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AUSTRALIA & NEW ZEALAND

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What's wrong
with the visuals

AIRBUS A380

BIG PLANE,
BIG LAUNCH

THE CXPRT

WRESTLES WITH
DIGITAL SNAKES



WICKED!

The untold story of
the witches of Oz



INSIDE THE OPERA HOUSE

AUSTRALIA'S BEST KNOWN
VENUE AND WHAT MAKES IT WORK

17 NON-STOP YEARS
SINCE 1990 WITH
CHANNELS AND
CONNECTIONS

CUE03 Entertainment
Training Resource

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NEWS! Inside the technicolour world of entertainment technology and management. Find out the who, what, where, when and why. See new and wonderful things to make your work night better!

THE NEWS MAGAZINE FOR ENTERTAINMENT TECHNICIANS AND MANAGERS

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Shure microphones must be purchased from authorised Shure dealers.

Shure microphones must be purchased from Australian Authorised Shure Dealers between 1 December 2007 – 31 January 2008. Completed entry forms (with an original purchase receipt attached) must be received at the Jands Head Office before 5:30pm on 15 February 2008, to be eligible for entry. For an entry form and a full list of Terms & Conditions please contact participating stores or visit www.jands.com.au. Competition will be drawn at 3:00pm on 22 February 2008 at the Jands Head Office. The winner will be notified via contact details provided and published in The Australian newspaper on 29 February 2008. JANDS Pty Ltd (ABN: 45 001 187 837) NSW Permit No. LTPS/07/27904 Permit No. ACT TP 07/04834 VIC Permit No. 07/5069 SA Licence No. T07/4912

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Active, bi-amped and housed in multifunctional polypropylene enclosures, these speakers come in 10"/1' to 15"/1' configurations with up to 300W/RMS

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INSIDE THIS ISSUE

NEWS 8

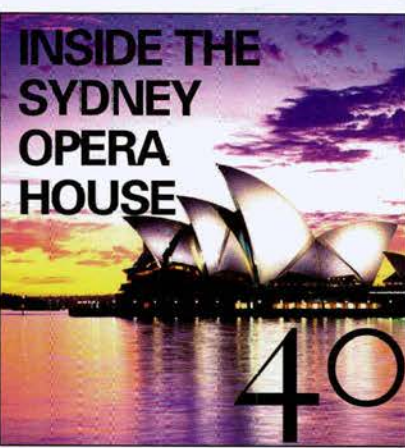
8 **MUSIC**
LINK & BILLY HYDE
 "We are not the same", they say in perfect unison

- 10 ENTECH 2008 Sold Out
- 10 Are you greedy and less satisfied?
- 10 LiveCast – the new HOT buzz
- 12 RFID a hot new little helper
- 12 i-Pix goes Balanced
- 14 Novatech growing pains
- 14 Shure competition
- 14 "The Bastard from the Bush"
- 16 AKG C 414
- 16 Crowd Barrier Break:through
- 16 Pope microphone
- 18 AFL season ends with big shows
- 19 Telex Wireless Intercom
- 21 VARI*LITE VL3500 Wash arrives to hugs
- 21 DiGiCo D5 goes troppo in Darwin
- 22 Staging's Fire and London Expansion
- 22 Australian Monitor goes global
- 22 FBT intro new powered 12" 2-Way
- 22 Lectrosionics receives patent for Digital Hybrid Wireless technology
- 78 Alcons QB363 arrayable bass
- 78 Yamaha roll out free training at ENTECH
- 79 Electro Kabuki Drop System
- 79 Industry Internet Page 30 Years in the Making!
- 80 Aussie in New York
- 80 City Life Church
- 81 IDT introduces Praxino Rear Projection Screens to Australia
- 81 TEC Award for Sennheiser and Neumann

FEATURES


24

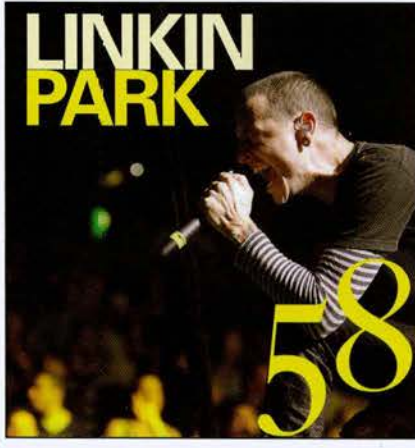
REVEAL THE A380!

INSIDE THE SYDNEY OPERA HOUSE

40

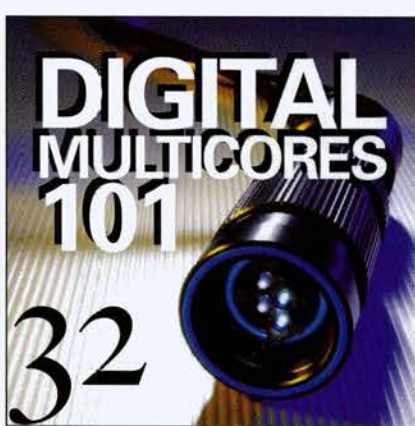
50

Wicked is coming

54

ELECTRICITY DANGER

LINKIN PARK

58

ASK THE EXPERT

DIGITAL MULTICOORES 101

32

HOW TO

64

MOPPING UP EARTH LEAKAGE

77 How To: Make a Wireless Lectern

PEOPLE

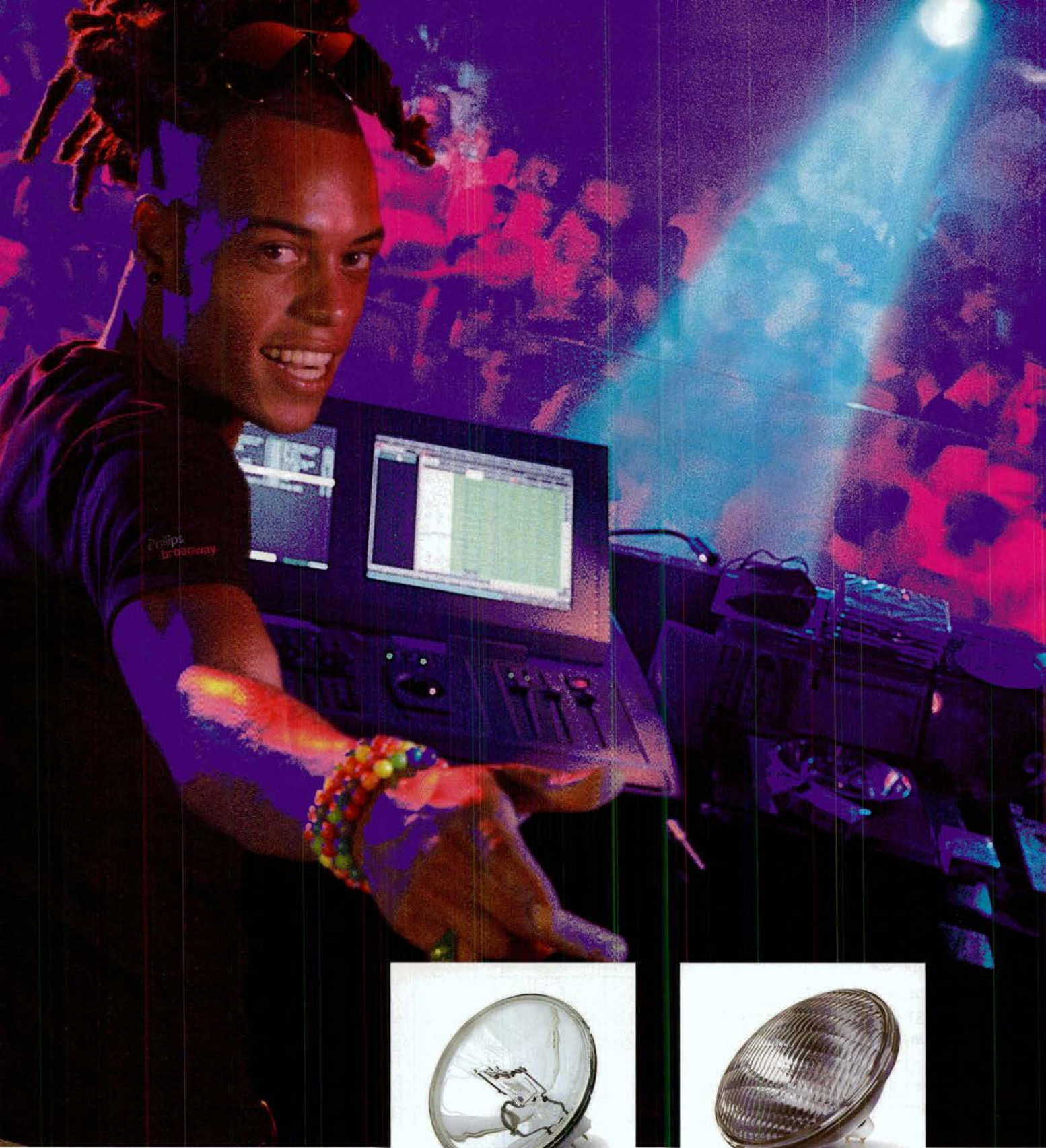
68

 Corrie Johnson

REGULARS

- 60 Richard Cadena
- 70 History
- 71 Subscriptions page
- 74 Duncan Fry
- 82 Classifieds
- 82 Ad Index





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CUE03

Entertainment Training Resource

This magazine contains much information which is a direct resource for anyone studying from the new Entertainment Training Package, named CUE03. From 2006 we will start to map certain articles direct against the relevant Unit of Competency within the package. This makes CX magazine a very cost effective resource for schools, colleges, and universities. Note that we offer a copyright release where articles in CX Magazine may be photocopied and distributed to students within an accredited course.

EDITORIAL

LIVECAST

Punting live shows from stage to remote viewer is the new now thing. Live shows is where the money is, music acts are changing strategy from record deals to better gigs. Managers know that a live following can be cash, and a Livecast adds revenues. CX is right on top of this exciting new medium.

WICKED

Famine to feast in the musical genre as Wicked goes on sale soon in Melbourne. This is The Show To See, says me since I saw it with no preconceptions. Tech types will simply love the effects, and everyone will dig the lights and the script. If the casting is half as good as London then you'll love that as well.

MUTE

Student group and myself delightfully observed a pro audio engineer miss the mute button five times in a row. Gig had a lectern on and off stage and each time it was plugged in, 'BAM' went the phantom power. Worse still, every presenter adjusted the goosenecks with a big pop and grind. Wake up, engineer.

YOUTUBE

We've gone video with JuliusTV clips at www.juliusmedia.com. It's mind bendingly easy to shoot video from a widescreen DV camera (under \$500) and edit on a standard Mac laptop using free i-Movie software which 'shares' the file out to YouTube. Burning a DVD is easy too. Exciting times!

CORPORATE

We teach the corporate production 'AV' method here at College, where crew respect the client, wear blacks and the technical director calls the show. It's easier to learn this way and move into concerts and theatre than the opposing way. It's time for pros in concert and theatre to respect the AV dudes and dudette's.

Julius

2007 – A BIG YEAR

We're rapidly approaching the end of the year, and it's been a big one for the entertainment industry in Australia. We've seen huge international tours come through, frequently packed full of Aussie production people, while at the same time we've enjoyed a huge export market for production crews for huge international events right across the region. The boundaries have been radically redrawn in the world of high-end corporate AV, largely as the result of the activities of the Staging Connections Group. The growing skills shortage is helping more and more young people (and their parents) realize that entertainment is a real industry with real careers available to those who want them, rather than the fly-by-night rock'n'roll shambles it was twenty years ago. Some people are still living in the dark ages and shafting their crew with dodgy day rates. We've seen a host of new technologies and ideas, and seen price points come tumbling in a bunch of equipment market sectors. It's just go, go, go in this business.

HOW ABOUT THAT GREENHOUSE EFFECT!

With governments and people all over the world starting to sit up and take notice of the global warming issue, can we expect to start seeing equipment designed and marketed on efficiency? We already have energy ratings on most consumer appliances. Does the future belong to the people who can get the most mileage out of their power?

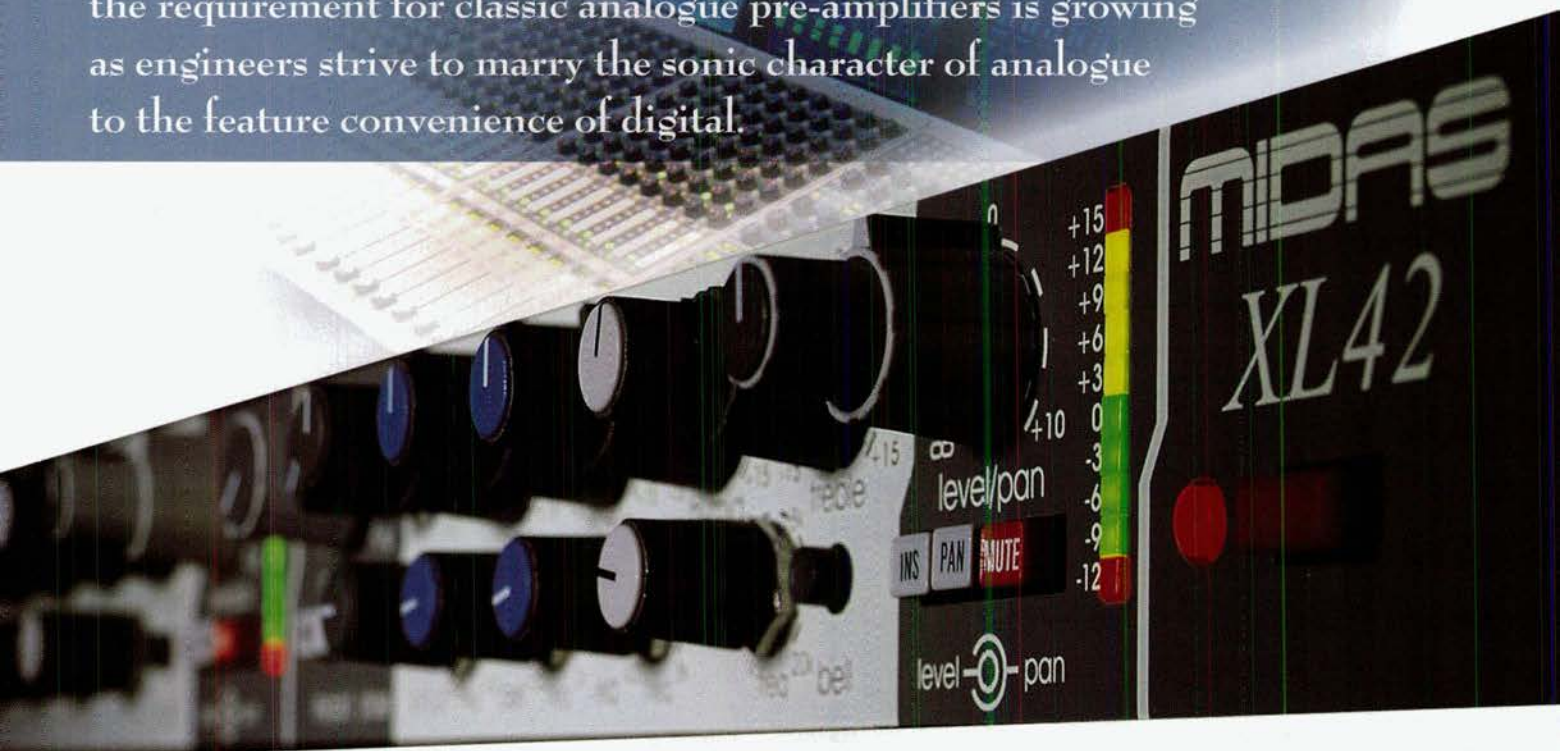
CHANGES AT CX

We've made a pile of changes over the last twelve months to the way we put CX together. Give us your feedback – tell us what you'd like to see more of, what you could do without, what we could be doing that we haven't thought of yet. The more you tell us, the better we'll get.

Andy

Give your digital console the MIDAS touch

With the growing popularity of digital mixing consoles in the market, the requirement for classic analogue pre-amplifiers is growing as engineers strive to marry the sonic character of analogue to the feature convenience of digital.



*XL42 is the answer
to marry the sonic character of analogue
to the feature convenience of digital*

High pass filters	F	"Daisy chain" capability
Mic/line pre-amps	E	10 segment LED metering
48v Phantom power	A	Switchable panpot on each output
Phase reverse switch	T	Input/output transformer balancing option
Input/output level control	U	Dip switches to assign to console mute groups
XL4 four band parametric EQ	R	Switchable insert send/return on each channel
Two channels in 1U of rack space	E	Inputs/outputs electronically balanced as standard
	S	

The XL42 has a number of achievements to its credit with the most recent being the handling of kick and snare inputs for Silverchair on their current tour with Powderfinger. Find out more, please ring Bosch Communications Systems on 02 9683 4752 or send email to stsales@au.bosch.com



MIDAS
DESIGNED FOR A PURE PERFORMANCE

CX NEWS

DEVICES, PEOPLE AND CONCEPTS

MUSIC LINK & BILLY HYDE

"We are not the same", they say in perfect unison



Last issue we reported the angst at Australian Audio Supplies, who were understandably upset to lose distribution of Mackie and Tapco after many years. They struggled through tough times with the brand, and had just reported their best year when Loud Technologies Inc, the American parent of Mackie, suddenly pulled the plug. Such are the perils of importing.

Music Link won the business on their own merits, and one would be forgiven for thinking they would be pleased about it. Instead they have lashed out at CX for running "a controversial article such as this with such a misleading headline without first contacting the other party mentioned to substantiate the content."

Our sin was to attribute Billy Hyde as the new distributor of Mackie. Billy Hyde is, of course, a retail chain of music stores. Music Link is a wholesale distributor. The two entities share the same ownership but have different roles. CX apologise for the juxtaposition which was clearly an error.

The steaming email from Music Link Sales Manager Rob Henneman continued: "If you sat back to think about this before committing it to print maybe I wouldn't be wasting my time now writing this email in a fit of rage at the same time re-considering with whom we spend our advertising dollar in the future."

This wasn't just a momentary eruption. Weeks later, Music Link and Billy Hyde director Mike Daws reaffirmed that the entity is not happy. He was commenting on an announcement by Jands that the JBL, Soundcraft and Crown product lines had been discontinued at Billy Hydes Music after discussions with Music Link.

"(The) Jands press release is wrong. At no time was Music Link involved with Jands in regards to Billy Hyde's decision to discontinue selling JBL. That was a decision taken by Billy Hyde's management", he said.

"Obviously many of our competitors continue to imply that due to the relationship between Billy Hyde and Music Link, the independent dealers should not be supporting Music Link product lines. Thankfully most independents still wish to grow their business and continue to support Music Link despite the most ridiculous rumours that continue".

Over at Billy Hyde Music, purchasing manager Miles Jackson said he made the decision on behalf of the Billy Hyde

This rash of sensitivity opens an exciting new chapter in the sideshow of M.I. politics. M.I. is the nest of occasional hotheads who sell musical instruments through retail stores. It's a cutthroat world where sometimes good money is made. We have many friends in M.I. land, who also sell professional audio and do smaller installations.

The following propositions are hypothetical, and are not accusations against Music Link or Billy Hyde Music – companies under the same ownership.

Scenario 1. Competing as a retailer against another store that is owned by an importer may not be fun. I'd always wonder whether that store was paying the same wholesale price as me. I'd never know for sure.

Scenario 2. If I was competing as a distributor against one with its own string of stores, then I'd be worried too – my suppliers might be swayed by a huge opening order that feeds a distributor owned retail chain.

Scenario 3. Finally, if I was a distributor selling to a chain owned by an importer then I might face the prospect of my brand being voted off the island to support the importer's lines.

Retail stores to drop JBL, Soundcraft and Crown. "We need to keep our inventory under control as we would be stocking a large range of Mackie and Tapco. This was an inventory based decision. We have done this with other brands. We took on the distribution of Schecter Guitars and dropped ESP that we used to buy from CMI."

"We still do business with Jands in Shure, DBX and Lexicon and have made the separation in an up front business like way. We continue to have a good business and personal relationship with Jands."

"We purchase Mackie (and) Tapco off Music Link, the same as non Billy Hyde stores do."

Load in... turn on... chill out



Allen & Heath iLive:
Easy Listening

Allen & Heath's iLive digital mixer makes set up in any venue a whole lot easier.

Position the iDR10 rack on stage and an iLive surface at FoH, connect them with a pair of Cat5 cables, and recall your settings from onboard or a USB key.

Within seconds it'll feel as familiar as your old analogue desk, and with sound quality you never thought you'd hear from a digital console.

ALLEN & HEATH

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ENTECH 2008 SOLD OUT

Event organiser Exhibitions & Trade Fairs Pty Ltd has announced that ENTECH 2008 sold out in November, with all exhibitor stands at the February 2008 tradeshow booked. This makes the show the most successful yet, as no previous show ever totally sold out of exhibitor space across the entire 14 year history of the event.

The show will be run Monday 11 February until Wednesday 13th February at Darling Harbour in Sydney. Visitors can register free at www.entech-tradeshow.com for fast-tracked entry, plus see a complete list of exhibitors and brands.

ENTECH 2008 is also the first show where JuliusMedia have no involvement in seminars and conference topics – a decision taken by JuliusMedia, former owners of ENTECH. A break was desired, there is no other reason.

ETF have lined up a terrific program which includes a strong House of Worship stream and also a full suite of lighting seminars by ALIA - the industry's own lighting organisation. The Seminars are always a vital component of ENTECH.

Advance reservations can be made at www.entech-tradeshow.com and go to the Seminar link for ALIA (register direct with them) or the Worship stream. We advise early registration as some seminars are space limited. CX

ARE YOU GREEDY AND LESS SATISFIED?

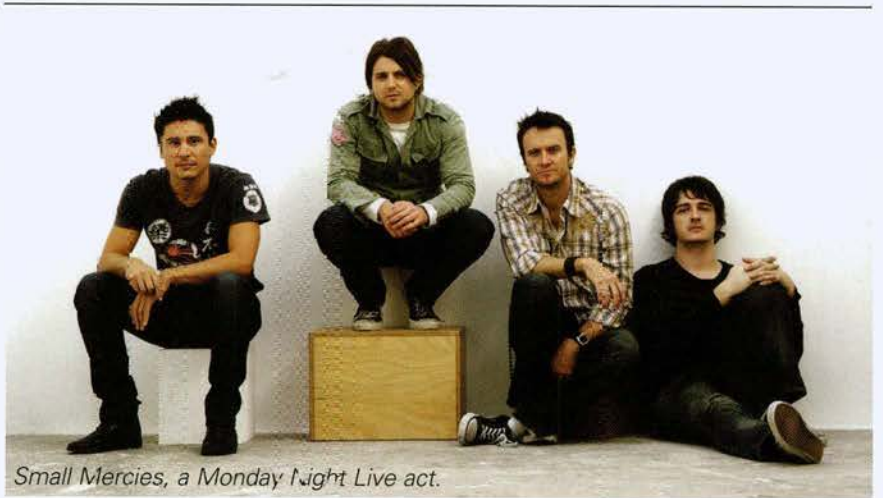
CX copped it recently when we lovingly outlined some of the attributes of our Gen Y students, specifically that they were less inclined to write neatly since they all typed stuff on the TV set typewriter thing. But that's nothing, now Business Seminars Australia are selling an essential seminar to deal with Gen Y.

They say: "Generation Y is the greediest and least satisfied generation in recorded history" and site a survey to support this. "Employers of those aged 26 and under may need to dangle a financial carrot to keep their staff: a whopping 73 percent of the group say they intend to leave their current employer in less than a year but almost 80 percent would stay on for more cash."

Gen Y spans those born between 1981 and 1990 and if you believe all this, they are mainly motivated by money to support their lifestyles. CX



Brisbane's Judith Wright Centre of Contemporary Arts has installed a new Digidesign Profile console. Pictured are Chris Neehouse - Senior House Audio Engineer (Judith Wright Centre), John Musch - Area Manager - AV and Broadcast (Madison Technologies) and Don Mackenzie - Technical Manager (Judith Wright Centre).



Small Mercies, a Monday Night Live act.

LIVECAST - THE NEW HOT BUZZ

Making money from music now comes with a mandatory four letter word, and that word is LIVE. The days of earning from CDs is over unless you are a 100 pound gorilla. Everywhere CX goes we find people talking about capturing live shows and livecasting them. Telstra have taken the next step.

BigPond commissioned 13 Monday Night Live gigs in Sydney's Basement venue, and had Chief Entertainment capture them to full broadcast standard. The shows were then sent live to 3G and Next G phones, and made available for replay on BigPond.

Chief chief Hamish Cameron told CX his firm were behind the exciting Basement.com.au venture that started in 2001 with cameras and audio routed out of the Basement and upstairs to the Chief studio. That venture saw hundreds of concerts broadcast and 20 commercial DVD's made. Telstra purchased Chief

Entertainment from Cameron (who runs it) and his then partner – broadcast star Doug Mulray who has since retired.

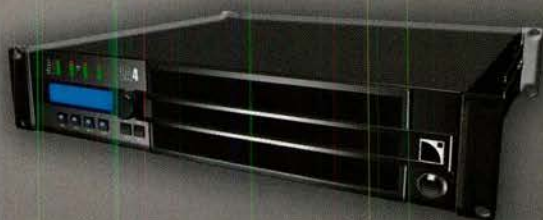
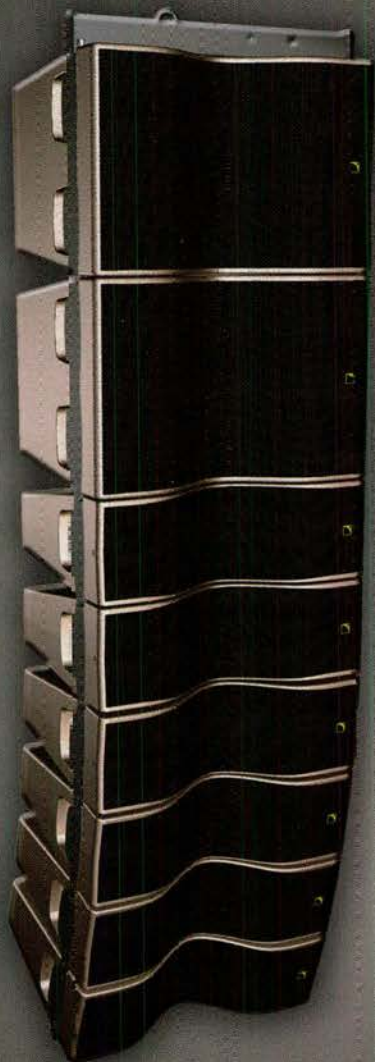
Now Telstra have pioneered an exciting joint venture between each artist and their record company where Telstra has acquired substantial ongoing rights to the concert footage. "It's about Big Pond Music doing something iTunes haven't", says Cameron.

The shows were mixed upstairs by Keith Walker, guru of live music broadcasts, with the stereo mix sent down to an OB unit, sourced variously from Gearhouse or TDC. The OB Unit provided the 16:9 broadcast cameras and vision mix, which is married with Chief's audio mix and then encoded by Chief. The output is sent by Ethernet to Telstra across town, who split the signal into Broadband and phone editions which go out live.

Watch the show on your mobile for \$2.95 (live) or for just 50c later, on-demand. If you log on to BigPond Music on Monday night, you can see it there too. CX

K I V A

NEW LINE SOURCE WST ULTRA COMPACT



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RFID A HOT NEW LITTLE HELPER

PLASA brought several emerging global issues to the entertainment tech table. Carbon is one, where venues are now considering the implications of design and renovation towards renewable energy and consumption. Radio Frequency Identification (RFID) is the other.

RFID in this case is not about sorting wireless channels. It is an embedded tag that can be passively printed onto common consumer goods. It also comes in an active format for powered devices, and it's both variants that will soon find their way onto our equipment.

The push is on at global intergovernmental levels to implement RFID tagging on almost everything. The world's largest retailer, Wal-Mart has mandated all new stock must be so tagged. At micro levels, it allows fresh food tracking. Every kind of application is open – including an example where a brewery in the UK

tagged every keg. They claim they can track the things across Europe in real time, and have earned back the investment already.

RFID tags can even be inserted into animals – or people. In theory your medical history and passport number could be implanted in you. And updated.


Tagging small items of inventory is the dream of any operations manager, provided it is done permanently and at low cost. Bar codes are a one-way format, and must be a certain size. They are prone to damage, and must be scanned. An RFID tag responds to wireless interrogation, so items are identified as they move through a zone.

But the big buzz for us techoids is that our expensive and complex devices can be given a unique identity and also a history. The contained info could include addresses or frequency data, basic operational details, and service history. The capital cost and acquisition date and supplier can be embedded, making a virtual audit an automatic process.

A production manager could know immediately if an item or case is loaded in the wrong truck, or missing. It could also allow electronic sorting of volumes of gear coming out of trucks – with a reader set to give an audible signal, say, to allow a case to be directed to an area of a venue for set-up.

There are also specialised tags, which can operate in high temperature zones or even underwater. Some are as small as a grain of rice. A tag is implanted, affixed, glued or built into a device. A reader up close, or in larger zones can read it.

Just in case you wonder – this is a mature concept, and it will be part of your digital future. Now it's up to the makers of equipment to implement and even bundle simple inventory management systems, tailored to entertainment tech users, with their brands.

** And if you embed the RFID in your arm, your medical history, passport info and bank details could be scanned straight away. Please consider.* 

I-PIX GOES BALANCED

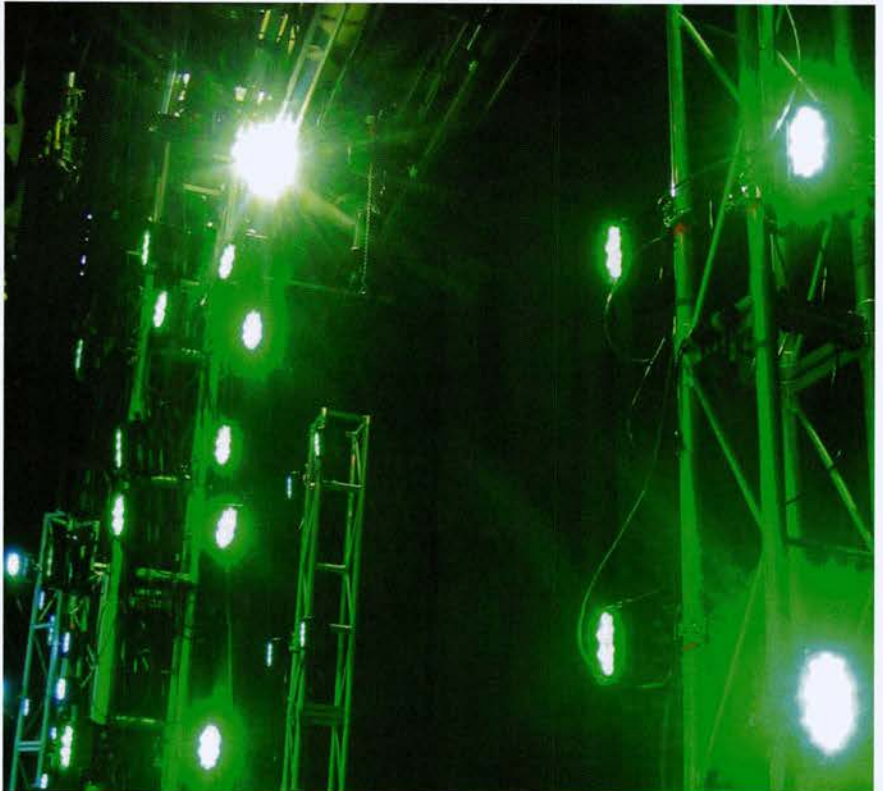
Balanced Technology have announced they have been appointed the exclusive Australian distributor for i-Pix Digital Lighting, an emerging LED fixture manufacturer based in the UK.

i-Pix describe themselves as “a forward thinking solid state lighting manufacturer, with a design emphasis on good quality, durable products, delivered simply”. Their focus is on building high quality, high output LED fixtures that are designed to withstand the rigours of the road, while reducing overall power consumption.

Although i-Pix itself is a relatively young company, the brains behind i-Pix have enormous experience and a proven track record, with head of R&D, Chris Ewington, being responsible for setting up and developing the ‘Pixel’ LED brand.

Combining this knowledge with requests from customers to deliver a high power RGB LED fixture, i-Pix developed the Satellite - a 42-watt RGB wash fixture featuring ultra smooth dimmer response, super fast strobe, easy-to-read LCD user interface and simple addressing and set-up.


In Australia, the entire first shipment of 96 Satellites went straight to Melbourne-based production company, Resolution X. Tim Hall, Managing Director of Resolution X, says he rarely sees the Satellites as they are



constantly out working.

“We sent the whole lot into Channel Nine to backlight the set of ‘The Singing Bee’ and they were an immediate hit” says Tim. “They liked them so much they used them on the AFL Grand Final Footy Show and kept a dozen or so for the new series of ‘Who Wants to be a Millionaire’ –

meaning I’ll probably need to grab some more soon!” Rohan Thornton, head of the Lighting Department at Channel Nine Melbourne, described the Satellites as “sensational little fixtures” whose compact size and punchy output made them stand out from the crowd.

www.balancedtech.com.au 



PM5D V2

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Remote PM5D

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Simple.

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For more information on the PM5D V2 and DSP5D, go to:

<http://www.yamaha-music.com.au/products/commaudio>

Or contact us: 1800 805 413 | jason_alea@gmx.yamaha.com | PO Box 268, South Melbourne VIC. 3205



Leko Novakovic and Michael Roberts.

NOVATECH GROWING PAINS

Novatech Productions in Adelaide are surfing the expansion wave, with a doubling of inventory squeezing their facilities and staff. The company provide sound, lighting and staging solutions to a diverse customer base covering corporate, concert and club clients.

They have invested heavily in concert audio, and now boast a Kudec line array system with Digidesign Venue console and up-market outboard. Allied with this, further investments in new equipment have stretched their Mile End premises to the degree that some larger shows are prepped in the car park and covered in tarps, awaiting trucking.

Due to the insular nature of the Adelaide market, the firm is often forced to cross hire equipment from Melbourne or Sydney. But it's labour that presents the greatest challenge, with the national skills shortage making it hard to staff shows.

So far Novatech haven't been saying no, but that day isn't too far off. **CX**

SHURE COMPETITION

Buy a Shure wired microphone or wireless system before the end of January '08 and you can go in the draw to WIN a pair of JBL PRX512 powered loudspeakers, a pair of JBL PRX518S powered sub-woofers and a 20-channel Soundcraft MFX20 mixing console. See your Shure dealer or go to

www.jands.com.au for more info. **CX**

**SUBSCRIBE TO CX
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Designer Baz Halpin has come up with stunning lighting and visuals for rock/blues legend Joe Cocker's lengthy European tour. The show is extremely busy with over 1000 programmed cues. Bandit Lights supplied the hardware. Pic by Louise Stickland.



"THE BASTARD FROM THE BUSH"

Tom Klein from O-Line Video Productions in Mildura has seen massive change since setting up the business with his wife Pauline in 1986.

Since those early days covering local sporting and social events, (shooting on Betamax), then working as the fill-in camera man at Vic TV, he's seen it all.

Tom, sometimes affectionately referred to as "the bastard from the bush" (for reasons unexplained) has shot an incredible variety of people visiting the area, including politicians and entertainers.

As a freelancer, diversity is a prerequisite. Currently they are the News/Current Affairs "Stringers" for TEN, ABC, and Network Seven within the North West region. The vision and audio content is fed in "real-time" via fibre optic link (DVN Digital Video Network "SDI") from Mildura to Sydney, then to anywhere across Australia or the world via satellite link "instantly".

Examples of this process include a Live Cross from Swan Hill supplying vision and audio for the Seven Network "Sunrise" program, and also a Live Cross for the ABC-TV Insiders program

(Barry Cassidy) of federal finance minister Nick Minchin from Mildura.

Tom has used many formats/cameras to capture and edit video since the early 1980's, "In December 2006 I purchased a V-Mount fibre optic Novia HDD to shoot and feed the RED CROSS Murray Marathon Television News packages. It was so successful; I decided to look at the P2 card camera models that Panasonic were producing. I had used earlier Panasonic camera and Vinten combinations at galas meetings with Sportscour and found them a great combination"

In June this year, Tom made the move to the Panasonic/Vinten combination, purchasing the Panasonic SPX800 camera and the Vinten Vision 11 camera mount system.

"The ability to simply and quickly choose the resolution the client/job requires is a brilliant innovation in a Freelancer's arsenal. I use DV on social events, DVCPRO on small product shoots, and DVCPRO50 on broadcast news items and other high end requirements. Shooting DVCPRO50 and feeding via SD direct from the camera is fast easy and trouble free. Being able to easily find and delete unwanted clips via the thumbnails is also a P2 card space saver and easy to perform." **CX**

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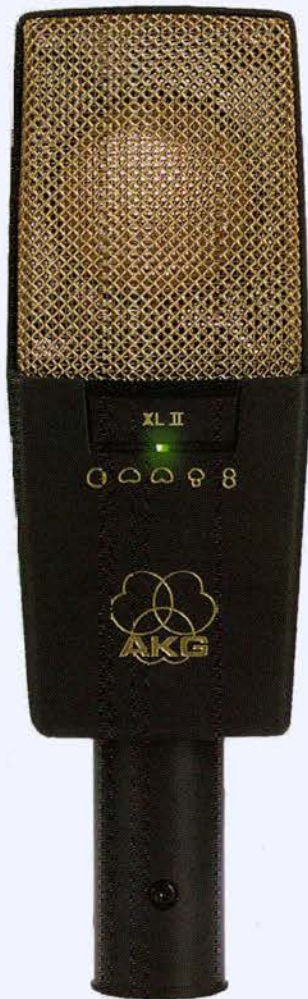
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AKG C 414

The AKG C 414 entered the TECnology Hall of Fame at AES 2007 in New York City. The C 414 has been in the usands of studios and on stage with numerous stars.

The famous C 414 design was introduced 1962 with the C 12 A. 1971 saw the birth of the C 414 model that brought in the then new transistor-technology. In recent years, the design was re-branded, the technology improved and updated.

Products or innovations must be at least 10 years old to be eligible for induction. CX



CROWD BARRIER BREAKTHROUGH

The business of crowd barriers is growing beyond concerts, according to Eventqup. They make the new Framelock Crowd Control Barrier, designed from the ground up in Darwin of all places.

Owned by Colin West, a production veteran who also builds stages and tent structures, Framelock claims to be 'very safe', and is backed by extensive field tests and use around Australia plus a glowing engineers report.

West is a passionate production guy and he has gone direct to the source by selecting his own aluminium which is extruded to his specifications. The barriers are fabricated in New Zealand while West is based in Darwin. Talk about extremes! He says that the barriers exceed all the standards which in his view are barely sufficient.

"We have relied heavily on international research and standards, primarily British & European Standard BS EN 13200-3: 2005. Unfortunately,

the standard is silent on the appropriate loading for front of stage barriers, preferring simply to state "A front of stage barrier should be designer [sic] to resist a characteristic uniform line loading, in accordance with the risk assessment."

Without too much to go on, West designed his system and has had it certified by an engineer, P. Russell, who states: Unlike other similar barriers, Framelock has made provision to pin the base to the substrate in order to improve resistance to sliding. Based on (our) findings and derating the test values by the variability factor of 1.5 (for testing only one prototype), the results are still impressive for Framelock Barriers.

An additional product is the Fence Barrier, a 2.08 metre tall module that fits in place of the standard 1.2 metre barrier mesh panel. West has had serious interest from 'non concert' security agencies for his products.

Framelock's system is fast to set up, and packs flat for transport.

www.framelockbarriers.com CX

POPE MICROPHONE

During Pope Benedict XVI's visit to Austria this month, the Holy Father stopped in the cities of Vienna, Mariazell and Heiligenkreuz.

The Pope's customized microphone model is based on AKG's new C 5 condenser capsule, without the model's presence boost adapter installed. Styled in the Vatican's colors of gold and white, these customized microphones provided AKG's high-

quality, reliable performance for Pope Benedict XVI during all his Austrian stops. "We build professional microphones for the exacting demands of our customers," explained Alfred Reinprecht, AKG Vice President of Marketing & Product Management. "It has been an enormous privilege to adapt one of our technologically-innovative microphones for use by the Holy Father." CX



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AFL SEASON ENDS WITH BIG SHOWS

It was the biggest Australian sports event of 2007. The Australian Football League (AFL) Grand Final day kicked off with the 'official' tournament Breakfast, hosted by North Melbourne and staged in hall 2 of Melbourne Exhibition Centre.

A long day of great entertainment ended with the post match After Party, held in the Punt Road Oval (home of Richmond Cricket Club) in downtown Melbourne.

Lighting design for the Breakfast was a collaboration between Alex Saad (also the event's moving light operator) and TV lighting director Don Collins (who operated the generics). Supplier Cliftons' main systems tech was Michael Parsons.

The stage set was designed by Mal Nichols, who has created looks for 7 previous AFL Breakfast events, usually involving large trussing elements which are carefully lit for maximum effect. Imaginative lighting is vital to most of Nichols' set designs, particularly since this event moved to the MEC a few years back. With the Hall being so enormous, the

idea is to keep scenic elements as "Bold, clean and simple" as possible.

This year, the set comprised 9 trussing circles- ideal objects for lighting. The stage was 21 metres wide and featured three overhead trusses – front, mid and back. Onto these were rigged a total of 32 Robe ColorSpot 1200E ATs and 16 ColorWash 1200E ATs. Specified by Saad, they were used to illuminate the stage and the set with a dynamic series of gobo, colour and beam effects.

Several guest artists performed onstage throughout the telecast including 2006 Australian Idol winner Damien Leith and Irish comedian Paul Martell, plus a host of live interviews. The breakfast was also addressed by John Howard and leader of the opposition Kevin Rudd, along with AFL officials.

The Match took place in the afternoon at Melbourne Cricket Ground, broadcast live on Channel 10 and watched live by nearly 100,000. The 2007 AFL Grand Final was won by local team Geelong (The Cats) who spectacularly thrashed opponents Port Adelaide by a record 119 points.

After all that heady excitement, those who had been invited or bought tickets were treated to a full on After-Party with stonking performances by leading Australian bands BSG (founders of Little River Band) and Jet.

Lighting for this event was designed by Chris Newman (BSG's LD) and co-ordinated by Cliftons' engineer/technician Aaron Humber. Once again, the requirement was for it to work for all bands appearing onstage – so they needed plenty of diversity and different looks. Jet's lights were operated by Matt Hansen who also production managed the After Party event.

Robe moving lights were again at the core of the rig, which was based on two overhead trusses and 4 angled trussing sections standing onstage - two at 2 metres and one at 4 metres, attached to special base plates.

Each of these four floor based truss sections was rigged with 4 Robe ColorSpot 700s and a 4-lite. The self climbing stage was also supplied by Cliftons, providing a 12 x 12 metre performance space with 8 metres of headroom.



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- Yamaha PM1D, PM5d
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- Yamaha O1V/96 (40 consoles)
- Digico D5 112/EX
- Midas XL4, XL3
- Midas Heritage 3000, 1000
- Midas Verona, Venice



Overhead, on the back truss were 8 ColorSpot 1200E ATs, 6 bars of PARS and four 8-lites. The front truss was loaded up with 10 Robe ColorWash 1200E ATs, eight 26 degree Source Fours and three at 19 degrees.

Clifton supplied a Hog iPC for control, run Hog II mode by Newman for BSG and in Hog 3 mode by Hansen for Jet. They also supplied 2 Robe Haze 400 hazers.

The After Show was also recorded for Channel 10. The biggest lighting challenge for the After Party was the weather as the venue was outdoors and this can be very unpredictable in Melbourne! Aaron Humber comments that despite the front truss Robes getting a good soaking during the set up period, they continued working! "A great testament to their toughness".



TELEX WIRELESS INTERCOM

Bosch Communications Systems is pleased to introduce its new BTR-24 and TR-24 series 2.4 GHz wireless intercom, a full duplex (simultaneous talk and listen) system that offers a complete



standalone solution for two to ten users and an unlimited number of listening users.

The BTR-24 system incorporates the option of three audio channels, selectable at each TR-24 base pack. The TR-24 base packs also provide the user with adjustable volume control, headset microphone eye and local side tone level. The TR-24 will operate with dynamic or electret condenser headset microphones, and has a built-in lithium ion battery pack that will provide up to eight hours of uninterrupted operation.

Upon start-up, the BTR-24 base station automatically scans and selects the best RF (radio frequency) channel for communication using a feature called ClearScan. The BTR-24 also has a built-in lithium ion battery pack to provide up to ten hours of uninterrupted operation, or can be operated with the included wall-mount AC power supply.

www.boschsecurity.com.au



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ART 315 A	15" + 1"	300W	50W	128dB	20kg	680H 405W 345D
ART 322 A	12" + 2"	350W	50W	128dB	23kg	680H 405W 345D
ART 325 A	15" + 2"	350W	50W	129dB	24kg	680H 405W 345D
ART 522 A	12" + 2"	500W	250W	130dB	18kg	680H 405W 345D *NEW
ART 525 A	15" + 2"	500W	250W	131dB	18.5kg	680H 405W 345D *NEW
ART 705 AS	15"	800W	TBC	130dB	37kg	590H 435W 600D

**All power specifications measured in continuous RMS power.*

VARI*LITE VL3500 WASH ARRIVES TO HUGS

Lighting designer Rohan Thornton became the first Australian lighting designer to use the VL3500 with fourteen of the units deployed on the live-to-air AFL Grand Final Footy Show, held at the Rod Laver Arena in Melbourne.

"The VL3500's were used onstage to provide the cut beam effects," reported Rohan after the event. "We had four Syncrolites at the top of the rig for the big beam effects, something we often do, but the VL3500 units were almost as bright leaving the Syncrolites looking a bit lame."

Rohan readily concedes that he loves everything about the VL3500 and happily confesses that it's the first time he has given a lamp a big hug! "I really can't fault them," he added. "They work well, the colours are excellent, they're bright, reliable and every lamp change is exactly the same. They have one of the few variable CTO's that isn't green. They're sensational and you really can light a cigarette from them! But don't worry, no one inhaled."

VL3500 output exceeds 50,000 lumens. It features internal zoomable beam optics with either Fresnel or Buxom options, an interchangeable front lens system and an aperture wheel. The fixture provides CMY colour mixing, variable CTO colour temperature correction, dual five-position colour wheels, a separate dimmer, and an independent dual blade strobe mechanism.

www.jands.com.au



DIGICO D5 GOES TROPPO IN DARWIN

Top End Sounds in Darwin has invested in a DiGiCo D5 live digital mixing system

"We think that most acts and operators coming through will find the DiGiCo D5 acceptable", said Top End boss Colin West. "There are already ten in Australia so they're not a virgin console; they've been well and truly proven to be reliable."

David Houghton, TES chief audio engineer who ran the audio for the Qantas Gala (see photo), was reportedly more than comfortable using the console after just one day, a scenario repeated at three more gigs during the week by other operators at TES.

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STAGING'S FIRE AND LONDON EXPANSION

Staging Connections suffered a fire at its Roden Street West Melbourne premises in November. Thankfully no-one was hurt in the blaze.

The office was destroyed however the operations department and warehouse which stores the Company's event and audio visual inventory was untouched by the fire and remained fully operational. No event was affected.

Meanwhile Staging Connections – an Australian company - has acquired Essential Lighting Group UK. Established in 1993, Essential Lighting is a large event lighting organisation and is expected to deliver annualised revenue of A\$14 million with strong margins. The company is a leader in the European live events market, providing full service lighting solutions for the region's major corporate and entertainment events.

"Essential Lighting is an excellent fit with our growing network of global event services," said STG Chief Executive, Michael Gardner. "The company is internationally recognised for its creative energy and technical lighting services. Essential Lighting has a strong management team, a stable core employee base of 60 and a strong track record of revenue and earnings growth," Gardner said.

The purchase delivers a strong base for entry into the UK and European live events market.

"We are very excited about the opportunities presented by becoming part of a global, professional group of event specialists," said Essential Lighting Managing Director, Martin Locket.



AUSTRALIAN MONITOR GOES GLOBAL

Australian Monitor held its first international Distributor Conference recently in Italy. The conference saw 50 delegates in attendance from Europe, Asia, the Middle East and North America.

The conference concentrated on the future direction of the three Australian Monitor brands, focused on upcoming products and allowed delegates the opportunity to attend an interactive seminar on a number of key projects coming to market in 2008.

Delegates spent two days experiencing some of the products to be released in the new year from Australian Monitor Installation Series, AM Pro and AMAV. They also saw some soon to be released and prototype products.

Chris Smith, Australian Monitor's Sales and Marketing Manager, comments, "The opportunity to have some extended discussion forums with a huge range of distributors was invaluable for us to refine our current product lines and also tailor our development projects to have the greatest chance of success in the varying regions around the world."

Australian Monitor is distributed in over 70 countries around the world and serviced by nine warehouses on four continents. For over 25 years Australian Monitor has been developing an innovative and robust range of products for the Commercial and Professional Audio markets.

www.audiotellex.com.au



FBT INTRO NEW POWERED 12" 2-WAY

With Mackie moving downmarket, the powered speaker market is opening up for well established long term manufacturers. One of these is FBT whose new HiMaxX40 comes in powered or passive. The active version has two amplifiers, a ECOV RMS device for the LF and 150w RMS for the HF.

The control panel features two independent input channels a mic/line input selector, peak led, and separate controls for high/mid/low.

Retail price of the powered version, HiMaxX40a, is \$2,695 and the passive, HiMax40, is \$1,595.

www.tag.com.au



LECTROSONICS RECEIVES PATENT FOR DIGITAL HYBRID WIRELESS TECHNOLOGY

Lectrosonics has been issued a patent for its Digital Hybrid Wireless technology. The technology uses a proprietary algorithm to encode 24-bit digital audio information with no compression and low distortion into an analog format that can be transmitted in a robust manner over an analog FM wireless link. The result is much higher dynamic range — free from sonic artifacts — than wireless systems using a compandor are able to offer.

Digital Hybrid Wireless technology delivers long operating range, better signal decay, and a small spectral footprint, facilitating more channels to be operated simultaneously.

A particularly noteworthy characteristic of Lectrosonics' Digital Hybrid Wireless technology lies in its ability to provide backward compatibility with earlier generation Lectrosonics wireless products when used in compatibility mode. By emulating the companding



schemes of Lectrosonics 100 and 200 Series wireless systems using DSP (Digital Signal Processing), these earlier products can be integrated with the company's newer systems.

www.murraytregonning.com.au

News continues on page 78

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REVEAL THE A380!



SUPER JUMBO
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By JULIUS GRAFTON

Singapore Airlines are reclaiming the glory days of air travel, when flying was romantic and luxurious. The difference between that post war era and today is price. An air ticket in 1950 cost about ten times what it does today, in adjusted terms.

Positioned right at the top of the world airline market is Singapore or SQ as they are known for short. They innovate and other airlines follow. It's been that way since I worked on the launch of Singapore Airlines Big Top, the 747-300 in 1982 at the Sebe Townhouse in Sydney. At that event, we didn't actually have an aircraft on hand, so we made do with a multimedia slide show and several dozen Singapore Girls. Insert trade mark here!

When the A380 touched down on its first ever revenue passenger flight in Sydney, SQ wasted no time in showing off their magnificent flying machine. The flight was a major news event, with hovering news helicopters and masses of photographers at viewing positions.

The airline hosted a really neat VIP event at Sydney Airport, in a Hoeker which was built near the edge of the parking area off Gate 11. This is near the private jet base where those who can afford it may arrive and embark on their journeys.

Naturally CX was invited, along with 450 media, political and travel luminaries who were given first class treatment.

GETTING IN

Airports claim high security and this was proven as I arrived. My drivers license was carefully checked against my name on a visitor list, the spelling needed to exactly match. Then I was issued an ad hoc Gate Visitor pass, and my license was retained by security.

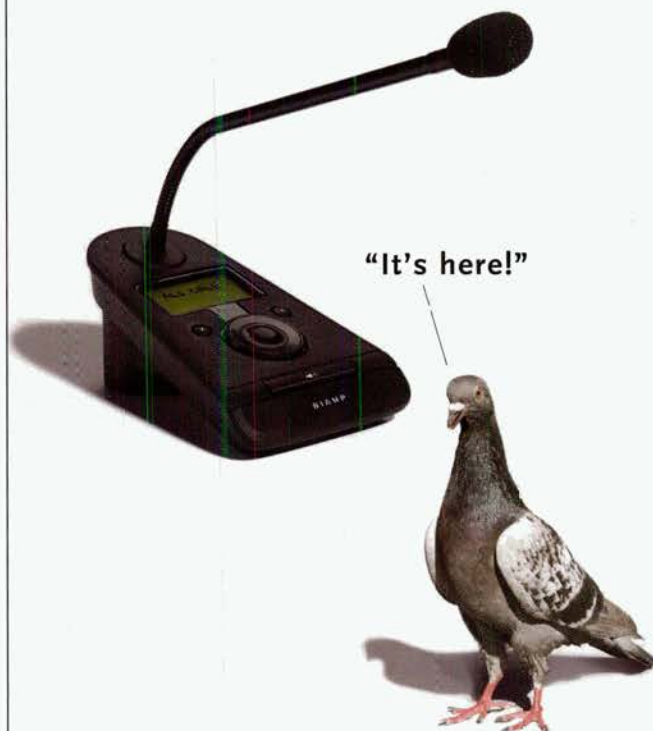
The pass needed to be worn in plain view on the top half of me. It was, and it was checked about a zillion times by plenty of security people. I was also sniffed at by Cruncher, whose handler was in a blue jump suit. Armed and dangerous. Cruncher smelled all the road cases, presumably to check for weapons of mass distraction.

When I ventured onto the hard stand I needed to wear a certain kind of reflective vest. There were police on pushbikes. There were police in a mobile command bus. There were police everywhere. I was alert. We need more lerts.

The Hoeker housed 450 VIPs, plus a roadshow of SQ paraphernalia. In the entry corridor were backlit history displays, showing all the air line's firsts. First in-seat phones in the air. First audio and video on demand. First nonstop from Singapore to London. Did you know everyone used to

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stop in Bahrain or somewhere hot and camel infested for extra fuel, making Sydney – London a three leg flight?

Best of all were the cabin mockups, with an entire first class suite plonked in the Hoeker/Tent. This remarkable little retreat occupies the front lower deck of the A380. There are 12 of them – you enter through a little door, seat yourself in a superb seat not unlike my Jason Recliner at home, and browse stuff on a large wide screen TV.

Your minion or minder can grovel at your feet on a visitor ottoman.

Service comes at the click of a finger (or button) and in opulent style – we saw a display of the food and refreshment offerings which outclass anything Karen could do at home.

When it's time for sleep the seat back goes flat and a bed is folded out of the rear wall – leaving space for you to stand and do stuff. Best of all, the centre suites can be joined into a double. Just as well you can shut the windows to the aisle and hit the Do Not Disturb sign!

I suggest a flight in the double cabin, with a close touching personal friend, would be a most excellent thing to do before you croak.

MORE LUXURY

At the other end of the spectrum is Economy Class and there are almost 400 of these seats on the SQ A380. Despite what they say is the world's largest economy TV screen on every seat, and new whizbang technology it is still what it is – an economy seat.

More attainable for some is the radical new Business Class, with a truly wide seat that would make many Americans smile. This goes all clever on you and converts to a fully flat bed, not the fully flat but tilted variety we know and almost love. SQ have 60 of these on the top deck at the front.

The whole experience made my credit card nervous. When this happens my accountant wakes in a night sweat, eyes wide. Hushed meetings are held and representations made during which the words profit and loss are thrown around too many times.

As my mind wandered across the planet and possibly beyond, the Hoeker was in full swing with suited and fragrant networking. I rubbed shoulders with roosters and chicks and learned some extra jargon.

When the prawns came out, the



The Showcorp lighting crew



Colin Baldwin with the A380.



The A380 dwarfs everything around it.

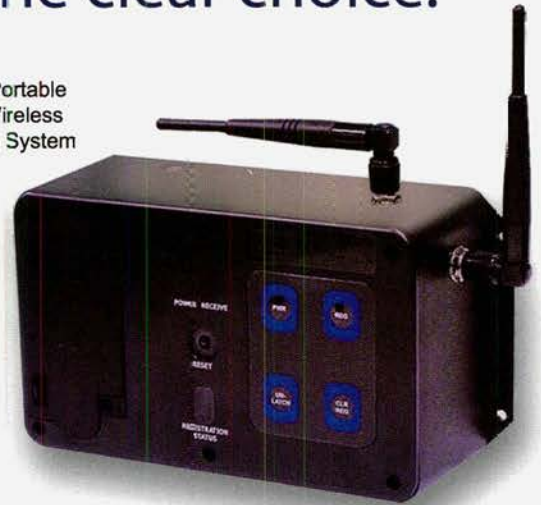
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excitement ratcheted up a notch, because it was flipping obvious we would soon See The Plane.

REVEALED!

Singapore Airlines appointed The Showcorp Group to produce this important event. They are a Sydney based provider of event services and ideas with a long lineage in the corporate event market.

CEO Colin Baldwin and his team came up with the reveal, which itself wasn't necessarily all that radical since a seven story tall airplane needs to be either towed into view, or the view made to happen all of a sudden. They did indeed tow the airplane, since it landed and discharged its load of passengers just before. The reveal was of the 'kebang' variety, and achieved via fabulous Kabuki technology which for the uninitiated, is where a curtain drops and the item that lies behind is thus revealed.

Speeches were made, then a wide screen video rolled that showed the history of the airline, key points about the A380 and then: a landing sequence. It was very well done.

When the video reached climax, the curtains dropped and ta-dah! There she was, all lit and in shiny splendor. 450 hearts all skipped a beat. Colin Baldwin's heart missed an entire cycle since if the Kabuki had stalled so would his career.

The VIPs were all organized into boarding parties, and they raided the aircraft leaving crumbs and excited



Quick work to set up around the plane.

**SHOWCORP
JUMBO CREW!**

- | | |
|---|---|
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Creative Director | Des O'Neill
Audio Operator |
| Kathy Ferris
Co-Producer | Brad Wright
Lighting Operator |
| John Meillon
Jnr
Multivision
Producer / Show
Director | Robin Lamb
Vision Operator |
| Vinni Sedgwick
Site Manager | Chris Irvine
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| Gregory Tait
Assistant
Production
Manager | Ryan Marginson
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& Programmer | Mark Lucas
Staging / Rigger |
| | Peter Dawson
Camera Operator |
| | Brenden
Dannaher
Camera Operator |
| | Thanks to the
Show Support
crew. |

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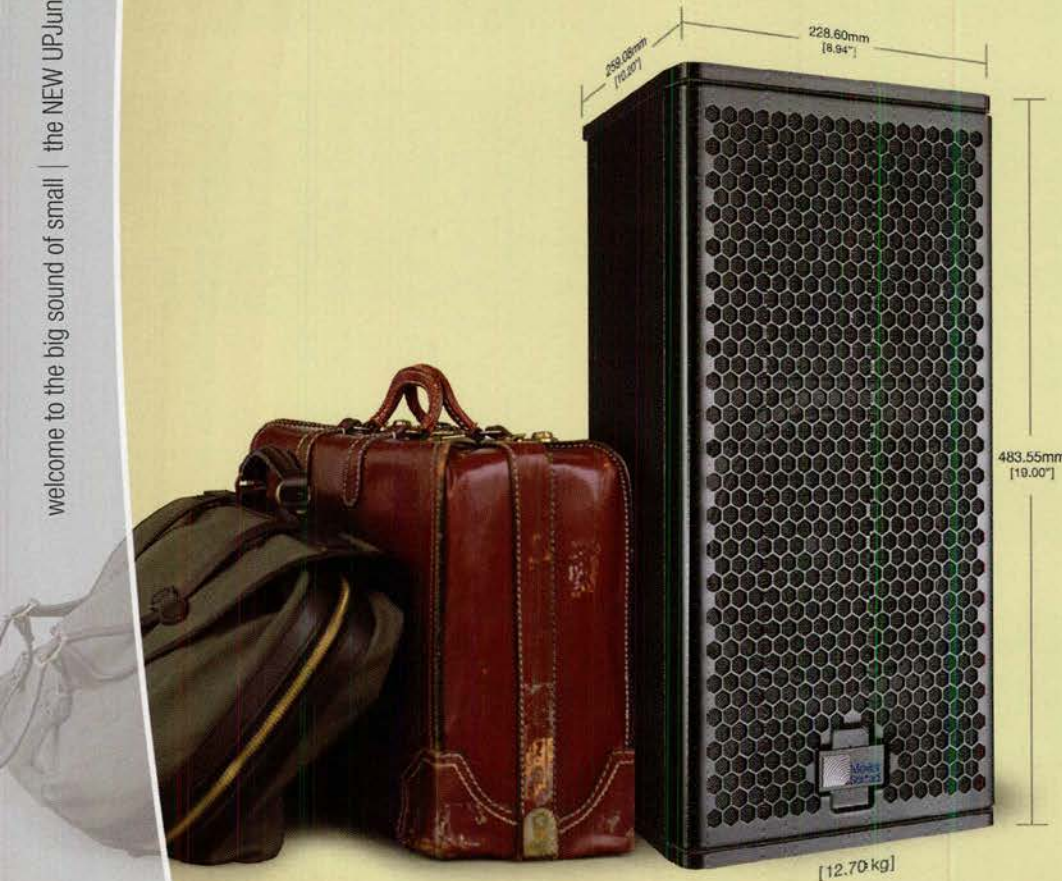
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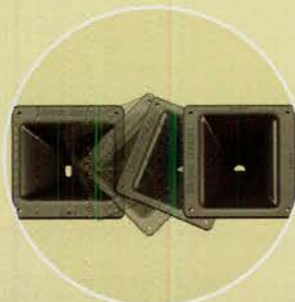
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The animated runway.



The A380 approaches...



Taxis into position ...



And abruptly becomes the real thing. Fantastic reveal!

sweat for the cleaners to deal with at midnight.

BEHIND THE SCENES

It's a standard story – draw 3D plan of big tent, insert trusses and trings. Showcorp has a very solid live performance history forged via the rock and roll heritage of its founder. A brief observation here: in general terms I can spot a product on that is devised by a road warrior. Things are just that bit more tidy and methodical.

With a stage at one end, some trusses ran down the centre of the

tent and the thing was lit in blue and gold – the airline's colours. The Dataton Watchout wide screen presentation was achieved with three projectors, carefully aligned for a seamless image.

A word on audio: this gig hit all the right buttons with me, since I could hear every word from the lectern microphones while I was at the back, over the noise of cooling fans and aircraft coming and going. This was done with intelligent design – there were rear speakers and they were perfectly time aligned so that all audio

hit ears at the exact same time.

Some of the wide screen presentation had low frequency components, and these were radiated just right – there is always a risk that separate lows can come on too loud or disjointed from the main audio soundtrack.

ON THE RUNWAY

While the quaffing and troughing was elegantly underway in the tent, the airplane was called for by Co in Baldwin. The flight had inconveniently arrived early, and flown over the top



A380 First class suite. Air travel's not what it used to be.

of the airport. We saw it but barely heard it, since the A380 is very quiet.

This meant that there were conflicting pressures on the production – the airplane had an unloading and cleaning phase to go through at the international terminal, across the other side of the airport. Then it needed to vacate its gate.

Things were sorted, and through the darkness loomed the super jumbo, towed by a ground tug. It came with its auxiliary power unit running, to provide interior air and light along with systems. The APU is reasonably loud when you are on the ground alongside.

To place the aircraft where required meant a three point reverse park. The mind boggles, but the tug driver had practiced a week earlier with Colin Baldwin in attendance. They did a dummy run with a 747, which was then test lit. The lighting of an aircraft on airport property is a civil aviation safety matter, and the control tower wanted to see whether airport operations would be affected by extra lights.

Night flying relies in low cockpit lighting so that on takeoff and landing a pilot's vision is not swamped.

As the four hundred tonnes of A380 had its wheels chocked, the Showcorp crew sprang into action and rolled out their Griven lights to predetermined positions along the hard stand. These were fired off a generator, and dmx linked all the way to the Hoeker for colour and cues.

Around fifteen minutes later, the aircraft was lit in full splendor for the appreciation of around a hundred plane spotters who risked parking fines to line the fence near the gate. After testing the lights were doused, awaiting the cue from the reveal.

TAKE OFF

The reveal done, the clapping dies off and the VIPs start to climb up the stairs to inspect the big bird. Showcorp's crew have a quick huddle to recheck the rest of the schedule.

At 11 when the guests are gone, the Hoeker is reset for a media call the next morning. Bollards, witches hats and red carpets are stowed, the Griven lights packed.

The media call needs a media split for audio, plus 80 chairs set with three armchairs on the stage. The crew do it, retire for the night, and staff the call the next morning.

The A380 flies back to Singapore and then starts a daily return flight to Sydney. It will be joined by another 3 before any other airline gets a single airplane. This puts Singapore Airlines way ahead of the pack.

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DIGITAL MULTICORES 101

Having taken something of a dalliance from my native language (as it were) for the last couple of issues, I figured it was time to get back to the business of writing about audio. So here's another article about data, digital stuff, and how it relates to multi-channel audio distribution...By JAMES DEN-OUEN

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Optocore LX4P Stage Rack.



Roland S4000 system.

There are a whole bunch of other things your system may need, such as digital audio distributed to amplifiers. An example of this is the Crown PIP-USP3/CN programmable input processor, to suit a range of Crown amplifiers. This card provides not only remote monitoring, control, and DSP functionality but is also allows transport of digital audio via CobraNet on the same Ethernet network.

cores run generally on Cat5 or Fibre Optic cable, both of which are relatively cheap. Cat5 is cheap enough that you'd almost leave it installed in the venue if you planned to go back there. In fact I have. You can also get lucky and find the Cat5 the previous user left behind.

The only real downfalls I see of digital multi cores in comparison to analogue is that they cost more on a small scale basis. The scale is an important qualifier. Generally speaking the expensive part of a digital core is the box at the end of the cable, and whereas analogue cable keeps getting more expensive the longer it gets, digital by comparison gets cheaper. The other downside is that a digital option can add a step into your gain structure. No biggy really, but it can cost you extra time during soundcheck to setup an extra bunch of controls on preamps, depending on the system you're using – different systems have different levels of remote controllability.

Aside from dedicated multicore replacements, there is a gamut of other digitally multiplexed audio products around (many of these designed for architectural audio installations), so we'll cover over some of these too...

Different manufacturers have adopted different standards for how they send audio as ones and zeroes. Some of the main ones to know are MAD1, REAC, Ethersound, Cobranet and A-Net. Each has intended implementations, and so some are better suited to specific tasks than others. Generally each standard is best used as it was intended to be!

MAD1 (AES10) is a serial digital format allowing 56 digital audio signals (48kHz/24bit) to be sent down a single cable. Newer variants allow higher sample rates too. It is not so much a specific product as a transmission format. MAD1 is a nice format since it allows for lots of complex digital

Multicore cable has been around in many aspects of production since, well, forever really. Analogue lighting systems ran on multicore for years until the inception of DMX-512 and subsequently ethernet. Broadcast video came as ran on multicore back to their CCUs until the introduction of triaxial cable. It's taken a while, but audio has finally caught up with a smarter, easier way of doing things.

What's the problem with analogue multicore? If you don't know the answer to this, go roll 50 metres of the stuff then ask the question again... A 24 send, 4 return copper multicore weighs in at maybe half a kilo per metre, plus the weight of the stagebox and 28 XLF connectors at the other end. In other words, inconveniently heavy, not to mention fragile. So really, they need to be cased to last any length of time in a production environment (making it heavier again). Another feature of analogue multicore is that unless

you're careful about how you set up your power, it poses you to encounter all kinds of interesting noise induction and ear-choop headaches. On the upside for analogue, it's cheap and it's passive (doesn't require power). So if your PA system shuts down due to a power outage, it's comforting to know your analogue core can still pass a signal to it.

So what's the alternative? Like every other thing lately, the answer is of course digital. The process of converting a whole bunch of analogue audio sources into digital then multiplexing them down one cable (or in some cases fibre). What's great about it? Quite a lot really.

As I've said before, a fuzzy one is still a one and a fuzzy zero is still a zero. In other words digital either works or it doesn't and so as long as it does you get no signal degradation over distance. All the currently available systems work reasonably reliably since, let's face it, they wouldn't survive if they didn't. Digital

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NetCIRA MS-88 Master module.

routing business to be taken care of internally within the console. Consoles such as those by Euphonix and LAWO are big on this feature, since their primary market is broadcast where audio and communications kind of meld together into one large and scary beast. AMS NEVE and OTARI also use implantations of MADI, though it's perhaps not something we're as likely to run into in a live environment so much as a studio. On the live side, DigiCo, Soundcraft, and Yamaha offer MADI interfaces to their high end consoles. RME and STUDER make a bunch of MADI gear, including computer interfaces and bridges. MADI can be run down 75ohm coaxial cable, or down fibre. MADI also allows transmission of control information as well, depending on the implementation. Theoretical maximum distance the protocol will travel is 100m over coax, or 2000m over fibre.

Ethersound is an open standard for bi-directional transmission of 64 audio channels plus control information over a standard Ethernet network. It runs at 100 Mbps and can in some cases be integrated to an existing LAN, though for the sake of reliability a dedicated system would probably be a smarter choice. This is because Ethernet is subject to data collisions (which is bad). If a data packet is lost, it needs to be re-sent, which your managed Ethernet switch handles. Note that this can increase latency, or in a really high traffic network potentially cause dropouts. Current adopters of Ethersound include: Allen & Heath; Archean Technologies; Audio Performance; Auvitrans; Bittner Audio International GmbH; Bouyer; CAMCO; DiGiCo; Digigram; Focusrite Audio Engineering Ltd; InnovaSON; Klein + Hummel; Link Srl; Martin Audio Ltd.; Mediachip Sistemas Multimedia LDA; NetCIRA by Fostex; Nexo; Peavey Electronics Corporation; Pinanson; Richmond Sound Design Ltd.; Tesi; VTG Audio; Whirlwind; Wisycom srl; Yamaha Corporation.

REAC is a proprietary standard developed by RSS (owned by Roland), which allows transmission of 32 sends and 8 returns of digital audio on one piece of Cat5 cable. The nice thing about REAC is that it runs just like Ethernet, which means you can split the signal using standard off-the-shelf Ethernet hubs. It includes a redundant path which runs on a second Cat5 cable, and the changeover to which is seamless. If you need multiple splits of the signal, just throw a Cat5 network switch in-line and add in extra output boxes.

Cobranet, developed by Peak Audio, is used by Crest, Crown, Eastern Acoustics Works, Level Control Systems, Peavey Electronics, QSC Audio Products, and Rane. It's had several revisions which have seen most notably the increase in channel capacity, as well as multi-cast capability. Cobranet is the backbone of Peavey's Media Matrix system, one of the earliest successful incarnations of distributed digital audio.

A-Net A-64 is Aviom's standard which allows 4 groups of 16 channels to be sent down a single Cat5 cable. It's not the same standard as Ethernet, so don't try joining the two together or using Ethernet hardware – it won't work. The upside is that Aviom devices can be daisy chained together. Aviom A-16 was probably one of the earliest systems developed, and originally put together for the purpose of personal stage monitoring systems. The newer A-64 seems to be more of a transmission protocol.

ADAT Lightpipe is an optical format which allows transmission of 8 channels of audio through fibre optic cable (which if you think about it isn't really cable at all), and was originally developed by ALESIS to join AD converters to ADAT recorders in studios. The ADAT recorders may be a thing of the past, but the transmission format lives on. Toslink connectors at each end allow for quick, easy connection. Pretty much every

manufacturer out there has a bit of gear with one or more ADAT Lightpipe connectors on it – it's become a very common standard for devices such as standalone multitrack recorders.

IEEE 1394 (also known as i.LINK in Sony speak, or Firewire if you prefer to talk Apple) is yet another digital protocol over which audio can be transferred, but since it's not really a dedicated audio protocol I'll choose to leave it at that. I'm yet to see a digital multi core which runs on firewire, though lots of computer recording interfaces do (such as those by RME, Presonus, Digidesign, etc...).

Now on to some specific products which use these standards. As per usual, the standard disclaimer applies. I went hunting and this is what I found. Given pricing on most of this gear varies wildly depending on your application, I've generally opted to leave it out. For instance, the Soundcraft Vi6 console runs MADI by default, but also has options for Cobranet and Aviom cards. Most Yamaha digital consoles run on-board analogue preamps by default, but have MADI, Lightpipe, and Aviom cards available. Were I to suggest an approach to buying anything like a digital multi core system, I'd probably just look for something I liked and so long as the pricing was reasonable, buy it. I say this simply because you could spend weeks stacking all this kit up next to each other and doing comparisons, but at the end of the day if the gear you choose does what you need it to and the price is right does it really matter what the other stuff is capable of?

Let's start by looking at devices specifically designed to make the analogue multicore redundant.

Roland's brand RSS makes the S-4000 Digital Snake system, which is designed to be a direct multicore replacement. The S-4000 carries 32 lines up, and 8 returns. The system comprises two rack mount units, the first being the stage end of the core



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RME DMC-842.

which includes the mic preamps. The other end of the system lives at the console and outputs the various signals on 25 pin d-sub connectors, with tails breaking this out to XLR connectors. An optional remote allows remote setup of gain on each channel, as well as phantom power. This can also be achieved by way of a computer with serial connection and free software. RSS have just released the M-400 digital console which is in the same price range as an LS-9, but you need an S-4000 stage rack (or the smaller brother S-1608, 16 sends 8 returns) to make it work.

Optocore has been around for a while now, and is possibly the premier solution for large scale professional audio. The Optocore system is available in a number of flavours, some of them as part of a digital console system such as the DiGiCo D-1. For comparisons sake, the most appropriate unit to look at would probably be the LX-4AP stage rack and LX-4B break out box. These units connect together over a rugged optical cable, which is available pre-terminated on a drum with expanded beam connectors. These are kind of important since dirt on the end of a fibre could potentially block the light and hence the signal. I've heard some fantastic stories (involving hammers and the edge of a roadcase) about just how tough the Optocore fibre is so that's definitely a big plus.

Lightviper make a product of the same ilk as Optocore & Digital Snake. They have a stagebox type header unit available, which is nice and simple since it lies flat on the stage. Just like a stagebox should do :) A variety of different configurations are available however it's worth noting they also make a card which allows the system to be plugged

directly into a Yamaha YGDAI slot.

Whirlwind's E-Snake is another similar kind of thing using remote controllable preamps and a range of hardware to create solutions for a variety of situations. Whirlwind have made their product compatible with both Cobranet and Ethersound – which means it's got plenty of connectivity options.

Fostex's NetCIRA product runs on Ethersound, and allows up to 64 channels of 24 bit, 48kHz digital audio to be distributed to over 63,000 NetCIRA devices on a single network. Each NetCIRA module receives ALL of the 64 channels of digital audio all of the time, and selection of channel is done either by dip switches or a remote. Various input and output modules are available in sizes from 2 to 8 channels, with a range of input and output cards for the larger units including balanced and unbalanced line, mic, and digital formats.

The DMC-842 by RME is a unit which includes 8x mic pre-amps and A to D converters. The eight inputs are available on the output side as ADAT Lightpipe and AES/EBU, with MADi as an option. There's scope to remote control the preamps in a number of different ways, flash upgrade the software, and the unit has individually switchable phantom power on each input. The unit also has 8 analogue outputs available.

Aviom A-16 or A-64 input and output boxes combined with Cat5 cable also present an extremely functional multicore solution, and provide the additional benefit of opening up the options on the personal monitoring front.

The bottom line here is that since its inception, digital audio (like every other bloody thing) has become better and cheaper. There's something for everyone, and the

JIMMY'S THOUGHTS ON GOING DIGITAL – OR “IF I WAS GOING TO BUY SOME DIGITAL STUFF HOW I WOULD CHOOSE IT?”

It seems pretty clear to me that the different transport protocols in digital have different purposes.

If my purpose was installation of distributed audio, something like Cobranet or Ethersound would be my most likely choice, since you can pull the signal out at different points on the network without too much grief. Many of the products using these protocols are geared toward installed situations.

For a small to mid-sized venue installation, or a small audio truck or similar I would look seriously at Roland's REAC or Aviom, depending on how many channels I needed. These systems are limited to a certain number of channels, but provided you don't need to go over this number they will work well and could end up saving some dollars. Also you gain the advantage of easy “splittability” for monitors, recording, or personal stage monitoring.

Large scale show or any kind of broadcast application would have me looking for MADi based systems, simply to accommodate the generally larger number of channels and also for the ease of taking multiple splits. Because it's a more widely implemented standard than the above two, it's also more likely to be accepted as a suitable alternative to handing a visiting OB truck 56 analogue lines.

If I was on a seriously tight budget, I'd use some A2D converters with mic preamps and Lightpipe outputs. Hey presto, 8 channel “digital core” for 1500 bucks. But no remote gain, metering, or anything else fancy. Probably okay in a situation where the gain structure never changed.

Yet another method for digital audio transmission is having a guy at the stage with two large flash cards, onto which would be printed the words “one” and “zero”. Admittedly the latency and transfer speed on this could be a problem, so on the whole I probably wouldn't advocate using this system.

appropriate gear to use depends on the purpose it will be used for. Stick to the intended application of the gear and it's pretty hard to make a bad choice ...





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INSIDE THE SYDNEY OPERA HOUSE

There's plenty to do when you're running a performing arts complex anyway, but what happens when you throw iconic status, one outdoor and six indoor venues, three separate heritage listings and a conservation plan AND a fistful of resident performance companies into the mix? Andy Mackenzie made his way into the Sydney Opera House to find out.

I've lived in Sydney all my life and while people say it's one of the world's most beautiful cities, I've managed to develop a blasé and slightly jaded attitude to most of it. But the Sydney Opera House is different. No matter how many times I look at it, it may never be enough. There's something compellingly strange and fascinating about it, and I don't remember ever meeting anyone who didn't feel it.

Walking down Benelong Point to meet Technical Director David Claringbold, I found myself hoping that the fascination wouldn't fade with the knowledge of how it works. That can happen. Ever since I found out how my TV works, I can't enjoy watching it - I just keep expecting it to break down. In the case of the House, as it is fondly known, I needn't have worried. Every person I spoke to that day had a light in their eyes when they talked about the House and their place in it. It's all about the passion.

AROUND THE HOUSE

Sydney Opera House is widely recognised as one of Australia's, and indeed the world's, most famous buildings. This has led to it making the State Heritage Register, the National Heritage List and - in June this year - the World Heritage List. These listings recognise the architectural vision and the iconic beauty of the building, but they also recognise its importance as a performance venue. To use David's phrase, "if you pull out the performance, you pull out the heart". If the building was fitted out as executive offices or swanky apartments it would look the same, but the fascination would be gone.

The House has only one outdoor performance space, in The Forecourt, although it can be configured in several different ways. This area has a capacity of anywhere between about three and six thousand, depending on a whole range of factors, but it's not the easiest venue in the world to get hold of - there are limitations imposed as a result of the various heritage orders and the government's desire to keep the building visible as befits its iconic status.

Inside there are six quite diverse venues, each with its own distinctive design and purpose, linked by a veritable maze of corridors, staircases and what felt like about a million lifts in sizes ranging from dinky little things to the monster stage lift connecting the opera theatre with 'central passage'. Just as all roads once led to Rome, every pathway in the House eventually hooks up to Central passage - a tunnel punched

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straight through the centre of the bottom level of the House.

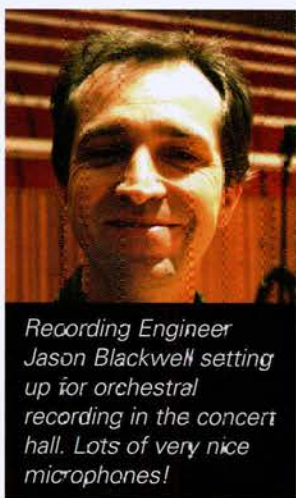
Central passage seems to serve a variety of purposes including, but not limited to, loading dock, workshop, storehouse, thoroughfare and meeting point. For the uninitiated, Central Passage is also an enormous relief every time you pop out into it from some tiny side passage. At least here you know where you are. The whole layout of the building makes it absolutely clear that this is a venue designed to fit the maximum available performance and audience space on a relatively limited footprint and everything else is just folded in around those spaces.

Given the number of little doors we went through in the course of our wanderings, the staff must be enormously glad of their cyber-keys. These are a rather clever system of keys and locks that have no doubt saved many of the senior staff from terrible back injuries caused by giant bundles of keys. Everybody's key looks the same, and so do all the locks, but there's some clever technology in there that allows the lock to interrogate the key for confirmation that they work together. So you can stick your key in any keyhole in the place, but it will only open the ones it's programmed to open.

TECHNICAL CHALLENGES

There are plenty of technical challenges to be had in running an enterprise like this, many of them resulting from the fact that the venue is consistently staging productions with technical demands way beyond the original design expectations. This has influenced a range of technical decisions in a multitude of small ways - when it was decided that a line array was needed for the Concert Hall, there were a range of options but the Meyer system grabbed a head start simply by having its amplifiers on-board where they wouldn't soak up floor space. The idea of leaving space for amp racks doesn't really enter the heads of people designing an acoustic venue.

Another big technical challenge comes in the form of the sheer volume of production that goes on in the place. The House hosts a lot of shows - David reckons between 1500 and 1600 a year (although that may be just modesty as the Federal Government's website claims 2500) -



Recording Engineer Jason Blackwell setting up for orchestral recording in the concert hall. Lots of very nice microphones!



All lighting in the House is controlled by Strand 500 series consoles. Audio consoles include DiGiCo, Euphonix, and Yamaha



Stage management console - custom built by the PA people



The recording control room is buried deep beneath the Concert Hall



Ah, the good old days. Some of this original control system in the opera theatre is still in use.



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WHO'S WHO IN THE HOUSE

THE TECHNICAL DIRECTOR

The house's current Technical Director, David Claringbold, has had a long involvement with the venue, having started as a casual in the sound department back around 1990. By the mid 90s he'd found his way into a supervisory role in charge of audio in the concert hall and thence up to the position of Sound and AV Technical Operations Manager which he held until 2004. At this point he took up a good

opportunity in Europe, but found himself lured back into the House when the position of Technical Director became available.

Since taking up the role of TD in January 2006, David has been changing the way technical operations in the House are handled, bringing the in-house practices into line with the way things are done in the outside world. He sees the Opera House crew as being very similar to a touring crew - but instead of the same act in a different venue each day, it's the same venue with a different act. "We're on tour, but we're standing still". In keeping with this model, each year the House crew get a 'tour t-shirt' with the name of the venue on the front and the acts on the back.

And what is it that's great about David's job? "The passion's still there. Even after all these years, I still feel inspired every time I walk in. It's also great to be part of what might be a once in a lifetime experience for many people. That's a big driving force - it may be just another day for us, but for them it's their big day."

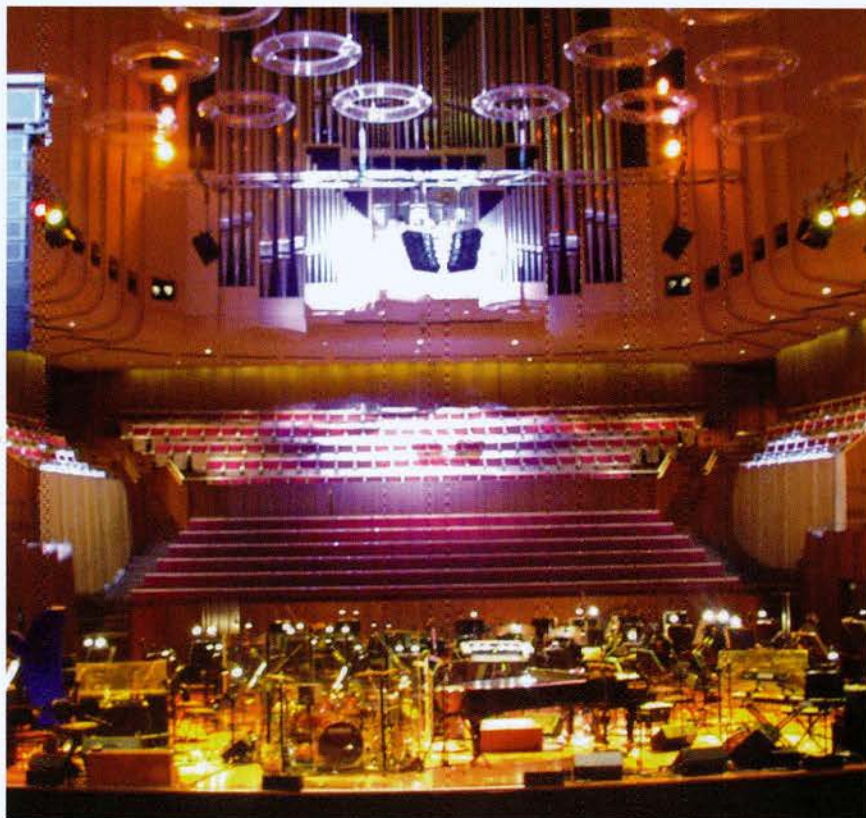
and that's just the performances. On top of the performances, there are also rehearsals, auditions and all sorts of stuff for the companies that call the House home.

The Sydney Symphony, Opera Australia and The Australian Ballet all have connections with government and they all have part of their funding supplied in Opera House hours. As a result, it's not unusual to see the venues being used for more than one purpose in a day. The afternoon I went in, the SSO were auditioning in the Concert Hall and the recording crew were setting up microphones to get a start before an orchestral recording that night. It is now the norm that orchestral rehearsals in the mornings that finish at 2pm are followed by full production concerts in the evenings, all bumped in, checked and ready for an 8pm start.

The Opera Theatre also turns over a lot of business. The House typically has four operas in at a time during the season, and that's a lot of staging work. Anyone who's ever worked with an opera company will know that they're not shy about using substantial sets and staging, and the idea of striking one opera and setting another on the same day would strike fear into the hearts of most. But these guys do it all the time.

That means clearing the sets, the props, the raked stage surface, the whole lot. And it doesn't just get parked in the wings, since there are none to speak of. Instead it all goes downstairs on a dirty great stage lift and gets parked while another complete opera rises from the depths. We should also remember the fun this presents for the lighting guys, who get to refocus the whole room every time it happens, and the sound people who need to deal with their own changes. Computerised systems for lighting, staging and sound have helped the tech teams meet this challenge. Lighting alone will have 250 cues in a typical opera. It makes me exhausted just thinking about it.

And through all this, because it's an iconic, showcase venue people expect to see world's best practice. One particular example of this is the visits from Workcover. While many people feel nervous at the simple thought of Workcover visiting their business, the House welcomes them with open arms - and Workcover has been known to bring visitors through to learn from the House practices.



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MANAGEMENT CHALLENGES

So far I've been talking about challenges that could affect any venue or production company, but this next lot are largely unique to the House and its counterparts in other states. As a result of its connection with government, the House is under certain restrictions which apply to all government organisations - particularly when it comes to getting anything new like equipment or staff.

When recruiting staff, for example, the position must be advertised, a position description and list of required and desirable criteria circulated, applications culled according to the stated criteria, interviews organised and held and all the usual public service processes followed - unlike the private sector where you can just offer a job to anyone you like. While this generally means you get quality staff, it also means you need to be way ahead of the game in planning your staffing needs because all this stuff takes time.

Being an iconic venue affiliated with government also leaves you open to the occasional challenging exercise like, say, hosting the APEC summit...

Now I don't want to get involved in discussing the politics of that particular event, and neither do the people at the House, but any way you slice it that's a serious logistical challenge. Imagine, if you will, the amount of stuff scattered around the place in an opera house with an opera company, a theatre company and a symphony orchestra currently in residence. Now imagine someone hires the entire venue, and for operational and security reasons needs it to be empty. Completely empty. Now imagine the fun of clearing everything out...and bringing it all back in a week later.

Like any other venue the House needs a lot of money to operate and with its affiliation with government comes a certain amount of funding, but the money from government is a small fraction of the running costs of the venue. In broad terms, the government funding covers the cost of maintaining the building and security, but what goes on inside

WHO'S WHO IN THE HOUSE THE DEPARTMENT HEADS

Since taking over the role of TD, David has been reviewing the technical departments within the house in order to work more effectively in their own productions and with external presenters. This review has included the appointment of new heads for existing departments and the formation of a new, dedicated Production Management Department



YVONNE HOCKEY

Head of Production Management

Yvonne is already well known in the industry from her time as head of production for the Sydney Festival and most recently as Director of Production for the debut Australian tour of the Paris Opera Ballet. Yvonne will lead a team of five Production Managers who will be dedicated to the venues to improve the

planning and delivery of events at the House.



James Wheeler, Toby Sewell and Ross A'Hern.

JAMES WHEELER *Head of Staging*

Up until five years ago, James was head flyman for Opera Australia. When he left the Opera, it was to come into the House as a theatre supervisor. In this role he has led large teams performing all the scenic rigging and flying operations in all the House venues. His extensive experience and knowledge of the venue have now seen him promoted to the top job.

TOBY SEWELL *Head of Lighting*

Toby originally joined Opera Australia as a lighting technician and worked his way up to the exalted position of Deputy Head of Lighting before leaving to take up a position lecturing in lighting design at WAAPA. When he left WAAPA, it was to join Chameleon Touring Systems as a Senior Account Manager. During this period he continued his freelance design work for Melbourne Theatre Company, Opera Australia and many Chameleon clients including Sydney Festival before being offered his current role at the House.

ROSS A'HERN *Head of Audio/AV*

Ross has a distinguished background in Audio, AV and multimedia, having spent some years as Studio Manager for Sony Music Australia looking after their recording and multi media facilities. The facilities under his control were used by both Sony artists and external clients. During Ross' time he significantly expanded the facilities and services at Sony. Ross is also regarded as one of Australia's premier jazz recording engineers and has been behind the controls for ARIA award winning albums by artists including The Catholics and Vince Jones.

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needs to pay for itself (although some of this money would also come indirectly from government in the form of arts grants to performance companies and similar).

To meet its self-funding needs, the House is involved in a number of activities. Some of the venues get used by big dollar corporate clients seeking the iconic backdrop of the House (think Australian Idol on The Forecourt) and there are special performances organised either by the House (whose own produced events now cater for about 50% of all shows), by private producers or by the OZPAC consortium. OZPAC consists of the Opera House and a number of other venues operating under similar conditions - Queensland Performing Arts Centre, Victorian Arts Centre, Adelaide Festival Centre, Perth Concert Hall and The Edge in Auckland. Working together allows these venues to bring international acts to perform while sharing the costs of getting them here. It's not cheap to fly a five piece rock band across the world - try doing it with a whole ballet company!

In addition to the main spaces like the Concert Hall and the Opera Theatre the House has funky spaces like The Studio where they present all kinds of contemporary artists and The Playhouse and Drama Theatre where a broad range of performance styles are presented. The newly opened Utzon Room is a vibrant chamber and recital space that doubles as a function room when not in musical mode. The place really buzzes when all this is going at once - as it was only last week, when all venues had matinee and evening performances and a Powderfinger charity show in the Forecourt.

UNIONS, TECHS, MANAGERS AND ADMINISTRATORS

Mmmmmm. Doesn't that sound like a marriage made in hell. You would think that one of the tough things about keeping a venue like the House running effectively would be to keep all these parties happy. Surprisingly, David says that it really isn't a problem, and he suggests several reasons for this.

David says it is all about having mutual respect and strong communication lines throughout the teams. "I have been at pains to improve the relationships and profile

of the management with the technical teams. It is crucial that we respect and understand each other. Even if we don't necessarily agree on something."

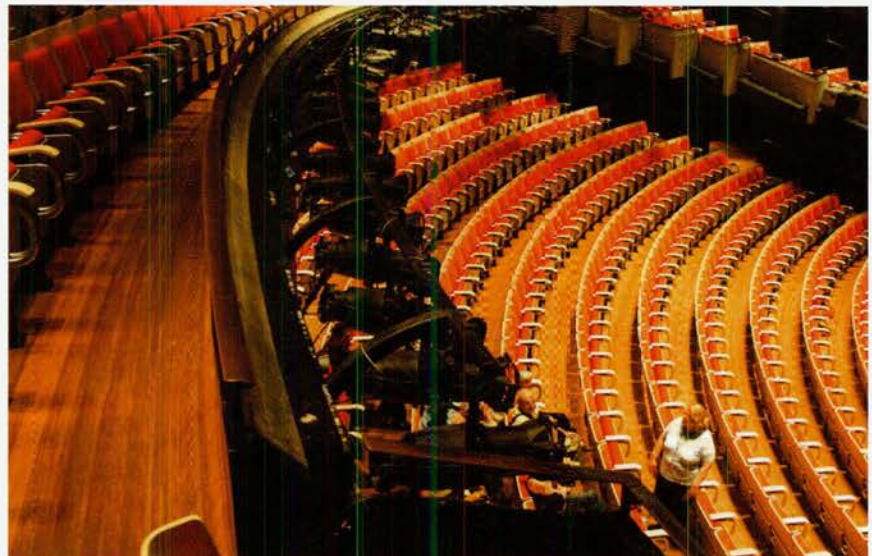
David supports the crews need for a collective voice to represent their concerns and believes the relationship with union (the MEAA) is based on their mutual interest in improving conditions for the workers and developing the business opportunities.

"The changes that have been brought into the House in the last few years all required dialogue with the MEAA and the support of the workforce. There have been huge changes implemented with no disruptions to service for any reason. I think we can all be proud of that."

So everyone gets along. Awww, innat nice.



Meyer line array system over The Forecourt.



Source4 profiles in the opera theatre - now that's the way to do lights



The aptly named Central Passage



WICKED is coming

2 hours of power

Countdown to the untold story of the Witches of Oz... as they fly to Oz. Julius Grafton went to the West End to see the smash hit.

Wicked has a new blockbuster feel. It is a unique musical, with enough kapow factor to please almost anyone with blood in their veins. I saw it at the London Apollo Theatre, where it has just celebrated its first London anniversary and broken a string of records.

The set is gargantuan – and extends through the theatre. A nest of rope and timber rigging makes an old fashioned sailing ship vibe. But there's nothing old fashioned about the script and the execution of the show.

It is timeless – and has a vague relationship to The Wizard of Oz which appears more as an affectionate afterthought than a plot line essential. Kids of all ages love the show, there are a few scary parts that quickly establish themselves. I love a blockbuster that pleases audiences of all ages, and this is tip-top of the genre.

A show like this is a total pleasure to light, I would do it free of charge. But I wouldn't achieve a fraction of the creativity of Lighting Designer Kenneth Posner. When one of the female leads, the green one, does her spell thing, the gobo's spin down onto her and assume a very deep intensity. When it is Emerald City time, the set and the rest of the theatre becomes very, very green.

There is theme lighting right around the theatre. You are engaged as soon as you enter, well before the curtain rises.

One thing: ten years ago there were not many moving lights in theatre. Now there are, and the ability to reset and reposition is the reason why. In this show when the dialogue is down to two people talking, the noise floor is clearly the sound of fans humming. I'm sure it frustrates the director, cast and creatives, but – the audience would not really notice, as long as the sound is as strong as it is in London.

The magic of theatre is alive and well. The end of the first half, called 'Defying Gravity' is a fantasmagorical wonderment that had the audience gasping with delight. I won't spoil it, but it is better the transformation scene in Beauty and the Beast; and Mustapha's Ghost in Lion King. Disney must be rolling in his grave now that a musical outside the Magic

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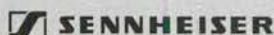
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Dianne Pilkington (Glinda) and Kerry Ellis (Elphaba).



Oliver Tompsett (Fiyero) and Kerry Ellis (Elphaba).



Dianne Pilkington (Glinda).

Kingdom has snagged the best theatre effect of all time! It is so powerful that when the interval lights up, the audience sit there like stunned mullets.

Then there's the revelation of the Wiz. This is a scary moment, with earth moving sub harmonics that possibly momentarily pulled half the Victoria Station power grid down into the amplifier room. It had dazzle to go with the seismic event.

The cast seemed to enjoy the Wednesday matinee as well – always a hard show to pump. London is blessed with multitudes of tourists

and even school groups for this Wednesday 2.30pm show.

But this isn't a one trick production. The scenes with power and presence keep rolling, until the very end. There is scenic beauty, great costumes and an underlying theme of niceness that doesn't descend into a syrupy swamp. It's a show for everyone, which is every producer's wet dream – but a massive investment in staging.

It's got effects, surprises, great sounds, terrific and appropriate music and in London very strong performances from the two female leads. I offer a strong endorsement of

the entertainment value of this production, and am confident it will transition very well to Australia.

Joe Mantello is the director, Winnie Holzman adapted the book for the stage, and Stephen Schwartz wrote the music and lyrics. Eugene Lee designed the set, and Tony Meola the sound.

Wicked is such a resounding success that it is now playing in Chicago, LA, Broadway, London, Tokyo and is on a US national tour. It opened in Stuttgart late 2007, and of course will debut in Melbourne in July 2008.





Andy Mace (Dr Dillamond).



Wicked London

Photography (pages 52-53) by Tristram Kenton

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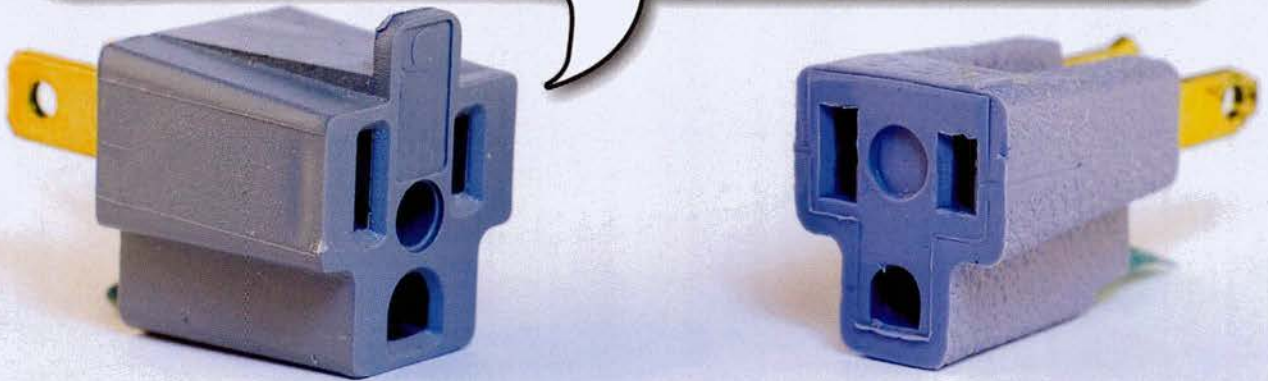


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ELECTRICITY

DANGER LURKS UNSEEN AND UNKNOWN

What kind of idiot would fly a kite in a thunderstorm?

By **ANDY MACKENZIE**
and **PAUL MATTHEWS**

Hundreds of years ago, Ben Franklin suggested that this would be a way to capture some lightning to prove that lightning was made of the same kind of electricity you get by rubbing a cat with an amber rod or something. History is somewhat equivocal about whether he tried it or not (some say he did, others say he didn't – given that he did other stuff afterwards, I find myself in the latter camp), but there are records of others trying and dying off the back of his idea.

The kind of idiot that flies a kite in a thunderstorm is the kind who's never learned not to – or who's never learned why not to. In the last couple of weeks, I've had several things hit my desk that bring up issues relating to electrical safety and I've brought them together here – maybe they'll get us all thinking again. Interestingly, all the items in this story challenge common assumptions, and in each case it's easy to see how these common assumptions could lead to disaster.

NEATNESS COUNTS

This IEC lead was one of two supplied with a set of small DMX dimmer packs recently from a reputable Sydney supplier, a functional and cost effective solution for a small venue without three phase outlets. The two packs were installed in the switch room of a local school, one driving a load of 1800W and the other 1500. No problem with the loading, everything tested OK, the installation was nice and neat with all the excess cable held up out of the way with cable ties. Perfect.

Seven days later the call came in. "System doesn't work".

The DMX control panel seems to be sending OK, the tester tells us there's plenty of electricity in the power points, but still for some reason we get nothing out of the dimmer packs. So back they go to the workshop for bench testing. The DMX control panel still seems to be sending OK, the tester still tells us there's plenty of electricity in the power points, but now for some reason we get the exact output we expect. Back to the venue, and back to



IEC lead.

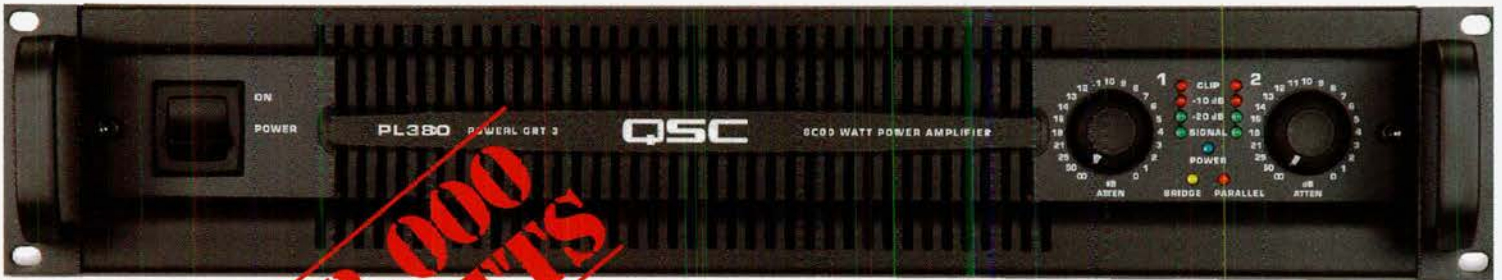
nothing working.

So what's different between the venue and the workshop?

You guessed it, the two IEC supply leads still hanging off the wall socket. Sure enough, a quick test with the meter shows both to be open circuit! Further investigation and the removal of the cable tie reveals all.

The moral of the story? NEVER cable tie power leads – no matter how messy they might look! These leads were marked as having a rating of 10

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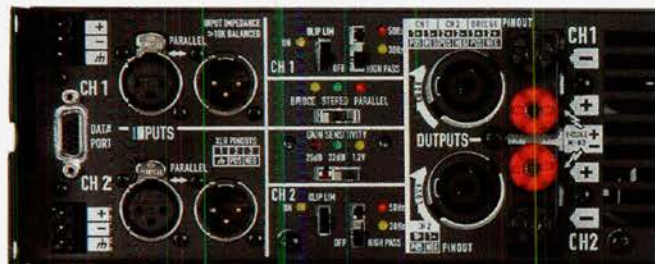
The result is an amplifier with the tonalities and voicing of Class H, more than double the output of the biggest: PowerLight 2, yet weighs the same (11Kg) and draws only modest amounts of AC. Even at full bore, the PL380 converts up to an amazing 85% of input power into air-moving, earth-shaking output and even recycles 'back EMF' loudspeaker energy along the way!

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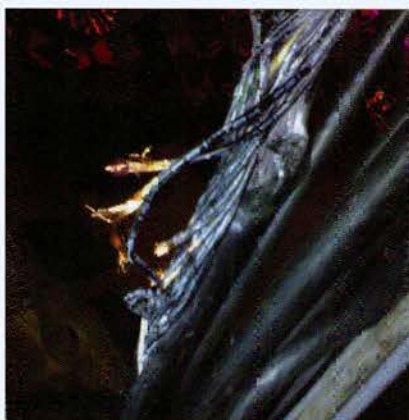
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It doesn't look so good when you undo the cable tie.



ex-Wielard

amps and with the marking "Cebec DHT-Tech" on the lead. Neither was run anywhere near their rated load and the ambient temperature would have been much less than 20 degrees C, and yet in less than 30 minutes the heat built up under the cable tie was enough to burn completely through the insulation and open circuit the cable. Anything combustible on or around the leads would have almost certainly resulted in a fire.

You have been warned!!!

Paul Matthews

IT WAS FINE FIVE MINUTES AGO

This photo found its way to me through a member of the Chameleon crew working on a recent big show, and while at first it may not look real good, it's actually a great big tick on their report card.

Why?

Because the obvious never got a chance to happen.

I've spoken to people who prepped the rig and to the people who put it up and everyone agrees that this locom was fine when it left the factory and fine when it was rigged, but at some point after that it became less than fine. Nobody knows exactly what happened to it, but it looks like it's been snagged by a forklift or something. In fact, the person who damaged it probably never knew. Not that it matters.

What matters is that the cabling was double checked before the rig was energised, and that this was found in the check and replaced.

The lesson to be learned here is to always do the extra check – it doesn't need to take long. Sure there's a lot of cable in a lighting system, but most of it is in no position to be damaged once it's rigged. The most vulnerable cables in the rig are those going up into it, whether they're free hanging or fixed

to uprights, simply because they're at the right height to be damaged.

I've heard arguments over the years that things like this are covered by RCDs and MCBs and that the extra check is a waste of time, and I can see the point people are making, but in reply I would ask: Does having airbags fitted and wearing a seatbelt make it OK to smash your car into a tree?

JUST PUT IT OUT OF THE WAY SOMEWHERE



Fire in the hole! What's left of the offending dimmer switch.

If you're suitably careless, electricity can kill you in a fraction of a second. It's famous for it and very rarely does anyone forget it. What people do tend to forget is the ability of electrical power to generate impressive amounts of heat. Paul's cable tie story is not the only one I've encountered about cables in confined spaces leading to ugliness – I've seen scorched carpet as a result of someone stuffing about 30m of cable under a sofa, and I've seen scorched hands as a result of someone else

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Nice tag, shame about the plug. This had to be retired after returning from hire like this.

finding it under there. Anywhere that heat can't escape, it will build up.

And anywhere electricity encounters resistance to its flow, it will generate heat. The resistance can be a simple bad connection, like the one in the dimmer that almost set fire to the CX office. Or it can be a partly broken cable, which is why we reject any stretched, kinked or otherwise suspicious cables when we're testing and tagging. Or it can be an electromagnetic resistance. This comes up particularly when cables are left coiled – they develop inductance, which increases their resistance to alternating current. That's right, alternating current like our mains supply. More resistance means more heat and confined spaces mean the heat can't escape, so a coiled cable in a confined space is asking for trouble. Laying cables in a figure eight reduces the problem of inductance, so it's always a good idea, but if you figure eight all your cables in one big heap they're still going to retain plenty of heat. Spread them out as much as you reasonably can to keep them as cool as possible.

It's also important to make sure your three phase loading is right – if your phases are too far out of balance, you can place excess demands on the neutral (which is noticeably smaller than the active wires). Because the neutral wire finds its way back through all kinds of little wall cavities and heat traps, there's every chance that it can get a nice little fire going before you're even aware of it.

Dying in a fire is just as effective as electrocuting yourself.

BUT IT'S GOT A TAG ON IT...

If I had a dollar for every time I've told someone this, I'd be writing this from a beach in the Bahamas. There are things that the tag does mean, and things that it doesn't. The tag doesn't tell you that the equipment works properly. The whole process of testing and tagging is all about safety, not functionality. But the tag doesn't even tell you if the device is safe – all it tells you is that it was safe when it was tagged. Assuming the inspection and testing was done properly and let's face it, plenty of people just plug it into the test machine, wait for the green light and bung on a tag. There are loads of dangerous things that won't fail the test, which is why you're required to inspect everything as well.

The tag also doesn't keep track of what's happened since it was put on. The Chameleon cable in the previous example had been inspected, tested and tagged, so it was all legitimate. As far as I can tell from the picture, the tag didn't prevent it being damaged and I'm pretty sure it also didn't magically transform itself into a fault tag.

Testing and tagging is a good thing, but it's no substitute for a quick once over every device before you energise it – you might feel like it's a waste of your time, but so is dying thirty years early.



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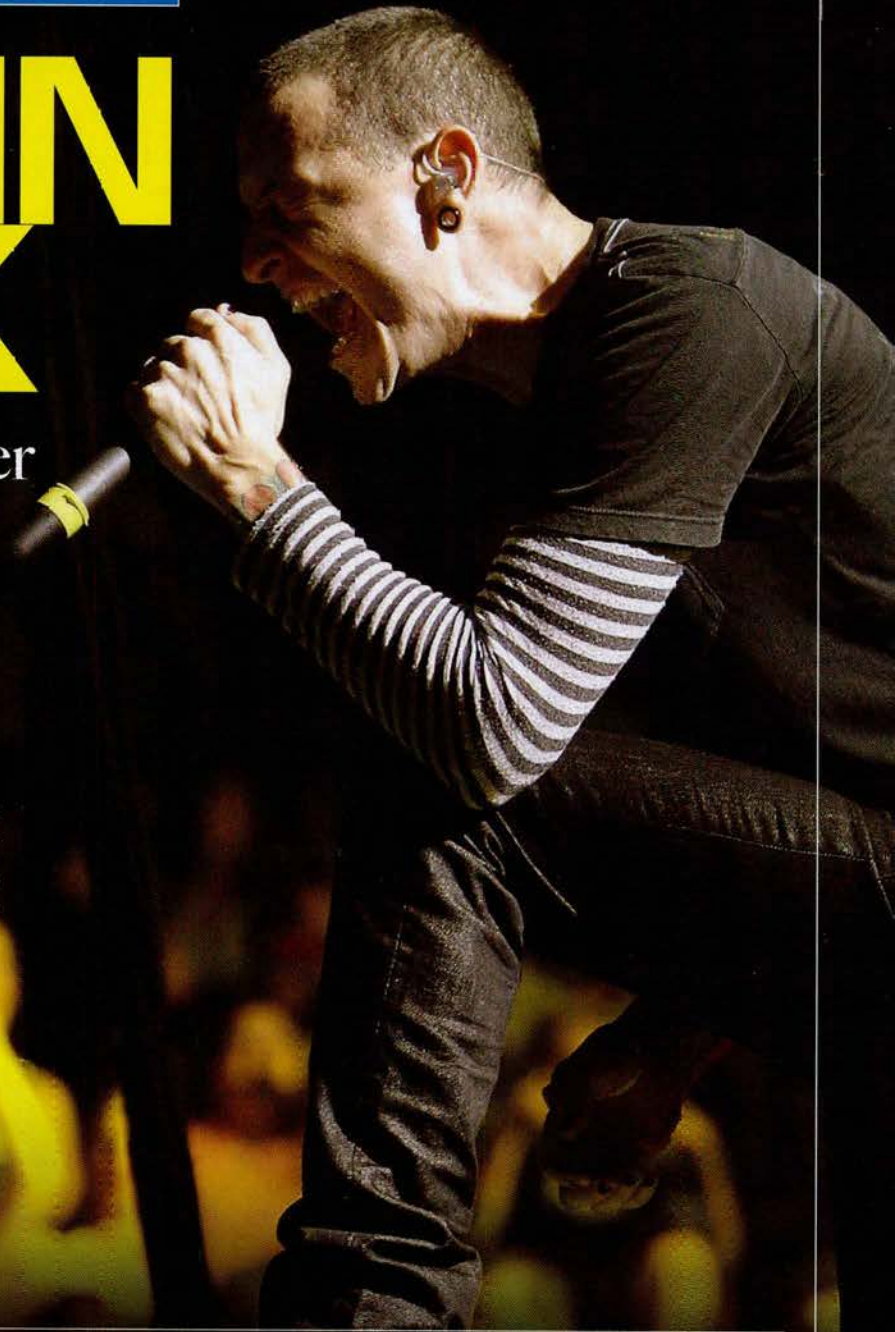
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LINKIN PARK

CX's secret shopper "Tin Pan Sally" visited the Sydney Entertainment Centre to look at Linkin Park's light show. Here's what she reported!



The dozen or so crew hurriedly resetting the stage for Linkin Park's October 21st show were hidden by a snatch drape. This was so the band could make a big entrance, silhouetted and larger-than-life against the soft drape by a row of Mac 2000 wash lights at the back of the stage. Part way into the opening number was a kabuki drop, followed by a blinding flash of light from beneath the drum and keyboard risers. It was the first of many stunning moments in a show full of surprises, some good and a few bad.

The rig itself was exactly what you would expect from a touring rock show – plenty of Martin Mac 2000 wash and profile lights, Atomic strobes and Molefay 4-lites. It was the product of renowned American designers Steve Cohen and Butch

Allen and was an interesting articulation of Linkin Park's industrial and militaristic image. Touring the rig was Sooner Routhier, a 28-year-old designer and operator who, despite having grown up in small-town North America "three hours away from the nearest rock concert," now lives for touring. "If I'm in one place for more than two weeks I start going crazy" she says.

Sooner was joined on the road by audio technician Ken "Pooch" Van Druten, a man Sooner claims can "make anything sound good". This statement became self-evident when the headlining act started up. During the show, the crowd was exposed to more than just the usual 'very loud bass' and 'bit of top end', making the front of house mix pleasingly intelligible for a rock show. In

particular, Pooch emphasised the tortured rock n' roll scream, pumping the lead vocals through the PA dripping with reverb. This created a 'big' sound which was perfect in keeping with the dramatic effects and epic style displayed by the lighting department. This show, like most shows throughout the tour, was recorded. A ProTools rig was set up for recording and a Digidesign Profile was used to mix.

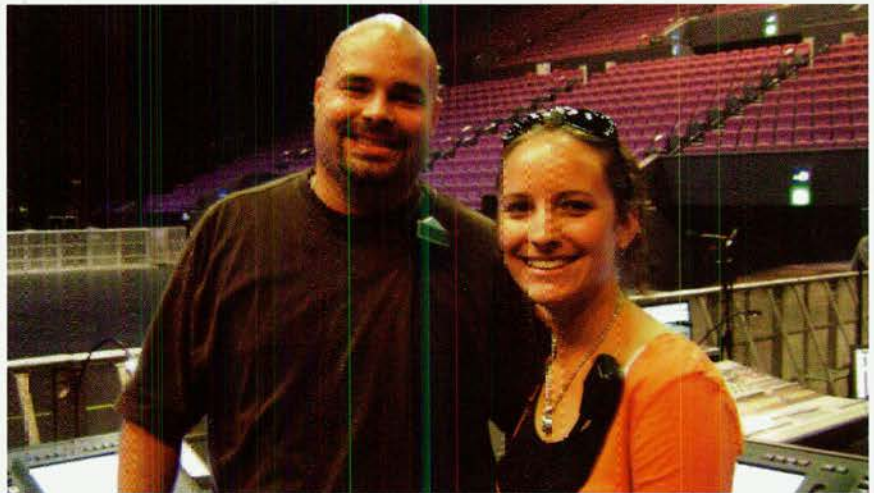
The band's set was constructed upon a number of cross-hatched LED strips, which covered the length of the band risers. The stage was framed by a pair of vertical truss pieces, giving the set a rigid and linear theme. The light show, however, was all about colour. The first half of the show featured a white cyc with a greyscale cloud print. This

was the backdrop for a number of looks – everything from the apocalyptic (the cyc washed in red with red molefays and colour changers illuminating the crowd) to the industrial and polluted (yellow effects lighting, the band front lit by a ground row of cyc floods and the cyc left grey in colour).

Also thrown into the mix were 6 followspots, 4 of which were truss mounted. Sooner called the show over comms for her 6 operators. For this reason she utilised the skill of Shane Crowl, a systems technician with an unshakable memory for his rig and everything in it. Sooner claims that while she used to do shows on her own, nowadays she “never operates without somebody standing to her left” to troubleshoot if anything goes wrong so that she can concentrate on show-calling and operating.

The light show was run by a Martin MAXXYZ console. The crew toured 3 active and 1 redundant Maxedia servers – one for the riser strips, one for colour blocks in the set and one for the soft LED curtain.

The curtain constituted the entire upstage drape. It was revealed, emblazoned with the band’s logo,



Sooner Routhier and Shane Crowl.

following a second kabuki drop mid-show. It left many wondering if it might have been a better idea to keep it covered up. Part of the problem with this piece of equipment was the considerable number of LED spots not working, which is particularly obvious when they are spaced roughly 100mm apart to begin with. Being able to see the hang of the drape in the alignment of the LED spots was also mildly annoying. However, the greatest problem with the LED curtain was that

its use extended beyond that of effect and backgrounds (most of which looked fantastic). Some of the songs performed were accompanied by images from the band’s video clips, which were not done justice by the screen’s noticeably low resolution. Also the LEDs were not bright enough to compete with the light from the Mac or set LEDs, making the screen appear faded and washed out. This issue was one significant letdown in an otherwise impressive show. **CX**





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ONE GOOD METHOD DESERVES ANOTHER

75 years later, McCandless method still holds up



By **RICHARD CADENA**

Something arrived in the mail recently that opened a new door of discovery. A good friend sent me a copy of the syllabus from Stanley McCandless' lighting design class at Yale University Department of Drama dating back to 1964. What's interesting about this text is that some of it is so out of date that it uses words like "switchboard" instead of console. But even more interesting is that much of it is still relevant in today's technologically advanced lighting industry.

McCandless is best known for his book, *A Method of Lighting the Stage*, which he wrote in 1932. Presumably, it came out of the class for which *A Syllabus for Stage Lighting* was written because the first edition of *A Syllabus...* was written in 1931. *A Method...* was the first book about lighting design and it defines what has come to be known as the McCandless method.

It's essentially the 3-point lighting method with a warm and a cool light on opposite sides of the subject.

EARFUL OF VIDEO

McCandless advocates dividing the stage into "acting areas" "in order to provide utter freedom of movement for the actor." He goes on to say, "This will also guarantee proper visibility and accents in terms of composition."

Dividing the stage into acting areas is still very appropriate, but now there are even better reasons to do so than there were in 1931. At the time he devised this method, there was no such thing as a video screen or an LED display. Today, if you spill light on the wrong surface, not only will you diminish the effectiveness of the visual environment, but you're also likely to get an earful from the video department.

"The average stage can be divided into six acting areas," McCandless said. And that works

fine on the stages that were built at the turn of the twentieth century. Today, you might be able to use as many as 12 or 15 acting areas, depending on the size of the stage and how much control you need over light spill.

SEMANTICS OF STAGE LIGHTING

"Each (area) should be lighted diagonally from the front to give a flexibility of brightness or color to various portions of the stage, to conform to the normal localized distribution of a spotlight, and to give the proper degree of plasticity on the actor's face without causing distracting shadows to fall on the setting.

"The spotlights should be mounted and directed so that the angles of throw lie more or less consistently along the diagonal of the cube. Each of these twelve spotlights should be soft-edged to the extent that the areas blend together, but not so much that they

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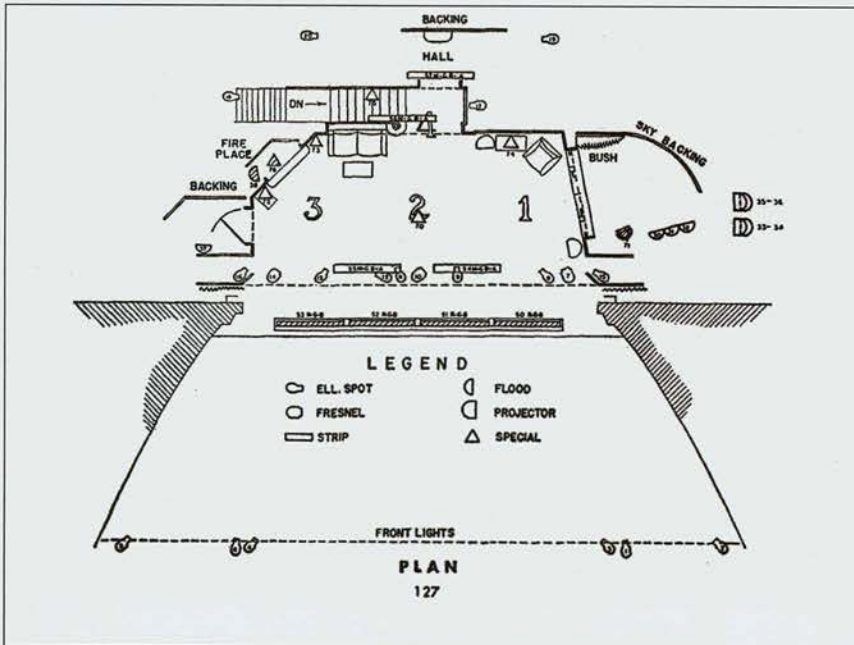
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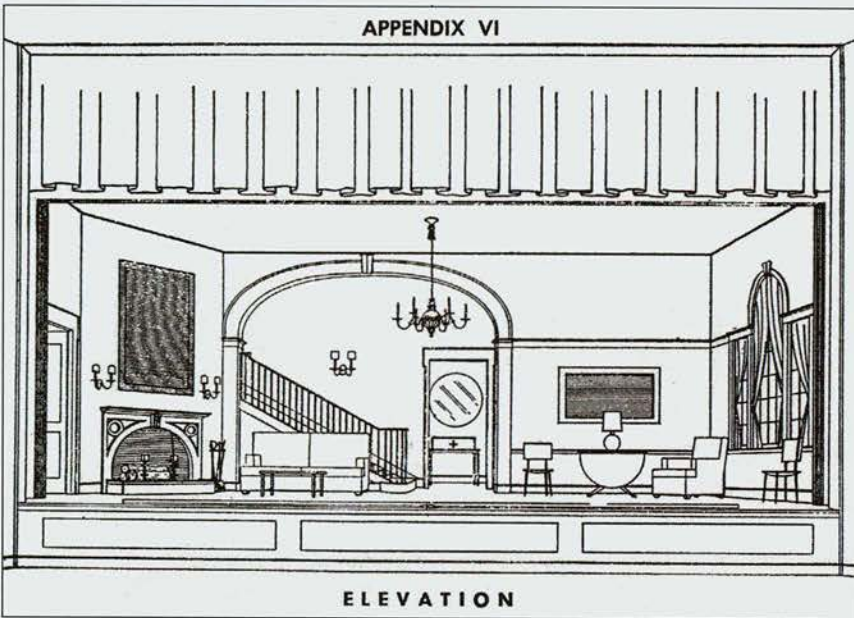
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McCandless' 4 acting area lighting plan.



The front elevation of McCandless' stage.

cause undue spill of light on the walls of the auditorium or on the upper parts of the setting.

"Tints of color should be used both for the sake of efficiency and because nothing is highly visible under strong color. Warm colors can be directed from the left, cool colors from the right, or vice versa. This provides light on the actor's face whether he turns right or left, maintains as much plasticity as possible, and gives a consistent direction to a motivating color."

Today, we might use the terms "modeling" instead of plasticity and "set" instead of setting. It's only semantics, I know, but the cool

thing is that this approach is equally valid today as it was 75 years ago. There is, however, a caveat.

For a live audience, using a warm colour from one side and a cool colour from the other works very well, but on camera, it can look like the makeup of a clown. In fact, 3-point lighting works well in the theatre where there is generally no l-mag or video capture, but when it comes to lighting for video, generally speaking, more points of light works better. Three-point lighting exaggerates the features of the subject, creating deliberate shadows to give shape and definition – what McCandless calls

plasticity and what we might call modeling. But the video camera loves more flat lighting because it can get in very tight where the features of the face are well defined without having to accentuate them. When it comes to video, a soft, light shadow is more flattering than angular lighting with a warm/cool contrast.

OLD METHOD, NEW APPROACH

What I've found that works well for lighting large areas where there are multiple video cameras is similar to the McCandless method with a few minor alterations. The first step is to divide the stage into one-meter acting areas. Locate a rigging point directly in front of each acting area and at a 45 degree angle from the horizon and measure the throw distance. For each acting area, select a key light that will provide about 1600 lux with a field width matching the width of the acting area at the required throw distance. Now locate the rigging points for two fill lights on opposite sides of the acting area and at a 90 degree angle to the key light. Select a light and lens that will provide the same illuminance and field width at the required throw distance. Lastly, located a rigging spot for a back light behind the acting area and at about a 60 degree angle from the horizon. Now duplicate these four lights for each acting area.

You've just created a 4-point lighting system. When you focus the key lights, they should overlap at the 50% illuminance level to produce a wash that is as uniform as possible.

Now, no matter where the camera is, you should get sufficiently good illuminance, nice uniformity, and enough modeling to keep it interesting.

McCandless was a brilliant architect who parlayed his knowledge of architecture and design into a theatrical lighting designer and teacher. His method is the basis for all lighting design and it is equally valid today as it was when he devised it over 75 years ago. But there are ways to adapt it to different situations. That's why he called it A Method of Stage Lighting and not The Method of Stage Lighting.

A method of contacting the author is to e-mail rcadena@austin.rr.com. 

And for those wondering why Richard has gone back to the thirties for some lighting tips, here's the letter that started it all...

Richard,

We haven't met but I can only say you are a late blooming genius.

I devoured your CX article (Illumination Inflation, CX24) with an appreciation that could have been bettered only by having written it myself.

I am now pretty much retired from the lighting business but I am old enough to have had to climb through the roof trusses at Festival Hall Melbourne running the 3 phase from the old balcony control room FOH to the stage, and then retrieve it in the bump-out. If you saw the opening of the Sydney Entertainment Centre back in the eighties I was the stage director and joint lighting designer.

But enough about me! You are absolutely correct. The modern lighting designer has forgotten how to trick the human eye with subtlety and contrast. There is no separation between

foreground and background and no confidence to set an attractive state, and let the bloody band or artist do the work. Acts are no longer complemented by their light shows, they compete with them.

And don't get me started about the inexplicable practice of sweeping or flooding the audience with so much light from the stage, that they can't ...see the stage!

If you had the chance to see the Neil Diamond Concert at the old Sydney Sports Ground back in 1976 (probably not I suppose) you would have clearly heard calls from the 35,000 strong crowd to turn the f***ing lights off (John Fowler's audience lighting) as Neil called for requests from the crowd.

The punters didn't like it then and they still don't. Once the lighting rig is turned into house lights, all effect is gone. And while the eye is iris crunching to adjust, the lighting department relinquishes its control of mood and atmosphere.

Of course there is that other compulsory feature of modern lighting, the fogger/hazer which diffuses light so far there is no longer the "fourth wall" that separates the artist from the crowd and dilutes the "magic" so far into the

room that in my view the "magic" disappears.

And do you know where bored lighting designers go?? Television!! Coupled with manic direction and whirling dervish camera work as crowd and artists duck the kamikaze jimmy jib, the whole library of sweeping flashing smoky coffee coloured lighting is a perfectly matched accompaniment. Did you hear the one about the directors who feel it is unnecessary to see dancers' feet? or follow spot operators with the same opinion!

Lighting is lighting. But all programmers and desk operators are not lighting designers. Mel Conder (the Czar of Darkness), (the late) Bill "Angel" Akers, (the late) Roger Barrett, Peter Rooney, Sue Natrass, Pip Robinson, and even the old balcony buster himself (Julius Grafton) and many many more, designed more shows with less gear and less kilowatts than seems possible any more.

When did lighting not need to be capable of finesse, style, art and colour and just get noisy!

What can I say but "half power to you"

John Weston.

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Photo: Colin West, TES Managing Director with his Vista T4.

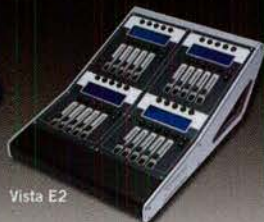
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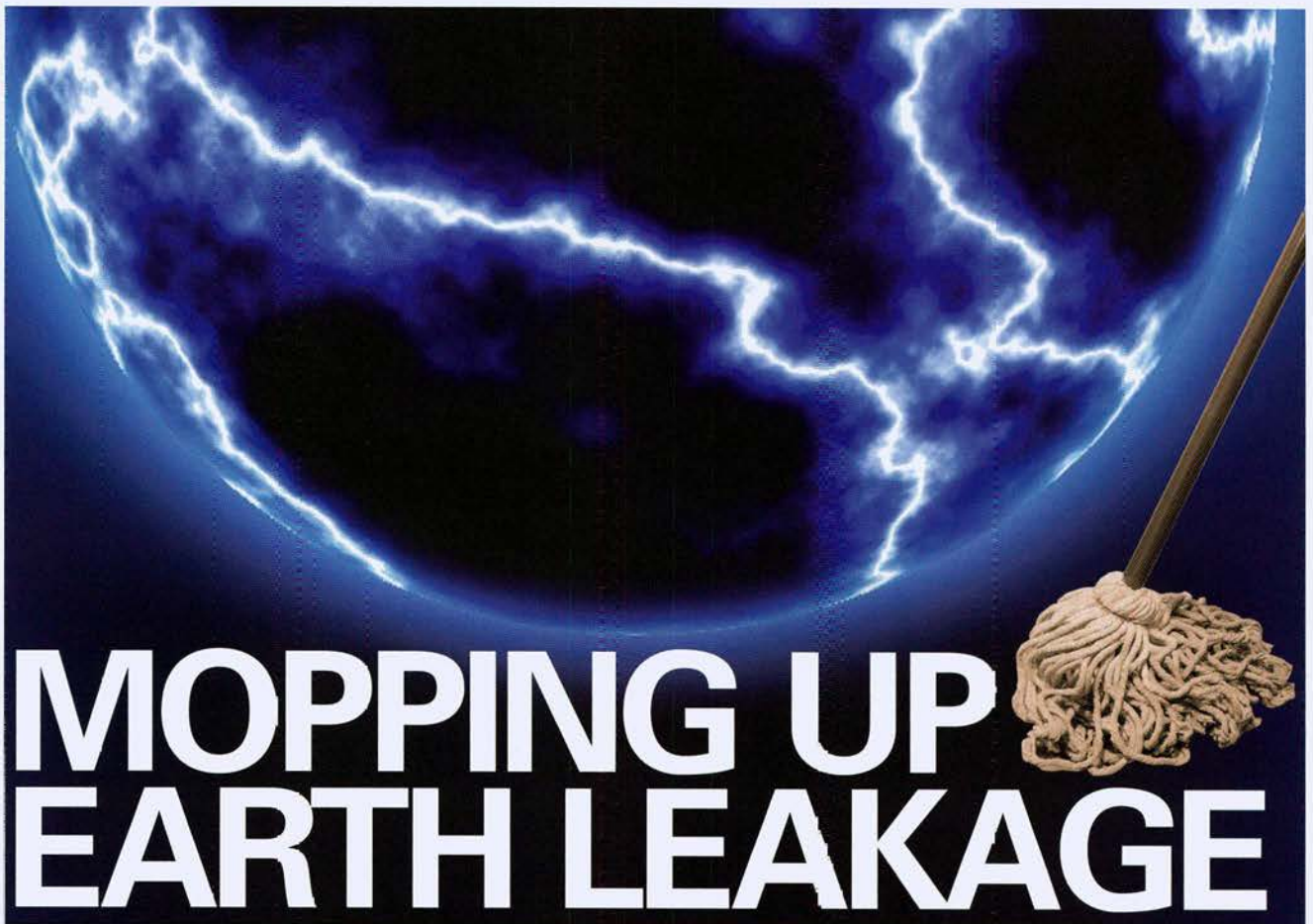
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MOPPING UP EARTH LEAKAGE

Typically we know earth leakage to be a bad thing. It can kill you.

By **COLIN RENDELL**

Stray current travelling down the earth wire has often meant that someone let the work experience kid change the light in the swimming pool again. Luckily for several years now we've been able to rely on the protection of Residual Current Devices (RCDs) to detect stray currents and isolate circuits. But what if a little earth leakage wasn't always a bad thing?

As technology advances, devices are getting smarter, using more and more logic circuits, motors, fans and other elements that rely on low voltage DC power. Consequently switch mode power supplies (SMPS) are frequently used to convert from 240 VAC (or 110v) to a range of different DC voltages. Commonly 12V and 5V supplies are required and SMPS exist in many different devices including computers, moving lights, data splitters, and in particular LED panels. The major disadvantage of this is that due to the way most switch mode power supplies work, they leak a small amount of current to earth as

part of their filtering process. This current may perhaps be at other than the 50 Hertz supply frequency.

Significantly simplified, the fast switching involved in the conversion can cause serious electro magnetic interference to anything in close proximity of the power supply. The filtering process incorporates a small series inductor in the phase and neutral lines and a capacitor between earth and each line. Consequently, each SMPS can allow a small amount of current (up to 3.5mA depending on the supply) to leak to earth. In this case, a little earth leakage actually prevents a lot of interference, so where's the problem?

TRIPPIN' OUT

Often the more complicated the device, depending on the design, the more SMPSs are required. This means there's more residual current travelling down the earth. Moreover, the greater amount of devices being used causes residual current to propagate again. The problem therefore lies in cases where the sum of all the residual current exceeds the rating on

the RCD (normally 30mA) and we trip out our supply. E.g. If a device has 5 SMPS each with an earth leakage of 3.5mA and you are using 10 of these devices you will exceed the average rating of the RCD and cause it to trip (isolate). E.g. 5 (SMPSs) x 3.5mA (residual current) x 10 (devices) = 175mA.

Though an excess of residual current from multiple SMPS may be the cause of an RCD tripping, the first step when we find ourselves tripping an RCD is to ensure that the RCD is not simply doing its job and saving lives. Check each item in the circuit until you know that you are safe and there are no live metal parts that should not be live. Safety first!

This occurrence is becoming increasingly more common, affecting a wide range of industries and occupations. Lampies, Vidiots and to a small extent Noise Boys (and girls) can all be affected by this problem. It is all relevant to the equipment being used, and is something worth considering when using a large amount of new equipment that relies on low voltage. So how do we fix it?

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Plenty of stray earth current from a rack like this.

REHAB

Most distribution devices these days require an RCD to be fitted by law, and the majority of organizations adhere to this. The best solution to this problem is actually not to simply say "earth is for wimps" and ignore this law. RCD's have been saving lives since the 1970's and continue to do so. In some states since RCD's have been made mandatory there has been a significant decline in accidental death from electrocution.

The simple way of avoiding this problem is to carefully calculate how loads that contain earth leakage can be spread across separate RCDs. There is more than one flavor of protection device and there are different ways that these devices can be implemented. It is common for distros to have one RCD across the entire supply, however by using 3 RCDs, one per phase you can essentially divide the earth leakage across the phases.

Another type of protection device is the Residual Current Circuit Breaker (RCCB).

This device is a combination circuit breaker and RCD in one. Though expensive, modifying distros to use an RCCB per circuit greatly removes the tripping hazard. An important thing to consider with these devices is that RCDs may be used further down stream at the supply to the distribution board (distro). Using an individual RCCB per circuit means that you don't require an additional RCD and thus if the supply is only to be used to distribute to devices that already contain protection then it is safe to remove RCDs from supplying devices such as mains distros. This is only because the protection is being moved and not completely disconnected.

These implementations have additional benefits. By having multiple isolated protection points you are not putting all your eggs in one basket. E.g. If during a show an incident occurs where a single device fails and trips the protection device, if the protection is only applied to that circuit it will only isolate that circuit. In juxtaposition if the protection device is across the entire supply, one failed device could isolate several devices where it is unnecessary. Simply put, the end concept is to trip one, not all.




RCCBs used instead of a single 3 phase RCD.



There's more than a dozen switch mode supplies right here.

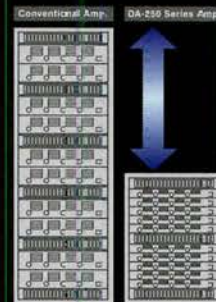
MAINTAINING BALANCE

Switch Mode Power Supplies (SMPS) generate 'harmonics' which are multiples of the mains frequency of 50Hz. Flowing in throughout the active and neutral can be 100 Hz, 150Hz, 200-Hz etc in varying quantities. As stated above, the very high frequencies generate noise, which is filtered out with capacitors. The three phase power system relies on the active conductors cancelling each other out. E.g. On a three phase load with each phase at 100 A, because each phase is 120 degrees apart (360 degrees in a circle) then they add up to zero in the neutral. This is why the neutral conductor does not have to be three times the size of each active. If the three phases are the same current then the neutral is zero. This highlights the need for balancing loads across the phases.

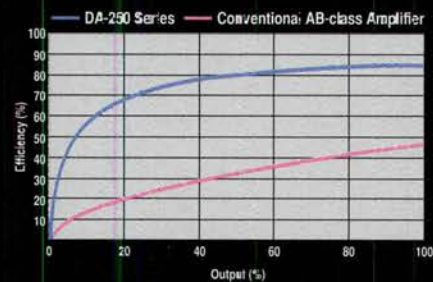
This is only true for devices operating at 50 Hz, and if there is a harmonic of 3 times 50 Hz (150 Hz, 300 Hz, 450 Hz) such as the unfiltered noise from SMPS, then these will add in the neutral. This creates a serious problem to supply companies. In an office building full of PCs using SMPS the third harmonic will be adding up and overrating the neutral conductors and the distribution transformers. This could result in a calamitous incident in which transformers are destroyed or fires are started. 

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PROFILE: CORRIE JOHNSON

What do you do?

I work for Hoisting Equipment Specialists Pty Ltd and focus on entertainment rigging requirements. We import and supply specialized lifting & rigging equipment to many industries including the entertainment industry, construction, engineering, hire, offshore oil & gas, mining & crane. I have worked at HES for over 14 years and as the saying goes "loved the company so much I bought it" and I am now a part owner. HES have now become a leading supplier of electric chain hoists (motors), chain blocks, slings, shackles, wire rope and all rigging equipment for stage concerts, theatre productions and movie & film companies.

I look after the requirements of many of the large companies in the industry like Chameleon Touring & Jands, etc. Through these associations we have supplied rigging equipment for tours by Christina Aguilera, John Farnham, Kylie Minogue, Silverchair & Powderfinger. We have also supplied rigging to productions including The Lion King, The Matrix II, Superman, Star Wars, Moulin Rouge, Babe, House of Wax, Mission Impossible and in production now the movie Australia & stagemovie Billy Elliot.

The Olympic Games 2000 was the most exciting project we worked on with HES supplying all the rigging for the games including custom made gear to the RTA to hold the Olympic Rings on the Sydney Harbour Bridge.

Where do you do it?

I am based in Sydney but work very closely with our offices in Melbourne, Adelaide & Perth. The job has also given me the opportunity to travel to various countries throughout the world.

What was the moment, the event, that set you on the pathway you are now on?

When I left school I joined the railways as an apprentice painter and completed a trade and stayed for another 2 years then left to pursue a career in Sales. I started as a trainee salesman in new car sales with



Toyota. After six months I decided car sales and didn't have a lot in common (maybe I'm too honest) and was interested in pursuing other job prospects. I was coaching an under 9's rugby league team at Emu Plains and one of the boys father's asked me if I would be interested in a sales job at Hoisting Equipment Specialists selling Lifting & Rigging Equipment. The rest is history.

Who has inspired you, and why?

I guess it doesn't come from just one person or one but the main person that comes to mind is Greg Jones who started Hoisting Equipment Specialists in 1984.

Greg exemplifies what I believe is a good businessman. His attitudes & methods taught me right from the start that it is very important with all clients to have a relaxed approach, to listen and understand what people's requirements are along with the importance of delivery deadlines. At times you can be dealing with very creative people and we listen to what ideas they may have and help make them a reality.

Greg always has a different way of looking at solutions to problems and is a great people person.

Is there a gizmo, product, or device that has changed your (working) life? And why?

The remote control & Fox. I can now watch different games of footy on sport screen at the same time while also flicking to different sports all at the same time, wow! As if I couldn't get enough sport before. I

love technology, sometimes.

What are your hobbies / interests?

All sports but mainly Rugby League & Cricket, cooking & gardening - I don't mind mowing the lawns, I find it therapeutic. I also enjoy a day out at the horse races occasionally & spending time with friends or just being outdoors.

Describe your family/nearest/dearest.....

I have a beautiful wife and three children who are very supportive of my job especially when work impacts on my family time.

Is there a guru in your industry that you have not met, and why would you like to meet them?

I don't think so. I have met a lot of interesting & intelligent people in the industry over the years which has given me the experience I have today.

Do you have a funny moment, or an incident, to share with us?

Bumped into Tom Cruise on Hollywood Boulevard during a business trip to the USA with a work colleague from Melbourne. He was launching his movie War of the Worlds, we had a bit of a chat about Sydney, Australia & how much he loved the place, yada, yada, yada & got it all on film too. Quite unexpected, right place, right time!

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HISTORY

A trip down memory lane, when life was simple and we were too. We found these back issues in the Cellar, propping up the CX wine collection. In case you've missed this page in the past, Channels and Connections were the predecessor magazines to CX. Published and edited by the same person, for over 17 years now.

CHANNELS ISSUE 17 – NOV/DEC 1992

Great Sound Makers says the cover and an interview with Robbie McGraph leads this issue. He was then with Simply Red, and went on to do AC/DC then The Rolling Stones. Jimmy Barnes in the studio also featured as a cover story – he was recording in the late and mighty Festival Studio.

Gez the spelling in Channels was wa-a-y bad!

It was an interesting era, as our editorial attests. "Memo record labels: give our Engineers a go!" ... was a plea to think maybe a little before importing an overseas engineer to work locally on a project. Mark Moffatt and Gary Rabin had things to say about this. At that time, the record companies were bloated with CD money, midway through re-releasing everything that ever sold on vinyl. They were totally out of control.

Shure counterfeiting also featured, and to fight back Shure themselves introduced a cheaper SM58, dubbed the SM48. They reasoned that a \$149 microphone – v- \$258 which was then the retail for the SM58 would do it.

HOT STUDIO & REPLICATION PULL-OUT

Connections

THE ENTERTAINMENT & TECHNOLOGY MONTHLY



HOT

PAGES OF RAD NEW PRODUCTS, STRAIGHT FROM THE OVEN!

HOT BUYERS GUIDE
Loudspeakers, Fog Machines

HOT PRODUCT REVIEWS
Fairlight MFX3plus, EAW KF Speakers, Ramsa Digital Mixer, ProTools PT24, Sonic Solutions Studio, JEM HOT 2000

NOVEMBER 1997
Australia \$4.50
New Zealand \$6.00
Malaysia 16 ring
Indonesia 16,000 Rp
Singapore \$9.00
Hong Kong HK\$35.00
The Philippines 179 pesos
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ISSN 1320-5545 09



9 771320 5545 09

Countless thousands of fake SM 58 Shure microphones have since flooded the market. We haven't seen a fake SM 48.

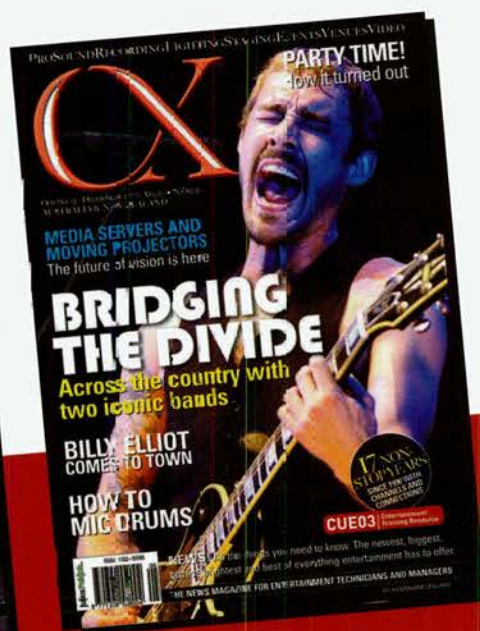
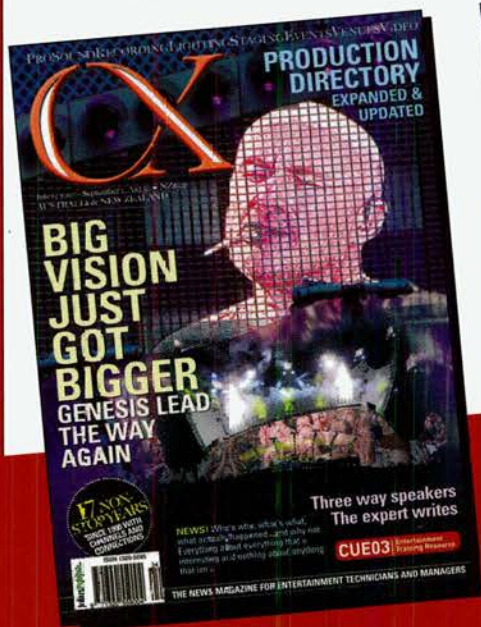
Martin Professional emerged against High End Systems with the Pro 218 – a moving mirror fixture. We commented that the moving mirror market needed real control consoles, since the rack mount controller format of the day was not really hip. Thereafter console designers started to accommodate the

multiple DMX channels that each fixture demands.

Woah, more rude letters. It seems we had muddled some nicknames. At the time everyone was known by a nickname, not the normal first name / surname convention that has existed for 1,500 years. It seemed juvenile at the time, still does. So Rocket was named incorrectly as being in Darwin on a James Reyne tour, while Costello was really Craig Mulligan. No letter from

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MIXING AND PLAYING... AT THE SAME TIME

A finger in every pie



BY DUNCAN FRY

What's the difference between a professional musician and a pizza?

That's easy – a pizza can feed a family of four! It's a joke, I know, but like most jokes it's funny because it has an element of truth to it.

The average pub band (and the above average ones too) gets paid the same amount of dollars that they did in the 80's, despite inflation pushing up the price of everything else by several hundred percent. Quite a lot of them get paid less than they did back then, so it's only natural that these days bands look to save money wherever they can, and understandably there have been some economies along the way.

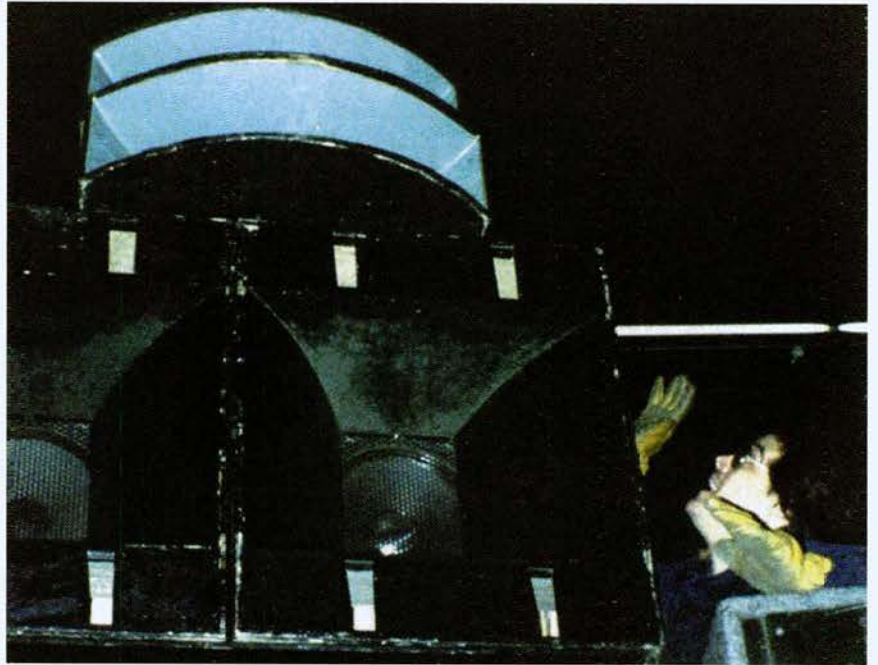
As an example, let's look at the crew situation. Nearly all the bands in the 80's went around with a stage guy, who looked after setting up the band's instruments and often doubled on monitors, a lighting guy, and a sound guy. All three of them would load in and load out, although some stage guys required a little more encouragement in that area than others, and whoever had the truck licence would end up driving it.

The band, bless their little ego driven cotton socks, would just wander onto the stage, play, and then piss off. Well, who wouldn't, given the number of people doing things for you?

Number on the crew these days? One person if they're very lucky. One person who puts the system together, mixes, throws up a cursory light show and takes it all away again, forcing the band to look after their own instruments.

OK, I realise that lots of venues have their own in house systems now, so there is less to drag in and out, annoying the people pouring their lives through the slots of the pokies.

But there are still lots more whose commitment to live entertainment consists of little more than a corner



Dunk and his double 4-way.

back wall covered with black carpet and layers of gaffer, a lighting bar with one end hanging off the ceiling, and a 3 phase power point dangling ominously off the wall!

Systems too have shrunk. In the 30's I went everywhere with a double 4 way consisting of a bathtub *N* bin, 2 x 4560s and 2 x large 90 degree radial horns each side of the stage, plus monitor wedges, sidefills and a hernia-provoking drum monitor. There was also a separate monitor desk which was bigger than the front of house mixer! The lighting guy had 24 cans minimum. Sometimes in smaller venues there was even a little bit of room left over for the audience!

All of this was massive overkill, but if you had anything less it was hard to pick up any gigs, because this was what your opposition was supplying for \$180 a night delivered and operated (stage guy and lighting extra – I never inquired too deeply into what the band was paying Gorgo or the Bong Brothers).

Today, because a lot of venues are much smaller (those bloody pokies

again, it's rare to see anything but a 12" and horn or 15" and horn cabinet each side; usually plastic but sometimes wood, sometimes self powered and if you're lucky, a couple of subs. Lighting? Whatever is hanging up in the venue, making my 24 can PAR 43*** collection the absolute duck's guts of budget lighting rigs!

Sometimes, though, a band will do away with the 'luxury' of a sound guy and do it all themselves, mixing from the side of the stage in between singing or twiddling out a guitar solo. A little knowledge is a dangerous thing it's true, but on the plus side it does sell a lot of books for me!

Mixing in this fashion must be more and more commonplace, since I've received a tsunami of email lately asking for advice on doing this, from bands all over the world. So, with a guitar vacancy occurring with my regular clients, the good ol' Harris Tweecz and purely in the interests of research, I strapped on the old Flying V, cranked up the Music Man, blew the cobwebs out

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A most useful gadget - a key ring Sharpie. 80 cents each. All we need now is a key ring roll of masking tape and key ring headphones!



Mackie desk with optional limiter fitted.

of a replacement Fuzzface and lurched onstage to mix and play.

The first thing I noticed was that mixing while playing at the same time wasn't very easy if I had to lean over when adjusting things. So I carefully put the Mackie next to me on a keyboard stand, at a height that meant I could adjust it without having to lean over or turn around too much.

Secondly, I rearranged the channel layout. Normally I'd work across the channels, left to right in rows from back of the stage (drums) down to front of the stage (vocals). Uh uh - not now. It's too hard to find the one you want in a hurry like that.

Given that bringing various vocals up and down is the primary job, I put the vocals first, starting with channel 1 being me, and then across the stage from my point of view: Me, Other guitarist, Drummer, Bass player, Keyboards. (I actually write their names, but it wouldn't mean much to you if I wrote Me, Slug, Lurch, Dipsy and LaLa would it?)

Then I left a channel empty, which I can use for the Bass player's acoustic guitar when it's 'crying in your beer' at the end of the night, and switch it out when it's not being used, so I don't accidentally flick it up.

Next come the instruments: Gtr me, Gtr, Bass, Keys. Then another empty channel for the other acoustic guitar, and then the drums, since hopefully they will need the least amount of adjustment once they have been set.

Thirdly, I needed a way to easily bring up vocals and instruments just a little bit, for solos, harmonies, etc. However, +10dB from the 0dB mark on the fader was too much of a boost, but a finer adjustment took too long to do.

Enter the good old roll of masking tape (not gaffer, unless you are keen on removing the printing!). I ran a line of it across the vocal and instrument channels at the 3 to 4dB mark, so that a quick flick of the fader with my finger only kicked the level up until it hit the masking tape. A mechanical limiter! Neato, and very easy to manage.

Finally, the monitors needed rethinking. You can't do any mixing unless you can hear what's going on. There was no way I could hear what was happening out front, since the wedges had a predominantly vocal oriented mix in them.

I proposed a radical concept to the band. "How about we run a Front of House feed into the wedges as well? That way we can all hear what's going on out the front, and adjust our playing and singing accordingly?"

There was some muttering at this departure from the norm, but the thought of saving the cost of another band member swung the deal in my direction.

And, at the next gig, it worked. Each band member could hear if they were too loud or too soft in the mix, and could change their playing and singing as necessary. Smiles all round, as we divvied up the missing band member's payment amongst ourselves.

Plus even a little bit extra for me for doing all the work. It's not true what people say about musicians being ungrateful bastards...well, not all the time, anyway!

***Actually it's only 12 cans but I'm getting there - slurp! But not many private homes - even in Brighton - have got 3 phase power points, so I've changed all the globes over to 28 watt energy saving mini fluoro globes (150 watt incandescent equivalent) so now the whole rig can happily run from one power point.



How to... MAKE A WIRELESS LECTERN

BY ANDY MACKENZIE

After Julius came in the other day muttering about moving lecterns and mute buttons and people plugging in cables with the phantom on and various other horrible noises, I got to thinking...

Years ago, when the world was new and I was young, some shows had lecterns for people to speak from and other shows had entertainers on stage. These were not the same shows. As a result, any time you put a lectern on the stage, you knew it was going to stay there for the duration.

This is no longer the case. As audiences have learned to expect more from functions, entertainers have made their way onto stages previously occupied by lecterns. And most entertainers don't like having to share the stage with a lectern, so the lecterns frequently find themselves unceremoniously shunted into the wings while the entertainment goes on – then brought back, thrown out again, brought back – you get the picture.

The problem here is not the lectern, but the microphone leads that go with it. If you tape them down, they need to be unplugged to move the lectern. If not, they're an eyesore. Either way, they're going to be a trip hazard at some point in the show.

So let's get rid of them. The tried and tested technique is a handheld radio on a gooseneck that goes with the lectern. But there's that eyesore issue again. Alternatively, you could attach a lapel mic to the presenter. Easier on the eye, but it adds a level of complexity to your job – either you need as many mics as you have presenters, or you need someone dedicated to changing mics between presenters.

That's the usual options exhausted, so what can we do? Here's my suggestion.

Get hold of a perfectly ordinary lectern mic. Hook it up to the lectern in a perfectly ordinary way. Then hook up a wireless transmitter to the output connector of the lectern. The wireless transmitter in question is readily available, but is mostly seen as a niche product for the broadcast industry. Let me go back in time again...

Virtually every wireless manufacturer used to make a transmitter that you could connect to any mic you wanted. You could mix and match – very convenient when wireless was relatively expensive and the choice of capsules on wireless mics relatively small. With the growth of the wireless industry you can now get just about every popular capsule on a radio rig anyway, so these transmitters got shunted aside for use by people wanting specialist mics. But they're still out there.

There are only a few issues to consider with this solution. You either need to make sure your transmitter will supply suitable phantom power or use a dynamic lectern mic (or one with a battery powered preamp module). You need to make sure you're getting long enough battery life or plan for battery changes. And finally, you still need to mute the mic channel while the lectern is being moved to avoid mechanical noise.



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Donny Osmond's recent UK arena tour. The set, designed by Michael Cotton, featured four large truss-framed video screens giving a shrinking perspective look to the stage. Video was a big element of the show so the lighting had to be sympathetic to that. The first half was titled "Love Songs of the 70s" and featured a lot of moody, deeply saturated colours and diffused gobo locks, a personal favorite of Osmond.

In the second half it rocked right up, finishing with a great flourish on the signature Osmond's anthem, "Crazy Horses", where the effects engine on the Whoerlog II console really came into its own. Pic by Louise Stickland.

ALCONS QB363 ARRAYABLE BASS

New from Alcon: the QB363 is a modular front-loaded, arrayable bass system, for permanent and semi-portable applications. It is designed to act as scalable low-end extension of the C-series pro-ribbon column arrays.

The Alcon Q-series scalable ribbon-array columns represent a new type of sound reproduction system; With full-range cylindrical radiation, the systems feature a unique combination of the "throw" of a curved line-array system with the "ease-of-use" of a traditional point-source loudspeaker.

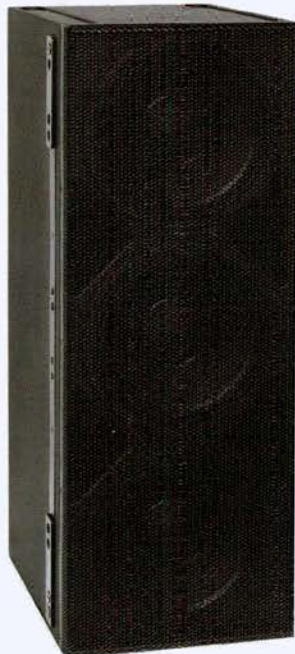
The Q-series has been designed as a solution to obtain coverage and intelligibility over longer distances in "acoustically challenging" environments.

Featuring triple 12" long excursion woofers with Neodymium magnet structures, the Q363 delivers accurate bass response from a very compact and weight efficient package.

With a face-print exactly the same as the QR36/QM36 pro-ribbon column arrays, the Q363 can be stacked in multiples to form bass arrays of up to or even beyond 10 meters / 30ft.

By using 12"/30-cm drive units in tight spacing arrangement and a usable frequency response of 38-Hz to 250Hz., this bass system operates completely within the acoustic line-array parameters in vertical (and horizontal) bass arrays.

www.alconsaudio.com



YAMAHA ROLL OUT FREE TRAINING AT ENTECH

Yamaha has announced that they will be conducting free hands-on training in the Yamaha Demo Room at ENTECH 2008, which will operate in addition to Yamaha's display stand on the main ENTECH floor.

Yamaha training will be conducted in Demo Room G07 at the Sydney Convention and Exhibition Centre throughout the ENTECH Show from 11th to 13th February 2008. Training sessions will instruct users on the new PM5D Version 2 and DSP5D Digital Mixing Systems as well as the highly popular and revolutionary LS9 and M7CL Digital Mixing Consoles. In addition, Yamaha will be conducting training on Audio Network design using Cobanet and EtherSound networking technologies.

PM5D V2 seminars will take users through the Version 2 upgrade which delivers a wealth of additional features to the already powerful PM5D and PM5D-RH Digital Mixing Consoles.

Attendees will also be instructed on using the DSP5D Digital Mixing System, a rack-mountable unit that delivers all the functionality of the PM5D V2 and can be seamlessly controlled from a single PM5D V2 console.

In addition to their Demo Room, the Yamaha Display Stand (D26) will incorporate the full gamut of Yamaha's audio products including the successful LS9 Digital Mixing Console, Installation Series loudspeakers, Tn and PC-1N Series Power Amplifiers and DME Series programmable DSP units.

Attendees will need to register their place via the Yamaha website to attend their desired training seminar.

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ELECTRO KABUKI DROP SYSTEM



The act of releasing drapes and props onto a stage, called the Kabuki drop, which is used extensively in the theatre and events markets can now be undertaken remotely following the launch of the Electro Kabuki by Magnet Schultz Ltd.

The Electro Kabuki has been designed to

reliably release weights of up to 50kg and is suitable for applications where the requirement is to discharge or drop drapes, dummies or cables on cue as a straight drop or at any angle. Also suitable for very light loads, the Electro Kabuki is supplied off-the-shelf with all elements ready to connect and operate having been assembled and tested prior to despatch.

www.magnetschultz.co.uk



INDUSTRY INTERNET PAGE 30 YEARS IN THE MAKING!

Lighting industry pioneer and leading event production consultant Colin Baldwin has just launched an updated on-line edition of the '30 Year History of Rock Lighting and Sound', originally compiled in collaboration with Graham Harrison and Julius Grafton.

This live entertainment and events industry website records the accumulated achievements of our industry's most creative designers, talented technicians and inspired manufacturers over the last 3+ decades.

Look behind the scenes with your own backstage pass as the spotlight is turned on "30 Years of Live Production in Australia", the people and technology that have shaped these live events.

Check out the site's new collections of memorabilia, tributes, nostalgic images, and rare posters assembled here for the first time for your amusement and edification. Plus see how many industry characters you can recognise in the vastly extended photo gallery and in the rare and previously unseen videos from landmark events like the last night at the Bond Lifesaver.

Many of the industry's true pioneers will not be around to recount their recollections between rehearsals for very much longer - in fact, some have already left the stage - and this site is dedicated to their memory.

It is intended that the on-line history will remain dynamic, attracting contributions and contemporary information on landmark developments with significance is worthy of recording in the industry's annals.

In addition to industry history, Colin Baldwin Consulting is dedicated to the continued development of his established LCD and design consulting business as well as addressing his accumulation of international opportunities in addition to local client's needs.

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AUSSIE IN NEW YORK

The Western Australian Academy of Performing Arts (WAAPA) is one of the most prestigious theatre schools in the country, and was recently selected to tour *The Good Fight* at the 2007 New York Musical Theatre Festival. Written by Nick Enright (best known for "The Boy from Oz"), with music composed by David King, *The Good Fight* is set in Australia during the first World War. It's based on themes such as mateship and centers around the tale of a legendary boxer, Les Darcy, and his rise from blacksmith to the world's most famous boxer.

Lighting Designer Glen Hunter is a 3rd year lighting design student at WAAPA and chose the Jands Vista and Cast Software's WYSIWYG as his weapons of choice for the tour. Glen commented: "One of the great challenges of the show was that we opened the day following a 30 hour flight to New York, which gave us a day to load in the set, lighting, plot, tech run and then open that evening. I made a decision early on to completely pre-plot the show in Perth with the Vista and WYSIWYG".

When it came to choosing the console, Glen had no doubt that the Vista was the desk he needed, having previously used it in major WAAPA productions for *West Side Story* and *Sweet Charity*. "If you're studying lighting, WAAPA would have to be one of the best equipped schools in the Southern Hemisphere. Due to the efforts of staff like Joseph Mercurio



and Brian Anslow we've been very fortunate to have the Vista since it was first released, backed up with the power of a WYSIWYG visualization studio", Glen said.

For *The Good Fight*, Glen chose to take a 1024 channel Vista S3 lighting control system, which provides full control of a lighting rig when connected to a laptop or desktop PC running the Vista software. "The Vista is one of the most advanced desks on the market today, and importantly the S3 is extremely portable", he said.

As well as portable, Glen found the whole process of setting the desk up faster. "Until you use the Vista, you have no idea how much faster patching, and updating a patch can be. I practically got rid of my cheat

sheets because you can create graphical views in the Vista which look pretty much how you like – either like the physical rig or in color groups, like on a cheat sheet. The flexibility is infinite".

"Each week before the show I would receive an updated plan of the generic rig in the venue from the festival LD, then I would update my configuration in WYSIWYG. Before the first rehearsals began, I built all the looks, palettes, positions and around 200 cues in the Vista over a period of about 1 week", Glen said. "I was able to see exactly how each of the cues would look in WYSIWYG, refine them and then show them to my Director to more clearly convey my vision for each scene".

CX

CITY LIFE CHURCH

Robe moving lights have been installed into the City Life Church's Knox campus in Melbourne.

The Church's lighting director James Fielding specified the 4 Robe ColorSpot 575 ATs along with four ColorWash 575 ATs which are hung above the stage, and with a Robe Haze 400 FT hazer.

City Life is a non denominational Pentecostal church and the largest church in Melbourne. It has a congregation of approximately 7,500 – and growing - 5000 of whom attend regular weekly services at the 1850 capacity main auditorium in Knox.

In addition to the services, a host of other events are staged at the Knox venue, including weddings, funerals, youth events and local school theatre productions. The main



auditorium is utilised every day for a wide variety of performances that can feature anything from a single

preacher to full choirs, orchestras and electric or acoustic bands.

www.ula.com.au

CX

IDT INTRODUCES PRAXINO REAR PROJECTION SCREENS TO AUSTRALIA

Image Design Technology (IDT) is pleased to advise of the release of the Praxino manual pull down and motorised rear projection screen, designed and manufactured by Australian company Novix Systems. Ideal for innovative display applications, the screens provide high quality visual images with high resolution and wide viewing angles on both horizontal and vertical axis.

Praxino screens incorporate an advanced 3D layered polyester based optical film. Forming the underlying structure of this film are minute prisms, which uniformly disperse light horizontally and vertically, resulting in a wide viewing angle and a high brightness image, making it ideal for positions where viewers may not necessarily be square-on to the screen.

www.idt.com.au



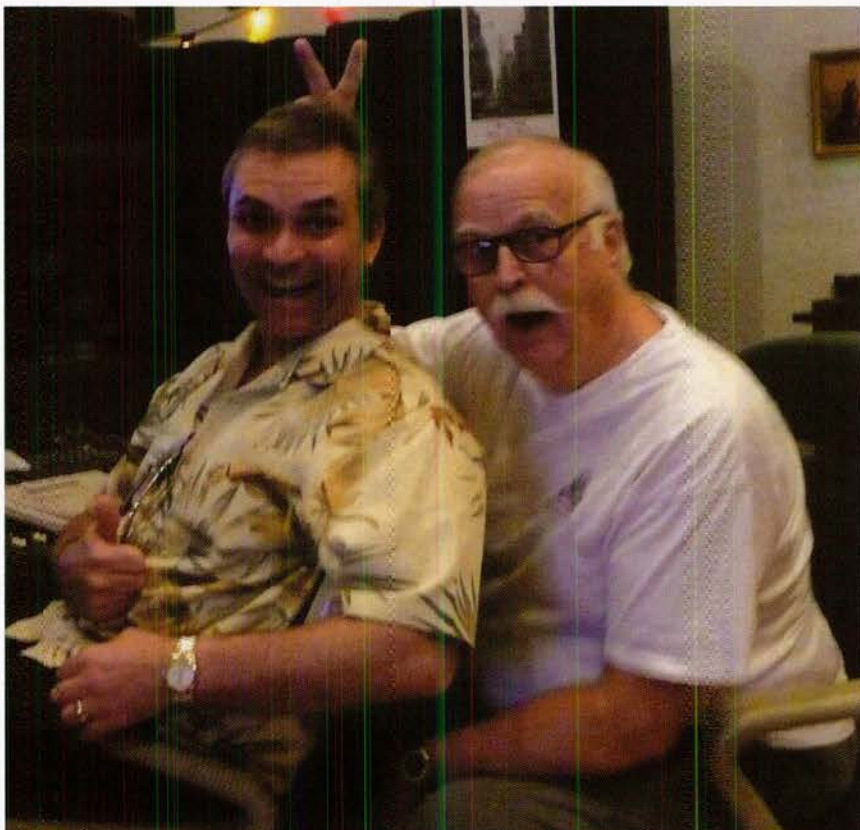
TEC AWARD FOR SENNHEISER AND NEUMANN

The NET 1 network system is the world's first system to monitor and remote control not just wireless microphones but also in ear monitoring systems. It won a TEC Award in New York late in 2007.

The Neumann KMS 104 cardioid vocal microphone also was honoured for outstanding technical achievement. A TEC award is the world's pre-eminent peer voted award.



MEETING YOUR LEGEND



Lucky Peter Freedman (Mr. Rode Microphones) met with Bruce Swedien at his place near Orlando. "He played some stuff he recorded with Duke Ellington that's never been released. Done in the 50s and I was blown away by the sound he was pulling on three tracks back then. He has built a nice little (Ha!) studio on his farm here. It's right next door to John Travolta (the one with the 747

air strip by the front door)".

"He is working on a new J-Lo album and his tape vault is WAY cool. Nothing much there, just some Nat King Cole, Ella Fitzgerald, Thriller and most of MJ's other stuff + countless other major albums. I tripped over the Grammys too."

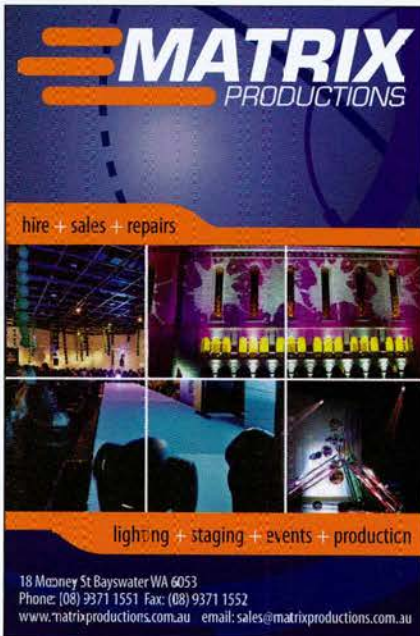
"He hung up his U47 that he bought new in 1956 for \$390! That's a crack up"



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ADVERTISING INDEX CX 32 15 JANUARY 2008

AJ Sound.....	65	Loud and Clear Audio	45	Theatrelight.....	41
Audio Products Group	19, 25, 53 67	Magna	39	The Resource Corp.....	77
Balanced Technology	66	Matrix Productions	82	ULA	BC
Bo:ch	7 35	Meyer Sound	29	WAAPA	57
Blue Cat Case Company	3 82	Mobile Image	79	Yamaha	13, 61
BS Sound.....	82	Murray Training	27, 37		
Classifieds & ad index.....	82	Nightlife	73		
CMI.....	3	Norwest Productions	18		
Chameleon Touring Co.....	56	Novatec.....	17		
Col n Baldwin Consulting	47	Philips Lighting	5		
CX classified ad	82	Production Audio Systems	IBC		
CX house ad	66	Random	11		
DK International.....	57	R & R Record ngs.....	81		
EventQuip	45	Rentalpoint	82		
ETF	21	RMIT University	82		
Go:otech	77	Rosco	79		
Grup Technologies	20	Setwear	82		
Hoisting Equipment	65	Soundcorp.....	23, 43		
Jar ds	IFC, 15, 59, 63, 48	Syntec International	33, 51		
Jar ds Production Services	82	Staging Fentels	82		
Jul us Events College	75	Subscriptions	71		
KV! Audio	69	Technica Audio Group	9, 55		



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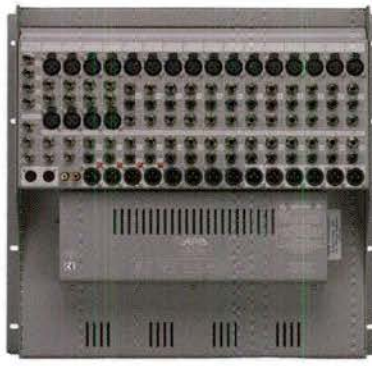
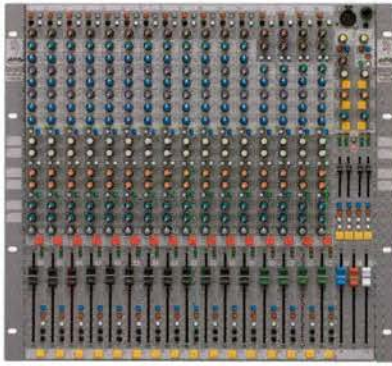
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