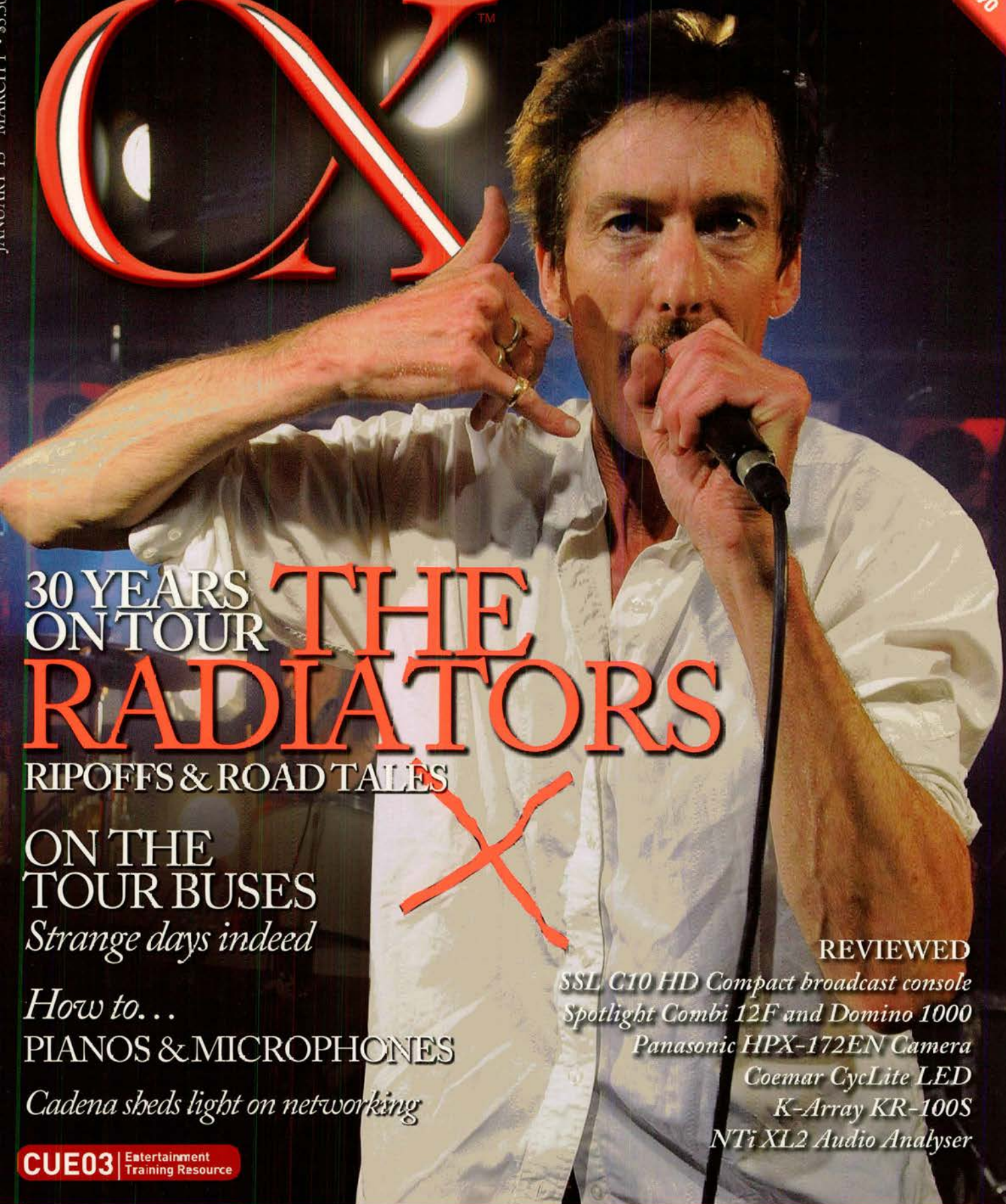


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How to...
PIANOS & MICROPHONES
Cadena sheds light on networking

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- SSL C10 HD Compact broadcast console
- Spotlight Combi 12F and Domino 1000
- Panasonic HPX-172EN Camera
- Coemar CycLite LED
- K-Array KR-100S
- NTi XL2 Audio Analyser

CUE03 Entertainment Training Resource

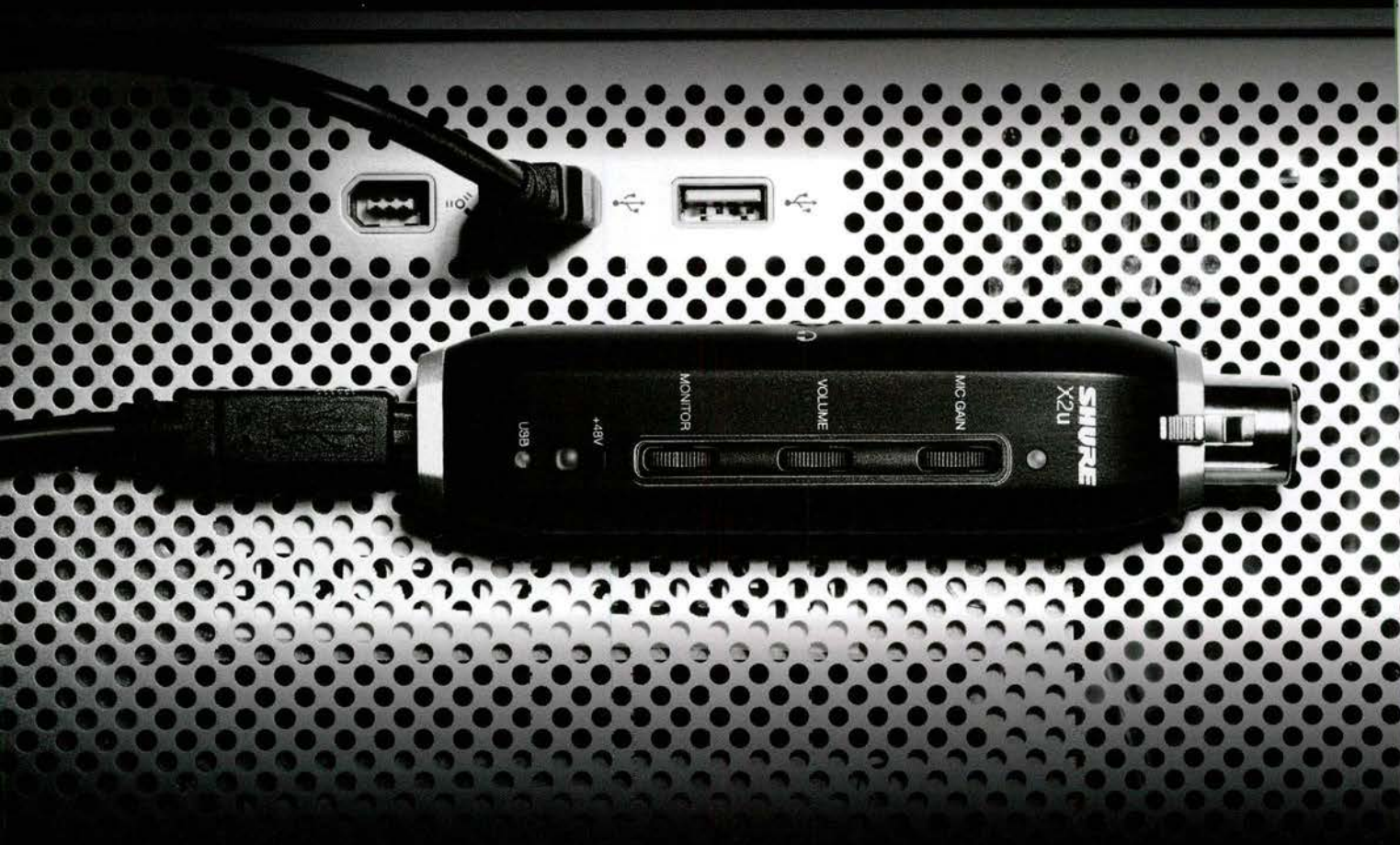
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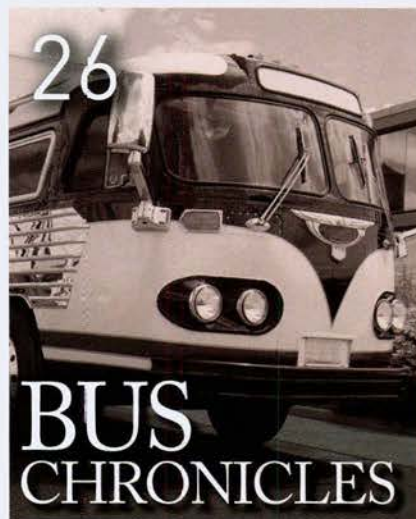
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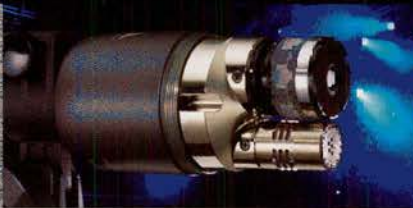


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EXPERIENCE MORE : METALLICA :

"I love Audio-Technica mics. You can definitely tell an Audio-Technica gig as soon as you walk into it. The vocal mics sound stunning."

-Big Mick Hughes



Metallica's legendary front-of-house & monitor engineers, Big Mick Hughes and Paul Owen, rely on Audio-Technica microphones tour after tour, year after year. Mick puts it simply: "I love Audio-Technica mics." Paul adds: "The AE2500 is one of the best mics that has ever come into this business." On everything from voice to drums & guitars, Audio-Technica mics have stood tough across the stage with Metallica for a decade & counting. Wherever your passion for music takes you, experience more. audio-technica.com

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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

WHAT WAS THAT?

What a relief to be back in a year where life goes as planned. 2009 sucked, with fear of global collapse, hiring freezes and downturns everywhere. Now the race is on to recoup what we all lost, and we are in the hottest (literally) touring season ever.

STILL 30 GRAND FOR A PA

Twenty years ago it cost 30 grand for a concert PA and crew for an international tour for a week of arena shows. Same today. Lights are now 60 grand and video: hello 100 grand. In some ways the prices reflect the life of the technology, high end video gets replaced inside two years, touring audio equipment lasts closer to ten.

MONEY PLEASE

The credit squeeze must end soon – the lenders are realising that they were throwing money at anyone in 2008 so when the bomb went off they just stopped lending. No one can get a loan for anything unless it's a car or a house. Makes buying equipment rather hard.

INTEGRATOR BRAIN PAIN

It's getting so hard to make different things talk, so it's nice to see Hills SVL and AKG launch some elegant solutions (see News pages). But some people know too much, and hog the information as a kind of job security guarantee. We need less complexity in our systems, not more. Let's make it be.

MIGHTY ALBERTS

As AC/DC smash up venues and eardrums across the land, the quiet Albert (music publishing) family will celebrate 125 years of business. Ted Albert was advancing the band money all the way through to Back In Black, which was the breakthrough album. Alberts are about family, so they avoid the limelight. Give us more like them.

Julius

WELCOME BACK

Welcome back to another year – CX's twentieth, when you go back through Connections and Channels. I had a look the other day at the very first edition of Channels, here in our very own rodent infested archive, and got to thinking about how much things had changed – not in magazine terms: the paper, printing, pictures and spelling may have improved, but we're still doing what we always did.

No, in real terms, real changes to the world and the way we live in it. Twenty years ago mobile phones were for yuppies, home computers were for rich buggers and the internet was no more than a glint in some propellorhead's eye.

The moving light revolution was still a thing of the future, ProTools was yet to kill the studio industry, and the very concept that live and broadcast vision would ever converge was laughable.

The world (at least the bit of it I lived in) was free of war and similar horrors – even The Iraq War v1.0 hadn't got up yet. There was a hole in the ozone layer, but no-one was too concerned because we changed the propellant in the aerosols. Global warming and peak oil were unknown concepts and everyone was still edgy about AIDS.

HOW THINGS CHANGE.

The stuff we all thought was The Way of The Future wasn't, and the stuff we'd never heard of was.

Who knows what we'll say in twenty years time, looking back on 2010?

Think about the global warming debate: one side proselytising "Stop now, change your ways while you still can" and the others shouting back "Bog off, pessimists. I'll believe it when the Pacific laps under my chin!"

I just hope we're not left saying, "Shit, I wish we'd listened to the pessimists..."

TRAINING

Both Andy and Julius have spent half their work hours since 2003 with Generation X training Diploma courses out of the Entertainment Training Package.

Occurred to us both recently that industry feedback could be louder – what do you see, what do you want, and what do you think about tech training in our industry?

Andy

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CX NEWS

DEVICES, PEOPLE AND CONCEPTS

HOT TICKETS\$ A WINDFALL FOR LIGHTING NERDS



Cochrane and the seeds of success: turn to page 20.

Why is it that some of the most successful entrepreneurs in Australia started as lighting nerds? We use the term affectionately since most CX staffers were the same but somehow we missed the clarion call that blessed Tony Cochrane, chairman of V8 Supercars, Stephen Found (Bytecraft CEO), who operates the Capitol Theatre in Sydney, and Rod 'Big Fish' Salmon – Lightmoves founder, ex publican, investor. These three are seriously rich and living the dream.

Sydney saw the V8 Supercars debut around the Olympics precinct. It sold out with more than 180,000 punters and two large rock concerts, the largest a Cold Chisel reunion. Before the three day

race programme, media and opposition were critical and the NSW government's events arm were not supportive despite the government itself paying many millions for a lot of infrastructure.

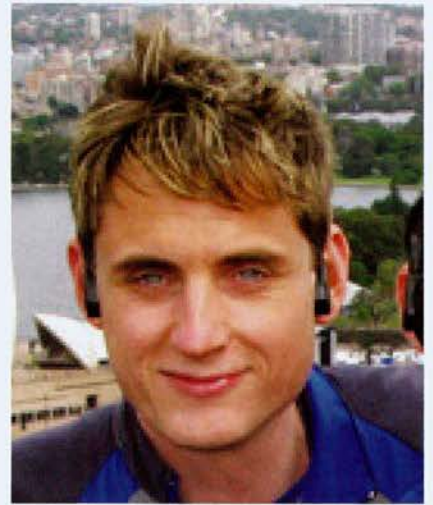
Once the event started criticism evaporated like racing fuel at full throttle and Cochrane's was the only voice heard. "We can sell a lot more tickets", "this is the first time the whole site has been used since the games", "this is bringing a lot of money into the state" were supported by Accor (who own 32 Hotels) saying they were full up. The punters loved it all.

Meantime Stephen Found had the deal of a lifetime when he bought the management rights to the Capitol Theatre from the ailing Arena Management, for half what it was worth. Now the place is booked solid for years, with Wicked settled in for a long run. α

HARD WORK YIELDS BIG FOR LIGHTIES

Talking of success, Trevor Lloyd (CLS), Braham Ciddor (Lightmoves Melbourne) and of course the Davies brothers from Chameleon are all seriously successful after decades of lighting. Is there something we missed here? Plus the manufacturers have done incredibly well, with Jands and LSC punching above their weight and of course Dyalite and Selecon now part of Philips Lighting international. On top of this there's another six lighting production specialty suppliers around Australia who we suspect are quietly suffering affluence, not to mention the importers – Show Technology and ULA, who have grown faster than average. There's light on the hill, kids.

BEHRINGER'S MIDAS A YAMAHA CONCERN



With the sale of Midas and Klark Teknik out of Bosch to Behringer's holding company The Music Group, expect fast leverage of these leading pro audio brands. Bosch identified them as too niche for their pro audio division, whereas Behringer's approach has been at the mass market end of music and audio equipment. Merge the two and you get a lot of opportunity in the middle of the market where none of these brands currently go.

Uli Behringer has already decided one of three things. Will he will leverage Midas and Klark Teknik down market, or buy another manufacturer who already serves the middle of the market?

It's more likely the Yamaha model that most interests Behringer, who is a big thinker. He works out of the region, reputedly based in the Philippines, and has a manufacturing 'city' in China that has enormous capability. Yamaha have had the edge with decades of research and development which arguably gives them the same strengths as Midas and Klark Teknik.

Continued page 10 ▶

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Continued from page 8

Yamaha has managed to sell mixing consoles to the ultra top end of the pro audio market against Midas, and sells low end product against Behringer. Both firms make a staggering array of musical instruments. Yamaha recently acquired Nexo to plug a bothersome gap that has seen them fail to develop a successful sound reinforcement loudspeaker range - a problem likely to weigh on Uli Behringer's mind, since KT and Midas do not make loudspeakers.

Announcing the deal, both sides stressed that worldwide distribution arrangements would not change.

This is one to watch closely.



ASK CX

Jim Morley from Voyager Sound asks about the radio mic situation with regards to the available spectrum being sold off, resulting in the production industry losing current frequencies and needing to move to new ones. "No-one I talk to seems to be able to give me a straight answer. Maybe because the situation is still unresolved?"

A: The importers have been proactive on this for several years, forming the Australian Wireless Audio Group (AWAG) under the umbrella of the Australian Music Association (www.australianmusic.asn.au). They've lobbied and commissioned an economic study showing the value of the frequencies in the hundreds of millions of dollars. The government is about to release a 'green paper' and then take submissions before finalising policy.

Short answer: expect to lose some bandwidth in a few years.

POLICE GET TECHIE

Amber Technology has been awarded a contract with Victoria Police, for the supply and installation of David Horn Communications (DHC) Digital Interview Recording Equipment. The contract has an estimated value of \$9M+ over five years, with Amber Technology having supplied \$5M worth of equipment and services during the initial 12 months of the contract.

Victoria Police has deployed well over 500 units to date.

Amber are a market leader in supply and support of niche AV devices to the Defence, Law Enforcement and Security (DLES) market nationally.

David Horn Communications make covert and overt technical solutions for police and spy agencies, some of them so anonymous that they're forced to deny their own existence. Some of their products are so secret that we can't publish details.

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CHANNEL 7 PERTH ADD VI6

Graeme Penniford, Channel Seven's Engineering Manager.

Channel 7 Perth's news control room have put their aging Euphonix 2000 mixing console to rest, replacing it with a Soundcraft Vi6 large-format digital live desk.

"We had a thorough look at the market and I have to admit that originally I really wanted a Studer Vista 5 console, but it wasn't within our budget," confessed Colin Graham, primary operator of the Vi6. "However in my researching I came across the Soundcraft Vi6 console and realised that it was really a Vista 5 without as much fruit and the fruit that it was missing wasn't what I was interested in anyway!"

Graeme Penniford, Channel Seven's Engineering Manager, states that there were other contenders but that they very soon focused on the Studer from an operational view.

"We liked the Vistronics control on the Studer, in fact that's what really sold us, but we were amazed to find that the Soundcraft Vi6 also has the Vistronics control but in a console that is much more affordable," he commented.

"The Vistronics interface on the Vi6 is very intuitive," agreed Colin. "I would

describe it as a fourth generation digital console. Digital consoles very quickly got very powerful but you really needed to know what you were doing with them. They never really told you what you were doing with them all that clearly.

"Ease of operation is aided by simple things like use of colour - and who was the genius who thought to drill holes in the monitor so that the knobs were linked to what you were looking at! When you're working as quickly as you have to in television, you really don't want to think that much - you need to be able to react. Paging through things is dangerous to say the least. The fact that everything is only one or two levels down at most is really very helpful."

Colin pointed out that the console also sounds good, stating that not all digital consoles in that price range do. He describes the sound of the Vi6 as warm with really good dynamics and EQ. "They're a little touchy," he added. "You don't want to get too brutal with them, but it sounds sweet and we can get a nice strong sound that doesn't get blown away by the commercial breaks which is often a problem: when you're live to air."



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TC INTRO IMPACT TWIN

TC Electronic's Impact Twin is a new pro audio interface with two mic pre's that feature the firm's Impact III technology. They each feature three stages: a Mic Amp, 192kHz/24bit HD Conversion, plus a set of recording Channel Tools.

Impact Twin also includes tools such as onboard EQ, Compressor and De-esser plus other features including iCheck (Integrity Check). This provides a shortcut for revealing any artifacts caused by data reduction – essential when encoding mp3 or AAC files.

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MEYER SOUND M'ELODIE LINE ARRAY FOR ADELAIDE CONVENTION CENTRE

Adelaide Convention Centre recently added a Meyer Sound M'elodie line array loudspeaker system

"As a convention centre, spoken word is our foremost concern," says Richard Builder, Adelaide Convention Centre's technical services manager, who oversaw the audio upgrade. "But of course patrons tend to remember events from the artists' performances and forget about the speeches, so there is also a great need for the system to sound beautiful and rich at these times also."

The resulting system comprises 32 M'elodie line array loudspeakers and eight 500-HP subwoofers, serving as a portable system in the center's event spaces of various sizes. Prior to each event, the technical crew uses the MAPP Online Pro acoustical prediction program to design the most ideal loudspeaker configuration, and drives the system using a Galileo loudspeaker management system with two Galileo 616 processors.

www.meyersound.com



LDI AWARD WINNERS ANNOUNCED

The LDI Awards were held on November 16, as part of the annual trade show. The winners are:

WALLY RUSSELL LIFETIME ACHIEVEMENT AWARD: Fred Foster, CEO of Electronic Theatre Controls
WALLY RUSSELL NEWCOMER AWARD: Patrick Dierson of the design firm Artfag

A LIGHT IN LIFE AWARD: Patricia MacKay, publisher of Theatre Crafts/TCI and Lighting Dimensions, and a founder of LDI.

PRODUCT AWARDS, LIGHTING: Zap Technology for the Mini-Big, a compact, 3K xenon searchlight.

City Theatrical for SHoW-DMX, a wireless system that can co-exist with other signals in the 2.4GHz band.

Honorable mention went to Strand Lighting's LightRack.

PROJECTION: Coolux for version 3.5 of the media server Pandora's Box, which facilitates fast and easy setup and design of projections, video, and multi-media.

Goboland for the Blacksteel Line of gobos and donuts, featuring a thin film coating which reduces image distortion and eliminates halo effects.

RIGGING AND STAGING: Stagejunk.com for its Ultimate Focusing Tool, which features a continuity tester, pin-splitter, wrench, and bottle opener

Eilon Engineering for Ron StageMaster, a portable wireless solution that takes the guesswork out of determining loads in a multi-point hang

SOUND: Neutrik for the PowerCon 32 and EMC-XLR connectors

C.B.I Professional Wireless Systems for the Shield series of noise-free microphone cables

Honorable Mention went to James Thomas Engineering for the Thomas Audio Tower.



RICHARD BELLIVEAU RECEIVES PARNELLI VISIONARY INNOVATOR AWARD

Digital and automated lighting pioneer Barco is proud to announce that Richard Belliveau has received the Parnelli Visionary Innovator Award, acknowledging his remarkable career in the live entertainment industry. The prestigious award, designed for the lighting industry's highest achievers, was presented to Belliveau at the gala 2009 Parnelli Awards ceremony on November 20th in Orlando, Florida.

As a prolific inventor and designer, Belliveau holds over 65 patents, and to date, continues to create dazzling products for High End Systems, a member of the Barco group. From fog machines to lasers to digital luminaires, Belliveau's lengthy list of innovations includes the Laser Chorus, Dataflash, Intellabeam, Emulator, Cyberlight, Studio Color, Trackspot, Technobeam, X-Spot, SHOWGUN, SHOWPIX, SHOWBEAM and High End's renowned DL.1, DL.2 and DL.3.

Over the course of his career, and certainly in his role as co-founder of High End Systems, Belliveau's constant philosophy has been to design products that generate excitement and motivate people. "If you build that," said Belliveau, "then the lighting designers will come."

"Not only is it an honor for Richard Belliveau to have won the Parnelli Visionary Innovator Award, but it's an honor and privilege to have talent such as his within the Barco organization," said Eric van Zele, CEO of Barco. "Richard's contributions to the creative lighting industry are almost beyond measure. In concerts and clubs worldwide, his inventions are used daily to create designs for the world's top lighting professionals."





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AVSOUND PRODUCTIONS FAILS

At the end of a year where the club and pub market spent almost nothing, the leading installer in that sector has failed in Sydney. Despite an excellent reputation, AVSound Productions collapsed in December, leaving founder and owner Matthew Kline in a difficult position. Around 10 people lost their jobs.

Before last year the market was very buoyant with hotels renovating to create 'outdoor' smoking areas and easy credit fuelling nightclub fittouts. AVSound completed the IVY complex – Australia's largest nightclub, located in Sydney – in late 2008 and then the near collapse of the global banking system shut off credit overnight.

The production hire and rental side of the business continues, and because of the good reputation enjoyed by the firm it is likely some form of return to the installation business is possible. Meantime Sutherland Mackay of RSM Bird Cameron has taken over as administrator.

Major creditors include staff, the Australian Tax office, Technical Audio Group, Jands and Show Technology **CX**

BAD DAY ON THE GREEN

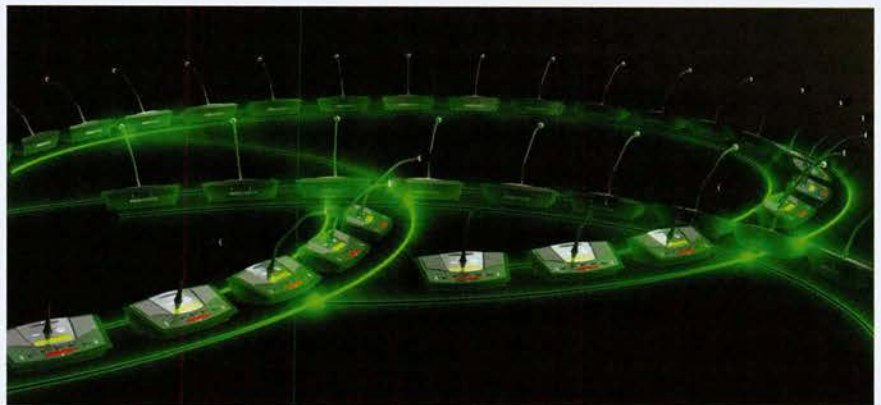
Concert promotion is a black art, and a lot of the infrastructure planning is trial and error driven. But A Day on the Green had a bad Saturday in December. A show at Alana Estate in Martinborough NZ with The B52s, The Proclaimers and The Pink Flamingos was called off due to high winds. The same night in the Hunter Valley, a winery show featuring Smokey Robinson, Human Nature and Jessica Mauboy was marred by a ticketing debacle that led to the New England Highway being closed by Police.

Tickets to the show had been given to various charities and distributed. Too many people arrived and many could not get in, leading to angry scenes. The promoter said that the tickets given to charity needed to be activated online and that people arrived without doing so.

But A Day on the Green's bad day was nowhere near as bad as a Killers winery concert over at Paal Wine Farm in Capetown (December). It featured a three hour traffic jam getting in and a four hour marathon in the paddock for most drivers trying to get out afterwards. Promoter Big Concerts were slammed as it appears they had little or no planning in place for the 7,000-plus cars that obviously would carry the 25,000 people they sold a ticket to. **CX**



Colin Rothenberg, OB Group Managing Director with CP Camera cases.



AKG'S NEW CONFERENCE SYSTEM

Conference systems are a growing and lucrative market, and AKG have high hopes for their new CS 5 conferencing system.

Only one unit is required for all possible configurations and sizes: up to 5000 participant and interpreter units can work in one large system. Importantly, each CS 5 BU system is supplied with the CS 5 PC Control Software for planning, setting up, managing and documenting conferences from the most simple to the most complex.

Any number of microphone stations can be added at any time, while keeping all the components of the existing system. Users can easily design high-level conference systems complete with ID card identification. The system has one, three, and five step voting, interpretations of up to 63 languages and infrared distribution of up to 7 languages. The necessary infrared components are built into the base unit (CS 5 BU), enabling direct connecting of the CS 5 infrared radiators CS 5 IRT1 and 2. The CS 5 BU even acts as an interface to all external devices, including mixers,

wireless microphones, recording devices, CD players and more.

All of the components in the CS 5 are based on an Ethernet connection, including the microphone stations and the interpreter unit, and the system works with 64 channels that can be split into simultaneously active microphones and translated languages. Each component can be connected to the next in any desired order, with a distance between components of up to 50 m. The system has built-in redundancy – the last link in the chain is connected to the Base Unit again to create a closed-circuit digital audio bus. Therefore, the system will not break down even if a connection between any two components fails (due to a defective cable or similar cause).

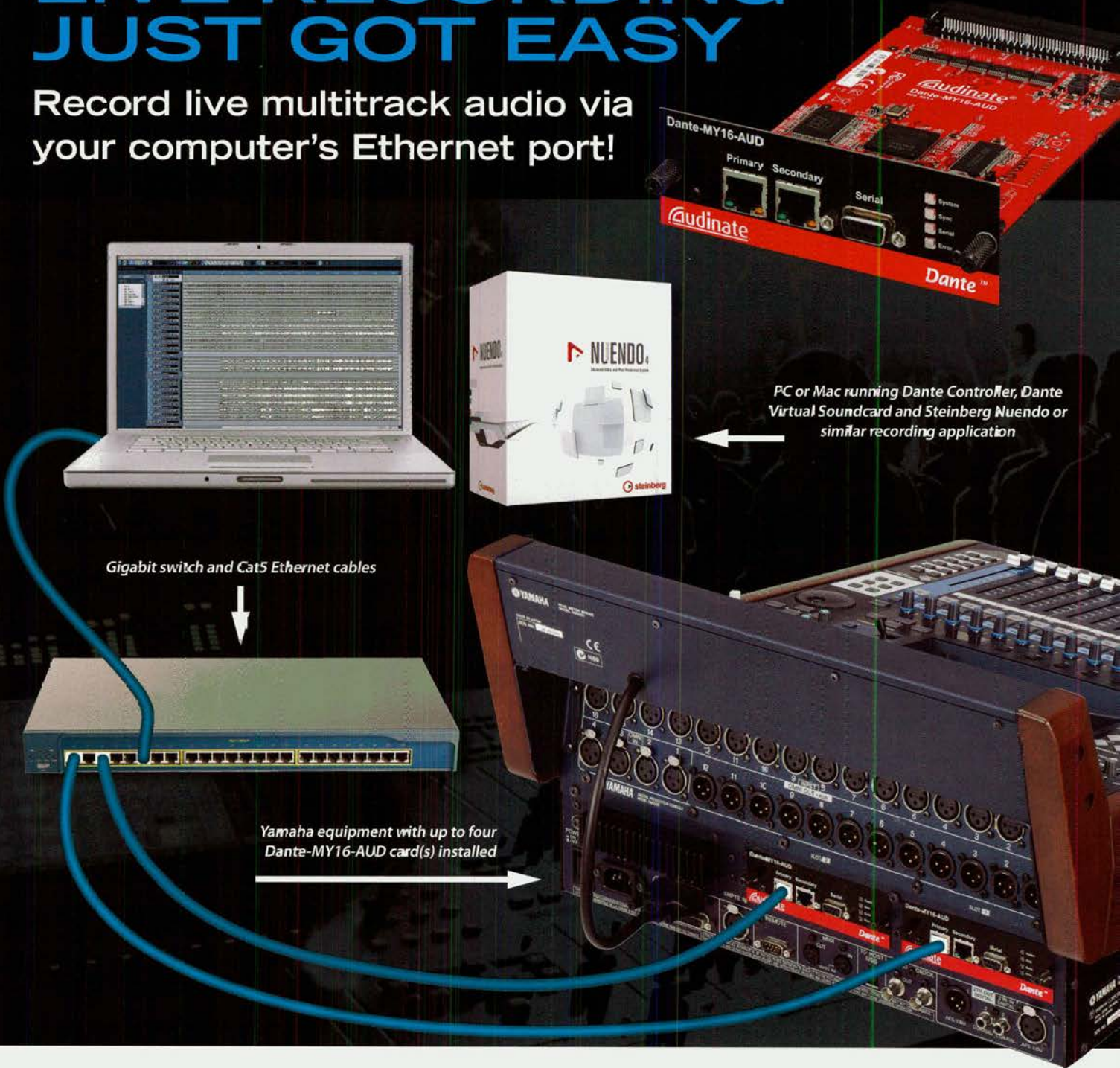
The CS 5 system delivers up to seven selectable language channels via infrared. The IR radiators provide coverage throughout the conference area and each delegate or audience member has his or her own CS 5 IRR7 receiver. This rugged receiver operates for 12 hours on one charge; after the session ends the CS 5 CU50 charging flight case will intelligently recharge up to 50 receivers simultaneously.

www.akg.com

CX

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CMI ADD QUESTED MONITORS

CMI Music and Audio have been awarded the Australian distribution for Qusted Monitoring Systems (Qusted). This announcement coincides with the news of Roger Qusted's reacquisition of the Qusted company from the Soundmix Group. It was achieved with the assistance of new co-owner Guy Lewis, a long standing active member of the industry.

"More than 40 companies manufacture studio monitors of some type, but no other company has the acoustic design ability of Roger, the successful history in the biggest studios worldwide and a range of affordable monitoring with such incredible levels of performance and accuracy" Guy said.

Roger Qusted developed the soft-dome monitoring system in the early eighties following his illustrious career as an engineer and studio manager for groups such as Led Zeppelin and Pink Floyd. The system vastly improved sound monitoring accuracy, previously only available in a few selected ultra high-end Hi-Fi speakers. Requests for these systems among engineers, producers, studios and driver manufacturers became so numerous, Roger decided to start Qusted Monitoring Systems – this popularity continues today.

"Our big system designs have seen resurgence, while the smaller powered monitors continue to be picked up in all areas of recording," Roger explained.

CMI are excited about what this appointment means to Australia, Sales & Marketing Director Graeme Mitchell stated "We are so proud to be representing a product of such high quality with such a long and impressive history." 

AIRTOOLS ARRIVES FOR BROADCAST AUDIO



Symetrix has launched the AirTools Voice Processor 2x. It features two independent channels of digital signal processing that are completely customizable from software.

AirTools 2x includes the processing necessary to enhance the voices of on-air talent and up to fifty customized programs may be saved and recalled to make everyone in the station's lineup sound their best.

"The voices of on-air staff are arguably

the most defining features of a broadcast station," said Paul Roberts, director of sales for Symetrix. "Treating them properly to maximize intimacy and impact is of paramount importance to the image and ultimate success of a station. Studio managers will love its ability to process two microphones independently in a single rack space."

www.airtoolsaudio.com



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The B4-SUB realizes d&b's unique cardioid technique using only one amplifier channel.

The enclosure houses two drivers: a 15" driver in bass-reflex design facing to the front and a 12" driver in a two chamber bandpass design radiating to the rear.

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www.dbaudio.com



AUSTRALIA'S OWN DSP AUDIO PLATFORM

Australian Monitor's Revolution DSP offers customers a complete installation solution that is cost effective, easy to install, and simple to use.

The AV Revolution is for applications ranging from lecture theatres and boardrooms through to function room systems with room-combining. With accessories such as a CobraNet card (available early 2010) and remote wall

panels, the AV Revolution offers a combination of stereo and mono outputs as well as stereo and mono mic line inputs. The AV Revolution can be used for straight signal processing or source routing applications.

Each device has 3 stereo output zones, 2 mono output zones along with 6 stereo line sources available to all five output zones. There are 4 mic/line switchable inputs, support for a range of remote control panels and various EQ, dynamics and delay processing on inputs and

outputs.

"We focused on making our peripheral products intuitive, easy to set up, and aesthetically pleasing, as this interface is the end user's everyday interaction with the Revolution products." Comments Chris Smith, National Manager, Australian Monitor.

www.hillssvl.com.au



SENNHEISER TO INTEGRATE KLEIN+HUMMEL

Sennheiser will integrate its subsidiary K + H, manufacturer of studio monitors and installed sound products, into Sennheiser and Neumann.

Sennheiser are the largest pro audio brand in the world, with revenues approaching half a billion dollars.

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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.



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CDA DEBUT HANDY TOOLS

RAPID PUNCH: Introducing the Rapid Punch Terminal (RPT) system from CDA Professional Audio and AVP, a proven system that makes installation fast and simple. The large diameter barrel allows termination of 20-28 gauge wire, solid or stranded, and it properly terminates 110 ohm Digital Audio cable.

The RPT terminal is certified for termination of different wire gauges even on the same half of the terminal, it is also certified for 300 punch cycles using 22-26 gauge wire, facilitating easy and durable re-configuration at any time.

COLOUR CODED: The CIS (Circuit Identification System) allows colour coding of every circuit with 10 different colours available so that you can colour code your system according to your own system design to easily identify critical circuits, signal type, etc.

The patented designation design maximises the viewable area while front mounting jacks with captive screws which are locked in the front panel make design changes and re-arrangement easy and fast.

JACKFIELDS: from AVP allows the installation engineer fast access for re-design and implementation via the front loading fast mount video jacks. Effective numbering of jack positions provides quick and accurate installation.

With various normalling and terminating combinations for all applications and a life cycle of 30,000 the super HD series jacks with their copper alloy, gold plated contacts are reliable and tough. Available in 1RU, 1.5RU and 2RU Mosaic panels, with the AVP CIS

(Circuit Identification System) allows colour coding of every circuit.

www.cda-proaudio.com



WORLD FIRST MUSIC DIRECTORY APPLE IPHONE & ITOUCH APP IS FROM AUSTRALIA

Sydney-based publishers of the AustralAsian Music Industry Directory (AMID) have released an iPhone & iPod Touch app--a world first in the music business. Bringing the functionality of their 22 year, 152 page print & online versions to a mobile device, the AMID app gives users the ability to hotlink email addresses and websites or dial phone numbers for thousands of music business contacts.

Priced at A\$19.95 from the Australian iTunes store and US\$16.99 from the US store (see URLs below), the AMID app is also being rolled out globally at other iTunes stores. The AMID app contains all details of updated listings in close to 70 business categories including Artists cross referenced by Managers & Record Labels, Booking Agents, Publishers, Venues, Music Media (Print, Radio & TV), Promoters, Studios, Associations and many more. It's updated twice a year.

As IMMEDIA! Publisher Phil Tripp explains, "We were approached recently by an old friend from the industry, Nick Chance of Chance Media, whose son skillfully programmed the app from our proprietary, copyrighted listing information. We've published the 152-page print Directory for 22 years, had an



online version since 1988 on a bulletin board that evolved into our Internet model in 1994. Creating an Apple app was a natural progression to service our global client base."

"We're not just committed to the Apple platform, we've always been obsessed with using Macs to create all of our content for 20 years in print and online. Now our users can have instant digital access to all the contacts they need from everywhere they go via the AMID application on their iPhone or iTouch."

The AMID app provides a search facility, the ability to tag favourite content, or instantly dial or email contacts from the database of over 2500 highly detailed Australian listings. It also provides access to extensive information on genre, artist rosters, managers and agents, as well as enhanced business descriptions.

The AMID app is available for download from the Australia iTunes app store for A\$19.95.



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JBL PROVIDE THE MISSING LINK FOR LINQ

Sydney's Sherbourne Hotel has refurbished its Linq Restaurant, taking the opportunity to upgrade audio. Following a classy refurbishment, this third level venue has been launched as a stylish corporate lunch spot, known as Linq Bar & Restaurant. Featuring brick feature walls, dark carpets, black tables and white couches plus a fabulous harbour view, the room morphs into party central as the nights wears on.

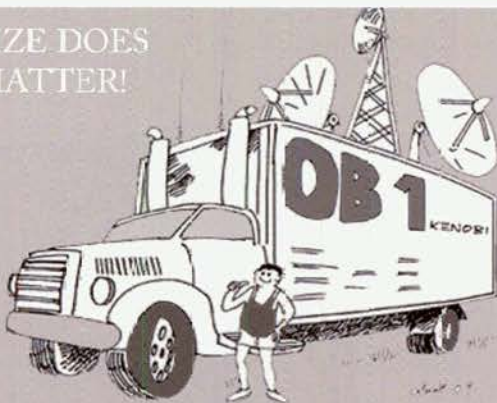
Beyond AV were asked to bring the space to life with audio and lighting. There is a JBL sound system comprising of four JBL AC18 compact series single 8 - horn plus two JBL MP418S subs, a powerful, self-amplified subwoofer in a compact bass reflex enclosure.

"Just like any JBL speakers these new AC range of speakers deliver perfect sound and high SPL when needed," commented Angelo Andrews of Beyond AV.

"The sound of the JBL system is perfect for the new Linq Bar," remarked Clive Morley, Sherbourne Hotel Marketing Manager. "It's warm, with plenty of separation and cleverly installed so we can zone different areas of the bar."



SIZE DOES
MATTER!



BEST OF CXN TCGNS

Cartoon by
Duncan Fry

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TONY COCHRANE AND THE SEEDS OF SUCCESS

Tony Cochrane was a lighting nerd who now is the chairman of the V8 Supercars competition. He started a company called HiWatt in Adelaide and became the Strand Agent at a time in the mid 1970's when Strand Electric was a franchise to print money. Eventually he expanded into Brisbane, sold out and moved into concert promotion.

Tony Cochrane recently spoke to Richard Fidler on ABC radio about his success.

In 1995 Group A racing "sounded like a blood disorder. The really weird thing was we had all these races but while domestic motorsport wasn't dead it was in all sorts of trouble. I'm from the entertainment industry and I'm used to the act controlling the show – not the other way 'round. These guys (the drivers and the teams) were treated appallingly. I sold the teams on the concept that wasn't terribly different to Formula One.

In January 1988 at the opening of Sanctuary Cove, I produced the entertainment. Mike Gore and I got along like a house on fire. He was determined we had to have Neil Diamond. That fell through, so we went after Frank Sinatra. I met his agent in LA who sent me to his manager Eliot Weisman in Florida. It's a completely stupid story, I went down there on a Monday expecting to get a meeting with

this guy. I had a serious offer to make for his major artist. He didn't want to see me. I waited, by the second day the girls in the office were getting me a coffee, the third day they got me lunch. Finally on the Friday he said we had ten minutes. Two hours later, we had arranged he would pitch to Frank Sinatra at Palm Springs on Sunday night and I should wait in LA.

My charm would only go so far, I need a cheque book as well. We offered him \$1m US tax paid, all expenses paid. He said yes because he had the whole terrible run in back in 1974 with the press (in Australia), calling them bums and hookers, and he loved Australia. I convinced him that we would fix everything up and he shouldn't worry. On the plane home I thought 'what have I gotten myself into?'

My then publicist Patty Mostyn had the absolute brainwave that at Frank's big press conference at Sanctuary Cove, where the press had been saying all week how they were going to rip him apart, Patty came up with this genius concept that she would come out and announce to the media that before they started, Mr Sinatra as a memento would like to have a photo with the Australian media and if they were interested they should come forward.

Well it was bit like the proverbial rushing of the bulls, you couldn't get out

the road quick enough, every person in the room wanted to get a photo with him. He was very gracious with his time, so the first question at his press conference was 'Mr Sinatra, are you enjoying your visit back to Australia?'

He still liked to party – he was called the chairman of the board for one simple reason, he had a career in film and music that stretched over five decades. He knew he was the boss.

The misunderstood thing about major performers is they want to be treated like human beings. You need to be understanding of the life they lead and be gracious. What you put in is what you get back.

The great promoters – Gudinski, Coppel, Chugg – they have great relationships that go back years. There's no great secret to this. CX

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SOLOTECH COMING TO AUSTRALIA—NO DENIALS



CXN broke the story in December, and the French-Canadian production giant Solotech has not denied it. They plan to open in Australia, to service their expanding international touring client base and to pick up regional work.

Better known as a Meyer Sound audio supplier, they are actually a full service provider with lighting, staging, rigging and video divisions. They reason that one account manager is better than several, and a crew can integrate and pitch in to deliver a harmonious and better-planned touring production: if they all work for the

same boss.

Aside from being the number one client of Meyer Sound world wide, Solotech also supply L-Acoustic and other brands. They are responsible for Cirque Du Soleil technical production worldwide, and offer a very diverse range of services across corporate, install and production clients.

Part owned by a large superannuation fund, the firm is cashed up and able to fund anything it chooses.

In Australia the live audio production landscape is dominated by Norwest Productions, which owns Meyer inventory

through its Oceania Audio subsidiary. Another dedicated Meyer user is Coda Audio, a well-regarded and long established Sydney production firm.

There isn't a full service provider like Solotech in Australia – some emerging production firms like Cairellie supply all production elements for arena sized shows, while corporate audio visual firms such as Haycom, Video Plus, Scene Change, AV Partners and Staging Connections will do everything, albeit at hotel ballroom scale.

The question bothering many is whether Solotech will open a fresh outpost, or acquire an existing business. Norwest is too diverse and also takes the fight up to Solotech, having won the audio contract for the Winter Olympics in Canada. Coda Audio looks like a good fit from where we sit at CX, but of course lights and video would need to be added on.

Less likely but not to be ruled out as a takeover target is Melbourne based System Sound, a firm that has a solid pedigree in the theatre audio market across the region.

Whatever happens it will be sooner rather than later, with Solotech already shipping equipment in and out of the region for as many as nine concert tours during this season. CX

CDA Professional Audio

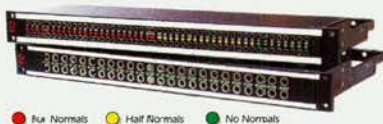


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THE RADIATORS

celebrate 30 years non stop

*The Radiators
Mark Lucas,
Fess Parker,
Geoff Turner
& Brian Nichol.*



© BOB KING

As far as legendary Australian bands go, there is none other that has kept working continually for thirty years with more than half its original lineup. While they lost a keyboard player and replaced a drummer, the three foundation members are still out there on the road. These days The Radiators are tighter than ever, and can tear up a corporate or a pub gig with originals that spawned 15 albums – two platinum and two gold.

Interview by ANDY MACKENZIE

They are a classic Australian touring rock band who've probably poured ten million dollars into the production industry since they started.

CX caught up with the band as they launched their Musician's Survival School on their 30th anniversary. A fitting way to see in their fourth decade!

Andy Mackenzie asked the questions while Mark Lucas (drums), Fess Parker (guitar) Brian Nichol (vocals) and Geoff Turner (bass) laid out the good and the bad, the rip-offs and the highlights of life on the road.

The Radiators have been going 30 years now, what are some of the strangest things that have happened?

MARK: I think it's strange we've been going 30 years!

GEOFF: We thought we'd just be together a couple of months...

MARK: I joined the band 20 years ago!

And after 20 years do the other guys still call you the new kid?

MARK: Exactly, I'm the Ronnie Woods of The Radiators! That's why I'm still

in the band, it makes me feel young!

Do you still have to make the coffee?

MARK: Coffee, drive all the time, carry their bags into hotel rooms.... The way they treat me is abhorrent, really. I reckon the strangest thing, though, was the meteorite

The meteorite?!

GEOFF: We did a gig in Toowoomba, I was coming back to Brisbane with our sound guy and we were in the Lockyer valley and suddenly ga boom – it went from sideways and smashed across the bonnet of the car, a giant glowing

Brian and Fess on stage.



orange ball. We went 'what the hell was that?' It looked like some kind of bird on fire, I thought maybe it was a flaming owl or something. We should have pulled up and looked for it, because apparently they're worth a lot of money! The trouble started when we took the hire car back – they said 'what happened?' and we said we got hit by a meteorite. They said sure, right. We'd already been in trouble – the road crew had written off one truck and three cars, we were running out of hire car companies. We were on our last one.

BRIAN: It looked like someone had got a flaming axe and it was dented in.

FESS: It was all down to the metal.

GEOFF: Another foot and it would have been in my lap...

MARK: So if you had have accelerated a bit, you could have had something steaming hot in your lap...

GEOFF: Yeah, that had been travelling for 800 million years!

MARK: Not like he's got something steaming hot in his lap already!
(Much laughter)

BRIAN: And then it would be, 'so you guys have been around for twelve years...'

What about the UFO story?

BRIAN: True story. We played in Canberra, I was driving back and at Lake George, which was always a bit spooky because sometimes it's full of water and sometimes it isn't – and we were just traveling along and I looked out the side and it looked like an aeroplane and my first thought was it had all its cabin lights on. I looked at it, back at the road, and it was still there. Other people noticed it as well, and then it went up a little and then zoof – it went off with a little trail. Everyone was stunned.

Have you lived the rock and roll dream?

GEOFF: At some stage, bits of all of them.

MARK: And nightmares.

BRIAN: The dream's tempered by long stays in motels, hanging around airports, and driving for twelve hours.

What's the biggest gig you ever did?

BRIAN: 120 thousand people. Steps of the Opera House, Concert of the Decade at the start of the 80's.

GEOFF: It was a massive gig, it seemed to cover all of

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Sydney.

BRIAN: We met at the Bondi Lifesaver, got on the bus and when we got to the edge of the forecourt it took us half an hour to get in. Took everyone by surprise.

GEOFF: There were three new bands on the bill – Misex, Mental as Anything and The Radiators.

Did you think ‘Well, we’ve arrived then’?

GEOFF: It was a couple of years later, 80,000 people at Narara all as one behind what we were doing. A celebration of Aussie music.

What about the Spinal Tap moments?

GEOFF: Every night really...

MARK: I saw that movie at a tender age, and now I look back and every scene

has happened to me. Including the record store appearance... Not only where no one turns up, we did one in Kalgoorlie where the store didn't even know WE were turning up! We roll up and say 'Hi, we're The Radiators' and they say 'Sorry we're closing, closing...' We'd flown in to WA and driven out in a hire car, we were doing 200kph.

FESS: Someone told us there was no speed limit. But that was in the Northern territory, so we were only out by 3,000 kilometres.

BRIAN: So I got booked. By a copper who'd seen us at Dapto Leagues club!

So, after 30 years what's the best thing about still being together?

FESS: Not having to audition new guys!

BRIAN: It's a great job because it's

the only job in the world where they INSIST that you drink before you start work!

GEOFF: They say 'Come on boys, drink up – get some Tequila into you!'

MARK: You always feel like you're going somewhere – it's almost like the whole country becomes your backyard.

So which of the lessons from those thirty years do you wish you'd learned a whole lot earlier?

BRIAN: The one about the money! We just earned millions and millions of dollars, and are still renting.

GEOFF: In the old days our manager would walk out with bags and bags of cash, there'd be 1,300 people on a Tuesday night at a gig. Ten, fifteen thousand in cash, and that'd happen six nights a week. They kept you that busy you never had time to check. Then it would be 'Sorry boys, it's all gone!' Recording, whatever, confused, bedazzled...

BRIAN: Three or four hire cars, a semi trailer, 18 road crew...

MARK: There were twice as many crew as band, they'd turn up in new cars and we turn up in our old bangers...

GEOFF: Then they'd proceed to roll them...

MARK: And do donuts in ovals with guys hanging off the roof!

How many people have you seen in this business get ripped off by shonky managers and agents?

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FESS: Everyone! All the best bands!

MARK: You have to get ripped off!

FESS: In our case, you're concentrating on being creative and writing and the shows and all the rest is being looked after.

BRIAN: What about the year we did 367 gigs – more gigs than there were days!

GEOFF: If you got a day off, you drove a thousand Ks... if you had a day off you didn't want to go and check how things were going you wanted to spend it with your family. It was silly, we trusted too many people. We were just cruising along on a wave. They just tell you we've got heaps of money, it's all going good, leave it to us boys, people you believe and trust in as brothers end up shafting you. It's a real shock to the system.

MARK: One day you wake up and your taxes haven't been done for three years.

BRIAN: That's what it got down to – we had this massive bill, a hundred and seventy thousand bucks after working fifteen years already. So back out, boys, around the country a couple more times. So it was either that, or go to jail.

GEOFF: Five states in three days.

MARK: Drunk, sober and stoned!

GEOFF: That's right, all those states!

We didn't waste it all though - we spent four hundred thousand on partying, four hundred thousand on fun and mucking around. We must have wasted the rest!

How much has technology changed what you do?

FESS: Lots, heaps, cheaper, smaller.

MARK: Telephones! In the old days you had to give the missus the phone number at the motel and be there at a certain time, you couldn't call out because it cost too much so you waited for a call. Sat nav: gold! Four guys with a torch trying to find a motel. Not good.

FESS: We had huge crews, they had to carry huge PA's.

GEOFF: In the old days every Rad had a roadie.

MARK: And an assistant. The drum tech would turn up and he wouldn't set up the drums – he'd direct people to set up the drums! Tune them up, and go and hang with the band!

What is it about your new school that excites you the most?

MARK: It's a great opportunity to put something back. I've taught music privately for a long time, but there's a million musicians that never get out of the bedroom. It's the music business, half music and half business. If you're good at the music and hopeless at the business, you're not going to get anywhere. Hopefully we can bridge that gap. And get some quality songs out there.

BRIAN: I've taught a couple of choirs in recent years and the feeling you get from helping is amazing, and to be able to do that in an environment I know inside out is a great thing!

GEOFF: What I like is that I live nearby...

FESS: My daughter is a really good

singer and I would have liked something like this to exist to help her get through.

GEOFF: How to recognise double talk from agents. Ho to recognise bullshit. I failed that course the first time.

MARK: There's lots of people who can play really well in the bedroom at low level, you put them on stage and they turn it up and have a bad experience. There's a lot that goes into it on stage. They go back to the day job. We'll have a whole lot of people out there who know what they're doing. **CX**



DISCOGRAPHY

- Feel The Heat – 1980 (platinum)
- Up For Grabs – 1981 (gold)
- You Have The Right To Remain Silent – 1982 (platinum)
- Scream Of The Real – 1983 (gold)
- Life's A Gamble – 1984
- Nasty Habits In Nice Children – 1987
- Gimme Live – 1988
- Hard Core – 1991
- Radiators – 1994
- In Their Element – 1995
- Stone – 1995
- In The Roar – 1997
- Radiology, The Complete
- Anthology – 2000
- Smoke And Mirrors – 2000
- 25th Anniversary CD - 2004

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8 The Bus Chronicles



Most of us think of buses as a way of sharing our trip to work with a whole lot of other people's armpits. The tour bus experience offers a slightly different trip to work...

By JULIUS GRAFTON

In Europe and the USA, bands and crew tour on buses all the time. Usually you sleep while the driver gets you to the next venue and then shower and do breakfast when you arrive there. Tribal alliances and rules mean some buses are party buses while others are more family oriented. Smoking is usually tolerated.

Bus etiquette is probably a theme for a paperback novel and it would be part tragedy but often hilarious. Back in Australia the strange nature of our industry hasn't seen too many dedicated tour coaches launched onto our roads.

Back in the mid 70's, seminal road band AC/DC invested in a tour bus that was converted so the back half carried the gear. This was an old Ansett Flexible Clipper (Google that spelling!) that once did interstate routes. But by the time the band bought it, the miles had taken their toll. The band complained in a Go Set magazine interview that they were not earning any money because the bus cost so much to keep on the road.

On a similar theme Ted Mulry Gang had an old Toyota Coaster bus with a half and half theme for their gear. Back

then you could rip out the asthmatic four cylinder donk and put in a 179 cubic inch Holden engine.

But it wasn't until some time later that the first real tour bus arrived. While there may have been others, the Black Bitch spent years running up and down Queensland carrying bands. It was a converted Denning tour bus, with burks and chill out couches plus a kitchen. Many a great road story came out of this bus, which carried the who's who of the early 1980's music industry around Queensland.

The driver and his hostess were great, but then fatigue set in.

LONELY MILES

There's only so many times you can drive through Sarina or Bundaberg without déjà-vu setting in. My tour on the 'Bitch was after the allure had worn off, and the driver was at war with his rather tasty hostess. It wasn't immediately obvious, but there was friction and it wasn't mechanical.

Because Brisbane and Cairns are 1,700 kilometres and at least two solid driving days apart, you really needed a coach to tour the state. Even Cairns and Townsville are four hours apart and



the mining towns inland were often an overnight drive to reach. Venture west as far as Mt Isa and it was 800 k from the coast!

Mr. 'Bitch was good at keeping his bus on the road, and what terrible roads they were in the 1980's. There was usually a single lane of asphalt so when someone approached, both vehicles would swerve off into what became mountainous ruts. We got to Dysart – a mining town – and when we opened the back doors of the truck five hundred bits, bolts and parts fell out with a cloud of bull dust. Every show was a repair session. The dust was in everything.

For some reason the band didn't get on with the coach crew, who refused to carry some set elements in the baggage compartment as a kind of power play. Maybe it was the stern talk about not doing a number 2 in the lavatory? Or

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the bickering about routes and times? I was the sound guy, only riding in the bus because the other three crew filled up the truck, so I stayed out of the politics.

Strangely the support act had a 17 year old girl singer who had the whole Flashdance (What a feeling!) vibe along with massive hair and nails. The married drummer spent valuable bus time noisily humping her.

His helpful band mates snapped Polaroid pictures through the curtain that were dutifully handed around at the gigs to pass time.

THE RED BUS

A musical client of mine used his latest (and possibly last) royalty cheque to buy a retired coach and outfit the thing as a 'better' version of the 'Bitch. He had designs on stealing work from the 'Bitch crew who were by then jaded and over the whole thing.

Mr Music sat up late one night and drew his dream layout, which he then took to several caravan fabricators for quotes. The cheapest quote won, and a month later the coach emerged, ready for our tour. Fanfare, ta-dah!

Our talent had strange ideas on coach layout and was even stranger when it came to hiring a driver. He hired an older lady of grandmotherly demeanour who was also president of his fan club. She got her heavy vehicle license in breathless anticipation, and our initial tour of Victoria was her first outing. We were very supportive at first.

In between some slow trips to the Murray towns we toured every auto electrician, because things were fizzing, popping and smoking. Feel like a cuppa? Press the button, and then open the windows as black smoke pours out of the depths of the newly fabricated kitchenette. The boss had his video interrupted one night when the TV set exploded.

My days on the bus ended after a terrifying trip down the Gibraltar Range in northern NSW. Our lovely old lady driver didn't understand about using a low gear and instead elected to ride the air brakes while coasting all the way down. When the low air warning started she got confused, and then upset when I started trying to smash open the back emergency exit to bail out. The terror...

Last time I saw this blighted bus was an ill-fated promotional appearance where it was used to ferry several lucky winners of a raffle at a nursing home – why and what-the?



OX

TOUR BUS PARKING



OH&S

AGONY AUNT With Julius Grafton...



WHO DECIDES WHAT?

Some of the stuff we hear leaves us speechless. "If an employer has a duty of care, then they decide what is safe" is good. So you're asked to climb without a harness, or rig five VL3000s on an anonymous spotbar held up by two chains that disappear into a plaster roof?

Buzzzz... I don't think so!

The legislation is clear: that everyone is liable and that ignorance is no defence. With the introduction of industrial manslaughter onto the criminal statutes, the courts have the power to jail you if you are found to have contributed to a death through incompetence.

THE LADDER

It's now only an access device, whenever you see some hapless electrician up there with a screwdriver in one hand, that hand should be on the ladder, with the other hand. Unless you only have one hand, in which case you need a risk analysis before you climb a ladder!

Work may only be performed on a platform, which is why the new ladders have a flat bit with a rail around the top, on which the worker can work without having to hold on.

I know this is unpopular but don't shoot the piano player. Take it as said: a ladder is not for working off, and that includes hauling a light up on to a spotbar or changing a lamp.

TWO POINTS OF ATTACHMENT

Most of us have this sorted out, the light and the barndoor both need a safety chain. But did you realise the spotbar, speaker box or truss also needs alternate attachment? One truss with two attachments, one at each end, is not deemed 'secure' because if one of the two slings lets go, the pendulum effect will likely cause a lot of damage.

So what about the slings? Put a light underneath that catches fire and you have a flaming sling which will cease holding

the bar/truss/speaker array. How many times have you seen a light or an electrical thing combust? **CX**



The nature of the advice given here is general. Do not rely on this column, and do refer any questions you have to legal counsel before imposing any changes to your venue, job practices or workplace. This column is not legal advice, and should not be taken as such.



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IVAN ORDENES

Audio Specialist



Ivan Ordenes runs Dubology Studios, and while his title is "Audio Engineer", he prefers the moniker "Audio Specialist".

Left: Ivan Ordenes on the set of Sunrise.

By JIMMY DEN-ouden

Like so many, Ivan first became involved in audio production at an early age. An interest in audio saw him helping out on school productions and family performances, which sparked a passion for such work. This led to him completing an engineering degree at the University of Chile, majoring in music and sound. He subsequently augmented his qualifications with a Diploma from SAE, and a Post Graduate Diploma in Sound Design at Sydney University. Qualifications are great but, knowing that experience is equally important, Ivan kept working in the industry while he was learning - a good way to support the theoretical knowledge with some practical implementation.

Asked to describe a typical work week, Ivan sums it up with a single word; busy. His days commonly start around 5am, when he rolls through the doors of Channel 7 studios to look after audio

requirements for performances on Sunrise and The Morning Show. 11am sees this complete, then it's off to meetings or picking up equipment for upcoming jobs. A couple of hours of admin work at home follow this, accompanied by a 30 minute siesta if he can fit it in! 3pm and it's back on the road and out to a live venue or studio, where the day eventually finishes some time around midnight. This said, other weeks may be different and sometimes it's hard to even find the time to answer a few questions for a friendly magazine!

We asked Ivan about the biggest challenge he faces in his role, and his thoughts are that whilst live production is full of challenges, the biggest he's faced was entering the world of broadcast audio. This was a decisive step made to further his knowledge of audio, and how to fulfil the demands of a different market sector.

The most enjoyable aspect of what Ivan does seems to be the satisfaction of having done it: "When performers drop their

instruments and the show is finished, there is nothing more rewarding than to hear producers, directors, musicians, and most of all, the general public thank you for a job well done..... "that sounded fantastic mate!" His favourite piece of gear is his DiGiCo console, and he's currently building a mobile audio truck.

15 years is a long time in the game, and when quizzed about the funniest things he's seen this one sprang to mind from his early days in the industry: "Working on a typical event that involved a band, and OH&S rules were not so strict. My senior audio operator asked me to go and get him a six pack - I came back with a six pack of nuggets and not beer. I was an innocent young and eager audio learner." His tip for the current generation of eager audio learners is to have initiative, and use it! "Nobody is born knowing everything, but good initiative can get you very far with senior techs who will give you the most precious lessons. Don't be afraid to ask and don't be scared to get your hands dirty."

CX

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ARRESTED DEVELOPMENT

Our hero nearly spends Christmas Eve in the Slammer

By DUNCAN FRY

I hope everyone had a happy and fun-filled time with their rellos this Christmas, and are ready to face the New Year with optimism and enthusiasm, now that Global Warming has been shown to be nothing more than a grab-for-cash hoax by British scientists to ensure that the new world order was to be run to their agenda. A pox on all their houses, I say, and preferably something a lot worse than swine flu.

As a young child, I never really believed in Christmas being Jesus' birthday, nor

did I believe in Santa coming down the chimney and leaving presents behind. I did however (and still do) firmly believe in receiving the presents, and was quite happy to go along with any arcane religious belief of my parents in order to keep 'em coming!

Every Christmas I lean back in my chair, full of turkey and brandy, and reminisce about the ghosts of Christmas past. And quite often my thoughts turn to a Christmas Eve many moons ago, when it appeared quite likely that I would be spending Christmas detained at Her Majesty's Pleasure.

The incident occurred when I was living in leafy Bayside Sandringham, a Melbourne suburb renowned for its aging population and high house prices.

"Sandringham?" remarked my ex-sister-in-law drily. "No-one lives in Sandringham...they just wait around to die!"

Be that as it may, I was sharing a house with LL, a partner in crime who has starred in many of these tales. But much to his relief, not this one!

Having finished my bachelor Xmas Eve dinner of delicious take-away, I felt like a nice packet of chocolate biscuits to round off the meal. So, I closed the front door and wandered down to the corner milk bar to see what they had to offer.

On my way back home, a fresh packet of Chips Ahoy firmly grasped in my hot little hand, an unmarked police car slid up alongside me, and two plain-clothes detectives jumped out and accosted me.

"Where do ya think you're going, mate?" asked one of them, doing his best Bryan Brown imitation, while the other put one hand on my chest to stop me, and patted me down with the other.

"Er, home to have a cup of tea and some of these biscuits," I replied. "Why?"

"So where have ya been?"

"Down to the Milk Bar to buy them," I replied gesturing back towards the corner. I was almost going to laugh and say I promise I won't do it again, but something told me that my packet of

Chips Ahoy wasn't really what all this was about, and that a far, far better thing to do would be just to shut up and wait and see what was going on.

"So where do ya live?" he asked.

"Just around the corner there." And I gestured towards our trendy cul-de-sac that was rapidly becoming a dead end street now that LL and I had moved in!

"OK, we'll give you a ride home. Hop in." He opened the rear door of the car and gestured for me to get in. A refusal would have been churlish, and more to the point, didn't appear to be an option.

Curiosity finally got the better of me. "So what is all this about?" I asked. The other one finally spoke. "A local restaurant has been robbed by a young bloke (ah, bless him!) who was seen heading this way."

"And you think it's me?" I gulped

He flipped open his notebook and started to read.

"Six foot tall, long dark hair, glasses, moustache, wearing black t-shirt and blue jeans. Sound familiar?"

Uh oh - I started to get a distinctly queasy feeling in my stomach, since he had just described me to a T (or should I say, to a t-shirt!).

They say that everyone one has an identical twin somewhere in the world. Who would have thought that mine lived in the same suburb, and that he should choose right now to turn up and rob a restaurant!

Just my luck to have one with an appalling sense of timing!

We pulled up outside Withering Heights and the other one said, "You don't mind if we come in and have a look around, do ya." Notice I haven't put a question mark on the end of that sentence, because to be honest, refusal was not an option.

I opened the front door and the landlord's dog Clyde stood in the doorway growling. Part of our rental deal was that LL and I would look after him. He was from Queensland, and was half Dalmatian, half Bull Terrier. That is,



Dalmatian size, and Bull Terrier shape. He was as solid as a brick shithouse and looked as though he had played fetch with the ugly stick and swallowed it whole.

The cops took one step back.

"Jeez that is the worst lookin' dog I've ever seen," one of them said. "What sort of dog is it?"

I gave him a deadpan look and replied "He's a pig dog." The cop grabbed me by the t-shirt and pulled me closer to him, shoving his face in mine. "Are you tryin' to be funny, pal?" he said menacingly.

"No, no," I replied, "that's what he is – a Queensland pig dog."

"Yeah, well get him out of my way or he'll be an ex-pig dog." He patted the lump under his jacket just in case I hadn't got the message.

I got the message and hustled Clyde out the back door while they wandered around the house, opening cupboards and drawers at random.

Naturally they didn't find anything incriminating, apart from my complete collection of 'Saucy Girls Around the World' art book collection, so, after about five minutes they came over to me.

"Look," one of them said, "the best thing to do is for us to drive you down there, and the cashier can come and look

at you and say Yes or No. If it's No, we'll drive you back home."

"And what if it's Yes?" I asked.

He grabbed my t-shirt again. "Will she say Yes?" he growled.

"No, no, of course she won't" I gasped.

"OK, so let's go then." And with that we all got in the car and started driving.

In about 3 minutes we pulled up outside the KFC that was at the end of Bay Street in those days. That was before land prices made retirement apartments even more profitable than fast food. My guts started to get that queasy feeling again, because, as you've probably guessed, KFC was what I had bought for my take-away dinner! The thought also flashed through my mind that calling it a restaurant was a tad grandiose!

They pushed me out of the car, and one of them stood next to me and held my arm, in case I did a runner, while the other went inside.

The girl came out from behind the counter, and stared at me. I put on my most wholesome innocent smile, and waved at her.

She stared at me for what seemed like an eternity, but was probably only about five seconds, then shook her head. The cop was talking to her, and she kept

shaking her head, so it looked like I was off the hook.

He came back and said to the other one, "No, let's go, it's not him." We all got back in the car and drove back to Withering Heights.

As we pulled up outside the house, the first one slapped me on the back and said. "Look, thanks for helping us out, Duncan. We've gotta check these things out, you know. No hard feelings, eh?"

"No, that's fine," I agreed. After all, it had lent some excitement to what otherwise would have been a dull evening.

The other one piped up. "You know," he said, "we raided a house today and we've got a boot full of dope plants. Would you like some?" So saying, he jumped out of the car and opened the boot. He was right, it was jammed chock full of the stuff. The smell of fresh weed made my eyeballs roll up in my head, but I declined with thanks but no thanks. I patted my chest "Asthma – can't smoke at all, you know. But thanks anyway."

They jumped back in their car and drove off. I could just imagine that if I'd said yes, I'd come home one night to find the place full of the drug squad.

Not sure that I'd be able to blame that on my identical twin, wherever he is! **CX**



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PHILIPS
Selecon

a new K3 Soundcraft console and some EAW KF 650 cabinets. Their recent work includes NSW dates for Lee Kernaghan and Vibes on a Summers Day."

WHAT WE PAID:

- Azden plug in wireless system: \$795.
- Ex Superstar (Arena show) revolving stage, just \$18,000.
- Tri Truss from ALE: \$195 per metre plus 20% sales tax.

CONNECTIONS FEBRUARY 2000

Here's an excellent cover, caused by the nice people at Neumann sending us the picture which we then themed. It bore no relation to what was inside this boomer edition, 108 pages plus a 44 page ENTECH show guide. Our all time page record was 200 pages, some years before this one.

PRESENTECH

We had a spin off magazine called Presentech which was designed to expand our audio visual market into corporate presentation and installations. This was working - we had a Presentation zone at ENTECH 2000 and this magazine issue was full of show previews.

YAMAHA PM1D

Made its debut, and the mag was full of regular point source array speaker cabinets, like EAW KF750 and Martin Wavefront. There was not a line array to be seen in this issue. That would all change before the year was out.

BASF STUDIO ROUNDUP

We were headed to the end of the tracking guide, where for years we had polled every recording studio in the land, and listed who was tracking where. The studios were shutting down, driven out of business by the ease of recording on PC.

GREAT SHOWS!

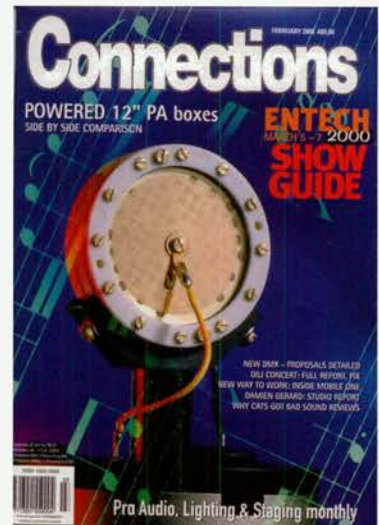
The Tour of Duty concert in East Timor was covered at length - what an undertaking! "Accommodation in Dili will be very basic. 4 - 6 shared rooms without facilities, stretcher beds with mosquito nets. There are no formal showers and toilets are portable." Tasty. The other memorable show was the Cats tent tour which broke new ground and proved for all time that a black tent is not a good idea in Australia. Sprinklers over the top did little to alleviate the chronic

weight loss suffered by the dripping perspiring dome operators. Finally the curtain came down as the site costs spiralled out of control. Plus the audio got bad reviews since the noise floor from the air conditioning plant made it hard.

WHAT WE PAID:

- Phonic MM1002 baby mixer \$295
- Wavecom Jr. Wireless audio video everywhere communicator. (What happened to this?) \$299 each.
- M-One and D-Two from TC Electronic, \$1,295 each.

** Before the Civil Liberties Marxist Video Legal Collective gets wound up, we stand corrected on the nomenclature. 'Person of short stature' just didn't fit the theme of the reference, which is a throw-away to the rock excesses of our recesses. Some people with the condition are happy to be referred to as a dwarf.* CX





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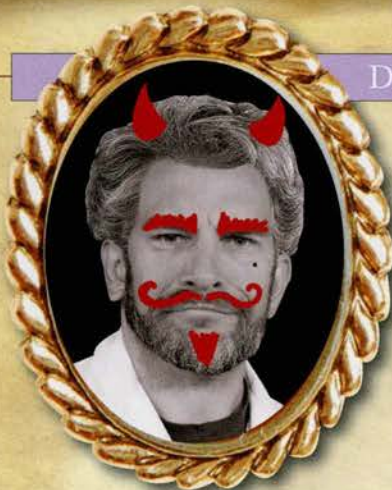


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Dr Danger's

REDHOT SCIENCE

Welcome back, science gang! Hopefully everyone had a splendid summer break and is feeling refreshed and ready for science!

By DR NIGEL SHORTCIRCUIT

Dedicated as I am to the pursuit of knowledge, I've spent the entire summer hard at work discovering stuff. For example, I have discovered that excessive exposure to the seaside leaves a chap sunburned and hungover with a bum full of sand. Science Boy, locked in the lab as a control specimen, reported no such symptoms. Good science, but it's tough when I'm the one making all the sacrifices...

ON WITH THE SCIENCE

Never mind all that, let's get to today's project. All the mains extension leads in the shops have little tags telling you not to use them unless they're fully uncoiled, which is all well and good if the damn thing's the right length, but they so rarely are.

Everybody has different ways of dealing with this problem. Lots of folks in the production industry like to make neat little figure eights, claiming that this reduces the effects of induction or some such. Others reckon this is piffle, and you may as well just coil it up. One guy I know swears by running it in a straight line for as far as you have space, then doubling it back on itself.

Meanwhile, Joe Average bundles up the household version and shoves it under the sofa.

So how much difference does it really make? Time to find out.

THE SCIENTIFIC METHOD

I'm going to run four tests, each for two hours. Each test will involve running 2200W of lights from a single GPO. Between the lights and the outlet,



Dr Danger gets to grips with Science Boy's temperature thingy

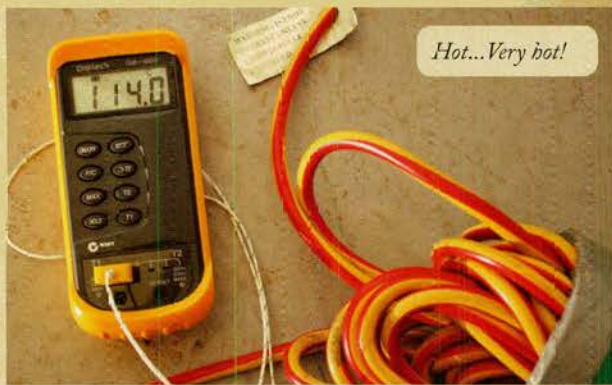
electricity will travel through a twenty metre lead purchased from the local hardware barn. The only difference between the tests will be the arrangement of the cable. I'll try the coil, the figure eight, the back and forth and I'll simulate the 'under the sofa' technique using a length of 100mm PVC conduit. In each case, the 20m lead will be used to cover an actual distance of about 1m, leaving plenty of excess to hang about getting hot.

Meanwhile, Science Boy will measure the temperatures and extinguish fires as required.

WHAT SCIENCE BOY MEASURED

Science Boy has compiled all his measurements into this neat little table, which should enable me to draw all kinds of tremendously scientific conclusions. Take a looksee at *Table 1*.

The chart shows that the cable will always heat up, but there's heating up, and then there's really heating up. Stuffing it in the pipe got it up to about 90° above the ambient room temperature – hot enough for the insulation to start smelling really dubious, and hot



Hot...Very hot!



Insulation gets soft if you make it too hot.

TABLE 1 - SCIENCE BOY'S CHART

CABLE LAYOUT	TEMP °C
Back & Forth	43
Figure 8	55
Coil	80
Stuffed In Pipe	115

enough for Science Boy to burn himself trying to recover his thermocouple. And hot enough that I could break the lead with my gloved hands, simply by pulling it. The insulation just bundled up, then the copper let go.

BUT WHAT DOES IT ALL MEAN?

Well, for a start it means you should do what it says on the lead. Uncoil it.

Secondly, it suggests that while there might be something to the 'figure eights reduce induction' theory, the big kicker is letting the heat escape. The proportional differences between the four tests show the coil getting a lot hotter than the figure eight, but the figure eight was, in turn, a good deal hotter than the longitudinal arrangement.

So you can figure eight stuff all you want, but if you have all your cables figure eighted on top of one another in a gigantic heap that traps all the heat, you're still likely to have issues.

What kind of issues? Well, burning yourself for a start. Followed by the hilarious possibilities inherent in live cables with dramatically softened insulation.

Best bet? Spread your cables as far as you can. Do everything possible to let the heat out. Use good quality cables, and check them often.

And one more interesting point. Science Boy demanded that we test & tag the lead before beginning the experiment. Some garbled nonsense about making danger safer or something, I don't know. Funny enough, even after I destroyed the lead through sheer deliberate maltreatment, the tag's still there – and it doesn't say anything about the lead being faulty. There could be a message there too...



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WAY OUT WEST WHERE THE GRASS DON'T GROW

CX makes the trek to visit Centrestate Sound + Lighting in Orange, NSW

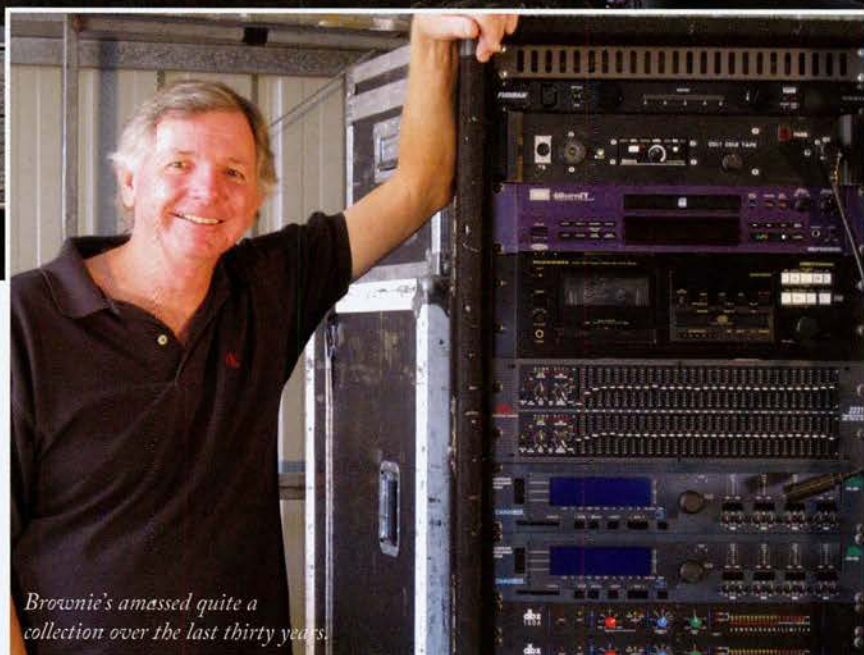
With this at the front door, it must be tempting to knock off early some days

By **JULIUS GRAFTON**

Orange is a gem of a city located between Bathurst and Dubbo – near enough to the middle of New South Wales. It's in the high country so it gets snow, and right now it hasn't got enough water because the price of gold has lit a fire under the mine. Refining gold requires a lot of water. So there's money in them hills.

But thirty years ago there were just apples and sheep, and young Allan Brown was a panel beater who played drums. His wife Marie works for a funeral home, which is a good constant kind of business since people tend to die at least once. Allan even moonlighted as a hearse driver. "You actually need – of all things – a taxi driver's licence to drive one", he laughed. "And I didn't have one, but the passenger never complained."

Brownie, as he is known, is a good kind of guy. And his production hire and sales business has just passed the thirty year mark with the diary as full as it's ever been. Maybe it's the variety that keeps



Brownie's amassed quite a collection over the last thirty years.

him interested, lately it's the aircraft parked in his hangar HQ at Orange Airport. The little Jabiru is paying for itself because row Brownie can fly out to remote towns and do a day's work on a club or school sound or lighting system.

DIVERSE

A flip through the diary shows some extremes. Like the Parkes Elvis Festival, just a few days before the Tamworth Country Music Festival. The Elvis thing at Parkes is truly weird, while Tamworth is Brownie's biggest gig each year.

"We've been doing Tamworth for 18 years now", he says, "and this year there are seven firms vying for the work." It's a two week run in the West Tamworth Leagues Club which runs music from 7.30am until 3am every day – that's hard work.

There is also the 50th birthday party for one of Australia's richest people, where the production equipment went in to the Sydney harbourside mansion by barge. "It was a one week gig, because at the end the barge wasn't available for three days."



Stacks and Racks - Wavefront deployed for Killing Heidi at Dubbo.



Centrestate's FOH position. Loads of outboard.

Transpires that gig came through a production manager – Aaron Chugg, aka Chugglet (nephew of the great Michael) who uses Centrestate and who was impressed enough to flick on a prestige gig.

Centrestate has a touring system that comes in a truck with crew, although the work these days is more one-off, since almost no one tours production any more. “We would do Bathurst, Orange and Cowra, or just one show”, Allan says.

Then there is the Narooma Blues Festival, a long way from home but “this business is all about doing a good job, and networking”. October is the busiest month, with the Bathurst Races, Wine week in Orange, the Orange national field days, Orange Business Awards and 4 stages at Bathurst Village fair.

At the other end of the book there are those bread and butter jobs in schools and clubs. And at the end of every year, school functions and dance course spectaculars in towns across the west. This is where the airplane comes in.

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The country comes to town - unloading the barge for the big birthday bash.

in most weather. This is a big deal in general aviation, there are many days when you can't get past Orange because of low cloud over Mount Canobolas.

Having a modern light aircraft and the license to fly it is a boon if you can wrap some work into the pastime that is recreational flying. The Jabiru 230 was a four seater, but with the back seat removed Brownie can load tools, spares and things like an amplifier or two in there and legally fly to remote towns.

"We'll fly out to Nyngan, Trangie, or Bourke, and update sound systems and lights - we maintain gear. I go out there first, do the one on one to get the work. There's always lights that are blown, we do maintenance contracts. Put lights in on permanent hire, do more maintenance."

"We just did - of all things - a drive in theatre installation at Tibooburra. We shipped the speaker boxes and heavy stuff up there and flew the rest in. We were up there 2 days. Driving would add a day either side.

STRATEGIC ALLIANCES

Normally in a smaller market competition means you eat each other and one survives. Strangely, or perhaps because of the way Brownie works, everyone out west seems to have their niche and they all respect the other.

The most direct competitor is Martin Parks Productions, which exists in the same town as Certrestare. Marty actually works from home but when he needs to spread out and do maintenance, he goes

Molong Music Festival. The lighting rig favours conventionals over movers - in the bush, reliability counts for a lot

to Brownie's hanger.

They share the same equipment preferences as well, which means that both firms can combine equipment to make a larger system.

"We're always busy. We do retail sales as well, sell microphones and speakers, we work with the local music store - they hire stuff as well, but they send people to me as well." This kind of cooperation is refreshing.

Then there is the vexed issue of crew. "We subcontract some guys who also work at Orange Civic Theatre, and they take some of my guys who are subcontract. Everyone freelances with each other."

"It's easy to find guys, but hard to find good guys. Plenty of 'would be if they could be' - like guys from SAE who have no idea, they are full of theory but in practical terms - useless."

THE GEAR BOX

Behind any long term successful production firm is the correct inventory. "When I see a rider, if it has a digital desk then increasingly these days they also ask for someone knowledgeable to come with it", says Brownie. Which is why he is still using an Allen and Heath GL 4000 console at front of house, with a Soundcraft SM12 on stage monitors.

“Likewise the Martin Wavefront – there aren’t any venues out here that you could fly a line array in, so a point and shoot array is fine. Everyone is happy with the Wavefront. The Martin Wavefront will probably be going a lot longer than I will!”

Between Centrestate and Martin Parks Productions they have six stacks a side and sixteen subs, enough for any of the festivals they do.

For some reason, possibly that the same distributor who handles Martin also handles QSC, the amplifier component is that brand. “We use EV WX12 x-array wedges though, these are nice and small and they sound good. Martin didn’t have a wedge in this category when we got them, though they do now.”

There are lights as well, Mac 250 Entours, lots of par cans, LED strips, and all the usual stuff – 56 cans, Rays, Hazers and stacks of trussing.

“We can do most things, we have risers, drapes, tower lifters and even 100v line outdoor horn systems for races. Plus some backline, like drumkits and amps.

ONWARDS...

“It depends what clients want – I quote what people want. All the suppliers are friends of mine, I’ve seen people go from



Not every production company needs a plane, but they have their uses.

one company to another.”

“At Tamworth I see people like Adam Harvey and Becky Cole – I’ve seen their live! How they’ve grown up, I’ve been with them all the time.”

“We try to keep the clubs, the punters and the artists happy”.

His kids have grown up: Jason is 29 and Melonie 27.

But there’s always the drums. The week we visited they played at Orange Ex Services Club: the band is called

Grumpy Old Men. This rules out a female singer in the future. “Female singers always seem to break up bands”, Allan observes.

It comes out in the telling of this story that a positive, honest and hard working mantra works wonders. Brownie is no spring chicken, and he ponders how to evolve his business. “I’ll have to let go sooner or later”, he laments.

Good things come to those who do the right thing. CX



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NEUTRIK



PETE THE POWER GUY



By JULIUS GRAFTON

Pete McManus is one of the army of specialists we rely on for our daily show business needs. He does power. Big power. These are his words...

We primarily go from power source down to a 10 amp plug. For the festivals we power everything from the stage down to hot dog stands. The promoter sources a generator from one of the companies, we come in, do the cabling and RCD's and make it happen.

I started as a roadie about 14 years ago for a crewing company and after a few years went to Chameleon and did lights for three years before moving into film.

I rigged electrics on *Matrix* and a lot of films since. As a result I met the state manager from Aggreko and bounced between generators and dimmers on the film sets.

When there were dead periods in film

I got involved in generators. Then I needed a breath of fresh air, something different - so I went overseas. Over a few months I tidied things up here, saved some pennies and shot off.

I was only in the UK a short while and an Aussie fellow from GE Generators, who was the project manager for the Athens Olympics, found me.

Before that, I must have sent 100 resumes to lighting, staging, film production companies - the whole bit and I didn't get a reply. I thought, just go for it - you hit the ceiling in Australia. I knew in my heart I wanted to get out and do something different.

I had some mates over there so I had somewhere to put my head at night, and the week after I got the call to go to Athens I had a couple of calls from UK firms.

With GE I kept being invited to do different gigs, and then they sold it down to Aggreko. Last time I went over was the first big Aggreko job and that was the Beijing Olympics. So I can now chill out here in summer and then head over

there for summer!

But the winter games showed up in Turin a few years ago and I had three winters in a row.

I work with a few Aussies, Canadians, Brits, a few Yanks. We've all become pretty close and we know how things are done.

It's good to be home, but it's also good to get your teeth into a decent sized project in strange conditions where no one speaks English.

You don't need to be a sparkie (an electrician). It's a grey area, a lot of it is plug and play. Having said that, there's a lot of jobs where we had transfer switches - you cable into the main grid and if it fails the generators turn on and take over. We do that with a local electrician.

With temporary cables you're going over a scaffold bridge that's been made for an event, you have to be aware of public access and how you rig - I'm a rigger from the lighting days, so there's some climbing, hiding distribution away from the public but accessible.

The ongoing conversation is about earthing. The rule of thumb is we clamp the stage, earth the scaffold at the same potential. The whole thing is hazy, you never get a good answer out of anyone. I always earth.

It's a habit, I always get cable and a stick from a generator, spend five minutes with a hammer. Some OH&S fellows on site will freak out if they don't see the earth even if the slide mounted unit weighs tonnes and it is earthed – it was dumped off a tilt tray and has grounded itself!

I've heard stories, but thankfully I've never been associated with stuffups. Heard about an outdoor concert where the generator guy didn't check the generator fuel and it stopped – unforgivable.

You can't always prevent mechanical failure – diesel motors are pretty resilient. Not so much now but a few years ago the electronics were getting smart and there were a few kinks with generators talking to each other. But the safest way is to have a redundant supply – two generators going at 40% each then if one falls over no one knows.

I've never been in the position to negotiate those risks with a producer. manager, there's some strong willed men

who've been around 30 years. 'If your machinery's so great, why should I rent two of them?' they say.

I've been on one show where there was an electronic fault, there were two gen sets and they were linked so we lost one but the other took the entire load. A lot of smaller gigs there would be one generator.

I'm not a diesel mechanic – if it gets to that point it (the gen set) shouldn't be on site. Overheating is an issue, most companies put the generators through the ropes before a job.

Access and timings need to be sorted – if gates open at 10am, get the fuel trucks at 6am. There could be 30 generators spread around the site – toilet blocks, booze tents, all the parts to a festival – water pumps for the dunny guys.

In Turin we had 560 gen sets, from a 40kVA to 2 Meg – enough to run Sydney CBD maybe!

A lot of firms put a premium on fuel – if it's \$2 a litre they charge \$2.50. I never do fuelling. Rightly the promoter wants to look after it. Get someone like a fuel agent subcontracted direct to the production.

Show power – the biggest one recently would have been Robbie Williams a couple of years back, something like 4 x

500kVA with one spare machine.

Most of the work is outdoors, you get the plan (sometimes you don't get the plan) and you just do it. The show day is when you're bored, if you're bored then you know you've done a good job. There's nothing to fix! Walk around, check the generators, check the bands, throw a meter over a cable.

The cable weight can be the killer – just under a kilo a metre. It's got to be neat and tidy, and run properly. That's the only way to do it. There's 400 amps a leg coming down those things – if they get a rip or a tear, it's useless.

The RCD's (residual current devices) can be a worry. One 10 amp RCD could trip out the box behind it – with half a dozen 50 amp units. As you head back to the power source there might be leakages on certain outlets. Touch wood, I've had no problems so far.

The most common problem doing what I do, on a film set, is hair dryers and random stuff getting plugged in. On festivals, it's the hot dog stall guys plugging it all into one 10 amp outlet. Most of the catering companies have educated themselves now. They know how much their refrigerators and grills pull.

More power to Pete!



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PIANOS AND MICROPHONES

The fundamental principle of microphone technique is to figure out where the noise comes out and put the microphone there. That's all very well for most instruments, but how do you deal with something nine feet long when the sound comes out from everywhere?... By ANDY MACKENZIE





When the piano was invented, sometime around 1700, unaccountably no-one gave any thought to the question of how it would work with a microphone. The original design of the instrument, along with virtually every modification it's undergone in the ensuing 300 years, is all about acoustic performance.

For the audio engineer, this makes the piano an almost unique proposition.

One of the first things to get your head around is that the sound genuinely does come from everywhere, thanks to the enormous size of the soundboard. In this respect, there are similarities between the piano and other stringed acoustic instruments – guitars, the viol family, even harps – but the others all have something the piano has not. The others all include a resonant chamber, and the hole letting the sound out of the chamber is the obvious target for a microphone.

A second important point is that even though the sound comes out everywhere, it sounds different in different places. And, like other acoustic instruments, the overall sound of the piano is a result of the combination of all these slightly different sounds, along with some external factors like the interaction of the instrument and its environment.

A PERFECT WORLD

In a perfect world, getting a good piano sound wouldn't be real hard – get a good piano, put it in a good room, find the spot in the room that sounds best and put the microphone there. Use a good omnidirectional microphone (typically omnis have the most even low frequency response) and all is well. If you want stereo, put two nice mics in the two nicest sounding spots in the room.

This is an approach that can, and does, get excellent results in recording – especially recording classical works, where the characteristics of the recording space

form an integral element of the recording.

For live sound reinforcement purposes, however, this approach is nothing more or less than a recipe for disaster. While omnidirectional mics may sound great, they're hardly known for feedback rejection – especially when they're placed some distance from the sound source and need plenty of gain.

There's also the problem, which faces engineers recording ensemble performances as well as live engineers, of spill. The piano might sound great on its own, but the piano mics are going to pick up at least the same amount of everything else as they do of the piano.

So what can we do to get around the imperfections of the world? Some understanding of how the instrument works is a very good start...

SO HOW DOES IT WORK?

I'm glad you asked. Essentially, it's like any other stringed instrument – the sound comes from the vibration of the strings, which are set vibrating by a variety of means. Guitar strings are usually picked, violin strings usually bowed, and piano strings bashed by a little felt hammer. Unfortunately, as anyone who's ever tried playing an electric guitar without an amp knows, the strings alone don't go real loud.

That's why all these instruments use a bridge and a soundboard – the bridge forms a mechanical linkage and transfers the vibrations from the strings to the soundboard, which in turn does a much better job of transferring the vibrations into the air.

So no matter where you put the microphone, the vast majority of the sound you pick up is going to come from the soundboard. That's why the piano sounds mostly the same from different places.

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Microphones over the action pick up more attack.



Moving the mic over the bass strings further from the action offers more low frequency response.

VARIATIONS ON A THEME

The key is that it sounds mostly the same – there are slight variations from place to place, and the variations become more noticeable as you get closer. Most of the sound comes from the board, but there is enough going on with the strings and the action (the mechanism driving the hammers) that if you get a microphone close to these, you'll get a different sound.

Similarly, even though the sound from the board is the same above and below, the sound you hear from above tends to be somewhat livelier – it's difficult to describe exactly the difference – because the sound has to come through the strings on its way out. My guess is that you get a bit of extra harmonic content out of the strings that doesn't make the leap to the soundboard, but I could be wrong. Whatever it is, it works.

SIMPLE SOLUTION

The simplest solution, then, is simply to point a microphone at the soundboard. There are a couple of ways to do this, and they all have one thing in common – they seek to get the mic as close as possible

to the board, thus minimising spill from other sources and maximising gain before feedback.

Any ordinary vocal microphone can be put on a stand and pointed in at the soundboard through one of the holes in the curved side of the frame – depending on the size of the piano, there could be anything up to six or seven holes. I recommend using something with a bit of top end rise, as miking the board directly can result in a slightly dull tone. If you feel the result lacks bass response, move a hole or two towards the long side of the piano, if you think it's lacking treble, go the other way. It won't make a huge difference, but it can be enough.

Keeping the lid of the piano on the short stick helps to reduce spill, but it won't give complete isolation. Using a smaller clip on microphone in the hole means that you can shut the lid altogether, but expect to apply a bit of EQ and reverb to this to get it to sound OK.

There are also a variety of contact transducers that can be fixed direct to the underside of the soundboard. These give even better isolation and feedback rejection, but again they don't sound great

and usually need some remedial work with the EQ and reverb – nothing wrong with the mics, just the limitations of the timber.

Even if the 'mic in the hole' technique doesn't work for your FOH sound, it can be a handy approach to keep in reserve for doing monitors – especially if the piano player's a bit deaf and needs it loud!

OVER THE ACTION

Better results, especially for jazz, blues and other styles requiring a percussive tone, can be achieved by putting a microphone or, more commonly, a stereo pair directly above the piano's action. Either way, you want the lid open. If you can't have the lid open for some reason, the previous method is likely to get better results.

If you need to get by on one microphone, try using a cardioid condenser about 10cm above the action two-thirds of the way up the strings (in other words above the frame rib nearest the player's right hand). Don't point it straight down at the hammers though – point it across at the strings below the other frame rib. This evens out the response across the keyboard without sacrificing the percussive tone.

If you've got the luxury of two mics, put one above each of the two frame ribs above the action. If it sounds like the mics are favouring some notes, it probably means they're too close and picking up too much hammer tone. Move them back a bit. If both mics sound exactly the same, you're probably too far back – bring them in closer.

If this approach seems to lack bottom end response, try moving the mic over the bass strings further away from the player. If you run into serious feedback issues with monitors, add an extra mic through the hole just for monitors. If you run into serious feedback issues with FOH, it's rather trickier – try moving the piano.

DON'T BE AFRAID OF THE LID

The lid of a grand piano is a grand thing in itself. Without it reflecting sound in the right direction, most of the piano's output would disappear into the flytower. It can also be an enormous asset to the sound person trying to get a good sound without building a stand farm around the piano.

A couple of boundary mics fixed to the lid above the appropriate parts of the action will pick up the sound of the piano beautifully, and produce a very natural tone. This tactic is well suited to classical material where the percussive tone is less necessary and you want the instrument to

look nice.

You can also take this approach with the lid shut or on the short stick, but expect the sound quality to suffer. Like it or not, the piano is designed to operate with the lid wide open. You wouldn't expect much of a guitar with the sound hole closed with gaffer tape, would you?

SOME FINAL THOUGHTS

There are a bunch of things you can do to get your piano sound better, and most of them are just good audio practice. Here are some that I think are most likely to be useful.

Think ahead. Lots of problems with spill and feedback can be largely, if not entirely, resolved by thinking smart about where everything gets put. If you want to get away with mics on an open lid, don't park the drums in the curve of the piano. Also don't park the piano directly below the centre cluster.

Start right. You can't polish a turd, so always start with the best you can get. Avoid dealing with pianos that are out of tune, have cracked soundboards or bent frames, or are otherwise victims of abuse. And when you're stuck with a crap piano, do what you can with simple



The simplest solution - microphone in the hole.

mic technique (straight down the hole) and try to salvage it with some EQ and reverb. You may not be able to polish it, but you can at least roll it in glitter...

Use good microphones. Let's not forget that the piano has pretty much the widest frequency range of any common instrument, and needs to be treated accordingly. If you can get away with using omnis, it's a good idea. If you can't, then look for something with the most appropriate frequency response – dead flat from 20Hz up.

Sometimes a real piano ain't worth the trouble. There are a bunch of

manufacturers these days making electric pianos which sound better than some real ones, and that have suitably weighted keys to make them OK to play. If you're pushed for space on stage, or everything else is really loud, maybe the compromises you make on your piano sound outweigh the benefits of using a real one.

So there you have it – the beginners' guide to pianos. There's plenty more to say, but this gives you a starting point. But go ahead and experiment, and remember that in audio if it sounds right – it is right. CX

What do Planetshakers, Pink & Faith Hill all have in common?

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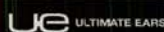


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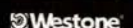
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By **RICHARD CADENA**

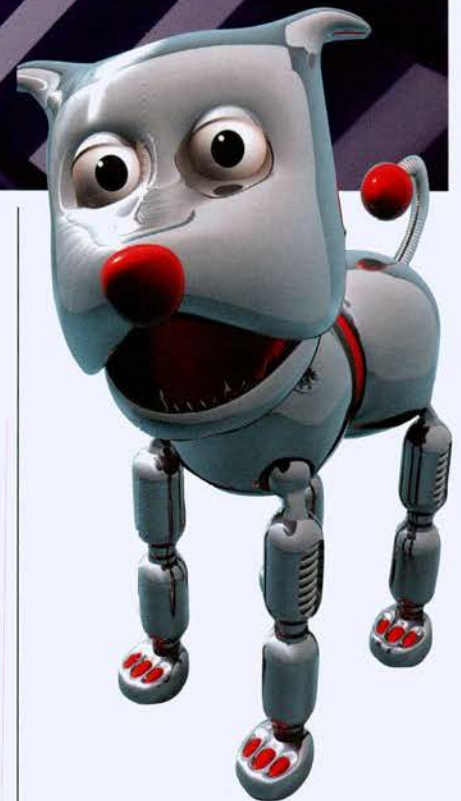
I was fortunate enough to look in on the tech rehearsals for a major Broadway show recently. I was blown away by the technology on parade, not so much on stage as in the house. In what looked like a scene from a science fiction movie, almost every seat in the orchestra section was covered with sheets of plywood, each of which served as a table top for a couple of computer workstations. Each workstation had two or three computer monitors and some type of computer, whether it was a console, controller, laptop, or some other silicon-filled box. Behind each of these workstations sat various programmers, assistants, producers, directors, techs, and other unidentified personnel.

To witness the sea of glowing monitors in what was otherwise a complete blackout was more fun than any dark ride at Disney. It served as a stark reminder that this computer thing is not a fad. But that's not new, at least not in the last 25 years. What is new, however, is the proliferation of local area networks (LANs) and our increasing insistence on linking two or more computers, controllers, or consoles. That will be happening more and more as computers become even more powerful,

affordable, and as software continues to be more highly developed.

The savvy techs among us are already tuned in to networking; how to build them, how to configure them, and how to troubleshoot them. The rest of us had better figure it out soon. I recently used a programming wing and a playback wing that had no means of connection other than an RJ-45 connector. I had to use a network switch to connect them to a PC-based lighting controller. As more devices in our industry are being networked and require network configuration, we need to understand the basics of networking including IP addressing and subnet masking.

An internet protocol (IP) address is a way of telling every other device on a network exactly where a particular device can be reached over an IP network. In some ways it's similar to the way your mail delivery person uses your house address to deliver your mail, except that computer data that is sent to you



is never delivered to your neighbor's computer by mistake and an IP network doesn't take the day off for holidays.

Like your street address, which has a

	DOT-DECIMAL NOTATION	BINARY NOTATION
IP address	192.168.7.128	11000000.10101000.00000111.10000000
Subnet Mask	255.255.240.0	11111111.11111111.11110000.00000000
Network Portion	192.168.0.0	11000000.10101000.00000000.00000000
Host Portion	0.0.7.128	00000000.00000000.00000111.10000000

street number and name and a post code, an IP address has a couple of parts. There's a network part and a "host" part. Think of the network part of an IP address as the post code. It routes data to the right general area but not straight to your door. Then there's the host part, which identifies the exact location of the host or the computer to which the data is intended.

Unlike a post code, the network portion of an IP address is variable in length depending on the size of the network. IP addresses are currently formatted in what's called "quad-dotted decimal notation." That's a geeky way of saying it has four segments, each of which are separated by a dot, and although a computer sees them as an eight-bit binary number we notate it in decimal because it's much easier for humans to read. So IP addresses range from 0.0.0.0 to 256.256.256.256. If the network is to accommodate, say, 32 computers, then the host portion will need to be able to represent 32 unique numbers in binary. That takes five bits because 00000 in binary is 0 in decimal and 11111 in binary is 31 in decimal. Since the entire IP address is 32 bits long, that leaves 27 bits for the network portion of the IP address.

All of the computers or devices that are connected on the same data link have matching network prefixes, meaning that the first portion of their IP addresses are the same. That allows the network to filter data according to where it's going using a bridge or a switch. It's something like the way your letters and all other mail addressed to the same post code go to the same post office before being delivered to the proper mailbox. Or, in the case of the U.S. mail, maybe going somewhere in the vicinity of the proper mailbox.

To make it the last mile to your mailbox, the bridge or network switch is configured with what's called a subnet mask, which logically breaks the IP address into its two components – the network portion and the host portion. It does it by performing what's called a logical AND operation with the destination IP address. An AND operation is when two or more digital bits are compared and the result is a logical 1 if, and only if, all of the bits being compared are a logical 1. For example: 0 AND 1 is 0; 1 AND 0 is 0; 1 AND 1 is 1.


The subnet mask is in the same format as the IP address; it's a series of 0s and 1s in quad-dotted decimal notation. The prefix of the subnet mask is always a series of 1s and the suffix is a series of 0s. The number of 1s and 0s depends on how many hosts there are: for 2 hosts there is one 0; for 4 there are two; for 8 there are three, etc. By performing an AND operation with the IP address, the result is the network portion and the remainder is the host portion.


Once the two portions of the IP address are determined then the data can be routed to the proper destination. The subnet mask works like the key to your mailbox except it uses digital tumblers instead of physical ones. The subnet mask is important because it helps reduce the traffic on a data link. If all the data in the world had to pass through the cable connected to your computer then you would never be able to send or receive any data. The network would choke worse than the 1951 Brooklyn Dodgers. By filtering out data with mismatching IP addresses the network runs faster and better.


Faster computers, faster networks, and more savvy techs all add up to more and more dependence on computers and better shows. The next time you see a Broadway show, think of all the 0s and 1s they had to move around to make the show happen.

Contact Richard Cadena's host portion at rcadena@austin.rr.com.










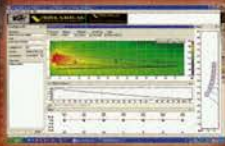
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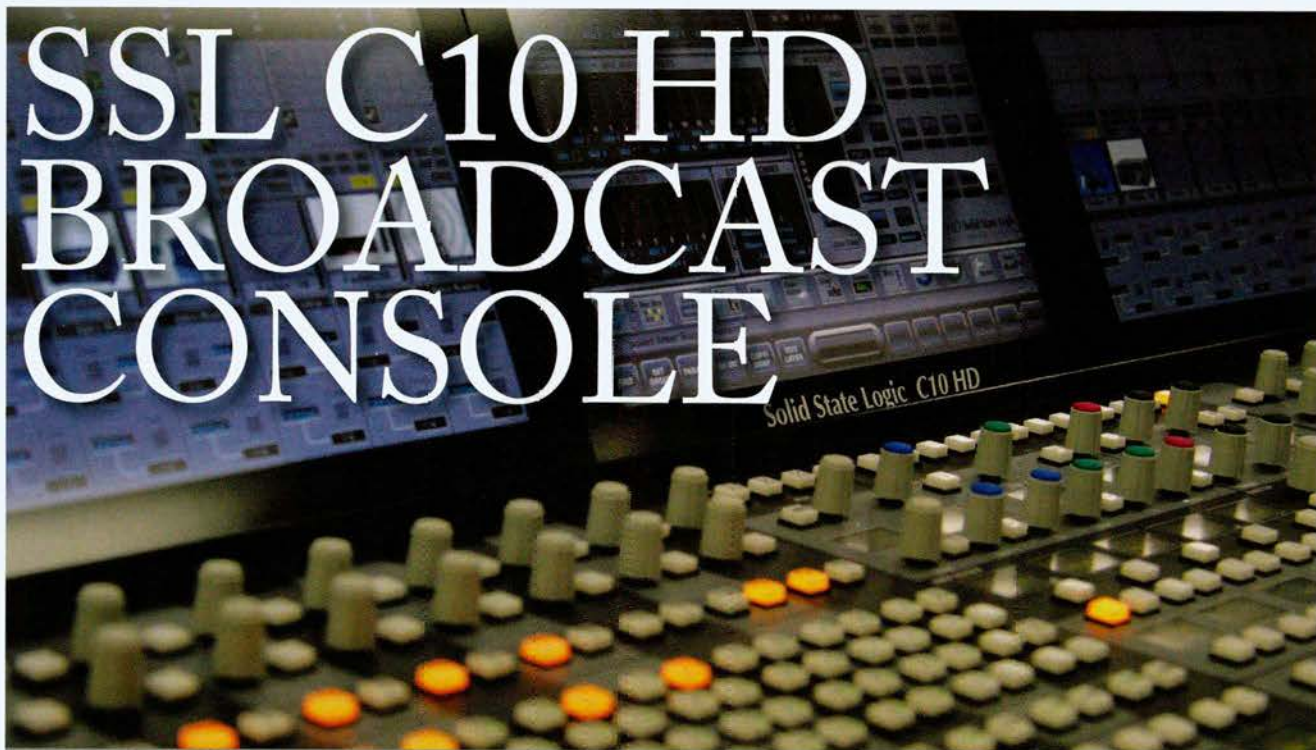
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SSL C10 HD BROADCAST CONSOLE



With the convergence of live production and television we figured it was time to take a look at how the other half lives. The release of SSL's C10 HD broadcast console seemed the perfect platform to gain some insight into broadcast audio.

By **JIMMY DEN-OUDEM**

Most readers will be familiar with the general idea behind live production mixing consoles. The purpose of a broadcast console is somewhat different, hence so are the features. Broadcast consoles typically run more channels, often allow for routing of additional signal ancillary to those used in the mix, have more complex monitoring sections, and generate many more mixes. Analogue or digital is less of a question in the broadcast arena – at least to an outsider, digital seems to be the way forward.

Outwardly the C10 HD console from SSL looks similar to many live consoles we've seen before, save perhaps for physically taller construction and a nice set of legs. But hey, who doesn't like a nice set of legs? The console isn't built to be road cased and thrown in and out of trucks, though I'm guessing you could probably get away with it judging by the build quality. The console feels like something you want to treat nicely.

OVERVIEW

The C10HD itself is based on SSL's Blackrock processing core, which is a dual computer hybrid. There's a processor for audio, and another firewalled processor which looks after integration,

file management and SNMP. The whole thing is proprietary and claimed to be 100% virus proof. The processing power is dedicated rather than taken from a collective pool – meaning there's enough of it to allow every conceivable process to be implemented on every channel of the console simultaneously. The bus structure includes two program busses each of which can run stereo or 5.1, stereo or 5.1 subgroups, 15 mix minus busses, 8 auxiliaries, and direct outputs. There's also a comprehensive monitor section.

The console is setup in bays of 8 channels and you can choose 3 or 4 bays of channels plus master section. There's no local I/O per se on the console itself – this is done via MADI fiber ports. I/O is provided courtesy of a range of I/O boxes, all of which communicate with the C10 HD over MADI fibre. The biggest of these is the B-RIO frame, which offers up to 254 channels of I/O. Next step down is the MCRSE frame, which is also a card based frame system offering customizable input and output options including mic, line, AES, and even SDI embedder and de-embedders. The smallest option is the Alpha-link-live, which is a 2RU device offering 24 channels of line level in and 24 out, plus 24 channels (12 pairs) of AES.

Alpha-link-live connects to the Alpha-link 8 RMP remote mic pre unit for mic

level inputs. Remember, broadcast deals with a lot of line level sources so it makes sense not to buy a bunch of mic pre-amps you'll never use. Both units have the same appearance, and include redundant power supplies. In fact everything in the range has a redundant power supply – the console itself even has a redundant CPU option. The idea here is to ensure no interruptions occur on-air, and it's well covered – remember this product is designed to go into live TV studios. Some readers will balk at the price of this console, but the reality is that such a figure pales in comparison to the cost of an on-air failure. In case something does go wrong SNMP reporting and remote access enable the folk at SSL to dial into the console and find out what's happened and how to fix it.

SSL are big on user training and proper commissioning of their systems – it's not quite a case of "plug and go", but looking at the setup menu I can at least say I understood it. Permanent installations are likely to have much of the setup configured in a default manner. For example, if the C10 HD were installed in an OB truck, the IO ports would be labeled to correspond to the inputs on the back of the truck, rather than just "IO box #, slot #, channel #" – this makes it friendlier for operators to walk in and use.

DOWN TO SPECIFICS

The layout of the console does in some ways resemble a live digital console. Each channel strip has a fader, and an "Attention" (read select) button, as well as ON buttons, AFL, PFL and assign keys. A pair of rotary encoders and accompanying keys at the top of each strip is freely assignable to control most anything you need. An interesting differentiation in broadcast is that the faders have "pull back PFL" – this allows you to pull the fader below minus infinity to PFL the channel. The fader springs back to minus infinity when you release it.

Each channel bay has a display screen above, which shows various parameters as well as metering for the corresponding channels beneath it. The screen above the master bay is a touch screen, which seems to work pretty well. Some of the functions have quite small on-screen buttons, and mercifully enough SSL have thought of people like myself by enabling use of a mouse as well. Not an original idea, but still a very valid one.

Each channel can be assigned independently to the PGM1 and PGM2



busses with specific keys for each – the idea of this is to make it very quick and easy to get the console to pass sound. Below this are the mix-minus assign keys – the console has 16 "mix minus n" busses. Each of these starts out as a full mix, and pressing a mix-minus assign key removes that channel from the mix minus. This is commonly used for things like IFB (interrupted foldback – for hosts

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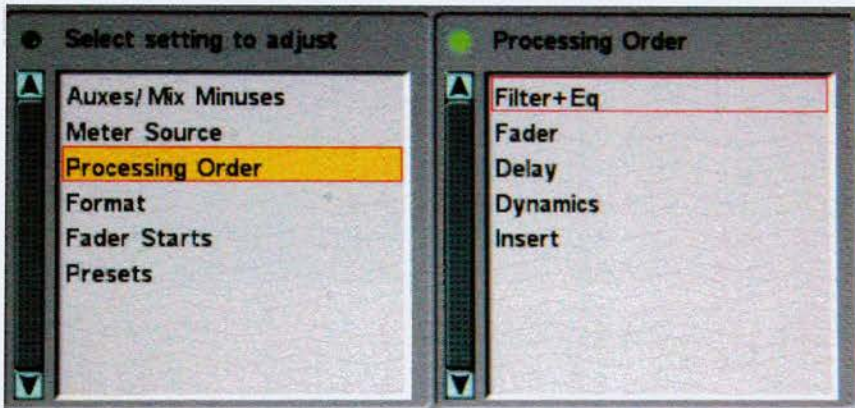
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Pick a processing order, any processing order.

etc) sends, floor audio, and comms feeds. Broadcast audio is heavily integrated with broadcast communications systems, so mix minus is an important feature. There are also mix minus outputs for each channel available – just route them to an output port. Mix minus keys are split across 2 pages (1-8 and 9-16). Pressing the adjacent ‘ASG’ key turns the bank of keys into audio sub group assigns, which work in the manner you’d expect.

Two more user assignable keys sit below the assign keys, accompanied by an OLED display for each channel. Channels can be re-named easily and you can even upload image files – for instance you could use photos of presenters for a talk show. Each channel also has an assignable alternate input – in case a mic fails you can quickly switch to an alternate or backup mic. This is a fairly common feature for broadcast consoles.

The centre section of the console provides access to all the channel functions you’d expect – gain, EQ, compressor, auxiliary sends, and such. What’s the one omission here? That’s right – noise gates. There aren’t any. There don’t need to be – another

illustration of how broadcast applications are very different from live ones. I had a play with the channel processing; it all does what it’s supposed to and competently at that. I really liked the EQ.


MORE COOLNESS

Auto mix is a mature technology now (so mature in fact that the patent has expired), and SSL have implemented a newer and more flexible version of this on the C10 HD. A very rough explanation follows: Channels can be assigned to auto mix groups, where gain is distributed to the channel with the loudest incoming signal. This is great for things like panel shows, where multiple presenters are talking simultaneously. What digital auto mix allows that the analogue version never did was offsetting the auto mix trigger levels of each channel, as well as adjusting the actual level of that channel in the mix. It’s kind of hard to explain, but once you sit down and use it the process becomes clear very quickly. Another cool feature I’ve never seen before is the ability to re-arrange the processing order of channels, even to the point of making the fader the first processing element.

In case your trusty audio assist lurches into the audio lounge and drops something heavy/wet/on fire onto your C10 HD, you can shut down individual channel bays and the console will dynamically re-configure itself to accommodate one less bay. Everything sort of just shuffles about but somehow it’s all still where you expect it to be. The console has four user modes: Admin, Standard, Preset, and Locked. These allow different degrees of control – for example Preset mode allows recall of preset channel parameters and fader movement, but won’t let you modify EQ settings outside of the preset options available. Locked mode ostensibly disables the control surface, so for instance mixer functions can be automatically triggered by a vision mixer or presentation system. Again, not relevant for live use but pretty important in TV land.

Need I mention it sounds superb?

ALL UP?

It’s really easy to design gear that is functional, but making something people can actually use is a whole different animal. The headspace shift required to move from live sound to broadcast is massive, but at least with the C10 HD you can recognize the furniture when you get there. Welcome home. 

ERAND: SOLID STATE LOGIC

Model: C10 HD

RRP: Pricing such a massively configurable system is difficult, but a basic system with console and some I/C starts around \$130,000 plus GST.

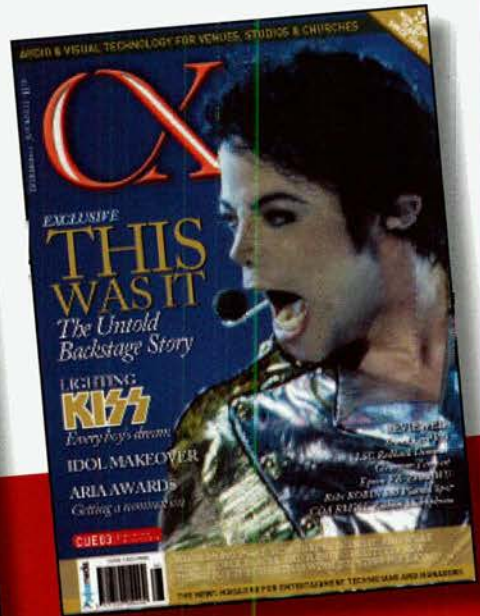
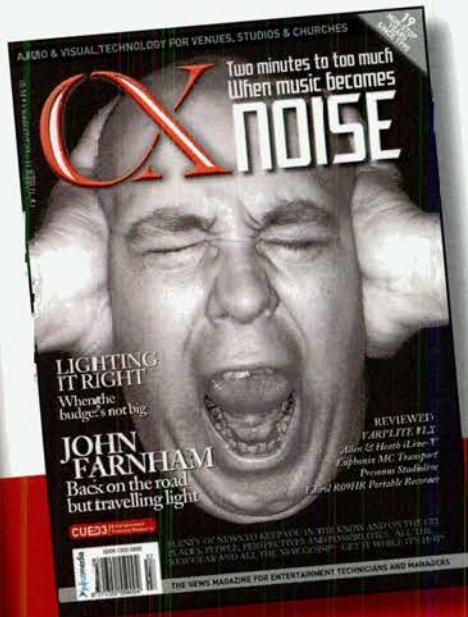
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SPOTLIGHT THEATRE LANTERNS

Once upon a time, lights didn't move, blink or change colour. They just illuminated stuff. Boring as it may seem there's still a need for doing this, and for doing it well.

By **ANDY MACKENZIE**

The Fresnel lens has been kicking around since the early 1800s, and the idea of using a reflector behind a light source to concentrate the light is even older, so the people at Spotlight can't really claim to be doing anything groundbreaking with these two products. On the other hand, the fact that people are still buying fresnels and floodlights after all this time must mean something...

Spotlight certainly seem to think so. This Italian lighting manufacturer has been making gear for forty years, and has a strong bent towards providing solutions to theatre without going outside the conventional theatrical approach. A big range of fresnels, PCs, floods, profiles and followspots in all shapes and sizes sees them well represented in the venues of Europe.

COMBI 12F

The Combi 12F is a simple, straightforward 150mm Fresnel lantern. It will run lamps up to 1200W, and offers a zoom range of 7 to 53 degrees – making it usable in a broad range of throw distances.

There are no real surprises in what it does, but there's been plenty of engineering go into making it do it well.

The optics, such as they are, are very good. The 100mm aluminium reflector

is highly polished, unlike some that we have seen, which makes good use of the light available while reducing the heat absorbed in the reflector. The lens is also good quality, and produces a nice flat even beam with no perceptible hot spots.

And on the subject of hot spots, cooling is as well managed as it can be in a fixture of this type. The casing is extruded aluminium, so it acts as a heat sink – apparently the Italians pride themselves on the quality of their aluminium work, and owe their excellence to the endless quest to build a machine that will make perfect coffee. Ventilation is good, and uses a labyrinthine design to let the heat out while keeping the light in.

Finally, my favourite thing. The focus adjustment is via a knob turning a wormgear that moves the lamp carriage on rails. I've bust enough lamps in fresnels while focusing to really appreciate this instead of the all too common 'knob through the case to the carriage' system.

DOMINO 1000

The Domino 1000 is a 1000W asymmetrical flood, designed for cyc/groundrow use. As with the Fresnel, this is a pretty simple fixture, and it's been handled in a pretty traditional way. Build quality and design take a similar approach, using well designed extrusions and ventilation to keep the heat controllable. If anything, the design

of this is a bit racier – it's got a couple of curves where the Fresnel is very, very square.

Particularly notable features of this device are the reflector design, which is shaped slightly differently from most and offers good coverage of light, and the nicest tilt adjust system I have ever seen on a cyc light. No loosening knobs while burning your fingers on the adjacent fixture, and no knobs in the way of getting the adjacent fixture nice and close. Just a little spring loaded lever on the yoke. Lovely.

SIMPLE THINGS, DONE WELL

Like most people, I appreciate a job well done. With these fixtures, Spotlight have taken something which has been done thousands of times before over hundreds of years and they've made it their own. The wheel has not been reinvented here – just built very carefully and with plenty of thought. It may still be 'just a wheel', but it's a bloody nice one. **CX**

BRAND: SPOTLIGHT

Model: Combi 12F Fresnel and Domino 1000 Asymmetrical Flood

RRP: Combi 12F \$599 (barndoor \$115), Domino 1000 \$565

Product Info: www.spotlight.it

Distributor: www.jands.com.au

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HOT TOPICS

We all heard about the White Kittens on a Persian Rug and no brown M&M's on concert riders, right? Rapper Jay-Z's management proves there is still no reality when drafting these idiotic demands. In this case, a client stood up to them. [Read here.](#)

Best House System in Australia! Once again it's on CrewSpace, so you need to join to read. But if you're a tech, you should join. [More here.](#)

Video Sharing – a basic but handy article, and a whole lot more besides is at HowStuff-Works. [More here.](#)

Classic story: The Problem With Music, by Steve Albini. Funny but real. If you wrestle with musicians, managers and record company flunkies, [Go Here.](#)

Video Sharing – a basic but handy article, and a whole lot more besides is at HowStuff-Works. [More here.](#)

FEATURE DEVICE OF THE WEEK



Cop this baby from RADIAL: the JDI Duplex. Probably the most versatile DI box on the market. Now distributed in Australia by Amber. [More here!](#)

PRODUCT REVIEWS



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INDUSTRY DEBATES TRADE SHOWS

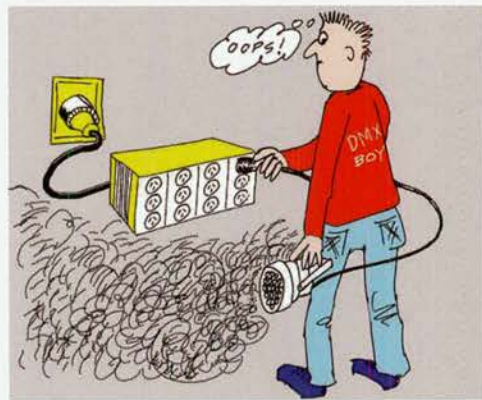
The Australian Audio, Lighting, AV and Staging suppliers have united for the first time to call for a debate on the trade show landscape, following three trade shows staged in Sydney in July. The addition of an annual Integrate trade show in Sydney, at a time of economic downturn, has polarized the industry. Despite this around 80 firms exhibited at the Integrate event. [More here!](#)

SOUND GUY SHOT DEAD

It happened when Tom Pfaffle put his key in the wrong hotel room door. The guy inside opened fire through the door at the Blue Spuce Hotel in upstate Washington. The sound engineer died outside waiting for a medic. [More here!](#)

CEDIA ANNOUNCE ENTECH TRAINING

The Imaging Science Foundation seminar hosted by CEDIA and designed by Joel Silver, attracts attendees of differing backgrounds. From broadcast executives, AV dealers and distributors to video systems engineers, each person will come away with a new perspective on electronic imaging. Only at ENTECH 2010, February. [More here!](#)



CX MYSTERY PHOTO



OK, just like last week only different. Who is this band, and where are they performing? Hits: It is in Australia, and it is in the 1970's. The winner gets a prize! Email juliusmedia@me.com.

Last week's picture (LINK TO CXN1) WINNER! Pete Sneddon correctly identified NARARA ROCK FESTIVAL in NSW as the gig. The 200 Par Cans and not a mover to be seen anywhere kind of sets the scene. Pete has won this fantastic prize, Pro Headphones from AT valued at \$135. [More headphone info is here!](#)



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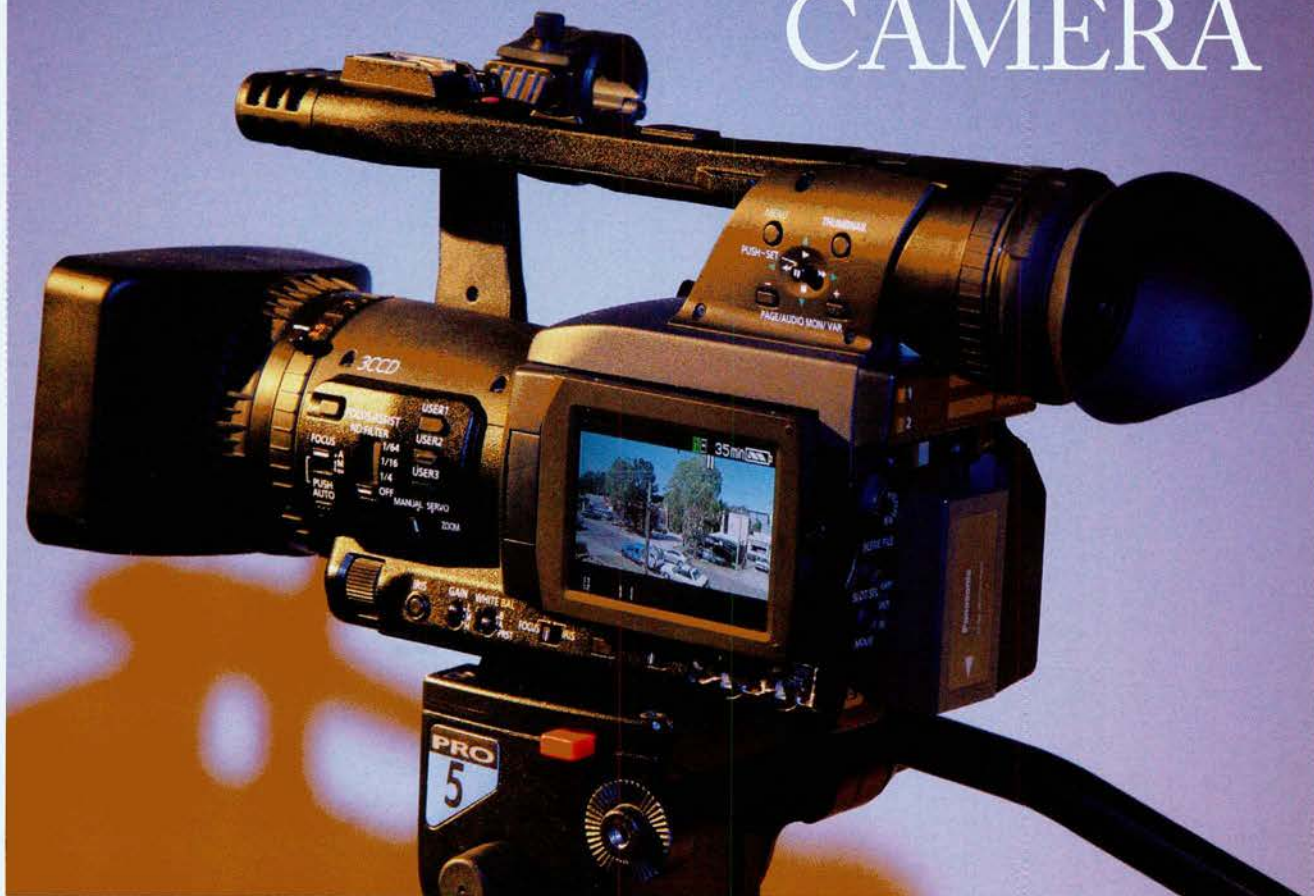
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PANASONIC HPX-172EN CAMERA



By JIMMY DEN-OUDEM

A friend who works in TV quipped recently to me that HD was actually an abbreviation for "Horrendously Difficult". Panasonic once again proves this needn't be the case...

Sometimes you don't need a real big camera to get the job done. The HPX-172EN is a relative newcomer to the Panasonic family, yet like so many other things its size belies its performance. At 2.25kg including battery and two P2 cards, it's the lightest member of the P2 family.

The HPX-172EN images via a 28mm 13x wide angle lens connected to a 1/3" CCD. It records to Panasonic's P2 media, and 2 cards allow for continual recording (you can change one card while recording to another). P2 brings some advantages in itself – the media is reusable and since it's already in data format it's not necessary

to digitize footage. This not only means faster turnaround times for editing, but also your archiving system relies on data storage rather than tape based media. And you don't need to re-wind it.

Since users might not always require HD pictures (which are more resource and storage intensive than SD), the multi-codec system allows recording in a variety of different formats, DVC-PRO50, DVC-PROHD, DVC-PRO and DV. Resolution options run from 1080/50i and 720/50p through to 576/50i for less critical applications. All captures originate from a 1080/50P scan. Different aspect ratio options are available, so you're pretty well covered for integrating with other systems.

Not that this seems to be its intended purpose – the HPX-172EN appears to be targeted at two main users: ENG (electronic news gathering), and what I call the "Indie film makers". On-board audio facilities are really good – there's an in-built condenser mic which performs quite acceptably on its own, but for applications where the audio really matters there are a pair of XLR input sockets. These accept mic or line level

signal and have phantom power as well as adjustable input levels and metering. The camera weighs so little that you could easily stick a portable radio mic receiver on top of the handle if you needed to. Switchable ND filter (1/4, 1/16, and 1/64) means the camera can handle bright outdoor conditions with ease. So ENG applications are pretty well covered. For the Indie cinematographer in us all, there are a variety of shooting modes which allow you to choose from 20 different frame rates, thus giving fast or slow motion effects.

For situations where multiple camera shoots are required, the HPX-172EN can match up to SDI environments with an HD / SD SDI output. It also outputs component and composite video, so it can be connected to a framestore and input to an analogue system. Timecode sync mode allows 2 HPX-172ENs to be linked via Firewire lead, with one acting as the Time Code Generator and the other following the generated output. Once you've finished shooting, drop the files from both cameras into your editing program and line up the timecodes to sync them. It couldn't be much easier.

DO WE BELIEVE THE HYPE?

I believe so. You'd be hard pressed to tell the footage from the HPX-172EN from a higher end unit. Most of what you gain by going to bigger cameras is more control over internal functions, though I had no problem getting to anything I went in search of. I really like the feel of the camera – the way it balances is really nice. Some small cameras make me feel tired quickly – this one didn't. The light weight of the unit really helps with this. Some would say this makes it harder to hold steady – but to help counter this there's an optical image stabilizer.

Just to be certain, I sought out the opinion of Joel (one of the Julius Events College students). He took the camera out for an hour, and reported back that the only thing he didn't like was that the zoom felt a bit plasticity in manual mode. Otherwise he liked it a lot. Focus and aperture are automatic, with a shared control ring/wheel for manual mode. The autofocus was quick and reasonably accurate.

One thing I've noticed is that the camera seems to deal with different lighting conditions quite well. I had this horror gig once doing IMAG in a big



Sensible layout of commonly used controls.

room in daylight, with a small camera and open windows to the harbour directly behind the lectern. Major contrast issues there, and I was never really satisfied with the result. In fact it sucked. I'd like to give the HPX-172EN a shot on the same gig, I think the results would be better. There are some clever features which relate to exposure and colouring of

images. In practice I didn't go looking for any advanced exposure settings, because I didn't need to.

Getting the recorded images out of the camera was a fuddle, I plugged in the Firewire lead, chose a suitable setup in Final Cut Pro, and hit import. It all worked, and I didn't have to argue with a computer to make it happen. You can

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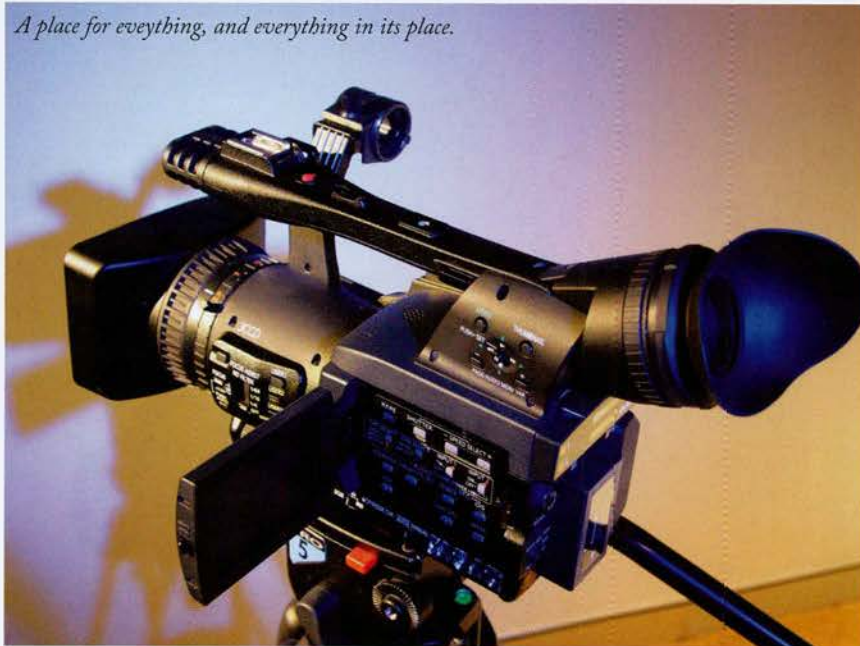
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also transfer over USB, or use an external P2 card reader.

OTHER FEATURES

An in-built waveform monitor and vector scope are there for those who require such – these tools appear on the inbuilt LCD screen. The screen itself is bright and folds out from the side of the camera body – it also can be flipped over and folded back into the same space. It's not a touchscreen either – the on-screen menu is navigated by using a small joystick arrangement on the left side of the viewfinder. There's a focus-assist feature, which basically shows a bar in the lower portion of the display. The longer the bar, the more the camera thinks you are in focus – it's generally right about this too.

Once you hit record there's no waiting for a tape to roll up – it's an immediate

start. You can set the camera to keep a constant buffer of what's happening, so you can actually have your recording start 3 seconds before you pressed the go button. Freaky Gain is controlled by a 3 position switch (LMH) – L is always 0db, M and H can be programmed for up to 12db. 18db is available on one of 3 user keys, also programmable.

THE VERDICT

I drove one of my mate's imported European cars last week – it's got a fancy gearbox and even corrects the steering for cross winds, and a bunch of other features with ridiculously long acronymic names. There's a lot of technology to assist the driver, and I think in the same manner Panasonic have incorporated a lot of features into this camera to help the operator. You don't have to know a lot about video to get good pictures out

Some of the I-O connectors.



Hot swappable P2 slots. The HCSD slot allows you to store and recall camera settings.



of the camera, but generally speaking the more you know the better the results will be.

All up the HPX-172EN is a good representative of how far camera technology has progressed over the past few years. The picture quality kills things in the same price bracket which are more than a couple of years old, and even a few more expensive units. It's all super convenient yet somehow still very affordable.



BRAND: PANASONIC

Model: HPX-172EN

RRP: The list price of the AG-HPX172EN is \$8,886 plus GST

Product Info: <http://panasonic-broadcast.com.au>

Distributor: <http://panasonic-broadcast.com.au>

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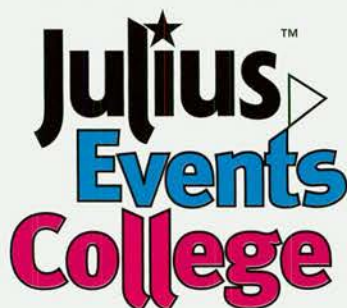
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COEMAR CYCLITE LED

Italian lighting manufacturer Coemar have had a quiet couple of years in Australia. They're back with a new distributor and some innovative ideas. The CycLite is a clever new approach to one of lighting's oldest elements.

By ANDREW MACKENZIE

The cyclorama has been a staple of theatre lighting and set design seemingly forever, and cyc floods must be one of the most common fixtures in the world. This area has been largely ignored in both the computerised lighting and LED revolutions, but no longer. With the CycLite, Coemar have dragged cyc lighting into the digital era.

WHAT'S IT LIKE?

Well, it's not really like anything – it has elements in common with various other devices, but the overall package is, to my knowledge, unique. Let's start with the most conventional aspect of the fixture, the LEDs.

The LED system adopts the common RGBW colour mixing model which, while imperfect, is still streets ahead of old school RGB LED mixing. Total LED count is 96, 24 in each colour, arranged into 24 elements. The four coloured LEDs in each element are closely mounted and share a single lens between them. Elements are not individually controlled, but are controlled as two groups (colour zones) of twelve – enabling

the fixture to provide different colours or intensities from each zone.

The standard lenses are 12°, but can be replaced with a 30° version if necessary – looking at the manual, though, this looks fiddly and I don't think you'd be changing them out any more often than you had to. The unit that came in for review had some ordinary diffusion fitted to some of the lenses that did a reasonable job of softening the beams.

ROTATING RODS

Now this is where it gets unusual. From the outside, you could be forgiven for thinking that this is not a moving light. From the outside, this is a single big lump. A nicely finished, rather heavy, well engineered lump. That's because the moving parts are all inside – which should, in theory, make them less likely to get damaged.

The fixture's innards consist of three 'led lines' – slender tubes running the full length of the fixture, each with 8 LED elements built in. The LEDs in each line all point in the same direction, but each line has an individually DMX controllable tilt mechanism, allowing you to shuffle them about to achieve the

required vertical coverage. The tilt range of the lines is impressive, a full 180°, but through much of this range the light is blocked by the fixture's casing – giving a real usable range of about 100°.

Setting it up so that the light can actually be focused to illuminate only its own inside seems a little odd at first, especially when you're looking at it as a cyc light, but once you start playing about with the idea of using it as an effect you quickly see how effective it could be.

Having all the moving bits safely tucked away inside also means a substantial improvement in weather resistance – so much so that an IP65 rating is a factory option.

CONTROL

Obviously, the CycLite is DMX controlled. In its normal mode it uses 16 channels – one for global intensity, four for colour in: each of the two colour zones, one for the tilt of each line, one each for strobe, colour and movement effects, and one for special functions. The cut down 12 channel mode simply dispenses with colour zones and therefore only needs one set of colour controls. Everything else stays the same.



The back panels offers everything you'd expect.

DMX addressing and other menu functions give you a sense of déjà vu – a return to the days of four character seven-segment displays showing cryptic messages. Maybe I'm getting spoiled, but I've become accustomed to the much friendlier displays on a lot of recent fixtures. That said, the system does work and it allows you to do everything necessary – you may just have to think a bit here and there.

CABLES, HOOKS AND BRACKETS

The track in the back of the extruded aluminium casing (more of that Italian coffee machine technology) can be home to either solid tilt adjustable floor mounts or hanging brackets, as befits a device likely to be used both up and down. It's also the home of a very robust fixing point for the safety cable – something I always like to see.

Power gets in via a powercon, and there is a loophrough provided. As each fixture draws only one amp, this means ten off a GPO, with nice neat link cables all the way. That's enough to give you a six metre line – long enough for a lot of cycs.

DMX inputs and loop throughs are on both three and five pin XLR.

AND FINALLY...

As a cyc light, I think this is a clever idea. Traditional cyc lights are, however, cheap, simple and common (like a CX writer) and it may be a struggle to crack that market. I suspect that an actual life-cycle analysis considering power consumption, lamp and gel replacement and so on would show this up as good value, but people are always going to worry about initial outlay.

As an effects device, however, I can see a lot of potential. In a market where everybody wants to find a look or an effect that hasn't become commonplace, this offers something new – Coemar's website has a little video which mostly shows the thing bashing through all its onboard effects, but it shows its capabilities enough to get you thinking about the possibilities.



BRAND: COEMAR

Model: CycLite LED

RRP: \$6600 list, discounts on quantities greater than 10

Product Info: www.coemar.com

Distributor: www.bytecraftentertainment.com

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K-ARRAY RED LINE KR100S

The K-array brand is a relative newcomer to the live production industry, but it may be about to make a bigger impact than its small footprint would have you think.

By JIMMY DEN-OUDE

We'd heard a bit about K-array around the traps, so when it reached the shores of Australia I had to find out if it was really worth the hype. Given the choice of several systems to review, I went with the smallest – the KR100S. The search for “performance to size” was on!

SUBS AND SUPER SLIM SPEAKERS

The KR100S system comprises two components – the KL12ma active subwoofer, and a 1 metre line array module. At 33 x 33 x 40cm (WxHxD), the KL12ma is small enough and light enough (12kg) that I could comfortably lift it with one hand, though the handle configuration is more conducive to using both. It's equipped with a 1000W 12" long throw driver and a 35mm top pole mount. The back panel has a power switch, attenuator, PowerCon and Speakon connectors, as well as a backlit LCD, preset recall button and RJ-45 connector. The grille on the front is unobtrusive yet seems nice and tough.

The sub contains its own amp, as well as one to power the line array module (which also seems nice and tough). The line array modules are packed in pairs in a case which resembles something in which you'd carry a shotgun. Opening

the case reveals the 2 modules and a pair of link leads, all sitting in custom foam cutouts. So just to make it clear, there's a sub for every array module. The array module is populated with 2" drivers and has a tilting pole mount at one end. It's a metre tall, and 55mm wide – or in other words really small. The pole mount folds back around onto the array for transport, though this process is a bit fiddly. The pole mount positions the array module at head height for the majority of the population when standing, if punters are seated then tilt it forward a click.



PUTTING THE PIECES TOGETHER

...is really simple. Place sub on ground, place pole into sub, place array module on top, plug in speakon. Done. Setup takes all of a minute, so the system definitely gets a tick for quick deployment and packup. But does it pass a listening test with the same flying colours?

In short, I'd say yes. The sub to line array ratio of 1:1 is definitely right – the array seems a bit more efficient than the sub does, or at the very least more directional. Horizontal dispersion of the array element is quite wide – maybe 120° and it's very linear across this range. Vertical dispersion is a different story, sound radiates from the entire length of the array element with no perceptible vertical splay. We've seen this characteristic before, but never previously from something so small.

The sound itself is clean and quite punchy. The different preset modes affect the crossover and EQ settings. – the ones we like the best were "dark" and "back", both of which attenuate the top end a little and seem to provide the closest things to a linear response. The response of the system as a whole doesn't seem absolutely linear, but it's quite pleasing nonetheless. The KR100S seems to have a slight dip in the low mid region – around 200-250Hz, though this is pretty typical of most sub/satellite systems on the market.

Some impressive points about the sound of the KR100S: vocal tonality out of it is beautiful. Speech intelligibility is excellent, and the system puts out a brutal amount of level for its size. The spec says 124db continuous, which certainly seems believable. I think you'd run out of low end first – there's only so low and so loud a single 12" can run.

Straight out of the box, the system is very usable for PA purposes too. Tests with a couple of common mics yielded good intelligibility and gain before feedback. There's a definite upper mid presence, but it's not peaky or offensive. Very little seems to spill out the rear of the arrays, which is another bonus for feedback rejection. The amps do have a noise floor, but it's unlikely to be noticeable unless your head is within 10-20cm from the array in a quiet room.

WHAT'S THE POINT?

The target market for the system seems to be theatres, houses of worship, and concert halls, I think the way it sounds would be well suited for all these applications. That said, I don't think that's where K-array will find its feet in Australia.

One of the joys of this system is that a stereo setup could conceivably be packed into a single case and still be handled by one person. It's the perfect system for weddings or similar functions. Such gigs carry a heightened importance on being able to hear everything clearly without having large boxes obstructing sightlines, and the KR100S would fit the bill perfectly. It would work similarly well on any corporate type AV gig for the same reasons. The tightly controlled vertical dispersion and strong upper mid presence would also make it an excellent choice for sidefill on quiet stages. The KR100S sounds nothing like it looks, and that's what makes it so good.

CX

BRAND: K-ARRAY

Model: KR100s

RRP: A system including 2 subs, 2 array modules and 2 poles retails at \$14,400 inc GST.

Product Info: <http://k-array.com>

Distributor: <http://syntec.com.au>

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NTI AUDIO XL2 AUDIO AND ACOUSTIC ANALYSER

As we've established, audio is about ears and science. The XL2 analyser from NTi Audio lends a scientific ear to what you hear.

By JIMMY DEN-OUDEM

What can science tell you that your ears can't? Quite a lot as it turns out. The XL2 is a tool which works as a sound level meter, real time analyzer, acoustic analyzer, and even a speech intelligibility analyzer. Lots of functionality from a small device.

THE HARDWARE

The XL2 is a handheld device, however it also has an integrated stand and can be mounted using the internal tripod mount. It's powered by a battery pack which recharges when you connect the unit to a USB port on a computer. 4x AA batteries can be used as a backup power source. For taking measurements, a choice of two reference microphones is available – Class 1 and Class 2. We tried out the Class 2 mic, which simply plugs into the top of the XL2. The Class 1 mic is likely to be a requirement when the captured data is required for legal purposes and such, however for day to day operations the Class 2 mic would be more than accurate enough for most users. According to the spec, the accuracy of the XL2 exceeds

IEC 61672-1, class 1 – the International standard for “Electroacoustics - sound level meters”.

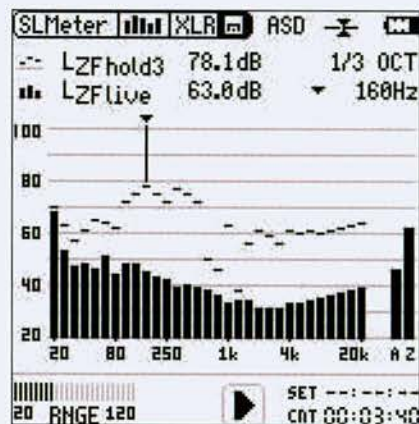
IN PRACTICE

Setup of the unit is a doddle, plug the mic in and switch it on. The XL2 detects which mic is connected and automatically applies phantom power as needed. A few relay clicks later you're presented with a menu which allows you to select from four user modes: basic sound level meter, full functionality, and 2 standardised measurement setups (SLV and DIN15905).

I should make it clear that the XL2 is capable of very much more than we used it for. STI and RT60 measurements for example are possible, however we've focused on the aspects of the unit which make it most useful for live audio purposes.

SOUND LEVEL METERING & RTA

The unit defaults to sound level meter mode, which shows current A weighted SPL, Moving Time-Average or Moving Equivalent Sound Level, and Peak C



weighted level. Not the right info for you? Want more? Want less? No problem. The display can be customized with up to 5 different measurements displayed in varying sizes. The display is clear, easy to read, and backlit in sexy blue.

Some functionality relies on purchasing and installing the Extended Acoustic Pack, which is optional and also adds in WAV recording. This is a clever feature as it allows you to listen back and hear if a measured peak was caused for instance by some gronk shouting at one of his pissed mates, and not the PA. Once you're done

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with taking measurements, you can take a screenshot of the results which is saved to an SD memory card as a .EMF image file. Pulling stuff off the SD card is as easy as plugging in a USB lead – the Mac recognized the XL2 and treats it just like a removable USB drive.

K-SET metering (in a very broad and vague nutshell) allows you to measure the SPL at the loudest point in the audience, then take the meter back to mix position and re-measure thus allowing it to display a calculated loudest level without actually being there.

The in-built RTA is good. High enough resolution to be useful, not enough to be ridiculous. So far as tuning FCH systems, or picking problem frequencies in monitor rigs it's definitely a winner. You can feed a line level input into the XL2, so it could easily be set up to give you a visual indication of what your cue wedge is doing.

The unit has been designed for live use – this much is clear. It's really easy to get up and running, and make it do all the things a live sound person needs. The comprehensive user manual explains all the things I haven't, and is a pretty good read in itself. If you're into that kind of thing and all... **CX**

BRAND: NTI

Model: XL2

RRP: Packaged with a Class 2 reference mic, the XL2 lists at \$2690 inc GST, or \$2050 for the XL2 without the mic.

Product Info: <http://nti-audio.com>

Distributor: <http://ambertech.com.au>

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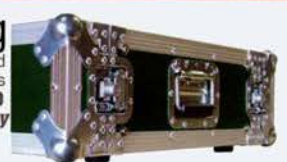


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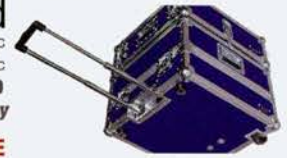


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