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Training Resource

REVIEWED: *Digidesign VENUE SC48 • EAW MW15
• Chroma-Q Colour Block 2 • HHB UDP-89 DVD Player
• Panasonic AG-HPX502 Camera • QSC-K10 • Event Opal*

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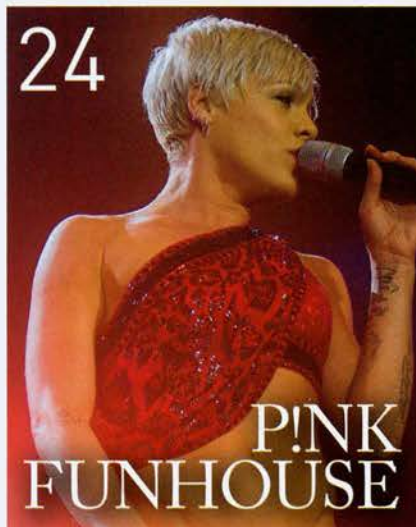


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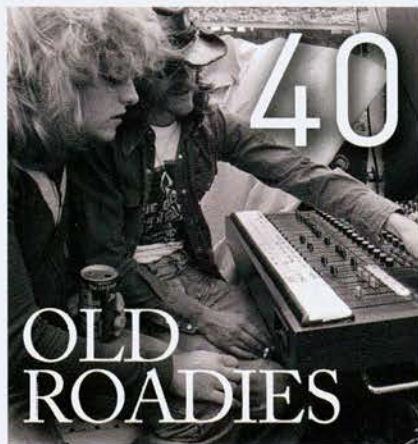
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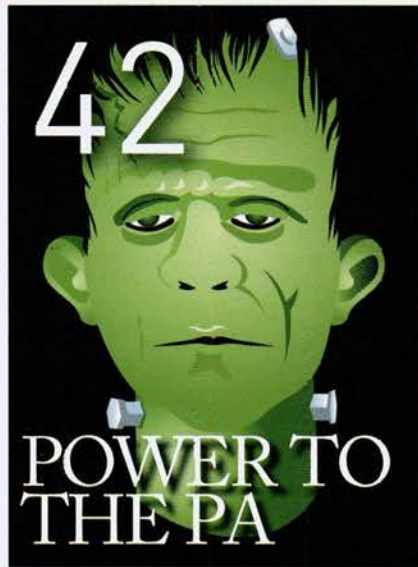
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Mail: Locked Bag 30, Epping NSW 1710 Australia. Call: 1-800-635 514 EMAIL: juliusmedia@me.com Web www.juliusmedia.com

Publisher, Managing Editor: Julius Grafton Editor: Andy Mackenzie Staff Writer: James Den-Ouden EMAIL: juliusmedia@me.com call +61 2 9638-5955

Technical Advisor: Rob Zimola Sales: Steve James EMAIL: cxmag@me.com direct +61 2 9638 5955

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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

TRADE SHOW CROSSROADS

Integrate in Sydney is over and as this mag hits the mailbox SMPTE tradeshow for broadcast is on. Between them was CEDIA. All these shows were in Sydney in July, fore-see-ably crazy.

Next February ENTECH re-appears, after the well-regarded AMAC trade show for the M. I. industry.

The visitor and exhibitor can't sustain this.

Despite the good management of Integrate by my former show manager and protégé Louise, carelessly lost by ETF who have run ENTECH since they purchased it from me in 2004, I can't say Integrate was a success.

It lacked scale due to a smaller and more remote venue. The event could not assume leadership.

A push has emerged for ONE industry show, to cover the M.I., Pro audio/lighting/AV, production and hopefully broadcast markets. Think of Frankfurt which does almost all this. It's a debate that is now happening – the industry should not be on the drip to three commercial and one industry association trade shows.

The commercial shows (INT, ENT and SMPTE) see organizers rake off big fees - their mission is to reinvest as little as possible to make \$. INTEGRATE like ENTECH of old (02) at least hosted a credible seminar series, masterminded by Chris Holder, known as 'the sensible one' in his otherwise cash-driven organization.

INT did what ENT did the very last time, and spent almost nothing outside the media contra deals that are so last century.

My ENT (from 1994 and pre '04) spent buckets on external advertng (daily papers, street press, even the Qantas mag when we were chasing the AV market) in the day to get visitors. We never rested.

ENT '98 and '00 were big on AV and integration, we had ICIA days plus our own AV seminars. There's nothing new under the sun.

MADE IT

We're into July and through the darkest period of winter. In theory that means it can start getting warmer and lighter and generally more pleasant. It might not be such a big thing for those in the northern states, but for most of us it's a relief. Apart from the comfort issues, the warmer months usually bring more work industry wide. So far we seem to be weathering the financial turmoil afflicting the rest of the world fairly well, and we can look forward to another big summer.

HERE TO STAY

It's funny to look at the way our attitudes to technology change. It doesn't seem that long ago that I was looking at digital audio consoles, shaking my head and muttering that it was all very well in the studio, but there was no way it'd ever catch on in the live environment. Around the same time I was making noises about how LEDs might be useful for effects lighting, but their inherent limitations would stop them being any good for other things.

I was wrong on both counts, and so were plenty of others. Just like all the people who reckoned you couldn't build a plastic speaker and all the other nay-sayers throughout history. Let's celebrate the people who ignore our moaning and keep making things better for us. Without them, we'd still be sitting in caves wondering what made fire happen.

DEALING WITH DEMANDS

And meanwhile, we all get to keep pushing ourselves to keep up. Technology changes, but so do expectations. Where ten or fifteen years ago our clients often expected us to just do the same as we did last time, they now want to see something new every time. Access to seemingly unlimited content on the internet and elsewhere makes people more aware than ever of the limits of possibility. Let's keep pushing those envelopes.

Andy

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CX NEWS

DEVICES, PEOPLE AND CONCEPTS



THE (POP) KING IS DEAD

Vale Michael J. A signoff from CX on behalf of his crew over the decades.

BLACKSHEEP OWED \$2.5 MILLION

Liquidator issues damning report

This story is about Blacksheep Productions Pty Ltd, ACN 065 239 054 (in Liquidation). The company which collapsed late last year is under investigation by its liquidator for possible preferential payments amounting to \$283,000 in the period before it collapsed. Mark Roufell from PPB was appointed after the Australian Tax Office took legal action to recover \$1,204,923 in unpaid tax and superannuation.

CX reported earlier this year that Blacksheep had collapsed after an internal family dispute in relation to the estate of Kevin Alcott. The liquidator refers to causes of failure as poor management and decisions, inadequate control over expenditure and the loss of management expertise and financial backing after the death. Kevin Alcott is the father of Ben Alcott, the sole director and owner of Blacksheep Productions.

Ben Alcott owed the company \$163,160 at the time of collapse, according to the liquidator who says that bankruptcy action against Alcott means he probably will not be able to collect the money. "Several events have led me to the conclusion that I have not at all times received a full and frank disclosure from the director on the true financial position of the company. This lack of co-operation has frustrated my attempts to realise the business assets ... and has resulted in significant additional costs of the liquidation".

These costs were at the time of the report in excess of \$136,980 with another \$50,000 to be billed.

The customer book and ongoing business of Blacksheep was sold to Neon Pictures for \$70,000. Blacksheep continues in its new form. The new Blacksheep is not the subject of this story. CX

CX was saddened at the passing of Michael Jackson. We admire greatly his musical legacy and remember fondly the terrific production values – especially at Parramatta Stadium on his last tour, when he dropped into a trap door on stage and then appeared on top of the mix tower. Punters were gobsmacked.

The 'double' was either onstage or on the tower. How long had someone been lip-syncing? Who cares. The comeback was in the bag, so to speak, with rehearsals at LA Stapes Center done and dusted. It was HIM, no clones, no naughty tricks. And the crew say it was to be a GREAT show, called 'This Is It.'

Buzz on the crew and techie networks that he was a genius and a great performer. He was also slightly whacked by that jetload of creeps and lawyers leeching away. Crew always knew that.

What is really significant at this time is that there is NO smoking gun that says anything towards the avalanche of bad media crap about Michael. He was and always will be a musical prodigy whose time was exploited by his horrible father and his paid retinue.

As for his crew they say: 'rest well, bro'. CX

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\$2.5 MILLION INVESTED IN INTEGRATE

Trade shows at flashpoint as industry seeks new solutions

Integrate Trade Show attracted around 2,000 industry types, mainly from Sydney, at its debut held in the Moore Park Playbill Venues – Hordern Pavilion and RHI. Around 80 exhibitors with almost 1,000 support staff rounded out a three day event that was mainly well organised by former ENTECH manager Louise Brooks.

Our industry is surprisingly stable, with people reappearing year after year. Not many small niche industries are like this – so a trade show gathering is always an incredible networking experience with the products and displays a background setting. Albeit a very expensive one.

With \$800,000 in exhibition space, exhibitors spent about double that to stage and attend Integrate, making an industry investment of \$2.5 million – about \$1,200 per visitor. To recoup the event needs to be responsible for directing \$50 million in sales to its exhibitors. That could not happen.

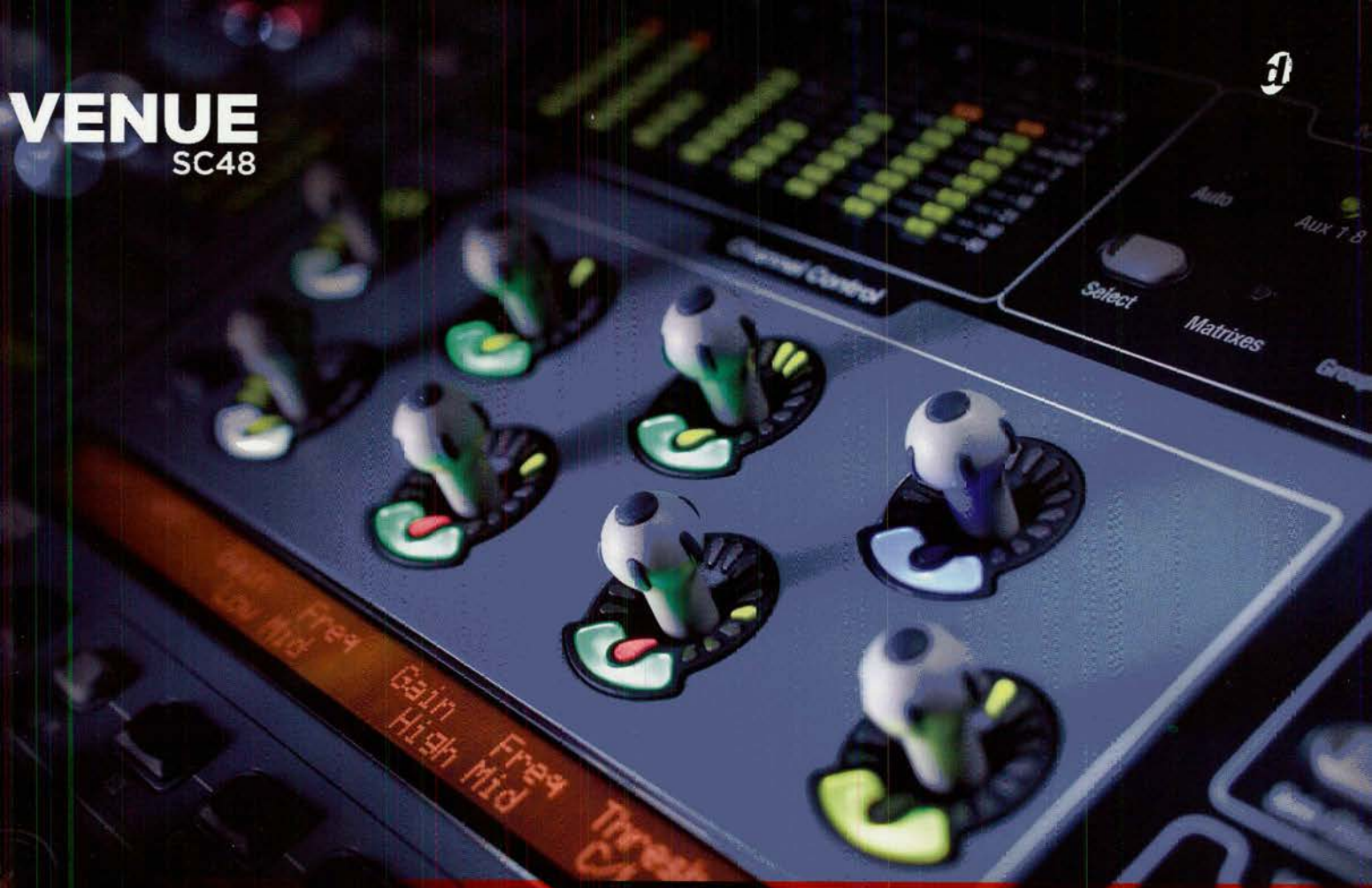
There's a genuine affection towards Louise, but less so towards her partner – the Alchemedia group who hold 66% of Integrate. There were notable abstaining exhibitors from Integrate, which despite the spin from the organisers did not sell out. Most abstainers could have been accommodated on the floor plan.

Pro audio, lighting and AV exhibitors are rumbling loudly and are now under pressure to sign up for ENTECH which runs next February. They want one show, held every two years, to replace Integrate, ENTECH and SMPTE. If it could somehow encompass AMAC which runs each year between Melbourne and the Gold Coast then unanimous joy would erupt.

A push is on for the industry to meet and thrash out the problem. There's evidence this can happen. When challenged this is a unified industry. The Australian Wireless Advisory Group (AWAG) is evidence of this – a collective of fierce competitors who are threatened by legislation and who come together to not only plan, but also to invest in the fight. CX



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Studio-quality sound, live show recording, Virtual Soundcheck, unprecedented workflows—VENUE is revolutionizing live sound. Discover SC48 at the Avid trade booth, G27 at SMPTE09. Visit www.digidesign.com/venuesc48 to learn more.



ADAMSON RETURNS

Jesse Adamson is the director of marketing and sales for the Toronto based Adamson Systems Engineering. He was at Integrate to support new distributor, CMI.

Adamson has 190 plus concert boxes at Australia's largest production company Norwest. In addition they are represented with significant installations at Oxford Falls CCC Church, and City Impact Church in Auckland.

"There would probably be more, but we eased off the gas pedal with distribution. There was a bit of a falling out between Adamson and (former distributor) ATT Audio Control. I don't want to go down that road", he said.

Uber consultant Scott Willsallen of the Auditoria firm likes the product. "What I like is the pattern control, the way it doesn't colour speech in reproduction. You can talk to the manufacturer and give feedback and have them do something about it", he said.

"The new deal comes because CMI have a great reputation", says Jesse. "I don't see HK Audio (the other CMI pro speaker line) as a direct competitor as to what we do. Look at the price point – they're not fighting for the same job."

Peter Trojkovic from CMI agrees. "They wouldn't have spoken to us and we



Picture: Ewan McDonald (left), formerly of Norwest and now working for Adamson as Applications Engineer. Peter Trojkovic (CEO of CMI, centre) and (right) Jesse Adamson director of marketing and sales.

wouldn't have taken it on."

"We have big plans with the introduction of the new point and shoot boxes", continues Jesse, "called The Point Series and aimed at installs. Historically we've always built big, now we're focussing more energy on smaller installs, clubs and theatres."

Adamson says they build a bigger, louder

concert product with less distortion. "Go to the others and they are buying OEM transducers, maybe slightly modified. We take the stuff, measure it, and we build our own transducers. We build mid and low drivers. We have some really advanced transducer technology and that's where we take the most advantage. Our 15 (inch driver) can outperform theirs." CX



Ales Grivac and Josef Valchar.

ROBE SHOWS PLASMA

ULA made a solid commitment to Integrate with a customary large stand. Robe CEO Josef Valchar made one of his frequent trips down under and took time to explain some background to CX.

Robe means town on a river of dreams, and the firm's rise has been a dream. A slightly complicated dream, he says, that started with the Velvet Revolution when

the Czech Republic tore itself out of communism.

Fast forward and the firm has 250 staff, with pole position accessing the PLASMA lamp technology. They will release a moving light wash version to join the spot soon. Business is slow this year. "2007 was our best year, but the last two months have been better", he said. "We feel positive".

It transpires Josef has a warm opinion

of his competition, the Danish Martin and the Dutch giant Philips. "You wish success. You hope they do well", he says. I look puzzled, so Ales Grivac, technical sales specialist for Robe explains more. "You wish and you will be wished", he says with a smile. "If (Martin) the market leader are not doing well then we have to be careful", adds Josef.

He likes that they are from Europe. "It is healthy – good for the business. They are not an American company" he laughs.

PLASMA lamps can be powered down to 20% when dowsed, which makes a greener fixture and one that lasts a lot longer since it isn't baking away like a discharge lamp running at full blast all day or night. With the advent of the LED and the 80 volt Philips lamp, lighting will start to chew less power in the next decade.

Robe have a 575 replacement in the wings, based on a larger PLASMA source. CX

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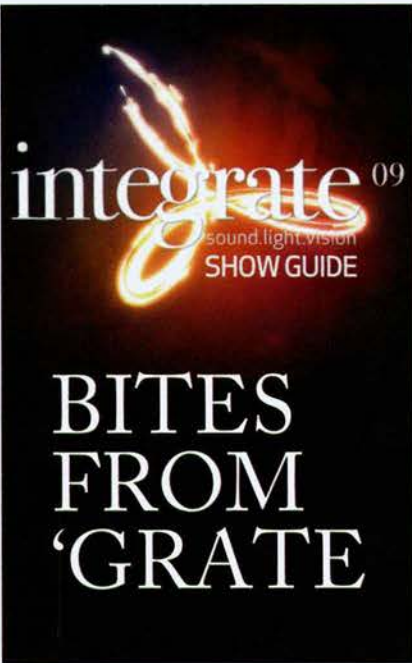
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Graham Rowlands and Chris Cumming.

Barco had a great display which also drew in their High End Systems products, assisted by Michael Hassett of Technical Direction Company.

Production Audio Services and TAG emulated their ENTECH displays. NAS and Hills SVL had significant presence, the latter with an education theatre next to the Integrate Headroom, which itself was very well constructed by Staging Rentals.

Syntec, Yamaha and Adam Nevzat's Audio Tech Systems were all camped in the Hordern which had a totally different vibe to the RHI across the cold and windy courtyard.

Graham Rowlands and Chris Cumming were settling into their new roles at NAS after folding their SonicR distribution into the growing firm.

Samsung, Hitachi and Panasonic all put a toe into the water to see whether

there was enough audio visual business at the show. Shadows of ENTECH '98 and 2000 where there was a similar attempt to draw in more AV business.

Acoustic Technologies, Loud and Clear Audio and LSC all had good positions in the Hordern. Audio Products Group, Philips and AMX stood out in the RHI. Meyer Sound Australia went back to basics, and Bytcraft was missing in action.

Digidesign's Venue, SC48 and Profile live consoles were on the Sound Devices stand, across the aisle from former live sound console distributor Madison Technology who resigned the distribution recently after three years.

Magna Systems and Extron were down one side of RHI, while Amber Technology made clever use of three separate stands in one corner, which became one much larger stand at lower cost.



Adam Nevzat

Of course there were many other exhibitors there, omission from this list means nothing!



ARX NEW 6 WAY LINE OR MIC MIXER

Australian based Pro Audio manufacturer ARX has updated the workhorse DI-6SM Line Mixer and Microphone / Line Splitter.

ARX Managing Director Colin Park commented, "We've updated the circuit design to take advantage of new generation Audio Op-Amps to increase

unit headroom and lower the noise floor even further."

This pro audio toolbox will quietly interface unbalanced signal sources such as MP3 players, Tape/cassette/DVD/CD decks, audio for video, drum machines, synthesizers, bass guitars, computers with balanced pro audio systems, either to individual channels or summed down to one Master output and distribution of Microphone and Line Inputs to Balanced

outputs, all with individual gain controls.

By actuating one switch the DI-6SM can be configured to being a 6 way Splitter (mic/line distribution amplifier) and will split an incoming microphone or line signal to 6 individual outputs or zones, with an XLR Loop Out to send the microphone output off to a mixing desk as well. Switchable phantom power and Gain trim for the Mic input completes this upgraded package.



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Yamaha's Commercial Audio trainers are visiting Brisbane, Sydney and Melbourne to conduct intensive training sessions on each console.

Sessions will have a maximum of two participants per console. Entry is by approved application only.

VENUES, DATES AND SESSION TIMES:

	LS9 SCHOOL	M7CL SCHOOL
BRISBANE Rehearsal Room Roundhouse Theatre 6-8 Musk Avenue Kelvin Grove QLD 4059	Tuesday, 11th August 10:00am, 2:00pm, 6:00pm	Wednesday, 12th August 10:00am, 2:00pm, 6:00pm
SYDNEY Reg Grundy Studio Parade Theatres 215 Anzac Parade Kensington NSW 2033	Tuesday, 25th August 10:00am, 2:00pm, 6:00pm	Wednesday, 26th August 10:00am, 2:00pm, 6:00pm
MELBOURNE Yamaha Music Australia Level 1, 99 Queensbridge Street Southbank VIC 3006	Tuesday, 8th September 10:00am, 2:00pm, 6:00pm	Wednesday, 9th September 10:00am, 2:00pm, 6:00pm



SESSION DETAILS:



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For further enquiries, please contact Yamaha Commercial Audio: (03) 9693 5272 | jason_allen@gmx.yamaha.com

GROUNDBREAKING P.A. FOR SYNTEC

K-Array lands in Australia

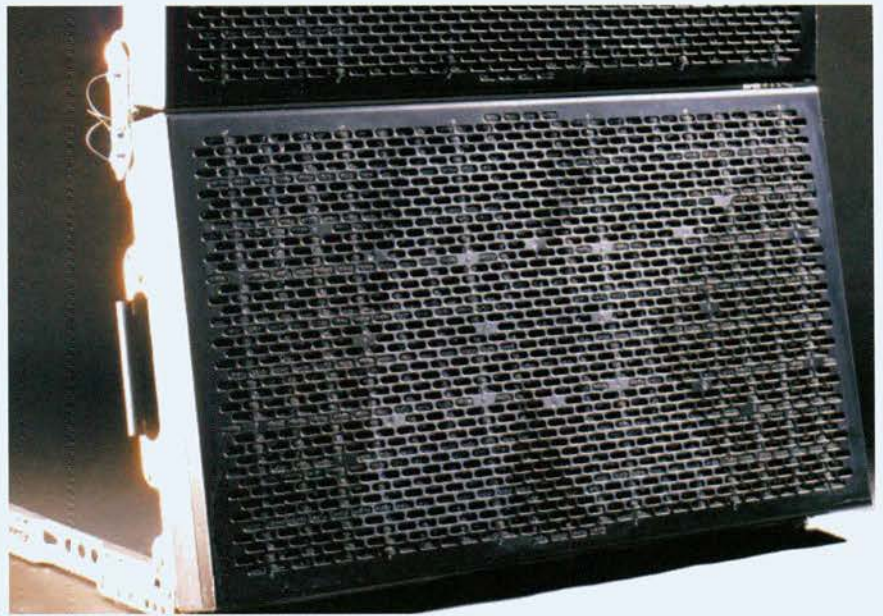
CX saw and heard this system in Shanghai late last year – we entered a venue where a Chinese rock band were doing the business, and were surprised how good the sound was.

Then we did a double take, as the P.A. speakers were flat panels.

K-Array was developed in Italy, and is quickly stopping audio professionals in their tracks. The small KV50 system was on display at Integrate Trade Show recently, and the larger K4 system of self powered flat panel line array boxes and subs is the one we heard in China.

It's remarkable. More on this is CX soon.

www.syntec.com.au



VALE ROB FINDLAY

Rob Findlay passed away in June, just five weeks after diagnosis of lung cancer.

He had retired from the position of General Manager of Syntec International in Sydney several years ago after almost 25 years there.

Robert was well known to most people in the audio industry as his business activities frequently took him to the capital cities around Australia and also to New Zealand. Most of us would have encountered Rob at tradeshow and he was widely admired and liked for his friendly demeanor and unfailing willingness to go that bit extra to help out a customer. Robert was a true gentleman and also a gentle man.

He got his start in the industry around 1973 working as an assistant administrator with the Rank organisation in the broadcast & motion picture division. Eventually he went on the road selling Altec Lansing products into the consumer & PA markets.

Later he moved to John Barry's, establishing the audio division within the film company. It was here that he first came into contact with Tannoy and he worked to promote the brand. By the time he left Syntec (which has now had the brand for many years), Robert must have single-handedly sold more Tannoys than anyone else in Australia.

After 5 years with Barry's, Rob moved to Syntec and it is his role here that brought him into contact with audio, video and film professionals around the country. Many people received a helping hand from him at some time, whether seeking updated software for a piece of Dolby kit, wanting to try out the latest Eventide gadget or advice on the best gear to spec for an install.

Rob was a passionate animal lover and, together with his wife Judy, had been a significant supporter of DCH - an organisation that specialises in rescuing animals - particularly dogs, cats & horses - from death row or from situations where they have been abused



or abandoned.

No-one who ever met Rob even knew that he could get angry. That is, until he spoke of the abuse and neglect of animals that he encountered in the course of his rescue work.



LSV PRODUCTIONS STRUCK BY ARSON AGAIN

Sydney based audio, lighting and vision production house LSV Productions may need to move from their Terrey Hills base after a second arson attack burned out several vehicles loaded with equipment.

The firm suffered a fire at the premises several years ago that destroyed a lot of inventory.



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If you're planning to build or upgrade a mid-size sound system – installed or portable – now's the time to move up to a top-performance, easy-operation digital system based on the M7CL. This is one digital mixing console that lets you concentrate on sound without being overwhelmed by the technology.

If you've been delaying a move to digital because of interface or operational issues, the wait is over. The Yamaha M7CL Digital Mixing Console offers professional digital console performance and features for live sound in a 32- or 48-channel system that can actually be easier to use than a conventional analogue console. It sounds great, too.



Yamaha Centralogic™

Yamaha's Centralogic interface takes the most direct approach to giving you maximum operational ease and efficiency in a digital console. Rather than trying to simulate the feel and workflow of an analogue mixer, Centralogic goes straight to the heart of the matter, simplifying digital operation to the point where it is actually as intuitive as analogue.



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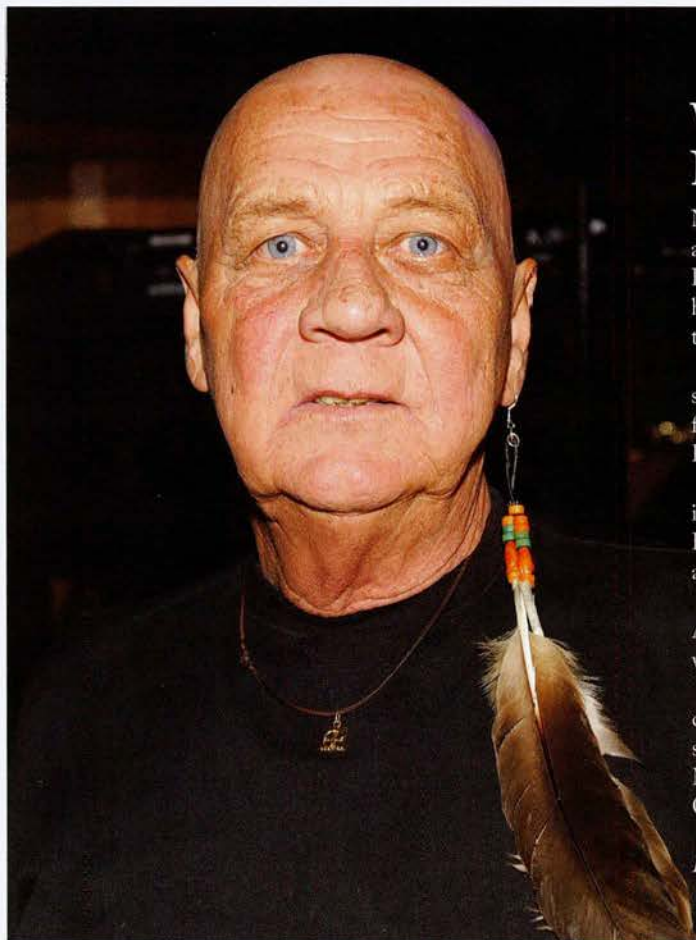
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VALE NORM SWEENEY

Norm was the first of the 'super roadies', born in 1945 and raised in a very matriarchal family in Sydney's Surry Hills. He came into a role that never existed, and in those halcyon days through the late 1960's he did what needed to be done.

"If they needed chicks, drugs or a bus, he did all that", said Amanda Pellman. "He looked after (Billy) Thorpie for forty years, Max Merrit, Brian Cadd, and of course Rosie Tatts".

Last year he was diagnosed with cancer, and a grateful industry put on a benefit for him at Sydney's Bridge Hotel. It had many greats of the pop and rock world appear on stage.

"He said it was the greatest night of his life", recounts Amanda Pellman, "because all his best mates were at his wake and he was there too!"

One year and one day later, he passed away. "Now he can get on with tuning Thorpies guitar's in eternal peace", said long time friend Grahame Harrison.

Norm was survived by five brothers, his daughter Claudine and partner Wendy.

CX

Pic by BOB KING.



Norwest Productions

EX-HIRE PRO AUDIO EQUIPMENT FOR SALE

Following the successful acquisitions by Norwest Productions Pty Limited of Oceania Audio and McLean Audio Services we have conducted a review of all our hire inventory spread over our offices in Australia, New Zealand and China. As a result we have identified inventory surplus to our current needs which we are offering for sale via our website.

Included are items from:

- EAW
- Digico
- Schoeps
- Optocore
- Quest
- Yamaha
- Dolby Lake
- Klark Teknik
- TC Electronics
- Lexicon

Follow the link below for full details. We expect to be adding to the list as we assess further the requirements of the group so I encourage you to keep watching if you are interested.

http://www.norwestproductions.com/exhire_for_sale.html

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RIEDEL OFFER 3-IN-1 DIGITAL AUDIO NETWORK SOLUTION FOR YAMAHA CONSOLES

Riedel's new RockNet 100 is a 3-in-1 audio interface bundled with an expansion card for Yamaha digital mixing consoles. The audio interface combines the input and output sections of three RockNet 300 devices into one 19"/3RU digital stage-box. Beyond digital multicore applications RockNet 100 gives full access to RockNet.

It results in 16 line/microphone-inputs (with 48V phantom power) and 8 line-outputs. With a transport capacity of up to 80 channels RockNet 100 is especially suited for smaller setups – for example as a digital multicore. The connection between the RockNet audio interface and the RockNet expansion card for Yamaha consoles is established via CAT5. The redundant ring topology of RockNet via CAT5 cabling offers maximum reliability. A connection failure between two devices doesn't cause any audio loss. The self-healing ring topology offers significant advantages in performance, consistency and flexibility. The proprietary technology Concrete ensures a jitter-free operation of the audio network. To protect amplifiers and speakers when turning channels on or off, RockNet features an auto-mute circuit.

www.riedel.net



VEOS ARRIVES

WOW-Vision's wireless presentation solution has arrived.

The VEOS system is a unique product because it is the first technology to combine matrix switcher, scaler and touch panel into one unit, enabling any make and model of laptop to present wirelessly.

The device itself is a small unit, connecting the IT network and projector, and turns a 'dumb' projector into a smart projector, enabling high definition movies to be streamed wirelessly (1080p), with 7.1 surround sound in the top of the range model, proVEOS. By combining matrix switcher, scaler and touch panel into the unit, it makes it cost effective and easy to use. It has a host of features including seamless switching of presenter, remote asset management, multimedia e-notice board, interactive whiteboard feature, Q&A (chat) function, to name a few.

www.productionaudio.com.au



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QPAC MOVES OUTSIDE WITH PROLYTE ARC ROOF

The Queensland Performing Arts Centre (QPAC) has added a new external performance venue in the form of a Prolyte Arc Roof supplied by Specialised Stage Engineering. Situated in the courtyard area outside the Lyrebird Restaurant, the 10m x 8m truss roof system gives QPAC the ability to stage outdoor performances with minimal set up. The Prolyte Arc Roof provides protection from the elements for the equipment and performers on stage.

The Arc Roof system from Prolyte is a simple truss design which can be built by a small crew in only a few hours. The roof consists of 4 arched main truss spans with four upright towers that are built in sections.

Prolyte truss is known for its high load

ratings - the main arches are capable of 40kg/m distributed loads and 200kg point loads while the front cantilever arch is rated for 20kg/m distributed loads, 200kg point loads and 300kg loads at the front corners for PA hangs.

The Prolyte Arc Roof system is engineered as a complete system designed to handle wind speeds of up to 28m/s (100km/h) and comes with a full structural report with load diagrams and required ballast specifications to ensure that the system meets all required safety regulations.

QPAC Head of Staging, Tony Maher said, "The Prolyte system ticked all the boxes for QPAC's requirements. It came with full engineering documentation, is easy to assemble and remove, it has load carrying capacity on the trusses and aesthetically looked right in the courtyard."

www.stageengineering.com

NEW LED PAR 64'S

Lighthouse have released new LED Par 64s. There are several versions available to suit different needs. In a 1watt LED version the fixture has 36 LEDs in RGB (12 Red, 12 Green, 12 Blue). For extra brightness, there is the 36 x 3watt LED version, available in RGB. The fixture offers a large range of colour mixing possibilities that allows for many and varied colour wash applications.

All the LED Par64s have the option of running via DMX. (5 pin connector) or there is a stand alone mode which is controlled from a four button (LED display) panel on the rear of fixture. The design LED pars are ideal for schools, churches, clubs, bars where cost effective colour change is required without high power consumption.

www.lighthousedistribution.com.au



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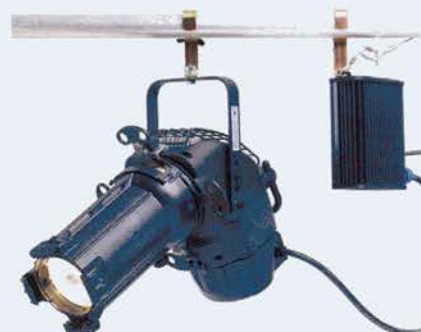
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SELECON'S 80 VOLT IDEA MAKES GREENER THEATRES

Leading Australian venues are making a dedicated commitment towards reducing their greenhouse gas emissions while significantly reducing stage lighting and air conditioning heat loads. This commitment to energy efficiency is endorsed and encouraged by Australian state governments and is high on the priority lists of fiscally and environmentally aware theatre consultants and management teams who are involved with the refurbishment and development of theatrical lighting around the world.

Selecon's lower voltage 80V 1200W Pacific Profiles and Rama High Performance Fresnel (reviewed in CX last issue) replace traditional 2500kW and 2000kW mains powered luminaires and deliver impressive energy savings in both stage lighting and air conditioning systems with the added advantages of smaller, easier to use luminaires that deliver bright, pure white light.

Over 300 80V 1200W Power Systems have been supplied to leading Australian theatres over the past two years, including the Queensland Performing Arts Centre (image), Ipswich Civic Theatre, Redlands Performing Arts Centre, Mackay Entertainment Centre, Sydney Opera House, Hillsong Church, Channel 9-Sydney, Newcastle Civic Theatre, Tamworth Musical Society, Wagga Civic Theatre and the Sutherland Entertainment Centre.

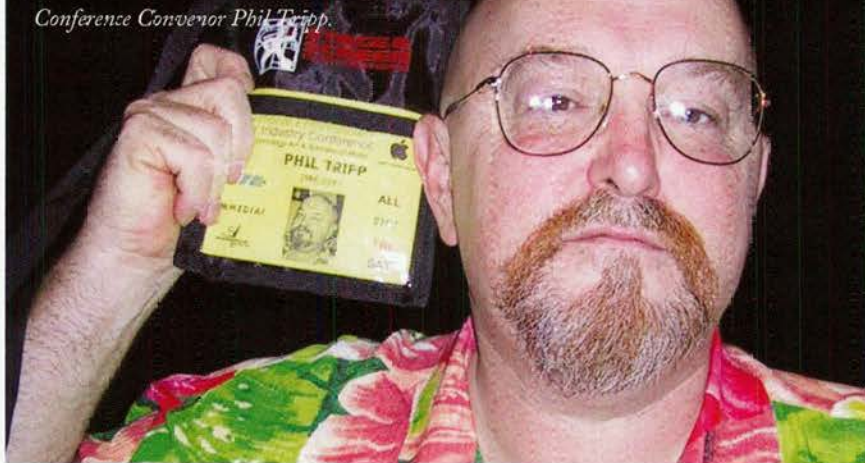
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AUSTRALASIAN MUSIC BUSINESS CONFERENCE LOADED

Conference Convenor Phil Tripp.



The ninth AMEC is set for Acer Arena, starting 20 August and running through to the 22nd. This year's conference has a highly powerful website which registrants use to communicate

with each other and access hundreds of sites and documents. It is a resource rich destination.

CX spoke to conference convenor Phil Tripp.

When was the FIRST conference?

It was actually 1991, held in the cattle pavilion of the Showgrounds (now Fox) and it was a one day affair that smelled pretty rural due to the lingering odor of cowshit. We do it every two years because things don't change that much year to year and it also makes people want to come back because they didn't come last year/ can't put it off to next year.

Think back to the first conference and its theme/topics. What stands out now as wildly different?

We called it Crawl/Walk/Drive/Fly which are the four stages in an artist or music business career. Crawl is learning the basic set up of a business and really getting ready to...

Walk which is about dealing within your own community and getting your business going whether it's developing a local audience as a band or a business.

Drive referred to how to go national and included a lot of PR, publicity and promotion information on straight media (remember the internet wasn't really around then!) using analog means since people weren't that hip to email yet.

And Fly was about going international, using trade fairs and festivals as well as using export incentives to achieve real

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goals. It was also about longevity as well as keeping your audience at home. All up we had about 20 people

To the powers at the time, it was heresy. I was reviled as a revolutionary by the record companies who also poopooed the thought of email ever replacing faxes. Digital downloads weren't even considered. Well, it took some time to go from vilified to visionary but the times certainly changed.

Now we talk a totally different language from back then. We discuss the impact of social networking sites, mobile content, music going from a commodity as physical product to a service like you get from iTunes to a utility such as a subscription model for all-you-can-eat for a simple monthly fee--which is the next big change we'll see.

Yours is the leading (only) conference of its kind in Australasia - which conference is similar overseas?

We're unique from most conferences because we concentrate on the Future Of Music with great speakers and content in the room as well as an incredible online private site with hundreds of articles on the topics so that those who come are already well versed. There are no showcases of hopeful or hopeless artists playing their hearts out to empty rooms or chattering schmoozers. There is no trade fair of stands to distract attendees from the business at hand nor the desperate and dateless persons on the stand waiting for breaks in the sessions to pimp their products.

The AMBC is not run under a government subsidy by music industry associations for novices nor is it an exclusivist program for executives on expense accounts. So we're vastly different from One Movement, Big Sound, WAM, Fuse Festival or the old Pacific Circle

which revolved around bands and stands. All of those have had vast amounts of taxpayer money pumped into them where we've had to rely on delivering compelling content.

We choose our own speakers and moderate topics closely to pack each session with valuable insight, information, tips and techniques--not infomercials of sponsor speakers, self-promoting has-beens, wannabes or resume readers. Our first policy is to make the content compelling and our second is that if you ask to be a speaker, you're automatically disqualified!

What is the one great moment in AMBC so far?

Probably the time long before anyone had seen it live, where we showed how a song was downloaded and played live within minutes from a device. You could just see the jaws dropping and hear them popping as those in the audience realised that this was where music was heading. Quite a few music executives in that audience got religion that day, one of them remarking to me that they knew their career was going to change dramatically.

Who had the greatest impact - ever - in AMBC history?

Gez there have been a few. Uber-blogger Bob Lefsetz in 2007 would have tied with Michael Smellie who is an incredible leader in the recorded music business. Michael has been the MD of Polygram, BMG Australia and Asia Pacific as well as the COO of Sony BMG globally and he talked about the need for leadership in our business. While Lefsetz entertained profanely and provoked, Michael inspired and was a revelation.

There are some fantastic charlatans in the music biz. Who has been on your

conferences and then gone to glory in bad ways?

It was amusing in 2003, having a panel following keynoter Kevin Bermeister who ran Kazaa [the file sharing software] and was viewed as the Devil and at the time totally notorious! On the panel was ARIA head Stephen Peach who refused to sit next to or be photographed with Kevin; Michael Speck who was the head of the Music Industry Piracy Investigations Unit; Sony's head of Business Affairs, lawyer Damian Rinaldi, whose corporate masters had almost pulled him off the panel the day before and the cool-headed head of APRA Brett Cottle who actually had a great dialogue with Kevin.

Six years later, Kevin is keynoting again with a major global announcement on digital downloading and Michael Speck, who was hotly pursuing him through the courts back then is now a strategist for Kevin and his media minder! That's why I love this industry!

Along the way, there have been a few hundred other speakers at the sum of all the AMBC conferences. Which stands out as having the greatest foresight?

John Perry Barlow who was a lyricist for the Grateful Dead and a futurist was incredible. At the time he had written a major article in Wired Magazine called "The Economy of Ideas" which debated the concept of copyright as consumers treated music like wine being shipped without the bottles. The heads of ARIA and APRA hated him. It was like bringing Karl Marx to address the capitalists!

I'm banking on Gerd Leonhard this year as topping him though. Gerd wrote the book "The Future of Music" and also an ebook called "Music 2.0" and his presentation will be riveting!

www.immedia.com.au



AKG LAUNCHES DMS 700 WIRELESS MICROPHONE SYSTEM

AKG's DMS 700 is a new wireless microphone solution designed for live sound reinforcement, conference facilities, courtrooms and churches.

With future applications in mind, the DMS 700 operates on two frequency bands (one for Australia, a second for New Zealand) with each band providing a

tuning range of up to 110MHz (country dependent) on receivers and transmitters, giving the user extended flexibility in today's crowded RF environment. The encrypted digital audio transmission enables users to broadcast sensitive audio information with each channel being secured with its own encryption key to keep the information absolutely confidential.

The DMS 700 can operate up to 70 channels simultaneously in one room and being a digital audio transmission system,

provides a better resistance to interference from other transmissions, and an infra-red link between receiver and transmitter offers a quick system set-up for easy and user-friendly operation.

The AKG DMS 700 transmitter has a metal body and comes either with the D5 dynamic capsule or C5 condenser capsule. The 7-segment battery status indicator lets you know how much battery life the system has - AKG say you get around eight hours of operation from two regular AA sized batteries.

The DSR 700 digital receiver features an internal digital signal processor providing an array of audio features such as; low cut, 3-band equalizer, dbx compressor and limiter. The built-in spectrum analyser displays the frequency range to enhance the operation and control of the radio spectrum.

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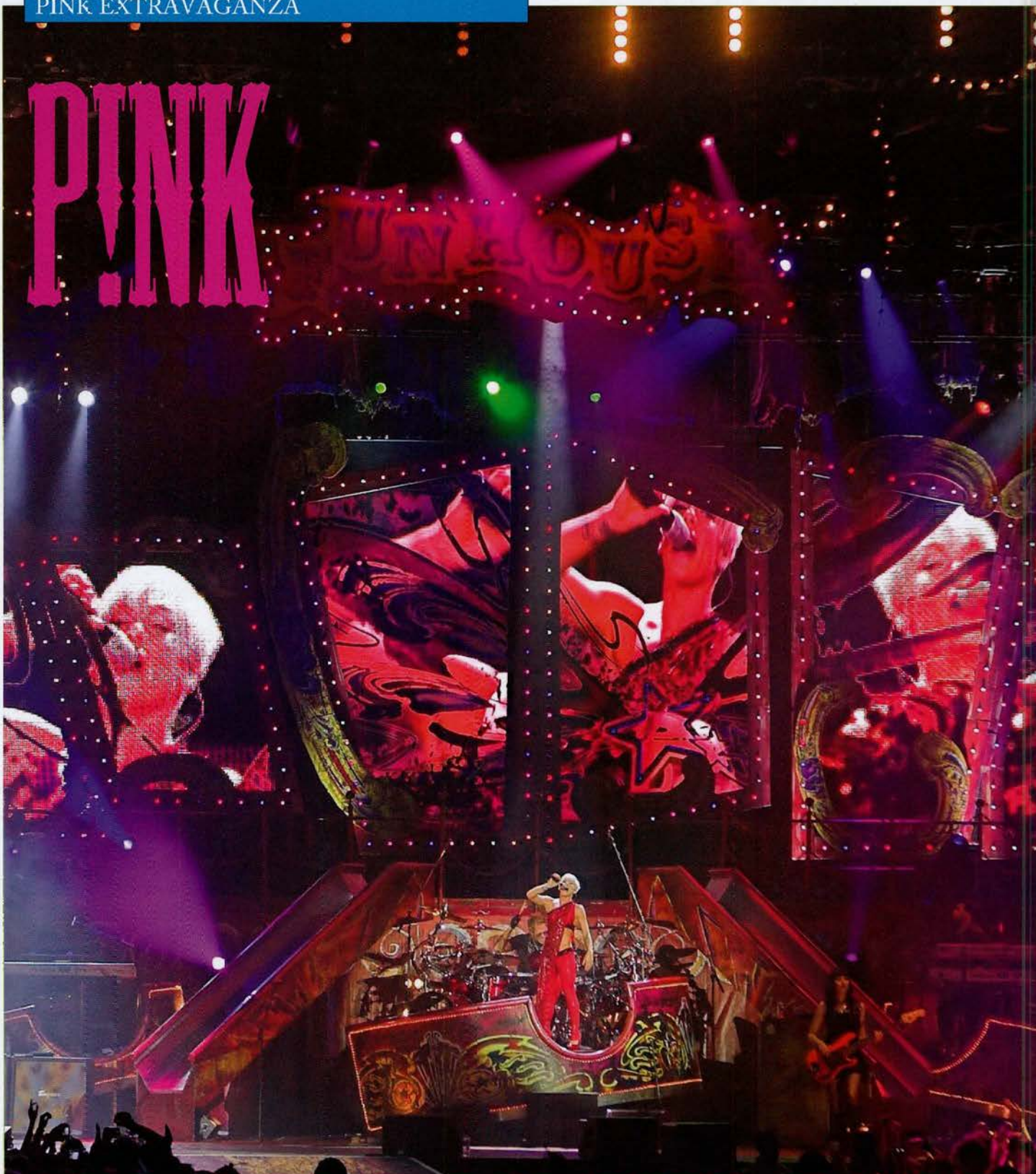
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PINK



103 DAYS ON THE ROAD

Almost the longest arena tour in Australian history.
Pink delivers a wide, bright and heavy show.

By JULIUS GRAFTON

The most powerful guy in the world of live music is sitting at the same table as me in Sydney. Top artist manager Roger Davies (an Australian made good) doesn't know who I am. German monitor engineer Horst Hartmann is nervously fidgeting as Pink's production manager Richard Young (UK) reads aloud through a sponsorship agreement with Sennheiser, line by line, noting approval and changes as he goes in pen.

"I think that's fair, don't you?" Roger asks them as they nod. Horst slumps his shoulders as he relaxes. "I appreciate the support I get", he says, "and when touring the world it's good to be able to call on someone local." He is talking about his wireless systems and microphones.

Pink is in town for the second time on her 58 date tour of Australia which sees most capital cities three or four times across 103 days. She's re-written Australian showbiz history largely due to the business smarts that Roger Davies and Australian promoter Michael Coppel brought to the table. Another big reason the tour is so hot is that Pink has high production values. That's what interests CX.

When the lights go down after a Michael Jackson tribute track and video grabs of excited audience, the kabuki drops away and all the girls gasp. The FunHouse set is total eye candy, a sweeping pastiche of shapes and ramps and slides painted a red-ish colour with tricks and trapdoors all over. It's a girl show. Girls with mum, girlfriends in groups, mums and their mums, and a respectable representation of obviously gay women as well. Then there's me in the perfumed general admission area.

STRANGE NOISES

Chris Madden (UK) did sound for Joe Cocker who is also managed by Roger Davies. He answered the call last year to join this tour and is having a great time, mixing front of house on a DigiDesign D-Show work surface. With 85 inputs!

Band is guitar, bass, drums, keys and second keys with rhythm guitar plus a violin player. Two female backup singers and a bunch of dancers make up a talent pool of 16, including Alecia "Pink" Moore.

The show isn't too loud, "average 101 to 102 dB with peaks at 107 to 108, A weighted", he says. But early on, it's the crowd that freaks the peak meter with up to 116dB and a constant 112dB when girls sing along.

"When 12 thousand girls sing 'So What', they sing in unison. It's loud!"

In Germany some venues are now so aware of liability that they employ professional noise monitors who measure the show and do a report for the files in case a lawsuit for hearing damage emerges years later. "The target there is 101 dB over a half hour", says Chris. Most contemporary occupational safety practices seem to originate in Germany: think about air bags in cars. So expect the professional noise dude to be a fixture everywhere some day.

"Every room has a saturation point where it's like a bucket is full of sound, so you can't go there", he says. "You mustn't fight against the room (acoustics)."

Chris enjoys the plug-ins on the DigiDesign console, and uses several to great effect. "When she (Pink) does 'Touch Myself' she sings into an old style mic for visual effect. It sounds horrible, and I high and low pass it heaps then put a little modulator on there. It sounds a bit crunchy, plus a little slap back."

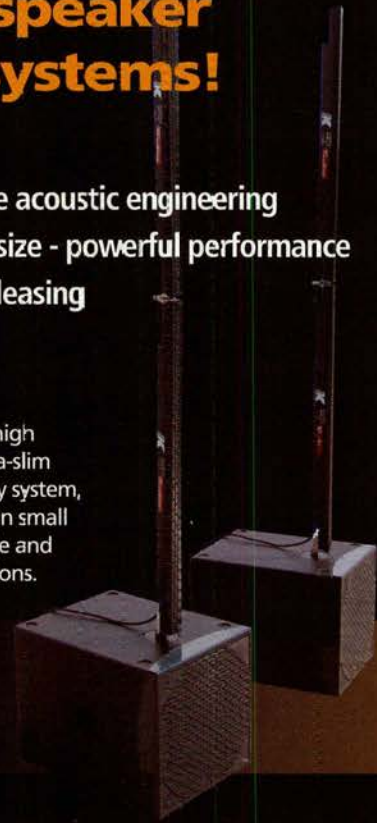
"I like the TL Space reverbs, old AMS, springs and plates as well"

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VISION IN THE FUNHOUSE

By James DenOuden

Vision operations is driven from a position backstage, and it's quite an extensive setup. TDC have put together a very serious system for prime contractor XL Video to drive the multiple projector screens and LED walls positioned throughout the set and in the house.

Much of the set-up is standard broadcast style gear – Sony cameras and CCUs, Grass Valley Kayak switcher, IRT distribution amps, Tektronix waveform monitor and vectorscopes, twin Catalyst systems, and Folsom image processing. Displays on the set include MiTrix and F-LED. In terms of cameras with human operators, there are six and these are positioned throughout the venue, some at front of house, some at side of stage. Just prior to the acoustic set one of the camera ops plugs his camera along the floor next to the runway and sets up for side shots of the performance. This would indicate that the system is planned out to do what it has to without being excessive.

Being staged in a large venue, the show relies quite heavily on imag to make sure folks in the nosebleed seats have a good view of what's happening. Large rear-project screens hang either side of stage, with smaller "side-fill" screens servicing the audience seated



to the sides of the stage. Nice touch. Overall the video elements integrate really well into the show – vision is directed sensitively, and not only serves imag purposes, but enhances whatever is happening on stage. The show shifts from big and bright to quite dark at times, and the vision complements each of these moods or looks.

One interesting element of vision was in camera land – there's a hot head camera mounted up high in the rig and driven from operations. Nothing special, except that it's driven from a normal tripod with a normal set of pan & tilt handles with zoom and focus demands attached. Where the camera would be, there's a monitor. Turn the tripod head and the camera turns. Very clever stuff.

Video director was Larn Poland, and while he wasn't around at the time we passed through we did run it to Tim from TDC catching up on some reading.

The PA is a Clair Brothers i5 line array, a proprietary JBL based system which is only available from Clair Brothers and its agents – in this case, Jands Production Services in Australia. "I have no real preferences, I like the EAW 760, V-Dosc, and the new d+b J Series", Chris says. "J series topbox weigh only 65kg – half of the others. Amazing."

SHOW CONCEPT

It's called Fun House, and according to Production Manager Richard Young it's all about the breakup of the star's marriage. "It's about her house, it's very personal. It's a dark, macabre and black take on (what was) a fun house, not jolly, smiling and happy."

Having said that, Richard points out the show has been trimmed since there were too many gags and too much content. "That's a good place to be, to be choosing the best". At 1.5 hours with 21 songs, it satisfies the punters.

Plus things are usually happy in the Pink touring camp, it is a positive place to be, more-so since the boss reunited with her husband. The 80+ members of this travelling show fly around on commercial airline flights, no VIP charters here for most of the time.

Before the tour started, the music was programmed and assembled by Paul Mirkovich who also had a hand in hiring the band.

SHOW LOOK

Designer Baz Halpin works closely with

Axel, BEHRINGER Germany Systems Engineer, was the proud father of the ground-breaking XENYX mic preamp.

Thomas, BEHRINGER Germany Technical Director drove the technology of the 2442FX to the limits of physics and then half a kilometer beyond.

Thomas, BEHRINGER Germany Software Engineer, steered the USB interface and ASIO drivers for the 2442FX.

Shou Long helps assemble the XENYX 2442FX at BEHRINGER City, our highly advanced manufacturing complex. He may very well have built a 2442FX 4U!

Bing, one of our R&D Assistant Test Engineers, helped make sure that the prototype 2442FX complied with all internationally-recognized safety and RF emissions standards.



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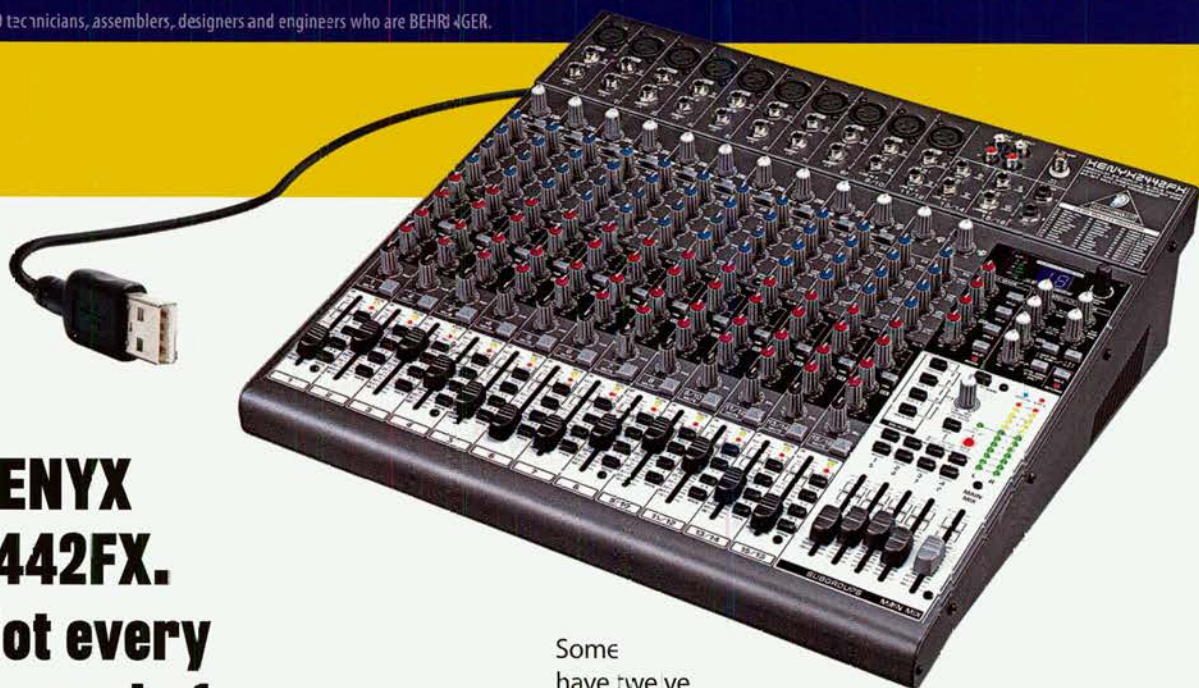
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buses. Five to
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Roger Davies, and he is responsible for the show design which includes lights and video. The set was designed by Mark Fisher, and has three video screens divided into sections at the rear.

Video is a big deal for this show, and it comes from one place which is vision control in two ways. Two i-mag screens carry the final video mix known as the TX (transmit) mix. This is cut from cameras around the stage and venue.

Sometimes the TX mix or another feed from vision control is sent to the on-stage screens, these are driven through High End Catalyst, and cued by Pink's lighting director Trent O'Connor (Australian, living in London). Trent shoots video packages out of Catalyst to each of the three onstage screens.

Much of the video content is custom produced for the tour by Olivier Goulet. Trent shoots clips from his Martin Max-xyz console, which drives all the 300 assorted moving lights and other fixtures.

The overall design by Baz Halpin was programmed by Baz and Trent in pre-production in the UK across two weeks before they headed for Nice (France) where the video and set elements were married together and the act rehearsed.

LIGHTS

Trent deals with 12 layers of Catalyst and calls 7 followspots as well as some set elements and inflatables.

He is a very adept operator, who started his career in a 12 seater bus out of Adelaide touring with Beyond The Darkside – a Pink Floyd concept show. "I had Martin Robo Scans and High End Trackspots. There was a crew of three, and I did monitors as well. I didn't get

XP RULES HERE

Chris Madden is a lone ranger in terms of his Dell laptop. He has a ProTools Windows rig, so he does not use a Mac like almost everyone in show biz.

He's amused by Applephobia. "When the i-Phone came out, all the crew lined up to buy one then said 'it's OK, version 2 will be better!' We even had one catch fire in the tour manager's pocket when his keys went down the slot and shorted it out. Actual real fire. In his pocket!"

At FOH Chris has a Pro Tools rig in a rack to record his shows, like many engineers. His is one of the few Windows based systems, running XP. He's recorded over 300 shows without incident, and currently records over 80 tracks, each night.

"It isn't hooked up to the web, it is never upgraded, and it never stops", he says.

CX are committed Mac users so we come to accept Apple's cunning continual updating ploys where our arsenal of Mac's update themselves online then demand new operating systems when Apple release a major upgrade.



Chris Madden, FOH engineer.

Chris tells of outfitting a Mac based studio in the UK with continual hassles with interface of hard drives and authorisations.

paid for two months", he says.

After working his way up through Staging Connections, Jands and Bytecraft he worked with Powderfinger and then relocated to London in 2004 and went straight to work on Lord of the Dance. Joining Pink several tours ago, he's done all kinds of shows using all kinds of rigs.

"I used 11 different consoles on a festival run", he says, "and only met my match when I encountered a Compulight

console". He is capable on Avo, Grand MA, Hog 2, Hog 3, and now is keen on the Max-xyz which is on this tour. "It clones over real well", he said, explaining that if you have 69 Coemar Infinity moving heads (he and Baz like these units and use them on Pink) and arrive somewhere to find 69 SGM Giotto 400's, the Max-xyz will match up their features line by line and resolve a substitution.

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big plus according to Trent, made possible by the reality that Martin are a manufacturer of moving lights who logically should know the features of all of their competitors. He showed me page upon page of manufacturers of fixtures, clicking on any will drill down to a list of seemingly all of their devices.

"I had a 10k Syncrolite in the rig that wasn't available in Dubai – I got there and there was a new Alpha 3000 profile and my desk didn't have it. So I phoned them up, and had it fast".

Meeting new crews and new equipment is fun. In South Africa he noticed the Mac 2000's had their pan out by 90 degrees. Turns out they were Chinese copies.

When on the festival run, he says he needed around 6 hours to program a new console for that show. Talking of hours – he arrives about 10.30 on a setup day to help his crew, led by Roy Hunt. "I position the consoles, help out where needed. Most of us on this tour can multitask."

UP CLOSE

Pink needed a new microphone because she goes aerial and spins around. She didn't want a Madonna Shure mic, and a Countryman or DPA would either fall off, and/or were omni directional.

"Thirty percent of the show, she is in front of the PA, on the B stage", says Horst Hartmann the monitor engineer. "So feedback rejection is a big deal". Chris Madden (FOH) confirms, "High end feedback is really strange", he says, "there's a point in the show where she takes off her gloves and to do it puts the mic on a stand. Sometimes it can take off



Horst Hartmann, monitor engineer with prototype AF 5000.



Trent O'Connor LD and Baz Halpin designer.



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View from the stage.



Richard Young and Roger Davies.

out of nowhere. It's really strange".

To overcome the headmic issue, Sennheiser built a prototype cardioid pickup pattern side address mic on a wire that fits over one ear and positions the mic just in front of the mouth. "You need to measure the distance exactly – there is six db difference in gain between here and here", he says, pointing from the side of the mouth to the space just in front.

The prototype is glued down to the stars face using a surgical tape which has a matt external side, suitable for makeup to disguise it. Trial and error has produced a solution where Pink is now close mic'ed with a miniature solution that doesn't shake out of position.

When not in the air, Pink sings into another prototype, this time a hand held wireless mic on a Sennheiser 2000 series transmitter. This has a MD 9235

dynamic capsule, chosen after trial and error showed that a condenser may be more susceptible to feedback in front of the PA.

Horst rides Pink's mic channel on a DCA fader in the middle of his Yamaha PM1D. 'She is everywhere and up on the drum riser, there are wedges on stage and she can point the mic there.' He has line of sight with everyone except one keyboard player, from his position on the floor at stage left. "I like it down here, makes for faster in and out as well."

It's busy at the monitor console with 44 mixes generated.

There's 8 wedge and sidefill sends, essential for the dancers and also for the star who chooses to wear one in-ear monitor. Then there's 12 ears, which add up to 24 mixes since they are stereo. 2 spares and a couple of subwoofer sends

make up all the active mixes.

Then there are the communications microphones. Horst needs to be able to talk to various crew members, they need to be able to talk to him. There are 8 channels of microphones around the stage, each mic has a switch on it. Different mic's route to five different matrix outputs. "My desk mic is mix minus, so I don't hear me in my monitor and make me feedback when I'm talking to someone", Horst says.

"I use the PM1D because it has outputs for days, and it's very reliable. Plus there are 48 faders on two layers."

Being down at floor level, the monitor console and racks can all be wheeled in place. The stage itself is portable, so a setup day sees different parts of the floor area busy with departments that can be shifted into place. Monitors roll at 12pm, when the stage goes under all the rigged lights and flying gear.

Horst wanted to tell me more, about his Ultimate Ears, about the AF 5000 wireless circular antenna system, and I'm sure about how excellent life is in general. I had to move along. Great guy.

12 TRUCKS AND THE REST

ATS Logistics did the road transport around Australia. Local crew toured from TDC, Bytecraft and Jands. The personal flying system came from Aerial Rigging Technologies. Brilliant Stages built the stage and the set. XL Video were the primary video contractor.

Australian Kate Paul is the world wide touring chef. Great gig! And the food was nice too, CX appreciates being fed – doesn't happen too often at a show.

PRG was the primary lighting contractor, they have a close alliance with Bytecraft. Clair Brothers likewise are the audio contractor and they've been close to Jands for thirty years.

On the road Garry Brokenshire is the promoter's rep in Australia, he co-ordinates local logistics with Richard Youn, the touring production manager for Pink. Richard is assisted by Jillian Aram.

Stage manager is Brian Wares, and there were four backline tech's.

Finally, the most telling words we heard all day came from production manager Richard Young. "I question everything, and leave nothing to chance. It might rattle some suppliers some times when I'm asking about the tiny detail of connectors and how the truss will stack in the truck."

"But you never know, ideas come. We can always do it better." **CX**

JIMMY'S SHOW PERCEPTIONS

The whole show is engaging. It's clever how even with very minimal set changes, the look of the stage and the show shifts so many times and ways. Some elements like the acoustic section have a very clean and simple look – costume being jeans and a t-shirt. Other elements run from period dress with black and white imag, through to quite raunchy (The Diviny's "I touch myself" gets a good cover), and of course punchy, colourful and fun. Everything flowed, and it all felt real. I think the venue suited the show really well too – there was a sense of intimacy between the performance and the crowd, and on such a large scale that's quite an achievement. I get the impression size isn't a much of a problem for Pink. The aerial performances are nothing short of impressive.

To me the measure of a good show is one where you don't notice the technical production. Happily enough, on a technical level I have nothing but praise for this gig – the performances backstage and out front came up to the same level as the one happening on-stage. Special



Acoustic section of the show.

props to audio and lighting – the mix was good all night and the PA suited the venue. Attention to detail is everything, and it wasn't lacking. The lighting looks

were sympathetic to the show, and even the follow-spots were on it (as a punter, a dodgy spot op kills the gig for me). Awesome experience, I loved it.

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NEW HOME FOR NOVATECH

Since they started up in 2001, Novatech have been expanding at a rapid rate. Now their move into a substantially bigger facility gives them the space to keep following their current path.

By ANDY MACKENZIE

THE BEGINNING OF NOVATECH

The story of Novatech is really the story of the Novakovic brothers. Leko and his younger brother Milenko seem to have gone into things together throughout their lives. Leko is the older by 18 months, and the way he tells it he's been looking out for his little brother ever since they left school. The Novakovic production story goes back a lot further than 2001 – after doing some work in the DJ field, Leko was lucky enough to land a job operating the hire department at Derringers Music, then later on moved into a production role at Heaven Nightclub (then one of the biggest clubs in the country).

In each case, Leko tells me, the deal for the employer was the same: ‘..hire me, you hire my brother as well’. This kind of approach seems typical of the brothers – you want something, you make it happen.

Over time, the two started building up work outside the club, and found that they were able to build up clientele quite quickly, especially in the corporate market. “Back then, corporate in Adelaide basically meant a couple of fresnels and some little speakers on stands – maybe a screen if someone had to do a presentation. We took the rock and roll, nightclub look into the corporate market, and found that you didn’t need to do anything remarkable to do good business.”

BUILDING THE BUSINESS

Back in those early days, Novatech was based on subhiring equipment. But growth was rapid, and some smart acquisitions were made. The rapid expansion was made possible by a few factors “..some really good subhire





The office facilities include a slick boardroom.



arrangements, plus the European thing of living with our parents meant we could put everything we made back in. And we worked bloody hard."

"We bought some older moving lights really cheap and fixed them up. They're still working today. Corporate clients back then didn't mind - they did gobos and colours and gave them the look they wanted, they weren't worried what kind of light it was. It's different when you're supplying a rider."

It wasn't long before there was too much work on to allow them to continue the nightclub work, so the Novakovics bid Heaven goodbye and got on with the job.

The first Novatech premises consisted simply of a storage unit, but it was fairly rapidly outgrown and about three years ago the company moved into the rented Mile End warehouse that was to be its home until early this year. It only took a couple of years to outgrow that, and it was becoming pretty clear that a move was on the cards. "It really wasn't big enough - it was hard to get at things, we had stuff in shipping containers out the front because we couldn't fit it all in - but we didn't want to move unless it was going to be long term. The new place is really big, seven times the size."

ROOM TO MOVE

He's right. It is really big. Spaciousness is the order of the day throughout the complex. The offices are large, comfortable and nice. Everything is freshly carpeted, painted and finished out here, mostly by the Novakovics and their staff. "Everyone's been involved. We've been painting, fixing the place up... everybody's done their bit."

And apparently there was a lot of work to do, some of it more difficult than other bits. In the big warehouse space, previously full of big commercial print machinery, there was a whole lot of work waiting. Milenka takes up the story "There was a suspended ceiling all the way across here at about half height, all full of fluorescents for the printers to work by. That all had to go, and we had to raise the air conditioning ducts so



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Leko out the front of the new place.

now it's five metres clearance all the way through, including the roller doors, so we can pretty much get any truck in here."

"Then there were these big concrete slabs in the floor, raised above the floor, where the presses used to be bolted down and we needed those to go. So we got this guy who came and had a look and said no worries, then came back with a little excavator with a hammer bit and it went takatakatakataka for about an hour and made a hole about this big [uses hands to indicate something about 10cm across] and we're saying 'Dude, I don't think this is going to work'. And he left, and we never saw him again.

"Then another bloke came, and he brought a twelve ton excavator, which he said was going to do the job easily and it went takatakatakataka for about an hour and made another little hole. He gave up and left too.

"Finally we got a guy who came in and looked at these slabs and said 'These are the same as the ones they bolt jet engines on to test them so they don't blow away', but he said he could sort it out. He came back the next day with a twenty-two ton excavator with this massive rock breaker on the end and just smashed it all to bits.

"Then we just had to concrete up all the holes before all the gear came back from the Big Day Out tour"

GETTING THE JOB DONE

The approach of getting their sleeves rolled up and doing things themselves seems very typical of the Novakovic approach. The morning I visited I found Leko slightly bleary eyed after a bump out the night before and Milenko in the workshop, cheerfully soldering up multipin connectors – and making a



Head of Audio James Sacca.



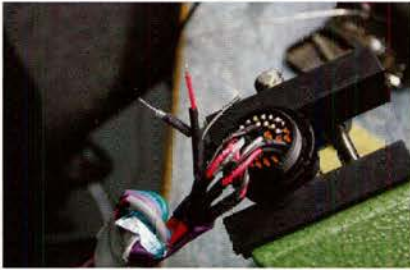
Business Services Manager Hamish White.



Milenko (left) and Head of Service Brad Rogers in the workshop.



Renae at reception.



Novatech build all their own looms, and they do a very thorough job



Drive racks include redundancy for everything



Packaged racks means only hooking up a few multipins instead of piles of XLRs. Faster, and less chance of error



Storage is organised, so little need for searching

really good job of it too. Novatech make up all their own looms to make sure they get exactly what they want – multicore systems, power distribution systems, whatever. They even have people who do the metalwork for them so their breakout boxes are exactly the way they like them.

Not only does this approach mean they get what they want, they can also quite often do it for a better price. When the

quote came in for putting guard fencing along the back of the new building, it was enough to send the guys out looking for second-hand fencing, which they found and installed for a fraction of the quoted price. Not that they're afraid to spend money if it's going to get a better result – the three huge roller doors into the warehouse are top of the line units.

The purchase of the premises itself is another example of the frugality of the Novatech approach. The place was up for sale by the bank after some problem with the previous owners. With the bank under some time pressure and the Novakovics under none at all, they were able to squeeze the price down to basically land value, allowing them to keep the debt to a manageable level. The fact that the place is big enough to rent out a large section of the southern wing without compromising their own use of the space makes it that much easier.

Leko's happy about keeping debt down – he's got something of an aversion to the idea of carrying a lot of debt and says Novatech are careful with things like leasing equipment, never having more than a couple of leases on the go at a time and paying them out as quickly as possible.



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WHO'S WHO AT NOVATECH

When I ask him about staff, Leko is keen to tell me how important their staff are and how much effort goes into finding and keeping the right people. Giving credit where due, here's a list of the key people who keep the Novatech ship afloat.

Milenko Novakovic	Technical Director
Leko Novakovic	Managing Director
Marcus Watt	General Manager
David Lewis	Operations Manager
Renae Novakovic	Administration Manager and Sales Support
Anthony Vade	Marketing and Sales Manager
Hamish White	Business Services Manager
James Sacca	Head of Audio Department
Tim Bormann	Head of Lighting Department
Omar Fairly Cisse	Head of Vision Department
Brad Rogers	Service Department Manager
Stuart Mason	Venue Services Manager and Warehouse Assistant

GEAR TO GET THE JOB DONE

This seems to have worked in terms of amassing an impressive collection of gear. Even though it doesn't look like a huge amount of stuff sitting in the huge new warehouse space, there's a lot of it there. In the audio department are neat rows of L'Acoustics speaker cabinets in a range of sizes and shapes – over 220 in all. There are amp and processing racks to suit, along with a selection of consoles, both analogue and digital, to suit most tastes. Lighting is strongly Martin flavoured, with a collection of Mac 2000s and 700s along with various other effects devices sharing shelf space with the usual conventional lighting fixtures.

Novatech have identified the demand, particularly in corporate work, for a 'single source' production company – one that can supply and deliver all the requirements of a production. In order to meet this demand, they've invested heavily in vision as well as lighting and sound. Their collection already includes plenty of projectors and drive gear, and plans are afoot to beef up the vision inventory for the coming summer with over 200m² of 12mm pitch outdoor LED screen panels.

The new screen panels are likely to be configurable in several ways, since a big part of the brothers' approach seems to be the effective packaging of systems. As they cheerfully point out, anyone can buy a whole pile of gear but it isn't the gear that makes money – it's the systems you can build with it. "You might have a hundred Kudo boxes, but if you've only got one console you've only got one system. It can be a big system, yes, but you can still only send it on one gig at a time. We're set up to put out five or six serious systems at one time."

SYSTEMS, SYSTEMS, SYSTEMS

The systems approach comes through in the way the whole place is set up. All the racks are preloaded and standard – for a given audio system you know you need a certain number of amp racks, a certain number of processing racks, and a however many speaker loom packers. Wheel it all into the truck, and off you go.

Everything is packaged like this. Radio mic systems come in racks with drawers. Each rack contains its quota of receivers (2, 4 or 8) along with the same number of hand helds, belt packs, lapel mics, batteries and so on. In other words, everything you could conceivably need to operate the system is in the box. Where there are potential critical failure points in a

rack, there's redundancy built in – two Lake Contour processors in each system processing rack means that if the primary one fails, the system's still usable.

The packaging continues into things like cables and looms. You're going on a lighting gig. Instead of wandering through cable racks picking quantities of three and five pin DMX cables, just take a DMX packer. Each DMX packer has a standard load and represents more than enough to do most shows. If you're on a really big show, take two packers. It's not hard to make sure all the leads go back in the right case because each caseload of leads is colour coded. The same goes for mic leads, power looms, safety kits and pretty much everything else. It means holding more cables and such in stock, but it dramatically reduces labour and mistakes in prepping shows.

All the racks, packers and everything else get checked and counted on return

from each gig before being sealed with a 'ready' tag – so you don't need to check before the case goes in the truck, because you know it contains what it should. The standardization of cases also increases the likelihood of gig crews noticing if anything is missing while bumping out.

PLANS FOR THE COMPLEX

So that's what's in the warehouse. What about the rest of the place? I've already mentioned the nice office spaces, and they're not full yet, so there's room for expansion there. There's the nice clean electronics workshop where I found Milenko soldering and next to that is a large open area which they plan to use for large scale servicing/testing as well as 'clean prep' for consoles and so on. Off this room are a number of smaller ones – the staff lunchroom is already there,

the warehouse manager's office and staff lounge are still under development.

Out the window you can see a little courtyard. This is earmarked for a staff recreation area with a barbecue and other such niceties.

The new Novatech setup is impressive. The Novakovics have come a long way in a short time and they've worked hard to build one of South Australia's biggest production companies. With the opportunities offered by the new space it's pretty clear that the upward trajectory is likely to continue. Through all this it's obvious that the reason they keep going is because they love what they do. When Leko suggests lunch, Milenko declines – he needs to get back to his soldering – and Leko spends lunch talking animatedly about shows before delivering me to the airport and heading back to work. CX



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By RICHARD CADENA

I received a call out of the blue today from a banker wanting to do business. It took me by surprise because never in my life have I been solicited on the phone by a banker. Until about a year ago they were doing so well that they were putting banks on three out of four corners of every intersection. Up to that point, if I wanted to do business with them I had to jump through three hoops just for the honor of paying services fees on top of transaction fees. My, how things have changed. Bankers are not exactly selling apples and pencils on the street corner, but when they start making cold calls looking for business I'm thinking that perhaps a new day has dawned.

The bankers have remained fundamentally unchanged. They still ply their trade in their glass buildings wearing the same three-piece suits that Charles II invented in the 17th century. They still use the same tools and same technology, and they cater to the same customers as they did last year. They haven't changed; what has changed, however, is the world

around them.

It's a good thing the world of live event production hasn't changed at all. It's not like we're seeing new technology changing the production landscape every day, you know, things like LEDs, networking, wireless, media servers, pixel-mapping... Well, okay, maybe it has been changing a little bit. Now that I think about it, it really has changed a lot in a

“ Rapid changes in computer technology, which is enabling many of the changes we're seeing in a variety of other technologies, portends rapid changes in production technology. ”

very short amount of time. Last month I attended an industry trade show and I was shocked to find just how much it has changed since last November when I attended LDI.

Much of the change has come in projection technology. One of the new developments in projectors is called “lampless” projection and it uses LED

light sources. Like the time when banks were building new branches as fast as they subsequently failed, the appearance of LED projectors is an indicator of how fast LED technology is moving. Granted, these projectors only output 700 ANSI lumens – for now – but the fact that they are being used for projection at all is quite a statement. That's just one of the changes. 3D projection has also improved in leaps and bounds thanks to lots of research and development. So have contrast ratios, blurring, resolutions, and more.

What does all of this mean to you as a lighting professional?

Rapid changes in computer technology, which is enabling many of the changes we're seeing in a variety of other technologies, portends rapid changes in production technology. We're moving from a primarily hardware-intensive industry to a software-intensive industry. If you think you're going to enjoy a lucrative career repairing LED lighting products, think again. The newer technologies are basically disposable hardware since the cost of repair almost

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equals the cost of the product itself. Instead of paying a tech to repair gear, hire companies will more than likely pay for new gear and place the old non-functional gear in the rubbish bin (or to be more environmentally correct recycle it).

Production technology of the future will have fewer moving parts – no color changers, reflectors, secondary lenses, gobo changers, or external dimmers, fewer motors, belts, gears, motor drive chips, and A/D converters – and the techs of the future will need a whole new body of knowledge and new, different tools. This is nothing new.

Before the days of memory consoles, many electricians could do their jobs with only their hands. They physically moved dimmer handles and they could monitor dimmer levels by observation. It helped if they understood electricity but they generally had little or no knowledge of electronics.

When memory consoles came along then manual dimmers were replaced with electronic dimmers. Suddenly we needed voltmeters and an understanding of electronics to maintain, troubleshoot and repair lighting systems. Those who could adapt to the new technology kept their jobs and those who couldn't either left the industry or found positions that were less mentally demanding, like pushing road cases or soldering cables.

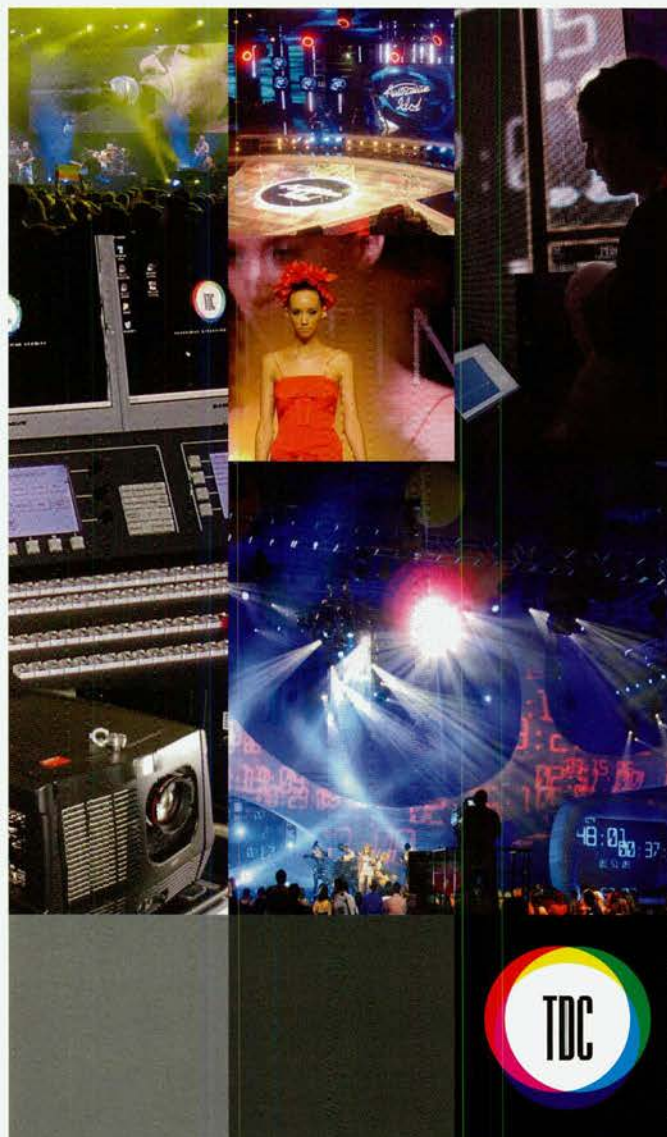
Since the advent of DMX512 in 1986 and the introduction of digital electronic controls we have a new vernacular, new tools, and a new body of knowledge. A voltmeter or multimeter isn't a reliable troubleshooting tool any more. The operating frequency of DMX512 control signals is too high to reliably measure the integrity of a data cable with a continuity checker. Only a tool made for testing high speed digital data can positively distinguish between good data cables and bad. They typically send and/or receive a DMX512 signal and some even take snapshots of the output from the console and compare it to the input at the receiving device. These devices can not only tell you if the data is being received but they can also tell you how much signal degradation is being introduced by the data link.

Today, lighting manufacturers are hard at work upping the ante on the software end of production technology. Many lighting and video systems being built use a combination of DMX512 and Ethernet to distribute data through the network. No longer will a DMX512 tester be sufficient for a lighting tech to fully maintain, troubleshoot, and repair data networks. Today's lighting tech, like the ones during the advent of electronic dimming, face new challenges, new technologies, and new tools for the job. A tech in today's live event production world might do better to understand IP addresses, the 5-4-3 rule (no more than 5 segments, 4 hubs, or 3 coaxial segments and a maximum distance of 1.5 km between any two nodes), and MAC (media access control) addresses than to know how to use a soldering iron. Tomorrow's tech may be more likely to terminate fiber than to use a rack of dimmers.

The new production tech speaks a different language and has in her vernacular such terms as "slot" instead of channel, "node" instead of controller or luminaire, "gigabit" instead of Kbaud. The new production tech uses different tools that might include hubs, routers, switches, and bridges. When a data network needs to be maintained or repaired, the tech is just as likely to use a laptop loaded with specialized software as to use a tool on a belt or from a tool box.

If the post-Madoff era has taught us anything, it's that we have no control over the events around us. What we can control is how we deal with the changing world around us. And changing, it is.

Email the author at rcadena@austin.rr.com before something changes.



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Back when I were a lad...

Things was different. The origins of this photo are lost somewhere in the swirling mists of time, but we think it was taken at a Sydney show, circa 1976. Looking at the photo stirs a lot of memories of the way things were...

By **ANDY MACKENZIE**

There's a whole lot of things that have changed. For a start, everybody had hair – plenty of it. The option of sucking on a can of KB draught beer while you worked was considered a reasonable one, as was having a smoke in the workplace. Alternatively you could go the responsible road of a pop-top can of 7-Up. But those days are gone. No more KB, no more pop-tops.

There's plenty of technical stuff that's changed too. How many people do you reckon would have the nerve to head of on a monitors gig with a four-bus console these days? Not so long ago I heard someone moaning that a new console

was no good for monitors because it only had 16 auxiliary busses. The Yamaha PM1000 in this picture had four group busses and a 4x4 matrix. And if you look closely, you notice they're only using three busses. Round this time it was common to run three sends – drum fill, side fill, and all wedges.

Then there's the amplifiers. They look like they're probably out of the Phase Linear stable. Phase Linear amplifiers were brilliant pieces of gear...for their time. Four rack units high with a seriously heavy linear power supply on board, some of them were capable of supplying upwards of a hundred watts!

And microphones – how about them? You can see one sitting on the console wearing an excitingly shaped windsock.

Apart from blocking the wind a bit on outdoor gigs, the windsock offered a little protection when some pillock dropped the mic. The other benefit was that you could make a bunch of matching mics look like a bunch of different kinds of mic just by using different shaped socks. Devilish cunning. So what's inside this one? Who knows.

The one obvious thing that remains unchanged after 30 years is the Beyer Dynamic DT109 headset. These things have been a mainstay of comms systems ever since and, to the best of my knowledge, the design remains the same.

So there you go. A little wander down memory lane and maybe a gentle reminder that sometimes simplicity works.

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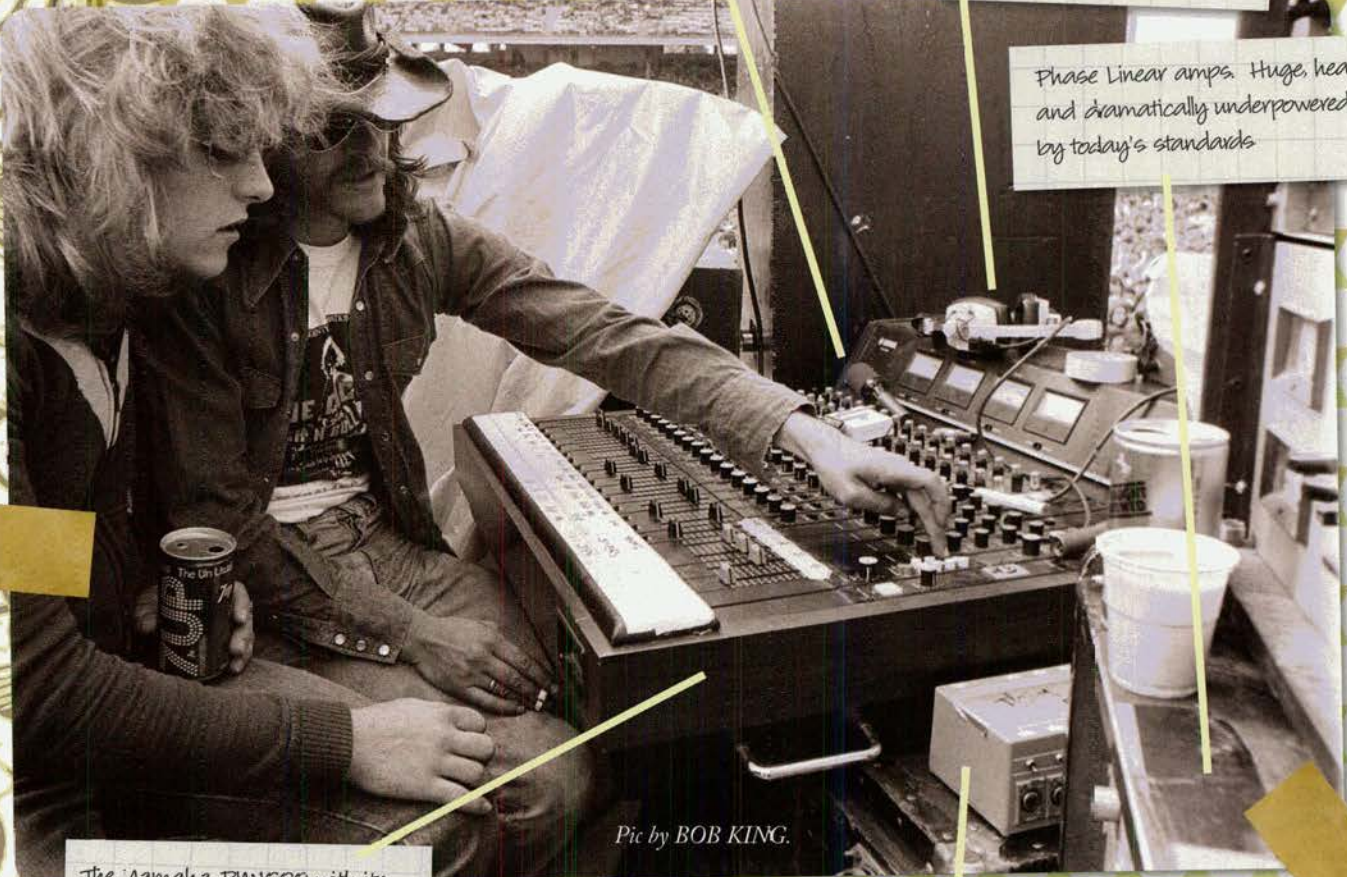


THE OLDEN DAYS

Which mic? Who knows? The windsack makes it anonymous

Beyer Dynamic's DT109 comms headset - unchanged after more than 30 years

Phase Linear amps. Huge, heavy and dramatically underpowered by today's standards



Pic by BOB KING.

The Yamaha PM1000 with its four busses, 3 band EQ and 4x4 matrix was high-powered hardware

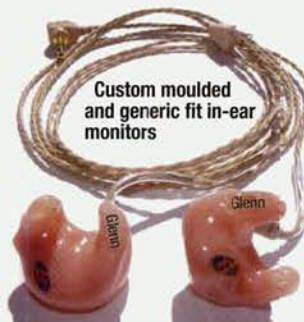
What's this? I dunno. It might be a phantom power supply, but the PM1000 was a flashy console with onboard phantom

"I write songs that ask for extreme shifts in dynamic and volume..."



"Everything in between needs to be heard if we're to pull them off in the live realm. EMA in-ear monitors actually do all of the things I've always felt were missing from other units. We hear each other as much as we want or need to without losing that important sense of being attached to our environment. I don't have that awful sense of being trapped in my own skull with no awareness of what it is anyone out in the audience is hearing. Also nobody is fighting for audio real estate up there anymore. Pretty important stuff."

Glenn Richards Aug 16 March



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EAR MONITORS AUSTRALIA

HOW MUCH POWER FOR THE PA?



"I was out with 3 Days Grace, doing a show in Jacksonville, when in the middle of Papa Roaches set, the generator lost a leg.... as in it broke. They had only made it through about half the set, and had to cancel the rest of the show".

"Sound outage - I had one with The Killers last summer. Headlining a festival and lost the entire PA a few songs in for about 5 - 10 seconds. Then next song same thing again. Turned out to be a bad UPS on my D5 rack".

"About a month ago, I was at the Astoria when the monitor desk went up in smoke causing the gig to be cancelled half way through".

By **JULIUS GRAFTON** with
ANDY MACKENZIE

No one has fun when the show stops, and power outage is the number one reason for an unscheduled stop. No major audio company wants to admit it, but system failures DO happen.

Some examples: Encore of major international act at Sydney Entertainment Centre. Outdoor concert at Darling Harbour. Outdoor concert at Melbourne Cricket Ground. Three different failures, three different companies. Always very bad reaction from the act who are hung out to dry. Then there was Bruce Springsteen on his last Australian tour, left humming the melody as the generator died.

What about when the system drops out on the most important man in the free world?

Barack Obama had an audio problem at the White House Easter Egg Roll event. White House Communications, a.k.a. WACA was in charge of the presidential remarks from the balcony of the White House, and had their own mics, mixer, and P.A. system for this event.

All of their gear, including power amplifiers, were plugged into a single UPS! As the President started his opening remarks, the system consumed more power than the UPS could supply. Needless to say the UPS went poof!

All in all, the President handled the situation very well using a bit of comedy to lighten up the situation. The Presidents daughter Malia was the first to discover that the mics were back on which got quite a cheer from the crowd.

Power is everything.

HOW MUCH DO YOU NEED?

Look at the back of the amplifier, and you'll see the rated mains consumption expressed in amps. If you provision the maximum power consumption, you may run out of mains. There are amplifiers out there that have 20 amp breakers. Do they need 20 amps?

A tech story about this would get complicated and boring very quickly, so we should stay in the real world.

Crown calculate their I-Tech 12000HD (capable of 6,000 watts per channel, at 2 ohms, from a 20 millisecond burst of audio) would require about 8 amps of mains at normal operation. But normal operation isn't 6,000 watts per channel. They specify AC current draw at 1/8th power pink noise, which is typical



program material just at clip.

If the program is running very hard, with severe clipping, the power requirements for the same amplifier rocket up to 18.7 amps of mains. Both these examples are at 4 ohms per channel which is average real world use of a concert P.A. amplifier.

How much mains would I allow for this amplifier? Closer to 18.7 amps – and at least 15 amps, since that is the nearest multiple to fit an outboard circuit breaker in my mains distribution system.

HOW MUCH DO THEY ALLOW?

Most Australian concert audio providers doing arena work typically allocate 50amps of three phase (180 amps) per side plus another 60 amps of 3 phase for monitors. This is all usually fed from a 200 amp supply of 3 phase.

When you venture outdoors into the realm of the largest shows, the mains draw is more likely to head up to around 300amps per phase. That amounts to 900 amps, or 90 x 10 amp circuits.

If run from a generator, an extra allowance needs to be added. Typically a 250KVA unit is specified, and this can be negotiated downwards to 150KVA if the client is prepared to waive any claims for failure.

When I started Australian Monitor we had one product, at the time a monster amplifier (the AM 1600, more than 1,000 sold) delivering true 800 watts per side into 4 ohms. This was the physical limit of the technology, and each amp had a rudely heavy toroidal transformer which charged two massive capacitors. That was the (heavy metal) power supply.

It was all good in field testing but on the road reports surfaced of the amps throwing circuit breakers in venues. Transpired the mains inrush was too wild as the toroidal was sucked dry by the capacitors. A slow start circuit was cocked up to switch-in the secondary stage of the transformer once mains had arrived.

Most amplifiers behave at turn-on, but it is good practice to progressively switch on amps rather than bang on all the racks at one time.

NEW-V- OLD

The amplifiers do the heavy lifting in any audio system, and the mixing consoles plus racks full of effects and processors draw relatively little mains current. With more digital devices employed, more racks are powered through an Uninterruptable Power Supply (UPS) which switches a heavy duty battery and inverter into play when the mains has a hiccup or stops. Our earlier examples involving Barack Obama and The Killers shows that the UPS itself is a new item on the risk list –

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Frequency Response	70 – 20,000Hz		60 – 20,000Hz	
Directivity Angle	Horizontal: 90°, Vertical: 40°		Horizontal: 90°, Vertical: 40°	
Speaker Component	Low frequency: 30cm (12") cone-type,		Low frequency: 38cm (15") cone-type,	



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overload it and the breaker onboard will fail, and let the unit get too old and the battery time will tank. We always recommend stress testing each UPS on a regular schedule.

Until recent times, one 10 amp supply was adequate for all the devices at the front of house mix position – and that included the talkback and lighting desks. Now days several 10 amp supplies are required at front of house, and also at stage monitors.

Peter Ratcliffe is the director of audio systems at Jands Production Services, Australia's oldest production company. He knows more about show power for audio than anyone else, and should be proud that JPS has very few in-show shutdowns. JPS are known for great caution with power.

“Old amps need more juice – switch mode need less. But if you are running at 40 degree heat all day long, one 30 amp breaker supplying 2 Crown amps will probably blow.”

He makes the point that amplifiers driving the low end of the system need more power than high end, and suggests that amplifiers being used for bass should be fed from a supply with the capacity to deliver 100% of the amplifier's rated output, falling to 66% for midrange and 33% for highs.

Steve Caldwell, Technical Supervisor at Norwest Productions says “as a general rule of thumb, we allow 10 amps of current on the 240 line for each Labgruppen FP6400 amplifier, and 10 amps of current for each Labgruppen 10,000Q amplifier, depending of course on the load each amplifier is driving, and its intention. That equates to just over 2000W per amplifier. Remember this is thermal averaged power, and has nothing to do with the amplifiers power output.

“A more critical calculation is as follows:
 “Allow 50Amps for a rack of 6 fp6400 amplifiers (2000W/amplifier x 6 amplifiers = 12,000W / 240V = 50Amps)
 “Allow 35Amps for a rack of 3

10,000Q amplifiers (2800W/amplifier x 3 amplifiers = 8,400W / 240V = 35Amps)

“This is a very heavy duty calculation, and these amplifiers do not normally need this amount of power to operate under average conditions, however having said that, under severe conditions (like sending very compressed low end material, or tone) they can draw more. This calculation is based on an average level of 9dB below clipping (average program crest factor).

Crown show power draw for their top of the line I-Tech 12000HD amplifier as between 8.0 amps and 18.7 amps, depending on load. They say this 12,000 watt amplifier needs 8.0 amps when run at 1/8 power, pink noise. As luck would have it, 1/8 power translates to -9dB from rated output and 8 amps at 240V is pretty close to 20C0W, so the Norwest model for Labgruppen amps seems to pretty much follow Crown's model.

It's worth remembering that both these figures are derived from average signal levels and that in the real world signal levels leap around all over the place. This dynamic signal behaviour is the reason that -9dB is a sensible level to calculate around – it leaves plenty of headroom to allow short term transient peaks to get through without clipping the amplifier output.

The amplifier's power supply components go a long way to evening up the demand on the mains feed. Many of the components in the power supply – capacitors and inductors – are in the business of storing charge. When the output is at -9dB, the output power is pretty much supplied from the mains. When the output is lower, the mains goes to producing the output as well as topping up the charge in the power supply. When the output goes higher, the temporary increase in output current is dragged out of the storage components of the power supply.

The more power stored there, the more, larger and longer the transients the amplifier can keep up with. This is

why the linear power supplies in those old Aussie Monitor amplifiers had such enormous banks of filter capacitors. The approach in modern switch mode touring amps is slightly different, but the general principle is the same.

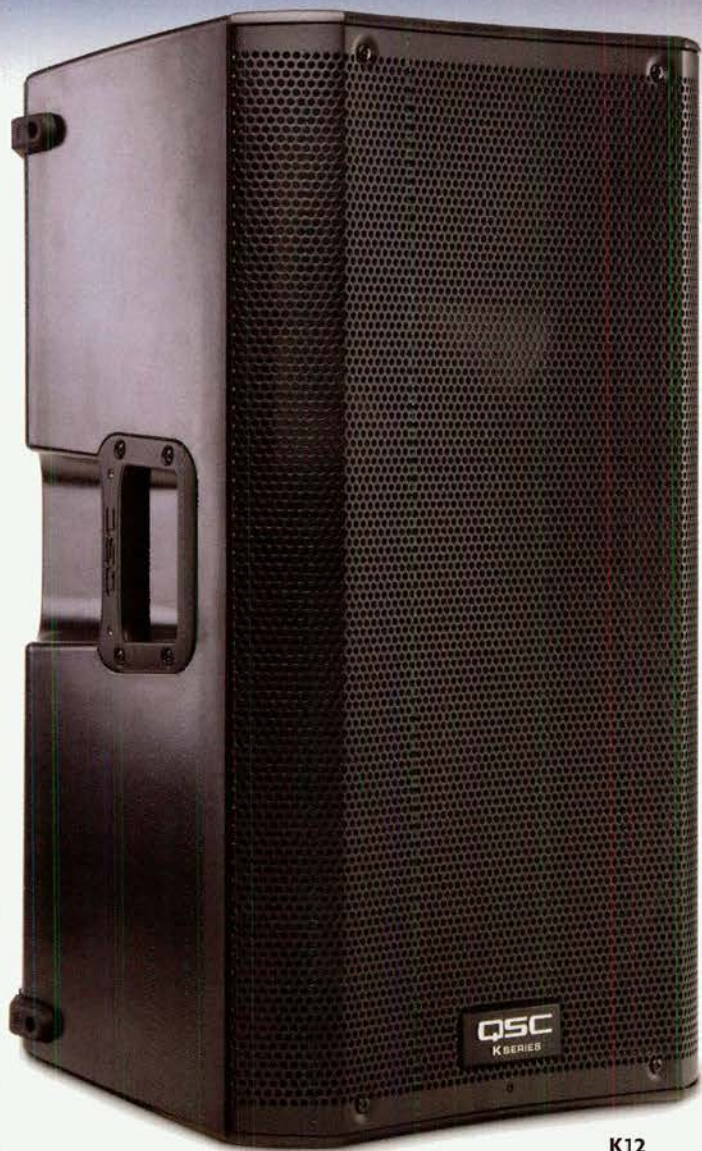
The 18.7 amp requirement example is when the amp is run at 1/3 power pink noise. This is an average output level of about -5dB and roughly equates to the kind of work the amplifier's doing if it's being used for subs. Why so much more power? The sub signal involves lower frequency, longer wavelength signals. This means the transients are much longer and drag the average output power up. This requires more power from the mains to allow for the fact that there's only so much that can be stored in the amplifier's power supply. Add in the fact that users are likely to be compressing their sub signals harder than the others, and you get even more skewing up of the average.

It's worth noting that the I-T 12000HD is a 12,000 watt amplifier mostly in name only, since it will deliver 6,000 watts per channel, at 2 ohms load, with a 20 millisecond burst. Pretty well all amplifier manufacturers now use this kind of rated power calculation to put the highest possible number on the front panel. In common use, the 12000HD delivers 4,500 watts per channel at 4 ohms. If you supplied 9,000 watts from the mains, you'd need around 34 amps of power. Crown says 18.7 amps is enough, which makes sense if you consider that an average power output 3dB below peak is about as small a dynamic range as you're ever likely to see.

When in doubt: have more power. When it's hot outside: have less load on the breakers. When it's a generator: overrate the generator.

Oh, and then there's Earth Leakage Breakers. Some people have been badly stung when a whole system turns off because one last minute instrument is plugged into one stage circuit. But that's another story.

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Join us as we travel backwards to review the way things were, back in 'the day'.

15 YEARS AGO: CONNECTIONS: AUGUST 1994

A lurid cover for Australia's Entertainment Technology magazine as it counted down the months until ENTECH 1994, the first trade show. It boasted 90 exhibitors, with seminars on the hour, tech tours and a bunch of social events including a harbour cruise and awards night.

YAMAHA LAUNCH PROMIX 01

This was our lead story and anyone who thought it wasn't a real moment in audio was dreaming. At \$5,000 it was genuinely cheap at the time, and it went on to pave the way for 02R and the whole raft of Yamaha digital mixers ever since. Yamaha priced the desk with a long view in mind, and that investment must have been repaid thousandfold by now.

TROY QUILTS CONCERTS

Troy Balance announced they would sell off their arena concert inventory in

Melbourne, and we lamented the end of that era. Those Troy guys are smart, they transformed family owned C.M.I. as a pro audio distributor on top of its serious musical equipment lines.

WE WENT

And saw the PALA trade show in Singapore, and the now defunct APRS show in London. It was the start of a long swim in the tradeshow pond, and 15 years ago these were the best way to see products. A lot has changed.

FAIRLIGHT

MFX3 was on fire, with the Sydney based firm exporting plenty of these 4 to 24 track audio editing systems. They had just launched the MFX3 Mini.

JANDS

Had an audio production business in Singapore, mainly tasked with supplying audio for lavish events hosted by the Sultan of Brunei. Transpires major American artists were flown in for a night, and cost was no object. Things changed a few years later when a relative of the Sultan went on the run, accused of various major bad things.

BARRY MANILOW

Did stick his finger in his ear, according to a letter we received about our story on what must have been one of the first

ever uses of in-ear monitoring on stage. "We switched back and forth between in-ear and speaker monitors for the tour with mixed results. In the end he decided he would continue with speakers until in-ears are more refined", said Ken Newman the FOH dude.

WOODSTOCK II was on this month, and as history will always record, it degenerated into a riot with one stage set fire. It became a case study in how not to run a festival.

HARRY M MILLER

launched the theatre tour of Jesus Christ Superstar just 2 years after the arena tour which remains the largest arena tour in Australian history. The theatre run didn't do as well, but still made money.

WHAT WE PAID:

- Martin Roboscan 805: \$8995
- Soundcraft DC 2000 studio console: \$50k
- Yamaha M2000 48 console: \$30k

10 YEARS AGO: CONNECTIONS: AUGUST 1999

Choosing a PA for the Olympics was our lead story, where Bruce Jackson invited auditions at a shootout at the Olympic Stadium. It was a fine day: V-Dosc

made its first appearance in Australia, Bose, EV, Jands and EAW all rolled out product. "It's not a simple thing", Bruce Jackson told us, and several weeks later Norwest won the gig with an EAW solution.

'Is Tape Dead?' read an advert from DigiDesign for ProTools. Heck yeah, tried buying a reel of 1" or 2" multitrack tape lately? Expect lamps to go the same

way as LED and PLASMA solutions remove the need for lamp replacement. We can't wait!

I can't believe he's 50! was the name of the John Farnham tour this year. Our lengthy production report carried a letter from a reader who felt the sound was not up to standard.

Job adverts ten years ago: Sales Rep, \$40k + car + bonus. Junior and Senior

tech's for Gearhouse Australia – now defunct.

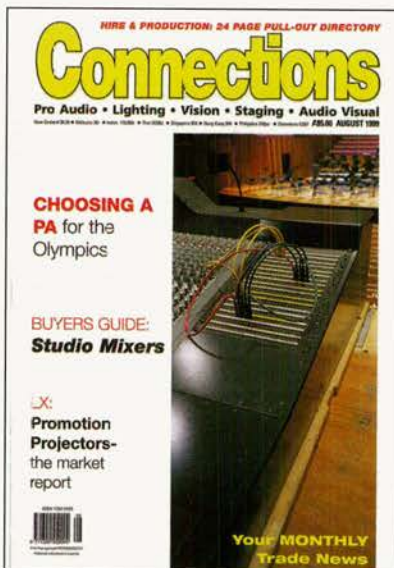
Favourite Gel Colour: This little box series proved highly popular. In this issue, Iain Reed from 32 Hundred Lighting revealed his passion for Lee 179, 'a gorgeous chrome orange which looks really nice on TV'.

Promotion Projectors were an emerging product push for lighting firms. Clay Paky had some solutions ranging from \$1,409 and at the other end of the category arch rival Coemar topped \$10k for their Focus EHP 2500.

CD writing was expensive – a CD burner for a Mac cost over \$1,000. Reader Dean Preston reported extensive hassles unifying Toast software with a Yamaha burner, and said that one in 10 burns failed. The cost of blank CDs was high as well. What we now take for granted was anything but granted back then.

WHAT WE PAID:

- Allen & Heath MixWizard 16 mixer: \$3,595
- Yamaha 01V digital mixer: \$4,195
- ADJ mini fogger: \$199
- Jands HP 12 dimmer rack \$3,684 **CX**



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By DUNCAN FRY

As I gaffer taped up the cracks in the steering wheel of my rice burner for about the third time, the thought struck me – the things we take for granted in the audio biz have a plethora of uses in everyday life as well.

The ubiquitous gaffer tape, for example. In a previous lifetime working as a car washer/detailer at Reg Grunt's Kilometre o' Cars, it used to come in very handy.

As an example, consternation reigned in the Detailing Dept one day, when a customer decided to buy a second hand Holden Gemini (no accounting for taste – or lack of it!) and wanted to drive it away right there and then.

A quick quality check showed that the glove box hinges were broken, and if you pressed the latch open the whole thing would fall on the floor!

"We can't sell it like that," yelled the foreman, "Fix it pronto!"

The detailers all clustered around, shaking their heads. "Have we got any hinges we could use?" they murmured amongst themselves, "I think we'll have to get a couple in – it's going to take a couple of days, but."

"Couple of days? Pig's arse!" said the salesman "He wants to take it right now, and I need the sale!"

"Leave it to me," I said, delving into

my toolbox and dragging out the trusty roll of Nashua

I peeled off a couple of lengths. One piece went along the bottom of the glove box, on the outside and holding it to the dashboard and the other piece went exactly opposite it on the inside edge. In this way the opposing glue forces held it together and in position.

"There you go," I said with a flourish and a final squeeze. "Good as new. That should last for a couple of weeks at least!" Or until I've left, I thought to myself!

Gaffer tape also saved the day when the complete fuel tank fell off its brackets on a rented truck while coming back from Sydney to Melbourne many years ago. Sending up a shower of sparks as it dragged along the ground, and held on only by the fuel line, I was glad we had hired a diesel, otherwise the first we would have known about it would have been a massive explosion, sending us cartwheeling through the air!

I also didn't feel so bac about disconnecting the speedo at Wangaratta on the way up!

I was discussing this 'everyday use' concept with Jason from Studio Connections at the recent Integrate 09 exhibition.

"I tell you what would be useful," he ventured. "You could use one of those round mic pop filters as a fly swatter."

"Hey, that's not a bad idea," I replied,

"As long as you remember to pick the dead flies out of it before the next session!"

I could just imagine the EEEEEUUWW scream from the next pop star wannabe as she backed away from the mic, her bright red lip gloss covered in furry black blobs of dead fly! Hmmm – makes me want to try it even more!

I've also been having a bit of trouble with the oil filled gas struts on the Suzuki rice rocket as well. You know, the ones that hold up the hatchback lid.

What kind of trouble? Well, I don't want to get too technical, but basically they're totally rooted! I opened it up the other week so find a big puddle of oil in the back of the car. That's a bit odd, I thought to myself, since the engine is in the front. What could be leaking oil from the back of the car?

With a sudden CLUNK the hatchback lid slammed down on the back of my head and shoulder, wedging me face down into the said puddle of oil.

Ouch. The struts had finally given up the ghost, leaked out all their oil and gas, and now hung there doing absolutely nothing useful at all.

Once I extricated myself from the jaws of death, I sat there wondering what to do? Well, I could get another pair from the wreckers, but they would be exactly the same age and condition as the ones I

already had, so what would be the point?

And new ones would cost me more than I had paid for the car, so that wasn't going to be an option.

As I pondered on this, my thoughts drifted to my 1970 gas-guzzler parked in the driveway at work. My weekend car, a 20 foot long, 8 litre chunk of Detroit's finest, known colloquially as Dunk's Big Throbber!

The bonnet on this thing weighs almost as much as the complete little Suzuki, but it never comes close to falling on my head! No namby-pamby gas struts here, though. A simple parallelogram hinge with a big spring in it on each side of the bonnet holds this giant piece of steel in the air all day without ever dropping. Manufacturing cost? About three fifths of sweet F A! Why can't modern cars have something similar?

All this pondering wasn't going to help me though, so as an interim solution I measured the height of the open hatch with a tape measure, then went down to the back of the factory and sliced myself up a strip of plywood the same length.

This wedged neatly in the opening, holding the lid up just fine.

All went well until one day I forgot it was there, and slammed the lid down, splintering the wood into several smaller



pieces.

Time for Plan B, except that I didn't have one!

And then the solution suddenly hit me as I opened up the back after a band rehearsal. The solution to my problem lay staring at me, gleaming in the sun in the back of the hatch – my Boilermaker mic stand!

As seen in the pages of the long gone Sonics magazine in the early 80s, it was advertised as 'the world's first \$100 mic stand'. A heavy, solid round base, with thick steel tubing and unmarked chrome plating, even after all those years of use. It was built like a battleship and weighed

nearly as much!

I found that I could stand it with the base on the floor of the back area, hold the hatch up with one hand, push the mic stand up until the rod touched the inside of the lid, then twist the locking clutch ring tight.

Bingo! Problem solved. And by leaving the rubbery plastic mic clip on the end of the stand, there's nothing to scratch the paint on the inside of the hatch lid.

Closing it is the reverse of the process, and it lays over flat in the back when not needed.

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Digidesign VENUE SC-48

Following successes with the D-Show and Profile consoles Digidesign have recently released the SC-48. It's very similar in form and function to the Profile console, the key difference being that the I/O cards are on-board – so you don't need a remote rack. This makes it a direct competitor for Yamaha's successful M7CL.

By **JIMMY D**

ABOUT THE CONSOLE

The SC48 is similar in size and appearance to the Profile. It supports 16 auxiliaries, 8 groups, 8 mono matrixes, as well as Left Right and LCR modes. All the I/O is in-built, and managed through "card slots" in the back of the console. There are six slots and the console comes with four of these pre-loaded - three 16 way input cards, and one 16 way output card provide 48 inputs and 16 outputs. Analogue and digital 2-track inputs and outputs, as well as talkback and headphone facilities and a bundle of included plug-ins round out the package. Sample frequency is 48kHz, and it will run off internal or external word clock.

The control surface is arranged in three banks of eight faders – two banks for channels and one for masters. The channel banks span several layers, however the console will only let you access the ones supported on your hardware configuration. Above the master bank are the channel parameter controls. Eight rotary encoders

look after multiple functions, and their action changes depending on which set of parameters you're modifying. Clear, easy to read labels show you what you're changing.

There's a VGA output on the back to connect an LCD monitor. Everything you need to see is there. The SC48 doesn't use a touch screen, but rather the more conventional mouse or trackball. There's a little metal platform that hooks into either side of the console for the mouse to sit upon, so it's good for lefties too. The screen also mounts on either side. An in-built firewire interface lets you use the bundled ProTools LE software to record performances. The on-board 48 analogue inputs and 16 analogue outputs can be augmented with optional output cards, which include analogue, A-Net, and AES/EBU digital. The SC48 uses the same system as the larger Digidesign consoles, so show files are interchangeable.

WHAT'S IT LIKE?

It's good. It's actually a lot like a mixing console. I've not spent much time with

the Digidesign consoles previously, and part of the reason for me doing the review was to see how easy the SC48 is to the un-initiated. It took very little time to get comfortable on the console – about 5 minutes. Everything's super intuitive. Want to label a channel? Select it and click on the channel name on the screen, then type a name in on the keyboard. The screen layout is divided into logical segments – inputs, output, patch bay, plug-ins, and so on. Things you need to find are all where you expect them to be. As is the case with many digital consoles, there's more than one way to skin a cat. Sending a channel to an auxiliary for instance can be done in one of three different ways (three that I found – there may be more).

The SC48 isn't the most complex console out there, but sometimes it's nice not to be burdened down with features you'll never use. A lot of consoles rely on having time to set-up inputs and outputs, and in some cases this can be quite time consuming. The SC48 seems easier – more like a "plug it in and go" deal.



Getting to functions is ridiculously fast and it sounds good. The bundled dynamics, reverb, delay, effects, and other plugins should prove more than adequate for most users, though you can always add more if the urge so takes you. Immediately to the left of the master bank sits the "flex channel" fader, which can be set to mirror any channel on the console for quick access to things like lead vocals and such. This stays active regardless of which layer is selected. You can also make individual channels on the fader banks "layer safe" so they stay on top at all times.

IDIOT PROOF

Not quite – though it's quite hard to come afool on the SC48. To do things like shut the console down you need to be in "config mode". You get there by pushing the button labelled "config" on the control surface. The LCD screen tells you how to get there, so it's not a case that the function is hidden – you just can't make it happen by accident. To reset the console there is a pair of buttons on the back panel – you need to push both at once to reset. I tried this to see what happened – everything came back up as expected.

There's an auxiliary flip to fader function, push the button and whichever auxiliary you've got selected on the master bank will show channel levels on the faders – so it's fine on monitor duty. At the same time, if you need to EQ a send, just push the appropriate band select button between the channel banks. The active send's EQ then shows on the channel fader banks. One thing I would like to see on this is a button to re-centre each frequency. I couldn't find a way to do this other than pushing the fader back to the centre position.

ALL UP?

Digidesign already had a good design with the E-Show and Profile consoles, the SC48 isn't so much a step up as a step across. It brings some new options to an existing market, and it does so competently. It sounds good and it works well.

The SC48 retails at \$39,995, and is available through Avid (avid.com).



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EAW MW15 MICROWEDGE

The MW15 was everything I didn't expect it to be. It was bigger and heavier – upon removing it from the shipping carton I took a moment to pause and wonder why it was called a Microwedge. I soon found out...

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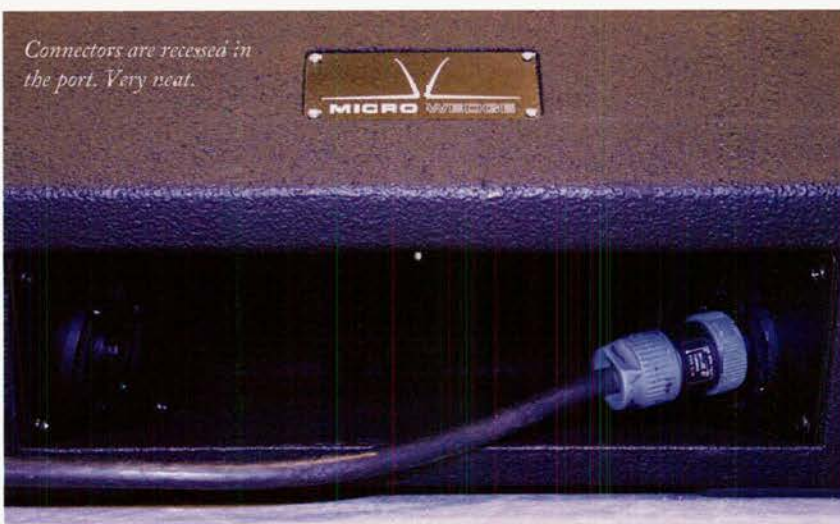


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Connectors are recessed in the port. Very neat.

By JIMMY D

GENERAL

The Microwedge MW15 is a co-axial design incorporating a 15" woofer and 3" diaphragm compression driver with a 90° conical dispersion pattern. Construction is a Baltic birch timber cabinet with a proprietary coating. It certainly feels very solid, though it may be the most uniquely shaped wedge I've ever seen. It's got a trapezoidal footprint, which makes it possible to cluster multiple cabinets on stage all directed toward the same listening position. Interestingly enough the purpose of this seems to be so you can run multiple mixes in close proximity, rather than have the same mix running to all. An example on the EAW website suggests a cluster of three cabinets, with vocals running to the outer boxes and instruments in the centre – the idea being this provides better separation.

I didn't see the specific power handling of the MW15 components anywhere obvious on the EAW website, but the suggested amplifier power is around 1000W (presumably RMS). The wedge can be run from a single channel using its internal passive crossover network, or run in bi-amp mode using an active crossover. You don't actually need to use a specific processor/crossover, but since EAW's UX8800 processor is designed to optimise the performance of the box it might be a logical option. Once set with the amplifier parameters, it will also look after speaker protection as well.

USING IT

There are no handles on the outside of the speaker, nor any connectors. Until it makes noise it's a rather unimposing device. Even with the grille off, the most noticeable thing about it is that you can't see the HF driver or horn. Probably the most interesting feature of the MW15 is the LF port – it not only allows the LF driver to couple to the floor, but also houses a pair of NL-4 speaker connectors, the toggle switch for bi-amp mode, and perhaps most importantly the carry handle. EAW reckon you can also stash excess cable length inside the port without any detriment to the low-end performance.

Plugging into the NL-4 connectors is kind of awkward, unless of course you grab the front edge of the wedge and rotate it up 90° - this makes it a lot easier. Once it was plugged in, we fired up the amp and had a listen. The test wedge was supplied with a Powersoft DIGAM amplifier and UX8800 processor, setup to run in bi-amp mode.

The general consensus here is that it sounds a lot bigger than it is, hence the term Microwedge. The spec on the box output is 126db average, so we had to see if the MW15 was good for it. We ran a track through the box and (ears covered) turned it up. From a metre away we had no problem hitting 125db and then some.

Loud is one thing, good is another. The MW15 sounds good. It's really solid down low, and the mids and highs match up nicely with this. It's also got more than enough legs to please even the hardest of hearing of performers. For curiosity's sake we also tried the MW15 in passive mode with no processing – it sounded very similar to bi-amp mode. In both cases I get plenty of vocal level out with no EQ – no treble. I'd probably roll some low end out were I using it indoors for vocals, but the reality here is that this wedge would come into its own on a large stage or outdoors. You could even use it for drum-fill, though you might want to add in the matching Micrcsub.

The Microwedge MW15 retails at \$5,895 including GST, and it's available through Production Audio Services (www.productionaudio.com.au).



CHROMA-Q COLOUR BLOCK 2



LED lighting technology seems to be going from strength, with each new product answering some of the deficiencies of its forebears. The Colour Block 2 combines some tried and true technology with clever ideas to achieve some great results.

By **ANDY MACKENZIE**

As its name implies, Colour Block 2 is not an all new product. It was preceded by the original Colour Block, and shares a number of its features. To a casual glance, the device looks pretty much the same and you only really see the difference when you turn it on. Let's start with a quick look at some of the good features that have been retained.

THE BUILD

To start with, it's built like a tank. The casing is seriously solid extruded aluminium and I'm convinced that it would survive the rigours of the road unscathed. Following up from that is the excellent modularity and rigidity of the system. The simplest approach to rigging is just to bolt each block to a hook clamp using the M10 inserts in each end of the unit, but this means you miss out on the fun of joining them together.

To join them together you have a bundle of options – there's a brilliant pin and latch system that allows you to build blocks into long straight battens, there are brackets for building blinder packs and there are hinged joiners that let you build all sorts of shapes. The pin and latch system is very solid – I picked up a four block batten by one end and waded it about with no unfortunate consequences.

CONTROL

In addition to the Colour Blocks themselves, you need a power supply unit, and these come in two flavours – a little one that will run up to five blocks or a big one that will run six groups of five for a total of thirty. The PSU collects mains power and DMX, then outputs DC voltage and control on a 4-pin lead. This means only one lead to each batten, and the blocks within the batten then just link together so you get a very neat finish.

The front panel controls on the PSU are straightforward and easy to use, and



the unit includes its own rigging points. DMX control options (14 in total) range from simple 3 channel RGB or HSI options up to controlling individual cells – this makes pixel mapping a possibility if you're sufficiently keen. There's also the option of running the PSU as a standalone system including a timer, which has great potential for architectural work.

IN OPERATION

Light output is refreshingly smooth from an LED fixture. Each of the three lenses in each cell hides red, green, blue and amber LED elements, which means good colour mixing and even output. Two of the problems with traditional RGB LED fixtures are their difficulty producing a full range of colour and a tendency to produce crazy multicoloured shadows as a result of multiple different coloured sources.

Using the RGBA colour mixing system allows a far greater range of colours,

especially the warm whites and pastel tones that are difficult to achieve in RGB. There's even a 'magic amber' option for using RGB control – the amber value is calculated within the unit based on the red and green values. This is effective, but I like the additional control of mixing my own amber. That said, I managed to get satisfyingly close to matching a tungsten source.

Having the source elements so tightly compressed behind the lenses and a layer of diffusing film also did a lot for the consistency of colour mix – we still saw multiple shadows, but at least they were all the same colour. Dimming was also very smooth, so while this may not yet have reached the point of being effective front lighting in a theatre, a long row of these would do an excellent job of replacing any traditional cyc lighting. These factors also mean the thing looks better from straight on – good news for those who like to use big battens of LED things as upstage effects in concerts and similar

CONCLUSION

I was impressed by the Colour Block 2 straight away, and I'll be surprised if it doesn't catch on. The operational features of the unit will appeal to designers, the solid build to production suppliers, and the versatility of rigging to everyone. Colour Block 2 is priced at \$2310 per block, plus \$3045 for a five channel PSU or \$9415 for the thirty channel version.

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HHB UDP-89 DVD PLAYER



The things we require of equipment on live events are somewhat different from those of the domestic market. In the world of DVD players, it's taken a while but manufacturers have started to realise this and are taking steps to accommodate the needs of the professional forum. One such company is HHB – we took a look at the UDP-89 DVD player to see what's different about it.

By JIMMY D

INITIAL IMPRESSIONS

The UDP-89 is a multi-format disc player. It will not only play DVD, but also Super Audio CD. Whilst the value of this in a live environment is questionable, the value of some of its other features can't be denied.

It has rack ears for starters – this is not common amongst DVD players. Frequently they arrive at the gig in a small briefcase type enclosure packed in foam, simply because you can't rack mount the things. Whilst rack ears alone would be nearly enough to sell me on the unit, it gets better. Front panel controls mean you can operate the unit without needing a remote control. Full menu navigation and transport controls are available on the front panel. The buttons have a nice positive clicking action, and there's enough weight to the player that it doesn't slide backwards on the bench when you push the keys.

HOW WOULD YOU LIKE YOUR SIGNAL SERVED?

A pertinent question, since the UDP-89 gives you several options. Video is available in composite format (on RCA and BNC) connectors, Y/C, component (again on BNC connectors), as well as HDMI. The player has an internal up-scaler, so it will serve up signals in 1080i or 720p off both the component and HDMI outputs.

You can even use multiple outputs simultaneously. Audio outputs are provided in stereo and 5.1 on RCA connectors, as well as optical, SP/DIF and AES/EBU digital. The kicker here



Audio outputs include balanced XLR.



How many formats would you like?



Fully controllable from the front panel.



is balanced stereo XLR outputs, plus full 5.1 balanced outputs on a D25 connector – it's pretty clear the market HHB is gearing the unit towards. The fact HHB state on their website that the UDP-89 is "definitely not a consumer device" confirms this.

Some more interface options exist on the back panel, including RS-232 and parallel (GPI) control ports. The parallel port could be used to make a wired remote panel with commonly used functions for quick access, and also to obtain tally outputs to indicate transport status. The RS-232 control port makes the unit suitable for integration with automatic control systems such as Crestron or AMX.

OTHER NICETIES

The UDP-89 will allow you to set and recall cue points within a DVD. This is a relatively simple process, play the disc, hit pause, hit CUE, then choose one of

the three locations and press enter. To recall the cue point, just follow those last three steps again. The player has an internal pink noise generator – useful for verifying audio connectivity if you've forgotten to bring a test DVD.

Support or-line for the product is good. The comprehensive user manual is available as a PDF download, as is the complete RS-232 control protocol document – information which is not always so easy to get hold of. The display button on the remote allows you to remove the on-screen disc information display which is good; it would be nice to see this feature available from the player set-up menu. Perhaps in a future software release this will happen – the player can be firmware upgraded by the end user.

The UDP-89 retails at \$2,318.00 including GST, and it's available through Syntec.

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PANASONIC AG-HPX502EN HD BROADCAST CAMERA

As the new kid on the block, High Definition video is still finding acceptance in the live event forum. Two things I picked up about HD the first time I found myself on such a gig, was that it was generally horrendously difficult and fantastically expensive. The Panasonic AG-HPX502EN is neither.

By JIMMY D

The AG-HPX502 is an ENG style broadcast grade camera, which records in high definition onto P2 memory cards. CX spent some time getting acquainted with the camera.

THE BASICS

Fundamentally the difference between a standard and high definition camera is more information. The lens is better (our unit came equipped with an HD Fujinon 17x7.6 lens), the imaging sensor has more pixels, and the storage medium is capable of storing more information faster. Everything is about higher bandwidth in the land of HD – even the cable you use to patch it.

THE CAMERA

The camera looks much like a traditional ENG (Electronic News Gathering) camera – whereas studio type cameras have interchangeable backs, the HPX502 integrates the camera head to the recorder. The recorder does not use tape, but rather P2 memory cards. There are 4 card slots on the side, and provided you keep feeding it cards it will record continuously (they are hot-swappable). Using the supplied software, you can then join the footage from multiple cards together into one clip. You can basically treat the cards like tapes – take one out, put it away, and keep recording on another. The big difference is that since the P2 card stores the footage in a format that is ready for non-linear editing, there

is no waiting for things to digitise. Just drag and drop.

Another clever thing about P2 is that you can make what's called a "proxy file" (3rd party software is required to do this) – a smaller version of the same footage which can be quickly transferred via ADSL to an edit suite. The editors can start editing the footage, then overnight the full bandwidth files can be sent through ADSL and dropped into the place of the proxy files. The edit job is then "re-conformed", and the edits which were done on the low-res files are applied to the full-res footage. What this means is that it's basically possible to start editing as soon as you finish shooting – this translates to super-fast turnaround.

On the back of the camera is a pair

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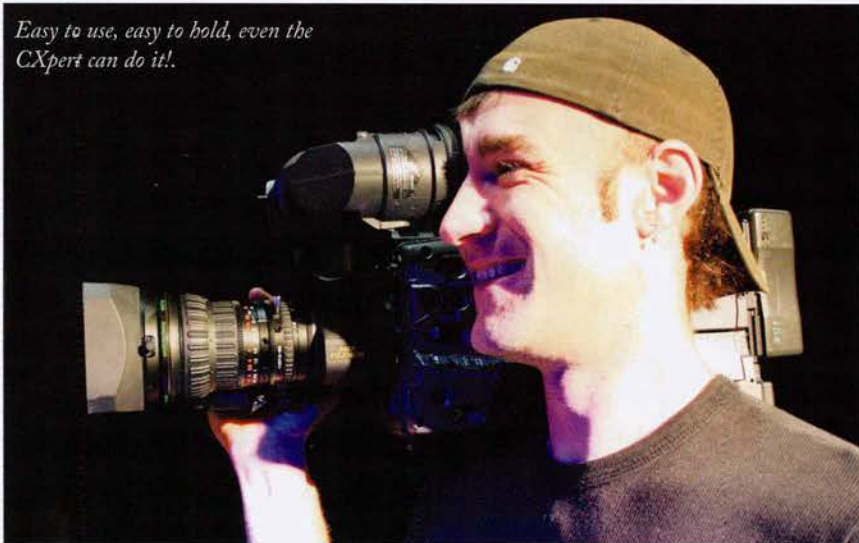
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Flip-out LCD Screen.



of audio inputs on XLR connectors, with another pair on the front end of the camera – you can record up to 4 audio channels simultaneously. Other connections include time code in and out, as well as genlock, composite video, component video, USB, and SDI. The SDI port will output standard or high definition SDI signals, depending on the camera set-up. If you've recorded in a different format, the camera will internally up or down convert the video to match the output set-up.

When non-genlocked signals are mixed, it is necessary to frame-store them to allow switching without sync errors. Frame storing introduces a delay to the signal, which can be very obvious in applications such as IMAG. The HPX502 can be genlocked to other equipment, meaning there is no requirement for a frame store. This makes the camera equally well suited to IMAG purposes as well as recording. The remote port on the back allows a remote control panel (optional accessory) to be connected to the camera for more advanced control over imaging functions of the camera. This makes it possible to

Familiar controls.



colour match multiple cameras together – a rare feature on a camera in this price bracket.

On the left side of the camera is a flip-out LCD screen, which can be rotated and folded back in to sit flush with the side of the camera. The LCD is really good – even with my less than great eyesight I was able to see it clearly even in a bright room. Beneath the LCD screen another flip open door conceals the transport, mode, and menu buttons. Playback in the camera is simple – switch from camera into playback mode and you get a thumbnail window showing each clip recorded. Select the clip and hit play – simple!

The set up of the camera is menu based, and this is also driven from the LCD screen. Most of the options are fairly self-explanatory, and the menu structure is logical.

The front of the camera looks very similar to any other broadcast grade unit – camera/colour bars switch, gain control, white balance switch and filter wheel. If you can operate a normal camera, then you'd be unlikely to have any dramas using the HPX502.



HOW WELL DOES IT WORK?

Feeling adventurous, I took the camera for a walk up to Victoria rd in Rydalmere. I shot some footage of cars going by, trees rustling in the wind, and of course the local flagpole, Aussie flag billowing away in the wind. Upon returning to the CX office I transferred the footage into Final Cut Pro in real time over a firewire connection. I chose this option since I didn't need to download any software to make this work – just modify a few settings in Final Cut and go. It all worked, and the pictures looked brilliant. If time is an issue you can get a P2 card reader that allows you to plug the cards directly into the computer, so you don't need to wait for real-time transfers. This does require some software, but it also allows you to manage all your media and such – the biggest advantage though is really speed.

The HPX502 has an RRP of \$22,265 including GST, which includes a viewfinder but no lens, microphone, media, tripod plate or batteries. Depending on options these accessories could cost up to the same amount as the camera again. Because the camera uses standard 2/3" broadcast lenses, you can use existing lenses on it instead of needing to upgrade immediately to HD lenses. Just be aware that you won't be using the camera to its full potential if you do. Buying the camera body and hiring whatever lens is needed is always an option.

The bottom line on the HPX502 is that it's versatile, competent, and simple to use. There's little else which provides the same feature-set for the same kind of money, and the P2 format opens up new opportunities for speedy turnaround and delivery of video content.



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QSC K10 ACTIVE SPEAKER

Plastic speakers often seem to polarise people - they either like them or they don't. It's been perhaps 10 years since the widespread market penetration of the plastic speaker cabinet, and since then the gap between plastic and the more traditional wooden speaker has closed somewhat. While QSC have been more widely known in the past for amplification than speakers, their product line has expanded to include some new "plastic fantasies". We took a look at one of the new models in the K series to see if it bridges the great divide.

By JIMMY D

THE TECHY BIT

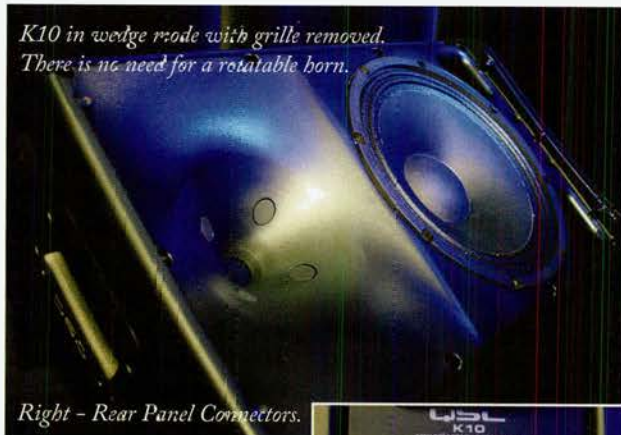
The K10 is an internally bi-amplified ABS speaker cabinet comprising a 10" woofer and a 1.75" diaphragm compression driver, each powered by a 500W class D amplifier. It employs a 90° conical waveguide on the HF driver, and can be used in either FOH or monitor modes. 18 gauge steel grilles and standardised M10 rigging points round out the package. Various flying hardware is available separately. There are rubber feet for when it's standing upright, and little rubber skids which support the box when it's laid down in wedge mode.

The back panel on the unit is one of the more fully featured ones around. There are dual independently controlled inputs, each serving different purposes. The first input is on a combination XLR/TRS connector, and can be switched between mic or line level. The second has a matching connector as well as a pair of RCA inputs, and it operates at line level. There are switches to flip between mic and line input on socket A, roll-off or accentuate the low frequency response, and run the high frequency section in flat or "vocal boost" mode, which appears to give it a kick up around 3kHz. The last switch lets you alter the behaviour of the front LED: Off, Power Indicator, or Limit indicator (it goes brighter when the box runs into protect). A summed line level output is available to feed off to other speakers if you should so desire. There's also a remote gain function, which allows you to attenuate the output remotely - useful for install situations.

Other models in the range include the K12 (which is also a multi-purpose unit), K8, and KSub. The KSub is the only wooden box in the range, and includes a matching pole to allow mounting of another speaker on top. One of the features which distinguishes the K series from other cabinets is the extensive use of DSP, both to enhance performance and provide system protection. Another is the adjustable top-hat angle. By rotating the collar at the base of the top-hat, you can either point the box flat or tilted down by 7.5°. Really cool idea for when your stands are stuck on-stage.

HOW IT FEELS

The first thing I noticed when I went to pull the K10 out of the box was that doing so was very easy. This is because it doesn't weigh a lot (14.5kg), and there are handles in all the right places (top and side). Handles seem a very basic point to start on, but a fairly critical one to get



K10 in wedge mode with grille removed. There is no need for a rotatable horn.

Right - Rear Panel Connectors.



right for any application other than a permanent instal. The box itself feels solid – it would probably get through Andy’s “throw it down the stairs” test relatively unscathed. I didn’t try, I was more interested in hearing it.

First test – I plugged a 58 into the mic input and dialled up some level. Straight up to unity in fact. Vocals sounded clear and punchy with just a bit of bark – pretty much everything I look for in a wedge. It worked so well the next logical step was to turn it up louder – flat out at +10db on the input dial. It kept working, refusing to feed back without serious provocation.

Second test – make use of the line input stage. Plugging in an audio source I played some tracks and flicked the switches on the back to see the difference. The vocal lift mode seems to kick the higher frequencies up, though perhaps at a slightly higher frequency range than is required. The “Ext Sub” mode rolls the low end off at a suitable level to use the box in conjunction with an external sub – no surprises there. “DEEP” mode adds some quite luscious low end excursion, this being most noticeable at lower listening levels. For a relatively little speaker it’s got a lot of horsepower, and runs down lower than other 10” units I’ve heard. Methinks the DSP trickery is working out a treat.

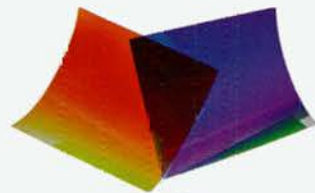
TRYING TO BREAK IT

No go there – we failed. The protection in the K10 is really good. LF and HF amplifiers appear to be independently limited, and most folk would run out of go on the woofer first. It’s not really aggressive limiting – it just stops getting louder. If you push the box far beyond its capacity it does start to sound a little grarily up high as you find yourself pushing more high than low. That said, it’s a loud box to start with – if you were hitting the limiters then it’s unlikely any other 10” speaker would work any better at the level you needed.

The ABS finish is something between gloss and matte, which looks great but is probably best maintained by casing the speaker. All in all the K10 is a solid little performer which would be equally at home on a corporate gig or in a rock show monitor rig. RRP on the K10 is \$1499 inc GST, while the K8 goes for \$1259, the K12 for \$1699, and the KSub for \$2299. QSC is distributed in Australia by Technical Audio Group (www.tag.com.au).



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EVENT OPAL

It was a sunny day outside the CX bunker when Peter Freedman from Event Electronics rolled through the front door, a pair of Event Opal monitors in hand. Well, half a pair, James Biddle from Event was carrying the other one. They weigh a bit, and with good reason as it turns out.

By JIMMY D

TECH SPEC

Much of what has gone into the Opal is new. There are a bunch of developments which you can find out about on the Event website (eventelectronics.com), and it makes for interesting viewing.

Basic specs are as follows: The Opal

is a 2 way active studio monitor, encased in an injection moulded aluminium enclosure. Low and mid frequencies are supplied by an 8" carbon fibre composite woofer, while a 1" Beryllium-Copper tweeter on a rotatable elliptical waveguide supplies top end. Crossover frequency is 1500Hz, and the cabinet weighs 21.6kg. Continuous power handling is 387W on the woofer,

and 112W on the tweeter. Program and peak handling figures are 2-4 times higher, as is the amplifier output power for each driver. While there is an AES option available, all the internal processing is analogue (including the 48db/octave crossovers!).

Front panel controls include level, filtering to assist with room correction, as well as a dimmer for the power light located behind the logo. Rather than go with potentiometers, the Opals employ rotary switches with resistors – it's a more accurate way of doing things. These sit behind a little rubber panel cover to keep things looking neat and sounding right (yes, the cover does make a difference). The Event logo is magnetically attached, and can be rotated if you choose to lie the boxes down on the rubber support plinths. You'll want to use the plinths even if you stand the boxes upright, as the bases aren't completely flat.

Excitingly enough, there's a calibrated mic and software package on the way, which you connect to the speakers and run test signals through. The software looks at what the room is doing to the sound, and tells you the suggested settings for the front panel controls to accommodate this behaviour.

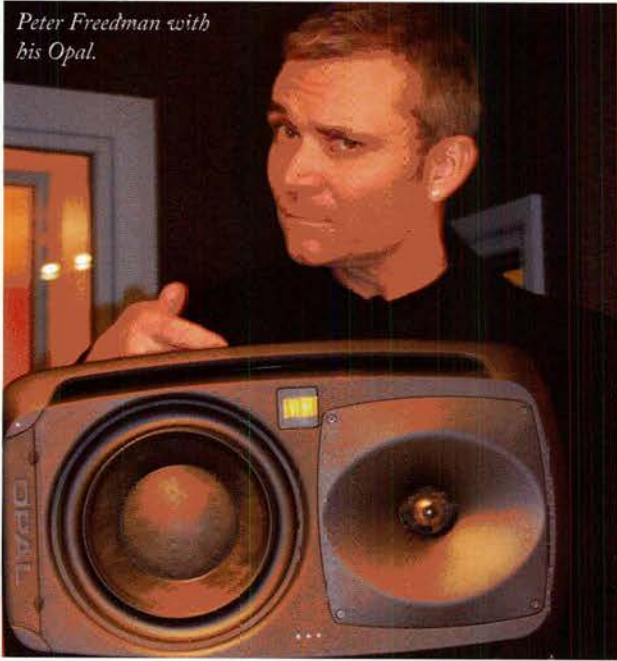
HOW THEY SOUND

We set up the Opals in the studio and plugged in a CD player, then Peter played us a couple of tracks he selected from a CD. One of them included piano. Andy was the first to make an observation: he could hear two different microphones on the piano in Left and Right respectively. He could also tell that they were different types of mic.

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Peter Freedman with his Opal.



Peter turned the reins over to Andy and I. Julius stuck around to supervise and look useful. The first track we listened to was an uncompressed recording – albeit a “desk tape” live mix, but a reasonably good one at that. Everything sat where it was supposed to – there are a few inadequacies in the track and these showed up where I expected them to. Top end is accurate without being over-present. The HF driver has a really big voicecoil, so it doesn't need to run hard to produce level. Hence no distortion.

Peter explained how the LF driver has seriously long excursion (36mm), which is really good for low frequency response. “Concenate” from Xzibit's “Full Circle” album seemed a suitable selection to see if he was right. The bottom end in this track is demanding, and while it sounds ok on most speakers, it's more like mind blowing on a box which has good low frequency response. No such problems were apparent. Even the swearing sounded clean.

“Winners” from the K's Choice album “Cocoon Crash” was the next order of business – it's a beautifully clean and precise acoustic track with fantastic vocals. We played it. We liked it. It sounded like it should. Not only is the mid where it's supposed to be, it works with everything else. I smiled and asked how much the speakers cost. Peter smiled and replied that if I like them the price just went up. Julius smiled and told me they wouldn't fit on my desk. I need a bigger desk.

You can only mix the things you can hear, but so far as the Opals are concerned your ears will probably limit that before the speakers do. Event Electronics is a new venture for Peter Freedman who already has a world-class audio business in RØDE microphones. RØDE has considerable experience in engineering parts for microphones, where precision is a prerequisite – it's only logical that some of the same principals could be adapted on a larger scale to work in speaker technology. Make something accurate and precise, then make it bigger. Sound principle really.

I wouldn't call the Opals flat. To be certain, they definitely have a very linear response, but flat would be the wrong term to describe it – to me flat denotes boring. Smooth or engaging would be better, but these terms tend to denote that they're not very true. Too many words. They sound very linear, but they do it in an exciting way.

The Event Opals retail at \$4999 a pair and are available through Event Electronics.



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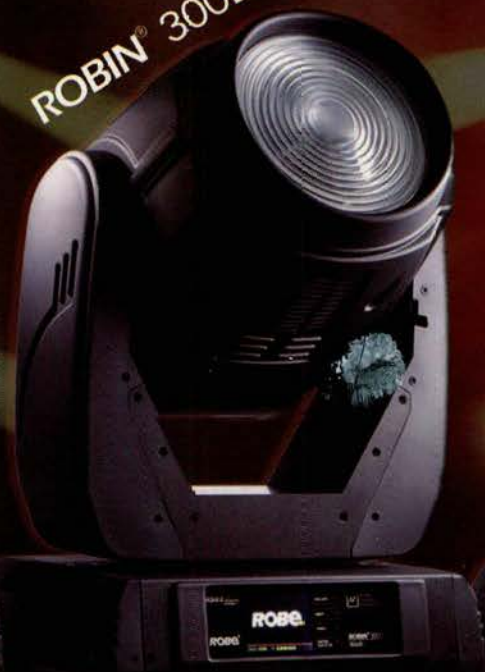
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