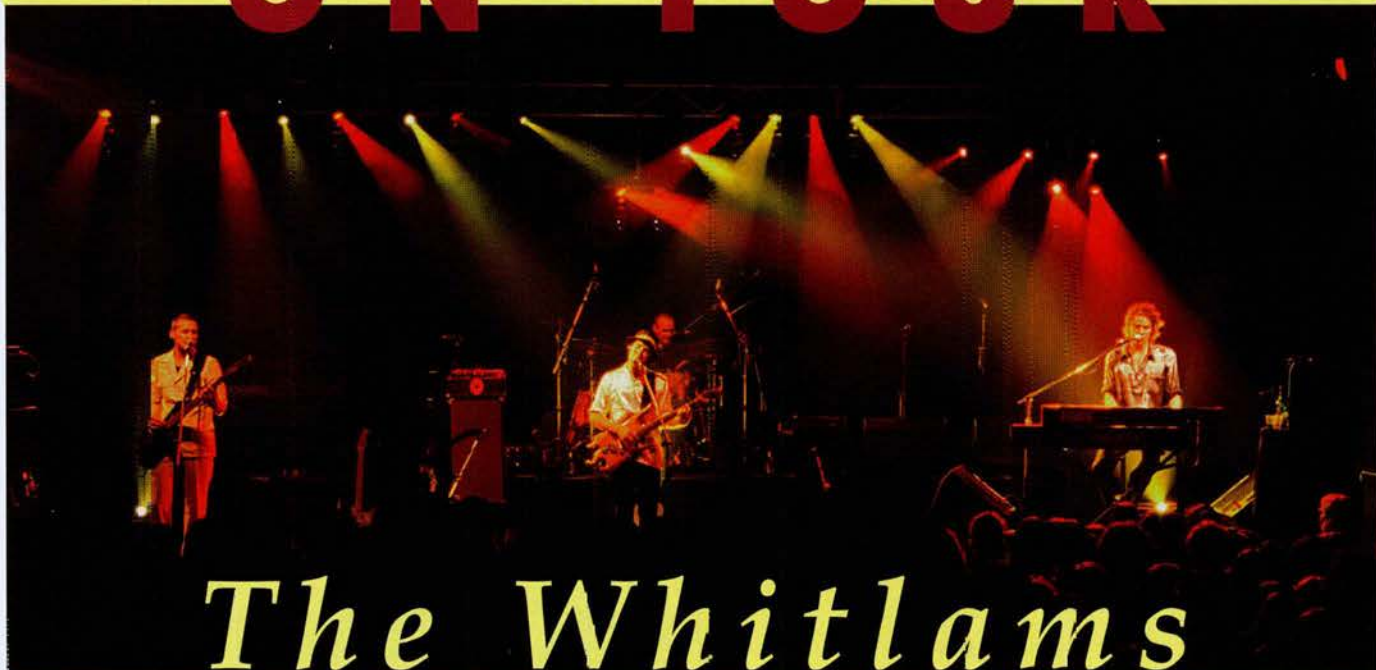
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Photos: John Stanton

The Whitlams

There's no aphrodisiac like a full house

It took a quality band like *The Whitlams* to lure LD Alan Stone from the comfort of the corporate world back on to the road.

"The last time I toured with a band was in 1994 with the double bill of *Hunters & Collectors* and *The Baby Animals*," he told me. "After that I'd had enough of touring and decided to call it a day. One of the reasons was that the corporate side of my business- Al Stone Productions - was going through the roof and also live music touring in this country must be the only industry where people's work place conditions are being eroded over the years rather than being made more comfortable.

"I'm not touring full time with *The Whitlams*, I did a two week run in Victoria because the budget was there to actually tour a production. I noticed that people's work conditions have actually got worse rather than better during the three years I've been off the road. It's something that really needs to be looked at as there are no good crews coming through any more. There's a policy in place now where support bands on club tours no longer have to supply their own crew for bump in and bump out and that's where most guys who tour with live acts got to cut their teeth. I wouldn't have got a start in this business 15 years ago if I hadn't been working with a support band - the main act's lighting guy got sick and I happened to be there to finish the tour for them. That was my big break. The standard of crews in four years time is not going to be what it is now. I can see the skill levels slowly decreasing in young crews whilst the equipment becomes more sophisticated.

The quality of the industry in Australia will end up suffering. Unless you're fortunate to get your background in theatre, television or with a production company that does a lot of corporate events, the standards of crews doing live music is going to be appalling in a few years time unless something is done about it."

Although Alan has basically 'retired' from doing live music he has the enviable task of lighting overseas bands which Michael Coppell brings here to play the Metro in Sydney. It's usually just a generic par can rig but it keeps his hand in.

"Last year I was engaged to do all eight nights of the Pacific Circle Music Conference gigs at the Metro," said Alan. "Over those eight nights there were 32 new Australian acts playing and I lit about 28 of them. There was only one act that really stood out. They played on the last night which coincided with the Arie Awards and so it was the only night the venue wasn't full. They were *The Whitlams* playing in front of 200 people and they blew my socks off. After the show we went and had some drinks, a few weeks later when the album launch was on Tim Freedman called me up. They were playing The Harbourside Brasserie and they had enough money to get a few intelligent lights and I thought I'd do it. They promised to get me drunk every night and that swung it! I told them to spend the money on the lights and I'd do the show for free. I had had such a good time with them at The Metro and they're all really nice people."

The first time Alan actually got paid for doing a Whitlams show was when they did Chameleon's Christmas party - and

the band didn't actually pay him rather Tony Davies did!

By January the band had started to take off and they asked Alan to do the two week Victorian tour. With gear from Electric Sunshine, Alan put a show together consisting of 16 Clay Paky Mini Scan HPE's 16 Martin Pro 400's, and about 80 generic fittings. He enlisted the help of a young NIDA student, Chris Upjohn, who used the tour as his final year secondment. After the two week run, Alan had corporate commitments to attend to so the smaller shows used the owner/operator set up. Alan returned to the tour to play the larger NSW venues.

During the two week Victorian tour Alan was trialling the Jands' new lighting desk - Echelon.

"I had been working on it since January - cue-bugging, R & D, etc," said Alan. "I've had a bit of a deal with the Jands Hog 600 for two years now. I know people complain about it having problems and initially it did have problems with it's software, but they were rectified reasonably quickly. But by then the desk had a really bad name so I offered to show people how to run the desk properly - 90% of the problems with the console are operator error. Unfortunately a lot of people won't admit to their mistake. The most common problem is people leaving cues active that they weren't running - that's the equivalent of leaving every programme on your computer open whilst you're working on something else. Your computer slows down and eventually, if there's too much open, it crashes. The desk is a sophisticated computer."

ON TOUR

Since August last year, Alan had had the processor from the Echelon sitting in his Hog and he found it sped the Hog up significantly. David Timms from Jands installed it although he had to do a lot of modifications to get it in. Alan gave it a clean bill of health all the way through. When the prototype of the Echelon was up and running, Jands asked Alan, as well as Rohan Thornton, for his opinion. He didn't like some of the early lay out of the desk.

"Flying Pig were very responsive with software re-write issues that both Rohan and myself had," said Alan. "The problems were solved very quickly this time. I think that's got a lot to do with Jands Electronics also having a stronger relationship with Flying Pigs/Wholehog and it's made for a very strong product, exceptional in fact. I'd say the Wholehog is the Rolls Royce of lighting control consoles as far as DMX controlling of multi-fixtures goes, the Echelon would be the Mercedes Benz and the Jands Hog range you'd probably class as a Commodore.

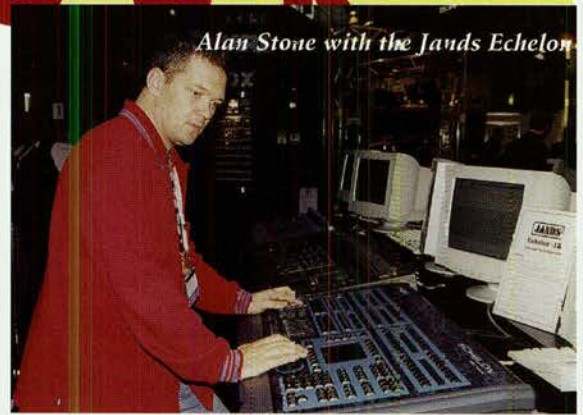
"I thought *The Whitlams* tour would be a good opportunity to get the Echelon on the road, running the same show night after night. It ran very smooth with no product breakdown of anything. All the Clay Paky and Martin products performed extremely well and the Echelon performed very well, auto-updating every day the way it's supposed to. Although I've done over 20 corporate shows with the Echelon, it's

not the same as driving a live music show. It really pushes the console to it's limit. It felt a bit too nice at first, the faders are a bit more sensitive than the ones on the Jands Hog and the spacing of them is different. But by about sixth show it started to feel like an old friend."

Alan's show was asymmetrical in design, very moody and atmospheric. Although he used quite a bit of intelligent light there was very little movement, most were moved doused and for subtle fade-ins and fade-outs. The band's music is predominantly 'pop' ballads and the lighting reflected that. It also heavily concentrated on featuring the musicians particularly Tim Freedman who is usually behind the piano. Alan compares him to a cross between Peter Allan with a bar fly.

Colours were predominantly blues, greens and turquoise from behind with very soft front washes from par cans. There were no intelligent lights for the front wash as Alan wanted a soft tungsten feel on the faces - a nice soft glow punctuated with profile key lighting when required.

"The Martin Pro 400 is a fantastic little light," said Alan. "I prefer the Clay Paky Combi-colour for a corporate show but it's colour wheel is significantly bigger so it's slower to change colour although it has a lot more intensity than the Martin Pro



400. The Pro 400 changes colour quickly and they are perfect for rock lighting. If you need to do quick, snap colour changing, or fast beam adjustment they're great."

The show has a lot of audience involvement particularly when the more successful songs are played and Alan uses the effects engine on the Echelon to bring a bit of movement from the band onto the audience. Mainly it's just a nice, subtle show. Although it's intelligent based, it doesn't look like a disco.

Only last September Greg was mixing *The Whitlams* for the very first time, at the Sandringham Hotel in Newtown - capacity 150. *The Whitlams* are now the biggest selling Australian independent band since Skyhooks released 'Living in the Seventies', with sales of their third album 'Eternal Nightcap' currently over 100,000.

As well as being sound designer for the band, Greg is also their Tour Manager not

continues on next page

ROUGH RIDERS

There's a clause in every rider which we simply take for granted, but which has really far reaching implications. It usually reads something like "No person shall be admitted to backstage areas without the express permission of the promoter". A simple statement which has given rise to an entire industry which designs ever fancier and more impressive ID passes and lanyards. Now while an ID badge is very handy for keeping the backstage nazis at bay during the gig and often doubles as a conversation piece (chick magnet) at the bar when you "accidentally" forget to take it off after the show, the serious issue that arises is one of disposal.

By their very nature backstage passes cannot be recycled, indeed, many promoters use elaborate schemes of colour and shape coding

to provide unique badges for every night, at every venue on a tour, a practice which leads to massive pass proliferation. Even artists who don't permit the use of Styrofoam cups or plastic spoons backstage have no qualms about handing out ornate backstage passes.

The construction of a typical backstage pass is an ecological disaster: the card or paper pass is laminated inside a non-biodegradable sleeve, which is attached to an artificial fibre lanyard by a nickel or chrome plated clip. If I were to bury all of my passes in the back garden next weekend, two hundred years from now some musicological historian would be able to reconstruct the entire 1991 Barry Manilow tour. Burning old passes produces fourteen toxic chemical by-products expressly forbidden by the Berne Convention and, unless incinerated at extreme temperatures, the metal clip will

not even decompose through rusting.

I have been storing all my old passes in anticipation of the development of a safe method of disposal, but this has led to a number of problems, particularly in one house where I lost the bond due to all the door handles being warped from the weight of the accumulated passes. I have tried to recycle passes as children's mobiles but I've not even recovered the cost of entry to the carboot sales, and my attempt to use them as dog tags left poor old Bluey an outcast at the dog beach. The situation is reaching desperation point: it is time to demand an environmental impact statement for the backstage passes specified in all future riders!

Rufus B

ON TOUR

The Whitlams continued from previous page

an easy job when there are 65 gigs to be played in 75 days. Although Greg is very busy with his computer work, once he had heard Eternal Nightcap, he felt he had to work with the band.

"The tour was difficult to organise as there was a lot of last minute stuff," said Greg. "Also the band were undergoing a transition from being a small pub band to a band that had a touring party needing vehicles, flights and production organised. But for the number of shows in such a number of days, the tour went pretty smoothly. Unfortunately for the last two dates, Tim Freedman the lead vocalist, lost his voice which is unusual and it was difficult to get the level on the PA."

Throughout the tour a combination of house sound equipment and rental was used, particularly from Revolver.

"We had their 8 ton truck packed to the rafters," said Greg. "Because we were playing some large rooms, 1500 seaters, we tried to get as much PA as possible."

In Darwin Greg found himself using the massive Court system left over from the 1984 *Made in Australia* tour.

"Fifteen year later and it's still there, sounding pretty good too," laughed Greg. "They had a whole lot of sub cabinets as well which, at the end of the show, the PA rigger told me I hadn't turned on! But I didn't really miss them."

"One really good gig was at the Alexandria Hotel in Brisbane where we pulled 1300 punters. I only had a relatively small PA compared to what I was used to using but I managed to get through it by telling the PA rigger to put the mixing desk 10ft closer to the stacks than normal. That was my method of not blowing up the guys PA and everything was fine."

Central Coast Leagues Club was a gig that Greg described as very, very boring.

"We had this fantastic venue which could hold at least 1500 people but we were only allowed to put 460 people in there because of some licensing law for that particular venue," said Greg. "The club was really embarrassed because the show had sold out several days before and they had been inundated with phone calls from people wanting to buy tickets. They have another room next door which has a 3000 capacity but they're only allowed to put 1100 in there!"

"It's also at the top of some stairs and, from a financial point of view because you need extra loaders, it's pretty boring to have to do a show at the top of three flights of stairs when you can only fit 460 people in."

The next night we did Waves at Wollongong which was fantastic, sold out 1400 people. I wanted to use Revolver, but it wasn't available, so I used Michael



Orland's PA which was fine."

The band did a couple of television appearances during the tour starting with the *Today* show.

"Everything was extremely rushed," said Greg. "They were very keen to get the band to appear on their show but they expected them to set up, sound check and tape the song in 45 minutes. At 8 o'clock in the morning, for any band that's very difficult. It was extremely frustrating and because of the time frame, we weren't able to bring in a monitor system so the band had to perform with one set of monitors mixed from FOH which was limiting to say the least."

"Later on we did the *Midday Show* and they have a full monitor system, time for rehearsal, a proper mixing desk and it was fantastic."

The last show in Perth was at Metropolis, a venue that impressed Greg.

"It's an \$18 million dollar venue in the heart of Perth with a fantastic PA - 26 TMS3 cabinets plus a whole lot of subs," Greg raved. "The show was sold out - 2500 people - and everyone was blown away that the band could sell that many tickets."

A week of Sydney club shows followed with every venue sold out.

"It's extremely encouraging that *The Whitlams* can sell out a 1500-seater on a Wednesday night in Manly," said Greg. "We had Revolver again for that week plus extra musicians - a brass section and an extra keyboard player. The week finished at Panthers Evan Theatre which is similar to the Metro but even better. It has quite a good house PA but we bought our own entire production in there. It was easily the best night I've had with the Revolver PA. It's a fantastic venue with great sight-lines, great load-in, great acoustics and wonderful staff."

The last week of the tour saw eight

shows in seven cities in seven days. In Adelaide the band sold out a 1200 seater on a Tuesday night using a hired system from Adelaide Audio. Two shows in Melbourne were followed by Canberra.

"Because the show was sold out in advance I had the benefit of knowing how much money the band was going to make and I could spend some money on production," said Greg. "So I hired Revolver and I got a light show out of Canberra. There were 1800 pre-sales and 1790 of them turned up which is very good - usually 10% of pre-sales don't show up. Unfortunately the venue was like a cafeteria with a very low false ceiling. The cans on the front truss were only just above Tim's head and even at the FOH desk, I couldn't see the band. The crew I get from Revolver are Davros, foldback, and Greg Harris, PA rigger, and they are fantastic. They put in delay stacks which helped a great deal, even if you couldn't see the band at least you could hear them well."

Hobart followed, 2100 tickets making it sold out. Once again it was a low ceiling and Greg had an Electro Voice Deltamax PA which he said wasn't really up to the job but part of the deal when booking the venue.

"It did fulfil the minimum requirements for *The Whitlams* but it wasn't fantastic," said Greg. "Then we went to Launceston where Tim lost his voice and I had to turn the band down quite significantly to try get the vocal level up. I'm a firm believer that the vocal is the most important thing."

The tour ended in The Globe in Newtown, Sydney which is a venue Tim part owns. The band were lending their support to the ALP who were launching their contemporary music policy.

The band hope to tour Australia again next November.

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LIGHTING

June 1998

MONTHLY

Edited by Catriona Forcer

LXbizzBITS

PRODUCTS

GRAND MA

Aimed at large scale venues and live touring applications, MA Lighting's Grand MA lighting control desk features three-colour LCD displays allowing group and pre-set operations, interactive output display and a choice of cue listing options. It also has 2048 control channels for simultaneous control of conventionals, scrollers and moving lights.

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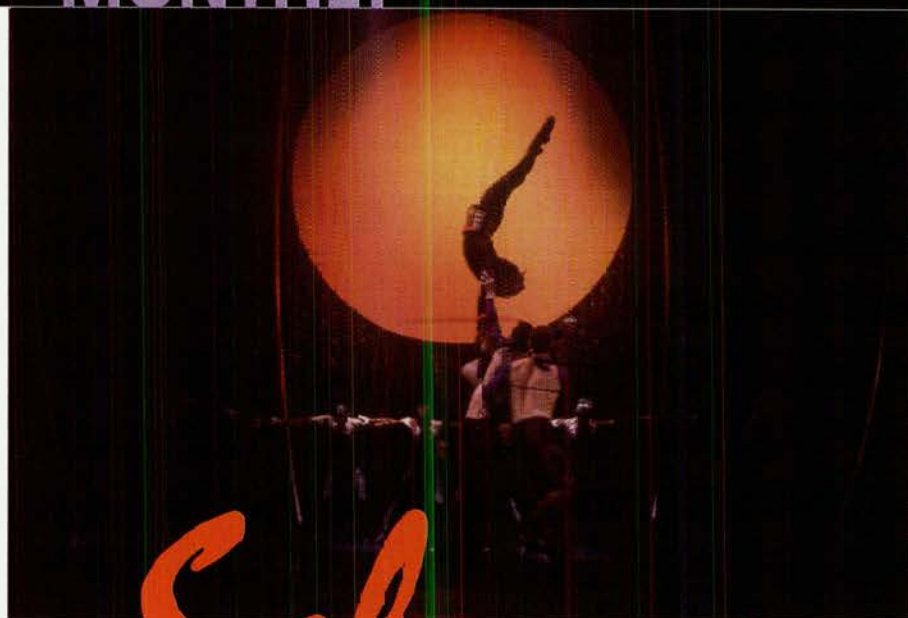
GIOTTO

Giotto is the new SGM 1200w MSR moving head projector, a washlight which offers all the features required for theatre, concert and television use. Giotto offers 540° pan and 270° tilt with 16 bit resolution. Giotto uses a 200 mm fresnel lens fitted with a zoom ranging the aperture from 18 to 35. The brightness is over 22,000 lux at 5 metres. Colour is additive using cyan, magenta and yellow.



Giotto is fitted with a strobe synchronisable to music, linear dimmers from 0-100%, a wheel with 7 additional colours obtained through selected dichroic filters and a colour conversion filter at 3200°K. Price is \$10,035 ex tax.

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Salome

SYDNEY DANCE COMPANY'S VISUAL TRIUMPH

Sydney Dance Company's latest production *Salome* can only be described as a mesmerising feast for the senses. Sound, light, colour, dance all blend into an exotic concoction that haunts the spectator.

Lighting designer John Rayment worked with choreographer Graeme Murphy to tell this biblical tale in such a creative and memorable manner.

"Graeme enjoys the lighting, he's very much a visual creator," said John. "He has stage pictures in his mind. Lighting is transportable and a quickly realisable setting, you can do a lot with light. We're very concise of our visual heritage and very concerned with the whole stage picture. We want it to be a theatrical experience as it's part of our trade mark."

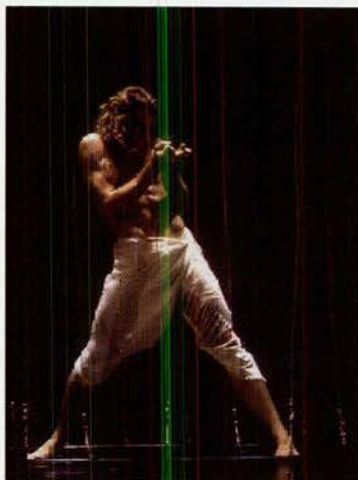
The rig - circular with tall spindly poles attached to give the effect of a giant spider - was designed by John and Graeme. The main feature was eight Clay Paky Super Scans.

"I enjoy exploring ways of lighting dance not in a traditional fashion," John explained. "I enjoy top light, that form of sculpt-

ing, especially when you've got a light source where the colour temperature is so much different to conventional light - they do take on a more solid notion in the haze. They become vertical pillars of things, at times they even look like they may be holding the structure up. I just wanted it to be off the set. The only light that is higher than the set itself is a top light for Joseph. Everyone else is lit from within the set. There is still a little bit of side lighting."

A lame wrap around the stage adds to the shiny and unwelcoming surfaces that John has to deal with.

"I love all the shadows and I'm not trying to hide them," John stated. "When John the Baptist is inside his cage, I use them deliberately. Shadows tend to be a presence, not necessarily of the person who is throwing them. It's a highly dysfunctional family we're dealing with in very decadent times. Everyone knows the story and there was no attempt to create in any naturalistic way - it's a highly stylised, ritualistic telling of the story." *continued over*



Salome continued from previous page

difficultly was finding the convention that worked - in order to make the robotics not jar we had to very early on set up a whole lot of conventions that fit in. If we had had biblical references or the set made references to the middle east, then they would have jarred. But because the whole thing is artificial, people accept the surrounding for this telling of the story."

The opening scene is set with the smell of incense and the sound of howling wind as the Super Scans send fan-shaped shafts of lights sweeping across the audience. The dancers enter the auditorium and walk onto the stage in a casual manner.

"We started out there to say 'this story started before you arrived and will continue after you leave, we'll just bring you in for this little bit of it,'" said John. "It's a nice theatrical opening that people don't expect."

The Super Scans sweep you onto the stage and stop to create a fourth wall which the dancers walk through into the story. It's a gauze with lights.

"When you put gobos into lights like that, you become so dependant on smoke for it to work," said John. "But that was about all I could fit on the circular truss. I've used them a few times now and I'm still exploring their possibilities. They are still doing things I'm frustrated with, sometimes they get a mind of their own and take off. But I prefer them to moving yoke fixtures, they're more flexible and you've got all of it in one unit.

"I'm delighted with the result. It's often the way with our shows - there is no setting, there is no convention and the trick is to set up the theatrical convention early on so people will buy it. The lighting is as much part of the stage design as is the set."

There was one part in the show where

the Super Scans made a progressive circular path for Salome to follow and I asked if this scene was difficult to master.

"It was endlessly difficult," sighed John. "I had marks on the stage and I was drawing maps on little pieces of paper. But she was a very patient dancer and Graeme is phenomenal in the way he'll choreograph to use staging elements. It was quite hard going for many days to set it up, it wasn't just lighting a scene it was trying to create more than that."

The last scene was one of the most effective that I've ever seen. Salome plays with the head of John the Baptist, cradling it between her thighs and rolling it around the stage.

"It's amazing even when you see it unlit, just in work light which is the magic of the choreography," agreed John. "For the audience there is a two fold discovery. Early on we decided that we didn't want a fake head but to begin with the lighting enables you to be fooled that it might be a faked head.

Then you realise that it's a real head and his body is still there, you just don't see it. Some people still think it's a fake head.

"It's just a variation of black theatre which you can't really do all that successfully without UV and we certainly didn't want to introduce UV as it tends to be a bit 'cartoonish'. We tried putting lights into the audience's eyes to make it harder to see. Eventually we decided to hide the dancers behind the lights using them as a gauze and I was delighted in the way it worked."

The scans were white with a linear, circular gobo making a line of dots - lots of tiny shafts all forming a line. From the front there is especially placed red light.

"It's just enough, your brain is filling in a lot of it," said John. "If the smoke gets

too much or it's not bright enough, people at the back of larger theatres are straining to see it. Like all things in live theatre, some nights it works spectacularly well others it's less good. Usually it works because it's unexpected. The production works because we're all striving to achieve a nicely rounded piece of theatre. It flows and works due to having the luxury of time, knowing each other and putting some very good minds to it."

● *Cat Forcer*

John Rayment



**SELECON
PACIFIC UPDATE**

Despite the disappointment of not having the real thing for Entech a lot of interest was expressed in Selecon's innovative new PACIFIC base down axial profile.

Component samples off the more than dozen pressure die cast and injection moulding tools have been received and the first hand built units have been assembled. Already they have been shown at the NOTT theatre show in Oslo, KOBA in Seoul, and at Selecon's Dutch distributor's Open Day in Enschede, Holland.

According to Selecon, the feed back has been everything they could hope for.

"The PACIFIC performs as claimed, providing the same light output as traditional luminaires of twice the wattage," said Jeremy Collins of Selecon. "The beam is well controlled, adjustable from razor sharp focus to a soft edged beam that is well controlled. Pattern projection across the beam is so close to that produced by a condenser it is very difficult to tell them apart."

After testing in their main theatre, Auckland's Aotea Centre have ordered 64 of the 12 - 28 Zoom PACIFICs for use in the box booms.

Sample 12 - 28 Zooms will be available from all Selecon distributors during June.

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As industry leaders for over 20 years, CLS continue to specialise in the manufacture, supply and production of stage lighting, rigging & accessories for entertainment, exhibitions and displays throughout Australasia.

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LSC ATOM & AXIOM TRAINING

Lots of Watts is running training seminars for LSC Atom and Axiom control desks. The first seminar is on the 23rd June at 6pm. Attendants will learn how to use the full range of these desks to control both dimmers and intelligent lights. There is no cost but places are limited.

Call Garry Morley for further details 61 2 9638 0302.

ORACLE LASERS AND TANNHAUSER

In the May edition of Connections we featured the Australian Opera's production of Tannhauser which used fabulous laser effects. We failed to mention that Oracle supplied the laser - a 1W air cooled Argon laser and Oracle 3D laser controller.

Oracle have also just completed another 8 week show at the Opera House with the STC. The play *Amy's View* featured a 300mW Argon laser tunnel as the final scene.

Call Oracle 61 2 9938 4466.

EXTREME EXPAND

Extreme Lighting in Tassie have added 8 Martin Pro 400 Robo Colors to their hire inventory.

Call 61 3 6427 2919.

SELECON SALES

QPAT Stage 5, the 800 seat drama theatre is to be equipped with Selecon Acclaim, 1200 and Arena HP Fresnels, and 1200 P.C's. The tender for this package was won by Laser.

A major new Shopping Centre being built for George Soros in Buenos Aires, Argentina will have the main atrium lit by 57 Selecon Astral Zoomspots. The Astral range are the architectural versions of the Acclaim range and use the single ended 150w CDM or metal halide lamp.

Call Selecon 64 9 360 1718.

ARCHITECTURAL LIGHTING

Fibre Optics

increasingly used in Architectural Lighting

Fibre Optic technology has made quantum leaps in the past ten years, the main reason for this is quality engineering at the light source and improved fibre products.

Lightsources or Illuminators are now far more efficient and producing far more light. This coupled with clever internal reflectors within glow fibre help to produce light levels that are now acceptable.

For a long time comparisons were made between the brightness of neon and fibre, always putting the fibre at a distinct disadvantage. Poor installation of the product and incorrect applications contributed to the lack of acceptance of fibre optic by architects, engineers, and builders in the market place.

Now in 1998 there are dozens of successful applications where fibre has been used with great effect. Fibre has been used as an end glow product to help light display cabinets in museums, create traffic indicators on motorways, produce dazzling star ceilings in casinos and hotels as well as provide decorative and animated enhancement to signage.

Side emitting fibre is available in various sizes and configurations from 13 to 126 strand with internal reflector and solid core 13mm. It is now successfully used as an alternative to neon in both outdoor and indoor applications. These products have UV stabilisation and will provide long life results.



Eastern Suburbs Leagues Club

Lightsources use four lamps as their power source, 150 watt metal halide, and 50 watt halogen for side emitting fibre and 75 watt and 55 watt halogen for end source. The 150 watt metal halide source may also be used for end source where the additional punch is required.

The metal halide lightsources now have DMX512 capabilities and offer mechanical shutters, full range of colours and include daylight and tungsten correction. Lamp life is rated at 6000 hours. These will now integrate with all other architectural products and offer exciting opportunities for those that are brave.

The Illuminating Engineers Society has now given awards to lighting designs that have major components of fibre optic as the main design theme and integration with other lighting mediums and architectural energy management. Sydney based Lightmoves Technologies was presented with an International Lighting Award by the IES for excellence in design and installation on Eastern Suburbs Leagues Club.

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ROSCO HORIZON

By Mandy Jones

Rosco HORIZON is an innovative addition to the lighting control market. Distributed as free software, users are able to fully trial the system on any Pentium PC before spending any money. From there, upgrading to the full system is as simple as plugging in a DMX interface, and you're up and running.

Peter Scott has been using Rosco's HORIZON lighting control software for over twelve months. Over recent weeks, he has been trialing the new version HORIZON 98 prior to its June 1 release date.



PETER'S BACKGROUND

A musician since 1974, during the mid 80s Peter became involved with audio engineering. By working with different audio and lighting crews he got to know the business pretty well, so it was a logical progression when 5 years ago, Peter started his own business, Scott Audio Productions. Located in the 'Country Music Belt' of Australia - Tamworth, New South Wales, Peter's company handles production for a wide range of events from fashion parades to Youth Alive concerts, as well as the Annual Tamworth RSL Country Music Festival. In recent years, the success of the music festival has led to a growth in the local music industry and has seen the establishment of the Tamworth Country Theatre shows - a live to air radio program held every month which Peter handles production for.

Peter explained, "we're only a small company but we do whatever comes along and we needed a lighting system that was affordable and flexible".

WHY HORIZON?

Up until now, lighting control has been a hardware dominated market where the hardware has been the main thrust and the software usually designed according to the console. HORIZON turns the tables by being a totally software driven approach to lighting control.

HORIZON is available as a free CD ROM through Rosco distributors or can be downloaded directly from the Rosco web site. Regular updates to the latest version are posted on the web site.

After trialing the earlier versions of the software, Peter Scott decided that HORIZON was the way for him to go. 12 months later, Peter has no regrets about his decision and is enjoying the newest version of the software.

"HORIZON is a fair quantum leap of a program, but what has impressed me most about it is its cost effectivity. In production these days, a reasonable sort of moving light control desk is \$10,000 upwards. I looked

at it as a couple of thousand for a Pentium PC and a couple of grand for an interface, and the software is free. I figured that's more money I can be putting into buying lights.

"I had to make it cost effective, and I figured if you can make something do a number of jobs, then well and good. I was lucky because my Lighting Director is computer literate and he thought it was a great idea so we gave it a run and between the two of us it works extremely well."

HARDWARE

The main criteria for HORIZON is a Pentium PC (either 166 or now up to 233 with the new version).

"You need at least 32 MB of RAM which is now the thumbnail print for most Windows 95 type programs. It runs in with Windows 95, the program accessing the interface through the LPT1 port which is the printer port, then the interface produces DMX512, and in our case we feed that down the cable to the racks and the various DMX items we run. Because we use Strand racks which are actually D54 protocol we use a converter to convert them to run DMX."

Peter recommends nothing smaller than a 15" monitor because there is so much information to display. He runs a 15" in one of the bigger modes so that he can display more information.

"An option which we haven't explored yet is to get a VGA split which gives you the ability to run multiple screens. I've read on a users billboard that in American theatre they use up to 5 screens because they're running 512 channels of DMX."

The external DMX Interface Module has capacity for 512 output channels through one DMX512 port.

"Once you buy the interface and they give you the update code for the interface there are no problems. It even displays on the screen that your interface is on line."

Peter explains that the software is extremely stable and that the only crashes they have experienced have been due to the PC and not program based.

"And the nice thing about the DMX interface is that it remembers the last thing you did and holds that scene until you reboot so you aren't plunged into darkness."

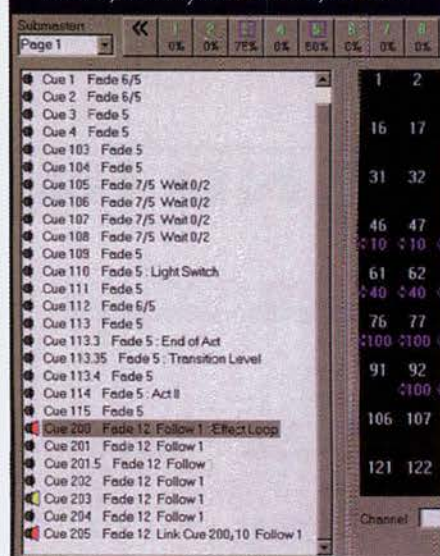
SOFTWARE

Peter says that HORIZON is versatile enough for just about any application - from theatre, to concerts and television.

"The previous versions of HORIZON probably lent themselves better to theatre shows with limitless cues. They didn't have all the bells and whistles that the current desks like the Hogs have for moving lights,

continued over

Besides the usual up and down fade times and wait instructions, cues may also be named, as they are written, or later



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continued from previous page

but with technology advancements, the new version is heavily slanted towards moving lights and running effects."

Peter recently did his first gig using the new HORIZON 98 version.

"It was a simple fashion parade and the software worked faultlessly - we couldn't find a problem with it. We'll be using it again for the Country Theatre with some FAL 2000 moving lights, cans, Strand PCs, Harmony PCs, that sort of thing, and it will be probably be running 60 odd channels."

The new version features multiple cue sheets, so you could have three lots of cues running at once either linked or completely separate. And it gives operators the opportunity to write as many effects as they want. Peter says the moving light capabilities of HORIZON are excellent as Rosco included a wide range of patches for high profile moving lights.

"Rosco are actually adding in a patch for the FALs for us. They're quite happy to do that if you give them the DMX protocols and channel assign information, because they want to make the software as universally acceptable as possible."

"With moving lights once you've assigned the lights you have a master control that can give you a drop down menu displaying attributes. There's an attributes window which has a target on it and around it are little tabs and because it's pre-configured for that light you can select a colour and pre-set a particular light for that scene or cue. As well as that, its got a little yellow circle on it which you can click on with your mouse and you can focus your light and put it anywhere you want it within half a second."

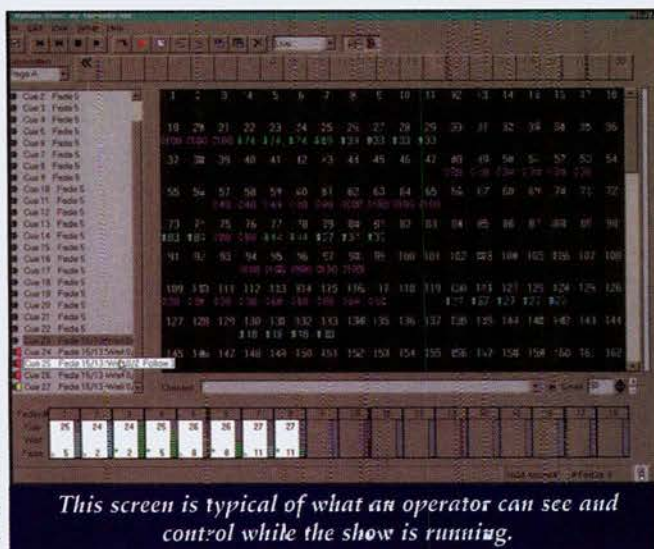
EASE OF OPERATION

When it comes to operating HORIZON, Peter says it's pretty much like anything these days - "You sit down with a six pack and read the manual!". An operation manual is available off the internet and can be downloaded and printed. Peter recommends this as a good place to start.

"Being a last action console, once the user comes to terms with

how to set up the soft patch options from there it's pretty easy because with basic key strokes they can select any light and turn it on and off initially. They can then select a scene, write it as a cue and from there you can get a list of cues, and with the mouse a left or right click will go up or down the cue list. But it's like anything, you don't just sit down at a Hog and instantly know how it works, you've got to read the manual. Once you have a play with HORIZON for a few hours you get a pretty good idea of what it can do."

Rosco make an external submaster Wing Panel which is an optional extra for the HORIZON system. In basic terms the Wing Panel is like a standard 24 channel two scene board which runs off one of the communications ports. The Wing Panel allows another page of specials



which can be run alongside existing cues.

"We're looking at getting a Wing Panel soon to give us more flexibility. And also if you haven't got very experienced operators they can actually put a fair amount of the show onto that and learn their way through HORIZON as they get used to it."

"The Wing Panel would be great for new users because they are probably used to an analogue style desk, but it really is fairly simple to get a feel for how it all works once you read the manual."

And Peter explains, programming on the fly is simple. With a choice of live and blind cues, and the ability to display DMX information

over the channel while it's running other cues, it's easy to move in and out of the functions of the software during a show. There are about 3 different screens set ups that you can access while it's running.

BEST FEATURES

Peter explains that the new version of HORIZON has addressed issues of layout, making it a simpler and more visually representative package

"With the current version, every channel can be labelled whereas previously you only get a channel number and then a value once you selected that channel or dimmed the particular light. The new version gives you all of that plus it gives you the ability to label channels as to if it's a moving light what the function of the channels is such as gobo, colour, iris setting whatever. Most of that is pre-done if the actual moving light is in the patch that is currently available. But with your ordinary channels you can not only label but you can colour code as well so if you've got banks of cans in particular colours that you want to access quickly you can label it as 'can' and have it in the actual colour that you've got it gelled. So you've got a visual representation rather than just a list."

Other features such as softpatching, the Intellimouse and seven different display options make HORIZON a sophisticated and competitive alternative.

This display pull down allows you to select any one of seven displays for modification or review.



IMPROVEMENTS

"The only real improvement we want is for Rosco to provide us with the patches for the moving lights that we use and they're happily doing that at the moment. They've been updating it each Wednesday on the internet as new patches are put in up till the release date of June 1 and then the full version will be available."

FINAL COMMENTS

Apart from the hardware requirements, Peter explains the only other prerequisite for HORIZON is an understanding of PCs.

"I think it's mandatory to have a basic computer knowledge to get into it because if you can't basically get around

continued over

THE INTER-CHANGEABLE REVOLUTION



**JUST A FEW MINUTES
TURNS A WASHLIGHT INTO
AN EFFECTS LUMINAIRE
OR VICE VERSA**

Stage COLOR 1200

A 4-disc cyan, magenta, yellow and amber colour mixing system provides an infinite number of rich hues plus a full range of pastel shades - sure to meet the approval of the most discriminating lighting designers. The exclusive GTC (Gradual colour-Temperature Correction) system provides gradual correction of colour temperature differences from one luminaire to the next. You can choose between three diffusion intensities (including one with an exclusive

50° beam angle), and special effects such as concentric twin-coloured beams and ultraviolet light.

These are just some of the great features you will find in Stage Color 1200, the most powerful and imaginative washlight for advanced applications currently on the market. Stage Color is revolutionary, thanks its easy conversion into the Stage Zoom 1200 effects projector.



Just change the head on your Stage Color 1200 to turn it into a fantastic effects luminaire, Stage Zoom 1200. Or you can convert the other way round.

The basic unit for both fixtures is electrically and mechanically identical, so you can build up the luminaire you need at the very last moment, even just before the show begins! And do it yourself, with no need for expert help.

Both luminaires use an HMI 1200 lamp, the number one choice for professional use. Both luminaires also have generous pan (450°) and tilt (252°) angles with smooth movements and microstepping resolution selectable between 8 or 16 bit.

Hot restrike and lamp control from the desk, along with automatic repositioning after any accidental movements. The convenient transport lock on the moving body make this a highly practical unit.

The standard unit is equipped with an electronic ballast, although a conventional electromechanical system is available as an option.

Stage ZOOM 1200

The 12°-24° lens with zoom and focussing controlled from the desk gives you a wide range of projection angles. The CMY colour mixing system offers an almost limitless palette and is supported by two colour-temperature correction

filters (3200 and 5500 K).

The frost effect offers complete linear variation, allowing a spectacular transition from a hard-edged

beam to an increasingly diffused wash. Stage Zoom 1200 is also packed with graphic effects including static gobos, rotating gobos and rotating prisms. They are all fully combinable and all with indexed positioning through 540° so that a given effect can be repeated on several luminaires. These are just some of the exciting new features of Stage Zoom 1200, the sophisticated new moving-body effects projector. Stage Zoom is revolutionary too, thanks its easy conversion into the Stage Color 1200 washlight.



Distributor:

SHOW LIGHTING AUSTRALIA Pty Ltd - One Park Road - MILTON QLD 4054
Telephone +61 (0) 7 33693399 - Fax +61 (0) 7 33695539

CLAY PAKY SPA - Via G. Pascoli, 1 - 24066 PEDRENGO (BG) Italy
Tel. +39 (0) 35 654311 - Fax +39 (0) 35 665976

Internet: www.claypaky.it - E-mail: cp.sales@claypaky.it



PROFESSIONAL SHOW LIGHTING

Write in Reader Service Number: 155

continued from previous page

a Windows 95 PC you're going to have problems working out how things work. If you can do that and you're aware of right and left clicks to make it work then really its very easy from there. I've used analogue desks for years and I found this so refreshingly new and relatively easy to use and the new version has just confirmed me as a long term user.

"The back up from Rosco is nothing short of fantastic - they are right onto it. If you send them an email about something, you've got an answer within 24 hours. There's a growing user group on their internet site and I frequently get emails from other people wanting to become users asking for my opinions on it. It's a good idea to keep your PC running properly, do all your de-frags and all that sort of stuff, and if you follow the suggestions like don't run other programs while running HORIZON it'll stay quite happy. I've got no qualms about recommending it to anybody who wants a good cost effective lighting system."

Rosco HORIZON Specs:

System Capacity: DMX512 Dimmers: 3,072; Control Channels: 3,072; Cues: No reasonable limit; Groups: No reasonable limit; Overlapping Submasters: 24; Pages of Submasters: No reasonable limit; Simultaneous Fades: 3,072 (time base per channel); Dimmer Profiles: No reasonable limit; Cue Profiles: No reasonable limit.

Requirements: Microsoft Windows 95; Pentium Processor; 16 MB RAM; VGA Video (SVGA recommended); external DMX512 Interface Module; optional external Submaster Wing Panel; optional Trackball; optional printer.

Manufactured by: Rosco Entertainment Technology
Australian Distribution: Rosco Australia Pty Ltd +61 2 9906 6262
Web site: <http://www.etips.com/~etinet>

DMX Interface cost: \$1,950 plus tax

Peter Scott Audio Productions: 018 658 120
Email: sap@mpx.com.au

LXbizzBITS

NEWS

NEW FACE AT BYTECRAFT

A new face at Bytecraft is Janet MacDonald, (ex Three Arts Services) who has joined the Distribution operation. She has taken over internal sales and purchasing from Shirley Jensen who is currently on Maternity Leave.

SHOW TECHNOLOGY ADDRESS CHANGE

Show Technology's PO Box number address has changed. It now should read: PO Box 480, Rydalmere NSW 1701.

GEARHOUSE LIGHTING SNAP UP MAJOR INTERNATIONAL TOUR

Gearhouse Lighting have just successfully completed it's first tour with an international band. Gearhouse Lighting were responsible for the supply of all lighting for the recent Van Halen Australian Tour which consisted of: 21 High End Systems Cyberlight Litho; 20 High End Systems Studio Colour; 32 Par 64 ACL; 162 Par 64 NSP; 12 ETC Source 45"; 12 Jules Fisher Ministrip; 5 X Ray Batten; 4 Lycian 1271 Truss Followspot & chair; 2 High End Systems F100; 2 Reel Efx DF50; 36 High End Systems AF1000; Dimmers; Data multicores and distribution; Mains distribution; Clearcom talkback; Concert truss; Motors; Cable; Touring Crew. In addition, at the Sydney Entertainment Centre additional items were supplied for filming by American MTV for a special to be aired soon.

CLAY PAKY NEWS

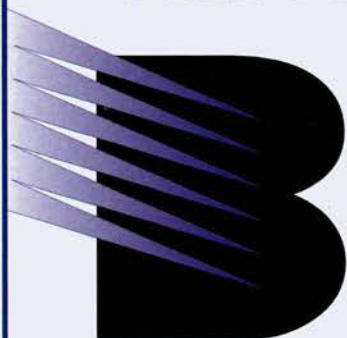
Show Lighting Australia celebrated its second birthday at Entech 98 and commemorated the event by recognising the efforts of Total Concept Productions and Lightmoves PES for their continuous support and sales excellence of Clay Paky product.

Both Renato Ferrari, Clay Paky's Area Manager, and Show Lighting's Managing Director Emmanuel Ziino awarded the plaques to Richard Skwarzynski from Total Concept Projects for Excellence in Sales; and Lightmoves PES Braham Ciddor for Excellence in Product Support.

This move also coincided with Show Lighting Australia's plan to introduce two new distribution initiatives in Australia. For the first time, Show Lighting will be launching a new Clay Paky Production Partners Network. This is a group of Australian and New Zealand production companies that offer Clay Paky products for large scale rental or sub-hire which have been chosen for their commitment to the industry. The second distribution initiative is the Clay Paky Authorised Dealer network provides product support and after-sales support service. It is this Authorised Dealer Network's extensive product knowledge which enables them to deliver total solutions to any project.

For more information about the new distribution schemes - please call Show Lighting Headquarters on +61 7 3369 3399.

NEW BRIO FROM Strand LIGHTING



BYTECRAFT

"Coolbeam" Profile

- New generation of high output, coolbeam, profile spotlight with the added flexibility of zoom optics
- Uses GKV600 - 600W lamp
- Outperforms older generation 1kw spots



BYTECRAFT

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 23-31 Fonceca St, Mordialloc, Vic. 3195
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Website: <http://www.bytecraft.com.au>
 Email: bytecraft@bytecraft.com.au

NEW SOUTH WALES
 5/31 Eridge Rd, Stanmore, N.S.W. 2048
 Phone: 02 9550 3955 Fax: 02 9519 3977

Write in Reader Service No: 101

THE SHOW-LIGHTING REVOLUTION



Stage COLOR 1000

Stage Color 1000 is the washlight that solves colour temperature variation problems at the source thanks to the use of a 1000 Watt halogen lamp.

Designed and built for the needs of television and the theatre, this luminaire uses a 3-filter CMY colour-mixing system to give the exact colour required.

A frost filter of the latest generation provides a wide aperture and perfectly uniform light intensity over the entire illuminated area.

With ovalized projection, electronic dimmer, beam stopper and strobe, the features of Stage Color 1000 are guaranteed to satisfy even the most demanding lighting designer.

WASHLIGHTS ALLOWING TOTAL MASTERY OF COLOUR

Only Clay Paky could make washlights so quiet (no risk of disturbing the hushed atmosphere of the theatre and television studio) and with such mastery of colour, offering an infinite choice of hues and perfect colour temperature correction.

These fine luminaires also share generous pan (450°) and tilt (252°) angles with smooth movements and microstepping resolution selectable between 8 or 16 bit. Both fixtures have automatic repositioning following any accidental



movements thus eliminating time-consuming realignment procedures, together with a convenient moving body lock system for easy transport.

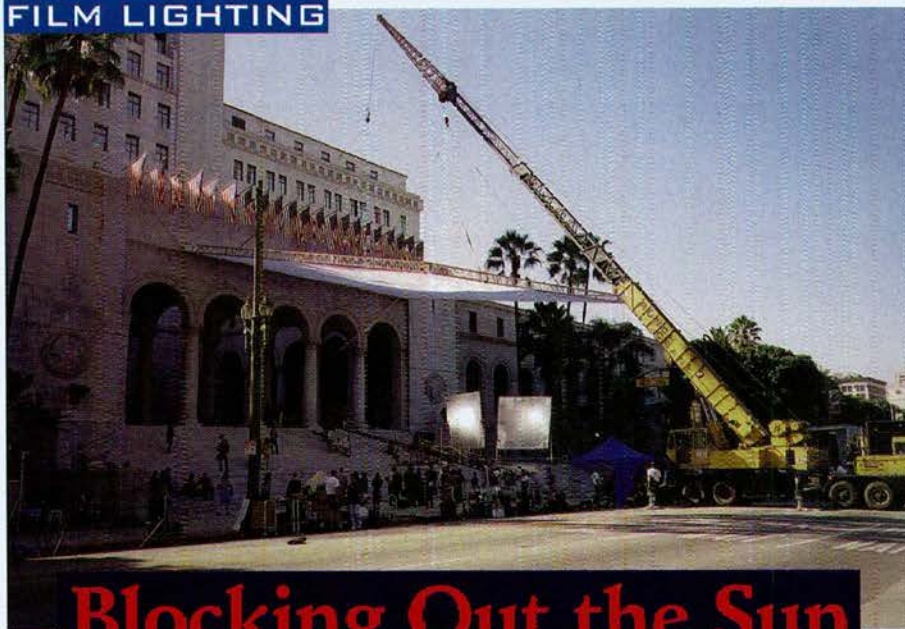
Stage COLOR 575

Stage Color 575 uses a tried and tested HMI 575/SE discharge lamp with optional hot restrike and on/off control from the lighting desk.

The 4-disc cycle, yellow, magenta and amber colour mixing system can generate infinite variations of tone, with a range of beautiful pastel shades to create special atmospheres not possible using conventional 3-colour systems.

The luminaire is complete with GTC, the exclusive Gradual-variation colour Temperature-Correction system.

3 filters for 3 different intensity frost effects, special effects, ovalized beam, beam stopper, strobe and mechanical dimmer are just some of the features of Stage Color 575, the washlight that offers the maximum creative potential supported by unparalleled reliability.



Blocking Out the Sun

Russell Boyd working the LA streets

Russell Boyd, DOP on *Gallipoli*, *Picnic at Hanging Rock*, *Lost Wave*, *High Tide*, and *Crocodile Dundee*, is one of the seminal figures in the Australian film industry.

In '82, Boyd shot his first film in the US, Bruce Beresford's *Tender Mercies*, with Robert Duvall. He didn't get into the union until '85, with *Crocodile Dundee*. Now he works mainly in America, where he was DOP on *White Men Can't Jump*, *Tim Cup*, *Liar Liar*, and many more.

Working in the States

Boyd finds the crews professional in the US. "There's a very competitive attitude, work can be hard to come by, so there's certainly a desire to please. And since it's Hollywood, home of the movies, they are pretty experienced. But they aren't any better than Australian crews."

On big studio pictures, gaffers don't arrive with their own gear. "If you're working on a studio lot, like Universal, Warner Brothers, or Fox, they don't allow you onto the lot with a truck full of gear," he explained. "You have to rent it from the studios themselves. It's not profitable for guys to get into a lot of lighting gear. That would mean they could only do independent pictures then, and that would narrow their choice, and create a little conflict of interest."

But Pat Murray, the gaffer Boyd works with in the States, is starting to put together a truck. He can still do about two independent films, and he figures that he doesn't need to keep his gear working twelve months of the year.

Murray started off as best boy on *Crocodile Dundee*, and has now done five films with Boyd. "In a gaffer, I look for an efficient handling of pre-rigging, and creative input in terms of lighting. How we could do it differently if he thinks what I'm doing is wrong."

Pressure and preparation

"On a location survey, you can never rely on directors saying, 'My first shot will be here, second there,'" Boyd explained. "And it's the same when you're working on a set. So, we pre-rig as much as possible, so that we can light from any angle. If I have a set with 12' walls, I'll suspend a silk over the entire set, and then put in a whole lot of 5Kws and 2Kws, that can be switched on. So we can shoot and light in any direction at any time. Then we only have to deal with lights on the floor, like fill lights for the actual shots."

"Pre-rigging is happening more in Australia but it has always been done in America, because of the bigger budgets. Pre-rigging is a very important part of the process. If we go out on a night shoot, it's generally been pre-rigged. All the cables have been laid by a day crew, generators put in place, Muscos or Bee Bee lights cherry pickers, are all set before we show up."

Muscos are remote controlled HMI pars that can flood or spot. They are lifted by a huge industrial crane, that has its own generator. "They're fabulous pieces of night equipment," Boyd said.

Bid budget shoots must be quite stressful, as so much money is at stake every extra minute the camera crew is fiddling around with lights. "It's part of the DOP's job, to handle all that stuff. I try to keep as light an attitude as possible. I like a set that's happy, and prepared to have a few jokes. The pressure of time is always intense in any film."

The First Assistant Director keeps the shoot moving along. "The First is not necessarily breathing down my neck, I work pretty closely with the First. We try to figure out the best way to save time here so we can get through the day's call sheet."

continued on next page

LXbizzBITS

PRODUCTS

BABY TOWER SYSTEM

The Baby Tower System, manufactured by James Thomas Engineering, is a ground support system designed to lift loads of up to 500kgs to a maximum height of 7 metres using chain motors, chain blocks or hand winches. The tower sections are made up of modular lengths of 10cm x 6mm wall thickness tube and are available in lengths from 0.5m to 3m, making the system light weight and easily transportable. For example a 3m tower section weighs only 17kgs which is not much more than a 3m section of standard tri truss. James Thomas Engineering produce sleeve frames for their entire range of trusses up to and including 52cm Supertruss, making the Baby Tower versatile.

Call Clearlight Shows +61 3 9553 1688.

JEM ZR12 AL

JEM's new mid-sized portable smoke machine - the JEM ZR12 AL - carries many of the features of earlier JEM fogger models. However output has been enhanced through 1kW varourising camber made possible by 3 metres of tube forcing the cupreous helicoil. JEM claim that this guarantees the operator a continuous flow of dry, dense smoke controlled from JEM's new multi-functional on-board remote. The Analogue Link slave sockets allow multiples of machines to be operated from the multifunctional remote control. Price is \$1099 inc tax.



Call Show Technology +61 2 9898 1111.

THE GOBO FACTORY

The Gobo Factory manufactures gobos in Australia for the Australian market. Their latest initiative is the introduction of Theme sets aimed at filling the gap between catalogue and custom made gobos. The Gobo Factory will do all the legwork of sourcing an array of original images to suit any given theme, all the client has to do is

continued on next page

THE COMPACT REVOLUTION



Stage COLOR 300

Presenting an ultra-compact washlight with a high-quality Fresnel lens, plus an efficient and spectacular fading frost effect with perfectly linear variation.

The innovative frost system provides a unique 50° aperture with uniform light intensity over the entire illuminated area, which greatly reduces the typical loss of brightness associated with conventional diffusers.

The CMY colour mixing provides an infinite varied palette, allowing lighting designers to choose exactly the right tone of colour for each scene. With a dimmer and beam stopper on separate independent channels, Stage Color 300 achieves a level of performance previously available only from far larger and more powerful luminaires.

PINT-SIZE FIXTURES WITH BIG PERSONALITIES

Clay Paky have revolutionized the world of compact luminaires, making them so efficient and versatile that they are ideal for any type of environment and application. Both models use either the HTI 300 discharge lamp, offering the same features as the more powerful HTI lamps from which it is derived, or the brand new HMC 300 with a 3,000 hour average lifetime and colour temperature in excess of 5000 K. Equipped with a highly practical automatic repositioning device to correct accidental movements both luminaires are also designed



for easy handling thanks to a convenient transport lock on the moving body. The wealth of functions provided by Stage Color 300 and Stage Light 300 makes them an ideal duo for professional and discotheque applications. Thanks to Clay Paky, top-level performance and compact dimensions are no longer conflicting requirements in the world of professional show lighting.

Stage LIGHT 300

Presenting an ultra-compact effects luminaire equipped with electronic focusing and a manual zoom lens for a wide range of projection angles. This unit provides unique features for a fixture in this category.

36 colour combinations, 2 filters for colour temperature correction and special effects filters combined with refined graphics equipment including 6 rotating gobos with indexed positioning through 540° and a 3-face prism. There is also a mechanical dimmer and a high speed strobe.

The superlative performance and features of Stage Light 300 rate it as the most advanced compact moving body effects projector on the market.

PRODUCTS

choose the preferred images.

The turnaround time for most gobos is just 2 days, in many cases it is order to-day receive tomorrow. The product range includes: custom made stainless steel gobos to suit any equipment; custom made glass gobos to suit most equipment; catalogue designs in both metal and glass; and theme sets.

Call Mark Blackwood or Jenni Wight on +61 3 5439 3770.

MARTIN PROSCENIUM^{DMX}

The Martin ProScenium^{DMX} is a DMX512 software package that can turn your PC or laptop into a lighting console. Windows 95 based, it allows an operator to be up, running and enjoying its multitude of advanced features in just five minutes, claim Martin.



The Martin ProScenium^{DMX} Auto Replay system allows a recorded playback capability. This tool lets any sequence of lighting effects (cues, chases, loops etc) be stored on a DMX512 channel and then played back simply as a multimedia tape recorder or MIDI sequencer.

All real time effects, normally hours of programming, can now be stored in a few megabytes of disks. Price is \$3299 inc tax.

Call Martin Professional Lighting Australia +61 2 9898 1111.

FILM LIGHTING

Russell Boyd Profile continued from previous page

Setting a scene

Boyd estimates that it takes about 25 minutes to light a room scene. "If you're shooting from one side of the room, and then the other, you could set up in 25 minutes, particularly if you pre-rig to shoot from either direction.

"There's a bit of a misconception about the time it takes to light a scene on a movie set. I've found that lighting takes no more time than it takes to set the camera up, and rehearse the shot with the actors and the focus puller. People automatically go, 'How long is it going to take to light this shot?' The lighting set up time goes hand in hand with everything else."

Liar, Liar

The hilarious film with Jim Carrey, about a lawyer unable to lie for one day, had two big sets, the courtroom, and the law offices. During the pre-rig, Boyd's team suspended a silk over the entire top of both those sets. They put a lot of 10 and 20Kws through those silks, particularly in the court room. These scenes were shot with two cameras, with one towards the public seating, and the other on Jim Carrey.

By having lights suspended above, they could light 360 degrees. They added fill lights from the floor to soften out any shadows. "Both sets were so big, that the light wasn't from an extreme top angle. The set was about 70' long, so I was able to fire in a 20Kw from 70' away through the silk. Even though it was up high, it was far enough away that we didn't get the dark shadows under the eyes."

The lights are all suspended from what Americans call 'green beds.' "We don't have them in Australia. I haven't been to the Fox stage yet, but I hope they have built them there," Boyd said.

Green beds have been used in Hollywood since the '20s. A wooden structure about a metre wide is suspended from the roof by chains. It goes right around the top edge of the film set. You can put as many lights as you want on the green bed. "We usually use a mixture of 5Kws, and



Russell Boyd

2Kws fresnels. Mole-Richardsons mainly, because they are the studio standard in Hollywood for fresnel lights."

The grips pre-rig the green beds, which sit just above the set. The lamps are not on stands, but set into holes drilled into the floor of the green bed. The spigot below the bale sits into the hole. "It's a pretty flexible system. When you're shooting, you generally have one or two grips and a couple of electricians up high, where it's hotter than hell. All the heat rises, so it's like a sweat box up there."

Boyd uses a lot of Kino Flos for close-up fills these days. "They are a system of flouros that are true to colour temperature, and they give off a fabulous light."

Blocking out the LA sun

"On the location survey, I figured the sun rose behind the LA City Hall, and set in front of it. It meant that we would be shooting in shadow all morning, and sun after lunch. We had a scene that was going to take a whole day to shoot, so I had to combat the fact that the light would change dramatically while we were all at lunch.

"An idle crew and very expensive actors in Hollywood costs quite a lot of money. I eventually talked the producers into getting a 60x80' silk made up. It was expensive to build, but it guaranteed we could shoot for the whole day. We contacted a few scaffold companies, and got a big square rock and roll truss built. To suspend it, we had to have a huge industrial crane, and lift the silk about 50' above our heads. The crane could have lifted it 100'. Once the sun hits the silk, it virtually becomes a shadowless light, like the morning."

The silk was tied down at each corner by heavy duty stakes in the ground. It sounds as exciting as the movie.

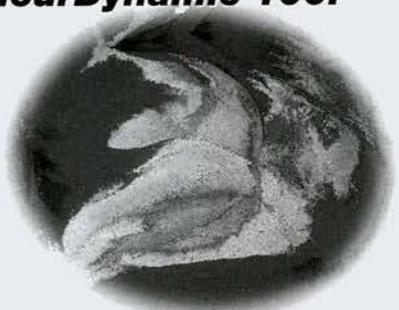
by Madeleine Murray

There is something new in light effects: ColourDynamic 100.

SGM

LIGHT TECHNOLOGY

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Here's a snapshot of our most recent clientele:

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Technofear Demonstration Studio



BUYER'S GUIDE

profile/pc spots

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

FIXED BEAM PROFILE SPOTS

ALTMAN

Chameleon Touring Systems (02) 9310 5222
3.5" Ellipsoid rated at 500w these compact (370mm long) spots are available in 18°, 23°, 28°, 38°, and 48° beam angles. Each unit is supplied with clamp, safety wire and colour frame. 240v long life (2000hrs) lamps available. \$500.

360Q is the workhorse of the Altman range and are rated at 1000w (at 240v). Available in 11°, 19°, 26°, 37°, and 55° beam angles. Each unit supplied with hook, safety wire and colour frame. \$530.

Shakespeare a popular dichroic reflector ellipsoidal spotlight as used on Phantom and Les Mis. Available in 50°, 40°, 30°, 20°, 10°, 12° and 5°. Supplied with clamp, safety wire and colour frame. \$759.

CCT

Premier Lighting (03) 9646 4522

Freedom 600 20°, 30°, 40°, 50° Fixed Lenses. 600 watts. Interchangeable lens tube and rotatable through 360°. Light output exceeds traditional 1.2K. Optional on board dimmers. \$720.

Freedom 800 20°, 30°, 40°, 50° Fixed Lenses. 800 watts. Interchangeable lens tube and rotatable through 360°. Light output exceeds traditional 1.2K. Optional on board dimmers. \$835

COEMAR

Coemar De Sisti Australia (03) 9467 8666

Focus EHP 1800 Beam spread: 30 - 47°. Size(mm): (LWH) 800 x 500 x 260. Wattage: 1800W Discharge CMD. Working Distance: 4m - 30m. Complete with Framing Shutters and Frost Filter. Options include: Iris, Gobo Holder, Dichroic Glass Filter Holder, Gel Holder, Mechanical Dimmer. \$5750.

Focus EHP 2500HTI Beam spread: 30 - 47°. Size(mm): (LWH) 800 x 500 x 260. Wattage: Working Distance: 4m - 30m. Complete with Framing Shutters and Frost Filter. Options include: Iris, Gobo Holder, Dichroic Glass Filter Holder, Gel Holder, Mechanical Dimmer. \$6880.

Centro Pro Beam spread: 26°. Size(mm): (LWH) 390 x 195 x 260. Wattage: 300/500W GY9.5 Working Distance: 3m - 12m. Complete with Framing Shutters. Options include: Iris, Deflecting Mirror, Gobo Holder, Coloured Glass. \$370.

Centro Mastercolour Beam spread: 25°. Size(mm): (LWH) 390 x 195 x 260. Wattage: 150W CMD Working Distance: 3m - 9m. Complete with Framing Shutters. Options include: Iris, Deflecting Mirror, Gobo Holder, Coloured Glass, Magnetic or Electronic Ballast. \$460.

ETC

Jands Electronics (02) 9582 0909

Source Four 450/436/426/419 Source Four available in 5°, 10°, 19°, 36°, 50° formats. Interchangeable lens tubes on compact high output 575W fixture utilising HPL 575W lamp and a faceted, moulded, glass reflector for optimum performance. \$897.54(19°, 36°, 50°), \$1307.38(10°), \$1635.25(5°).

Source Four Junior 450J/436J/426J Source Four Junior available in 26°, 36°, 50° formats. Compact version of the Source Four fixture. High output utilising HPL 575W lamp and faceted glass dichroic reflector. Accessories as for standard Source Four. \$635.25.

SELECON

Various distributors

Selecon PACIFIC range World's first base down axial profile, active heat management system. Choice of 600w and 1000w lamps, providing output as for traditional luminaires of double the wattage. Interchangeable lens & lens tubes. Zoom 12° to 28° & 26° to 50°.

Fixed angle - 20°, 30°, 40°, 50°. Rotatable lens tube, double gobo slots, auto power disconnect. Cool light. Cool luminaire. Zooms \$720, Fixed angle \$ 650.

STRAND LIGHTING

Bytecraft (03) 9587 2555

(02) 95503955

Leko High output 1000W ellipsoidal spotlight with a range of five fixed angles, 15°, 20°, 30°, 40°, 50°. Designed for ease of focusing, compact dimensions and light weight. High angularity shutter assembly and simple lamp replacement. 5° and 10° versions also available. Ex tax \$657

ZOOM PROFILE SPOTS

ALTMAN

Chameleon Touring Systems (02) 9310 5222

Micro Ellipse is a compact low voltage zoom framing spot rated to 75w. Using a 12V MR16 lamp, this unit is suitable for architectural or display applications. Inc. colour frame and gobo holder. \$489.

Baby Zoom Ellipse available in 3 zoom ranges 15°-30°, 22°-50° and 30°-60° rated up to 750w. Long life 2000hr 240v lamps available supplied with hook, safety wire, colour frame and gobo holder. \$600.

Shakespeare Zoom are available in 2 zoom ranges 15°-36° and 30°-55°. Uses non proprietary lamp, rotating lens tubes, heat proof handles, dichroic reflector, rated at 600w with an output exceeding most 1200w units. \$1100.

CCT

Premier Lighting (03) 9646 4522

Freedom 600 15°-30°, 28°-58°, or 20°-40° Variable Beam. 800 watts. Interchangeable lens tube and rotatable through 360°. Light output exceeds traditional 1.2K. Optional on board dimmers. \$857.

Freedom 600 7° - 17° Variable Beam. 800 watts. Interchangeable lens tube and rotatable through 360°. Light output exceeds traditional 1.2K. Optional on board dimmers. \$959.

Freedom 800 15°-30°, 28°-58°, or 20°-40° Variable Beam. 800 watts. Interchangeable lens tube and rotatable through 360°. Light output exceeds traditional 1.2K. Optional on board dimmers. \$959.00

Freedom 800 7°-17° Variable Beam. 800 watts Interchangeable lens tube and rotatable through 360°. Light output exceeds traditional 1.2K. Optional on board dimmers. \$1034.



Pulsar 650 Pebble Convex

COEMAR

Coemar De Sisti Australia (03) 9467 8666

Zenith Beam spread - 15/41°. Size(mm) approx: LWH) 608 x 209 x 306. Wattage: 500W GY9.5 Working Distance: 3m - 9m. Complete with Framing Shutters & Colour Frame. Options include: Iris, Gobo Holder. \$600.

PROLITE

Phone 1300 50 13 12 for nearest distributor

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PR7-ZP/W/A (SERIES III) DETAILS: 600W AXIAL GKV Lamp, Beam Angles 22/44°, Weight 4.6kg, Length 450mm. Power Cut-off Switch, New Optics. Output is in the range of conventional 1000/1200W luminaires. \$400 (incl. delivery to major centres).

PULSAR

Show Technology (02) 9898 1111

Profile Spot 650W, designed to full professional standards, produces a fully focusable hard or soft edged beam along with the usual features of a profile spot. Also comes with runners for optional gobo holder or iris. \$434.43.

Fresne Pebble Convex 650W, adjustable focus (from 68° to 8.5°), safety bracket, locking cup and sprung gel frame. Sturdy unit fitted with a polished pebble convex lens which gives tighter focus (down to 60). \$233.61.

SELECON

Various distributors

Acclaim Zoomspot Std (18 - 34) and **Wide** (24 - 44) 300 - 650W. Industry std 240v "T" class lamps (av. life 500 - 600hrs). Ellipsoidal reflector. Interchangeable lens trays. Wide range of shutter masking angles. Rotatable pattern holder. Auto mains power disconnect, exceeds European safety requirements. Wgt - 5.4kg. \$435.

Acclaim Condenser Std (18 - 32) and **Wide** (24 - 44) 300 - 650W. Industry std 240v "T" class lamps (av. life 500 - 900hrs). Dual condenser optics, ideal pattern

projector. Interchangeable lens trays. Wide range of shutter masking angles. Rotatable pattern holder. Auto mains power disconnect, exceeds European safety requirements. Wgt 5.4 kg. \$535.

Selecon Zoomspot 1200 Medium 18 - 34, Wide 24 - 40. 1.0/1.2kw. Industry std 240v "T" class lamps (av. life 500 - 900hrs).

Ellipsoidal reflector. Interchangeable lens trays. Dual rotatable shutter system. Rotatable pattern holder. Auto mains disconnect, exceeds European safety requirements. \$835.

Arena Zoomspot Narrow 9 - 18, Medium 14 - 32, Wide 20 - 37. 2.0/ 2.5kw. Ellipsoidal reflector. Choice of GY 16 (CP72) or G22 (CP91, CP 92) lamp base. Entech Award winner 1996. Interchangeable M & W lens trays. Dual rotatable shutter system. Rotatable pattern holder. Auto mains power disconnect, exceeds European safety requirements. Narrow Wgt 20.3kg, Medium & Wide 19.7kg. \$1700.

SPOTLIGHT

Ashton Admor (08) 9478 3800 or for Sydney 0419 950 638

Figura 05 650w 23°-40° zoom profile. Quick acting clamp focusing professional theatre luminaire. \$499. Also 14°-30° zoom profile \$502.

Figura 12 1200w 24°-50° wide angle zoom or 13°-35° medium zoom configuration. Quick acting clamp focusing professional theatre luminaire. \$955.

Figura 25 2kW-2.5kW 17°-36° zoom profile. Quick acting clamp focusing professional theatre luminaire. \$1641. Also 9°-25° zoom profile \$1649.

Quadro 500 650w, 12°-29° zoom standard profile. \$406. Also 1000w 12°-27° zoom standard profile \$569 and 2000w 11°-26° zoom standard profile \$1205.

STRAND LIGHTING

Bytecraft (03) 9587 2555 (02) 95503955

BRIO 600W Coolbeam New generation of high output coolbeam profile spotlight, using the new GKV 600W lamp, outperforms older generation of 1kW lanterns. Compact size ideal for tight rigging situations, two models 18° - 30° and 25° to 50°. Bayonet action lamp change system, easy to use lamp adjustment. \$820.

Quartet 22/40 MKII 650W compact economical twin lens zoom profile which has been updated. Redesigned profile lens offers smoother, more sensitive movement. With beam angle and focus control in addition to peak/flat beam distribution adjustment. Uses T26 lamp, Ideal for theatres, school stages, museums and display lighting. Also available as 15/25 deg. \$489.

Prelude 16/30 650W professional specification spotlight suitable for small to medium venues, high performance optics, uses T26 lamp, 16° to 30° variable beam spread. Includes 4 integral shutters and slot for gobo holder or iris. Also available as 28/40. \$693.

Cantata 1200W professional theatre spot for theatre, concert halls and touring. Include rotatable gate assembly, easy access for lens cleaning, adjustment between peaky and flat. Uses T19 lamp. Available as 11/26, 18/32 or 26/44 beam spread. \$1167.

TAS

Coemar De Sisti Australia (03) 9467 8666

Profile 22/40 Beam spread: 22/40°. Size(mm): 740 x 355 x 408. Wattage: 650/1K/1.2K GX9.5 Working Distance: 4m - 11m. Complete with Framing Shutters & Colour Frame. Options include: Iris, Safety Wire Guard, Gobo Holder. \$957.

Profile 15/28 Beam spread: 15/28°. Size(mm): 740 x 355 x 408. Wattage: 650/1K/1.2K GX9.5 Working Distance: 6m - 17m. Complete with Framing Shutters & Colour Frame. Options include: Iris, Safety Wire Guard, Gobo Holder. \$977.



Strand Leko

PC SPOTS

CCT

Premier Lighting (03) 9646 4522
Freedom 600 Freble PC 14° - 40° Variable Beam. 600 watts. Interchangeable lens tube and rotatable through 360°. Light output exceeds traditional 1.2K. Optional on board dimmers. \$470.

COEMAR

Coemar De Sisti Australia (03) 9467 8666
Corto Beam spread: 8° to 50°. Size(mm): (LWH) 225 x 204 x 245. Wattage: 300/500W GY9.5 Working Distance: 3m -10m. Complete with Colour Frame. Options include: Barndoors, Motorised Colour Wheel, Safety Wire Guard. \$232.

Zenith 300/500 Beam spread (approx): 13° to 64°. Size(mm) approx: (LWH) 336 x 209 x 306. Wattage: 300/500 GY9.5 Working Distance: 4m -10m. Complete with Colour Frame. Options include: Barndoors, Safety Wire Guard. \$324.

Passo 650/1K/1.2K Beam spread: 5.5° to 58°. Size(mm): (LWH) 435 x 290 x 400. Wattage: 650W/1K/1.2K GX9.5 Working Distance: 5m -18m. Complete with Colour Frame. Options include: Barndoors, Motorised Colour Wheel, Safety Wire Guard. \$355.

PROLITE

Phone 1800 50 13 12 for nearest distributor

PR7-PC (SERIES III) 500/650W, T25/27 Lamps, Beam Angles 5/65°, Weight 2.9kg, Length 315mm. Power Cut-off Switch. \$210 (incl. delivery to major centres).

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PR22-PC (SERIES II) DETAILS: 2000W, CP72 Lamp, Beam Angles 7/70°, Weight 10.5kg, Length 390mm. \$475 (incl. delivery to major centres).

SELECON

Various distributors

Acclaim P.C. 300 - 650w. Industry std "T" class lamps (av life 500 - 600hrs). Adjustable beam 4 - 64°. Auto mains disconnect. Rear grab handle. Captive focus movement system. Adjustable yoke position. Barndoor accessory to shape beam available. \$230.

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Ashton Admor (08) 9478 3800 or for Sydney 0419 950 638

Vario 650w 5.5°-58° beam spread professional theatre luminaire \$316. Also 1200w 3.7°-70° \$464 and 2000-2500w 7°-65° \$801. No light spill, lead screw beam control.

Combi 650w 5.5°-58° beam spread \$254. No light spill. Also 1200w 3.7°-70° \$345 and 2000-2500w 3.6°-62° \$565. No light spill, lead screw beam control.

Quadro 500w 9°-58° beam spread standard luminaire \$201. Also 1000w 8°-50° \$261 and 2000w 11°-62° \$460.

STRAND LIGHTING

Bytecraft (03) 9587 2555 (02) 95503955
Quartet PC MKII 650W compact economical spot which has been updated. With a Prism-Convex lens giving a tighter beam and wider

range of beam angles from 7.5° to 55.5°. Uses T26 lamp, ideal for theatres, school stages, museums and display lighting. \$306.

Prelude PC 650W professional specification spotlight suitable for small to medium venues, high performance optics, uses T26 lamp, dual height stirrup, electrically isolated during lamp replacement. \$448.

Cantata PC 1200W powerful theatre spot with a Prism-Convex lens giving a tighter spot and wider range of beam angles than a fresnel. Screw action focus adjustment varies the beam angle from 4.5° to 52.7°. Uses T19 lamp. \$632.

Alto PC 2000W high power high specification spotlight giving an intense beam of light with a less diffused edge than a fresnel. Front and rear screw action focus provides a variable beam between 4° and 58°. Uses CP52 lamp. Optional barndoors. \$1243.

Selecon Acclaim PC Spot



TAS

Coemar De Sisti Australia (03) 9467 8666
Spot 300/500 PC Eco Approx. Beam spread: 8° to 50° Approx. Size(mm): (LWH) 225 x 204 x 245. Wattage: 300/500W GY9.5 Working Distance: 3m -10m. Complete with Colour Frame. Options include: Fixed & Rotating Barndoors. \$219.

Spot 650/1K/1.2K PC Eco Approx. Beam spread: 7° to 60° Approx. Size(mm): (LWH) 400 x 250 x 300. Wattage: 650W/1K/1.2K GX9.5 Working Distance: 4m -16m. Complete with Colour Frame. Options include: Fixed & Rotating Barndoors. \$252.

Spot 650/1K/1.2K PC Beam spread: 7° to 60° Size(mm): (LWH) 409 x 254 x 300. Wattage: 650W/1K/1.2K GX9.5 Working Distance: 4m -16m. Complete with Colour Frame. Options include: Fixed & Rotating Barndoors, Safety Wire Guard. \$334.

TEATRO

Lightmoves Technologies (02) 9566 0000
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Spazio 1200 Constructed from a three part high pressure alum die casting shell, finned ventilation 100mm, Aluminium reflector, Half peak 5° - 61°. \$455.

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Hessian's Shed

Hessian's Shed started off as a live music and comedy show at the Esplanade Hotel in St Kilda featuring Paul Hester (ex Crowded House) and his band The Largest Living Things, comedian Brian Nankervis and lots of guest artists. When the idea of turning the live show into a TV program came about, Co-Producers Paul Hester, and Trevor Hoare from Espy Comedy, were determined to keep to the original format.

The taping of *Hessian's Shed* took place over ten nights in April as part of the Melbourne Comedy Festival.

Performed in the variety based Gershwin Room at the Espy, and featuring a kitschly decorated three-walled set as the 'shed' as well as a shrine dedicated to Bert Newton, audiences were treated to an awesome array of musicians, comedians, performance poets and just about everything in between.

Hessian's guests included Paul Kelly, Colin Hay, Vince Jones, Deborah Conway, Dylan Lewis, Lynda Gibson, Tony Martin and Mick Molloy and many other incredible performers. But perhaps the highlight of the season was the secret Crowded House reunion in the shed. Luckily the cameras were there to capture the moment.

Lighting the Shed

Tony Day isn't exactly the house technician at the Esplanade Hotel, but he's probably the closest thing to it. He describes himself as "the guy they get to do stuff when it needs to be done". He looks after the Espy Comedy shows every week, and the general maintenance of the lighting equipment.

As Lighting Designer and Operator for *Hessian's Shed*, Tony had to achieve a balance between creating an ambient lighting design for the room while working within the technical requirements of the camera crew.

"When it was first talked about the idea was that the cameras would just come into the show and they wouldn't be noticed. It didn't quite work out that way but we tried to not let it change the feel of the show," said Tony.

But the television aspect did mean some restrictions on the type of lighting Tony could have, such as not too much flashing, and no blackouts.

In keeping with the rather laid-back and mellow mood of the shed, Tony's lighting design was versatile yet low key.



"I wanted to make it comfortable and relaxing, and avoid bringing in a lot of extra gear."

Tony used the house console, a good old Jands ESP 24 to run all the conventional luminaires. His rig included Par 64s and 56s, Ray Cans, ETs, Mirrorball, Pinspots, Pattern 23s, Trackspots, Profiles, Cyc lights, and a CCT Followspot.

"We hired in our extra gear from Stage Two Lighting - they're just down the road and they were really helpful. We brought in the 4 Trackspots plus the Trackspot controller which is great because it doesn't take up too much room - I've just slotted it in under the main lighting desk. All the channels were pretty much loaded and I didn't want to have to bring in extra dimmers or anything, so the Trackspots were a good way of getting some interesting effects without having to bring in a whole new system, and they don't generate too much extra heat. The only problem with that is that it is difficult to operate both systems at once. A lot of Trackspot use is for discos or that sort of thing where there's not a lot of emphasis on the time element, but with the band you've got to be able to be flexible with the speed of the songs and the mood.

"I've been doing a lot of manual stuff, shifting between scenes so that I can keep them moving in time with the music. But it's quite awkward - that's the one prob-

lem with the Trackspot controller that it's not very manually set up, it's more for pre-programmed controlling where you're running patterns or pre-recorded scenes. Even just physically the buttons on it aren't great for doing things like quick flashes."

Tony enjoyed the challenge of running the two desks at once so he could sync it to the music and play with the mood of the room.

"Most of the lighting I'm doing is using the pre-set scene of the stage with the spots for the band and the backlighting and set lighting which stays constant, it's just colour changes and effects over the top of that. I've got the 64's and Rays and Pinspots in the main desk and then the four movers so it's pretty much constant movement, there's always something happening to alter the main state. Basically I always need to be manually operating both desks at the same time which means changing any of the faders or scene banks in the trackspots is a little difficult."

On set lighting such as fairy lights and a couple of household lamps added atmosphere to the set, and three ET's mounted behind the set created the effect of the shed roof.

"The ET's are just a Q1 lamp with two lenses on the front which focuses the long beam straight out of the lamp, and with the smoke you get this great sheet of light.

continued over

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Hessie's Shed

continued from page 80

I put them in because where the set finishes you see the painted night sky as the backdrop but the light from the ET's make a pseudo roof to the set. And with smokers in the audience the air gets really quite dense in the Gershwin Room so you see a lot of really good beams."

To add a bit more density to the air, MC of *Hessie's Shed*, Brian Nankervis created the worlds cheapest smoke machine - a toaster.

"It's a really good smoke machine - great particles and a really good smell, especially when he uses raisin toast! It really relaxes

everybody, it's almost like incense. And it thickens up the air beautifully - that's when I can really go crazy with as many Trackspot chases as possible, and with the pins and everything going it looks great."

Tony used a mirrorball to add subtle

Jim McMillan, Damien Goudge and Tony Day



The Shed Goes National

Bruce Permezel from Beyond International came in as Director. "The philosophy behind it is really not to impose upon the live show for the fact of us making a television show. That's why we're not running around dominating with cables everywhere and cameras on stage. We went for a slightly more 'doco' feel to it rather than just full coverage," Bruce explained.

Bruce used a four camera set up - 3 Sony DV digital format cameras, and the smaller Sony DVC camera which Bruce

operated as a steadycam.

"The quality of the digital cameras is good, obviously it's not betacam, but for the compactness, the ease of use and cost, they're a good choice. The cameras don't have timecode and we're not switching it live so all the cameras are being iso-recorded onto their own decks. It all gets transferred up to Betacam SP because there aren't any really good editing decks for this format yet, so then we edit on an Avid and then on-line it to digital SP and that's the delivery to the ABC.

"Because the cameras don't have timecode we're recording timecode sent from the audio guys and it's going onto track 2 of the 3 DV cam cameras, and for the DVC I'm shooting the timecode slate at the start and end of every take so when it comes to editing all the tapes will have identical timecode matching the audio which they're recording onto 24 track so everything will sync up in the editing suite."

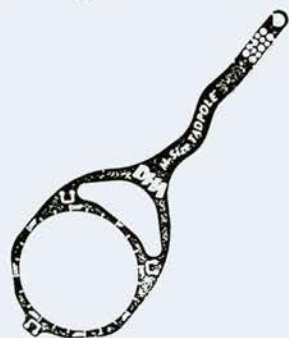
The two and a half hour live show will be edited down to 55 minutes of television. And with a week of editing per episode, Bruce said the risks they took can be made up for in the edit suite.

• **Mandy Jones**

Hessie's Shed will air on the ABC later in the year.

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movement and variation to the main lighting states.

"It was great with the Trackspots, but it took a lot of focussing time because I'd never used them before this show. The position memories on the trackspot controller are really precise - especially with the mirrorball, being able to lock in right on those memories to get some nice beams. It's great to be able to hit the mirrorball scene and all the trackspots come on at once and there it is. I use a lot of mirrorball reflection on the set. I always let the mirrorball reflect onto the back so you get that motion behind the band."

In colouring the rig, Tony wanted to create an ambient setting that could be quite moody when needed, but would easily take on other colours and effects for a dramatic change.

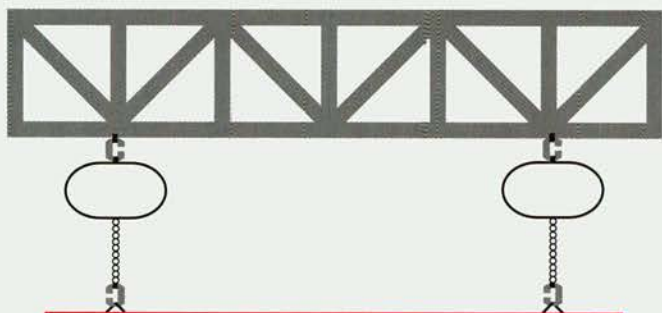
"I kept it all to the blue end of the spectrum - medium blue, aqua, pale lavender, and the key lighting and spots are all just open white. I was going to do a lot of other colours with the trackspots but again I kept it to blue chases and scrollers. It comes up really well on the video."

Through trial and error Tony found that some colours did not translate well on video so he had to change his design as he went. "Mauve and orange didn't come up well on video so I got rid of them. That's why it ended up very blue, but I did layer some pale red chases and some green chases in the trackspots over that.

"I found that the blue suited most of the performers we've had because a lot of them have been doing mellow songs and when it rocks cut you just hit it with some bright trackspot movement strobing and mirrorball and all that stuff."

Production Credits:

Co-Producers: Paul Hester and Trevor Hoare **Director:** Bruce Permezel **Lighting:** Tony Day **Followspot/Set Assistant:** Damien Goudge **House Sound:** Jim McMillan **Espy Recording:** James 'Oysters' Kilpatrick.



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ALTMAN SHAKESPEARE

By Cat Forcer

Altman's Shakespeare 600 Series ellipsoidal use a compact filament HX600 (600W) lamp developed in conjunction with the GE/Thorn group. A specially coated optical system is used, which Altman claim enables them to meet, or exceed, the light output and quality of conventional 1000W FEL based systems. In addition it is claimed that this combination produces a cooler focused beam which means longer shutter, pattern and gel life.

Since becoming available in Australia a couple of years ago, they have found their way on plenty of theatrical shows. Richard Pacholski, better known to many in the industry as R2, is the Electrical Manager for Cameron Macintosh ventures in Australia. It is his job to oversee the lighting and electrical aspects of which ever Cam Mac productions are playing in Australia. I caught up with R2 at Sydney's Theatre Royal where a production of *Les Mis* has been running for several weeks. The show uses about one hundred Shakespeares whilst another couple of hundred are on tour with *Phantom of the Opera*. All are on hire from Chameleon Touring Systems. R2 was joined by Hugh Carlton (Head Electrician) Paul Mulcahy (Board Operator), and Rob Cica (Automation Operator).

THE HISTORY

"When we were doing *Miss Saigon* we started using Altman Lekos," explained R2. "The Shakespeares were being released about then but when we were doing the equipment spec they weren't available. Quite late in the piece, we switched over to the Shakespeares. The reason was that, at that time, there was a huge price difference between the Source Four and the Shakespeare. Also delivery time was really tight and Altman were able to come to the party. Chameleon, who were supplying the hire equipment for *Miss Saigon*, were also able to get us a good rate."

Since *Miss Saigon* R2 has used Shakespeares on the tour of *Phantom of the Opera* and now the *Les Mis* tour.



The Shakespeare at home in the *Les Mis* rig

available through ETC and that's got a reasonably hefty price tag on it," R2 told me.

"The Shakespeare takes an HX600 lamp and we've retro fitted the Source Fours that we do have so that they can also take the HX600 lamp. What you have to do is get a small heat sink adaptor base that fits around the HX600 and that's acts as an adaptor so you can then put it straight into the lamp holder in the Source Four. That keeps the price down and it also means we're running the same lamps through all the units. We do have some Source Fours on this show and that's

mainly because they have a slight edge on brightness. Also we had a bit of a push from overseas, they were a bit nervous about going with something they don't know for particular specials like some of the Source Fours are pushing through two gobos - they've got a static gobo plus a gobo rotator inside them."

Les Mis had been running for five months when I met up with R2 and his crew and there had been no need to replace a lamp yet.

"The 240v lamp has only become available recently so on *Miss Saigon* and *Phantom* we've been running the 120v lamp in them," said R2. "*Les Mis* was the first time we've been able to use the 240v lamp and it's been really successful. On this rig everything is 240v with the Shakespeares."



The lamp assembly



Richard Pacholski

OVERSEAS REQUIREMENTS

"A lot of overseas people are a bit precious about ETC Source Four v Shakespeare," said R2. "A lot of them have only used Source Fours and they'll always a bit dubious about changing equipment but generally they've all been really happy with the Shakespeare. They've left it pretty much up to me to make that decision and it hasn't back fired yet."

LAMP

"One thing I really like about the Shakespeare is the replacement lamp pricing - there are quite a few different suppliers of the lamp whilst the ETC bulb is mainly only

FOCUS

"The Shakespeare has a handle on the back which makes it a lot easier to focus compared to others which can't have any where to grab onto," said R2. "Lens interchange is really good - we just pull open the tube and the way the lenses interchange to change their beam angles is really easy. It's all colour coded and very easy to follow."

"The barrel of the Shakespeare spins 180° which is great for box boom positions where you're trying to get the angle of one cut along the edge of the stage, often you need to rotate the barrel. That's a handy function for in house box boom positions."

BRIGHTNESS

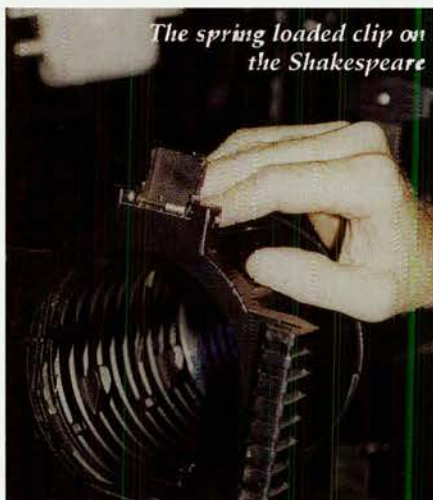
"The Source Four tends to have a bit of an edge on brightness and that's something that the Americans love," said R2. "So they are a bit more pro to Source Fours because of the brightness. There are pros and cons between the two. As far as I know there is still a reasonable price difference that, once you're

getting up into bulk orders, makes a big difference."

COLOURATION & SPILL

"Sometimes you get a bit of an edge when you're projecting maybe slides," said R2. "We've got two 10° Shakespeares to project glass slides and we have no problem with them, with all lamps you're going to get some colouration on the edge of the gobo. We have the same problem with the Source Fours, in fact we tried them first but found the Shakespeares slightly better."

"There is very little spill from the back of the unit which is good for when we are using them in box boom positions so we're not getting things like flare back on the auditorium walls."



The spring loaded clip on the Shakespeare

BUILD

"The only thing we occasionally break on them, through rough treatment, is the bottom colour runner," R2 said. "That's mainly been on units that have colour scrollers on them generating more weight on the bottom runner. Apart from that there have been no real accidents but we roadcase everything when on the road."

IMPROVEMENTS

"One problem we have is when the guys are hanging by their toe nails trying to get the colour changer out," said R2. "It's a two-handed operation to get the colour changer out (one hand has to hold the clip back as it's spring loaded) whilst the Source Four has a clip that stays open. I believe that the opera house guys have done something to the clip to enable it to stay open but I haven't talked to them about it yet."

The guys also felt that bulb replacement could be easier. Instead of placing the bulb straight in, you have to go in sideways and then turn it straight which they say can be tricky and liable to jamming as the unit gets older.

MAINTENANCE

"The unit is very easy to get into," said R2. "It's just one screw at the back and that's it. The Shakespeares have a retainer for the lens tubes so if you're swapping lens tubes up in the air and you take out the focus knob, you still need to push in another clip for the lens to come out. On the Source Four they used to drop straight out so it was much easier to mishandle and drop a lens tube on them but they've now rectified that with another screw at the top - however that means you need a Philips head to get the tube out. So the Shakespeare is still easier when you're running around on the rig - and on this show we don't get to any of the rig from underneath, it's all running around on the truss."

SERVICE

"Chameleon have always been fantastic with service," stated R2. "They've always come to the party straight away and, as far as I can tell, they've always been happy with Altman. We've had some really tight time-lines and they've always landed in time for the bump in."

OTHER APPLICATIONS

"I see them a lot in rock'n'roll now where before they would have used a Leko," said R2. "The problem with the Leko is that it used to get so hot and also go through a lot of bulbs whereas the Shakespeare is the total opposite - we hardly blow and it runs a lot cooler mainly because the lamps half the wattage but

the same brightness."

CONCLUSION

"They're a vast improvement on equipment that was available only a few years ago," R2 summed up. "Proof of the pudding is that they are used on some of Australia's main musicals and we don't have any problems with them. We keep going back to them, this is the third production I've used them on and all the crews are happy with them. Whether it suffers slightly in performance, it's good value for money compared to the Source Four and it's brighter than most things we've used in the past."

Available in: 50°, 40°, 30°, 20°, 10°, 12° and 5°. Supplied c/w clamp, safety wire and colour frame.

Price: \$759.

Manufactured by: Altman Stage Lighting Co. +1 914 476 7987

Australian Distributor: Chameleon +61 2 9310 5222

New Zealand Distributor: Kenderdine Electrical +64 9525 2200

Hong Kong Distributor: S.M.I. Stage Man Industry +886 2 321 3870

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Clay Paky debut moving yoke

Market squares up as European manufacturer releases complete range

by Cat Forcer

Clay Paky waited to introduce a complete family of moving body luminaires onto the market at the same time - hence the Stage range of moving yoke fixtures. The range consists of six luminaires, with the middle unit, the Stage Color 575, most obviously in direct competition with High End's Studio Color and Martin's MAC600.

Along with new releases from Coemar and SGM, the moving light market is now in complete transition from moving mirrors to completely moving heads, the concept which was first pioneered by Vari*Lite early in the 1980's.

Flood and spot versions of the Stage range are available in small, medium and large formats - with a few unique variations.

The Stage Color 1200 and Stage Zoom 1200 is in fact based on one device, with the unique ability to exchange heads. This fixture looks like a sure winner with hire companies whilst the small 300w pair of fixtures hold an unrivalled position in the market.

"I believe they had to purchase another factory to begin manufacturing the range", said Peter McKenzie, General Manager of Australia's Clay Paky distributor Show Lighting Australia. "That shows how confident they are of the product, I had been panicking a little thinking that our main competitor, may have the edge - but the whole time Clay Paky have been telling me to relax and wait.

"Apart from the Stage Color 575, they haven't made a unit comparable to anyone else's- they've produced fixtures either side, covering all playing fields."

TIMING PAYS OFF

Peter feels there has been more thought put into the Clay Paky range than any others probably because of the increased time they've had to develop and manufacture.

"They haven't been concerned about getting it on the market quickly," said Peter. "I'm very impressed by the access to the fittings, you can open every side of the moving body. The fact that the head of the Stage Color 1200 can be swapped with the head of the Stage Zoom 1200, or vice versa, is a unique feature and one that at that cost and end of the market has never been thought of, but is imperative. When people invest between

Peter McKenzie demonstrates the Clay Paky Stage Zoom 1200 to Drew Muirhead of dmc



\$12,000 and \$15,000 per light, it makes a lot of sense to be able to swap the heads - especially as an optional head is about a third of the price of another luminaire.

"To changing the head is easy - it has two central clips, you unclip the outer casing cover which pulls off and then there's four small snap locks which you release so that the whole head pulls off in your hands. There's a little switch at the back which you set to let the electronics inside know whether it's a profile or a wash. The only other thing you have to do is recalibrate the balancing because it is a moving yoke. To do that you undo four allen keys - two each side - and then recentre the fitting with a special tool."

Clay Paky have a video of Area Manager Renato Ferrari changing the heads and it took him about four minutes to do the whole change over.

MECHANICAL CONSIDERATIONS

The weight of the lights is slightly heavier than some of its competitors and Peter feels this is because Clay Paky tends to favour the use of castings rather than modern plastics.

"Clay Paky have stuck with the base and moving body being a solid die-cast part in line with their other fittings," said Peter. "This solid chassis gives it stability and reliability for touring."

Peter also pointed out the locking mechanisms on the base and the yoke, an important factor when considering your purchase.

"You can lock the head off to stop it from moving during transport," he said. "It's also good for rigging - when you've got a full body of a luminaire which can move it's easy to get the

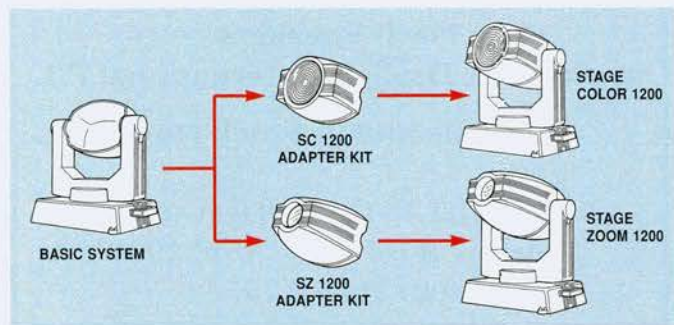
centre of balance to change whilst rigging. With the Clay Paky luminaires because the pan and tilt can lock off, it means you're really handling a solid object rather than something that is totally flexible and moving on you. Service techs have told me that they have a nightmare with other moving yoke luminaires trying to stop the unit moving whilst they are servicing it - it can still rotate 360° and the head moves. With the Clay Paky luminaire you can lock it off before you take it in to the service department and work with screwdrivers on it single-handed. It's probably a \$20 innovation that's worth a lot more."

The other feature which Peter thinks is worth mentioning is 'Auto Repositioning', so if the luminaire is bumped during a performance it will automatically recalibrate itself, an important feature for moving yokes.

The most common question Peter was asked at ENTECH was 'can we open it up and look inside?' which Clay Paky was quite willing to do.

"People at ENTECH were overwhelmed by the two small 'babies' in the range- the Stage Color 300 and Stage Light 300 - and thought they were very cute," Peter told me. "I think the Stage Color 300 having full colour mixing in such a small

Stage Color 1200



luminaire is amazing."

In conjunction with Clay Paky's new range, Osram have developed a new lamp for the Clay Paky Stage 300w fixtures - a 3000 hour lamp called an HMD 300. The lamp is also retro fittable to the Clay Paky VIP Display Line, Combicolor, or old Mini Scans.

"Really it was designed for the Display Line retail projectors but Clay Paky always intended it to go straight into the Stage range too," said Peter. "The only difference between the two lamps is that the HMD 300 is about 4% dimmer than the HTI 300 and has a colour temperature change from 6500°K to 5000°K."

The extremely long lamp life more than compensates for this. Show Lighting Australia have been inundated with enquires about the range and have already had many orders placed by leading production companies.

"Because Clay Paky have released a family, we've really got all areas of the market covered," said Peter. "It doesn't matter what you want to do, one of the luminaires will do it for you. And as Clay Paky doesn't specify control options like other products, it makes the units very flexible. It really is a very powerful package."

Manufactured by: Clay Paky +39 35.654311
Australian Distributor: Show Lighting -61 7 3369 3399
New Zealand Distributor: Show Lighting +61 7 3369 3399
Hong Kong Distributor: A.C.E. International +852 2424 0387
Singapore Distributor: Hawco Trading +65 287 0011

Stage Light 300



STAGE COLOR 1200

Use: theatre, television sets and concerts.
Lamp: HMI 1200 (5500K), 750 hours life.
Colour: 4 disc cyan, magenta, yellow and amber for rich hues plus a full range of pastel shades. GTC (Gradual colour Temperature Correction) system provides gradual correction of colour temperature differences from one luminaire to another. **Frost Filters:** 3 for 3 different intensity frost effects. **Effects:** concentric twin-coloured beams and ultra violet light. **Other Features:** ovalized beam, hot restrike. **Control Channels:** 11+3.
Price: \$17,900 inc tax.

STAGE COLOR 1000

Use: designed specifically for television studios and large theatres. **Lamp:** halogen 1000w (3200K), 250 hours life. **Colour:** 3-filter CMY colour mixing. **Frost Filters:** one, provides a wide aperture and uniform light intensity. **Effects:** concentric twin-coloured beams and ultra violet light. **Other Features:** ovalized beam. **Control Channels:** 9+2.
Price: \$11,999 inc tax.

STAGE COLOR 575

Use: theatre, television sets and concerts. **Lamp:** HMI 575/SE (6000K), 750 hours life. **Colour:** 4 disc cyan, magenta, yellow and amber for rich hues plus a full range of pastel shades. GTC (Gradual colour Temperature Correction) system provides gradual correction of colour temperature differences from one luminaire to another. **Frost Filters:** three for three different intensity frost effects. **Effects:** concentric twin-coloured beams and ultra violet light. **Other Features:** ovalized beam, hot restrike. **Control Channels:** 11+3.
Price: \$14,900 inc tax.

STAGE COLOR 300

Use: discos, display lighting and sales out-

lets. **Lamp:** HTI 300 (6500K) 750 hours life or HMD 300 (5000K), 3000 hours life. **Colour:** 3-filter CMY colour mixing. **Frost** frost system provides a 50° aperture with uniform light intensity over entire illuminated area, reducing loss of brightness associated with conventional diffusers. **Other Features:** winner of the 'Lighting Product of the Year - Entertainment: Most Promising Prototype' at LDI 97. **Control Channels:** 8+2.
Price: \$8895 inc tax.

STAGE ZOCM 1200

Use: theatre, television sets and concerts. **Lamp:** HMI 1200 (5500K), 750 hours life. **Colour:** 3-filter CMY colour mixing supported by two colour temperature correction filters (3200 and 5500K). **Frost** frost effect: allows transition from a hard-edged beam to an increasingly diffused wash. **Zoom:** 12° - 24° lens with zoom and focusing controlled from the desk. **Effects:** 4 static gobos, 4 rotating gobos and 4 rotating prisms. All fully combinable and all have indexec positioning through 540° so that a given effect can be repeated on several luminaires. **Other Features:** 4 colour beams, concentric twin-colour beams, ultra violet light, light blue filter. **Control Channels:** 16+3.
Price: \$15,900 inc tax.

STAGE LIGHT 300

Use: disco and professional. **Lamp:** HTI 300 (6500K) 750 hours life or HMD 300 (5000K), 3000 hours life. **Colour:** 36 colours on two wheels, 2 filters for colour temperature correction. **Frost Filters:** two **Zoom:** manual zoom lens, electronic focusing. **Effects:** 6 rotating gobos with indexec positioning through 540° and a 3-face prism. **Other Features:** ultra violet light, light blue filter. **Control Channels:** 3+2
Price: \$9533 inc tax.

Bigger is better!



AR NA 250mm 10" lens

10 inches may not sound much bigger than 8 inches, but some of us know better...



AR NA 200mm 8" lens

20 years of theatre luminaire development has been marked by a drive to smaller luminaires, at some cost to performance and light quality.



AR NA 150mm 6" lens

Compare actual surface area, a 10" is 56% larger than an 8", collecting more light. Our 7" SF1200 has a lens area 36% larger than an industry standard 6" lens, giving up to 50% extra light output in spot focus. In flood focus, the difference falls to around 20%.



COMPACT 150mm 6" lens

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ACCLAIM 110mm 4 1/2" lens

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FRODO 50mm 2" lens

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NEW DJ STUFF

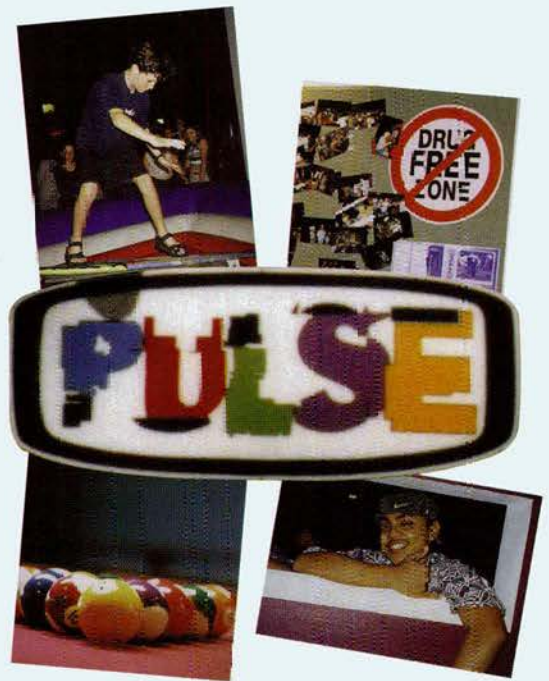
Roland DJ-2000 Professional DJ Mixer (below) has arrived in Oz with the first shipment reportedly already sold out. Apart from the expected features of four channels, 3 band per channel and 2 band for main mic EQ, automatic BPM and assignable crossfader, the DJ-2000 offers some funky onboard stuff. 3 band Isolator for instant EQ shifts, plus ten onboard Digital Signal Processing effects including Delay, Flange, (both with overdrive options), Auto Pan, Filter and Voice Transformer. Priced at A\$2,295 from Roland Corporation +61 2 9982 8266.



Vestax have released an entry level/multi-purpose DJ mixer, the PMC-03A (below). Offering 2 band EQ and trim, mic input with level control, crossfade monitor selector and a very compact body, the PMC-03A is suitable for scratch, mobile and hobby use. Priced around A\$449 from Moore Music on +61 3 9419 0344.



Nightlife Music Video introduce the Denon 200 stack twin VCD programmable club system. Flexibility is what this product supplies. Capable of retaining 3,600 clips, the player allows linked and automated pre-cueing, no more nasty dead spots. The DJ staff cost savings, to any venue, through the automated system, are obvious. But, if automation ain't your style, the system can be VCDJ'ed..... live. Priced at A\$14,000 from Nightlife Music Video +61 7 3367 1045 or Hotline 1800 679 748.



What did the Queensland cops do, when their town had the highest crime rate in the state? They opened a DISCO of course! and slashed it by 30% in graffiti crime alone.

Ipswich, a satellite town 40 minutes from Brisbane, was once a thriving township, with rail works, prosperous river trading and transport, and the pick of a bygone era, to become the Queensland capital. Now the city has record high unemployment, perceived racial problems and the crime rate to match.

Well at least it did. Then came PULSE.

But let's go back to 1992, for a little more history. In an attempt to alleviate the lack of social activities for the local Ipswich youth, Prowlers Nightclub for under 18's, was created in the then established Police Citizens Youth Club (PCYC) building. 150,000 plus after dees, over three years, proved Prowlers a success.

We are all aware of the beneficial social aspects, of the traditional Police Citizens Youth Clubs. Hell, a lot of us spent our youthful Friday nights, dancing to live bands, or the groovy sounds of an underage night club, whilst fraternising with the opposite sex, same sex, whatever. It's an age old tradition, based mostly on indoor sports. Working casually on the Prowlers project was Sgt. Gary Penny. Gary was already a little disillusioned with a.s role in the police force, and saw the opportunity to take youth and community liaison one step further.



PULSE is a prototype initiative of the Queensland Police Citizens Youth Welfare Association. After student research and consultation, throughout 1995, the local community and a plethora of sponsors, raised an eventual A\$1,000,000 plus for the new project.

The concept was to establish, a youth entertainment facility and community meeting complex. A place where all ages, creeds, and colours, could benefit from a carefully designed social program.

Construction commenced in May 97, with completion late that year. Local architects Tat, Morison and Johnston are to be congratulated on a spirited design. The day of my visit to PULSE followed a cyclonic storm the evening before. The wife and child of a local law en-

Club Sandwich

PULSE YOUTH CLUB

forcer were killed during the freak storm, making for a sombre mood in the community.

So involved is architect, Peter Johnston, in the project, that on passing the venue and seeing a number of parked vehicles, he dashed in, in case of there was structural damage. His commitment was obvious, as it was with all involved.

PULSE is of a multi-functional design, and it's not just the youth who benefit, although on-site youth counselling has seen the local crime rate and anti-social behaviour, drop by a reported 30%. The centre also provides much needed areas for parent workshops and education, family film nights, functions and seminars.

PULSE includes permanently installed nightclub and live stage systems, cafe and a games room with pool tables and video games. An internal mezzanine level allows for seminar and art exhibition space. While outside you can have a BBQ, play basketball or include yourself in the



even an exhibition space and potential sales leads. Soooooo cool!

Still feeling creative? Well lets put down some tracks, in the in-house 16 track digital recording studio - compact but well appointed.

PULSE is more like a privately run enterprise than a government institution. The facility must be financially self sufficient, and subsequently the PULSE team have become entrepreneurs. Sgt. Penny is more like a promoter than a cop. Angling for profits with his 2IC, Snr. Con. Gavin Marsh.

Sgt. Penny is not afraid to bend the rules. Whilst the venue is alcohol and drug free, smoking is allowed. Nor will he go over board if he finds a little smooching occurring amongst his charges. He offers advice instead, with a slight reprimand. Penny's attitude is that the kids are better off, off the streets, in a safe environment no drugs no drinking no violence no crime. What a hero!

Acoustic Technologies were the principal supplier to PULSE organising installation and supply, predominantly at cost, from a number of Australian distributors. All providers should feel proud to have contributed to a scheme that, with luck, will see a number of these venues, erected throughout Queensland and hopefully, the rest of Australia.

THE SPEC

Nightclub and Live Area - Audio/AV

1 x Nightlife Video Club System; 1 x Sony VCR and Videc Projector; 14 x 21" Television Monitors; 1 x Numark Disco Mixer; 1 x NAD Cassette Deck; 1 x Azden Radio Mic; 3 x Furman Dual 31 Band EQs and 2 x Comp-Limiters; 1 x A.T. EX02 Crossover, 8 x M1000B Amps, 2 x BB03 Sub Bass, 4 x MH01 Mid High, 4 x FR01s, 22 x LG01s, 4 x 15" + 2" Horn Wedges; 1 x Mackie SR24 Mixing Console

1 x Yamaha SPX-990 Processor; 24 Channel Multicore; 1 x AKG D112, 4 x D770 Microphones, 4 x D880 Mics; 4 x Shure SM57 and 3 x SM58 Mics; 2 x DI Units plus Stands, Leads and Flight Cases.

Nightclub and Live Area - Lighting

24 x Futurescan 3 Fixtures and 2 x CE Controllers; 1 x Anytronics Deathstar Strobe; 1 x LeMaitre Smoke Machine; 1 x DLS-400 Light Sequencer; 4 x Par56s; 4 x 24" Mirror Balls/Motors



Sgt. Gary Penny (L) and architect Peter Johnston (R)

The Studio

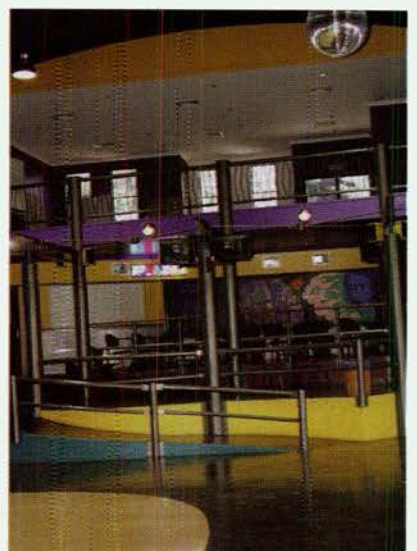
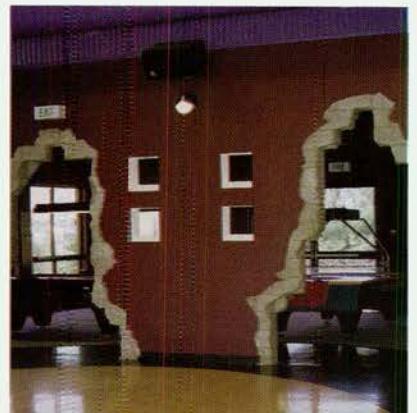
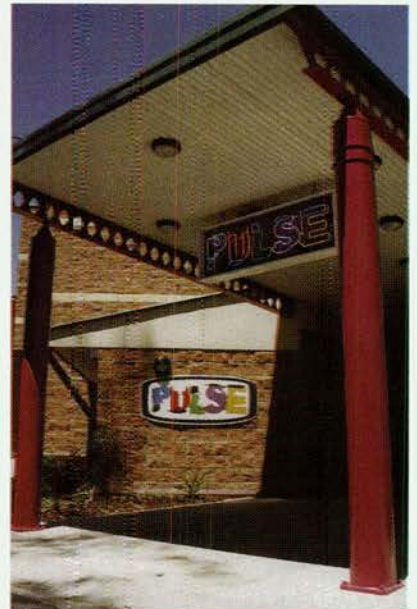
1 x Mackie 24-8 Mixing Desk; 2 x Alesis ADAT Digital Recorders, 1 x MidiVerb 4 Processor, 2 x Dual 31 band EQs and Nearfield Monitors; 1 x Tascam DA20 DAT Recorder; 1 x A.T. M-500 Amplifier; 1 x Yamaha SPX-990 Processor; 2 x Behringer Autocom Comps, 1 x Ultraflex 11 and 1 x Headphone Amp; 2 x Rean 24 Point Patch Bays; Omnirax Studio Furniture; 1 x NAD Cassette Deck; 2 x CAD E-100 Studio and 4 x 95 Electret Mics; 3 x Shure SM58 and 4 x SM57 Mics; 1 x AKG D112, 4 x D770, 4 x D880 and 6 x Dynamic Microphones; Plus Stands and all Cabling.

THE VENUE

PULSE - Police Citizens Youth Club
Griffith Road, Eastern Heights, Ipswich, QLD
4305 Tel: (07) 3202 4377.

THE INSTALLATION

Acoustic Technologies
8-10 Staple Street, Seventeen Mile Rocks, QLD
4073 Tel: (07) 3376 4122.



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THE PA PAGE

Beyond Basics: Meatball Mixing! With Michael Orland

At the risk of sounding like an old fart, Gee, things sure seemed simpler in the old days.

When I first started hiring sound systems in Sydney 21 years ago, the rules seemed pretty well established. The headlining act would hire the production and crew that came with it. The support act would supply 2 leaders in return for the use that production. Gigs were a cooperative sort of affair, crews were intermingled and there was a nice overall sort of vibe.

In the 90s things started going sour. Greedy agents would book support acts for reduced fees, explaining to those acts that although the fee was reduced, they would clear it with the production company so that no loaders were required.

Now I know almost every production owner in Australia on a first name basis, and I don't know of a single instance where the agent ever follows up on his promise. (*Readers: we hear this time and time again - do Agents have any credibility? - Please let us know! Editor*)

The first we would know about it was when the support act would show up at the venue two hours before show time expecting the red carpet treatment they had been promised. From a highly resentful crew who felt cheated of much needed help. One agent I rang to complain to responded with (not a word of a lie) "Whingeing roadies! You guys are the bane of my career!"

Faced with this level of concern, years of stand offs, arguments and reprisals followed. Till about four years ago when Sydney's leading agents decided among themselves that a bulletin was to be circulated to all band management stating that from that time on, no support act was required to supply loaders at any venue they booked.

The headline band was to make all hired production available to any other acts, free of charge. So it was up to the headline act to hire production that didn't require this extra help. Consequently, many truck sized systems began going out of business, and van sized rigs began to proliferate. New Technology helped in this general downsizing, but many punters still walked away from gigs disappointed with the standard of entertainment presented. In an era when CD players are available for the price of CDs, people know what good sound sounds like, and aren't easily fooled. Bottom Line: Crowds Dropped.

The final straw/nail came about six months ago when I received a call from the main investigator of the famous bulletin.

"Michael, one of your crews is working in one of my venues tonight."

"Yes, that's right."

"And your guys are trying to charge the support act for operating fees!"

"Of course. You yourself said...."

"Never mind that. I told the support act they wouldn't have to pay for anything. Ring your crew and tell them to cooperate." Click.

Now, as it turned out, that night was to be the first of many where those working for me would grab whoever was loading and ask "Hey You, wanna sound guy?"

Being thrown behind a mixing console can be pretty

daunting. If you aspire to such an opportunity then by all means take in as much theory in advance as possible. Duncan's guide, serialised elsewhere in this magazine, is excellent place to start. If you don't feel confident about your ability to control the situation. don't be embarrassed to ask for help.

Now try Uncle Michael's basic starting settings:

Kick drum (usually channel 1) fader at 60%. Lows at 2 o'clock position. Low mid swept to 250hz and backed off to 9 (o'clock). High mids 2k and 2. Highs flat (12 o'clock).

Snare fader at 20%. EQ flat (all controls at 12 o'clock).

Hat at 20% Lows and low mids fully counter clockwise. High mids flat. Highs 2.

Racks and floor tom faders 40%. Lows 9. Low mids 12, High mids 2. Highs 12.

If no overhead drum mics are used, and the ride cymbal is sitting just over the floor tom, set the highs on the floor tom to 2.

If there are drum overheads, set them as per the hats mic.

Fader settings for the bass and guitars depend on venue size and type of music.

Eg. for a grunge band in a little pub, start with them off. For a covers band in an auditorium, try 20%. Bass EQ flat. Guitar EQ flat with lows rolled off.

Drum machines, sequencers, DATs, etc: faders 50%, EQ flat. Keyboards 30% lows backed off, presence (2k) boosted.

Main vocal fader 70% EQ flat with lows backed off (the whole system should have been tuned around this mic).

Backing vocals 50%, same EQ. Vocal reverb, if room requires, 10% highs backed of a little, lows a lot. Vocal delay and drum reverbs off.

All high pass filters should be engaged except for kick, snare and bass. Subgrouping? Hell, just punch as many as needed to make each channel audible.

If inserts (gates and compressors) haven't already been set up for similar channels for the main act, then bypass the lot.

As soon as the band counts in, grab for the kick snare and vocal faders first. Quickly work your way through the others and then start on the EQ.

If you don't know the band, don't try anything arty. Simply making it all make sense will be reason enough to congratulate yourself.

Now, some serious engineers will be horrified at such generalised suggestions for setting up the mix. But bear in mind the type of situation I am describing.

Remember the episode of MASH that introduced Colonel Winchester? Where he described his surgical skills by saying "I do one thing at a time. I do it very well. And then I move on" And Colonel Potter replying "No time for that. Leave the fancy stuff for the boys in Tokyo. This is meatball surgery. We just patch 'em up and get 'em outta here".

Welcome to meatball mixing!

Michael Orland runs T-PAC Sound and Light in Sydney. Phone/Fax: +61 2 9799 7219.

His live mixing credits span 21 years of Australian Rock history.

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ABSTRACT



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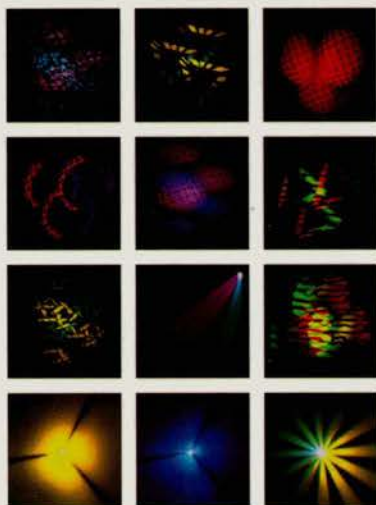
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