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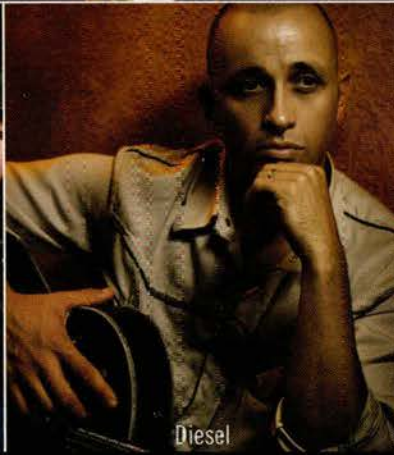
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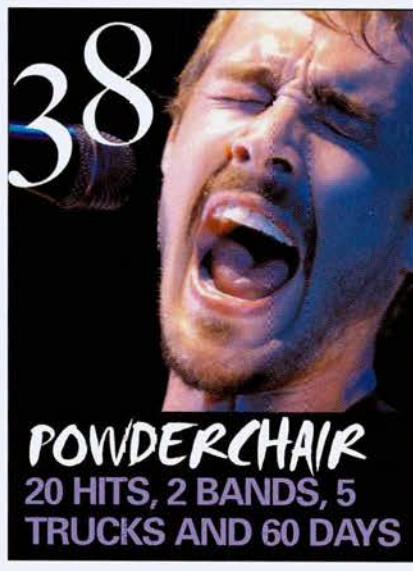
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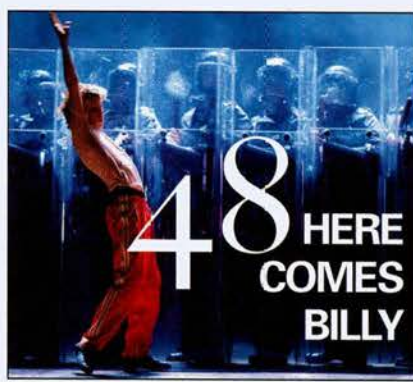
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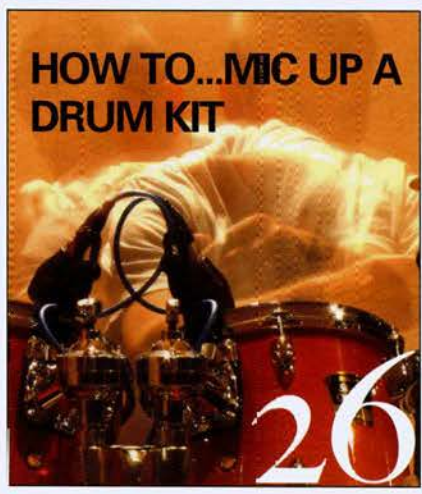
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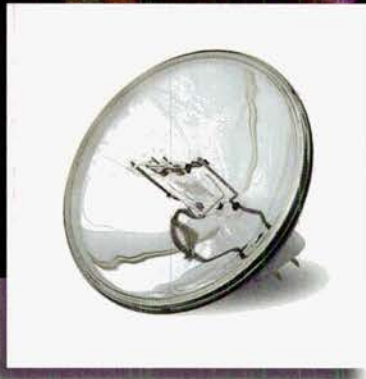
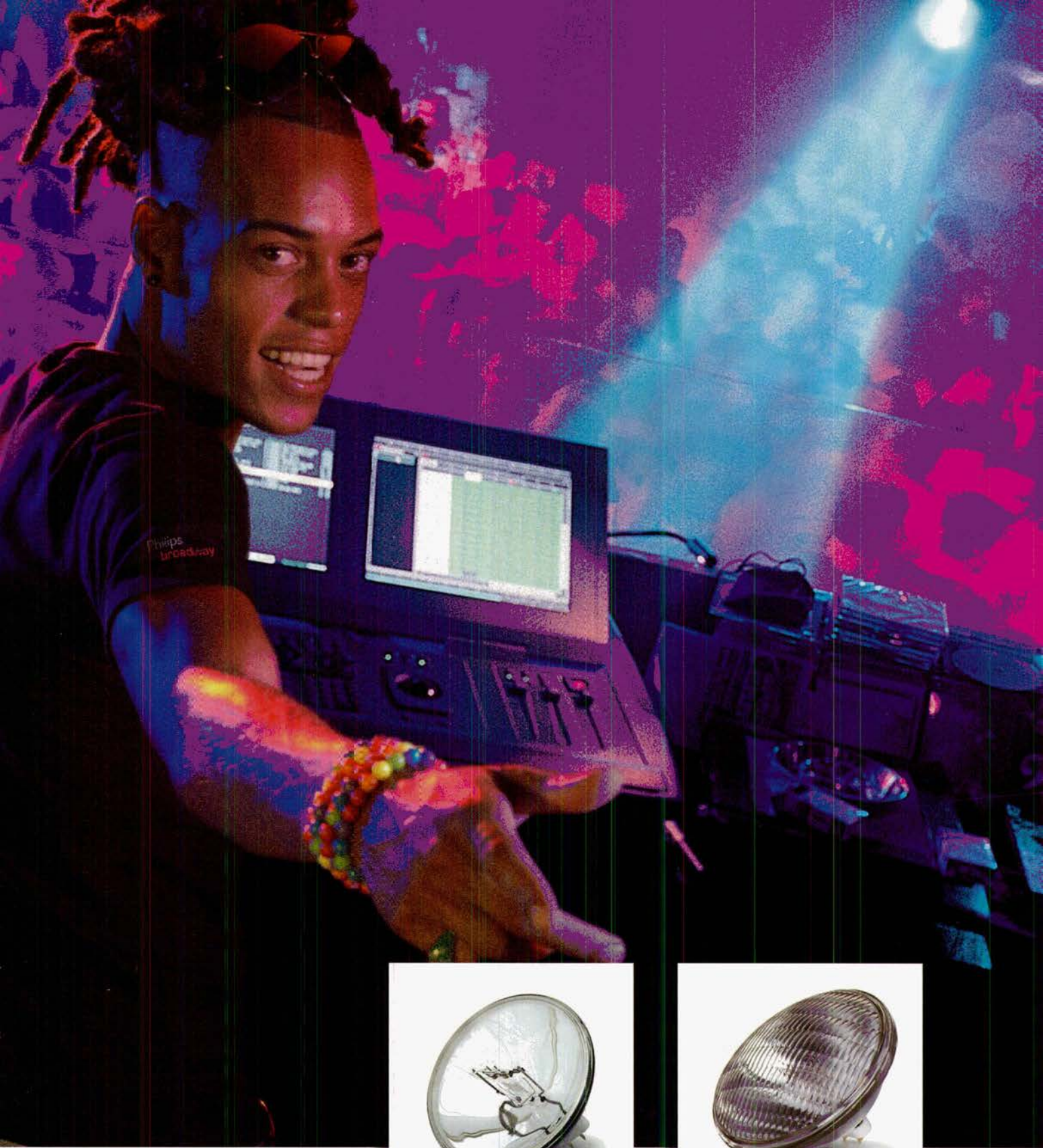
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CUE03

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

PREMIER

The smell gets worse as former staff complain of no super and shonky practices inside the disaster that was Premier Technology. Most staff have been quickly hired elsewhere but the director with the chequebook doesn't need a job – he made his money from a 'concept'. How about a 'heads up' from anyone knowing more?

MOVERS

Vindication for CX as the moving light bubble fades to dark. Now we just need a generation of lighties reprogrammed to light the act instead of strobing the haze. The scramble to imag means constant light and white balance. Big screens are exciting but sending graphics from a media server is only half the new art – the rest involves good old fashioned camera skills.

SHAKERS

Did you know Dolby has a very large audio R & D facility in Sydney with around 50 staff? They just moved uptown into a really impressive facility. Do you know of Audinate in Sydney who approach the problem of audio networking from the perspective of deep networking expertise? Some smart people out there!

PAYERS

The day rate ripoff's continue and the list of dubious employers grows. CX has a long memory and we suggest short paying crew and exploiting new entrants is very dumb at a time of skills shortages. Don't mistreat crew and lose them to our industry. If you do that, you're doing all of us a disservice. And we will remember. Email us: cx.mag@mac.com

SHARERS

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WHAT A STRANGE THING TO SAY...

I spent last weekend doing audio on a jazz festival and I spent a fair bit of time answering reasonably daft questions (including "Can you tell me where the jazz festival is?"). Along with this, I received the traditional critique of my performance from the punters. Isn't it comforting to have so many people willing to tell you how to do your job? While I didn't get any real crackers this weekend, I was reminded of some of the dazzling insights delivered to me on previous occasions: "That piano sounds like it's made of wood". Fair comment, but ten years later I still have no idea what this was meant to mean. One singer was very clear about the problem with their foldback – "not enough bass in the tambourine". ????. And my all-time very best most absolute favourite: "The drums are too loud. I shouldn't be able to hear them".

FUN IN THE SUN

The sun's getting up earlier, and so are the kids. The footy's all over and people are talking about cricket. The shops are phasing out skis and boots and filling up with boards and wetsuits. It all adds up to one thing – summer is coming, so we can all look forward to the annual season of massive outdoor events to celebrate Christmas, the new year, and...well, who cares! It's party season! I've got plenty of great memories of getting sunburnt setting up, packing up in a torrential downpour and a big hurry, setting it all up again in an even bigger hurry and still having a great gig that made thousands of people happy. It might be hard work, and by January I won't be able to hear 'Jingle Bells' without twitching, but it's worth it. I love this job.

Julius

Andy

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CX NEWS

DEVICES, PEOPLE AND CONCEPTS

PLASA 2007

Where, When, What, Why?



Because they can!

BY JULIUS GRAFTON

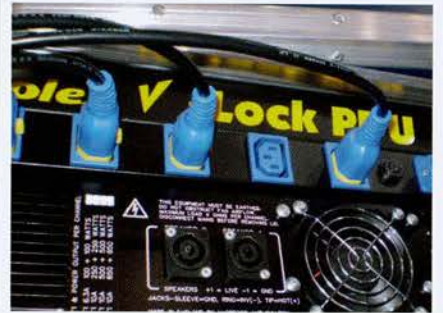
Increasingly people in a specialized industry need to go see who is doing what with whom, and the place for that

is the PLASA trade show if you are into entertainment tech. I hadn't been for a few years and felt increasingly out of touch.

I decided to go on a Friday, left on



Australian EAW dude Graham Stevenson at PLASA.



Wow! A locking IEC plug.

Sunday and arrived in London on Monday morning. I had two PLASA days and left after two nights on UK soil, arriving back at work early Friday morning. While there I saw the two biggest new theatre shows so I got a lot of magazine material for my money.

A great thing about a leading trade show like PLASA is that you meet more Australians in a short time there than you can anywhere else - except at ENTECH in Sydney - the Aussie trade show.

Buzz: The live production industry is booming, and booming BIG, everywhere. Recording is economically dead, however. RIP the studio.

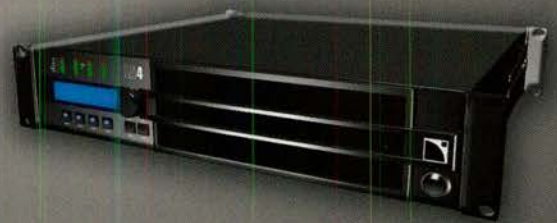
Buzz: LED is everything and once the Color Kinetics license fee hurdle is overcome, LED in lighting will be cheap. It should be.

Buzz: Video is now led by lighting, and the show design obsession with moving lights is mercifully over. Memo kids: use lights properly.

Buzz: Professional audio is the most profitable live production niche - when people invest in the right equipment

K I V A

NEW LINE SOURCE WST ULTRA COMPACT

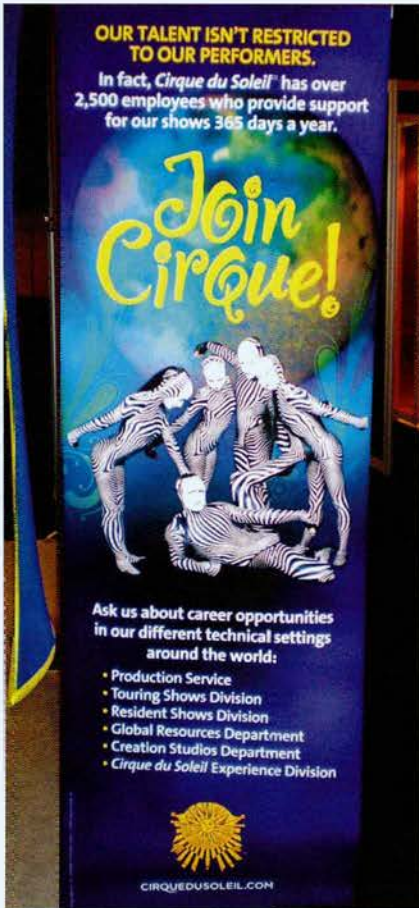


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XL8, and a chance to mix on one. We dia it

which can work ten years or longer.

So with all that buzzing I walked, wondered and got wired to a lot of new devices and even had a leisurely forty minutes mixing on a Midas XL8. The PLASA people have got the density and mix of visitors just right, as the show celebrated its thirtieth year. There are a lot of people from Europe there.

Another terrific development is the adjustment fall of the DJ. There was an over emphasis on the dreaded wucka wucka scratch scratch industry in previous years and trade show

representation has now fallen into proportion as the cost of a CD deck falls towards that of a London Pint.

With the rise and rise of the LED screen, strangely cameras and vision switchers were not on show at PLASA. Seems the display side of our biz is buzzing while the content provision side was at IBC trade show in Amsterdam – held just prior to PLASA.

One day very soon now, camera operation and vision switching will be known by all lighties - and the barriers between broadcast and live will be torn down forever.



London and costs: when I arrived at the Harrington Court Hotel with my Lastminute.com prepaid accommodation voucher in my hand, I was turned away as they were overbooked. Tough luck to me. The Lastminute people have promised me they will remove that hotel from their site. Lesson: phone the wretched hotel in advance and really CHECK that they will honor any booking.

London itself was overbooked as there was a full blown arms fair under way with delegations of swarthy despots from forbidden enclaves motorcading around in black cars with sinister goon-tourages. They were buying missiles, tanks and warships to bring it up to their neighbors. Some looked like a Rap Posse. I was in a hotel lift squeezed against the mirror by a mountain of strangely dark and damp flesh with a big hard lump in his suit. He wasn't happy to see me. His boss was like the guy in Syria who pulls out George Clooney's fingernails.

I found sanctuary in the Park Hyatt for one night, and the Waldorf Hilton the next. Arms merchants enjoy these places. I paid loser rate for not booking in advance and my Diners Club card wilted at checkout.

Speaking of which, consider my HSBC Visa Card. Touted as the World's Local Bank, they were quick to freeze my card when I couldn't please their call centre clerk over the phone in London – who was calling to verify my recent transactions. It seems I could not prove who I was. I

had previously been unable to identify myself over the phone to this bank and had traveled to the Parramatta branch to do so, over the counter. Now I was asked to go to a London branch – and via a miracle I found one plus the required 20 minutes to wait in line. Only to be told they could not access the Australian account details. Unknown to me they stopped the card, which bounced in a restaurant at 11pm. I had to walk with the manager to an ATM and withdraw cash. Thankfully the ATM worked for me, or what would have happened?

On a more joyful note I experienced the new Thai Airways business class and it was terrific, especially at a significant saving against Qantas or BA. I could only do a trip this short in business class with sleeper seats. Nice food and wine. Good crew. Laptop power. It made the 2 night London concept workable, and I managed a solid days work on arrival home in Sydney.





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PLASA SHORT BITES

Martin Professional has launched the smartMac, a new small format moving light with a 150 watt light source. The fixture builds on a decade of moving light experience, with no fans, sealed mechanics and a handy gobo access lid.

The device is an evolution in the falling market for moving lights, while lighting designers flock to new LED and video technologies.

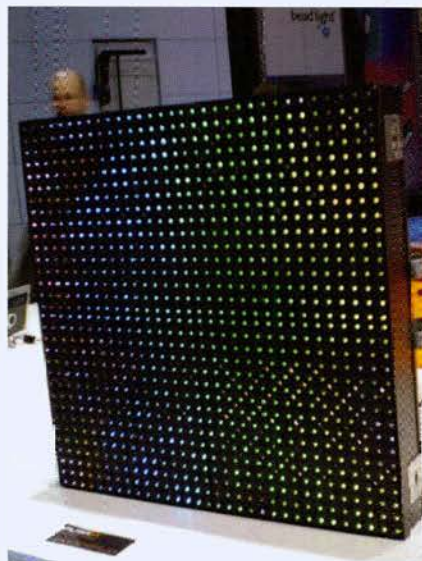
www.martin.com



Showtec Microspot is touted as the first LED moving head with a real gobo wheel inside. It's smaller than an A4 sheet of paper, with 9 gobos and RGB colour mixing.

Also from Showtec is this paradox, a Par can loaded with LEDs so that you get 300 watts equivalent output from just 57 watts of power consumed. So why the colour frame holders, if the LEDs can colour mix??

www.highlight.nl



The CLS-LED PixelScreen 64 MKII is a redesign, with 20mm and 40mm LED pitch from three-in-one LED's. They contend it has Dutch design with German engineering.

www.cls-led.com

LSC were showing their RedBack dimmer racks at PLASA, promising affordable dimming. Available as a 2RU (with rear mount connectors) or a 4RU (with front mount connectors), it offers programmable Min. and Max Levels and dimmer curves for each channel. Soft-patch facility, on-board support for six internal scenes with fade times and six chases (with speed control), allow it to be used as a stand alone dimmer.

www.lslighting.com



Emanuel Fluckiger (Zurich) with Alan Graham LSC



Jands brought more Vista lighting control derivatives to PLASA, and had steady traffic on the AC Lighting stand. Vista is slowly but surely making inroads in a very fussy market where lighting operators cling to their consoles because many are very complex to learn. Once you've mastered one, you prefer not to master another. Vista promises easier times, with a user interface that doesn't twist your brain. It appeals to newer lighties who don't have 'console baggage'.

www.jands.com.au



DIGICO DEBUT SD7 IT MAY BE A CONSOLE, BUT THEN IT MAY NOT

The console was passing audio, with Australian engineer Chris Pyne mixing a multitrack. But you couldn't touch, since the console and the engineer were enclosed in a Perspex box.

Called "a concept of the future", the SD7 is based around a new technology developed at DiGiCo, called Stealth digital processing, and could ultimately bring a whole new dimension to digital mixing.

"The SD7 is purely a concept, but who knows what the real possibilities could be," said Dave Webster from DiGiCo. "Stealth is a culmination of embedded FPGA and the new Tiger Sharc from Analogue Devices. John Stadius and Soundtracs were the first to ever use the Sharc for audio mixing, considered the best device for audio DSP and used by many of the leading audio manufacturers."

DiGiCo is using Tiger Sharc purely for FX and emulations, which adds to the air of mystery around the new console. The company was prepared to make certain claims at PLASA, but not on the record. Things I heard included the possibility of very many inputs and outputs, exceeding anything currently possible.

Another strange subplot in the politics surrounding high end audio? To see the console, and hear some possible (and strange) words from DiGiCo top guy Bob Doyle, log onto our website at www.juliusmedia.com for the video.



Australian distributor Mark Ladewig and the mysterious SD7.





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ROLAND'S 48 CHANNEL SURPRISE CONSOLE

Roland announced a major product release at the European IBC and PLASA shows with the addition of a 48 channel digital console to the range of products developed by the relatively new Roland Systems Group. With a large 800 x 480 colour screen and 25 100mm fully automated faders, the M-400 V-Mixer is the final piece in creating a full digital audio solution

when partnered with either their 24 channel or 40 channel Digital Snakes.

It also offers a convenient recording option with up to 40 channels of 24-bit audio able to be recorded directly on to a PC via a standard gigabit LAN port using Cakewalk's Sonar Producer software.

The console will arrive late October and retail for \$12,995. A full 32 in 16 out system with the console and 2 Digital Snakes will retail for \$17,995

www.rolandsystemsgroup.net 

STAGING CONNECTIONS RE-EMERGES

What a difference half a year makes. Australia's largest production supplier - with 90 locations in six countries - is on track to burst onto the international audio visual scene with mooted acquisitions in Europe. After staggering through management upheavals in 2006, the public company has strengthened on virtually every front.

"We take the Australian model for doing things and people overseas are lapping it up", sales director Rob Vass told students at Julius Events College recently. "Where a large event like a sit down dinner has a budget of around \$100,000 in Australia, in Dubai it's more like a million dollars", he added.

Staging Connections have a joint venture in Dubai which is likely to become fully owned this year. Market analysts Linwar Securities say the firm will move to acquire minority shareholdings there and in Singapore and China, and make a major acquisition worth as much as A\$40 million 'soon'.

This follows the successful takeover of Bytecraft Entertainment for \$42.5 million which is now under the daily management of Durham Richie as Bytecraft CEO Stephen Found explores new deals for the group. As a



flag to this, the appointment of Brian Shepherd to 'President - Europe, Middle East and Africa' has him based in London.

Following the sudden departure of Staging Connections former chief executive Bill Davison, a management restructure sees group CEO Michael Gardiner leading a team that includes Ben Ashton as Chief Operating Officer. Ashton came with the acquisition of ETF Trade Fairs, and has in turn overseen a settling of Australian management. In turn, this included the promotion of Teresa Amey to National Operations Management.

With events guru Paul Kenny on board, the shadows of former management have faded as the results appear to vindicate the new direction the company has taken. Linwar marked up their target price for shares to \$1.75. At presstime they were trading at \$1.38.

www.stagingconnections.com 

KIVA UNVEILED AND AAA FIRST TO BUY



KIVA System with Neil Campbell - KIVA System with Neil Campbell - Owner of AAA Production Services

Perth-based company AAA Production Services has purchased the first L-ACoustics Ultra-compact KIVA Line Source Array (WST) speaker system in Australia. Sourced from Random Audio in Sydney, the KIVA ultra-compact Line Source array is good for both fixed installation and rental applications.

The KIVA is a full range element operating from 80 Hz to 20 kHz bandwidth. It comes with the KILO complementary low frequency extension element operating from 50 Hz to 100 Hz bandwidth.

KIVA is a 2-way enclosure (2 x 6.5" LF, 1 x 1.5" HF DOSC Waveguide) with directivity of 100° horizontal down to 500 Hz.

AAA Production Services will utilise their new system of 24 KIVA elements and 8 KILO extensions for the first time at the 2007 "Red Bull Air Race" to be held in November on the Swan River in Perth. The KIVA will be used to supplement a large L-ACoustics speaker system to be also supplied by AAA comprising 45 KUDDO elements, 16 ARCS and 16 15XTHIQ

www.randomaudio.com.au 

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3 ARENA SHOWS, 3 STATES, 3 DAYS

Adelaide based Novatech Production Services provided sound, lighting and video production for the recent 'ROC THA BLOCK' concert tour with concerts in three states in 72 hours.

Three arena concerts were staged - at the Vodafone Arena in Melbourne, the Adelaide Entertainment Centre, and the Sydney Entertainment Centre.

The concerts presented a challenge in relation to the time necessary to freight equipment between the venues. Novatech arranged the logistics, equipment and staff for the shows, as well as designing the shows production.

The tour schedule was so tight that there wasn't enough time to get the equipment freighted from Adelaide to Sydney for the third concert.

Novatech teamed with Jands Production Services (audio), Chameleon Touring Systems (lighting & rigging), Blacksheep (vision) and Bump (backline) for the third concert in Sydney.

The audio system was a complete

L'Acoustics rig with 84 cabinets. The digidesign Venue D-show completed the audio package at front of house and enabled the shows to be recorded directly to Pro Tools, ready for post production.

Lighting had 52 movers, 16 blinders, 6 strobes, 21 LED strips and 82 static fixtures. The looks were raw with a brief that the lighting had to complement the style of the show and the performers. Not as easy a task as it sounds unless you have some Hip-Hop performance experience.

Vision was displayed to the crowd with 2 front project screens (20'x11') and Barco DLP projectors. 4 broadcast cameras with full CCU control were switched through a Sony DFS-700, with its 3D graphics engine "worked almost to melt down", keeping the switching slick and interesting.

Utilising a MA Lighting GrandMA for lighting control, a digidesign Venue D-Show for FOH audio and the Clear-Com FreeSpeak talkback system, Novatech could tour the 'content and configuration' of the show from Adelaide to the third concert in Sydney, without touring



the equipment. In fact: the show's content travelled on a flight with the operators on 8 laptop computers.

This is a practice recognised as the future direction for mid-sized touring production, where it is not practical or cost effective to freight the production equipment.

www.novatechproductions.com.au CX



Norwest Productions

The D5T sets a completely new standard for theatre sound mixing, with audio quality, intuitive operation and flexibility that are a world apart from conventional analogue or digital consoles. With a 72 buss DSP engine, a 32 x 32 matrix, 41 fader surface and up to 128 channels with full dynamics processing or 96 channels with onboard effects, the DiGiCo D5T combines a wealth of facilities in a compact worksurface that potentially will give back hundreds of seats a year to large productions. The D5T from DiGiCo. A new world of theatre sound.



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- Acoustic Technologies Blackbird Line Array

- Adamson Y10 Concert System
- Dolby Lake Processor
- Lake Contour, MESA
- XTA DP428, DP226, DP224
- Optocore Digital Network
- LabGruppen fp6400
- Camco Vortex 6
- Crown Macrotech VZ5002

- Yamaha PM1D, PM5d
- Yamaha M7CL, DM2000
- Yamaha O1V/96 (40 consoles)
- Digico D5 112/EX
- Midas XL4, XL3
- Midas Heritage 3000, 000
- Midas Verona, Venice



Coming down under is Crowded House, with design by Paul Normandale and Glen Johnson as Lighting Director. Spotlight in NZ and Bytecraft in Australia will supply the gear.

MACKIE GOES TO BILLY HYDE

After 17 years of Australian Audio Supplies representing Mackie in Australia, Loud Technologies, the current owner of Mackie have decided to make a change in their distribution arrangements in Australia. Now Australian Audio Supplies will cease representation of the Mackie and Tapco brands.

Australian Audio Supplies is a victim of circumstance as Loud has chosen to consolidate its key MI brands which also include Ampeg and Crate with one distributor, Musiclink – part of the Billy Hyde Group. Australian Audio Supplies made Mackie and Tapco successful brands in the Australian market and has been one of Loud's best performing distributors outside of the US for many years.

As the retail distribution arm of the Hills SVL group, Australian Audio Supplies was set for continued expansion and growth. Stuart Craig General Manager of Hills SVL says "This news comes as real disappointment for the staff of Australian Audio Supplies (AAS). AAS had their biggest year ever with Mackie in 2006 and the guys were doing a great job; they still made their budgets last month. Sometimes it comes down to politics and mergers/acquisitions out of your control. It's a tough one for the AAS staff. Our focus now lies on transitioning out of these brands and concentrating on the many

opportunities in front of the Hills SVL group which has almost doubled its turnover in the two years since the group came together and this financial year will still achieve really significant growth. Beyond the AAS staff which I have already mentioned, the real impact of this change is not at SVL but I predict will be felt in the MI market as Yamaha, JBL, Mackie and others now reshuffle between the Billy Hyde Group and the independent retailers".

It is also a sad ending to a stellar career for Dave Croxton, original owner of Australian Audio Supplies and the man who brought Mackie to Australia in 1990. "I am disappointed that my relationship with Mackie has ended in this way however it is great to know that we have helped so many across the nation in getting a better result from their audio pursuits.

Australian Audio Supplies was always driven by people passionate about the industry and this has been the key to our success and the contribution we make" states Dave Croxton.

"Dave will probably move on from the industry now and wish him well. Dave's a really good guy who built Mackie from the ground up in Australia. You'd go along way to find anyone who had a bad word to say about him; I found him a pleasure to work with and am glad we had AAS' biggest year ever together last year" adds Stuart Craig

www.ausaudio.com.au
www.musiclink.com.au



DPA DO 4080 MINI LAV

DPA Microphones are pioneers of small. They say the DPA 4080 miniature cardioid lavalier microphone will provide optimum speech intelligibility for numerous applications including broadcast, recording, conferences and live performance.

Designed to be body-mounted approximately 20-25 cm from the mouth, the DPA 4080 is acoustically pre-equalized and offers a 5 dB presence boost which improves speech intelligibility and definition.

www.ambertech.com.au



HIGH POWER LED LEADS LAUNCH

Recent visitors to the AMAC trade fair on the Gold Coast saw high powered LED fixtures, Video Screens, and Robe Media Fusion video content software from ULA. The firm also had a launch to show new high powered LED products with IP rating for exterior applications.

Drawing attention was the Robe Digital Spot and Stage Queue – brought in to demonstrate the use of Robe Media Fusion to full effect. The iLED Star Drape also impressed along the red carpet entrance to the launch.

www.soundivision.com.au





It's EtC – this 23,000 seat Dutch stadium had the largest Alcon Audio deployment yet, for a choir event. 132 line array cabs did the trick. Alcons is a relatively new manufacturer with some neat concepts.

www.alconsaudio.com

AMA ANNOUNCE OFFICEHOLDERS

Following the successful AMAC trade show, the Australian Music Association have announced the Executive Committee for the 2007/8 membership year. This is the thirtieth year for the AMA, which is a peak industry body for music equipment makers and sellers. The AMA has been very prominent in lobbying for the industry, and has achieved significant gains in funding for music within schools.

Wholesalers: David Bell of Jands; Brendan Callinan of Roland Corp Australia; Bernie Capicchiano of Musicco; Rob Kenneman of Musiclink; Peter Moses of Rode Microphones; David Steelman of Maton and Kate Whitney of Shiro.

Retailers: Carol Brandmar of Engadine Music; Dom D Sisto of Holden Hill Music; Graham Hoskins of Concept Music; Tony Ruggeri of Music Centre Gosford; Rob Walker of Allans Music Group.

Richard Snape of AMPD is the ex officio member representing the Print Music Sub Committee.

For Walker was elected as president, David Bell as vice president and Bernie Capicchiano as treasurer.

www.australianmusic.asn.au

ULA TO ADD W-DMX

Transmitting DMX512 wireless data is the new thing. Wireless Solution's complete product line, W-DMX has been designed for distribution in Australia and NZ by ULA.

W-DMX uses AFHSS (Adaptive Frequency Hopping Spread Spectrum) and TDMA (Time Division Multiple Access) technologies to jump frequencies 1000 times per second and automatically land only on free channels.

Any fixtures or products that accept and follow DMX protocol, such as moving lights, dimmers, media servers and special effects can be operated with W-DMX. There is no required setting to be made to make the system work; control is via one single button on the W-DMX BlackBox units.

www.ulagroup.com



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ART 312 A	12" + 1"	300W	50W	127dB	19kg	680H 405W 345D
ART 315 A	15" + 1"	300W	50W	128dB	20kg	680H 405W 345D
ART 322 A	12" + 2"	350W	50W	128dB	23kg	680H 405W 345D
ART 325 A	15" + 2"	350W	50W	129dB	24kg	680H 405W 345D
ART 522 A	12" + 2"	500W	250W	130dB	18kg	680H 405W 345D *NEW
ART 525 A	15" + 2"	500W	250W	130dB	18.5kg	680H 405W 345D *NEW
ART 705 AS	15"	800W	TBC	130dB	37kg	590H 435W 600D

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ARTSERIES →





WHITSUNDAY HK AUDIO TRIANGLE

For anyone who hasn't had the privilege of going to the Whitsundays in North Queensland, it is best described as heaven-on-earth. The warm tropical weather is beautiful and the scenery is, without a doubt, some of the best you will ever come across.

The Whitsundays are in the heart of the Great Barrier Reef, consisting of seventy-four islands. On eight of those islands, you will find some of the most luxurious resorts on the planet.

As a result, some of the largest corporate functions and seminars are held there, as well as weddings and other large functions.

A large amount of HK Audio has found a home in the land of luxury. First to come on board was the Hayman Island AV company, Stage Life Productions. With the assistance of Parker Black Productions, they have purchased an HK Contour and a Lucas Smart. 'After looking at all the possible systems available, the HK Contour was without doubt the system to win the race', says Brad Parker from Parker Black. Matt Hetherington from Stage Life says, 'We love the system - not only is it beautifully tuned, it also looks very corporate which is very important to us up here at Hayman'. Stage Life is running the system in both configurations as a sub-satellite and as the full array.

Also up north, Mackay Music - the local HK Dealers - have purchased a Contour Array and some DARTS for foldback. These are added to an already impressive HK Inventory consisting of LUCAS 1000s, HK Elises and a LUCAS 600. 'We just love this stuff. They're the best sounding PA systems we have heard', states Ross Cacciola, who runs the store with wife Kelly. He continues, 'I have always wanted to get into more production up here as the community offers some great events'. Ross and Kelly recently launched their Contour Array and sponsored a local band competition. 'We had over 1800 people come through the gates and reports came into the local paper with everyone just raving about the sound'. Coming up for Ross and Kelly is the 'Mackay Music Rocks River to Reef Festival' and - in the not-too-distant future - the Central Queensland Fock awards.

Out on Hamilton Island, AV Partners have also purchased an HK Contour System. Phil De Anger - the man in charge of all the production on the island - says, 'It's just great value for money. The fact that it comes as a turn-key system and has so much punch makes it just what we need up here'. Phil has some very large scale production on the island 'For the money you just can't go wrong' continues Phil.

With Mackay, Hamilton and Hayman just a boat ride from each other, the 3 companies have created a great cross-hire environment that will see a lot of benefits for all of them.

www.cmi.com.au



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FLASHMIC GETS LINE IN

The seemingly inconsequential addition of a line input has given HHB's FlashMic a whole new realm of capabilities and expanded it into the complete recording tool for journalists and reporters.

Now, as well as capturing interviews on the fly, journalist can also use FlashMic to hook up to news feeds provided at press conferences. When in use, the line input disables the mic capsule and when the conference ends, journalists simply unplug the feed and

they're ready to record commentary or interviews using the FlashMic as a recording microphone.

Also new for FlashMic is mp3 compatibility, the preferred workflow format for some broadcasters. FlashMic recordings can now be converted to mp3 using the included FlashMic Manager Mac/PC software. Existing users can download the update free of charge at www.flashmic.info

All FlashMics share a comprehensive feature set including 1GB Flash memory for more than 18 hours of recording, USB audio data transfer, a high quality preamplifier with full manual or automatic gain control (AGC), an illuminated LCD display and nine user templates which can be configured externally.

Available with omnidirectional or cardioid capsules the new FlashMic 'Line-In' models retail at \$2,495.

www.tag.com.au

NEW FORCE AS LIGHTHOUSE DEBUT ALPHA

Clay Paky has been on the Australian lighting market longer than almost anyone else, and now they have released a new range of Alpha 300 moving lights.

Introduced by new distributor Lighthouse Distribution, these new 300 watt models challenge competitors in the same power category they say, for brightness, graphic variety, optical system and performance. They use the Philips MSR Gold 300 FastFit lamp.

Lighthouse are fast ramping up to challenge the other established lighting distributors and being backed by Hills Industries is a big help.

www.lighousedistribution.com.au 

THAT T SHIRT

CX was seated in row L at Wicked – the hottest new musical in the world. It was 1pm on a weekday, and we were reviewing the show for a forthcoming issue before hopping on the flight back that night.

But the guys in front of me were wearing these annoying T Shirts.....

STOP!

Think before disturbing Sound Engineer!

Yes... It's got to be this LOUD!

Yes... I really know what all these knobs do!

No... I can't make any f***#*#* announcements!

Yes... This system has thousands of watts!

No... This is not the lighting console! (Do I look gay to you?)

Yes... I do this for a living!

No... I am not the f***#*#* DJ!

No... I don't have any gaffer tape!

You are the sound guy.

Annoying because I couldn't read the whole thing in the theatre, and I was continually drawn to it. I was

wondering about it all the way home.

Then I got back and found one HK Audio T-Shirt on my desk, thanks to CMI.

There is, they say, one in every crowd. There's the guy who puts his beer on the mixing desk. The guy who tells you your 'light show' sucks. The drunk who consistently asks for you to play some track by Nickelback. The guy who wants to become a sound engineer who shouts dumb questions in your ear like: How many watts is this system? or What does that knob do? The woman who's lost her car keys and wants you to announce it over the PA. The girl who complains about the volume. The list goes on.

CMI and HK Audio now offer the perfect protection from these intrusions: this new t-shirt has pre-prepared answers to the dumbest, most annoying questions you're likely to get at just about any gig. Wear this shirt and strike 'em dumb! \$29.95 each inc. handling and postage.

www.cmi.com.au



FREELANCE TECH AUSTRALIA - DIRECTORY

Freelance Tech Australia provides Production Managers in Australia and New Zealand with a convenient way to connect with professional technicians.

They list a wide range of professionals including Lighting Operators and Programmers, Audio Engineers and Technicians, Vision System Techs, Camera Crews, Electricians and Stage Managers, all with online profiles listing relevant skills and experience.

Production Managers can leave feedback for the techs they use to give other users an idea as to who would be best suited to the roles they have available.

The site can be found at www.freelancetechnical.com.au and they are now accepting registrations from both technicians and managers, and best of all it's free!

www.freelancetechnical.com.au 



Whoever would have thought? Alesis offer this i-Pod friendly device allowing 8 inputs and USB out. The i-Pod just sits on top and is the receiver of all you record. In glorious squashed and compressed audio

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LS9-16: 16-Channel Digital Mixing Console

Anywhere you need advanced live sound support

The surprisingly small size and light weight of the LS9-16 make it a perfect choice for applications that require maximum portability and handling ease. Use it for events or temporary live sound setups, and benefit from the power and performance of much larger and more complex systems in an eminently portable package that can be set up and operated anywhere with ease.



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Richard Streek and Paul Owen from Lighthouse distribution

HILLS SVL ON THE ROAD

CX attended the first roadshow this year held by Hills SVL in Brisbane. Aside from the centrepiece of The Hills Hoist (serving to illustrate the 'Extreme Integration' theme) we were mighty impressed by the Lab.gruppen and Dolby Lake amplifier deployment.

The Extreme Integration stand also demonstrated scheduled announcements using the Australian Monitor DMA1 and a Crestron Pro2 processor. The Crestron system communicated with the PC running the Chamsys lighting software, which was driving the four DTS XR9 3000 lighting fixtures.

"People's eyes are now open to the possibilities of Crestron controlling third party devices such as audio servers or lighting controllers," comments Bill Coghill, Hills SVL Technical Integration Specialist.

Popular attractions included the DTE range of moving lights and the Chamsys Lighting Console from Lighthouse Distribution. Australian Monitor showed off several new products including the compact and punchy Micro Range of speakers and the new range of Contractor Tools. The interactive Crestron stand kept visitors entertained, allowing them to 'test drive' the latest in Crestron technology including the new DVPHD Video Processor and Adagio Audio Processing. Visitors also heard the latest developments in line array technology experiencing the Renkus-Heinz Line Array firsthand in the Loud Room.

Other parties have gravitated towards the Roadshow, one of which was LSC who have cut a deal with Lighthouse. The roadshow winds up in Sydney (30th - 31st October at Telstra Stadium) and Auckland 20th - 21st November at North Harbour Stadium. 

ENTECH INTRO WORSHIP TECH TRAINING

TFWM has confirmed that the Technologies for Worship Conferences will be expanding internationally and appearing at ENTECH, in Sydney, Australia, from Feb 11th to 13th, 2008. This is the first time the Technologies for Worship Conference has been held in Australia.

"It's a fantastic opportunity for us to reach Houses of Worship on a global level," states Shelagh Rogers, President and Founder of TFWM. "We've always been open to the idea of taking our show on the road - there are houses of worship worldwide that we can reach outside of North America. ENTECH provides us with an opportunity to do just that."

The 2008 Technologies for Worship Conference at ENTECH will feature nine different seminars focusing on video, audio, and tech team building. Confirmed speakers include Dan Stark of Stark Raving Solutions, Donnie Haulk of Audio Ethics, and David Rauch of Bridge Communications. TFWM will also have a booth on the exhibit floor.

TFWM and the Technologies for Worship Conference are the leaders in the growing technologies market for houses of worship. Celebrating 15 years in business in the USA, TFWM is committed to educating houses of worship on how to use today's technologies to augment and grow their ministries.

www.entech-tradeshows.com

SPECIALIST LIGHTING SEMINARS FROM ALIA

ALIA, the Australasian Lighting Industry Association, will be conducting a series of specialist lighting seminars at ENTECH 2008. Three 90 minute sessions have been announced so far: In 'Starting Out in Lighting Design', four designers explain their design processes; 'Testing and Tagging' will explain how this element of workplace safety can be implemented without becoming a bureaucratic and financial black hole; 'Technology Briefing' will look at current technologies driving developments in lighting design and production.

Conference and seminar pricing is available on the ENTECH website.

www.entech-tradeshows.com 




CORRECTION: ELECTRIC CANVAS LIT THE OPERA HOUSE FIRST!

Peter Milne writes:

While we are impressed with TDC's recent projection achievement on the Sydney Opera House, I felt obliged to set the record straight in the interests of the journalistic accuracy we are accustomed to by CX.

The Electric Canvas were first to project images onto the SOH way back in 1998. We used 250,000 lumens from the short throw of the western broadwalk using scissor lifts. Architectural masking techniques were used to prevent any light from entering the windows at the base of the sails.

Now that we have invested in high-powered video projectors and long-throw optics we are looking forward to re-tracing our PIGI steps using digital technology manipulated and controlled using our cutting-edge "Onlyview" systems.

www.theelectriccanvas.com.au 

JANDS STAGING DIVISION EXPANDS

Jands recently picked up two large staging projects in Melbourne, being the Melbourne Convention Centre and the Melbourne Theatre Company. To accommodate the amount of engineering work now required from Jands they have expanded their Staging and Engineering Division.

The Engineering Resource Group (ERG) has just recently ballooned to 8 people, taking the entire division, including Theatre Projects and Fabrication to 27 full time staff members.

Neil Morrison is the newly appointed General Manager - Staging/Engineering. Neil comes with a very strong Manufacturing and Project Management background, having worked internationally in various industries, from the US to Europe and here in Australia.

www.jands.com.au 

HARMAN SAVED FROM BANKERS


The people who build JBL, AKG, Crown, dbx, Soundcraft and other leading pro audio brands have been saved after investors fronted by a merchant bank pulled out of a US\$8 billion takeover. The deal was announced back in April and cancelled by the bankers late September. This triggered a class action by other small shareholders who jumped on the bankers explanations as to why they were pulling out. The class action is designed to force Harman to reimburse share losses for those who bought in at the height of the takeover announcement and who have since lost as the share price has now fallen.

The bankers withdrew from the takeover claiming "a material change in the business". The class action goes further and alleges Harman breached the takeover agreement – a standard American legal claim. Shares fell from US\$112 to \$80 – the price they were before the takeover, and the company which makes most of its revenue from car audio, responded to the market by stating that all is good.

Media reports claim the bankers were retreating after the sub-prime fiasco increased the cost of money, and they face a US\$220 million 'break deal fee' unless they can prove something adverse.

The class action by other small investors relies on whatever excuse the bankers offer for breaking the deal. The law firm running the class offer this advice as disclaimer: "Prior Results Do Not Guarantee A Similar Outcome".

Now Harman International Industries Inc can bank the break fee. The firm employs over 10,000 people, and say that their 2007 results show a 9% revenue increase and a 23% increase in net earnings.


The prospect of the business being broken up by the bank was too much for many pro audio industry observers and staff, who are applauding the retreat of the bankers. 

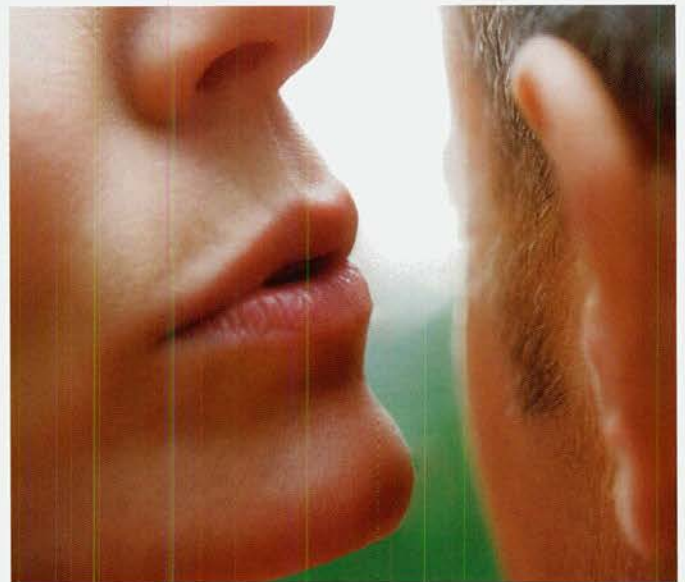
AMBERTECH RESULTS AND SSL

Ambertech have announced turnover of almost A\$60 million and profits up by 49% for the year to June 2007. The Sydney based distributor of pro audio, video and consumer technology derived most of its profits from sales of professional equipment. Consumer goods roughly matched turnover of professional, but profits from consumer goods did not come close to those from professional audio and video.

Meantime the company has won a contract to supply the Australian Broadcasting Corporation with Solid State Logic Music Production Consoles until 2013. The ABC will deploy the consoles in its music production studios, OB trucks and live-to-air applications located throughout Australia. The consoles will be used in the production and broadcast of radio programs.

The contract is part of a global success story for SSL's C100HD live-to-air digital console, C200 digital in-line console for live music broadcast and recording, and the Duality large format analogue console.

www.ambertech.com.au 



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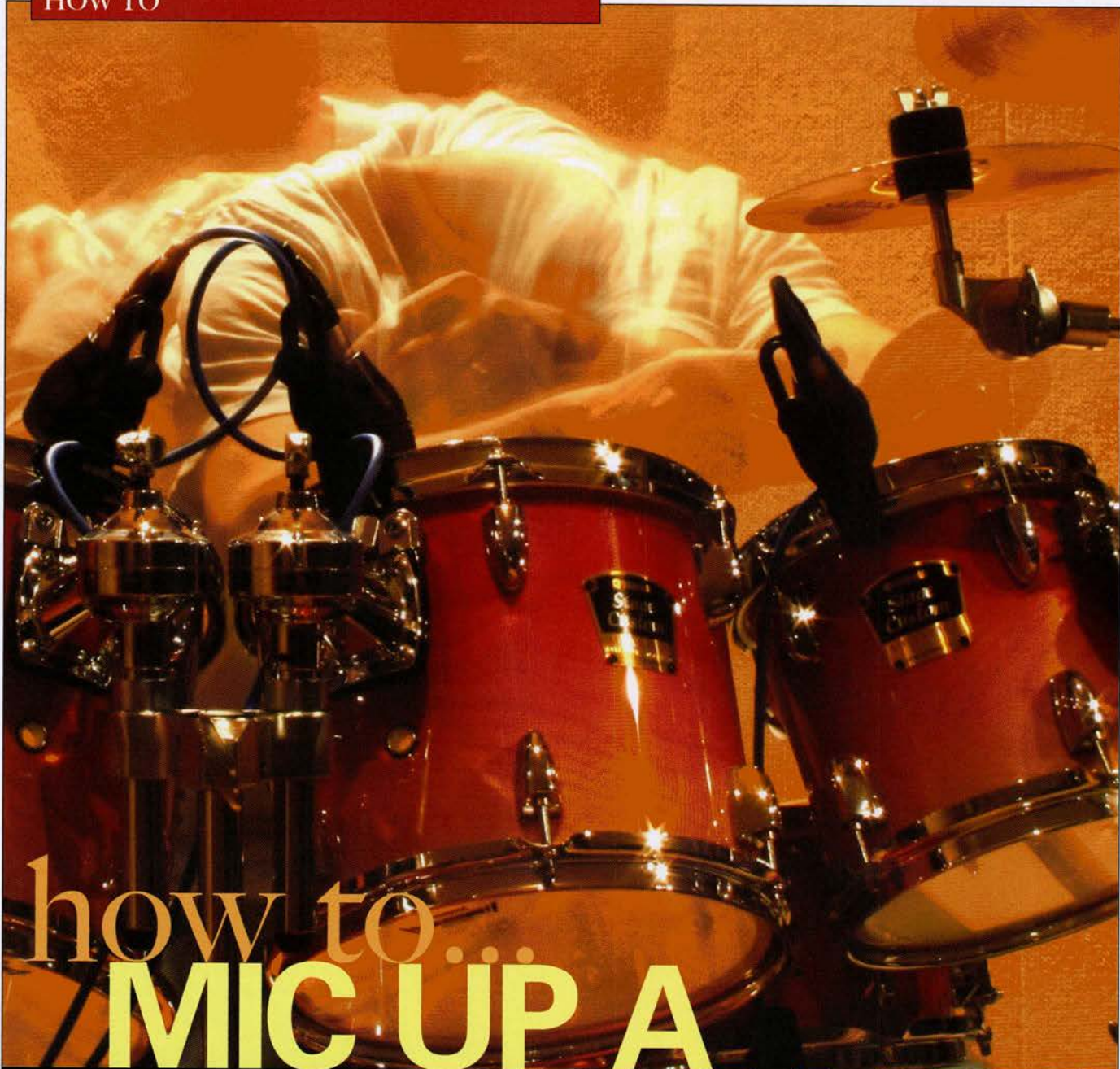
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how to MIC UP A DRUM KIT

In many cases, the drum kit can demand more microphones than the rest of the band. Despite the many splendid jokes made about drummers over the years, the bashamaphone is a serious and sensitive instrument in its own right, and deserves to be treated as such. Andy Mackenzie looks at the finer points of getting a great drum sound.

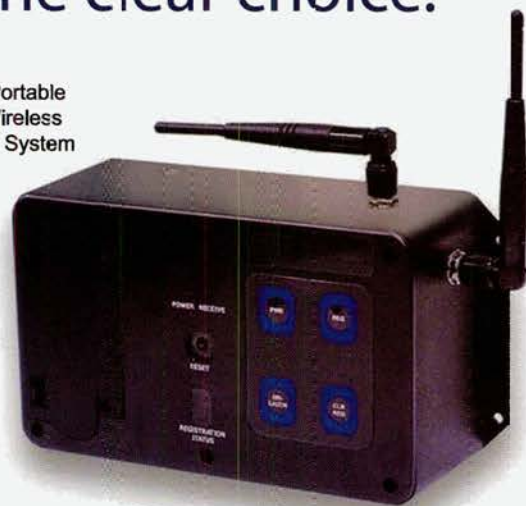
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The DX200 system is supplied complete with lightweight, rugged belt packs featuring voice prompts, rechargeable batteries and a 4 port battery charger for reliable and cost-effective operation.

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Belt Pack



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X-Y overheads to pick up the whole kit



Close mics covering the whole kit, overheads for cymbals

This idea came in to my head the other week after I was cornered by some young men from Syntec and persuaded to appear as the specialist engineer in a microphone technique seminar they were running. Stephan from Sennheiser Germany, was to present technical information while I provided application notes. The thing that I noticed was that even though we spent fully half the time on drums and drum microphones, they still took the lion's share of the questions at the end of the night – suggesting that there is widespread ignorance of the black art that is drum microphone technique.

Why is this so? My theory is that it's a result of the range and complexity of drum kits, coupled with a widespread belief that drums pretty much go 'bang' and that's the end of it. There are also loads of difficulties with mic placement in the midst of this nest of hardware and potential for plenty of spill.

For the purposes of this exercise, let's work with a fairly typical drum kit (ha!) consisting of a kick drum, snare, a few toms and a floor tom along with hi-hats, ride and a bunch of accent cymbals. We'll leave out the roto-toms, the cowbells and the gigantic gong for the time being – once you get the basics, these weird things will hold no terrors for you.

In many cases it is possible to mic a drum kit fairly simply using a pair of high quality condensers as overheads. This is usually done using something resembling a classic X-Y stereo technique and tends to produce a good natural drum sound. There are some problems with this technique – you won't get enough kick drum to propel a rock band, and even if you do you could run into a few issues with stage noise and feedback as a result of the necessary gain. Having the two mics picking up the same sources can lead to some phase errors as well but this is easily addressed by panning them hard left and right, which also gives a nice spacious feel to the mix. In small rooms and some styles of jazz this may be the solution you're looking for.

It's rarely a simple either/or decision when it comes to the question of overheads vs. close mics. In many gigs you will use a combination of the two – it's very common to see overheads used with just kick and snare close miked. Because using overheads is so much simpler, it may be a good idea to stick

with them and just add close mics as and when you need to, adjusting the balance and EQ as you go. But enough of this simplicity – let's get stuck into some close miking techniques.

DRUMS

The Kick Drum

The kick drum is the obvious starting point, both musically and in terms of its sheer physical bulk. There are a range of microphones and techniques used for kick drums and we're going to look at several of the most common. One of the first points to note is that most modern kick drum mics are purpose-built with tailored frequency response and the ability to cope with very high SPL. The implication of this is that most kick drum mics have few, if any, other uses and that they usually outperform mics not designed for use with kick drums.

There are two key elements in the sound of a kick drum – the attack and the body of the sound. I find it easier to think of them as the smack and the boom respectively. The simplest way to mic the drum is to use a mic through the hole in the front skin of the drum pointed in the general direction of the beater. The attack of the sound can be increased by moving the mic closer to the batter head (the head that gets struck) or by pointing it more directly at the beater. As a guide, try placing the mic so the diaphragm is roughly in line with the



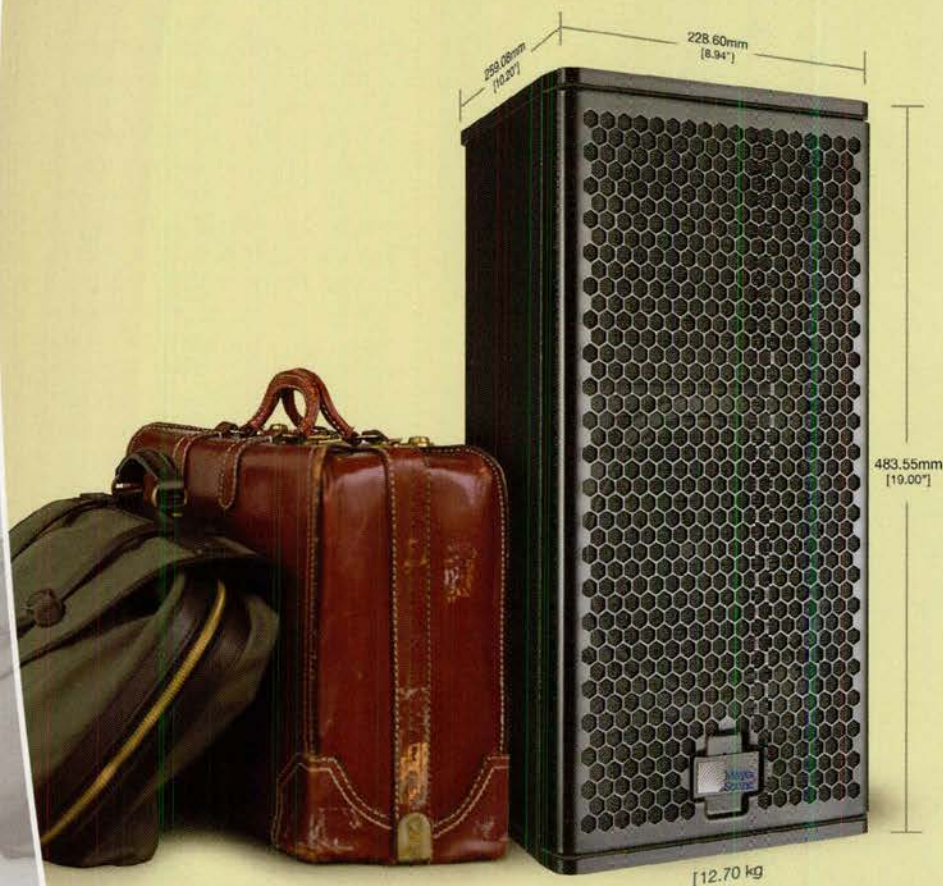
Conventional positioning for a kick mic

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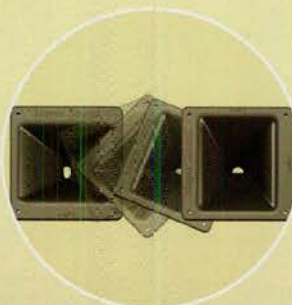
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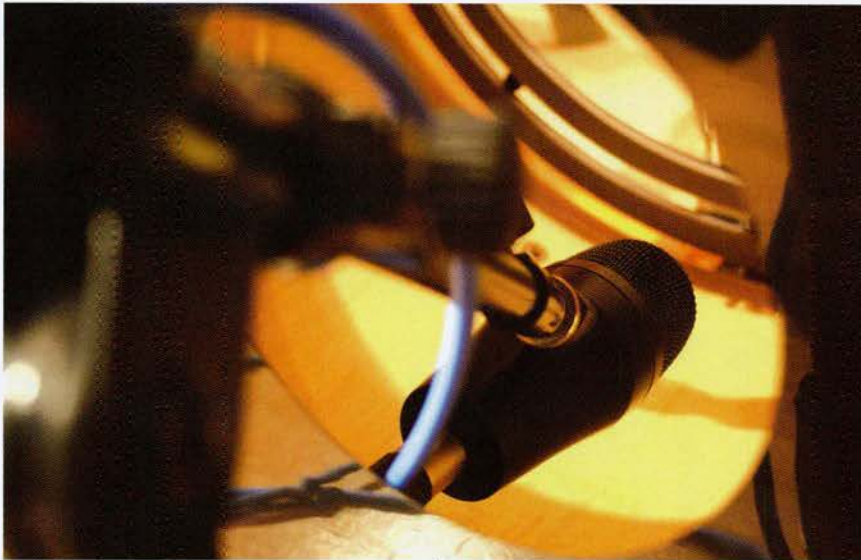
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The closer the mic is to the batter head, the more attack you get



A boundary mic in the kick drum gets plenty of attack



Using two mics can give the best of both worlds

front skin and adjust from there. This will give a reasonably full, natural sound.

Some engineers looking for increased attack will use a boundary mic inside the kick drum. If you're going to do this, use a mic designed for the purpose or risk its annihilation. Don't place the mic hard on the shell of the drum or you may wind up with excessive mechanical noise as it bounces – put it on a foam or rubber pad, stick a folded towel under it or do something to stop it rattling. Using a mic like this gives a very sharp attack and may offer you more level from the monitors without feedback, but it will rarely produce a full bodied sound on its own. This can be dealt with by boosting the lows using channel EQ or by using an expander to reduce the attack a little, but these are fairly clumsy solutions.

The more common technique is to combine the two mic techniques, using a boundary mic inside the drum and another mic at the hole. The two signals can then be blended together to achieve the desired balance between attack and body. Because the mics are not lined up next to each other, this will always create a phase cancellation at some frequency and it will be worthwhile to experiment with the phase reverse switches to get the best result.

In days gone by it was typical to EQ the kick drum with a boost to the low end, a fairly sharp deep notch around 100-160Hz and a gradual rise into the high frequencies. This is no longer necessary with many of the purpose-built mics on the market as their frequency response is largely pre-shaped.

On some rare occasions you may find yourself needing to mic the batter head from the outside. In most cases this is wildly impractical and sounds pretty ordinary, but it can be the only way to get any kind of attack out of a drum with no hole in the front. The best advice I can offer for this one is that you try to put the mic out towards the edge of the drum, aim it at where the beater strikes and do your best to kick it into shape with the EQ. It's a limited solution, but better than nothing.

The snare drum

The snare, so named because of the rattly thing on the bottom, does as much work as the kick and even more in some styles. Like the kick drum, it offers a range of mic options and you can have lots of fun messing about for hours on end. The most common tactic is to mic the batter head of the snare from quite close up, sitting the mic close to the edge of the drum and pointing at the center of the skin. The distinctive sound of the snare comes in three parts – the initial attack of the stick hitting, the overtones as the drum resonates, and the rattle of the snares. Having the mic pointed at the centre of the batter head will favour the initial attack, while pointing it more towards the outer rim will tend to pick up a greater proportion of overtones.

In either of these cases, the sound of the snares themselves will be somewhat muted as it has to pass through the body of the drum to reach the mic. This is fine in most cases as the balance sounds



Typical snare mic positioning



This will pick up more overtones



While this probably won't last the night

reasonably natural but there are occasions when the sound of the snares becomes lost – most commonly in loud environments, with very deep snare drums or when played by drummers who don't hit real hard. In these cases it may be worthwhile to mic the snare from underneath as well. Be aware that this is not an alternative to using the mic on the top – simply an additional mic adding colour to the sound. The sound of the bottom mic alone is intolerably harsh and awful. If you are going to try this, you will almost always need to reverse the phase of the bottom mic to have any chance of combining them to get a decent sound.

There are a number of other points that make things complex with the snare mics, the first of which is the range of ways in which it is played. Flayers using brushes or playing a lot of rim shots are reasonably likely to clean up the mic somewhere along the line if you're not particularly careful about keeping it out of the line of fire. Added to this, the hi-hat lives right next door – presenting a concussive hazard every time it's hit and

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Double miking can tighten up a dull sounding snare

providing you with plenty of spill to mess up your snare sound. Using a directional mic sensibly to place the hi-hat in the mic's null can reduce the spill issue. It's generally a good idea to use a mic stand rather than a crum clip on the snare to eliminate mechanical vibrations from rim shots.

Some engineers like to adopt an approach which accepts that the snare and hats will spill into each other's mics and simply use one carefully placed mic, usually omnidirectional, to pick up both.

There are as many EQ options for snares as there are varieties of snare. The most useful advice to offer is this: Don't try to EQ in what isn't there, just EQ out as much as you can of the undesirable stuff and don't bother trying to EQ out spill from the hats, you'll just butcher your snare sound – they've got too many key frequencies in common. Because the snare has such a sharp attack and decay, it is quite common to hear reverbs or other effects used to give the sound more body and longer decay. Don't be afraid to do this if you need to, but don't treat it as a standard part of your process – using effects inappropriately or unnecessarily is more likely to kill the mix than save it.

Tom-toms (usually referred to simply as toms)

The toms generally do less work than the kick or snare, so they may not always need close miking. On the other hand, their sound is less penetrative than the snare so they may need a bit of a boost to cut through loud or complex arrangements. The rules that apply to toms in terms of microphone positioning are pretty much the same as those for snare with the exception that I cannot think of a single reason to mic the bottom of a tom (although open-bottomed concert toms and roto-toms can be miked from underneath).

I usually like to use clips to attach the mics to the drums rather than stands, simply to avoid having a huge stand farm surrounding the kit which is cosmetically awful and makes it



Rack toms miked with dynamics. Note the positioning to minimise spill



Gooseneck condensers used on rack toms



If you need to you can share one mic between two toms



Good tom mic position

virtually impossible to get to the kit if anything needs doing. In the interests of consistent voicing across the rack it's a good idea to use the same mic on all the toms. Using a bunch of different mics may mean individual drums sound better in isolation, but it tends to fragment the mix.

There are a large variety of suitable drum mics on the market including both dynamic and condenser varieties. In general terms condensers will give a more accurate reproduction of the drum sound as dynamics will choke off the resonance a bit. While this is almost always a good thing, it can show up deficiencies in the original sound and I recommend using dynamics on boing sounding kits.

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The fact that the toms are often close together can be a liability in terms of spill, but careful placement of your mics can minimize this. In some cases it can be an asset if you have either insufficient mics or insufficient channels to deal with each tom separately, as a carefully placed mic can pick up two adjacent toms.

EQ on toms is usually fairly minimal, although in some cases it can be worthwhile to give a little boost at the fundamental tuned frequency of each tom – but don't overdo it or you lose the essential timbre of the drum and you might as well be hitting a plastic bucket. You may also find it helpful to use a high pass filter on the channels of any drums mounted on the kick drum, simply to reduce the audible effects of mechanical vibrations being transmitted. When you're doing a stereo mix, the toms can give you a great panning option to put some space in the drum mix – something that doesn't work well with kick, snare or hats.

Cymbals

There are three basic types of cymbals used in most drumkits and they are all used for different purposes. The hi-hats are a pair of cymbals that can be opened or closed by a foot pedal and are often also struck with the stick while either closed or partially open. Hi-hats are an essential part of maintaining the rhythm in many musical styles. Ride cymbals are also used for maintaining rhythm, and have a fairly long decay time, while accent cymbals of various types including crash, splash and china types are struck less frequently and serve to add colour and depth to the drum arrangement.

The differences between cymbals are primarily of concern to us in determining the importance of miking each one. Some engineers like to close mic cymbals while others prefer overheads. Still others are happy not to mic cymbals at all, relying on spill into the other drum mics. I usually find that I get good results from overheads, either in an X-Y pattern if there's not too much stage noise, or shifted across to be directly above the cymbals. Even when the overheads are directly over the cymbals they work best if they're 30 or 40 cm above – that way they pick up a bit of room sound and this helps unify the mix.



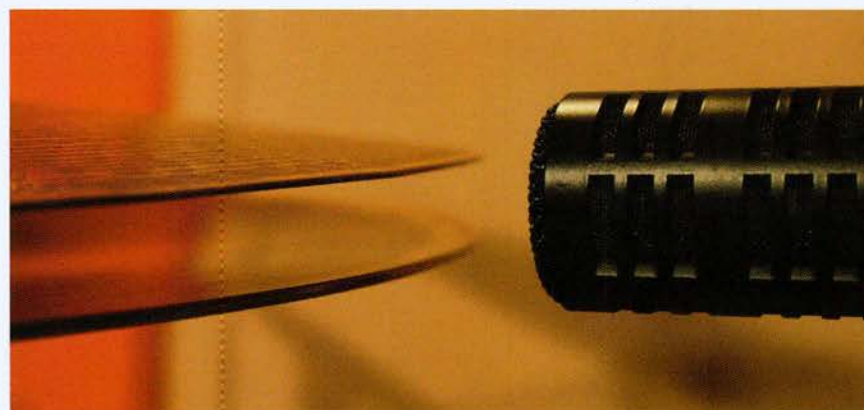
This will get the 'tink'.



While this will get plenty of shimmer.



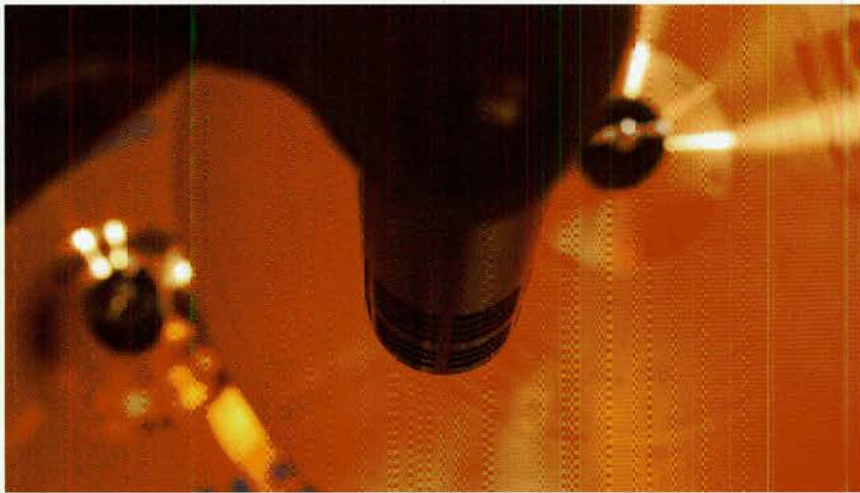
About two thirds out from the centre is a good starting point.



When the hats close, the diaphragm will pop.

The one set of cymbals that usually justifies close miking is the hi-hat. I'll sometimes close mic the ride for some forms of jazz, but not often. When micing hi-hats there are a few rules to follow. Don't mic it from underneath – it just doesn't sound

right. The closer to the bell of the cymbal the mic is pointed, the more 'tink' it will pick up, while a mic close to the edge will pick up much more of the shimmerly decay. Be conscious of spill, and try to avoid it – the position of the hats in the kit usually



Line it up to point across the edges of the cymbals.

makes it possible to point the mic in a direction that won't pick up too much else.

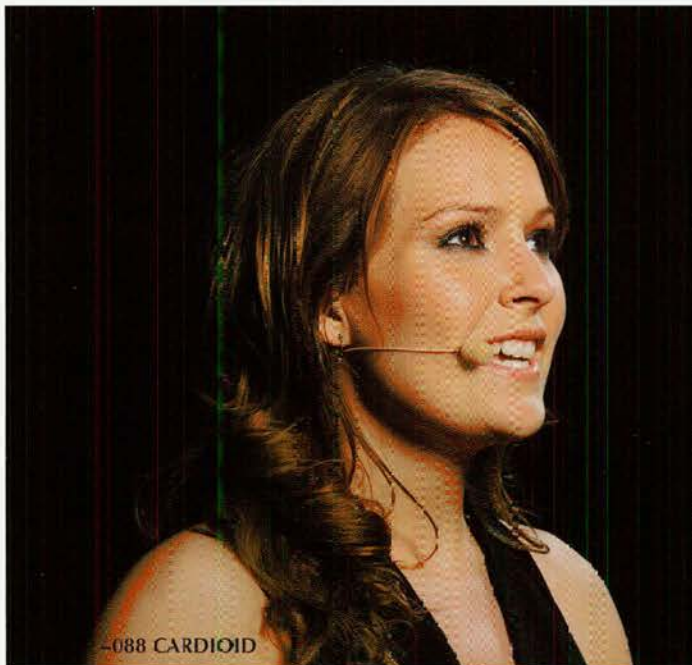
One thing to avoid at all costs is placing the mic right next to the parallel edges of the hats. While this may sound OK for some purposes, as soon as the hats get closed hard the cymbal's edge is likely to pop and may never be heard from again. You

should also remember that the hats will tend to swing a bit when they get hit, so put the mic far enough out that it won't get hit as well.

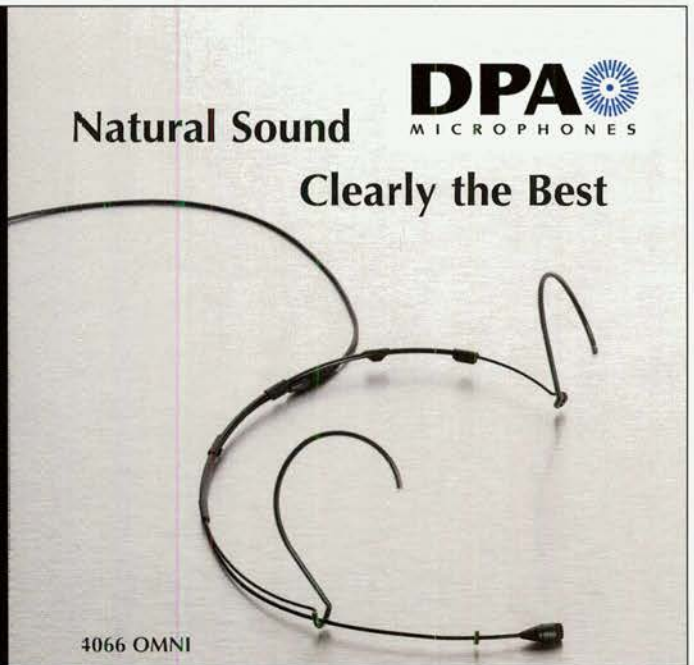
If you're miking other cymbals, the same rules apply as for hats – over the bell for 'tink', the edge for shimmer. Most drummers are looking for the shimmer, so miking over the edge is generally a good thing. If

you're using one overhead mic to pick up a number of cymbals, try to find a position and angle that aims the mic at a point where the edges of the cymbals cross, and give it enough room that the closer cymbal won't sound way louder. Like toms, cymbals offer a stereo panning option that can't be beat so you should probably use it. EQ for cymbals is usually a simple HPF at about 2-300Hz, usually a bit lower for hats than for others. In some cases a gentle boost around 3-6kHz can help with clarity, but it's not usually necessary.

That should give you just enough knowledge to be dangerous, so get out there and play. The best way to learn this stuff is to try it and build on it. Just remember the cardinal rule of sound engineering – it's about the whole mix, so don't get carried away playing with things in isolation. And if you're not sure if you're going to need a mic for something, get it out there anyway and pull the fader down. It's a whole lot easier to turn up a channel than it is to crawl onto the stage and set up a mic once the show's started.



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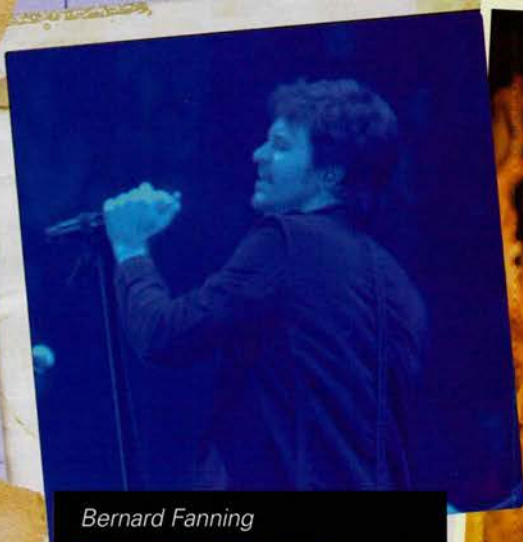
The M-400 V-Mixer features 25 x 100mm motorized and touch sensitive faders, a large bright 800 x 480 color screen, dedicated effect knobs for EQ, Pan, and Gain, and fully recallable scene settings. Designed for all levels operator, the intuitive interface is quick to navigate and easy to learn.

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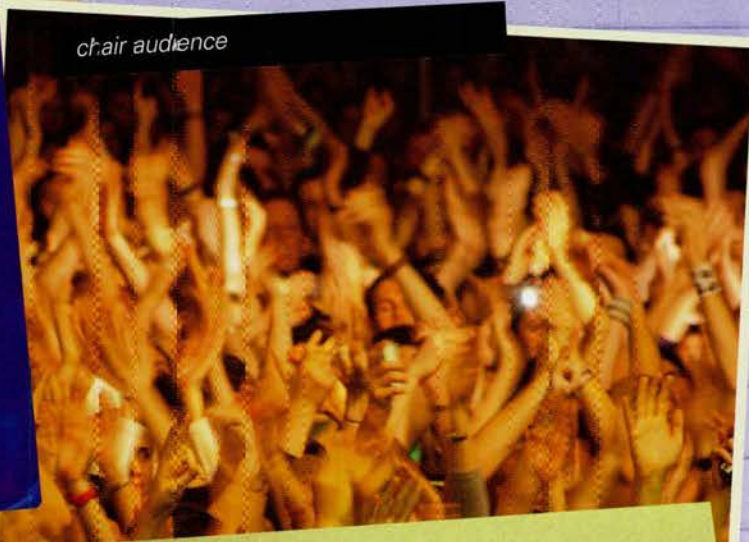
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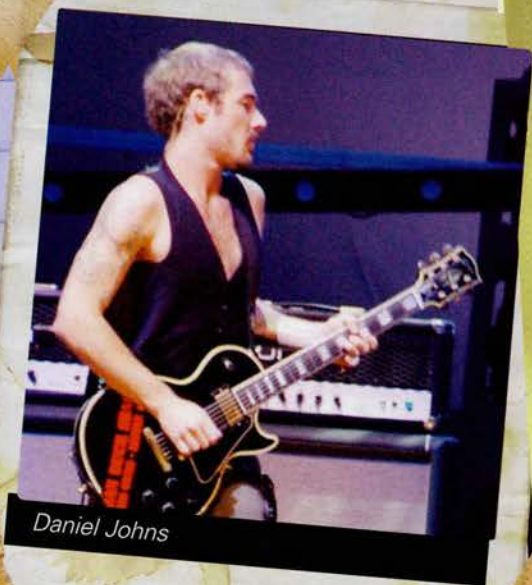
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20 HITS, 2
BANDS,
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AND 60 DAYS

On the road with Powderchair and Silverfinger

BY JULIUS GRAFTON

20 hits from two bands, 2 months touring all corners of Australia and NZ and very high production values. Doing all that with Australian bands makes a high risk tour, but the Across The Great Divide tour was never a risk for Powderfinger and Silverchair.

The two bands crossed into longevity and financial security a long time ago, and became brands that you can bank on. The members have enviable freedom to work on side projects and live comfortably from sales and touring at times that suit themselves. That is a fantastic thing

for live music down under!

Anyone in the region would be familiar with either band. The Chair push a fusion between hard guitar rock and symphonic exploration, while The Finger deliver a stadium friendly anthem rock that is very radio friendly but still unique to them. Both bands sound distinct, un-cloned, and have a friendly image. And both bands have high production values.

The tour took in venues as large as Acer Arena in Sydney and as small as a tent in Mildura. The tent run was provisioned by Janlin's Big Tent Hire. At one point there were 19 trucks crisscrossing Victoria as tent crews leaptfrogged to keep the show on

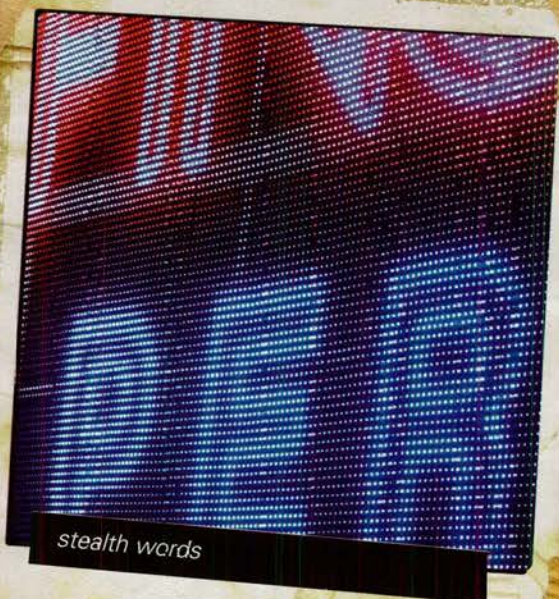
schedule. But the carefully crafted itinerary was thrown into disarray when high winds ripped steel cables through the tent roof in Ballarat, forcing the postponement of the show.

HARD DAY'S NIGHT

"That was hard", says Powderfinger lighting director Jeff Pavey. "We had to pull everything down, and then the crewing agency guys all left us because they had to get back to Melbourne. People were upset we were postponing."

Working hard around the clock, the crew of 23 got five truck loads of sound, light, vision, sets and backline

Powderchair all in photo Tamworth



out of the tent, into the trucks, and back into the tent to do the show on the designated travel day to Melbourne. This resulted in a six consecutive day run of very little sleep before an important pair of shows at the Rod Laver Arena.

To overcome the defection of the crewing agency, production manager Bailey Followay turned to a labour hire firm in Ballarat who usually supply unskilled people for farms and roadworks. That crew turned out to be up to the task, and things were slightly easier than if there were no crew.

"It didn't matter whether we had 16 or 32 crew in the tents, the lack of space meant a load out would always be two and a half hours", Bailey told me.

CX caught the tour at the Adelaide Entertainment Centre on the second night, and the

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Rachel Johnston visuals engineer.

had obviously sorted out things between themselves, since there were no surprises as the concepts and details were ironed out. The word is that egos were in control and planning was smooth. Ideas were tossed about, and the design evolved into what the fans saw.

The bands agents then advanced the regional towns and met with council in each place. They were shown regular outdoor sites like the Showground, and less regular sites like riverbanks. The tour adopted some scenic locations, where logistics like access were balanced against the ambience of the location.

Fan reaction in Adelaide was euphoric. "I rate this better than anything I've seen here", enthused Greg Forsyth. His friend Sally Porter agreed – "we come to almost everything here since Adelaide doesn't always get the big tours". A double header (Silverchair were on first) often means a lot of empty seats as the other fan mob smoke outside or queue for beer. This show had almost all the fans in the venue for both halves.

A word here about stage

crew plus seven tour management staff had just enjoyed a big sleep in. The call was at 1pm. The Centre staff were friendly and professional, rolling lunch forward on request and sorting out all those little details that make the difference between stress and relaxation.

DESIGNING A TOUR

The back-story on the production starts with Pavay, Holloway and Tour Director Denis Sheahan who set out to design a double header where two bands would perform with their own sets and share most everything else. The bands and their managements

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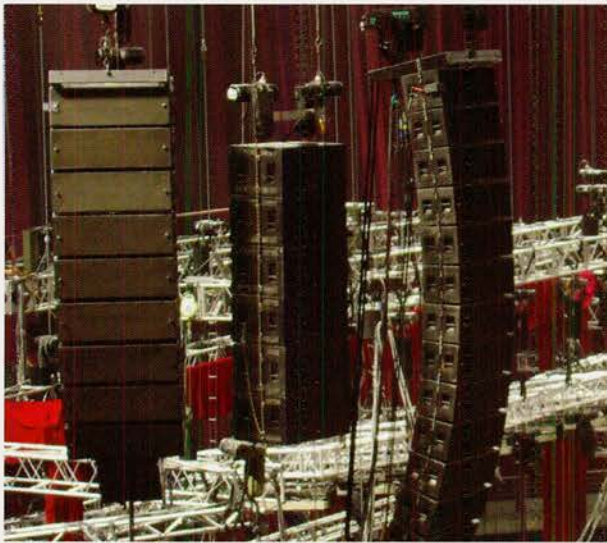


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Powderfinger drummer Jon Coghill.



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management, and the very capable Dugald McAndrew oversaw this tour. Every show also featured a support band.

There was a significant set change for Powderfinger. The Chair had three cubes of what looked like LED wall, while the Finger appeared with the LED wall as a 12.5 x 4m screen. How on earth did they re-rig that in half an hour?

STEALTH AND LIGHT

The word is Stealth, and this new LED product made visuals possible in that way, including in the tents. Instead of three tonnes of LED wall, the Stealth is a lightweight little square loaded with LEDs at a 20mm pitch that hangs in vertical strips. The processing is done at ground level, so there are no electronics in the air. The product comes from Element Labs and on this tour the video supplier was Technical Direction Company who have invested in Stealth.

Stealth is a compromise – the vertical strips need to be well aligned with their neighbours otherwise any small gap really stands out. But from back in audience world it looks like a LED wall and that's all that matters.



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ON TOUR

One band looks different to the other. Lighting Designer for Silverchair was Dave Jackson and of course he was involved in the preparations for the tour as well. His show was rock arena, strobing movers and flashing lights, audience blinders and looks that screamed International Rock Band On The Road. Which is what Silverchair are doing – they hit the world touring circuit soon.

Pavey has a different mindset. He is one of Australia's most successful lighting designers for touring bands and spent a staggering decade

lighting Roger Davies' divas. Davies is the most successful Australian in the music biz, he manages or managed Tina Turner, Cher, Janet Jackson, Olivia Newton John and now Pink. Pavey also toured with Joe Cocker at the height of his Roger Davies induced success. Davies has a golden touch, reviving and lifting careers and managing notorious egos.

Across that vast wilderness of touring Jeff Pavey learned a lot and grew into a guy who can tour anywhere with anyone but prefers to stay home in his big house on the Gold Coast with two little boys and a

wife. These days he works in Australia, and only when he wants to. That's what a decade in America can do for you, if you don't waste the five grand a week that top touring lighting people earn. That's American money, too.

He says that a lighting look needs somewhere to go – that lighting is about art and shade and not strobing and movement. 'The song needs somewhere to go – you can't have the verse and the chorus looking the same'. His is a message that needs a massive cheer everytime he says it, since he thinks what I think : that an



Dave Jackson and Jock Bain.



Powderchair Video Control.



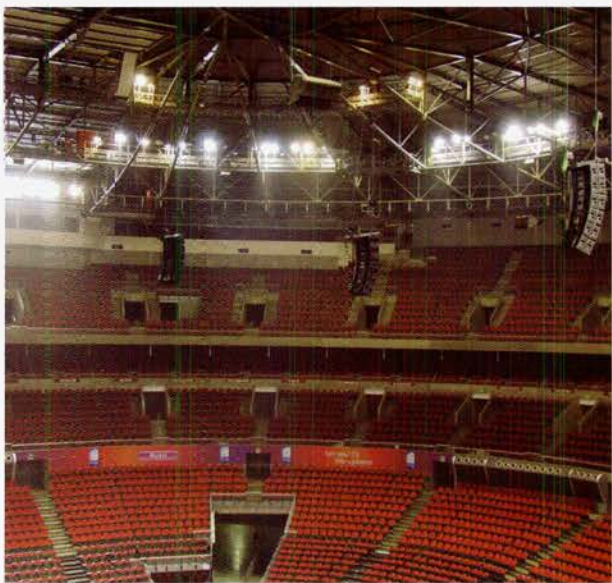
Saul Skoutarides Monitor man for SC.



Teddy the gateman.



Chair wet!



Ace: delays.

entire decade has been wasted by lighties misusing moving lights.

Powderfinger's lighting look is retro grungy, with solid blocks of colour and awareness of the need to light the act. Pavey was successful with the divas because he lit them sympathetically, usually with follow spots and always by thinking of colour temperature and colour. This blazed a pathway because with video and image (camera as on large screens) coming as essential for most shows, constant light on the performer is now de rigueur.

Needless to say the Across The Great Divide Tour had truck loads of the newest and brightest stuff that Tony and Greg Davies at Chameleon could throw at them.

Moving away from the visuals (and credit to all who made video, staging and lighting work a treat on this tour) and we go into the invisible world of sound where it was very loud and appropriately fat. As required for these bands.

SOUND

There are three vendors of large format audio in Australia who can do any sized show indoors or out, and one of these is from Melbourne. Bruce Johnston's Johnston Audio Services (JAS) handled sound for this

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tour and just before I went to Adelaide I heard startling rumours that Johnston himself had been sacked by Silverchair and deported as their sound engineer. This meant I would not hear a Johnston mix – something that I always enjoy – and instead The Chair would be mixed by Brent Gray.

It transpires that Johnston was simply handing the baton to Gray, as the Chair world tour was never going to be mixed by Johnston. He has had almost enough of international touring after several years on the road with the obnoxious Gallagher Brothers and Oasis. That band have Johnston as their preferred engineer and he copes with them due to their tour schedule which is month on, two weeks off.

Both bands had their own desks – an example of extremes, since Mark McElligot from Powerfinger specified

an XL4 console, truly the big daddy of analog consoles. This 400 kilo plus monster sat dwarfing a very compact Digidesign Profile work surface used by Silverchair.

Output of these wildly different large format professional concert consoles went to one Jock Bain, Certified V-Dosc Engineer (CVE) who was responsible for the delivery of sound to audience numbers that varied from huge (Acer Arena) to smaller (tent shows). Bain sat behind the consoles with a laptop and a rack of Contour processors and distributed audio to as many as 60 V-Dosc cabinets and almost as many WayLoud subwoofers.

The WayLoud is a Bruce Johnston invention, and it flies. The sound crew enjoyed being able to fly some or all of the subs. Bain also did some trickery with the sub program by

SOUND TALK

Powderfinger's FOH operator Mark ran DBX compressors. His main vocal had an Avalon 737 as well as the spare. In the fx department he had a TCM5000, a few Lexicon PCM 90's and 2 x D2 delays. Drawmer noise gates for the drums. The drum groups had an AI Smart C2 stereo compressor.

Bruce Johnston started with Silverchair this tour on the Digidesign Profile console and a pile of outboard plugged into it. Bruce said "I'm all for using digital consoles but I feel you need pre-amps on all the major stuff like vocals, bass the kick drum and the snare. It just sounds better." Bruce had an Amek 9098 pre-amp/eq on Daniels vocal as well as an XL42 on the kick and snare channels. The bass had a focusrite channel. There were also 6 x DBX 160a compressors. "I can't live without my DBX compressors! They're the only compressor for drums for me and I love them on the bass as well! In the fx department I used a SPX900 on the drums. I also have brought out a TC 4000 unit which is surprisingly good. In fact it has my favourite TC5000 sounds as well some TC6000 sounds. And just for us old boys some AMS RMX16 stuff. It's my new favourite unit. You can also load the software onto your laptop and have a full TC remote like the 6000."

After mixing Silverchair on and off for the last 5 years Bruce decided it was time to move on and passed the mixing duties over to Brent Gray. Brent has been mixing the band when Bruce wasn't around. Bruce decided he did not want to travel overseas for a large duration and Silverchair has a long overseas tour planned.

Brent stayed with the Digidesign console, got rid of all Bruce's stuff and just ran a Summit TLA 100 on the vocals as well as 6 channels of DBX 160A. Brent used all the onboard fx's and plug-ins.

In the monitor department both engineers wanted Nexo PS15 wedges and there was a flying Nexo Alpha system as the sidefills.

As some of the shows were being recorded they needed a quick solution to the stage patch. 2 x 56 channel Whirlwind 4 x ISO split stage boxes did that task. Both systems have a 56 channel disconnect stage patch system.



Bailey Holloway Dugald McAndrew Denis Sheahan.



Brent Gray with squeezeie.

'bringing it forward' for Powderfinger. Using a short 6 millisecond time delay he could 'virtually' move the sub bass sound forwards, thus satisfying strange desires from McElligot – who also has fantasies about Clair Brother's S4 cabinets (obsolete) and even touring arenas with Nexo Alpha boxes. He is on a retro kick.

McElligot has certainly used digital consoles, but he thinks people end up being mesmerised by the screen displays. He was also fairly firm – OK, very firm – on the topic of Fro Tools and Digidesign hardware – he hates the hardware they make. He spends time in the studio between live tours, and is the longest serving Powderfinger employee.

He uses the soundcheck to tweak the system EQ. While he does this, Bain tells me about the Bass Player's Girlfriend. 'That's the generic name for band member spouses', he says, 'and they always ALWAYS sit over there', pointing to the top of the venue at stage right. 'The seats they can't sell, the publicist throws a handful of tickets at the band. So the girlfriend goes backstage after and says 'honey, I couldn't hear properly'.

'That's what we are working against' " In the case of tours where Bain is the CVE. He makes sure there is coverage up there..... just in case.

The extra yards philosophy is shared by Johnston, and that's why they flew de ay clusters in Acer arena – a rare approach but very welcome in such a cavernous space with a nose bleedingly high top row.

With V-Dosc plus some, the system was menacingly loud but very clear. Bain works between the U.K. and Australia and appears to have some kind of dual nationality thing going. He met Bruce Johnston on

some Oasis show somewhere, and comes and goes when required.

Back at the stage there were two monitor consoles – a PM5D for Steven Brown from Powderfinger, and a DiGiCo D5 for Saul Skouterides – the monitor engineer for silverchair.

JAS STAFF

Robert "Jock Bain" CVE
and system chief
Greg Harris consoles and system.
Mark Crawley / monitors
Conor Durne / monitors



Mark McElligott with Jeff Pavey.

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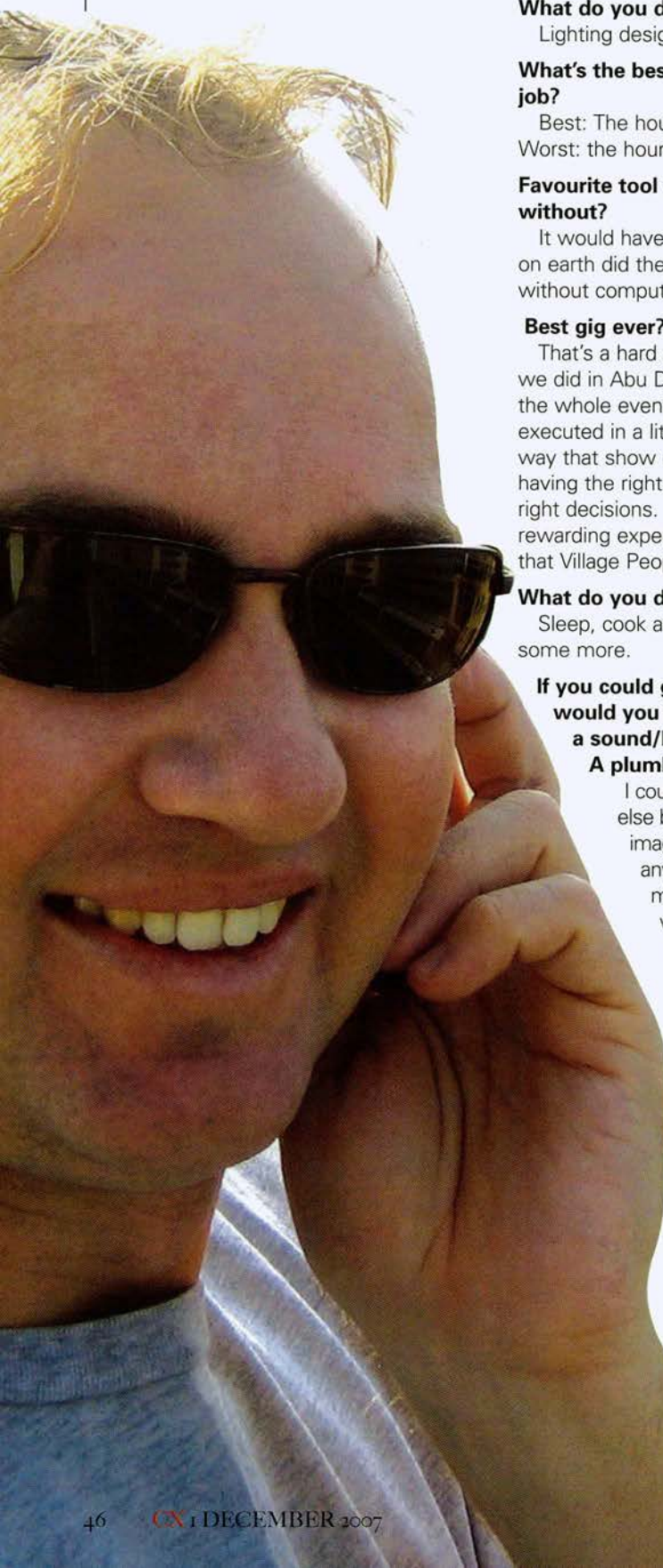
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PROFILE: PAUL COLLISON



What do you do?

Lighting design and operation

What's the best/worst part of your job?

Best: The hours and the people
Worst: the hours and the people.

Favourite tool you can't do without?

It would have to be my laptop. How on earth did the industry survive without computers??

Best gig ever?

That's a hard one. There's the show we did in Abu Dhabi in January where the whole event was planned, built and executed in a little over 40 days. The way that show managed to work was having the right people making the right decisions. It was a greatly rewarding experience. Then there was that Village People show.....

What do you do after work?

Sleep, cook and then sleep some more.

If you could go back what path would you take? Would you be a sound/lighting/video guy? A plumber?

I could joke say something else but I could really not imagine myself doing anything else. There aren't many days that go by where I don't consider myself lucky to be doing what I'm doing.

How did you get started / big break?

There were so many. Lots of Watts gave me a few breaks. I think it really came when I got the chance to tour the country over and over with Lee Kernaghan.

You might

laugh but I really learnt a lot about being resourceful and making sure you prep your show properly. There isn't much in the way of lighting companies in the outback to come and help when you're in trouble.

How many hours a week do you work?

All of them!

Worst gig?

I'm not sure if I have an absolute horror gig. Maybe I block them out! I firmly believe that every experience is an education so just because it might have been an awful experience doesn't mean I didn't learn anything.

Best personal work trait / value / skill?

Hmmm self promotion!!! I think I try and be practical in my designs whilst being innovative.

Person you most respect / admire in the industry (and why)?

I won't single anyone out, but I will say I greatly admire the people who can grow and learn as technology advances. Getting stuck in a rut is easy so the people who constantly educate themselves to stay on top I do admire.

Biggest issue / problem in the industry?

I see regulation as becoming a problem soon. We used to be fairly well self regulated and still are to a certain extent. I see some countries where they spend more time on satisfying regulatory bodies than developing the show. I don't think regulation is a bad thing, I just hope we don't become consumed by it. That, and people who profess to know it all.

Free space: I think the best advice I ever got was from my dad. It was along the lines of: You can learn just as much from watching someone do something badly as you can from watching somebody do something well.

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HERE COMES BILLY

Billy (George Maguire) with riot police (photo by David Scheinmann)

BY JULIUS GRAFTON

Billy Elliot The Musical opens Sydney in December, and has run to full houses in London since 2005. CX caught the show on a Tuesday night at the Victoria Palace Theatre. It was full, tickets ranged 25 to 60 pounds.

It is about the coal strikes in 1984 and how a miner's son becomes a ballet dancer. The dialogue is thick

with Black Country burr, and the script is finely tuned to the UK. I missed some of the gags. Director Stephen Daldry will need to add a Pacific dimension to the Australian run – or introduce subtitles.

At the box office a sign warns the stage show is faithful to the movie, and so bad language is used. Often I winced as the cast of 15 kids learned that what is said in the mines is OK to say in mixed

company. The recommendation at the box office is minimum age of 8 (for audience) and that the show conforms to MA classification in the UK.

The central characters portray the grimness of the era and reek of desperation and emotion. The dance scenes offset the depressing picture and lift the show to connect with an audience who would prefer to forget Maggie Thatcher and Arthur Scargill

– the miner’s hero who uttered one of the more moving lines in history: “I know that we can produce a society where man will cease to simply go to work, but will release his latent talent and begin to produce all the things I know he’s capable of”.

The UK show design uses extensive floor lifts to propel Billy’s bedroom in and out, side set pieces roll in and out. Other than, the staging is simple and the dancing tells the story.

Lights by Rick Fisher are terrific, footlights pop up for some dance scenes, leg warmers do just that, and there is sensational and simple use of a monstrous single moving light from directly overhead which exactly and precisely frames an area of stage as required.

The most moving scene is lit with miner’s head lamps.

An annoying aside, annoying for Fisher alone I guess, is the opener where a follow spot at the back of the circle manages to snare the heads of the late sitters as they make their way down the stairs. Maybe the theatre has messed up the doors closed policy for the first scene?

Sound design by Paul Arditti worked a treat, albeit with unattractive clumps of speakers up the proscenium arch, and a centre line array to cope with the dizzy heights of the Grand Circle at the Vic. All dialogue arrived strong and clear, and some deep sub lows were used for good effect.

Technically the show will look and sound great in Sydney – and emotionally it will connect too, since the movie sets the scene. The industry buzz surrounding the show is terrific, and yep, it all works well.

Did I mention 15 kids on stage?



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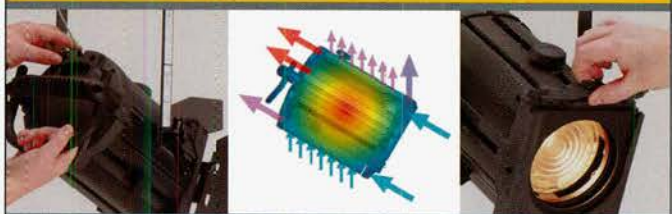
Head Mechanist.....Scott McKenna
Head of Lighting.....Paul Mulcahy
Head of Automation.....Andrew Myles
Head of Sound.....Paul Hitchens
Head of Wigs.....Andrea Doling
Head of Wardrobe.....Jenny Hall

Live Productions don’t have censorship ratings like films do.

Nor does the live production industry want them. Imagine if via a bad language issue, 15 year olds were unable to attend a mainstream arena concert. So we submit: that theatre producers need to watch out – although Priscilla Queen of the Desert – The Musical had very few complaints over its ‘adult’ language despite selling well to families.



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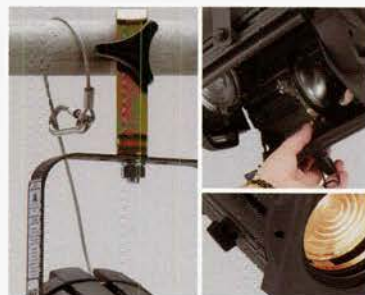
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HISTORY

How it was,
and how it
is now

15 YEARS AGO.....

Here we open the tomb and thumb through the dusty archives from Channels Magazine – the precursor to Connections and then CX. Needless to say, we've been cranking out Your Industry Mag for over 17 years now, and soon we'll be able to show you 20 years ago!

Channels Issue 16: 15 September – 1 November, 1992

This 52 page issue carried more colour pages, we had just discovered colour printing after several years of glorious black and white. It also had the cheesiest headline: 'Keep Grinning – It's Show Number 80!' which referred to the staggering success of Jesus Christ Superstar, the Arena edition.

At the time Channels was the property of Jands, where Jands Production Services were enjoying the fruit of Harry M. Millar's Superstar Tour. The Harry himself was running a tight ship – and not reported at the time was the extraordinary deal that Glen Wheatley hammered for his client John Farnham – star of the show.

Meanwhile Jands had also just won the Shure agency from a hopeless incumbent who had difficulty carrying stock of SM 58 microphones. At the time Jands didn't really know what the business would be like for Shure, and it was just a few months later that the enormity of the brand sunk in. They were bringing microphones into the country by the container load, and that hasn't changed since.

The retail price of a Shure SM 58 in 1992: \$258 – reduced from what the previous importer charged. And wow – today the price is \$309!

Channels enjoyed the additional dynamic of being owned by Jands, evidenced by the 'Right of Reply' item I ran regarding a previous critique of sound at a Rod Stewart concert. The audio vendor (Ian Richardson) was quite upset by my story, and accused me of a Jands bias. Someone needed to tell that to Jands, since I was persona non grata at the Jands Production Services half of the company at the time. Strange days indeed.

Alex the Russian was sighted in Malaysia, aka Peter Ray. He was a

nefarious maker of lighting equipment. Funny how the lighting biz draws a more colorful kind of character, isn't it?

Tascam launched a new cassette based four track recorder with 12 inputs. Retail: \$1,889.

Coemar broke a price barrier with a \$500 fog machine, selling 'hundreds'.

Dynalite also broke a price barrier with a \$2,000 dimmer rack. Wow, things were EXPENSIVE back then!

We reported the product tour of the Soundcraft Europa live sound console. This wonderful concert board was strangely too large to fit into the lift at several venues, and eight of us almost died carrying the thing up the front steps of the Sydney Opera House. Too big, too heavy, and it sunk without trace.

The Letters page had the usual collection of provocation, including 'A Grafton Ego Trip' where someone called 'The Punter' let loose on me. Interestingly the thrust of the rant was that I personalized the magazine with my own (flawed) perspectives. And here we are in 2007.....

There was a neat report about Metallica having a pyro accident, and Guns and Roses cutting a show short because Axel had some problem. And here we are in 2007.....

Finally we did a comparison of limiters and once again I marvel at the cost of stuff back then. Urei LA-22 \$2,295, ARX Afterburner \$1,195 and Drawmer \$1,985.

CONNECTIONS OCTOBER 1997

What a difference five years makes. This full colour magazine actually had a gold masthead for this issue, an indulgence at a time when an extra colour meant running 10,000 magazine covers through a printing press a second time. It also had the fabulous Win A Business Class Air Ticket contest running within.

Interest rates were 7.2% variable for housing, we reported this since it was then – 10 years ago – that we purchased a house to be the magazine HQ, for \$280,000 in Sydney's Epping. The median in that suburb now is north of \$600,000 and interest rates are not much higher.

Page 6 of this issue of Connections has an amazing censorship – a story about sales at ENTECH carries a



blacked out sentence! While I was away and the mag at the counters, a dispute arose regarding a keynote exhibitor at ENTECH. A decision was taken to apply an overprint of black ink over a line in the magazine. I was not amused, but these things happen when you travel.

Changing Days of Troy – this is the article that actually started this History feature in CX Mag, because Peter Troy called to ask for a copy of a story about his Troy Balance Corporation closing down. The story details the end of that era, and the start of a new one at his brother Drago's CMI – Peter and Drago today run that business, and have gone from power to strength.

The Letters Page was still a hotbed of rabble as I was implored (by Tim Bowen) not to use the pages of the magazine as my personal scapbox, and slammed for a picture of The Korn Groupie by serial letter writer Ms Shiela Yates of Glebe. Where are you, Shiela? I miss you!

Peavey launched the CS800 amplifier – 1,200 watts at \$1,695.

Lexicon offered the PC 90 reverb system for 'under \$10,000.'

How about this: a blank CDR on special from Quantegy (Ampex) was \$7.50! And a dozen DAT tapes \$130 a pack for the 64 minute version.

Jacqueline Molloy visited Newcastle Civic Theatre. Madeleine Murray did a feature called 'I was in a band ... the bad old days!'

Tony Davies announced Chamelon would soon have the largest inventory of moving lights in the southern hemisphere. They promised to have 200 movers – and today have more than 1,300.

We reviewed the High End System's Cyberlight, the last of the big moving mirror devices. At a handy \$13,008 it needed a \$710 lamp. **CX**



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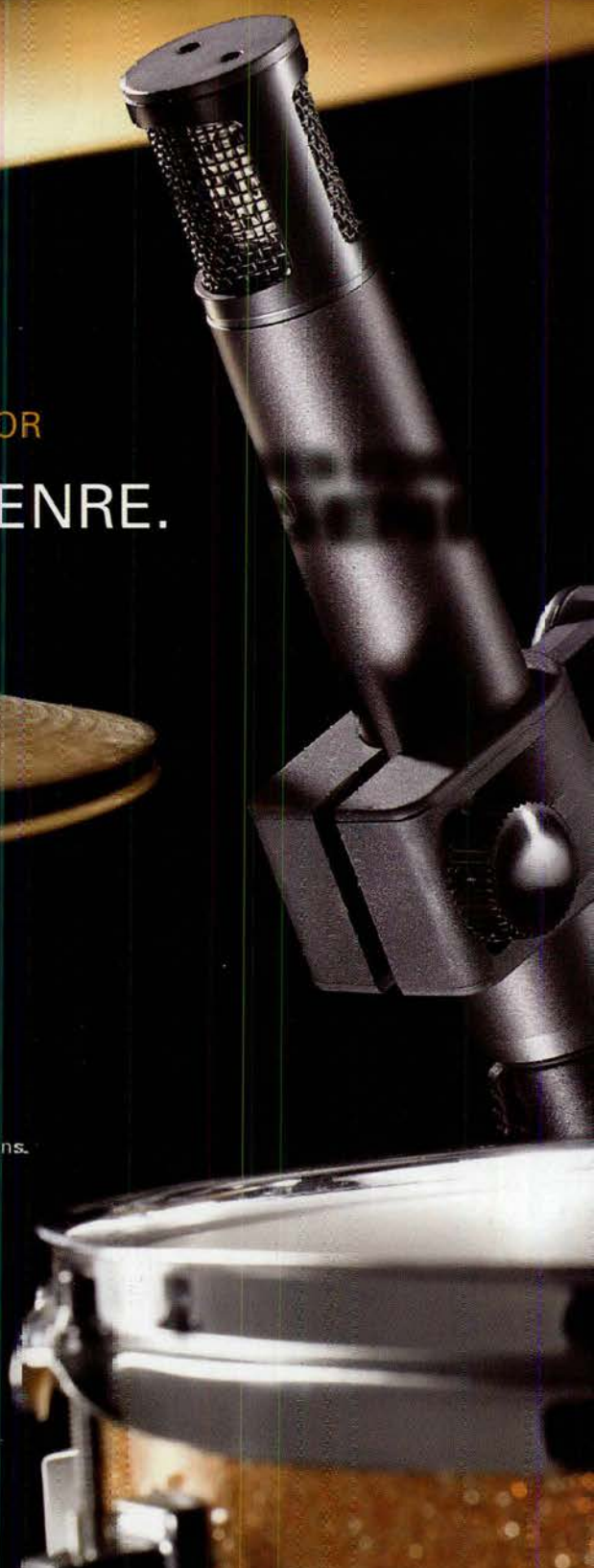
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THE GOLDEN EGG



BY RICHARD CADENA

Nikola Tesla was down on his luck. It was 1886 and he had just lost his own company, Tesla Electric Light & Manufacturing, to his financial backers who believed that Tesla's ideas were impractical. He had no money and he was forced to work manual labor to put food on the table and have a place to live.

Tesla was one of the most brilliant inventors of all time. Before he walked off his job working for Thomas Edison, and before he started his own company and lost it to his investors, he conceived an idea for building an AC induction motor. At the time, there was no such thing.

He first started thinking about the problem of building a brushless motor when his high school teacher first demonstrated a DC motor in one of his classes. Tesla was perceptive enough to realize its weak points; it was inefficient and the commutator was prone to failure due to friction. When he pointed out those deficiencies and suggested that there may be a solution that didn't involve a commutator his teacher scoffed at him. But Tesla was unfazed and the seeds of the solution began growing inside of him. Though he couldn't quite work it out for several years, he never gave up trying.

“I know the price of success; dedication, hard work, and an unremitting devotion to the things you want to see happens.”

-Frank Lloyd Wright, American architect (1867-1959)

One day, out of the clear blue sky, it hit him. He conceptualized a rotating magnetic field that would push and pull a rotor around with it. Other people had been working on designing an alternating current motor, but his idea was unique. Instead of simply using an alternating current to drive the motor, he imagined two distinct circuits, each with an alternating current of the same frequency but 180 degrees out of phase with each other. It was very close to what we would eventually come to know as a polyphase system.

But it would be several years before he had the resources to fully develop it.

He carried around the idea in his mind during his years working as an electrician in Budapest and as an engineer in Paris. When he came to New York to work for Thomas Edison, he firmly believed that AC current was the future, but Edison stubbornly clung to the idea of using DC. When Edison reneged on an agreement to pay Tesla a large bonus for improving

the efficiency of Edison's DC generators, Tesla promptly quit and formed his own company with the backing of some investors. Tesla then felt he could concentrate on developing his AC motor and polyphase AC generators.

Over time, his investors decided that his ideas were ill conceived. They didn't allow him the opportunity to build a working model and they ousted him from his own company. After he lost his company, he was down but not totally out. He found himself digging ditches, ironically, for the Edison company.

But during the time that he was doing manual labor, he was trying to find a new backer to finance his dream of bringing polyphase AC and an AC induction motor to the world. After about a year, he got his chance. One of the people he was working with recognized his extraordinary mental abilities. He brought him to a financier who entertained the idea of speaking to Tesla about his project. But Tesla was unable to convince him

CHAMELEON TOURING SYSTEMS

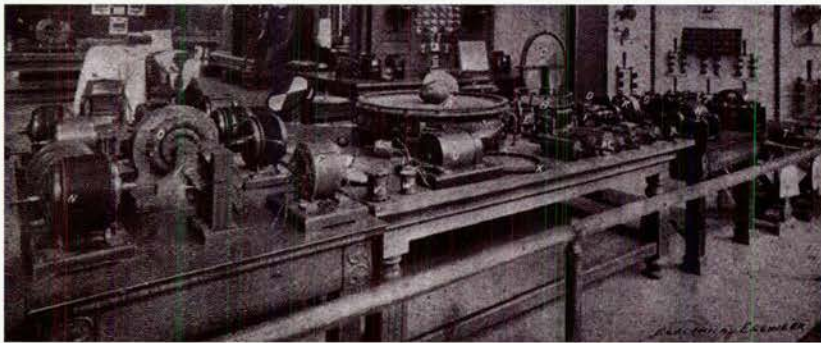
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Worlds Fair Tesla Presentation.

that AC was the future.

Then Tesla had a thought.

"Remember the egg of Columbus?" he told him.

He was referring to the legendary story of how Christopher Columbus defended his honor before a group of men who were cajoling him about his success. It was a dinner given for Columbus and the jealous men feigned indifference towards his accomplishments.

"Anybody can sail across the ocean, and anybody can coast along the islands on the other side, just as you have done," one of them said. "It is the simplest thing in the world."

Columbus replied, "Who among you, gentlemen, can make an egg stand on end?"

One by one they all tried and failed. They all agreed that it couldn't be done.

Then Columbus took the egg and set it on its small end, gently breaking the shell in the process. With the new indentation the egg stood on its end.

"It is the simplest thing in the world. Anybody can do it...after he has been shown how!" Columbus remarked.

Tesla similarly challenged his potential financial backer. "What if I could make an egg stand on the pointed end without cracking the shell?" Tesla asked him. The man was intrigued enough to offer his help were Tesla able to carry out this feat.

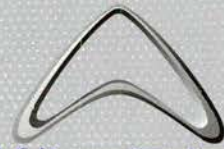
Tesla scurried off to find a hard-boiled egg and a blacksmith. The next day he returned, copper-plated egg in hand. He produced a table and beneath it he fastened a toroidal iron core wound with four coils. The coils were attached to a two-phase AC generator and by driving a current through them a magnetic field rotated around the toroid. When he placed the copper egg on the table top not only did the magnetic attraction make it stand on end but it also spun in synch with the rotating magnetic field. The money man was so impressed that he offered Tesla money to develop the AC induction motor on the spot.

And that, in a nutshell so to speak, is why we use AC instead of DC for the vast majority of our electrical energy. Without electromagnetic induction, there would be no motors, no induction, no transformers, no alternating current, and we wouldn't have to coil our excess feeder cable in a figure eight. Where there's flowing current there's also a magnetic field and that's a key ingredient to many of the technologies we use in power generation and distribution. We don't often think about it but it's as important as electrons and protons.

That day in New York City, Tesla put down his shovel and picked up his lab notebook. With the backer's money, he set up the Tesla Electric Company and over time he patented the AC induction motor and an improved polyphase generator. He eventually sold the patents to George Westinghouse and Westinghouse engineers perfected the designs with input from Tesla.

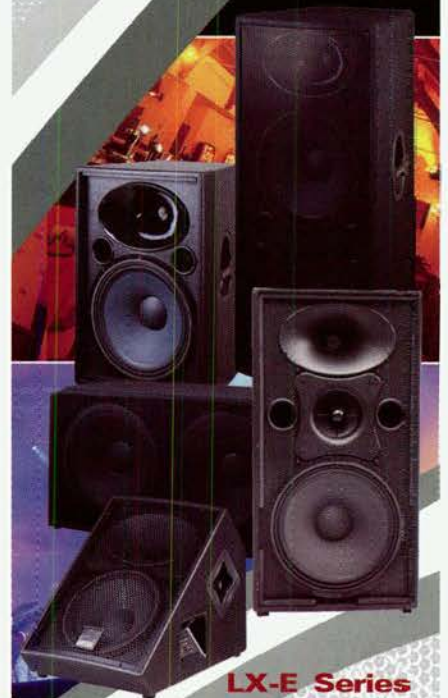
After a long struggle against Edison's company, Westinghouse won the contract to supply the lighting for the World's Fair in Chicago in 1893. And when Westinghouse installed the first centralized power generating system at Niagara Falls a few years later, the advantages of AC became undeniable, even to staunch opponents like Edison, who began building his own AC systems.

E-mail the author at rcadena@austin.rr.com.



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PARTY TIME!

LIGHTS SOUND VIDEO HOTDOG ACTION!

How four bands became three
and were one band too many
Behind the party gig
at Julius College



Julius and Mini

It's always sobering when you debrief a production and shake your head at what went wrong. We do it every week at the college – because our mistakes are all lessons that hopefully don't repeat when our students hit the real world.

The Julius 50th party is a classic case where heaps of planning mainly paid off, but what went wrong was irreversible. Let's look at what went right.

Last issue I ran through the planning. the main point of difference once the event happened was we had 3 bands, not 4. As it played out, the students reckon we had one band too many.

The event was held here at Julius Media, in our barn, which opens onto our café and in turn the outside – where we had a 7m x 11m marquee. The idea of the event was to simulate a large format event, so those students who volunteered could get yet more experience. Plus a bunch of Julius cronies could have a party. They did, we did.

We thought we were obsessed with redundancy so we had not two but three multitrack recordings happening at once. One went to a Mackie SDR 24 stand alone recorder. One went into the studio PC. and one was on a borrowed Pro Tools rig that was strapped to the Digidesign Venue console system which drove the stage monitor rig.

Colleague Andy Mackenzie jumped on the Venue as his choice for monitor control when it was offered – he wanted to see how adaptive the interface was for stage monitors, a widely different task to that of front of house. Some new digital console interfaces are better at one or the other. He can report on what he found somewhere else in this story.

Out front we were loaned a Martin W8LM line array, which fitted exactly under the lowest roof beam in the barn – our name for the performance space. The roof is pitched low at one side and higher at the other, dictating trim heights. Martin's mini array comes with 240mm tall elements that are loaded with 2 x 8" and 2 x high frequency drivers. We had four of these each side, sitting atop a pair of matched sub bass elements that were each loaded with an 18" driver.

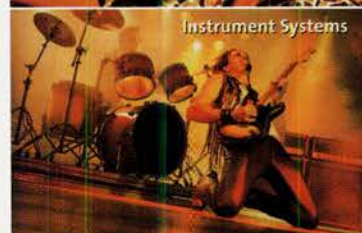
I went to get the rig in a Transit Van borrowed from Noel and David at LSV Productions. Arriving at TAG I found CEO Tony Russo was my loader, and I also found that a road case with 3 W8C's inside was around about at the limit for two (ahem) slighter older guys to lift.

A rack of QSC amps with the Martin processor included drove the system, which was wired in such a way anyone

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could figure it out. One cable went to the top boxes, and then these were looped together with short patch cables. Another cable went to the subs. Done.

SETTING UP SOUND

The line array element is a three way design, with one 8" driver horn loaded and one up front. Martin offer that it is suitable for ground stacking or flying as a main PA or as a delay system for larger events.

You can fly the subwoofer with the line array elements, or ground stack like we did. Two WMX bass cabinets locked together using internal flying hardware, then the four line array elements locked one at a time on top. The cabinet angle was set at 0 degrees, and we had little hassles figuring out the captive rigging system.

Tony Russo from TAG kindly came out and 'checked' our setup, probably mindful that I would write this story and not wanting to leave anything to chance. He motored out from the city on a scooter with a South Sydney football club flag fluttering high. Brave move. As it was, the system fired up out 'out of the box' so to speak, and sounded immense. I was initially dubious that a system loaded with 8" drivers could deliver, but it actually over delivered, since things got painfully loud towards the end (thank you Kevin Borich) and still the system had more to give.

Audio setup was done the day before the show, and followed lighting which went in mostly on Thursday, followed by the stage risers. The audio was important to us, since it can stop a show, so we chose to utilise professional engineers from whom our students could learn, rather than overload our best students with the responsibility of the whole audio task.

Andy Mackenzie did monitors and Richard 'Dickie' Kershaw was in charge of FOH. This produced a vacuum in the information dept, since Dickie was to do a walk in at soundcheck, while Andy was rightly focussed on everything that happened at the stage.

THE INFO FAILURE

I take full responsibility for what went wrong, since I saw there was no 'one person' owning audio and I let that happen. On stage all was calm and the changeovers went without a hitch. Monitors were



The Mary Others.



Studio team.

blisteringly loud and accurate. There was no trace of feedback. Microphones, stands, neatness and patching were all exemplary.

You can say the same out front – the PM5D console and its operator were all terrific, we had a great mix and audience were well served by sound.

The other parts were great too. In the adjacent studio two students (Eliot and Glenn) captured all of the two main bands, giving college much needed multitrack material for future use.

So with all that goodness, what went wrong?

First up I specified a send to the tent outside, and it arrived to a powered speaker on a stand- but not time delayed. The 60 metre distance from the stage meant the audio from the delay speaker next to the plasma screen showing the band hit the tent audience 140 milliseconds before the actual sound coming out the barn. 140 milliseconds (there are 1,000 milliseconds in one second) is an eternity in audio terms.

Next was a confusion in the studio

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PARTY TIME!

earlier on when the students did an audit of the disk space they would need, and came up short on the Mackie. It has an internal hard drive, and they deleted a few unwanted sessions to arrive at a very tight two hours of space. This meant they could not record the first act – the Robinson Brothers.

Unknown to them, the caddy drive in the Mackie had enough space to record the entire night plus more – but no one had shown them how to access it.

They thought it would be OK, the Robertson Brothers sing over backing

tracks, and the front of house mix was to be sent direct to the Video Hard Disk recorder left and right inputs as a fallback and as a guide track. Days later when we played back the Robertson Brothers, there was an effects return from the PM5D appearing as left and right audio tracks. Useless. So no audio of the Brothers – which was never really the plan, but we wanted a little to go with the vision we captured. We have them miming themselves.

As if that was a problem, another audio management trap was sprung live on stage, by non other than

Duncan Fry. He came to give a living eulogy or a roast of the party target, one Julius Grafton. He promised a multimedia presentation, and it was delivered with fixed Powerpoint slides arriving on command.

What didn't happen was some audio backing, apparently a song or two, which The Dunc was fixated on. Without it, he strangely was struck mute. Seeing Fry on stage fluffing and searching for words was hysterical, but he reduced himself to trying to troubleshoot the problem, asking vision control whether they had opened the audio driver on his memory stick. After the second and third appeal for audio, his routine was dead in the water. Sadly Steve Devine had pulled out, so the opportunity to just make up a whole lot of slander and libel, and fling on The Julius was lost.

In actual fact, Fry's audio was dutifully arriving at the PM5D where Dickie was blissfully not expecting it, on a second page of his work surface. Someone (umm, me) had plugged in the XLR from vision control marked 'PC' that morning and left a little note on the console to say just that. The note was found at the end of the night, on the floor.

The final episode in poor audio management (so caused by party boy not appointing an audio director) was the audience microphones. Much talk of the importance of these did happen, and the microphones were duly installed in the venue. But someone somewhere turned off the phantom power to these, and nothing was done. So no audience noise for the DVD, which in hindsight is probably a blessing!

TIMELINES

We moved our first item of equipment on Thursday, which logically was truss. But before that we spent a fair bit of time sorting out the barn's rigging arrangements and installing some permanent truss which Tony Davies at Chameleon kindly donated to college.

Now we have seven semi permanent truss runs in the barn, the two main ones on chain blocks, the rest accessed from a work platform. We also put in an operation position up above the studio roof, on a kind of mezzanine.

For this event we needed as much time as possible for programming moving lights. What a surprise. The lighting design had six Mac 700



Dickie and Fallon.



Kevin Borich Express. CX snapper Bob King reclines in foreground.



More Many Others.



Hot dog stand.

washes and six Mac 700 profiles. These were positioned for best results, and a pair of Chroma Banks were flown on the back truss as eye candy.

The lights were subservient to video since we needed reliable white balance on our four cameras. For this reason there were 16 Par 56's out front very carefully focussed – or I should say 'pointed' – so that any position on the 5m x 4m stage was lit from two angles. We had 56's since Lots of Watts (who are our major equipment donors) had zero fræsels or profiles available over that week, due to a large production of their own.

Those 56's stayed mainly on, dimmed back, so that there was consistent light on the performers, filled out by the Mac 700 washes from the rear and whatever cleverness the lighting director John-Boy Taylor, could wring from his rig.

John-Boy is a student and the first person to admit that he is not a natural born moving light programmer. So he had a sleep over with the lighting rig (literally) and came up with some looks and moves that worked.

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Lighting



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PARTY TIME!

With lighting under control, the video setup was more pressured. We have four cameras and these ended up a last minute selection due to the last minute nature of borrowing equipment which is available. Our entire college is built on the concept that we can't possibly buy the equipment we need, other than some core essentials.

We have a long list of sponsors, and one of them is the very personable Frank Madzin who loaned us three Plasma screens and two Sony Betamax cameras. The other cameras came from Amber Technology, another supporter.

Our student video director Sally Reynolds worked like a Trojan to get her vision system up and tested, and it was right to go on Friday night. The four cameras fed our Edirol Edirol V-440HD vision mixer, outputs from which ran to an Extron line amplifier (thanks to TDC) thence to the Plasma screens in the venue and outside.

But the main purpose of video was to record the event, so each camera had a tape inserted and the output of the vision mixer went into a video hard disk recorder.

The theory was that if the live vision was called, switched and mixed well then we had continuous vision and workable audio off the Hard Disk Recorder. This went west due to the lack of live mix running into the audio inputs, although whatever strangeness was happening for the Robertson Brothers was slightly less strange for The Many Others and for Kevin Borich. By now there was a kind of mix running into the recorder, at least such that in post production we could compare the multitrack with the guide track.

VIDEO NOISE

On Saturday the production slowly sprung into life. John-Boy was programming, he managed to leave the Jands Hog 1000 to have a shower at his student house around the corner. Andy Mackenzie was off in the LSV loaner van seeking the Digidesign console, which had been in use at a Novatech Productions gig, Roc The Block, the previous night.

Around lunchtime the video system was energised only to reveal noise in the form of the all too familiar horizontal bars pulsing down the screens! A fairly rare dirty power issue had manifested at our venue, and it created considerable hassles as it was sourced and diagnosed.



Lots of Watts party people.



Louise Brooks and Ruth McKinnon.

Trainer Aymeric Dhillon hit the phones and found Peter Collis (The Mobile Image Company) in his outside broadcast truck at Homebush Bay "locked in" the centre of the Main Arena by a crowd 10,000 strong of Christian youths attending a Big Exo Day. He offered some Hum Buckers and a Scan Converter. Aymeric weaved around and through the traffic restrictions within the Showground and Peter passed over the items he needed through a fence on a restricted access roadway closed to the public.

He repatched the system to composite video distribution using Peter's scan converter and then inserted the isolation transformers, though the problem continued in varying degrees of irritation. We



Student camera operator Anthony Pelizzari.

knew the camera tapes would be good, so it was an accepted reality that the live video mix would or could carry some annoying Hum Bars.

If it were a corporate gig, the option of a rental generator would be offered to the client. We decided to live with it. Our dirty power genie is still not in the bottle. Yet.

As it transpired, the live vision mix wasn't too badly affected.

Mixing live 'imag' on the go is a talent, and one that our student Sally Reynolds has. She had a fixed camera in the truss that gave her something to switch through. One camera was roving around the stage with an assistant behind the operator, and the other two on tripods. All operators were on talkback, but this became unworkable when Kevin

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Dancers from ALPHA helped vibrate the room.



Kevin Borich with vintage strat.

Borich cranked up.

Replaying the video recorder we found most of the live mix was great, audio excepted, but of course the audio was caught on multitrack. Except for the Robertson Brothers.

THE EVENT

Sweet hearted college students as they are, they arranged the whole thing! The catering, bar, marquee and endless little details were all planned and executed under the guidance of student Luke Della Santa. He was the event manager, and pulled it all off like a pro.

Guests arrived to ambient music from Jimmy D, after the finger food was demolished the Robertson Brothers played for an hour. A drag queen greeted everyone and survived a drive by fish throwing incident.

Security moved into a heightened state of alert once the mackerels started flying and when some strange arrivals not on the guest list informed us the gig was strangely broadcast on the kevinborich.com.au website complete with Julius's mobile number. Twenty missed calls the next day probably represented random punters wanting to see the KB. We were grateful the usual KB fan squad on Harleys either didn't bother coming or got lost. Our drag queen was not equipped to deal with them.

After the brief kerfuffle involving Fry, the 'B' stage was removed and the drapes dropped to reveal the rest of the venue, with ten members of The Many Others onstage ready to go. They did a one hour set, aided by dance students from the Australian International Performing Arts High School adding vibe.

A changeover followed, and then the sound levels hit the peak stops when Kevin Borich opened the floodgate on his guitar rig. No guitar was required in the mix, since it was arriving at the mix position at about 120dB.

We knew it would be loud, and wow – it sure was!

Kevin and his two associates (Harry Bruss on Bass and Mark Kennedy on drums) played it down and dirty for an hour, and by then it was hot dogs, taxi and hangovers.

Then came the aftermath, and it took a solid 3 days to get everything back to the suppliers in the condition it all arrived in.

We had debriefs and everyone learned from it. The common theme was we had one band too many, mainly in terms of complexity. The students (average age 19) were fairly impressed at the party-hard planet Kev entourage (average age 60) and their antics which included a dead drunk girl fan, a puddle of vomit and strange cigarettes.

Since I worked on the road with The Kev well before the students were born, I could in all honesty tell them it was all déjà vu for me. **CX**

ONE BAND TOO MANY HOW WE MADE THE MOVIE

BY SALLY REYNOLDS

At the boss' request, everything from the Big Birthday Bash was to be captured on tape and edited down to a short documentary-style DVD. Key players were to be interviewed about their role in the event and this was to be cut with snippets of the live vision switch and footage of everything from unloading the gear to sound check.

All the event's important proceedings were filmed by a number of my fellow students who spent the evening passing a camera between them. Under instruction to capture "everything", these students returned 6 hours of mini DV footage, all of which had to be viewed, and only 7 minutes of which could be captured to computer hard drive. This footage included the arrival of the bands, dancers and guests as well as shots from around the venue. The



Sally calling the shots.

setup was captured in steps, starting with a relatively empty venue at the beginning of bump-in, right through to images of the completed performance space under stage lights.

The massive quantity of footage available occasionally increased my

chances of finding the right shot to use, but mostly just served to significantly reduce the amount of free time I had from the time of the party to the DVD deadline 2 weeks later. The lesson to be learned here is that no amount of planning and briefing can override the novelty of getting to carry a camera around at a crowded party.

Once the footage was captured, my next challenge was cutting it in a way which guided the viewer through the event from start to finish. I chose to include mainly interviews of technical people discussing the details of their work. I matched this with images of the gear described and used sections of time lapsed setups as transitions between interviews. Live audio recordings from the evening, ably mixed by another two students of the college, made the perfect soundtrack for the DVD. Kevin Borich's filthy blues injected energy into the 'setup' footage, not to mention making all those featured on the DVD appear as though we were rock n rollers with attitude and rock credibility (which is

a fun if not totally accurate angle to adopt). The final shots and credit roll were accompanied by The Many Others' cover of "Dumb Things", a delightfully ironic commentary of our work on an over-specced and magnificently extravagant party.

My last task was to give the DVD a title. The seven-minute piece was named "One band too many, the tale of the party that got out of hand." Needless to say, this title sums the event up perfectly— from the ceiling full of moving lights, to the enormous PA stacks, or the mountains of DV tapes capturing all these things, it was not an easy party to cram into seven minutes.

Stepping out of the live environment as a vision switcher and into the edit suite was a frightening thing. While there was a lot of pressure (and often a lot of improvisation) involved in switching on the night, the live environment did not call for the same standard of polished and professional vision work required for the DVD, our only record of the night's struggles and triumphs.



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Andy at monitors.



Bob Kling.

VENUE AT FOLDBACK


By Andy Mackenzie

I've always liked trying consoles out at monitors because it lets you see a different side of the console's operability. I've never used the Digidesign venue at foldback before, so when the opportunity came up I grabbed it. As well as the standard monitor tasks, we wanted to use the console to record the gig as one more level of redundant audio.

As the date of the show approached, a minor issue developed in the loan of the console – a rescheduled touring show meant Novatech were using it at a gig the night before, so I needed to organise to pick it up the morning of the show. There were a few nerves about this, but we pressed on regardless and everything turned out fine. I had the show file written on a USB key and it took about fifteen minutes from van to show ready, most of which was spent plugging the stage rack inputs and outputs in.

Operation was simple and a couple of features proved very useful in foldback mode. The push of a switch in the options screen sets the channel encoders to follow the selected aux output – push the solo button on aux 1 and

the send comes belting out of your wedge, the output screen appears and the rotary encoder on each channel becomes the aux 1 control. If you need the graphic EQ for the send, press one of the two EQ buttons on the fader bank and get access to 16 of the 31 bands. Very fast access, and very intuitive. Both desirable qualities in a monitor console.

Recording to Pro Tools was also satisfyingly simple. I've done live recordings in this kind of situation before, and it can be frustrating setting and monitoring levels out of the desk, not to mention being a distraction from the real job at hand. To deal with this, I had a guy on hand to deal with the recording stuff. In the end, all he got to do on the night was press the space bar four times to start and finish recording each of the 'A stage' bands. Once you connect the pro tools system, the desk automatically routes the digital audio from each A-D converter straight out to tools – no direct outs, no patching, no switches – channel 1 goes to track 1, and the others follow sequentially. It takes about five minutes to set up the pro tools project after which it pretty much locks after itself. 



Kevin Borich's vintage roadie.



D-shew profile at monitors.

CREDITS:

Julius College main equipment sponsor: Lots of Watts

Lighting: Lots of Watts
Additional lighting: LSV Productions

Hog 1000 from Jands
Maxxim console from LSC
Line array Martin WS8 from Technical Audio Group FOH Console: PM5D

Monitor Console: Digidesign Venue
ProTools backup rig: Madison Technology

Monitors: Nexo PS15 system from LSV Productions

College Trussing: Donated by Chameleon Touring

Cameras: Madzin Productions, Ambertech

Plasmas: Madzin Productions

Extron switching: Technical Direction Co

College Vision mixer: Edirdl

Vision equipment: Mobile Image Company

Audio splitting system: Lots of Watts

Staging: LSV Productions

College Drapes: Staging Rentals

Transport: LSV Productions

Marquee: PillingersHire

Structural Engineer: Don Nielsen

Storage: Challenge Trailers

Security: ACG Corporate Services

Bar, Beverages: Thanks to Mal Russell, Arndcliffe Hotel

Catering: Savva at Plated

Recording Studio designed by Rob Zimola

Console: Yamaha DM 2000
Recording media: ProTools, Mackie SDR 24

Monitoring: Tannoy, Genelec

Entertainment:

MC Josh Green

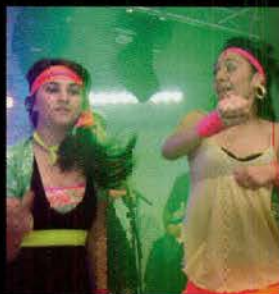
Dedication/Roast: Duncan Fry

The Robertson Brothers
Geoff Robertson - vocals
Ben Robertson - vocals
Anton Atkile - vocals

The Many Others
Kellea Stevenson - vocals
Rob Dunn - vocals
David Batchelor - bass
David Morbey - keyboards, guitar, harmonica
Scott Whyte - drums
Andrew Hillar - guitar
Howard Peterson - trumpet
Anthony Timmons - tenor sax
Roy Hill - trumpet
Chris Royo - sax

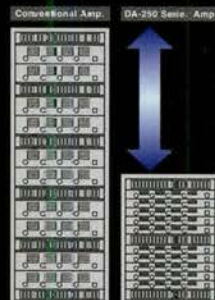
Kevin Borich Express
Kevin Borich - guitar
Barry Brus - Bass
Mark Kenecy - Drums

Dancers
Dance co-ordination: Alex Harrington
Dancers from the Australian International Performing Arts High School, Harris Park
Kara Raso
Katie Skinner
Bryron Gray
Faith Peters
Roger Mouawad
Sheridan Mouawad
Jeffrey Chung
Chantal Curmi
Isobelle McNamee
Stephanie Toufan
Sarah Topea
Carmen Paralta-Rivas
Elizabeth Mapapalangi

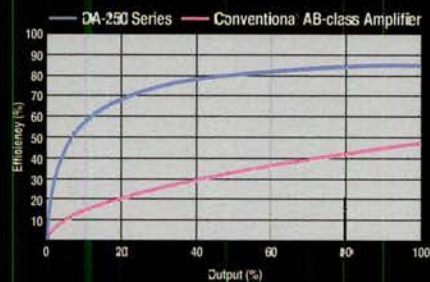


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PROFILE: BILL COGHILL

What do you do?

My official title is Integration Specialist, Technical Sales and Support. This is just a fancy way of saying I find the best way to make all the products distributed by Hills SVL, and the larger Hills companies work together to provide solutions, rather than other companies who will sell you a bunch of boxes that will "magically" all work together and do fantastic things.

Where do you do it?

I am based in sunny Silverwater in Sydney, although I am often onsite to oversee commissioning and programming of systems. The onsites range from glamorous houses overlooking Sydney harbour to stinky concrete rooms in the basements of multi-storey buildings. I am also one of a group of local Crestron trainers, which means I travel all over the country and NZ training Crestron Programmers.

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

For many years I ran my own service and manufacturing business specialising in maintenance of automated fixtures and lighting systems for clubs and other venues. While I loved being around lighting and sound systems, I seemed to spend most of my time chasing payment of my invoices and never seeing my family. Not ideal! One day I was leafing through CX and noticed an ad for a Tech Support job with Crestron here in Australia. I'd done some work with AMX previously and knew what Crestron was, but had never actually worked on any systems. Long story short, I got the job. It was straight in at the deep end, but I loved it. It was very strange for the first few months working 8.30am to 5pm when I was more used to 5pm to 8.30am

Who has really, truly inspired you, and why?

Its not so much a who, but more a why. I did some lighting work in my native Scotland. A friend of mine was



the Hog op for the Edinburgh Military Tattoo at the Castle. I went up and watched a couple of shows with him. There was a moment right at the start of the show when the house lights dimmed and the castle was in darkness and every one in the audience seemed to want to take a picture. The thousands of camera flashes going off with the Castle and the city in the background was an image I will never forget. It was then that I got the feeling you get when a gig takes on a life of its own and you kind of hold on for the ride. That's when I knew I was in the right industry.

I got talking to the sound guy afterwards, John DeNero, who recommended I give Imagination in London a call as they were looking for staff. I spent a happy year traveling around Europe mixing audio for conferences and corporate financial gigs.

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

The mobile phone. I can't even comprehend how people functioned before it was around. The weird thing is that I don't actually like to be constantly contactable. I find it really

breaks up my workflow. Maybe I need a phone that can only dial out...

The other thing would have to be the internet.

What are your hobbies / interests?

I still dabble with the service work and like nothing better than spending time in the shed building electronic devices to make life easier. I love technology and finding new ways to apply it. Does that make me a nerd? Hell yes !!

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

I am very lucky to have an understanding wife who works with technology, so she knows the kind of things that would happen during the average day and how you sometimes need to come home and talk about RS232, IR or Ethernet connections. She's a lucky woman!

I also have a 4 year old who can surf the web and knows which Foxtel buttons to press for the Disney Channel. She loves it when I bring home lights for service, and has been known to put her Bob the Builder screwdriver set to good use on the odd Clay Paky light. Child number 2 is on the way. I reckon in a few years I could have a fully trained service department in the house...

Is there a significant trend that you think about (good or bad), about your job / industry sector?

There are a lot of people in the industry who are all talk and no follow through. I am from a background where you had to get the gig on the road no matter what, rather than the school of talk it to death and suck the joy out of it. A lot of people see moving to a support role as being a bit of a cop-out, but I love the fact there is always something to work on. I like to fix the issue and move on to the next rather than try to break it down to whose fault and why.

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

I met John Meyer (the speaker guy, not the singer!) a few years ago and he is one of a breed that you don't seem to get anymore - a man who is not afraid to take a risk on a new idea, no matter how crazy or off the wall it seems. Open to comments, or criticism and a nice guy as well.

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

I once had a 24" mirror ball fall from the ceiling onto the crowd in a packed venue (not rigged by me!!). My heart stopped for a couple of seconds but, hey, the punters just keep dancing. They thought it was part of the show.

Random words...

I started out in Lighting for theatre, got a degree in Stage Management specialising in Technical Production, moved on to doing audio, moved to another country where I spent time fixing lights, worked as a tech manager for a big venue, ran my own business, and now work in an office (sometimes) with audio, lighting and automation. I still get to play with all the cool toys, but now I don't have to pack the truck afterwards !!!

I guess the moral here is don't think just because you work in one sector of the industry that you need to keep within that sector. Push yourself into areas you have never tried. Work out what you like and work out how to do more of it. Take the time to enjoy it while you can - and look after your knees. CX



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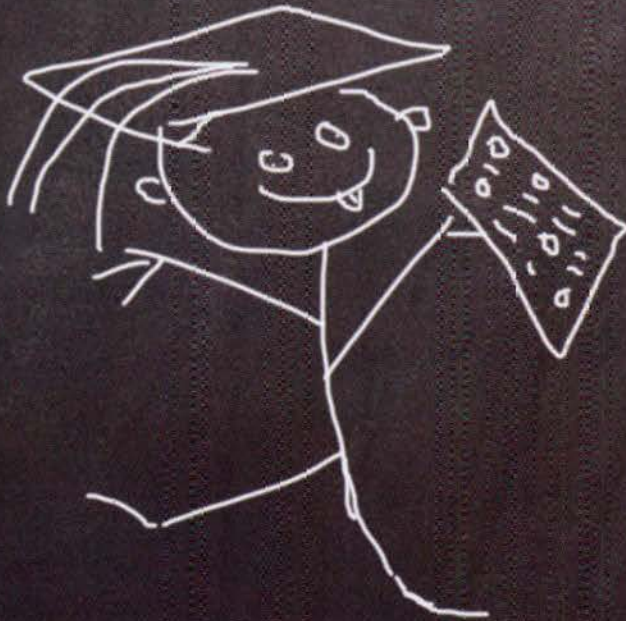
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The Digital Everything Primer

or How I
learned to
count to one.



BY ANDY MACKENZIE

I've finally had enough. While looking at TVs in my local 'Things you can't afford' shop the other day, I was advised by a smug, bespectacled teenager that the LCD panels on display would consistently produce a better image than CRTs "...because they're digital".

Now I don't want this to be about LCD vs CRT, and I don't want it to be about smug youngsters, but I'm sick of hearing the words 'digital' and 'better' confused. They don't mean the same thing. What I'm going to do here is look at how digital and analogue systems are related, what the strengths of each are, and why we really do need both. Along the way we'll touch on video, audio, compression, latency, sampling, bit depths, A-D and D-A converters and who knows what else. Hopefully by the end, we can dispel some of the more common misconceptions and get on with our lives.

THE DIFFERENCES

Analogue systems are systems in which the output is directly comparable (analogous, see) to the input. In the kind of electronic stuff we're dealing with, this means the electrical signal exactly follows the input, and as a result has an infinite number of possible values measured at an infinite number of possible points in time. In an ideal world, this would mean that any analogue system would achieve perfect reproduction every time. Unfortunately we don't live in an ideal world – but more on that later.

Digital systems are based on counting and binary code. They sample the input a fixed and finite number of times per second, and measure each of the samples. Each sample is given a numerical value from a finite range, and delivered in the form of binary code. Binary code represents numerical values using only two states referred to variously as high and low, on and off, zero and one or whatever. When the signal is converted back to analogue, we're effectively joining the dots. In an ideal world, digital technology would always be inferior to analogue because any conversion of analogue information into the digital domain is an approximation.

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THE CONNECTION

One important thing to understand is that we live in an analogue world, and we perceive it through analogue hardware. All our senses are based on being able to detect a continuously variable sensation – our eyes do not categorise light levels to one of a fixed number of possible values, any more than they do colours. Interestingly though, there is evidence to suggest that a lot of our brain activity is digitised (Neuroscientists don't write in, I know this is an oversimplification of a sixty year old debate). The implication of this for any digital system is that in order to effectively interact with the real world, inputs and outputs must both be analogue.

Analogue inputs and outputs to a digital system require conversion, and this is the realm of the A-D and D-A converters. This is where sample rates and bit depths come into things. Sample rates determine how frequently measurements are taken and required sample rates can be determined by several factors. If there are a certain number of discrete measurements that need to be taken, this will determine the sample rate. As an example standard definition video uses a sample rate of about 14MHz, or 14 million samples per second, which makes sense once you count the number of pixels on the telly and multiply by the 50Hz refresh rate.

If, on the other hand, the system is sampling a continuous stream of values the required sample rate is set by the maximum input frequency. In order to avoid the problem of frequency aliasing, in which two different frequencies produce the same samples, the sample rate must be at least twice the maximum input frequency. The accepted audio bandwidth of 20-20 000Hz led to the CD standard being set at 44.1kHz. Higher sample rates allow higher input frequencies which can produce more natural sounding high frequency harmonic interactions - providing you have a set of loudspeakers capable of reproducing the higher frequencies.

Bit depth is the other thing affecting the quality of the conversion. More bits means more possible values, and every extra bit doubles the number of values. 16-bit gives a range of 65 536 values, while 24-bit offers almost 17 million. Increasing either bit depth or sample

rate can increase the quality of the reproduction, but there is a trade-off. Doubling the sample rate results in twice the quantity of data which means that all the processing systems need to work much harder. Increasing bit depth by one bit would double the number of possible values, but most microprocessors don't like working in increments of single bits so an increase of eight bits is pretty much the minimum. This also demands an increase in either processing time or processing power.

IS THERE MORE TO LIFE THAN SAMPLE RATES?

So which is more important? That depends on the circumstances. Doubling the sample rate of a video signal so we got two samples of each pixel would be pointless and silly – we'd be much better off to increase the bit depth to get a greater range of colours and intensities. Similarly there are audio applications where greater bit depth will be more important as it offers more accurate reproduction of a limited frequency range, while other applications demand the greater bandwidth offered by a higher sample rate. Consider digital still cameras for a moment – it is possible to buy a brand new pocket camera with twelve megapixel resolution, or an older SLR with 5 megapixel resolution. Which will give better pictures? The 12 meg camera takes many more samples, which means the image can be blown up much bigger without showing pixelation but the lens quality is unlikely to be as good as the SLR – so the SLR will probably produce better images as long as they are small enough not to show pixelation.

This example highlights another important consideration in digital systems – the quality of the analogue stages before and after digital conversion. Sample the output of a crappy mic pre at 192kHz and 64-bit and you should be able to almost perfectly reproduce the output of a crappy mic pre. The digital conversion system can only work with what you give it. Another critical soft point in digital systems is the system clock. Because the whole system is based around timing, it needs a clock to tell it when everything should happen and if there is any instability in the clock it will lead to distortion of the

reproduced signal.

So what are some of the obvious good and bad points of digital systems?

POSITIVES.

Noise Immunity.

Noise is one of those things that wouldn't exist in the ideal world I mentioned earlier, and is a constant source of grief in analogue systems. Put simply, any electronic circuit operating in the vicinity of other electrical hardware or radio transmissions (like anywhere on the planet with the possible exceptions of the polar regions) will pick up a little bit of unwanted voltage. In analogue systems, this will combine with the signal voltage and means that the output won't quite match the input. If the signal voltage is small and the noise voltage large, the results can be quite dispiriting.

Digital circuits still pick up noise, but it doesn't matter. Why? Because the signal is in a digital code that permits only two possible states – high, which is typically either 5 or 12 volts, and low, typically 0. Between 0 and 5 volts there's a fair bit of room to be a bit casual about the values. Let's say anything below 2 volts is read as low and anything over three is read as high. How much difference will a few (or even a few hundred) millivolts of noise make? None.

Messing about with time.

In analogue systems, everything happens in 'real time'. Digital systems are able to effectively compress time by multiplying or dividing clock frequencies. This is used particularly effectively in time compression multiplexing – an impressively named process that





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allows multiple signals to be carried down a single line at the same time. This is the process that brings us such delights as 48 channels of audio on a single cat 5 or coax cable.

Delay circuits have also long been digitised. In the analogue world there was no effective way to delay a signal other than tape delays or capacitor banks, whereas a digital circuit simply buffers the data for the specified number of clock pulses before releasing it. This makes longer delays and much finer adjustments possible than they were previously. When digital delays first appeared in the early 80s, analogue delays quickly died out.

Creage.

Because the control surface on any digital device is simply firing pulses of information at the processor, it is very easy for one set of controls to be used for a number of different purposes. Because analogue devices' controls are hard wired into specific sections of the circuit, each user control has one function only. In a few cases analogue equipment will use a single control for two functions, but this is only achieved through fairly clumsy switching arrangements and is impractical on a large scale. By using the same controls for multiple functions, digital devices can operate with much smaller control surfaces than their analogue counterparts.

Processing power

Once the signal is digitised processing it becomes easy (and comparatively cheap) as all the processing takes the form of arithmetic – something computers are desperately good at. Consider the

possibilities available using even the most basic video editing software. Now imagine doing all the same things with film or analogue video.

So too with audio. Digital consoles are able to provide compressors and gates on every channel because once the algorithms are written it just comes down to whether there's enough processing power in the system. If you built a one-box analogue device that would do all the same things it would be as big as ten big things, weigh even more and would probably cost more than the building you'd need to house it.

NEGATIVES.

Latency

Latency refers to the input – output delay in the system, and is an unavoidable function of digital systems. All that conversion, processing and so on takes time. Not necessarily a long time, but it does take some. And every additional step in the process takes a little bit more time. In audio, the latencies have generally been brought right down and absolute latency (the total time delay) is less of a concern than relative latency (the difference, if any, between the slowest and the fastest signal through a system) resulting from some signals being more heavily processed than others. Many devices actually incorporate compensation delays to ensure that the latency is constant for all signals.

In vision the issue of latency is magnified as it tends to work around frame rates with each device (including format conversion and scaling) typically causing a delay of one frame. Any delay is fine for

recorded material but has the potential to cause significant problems in an application like IMAG where the audience can see both the screen and the source content. You'd probably get away with two frames, you wouldn't get away with three. The only way to keep this down is to avoid excessive processing. If it makes you feel any better, effective IMAG would be impractical in an all-analogue world anyway.

Compression

This is primarily an issue with data that has been stored or packaged for transfer. Data compression is extremely useful, but it can have negative side effects. Video, audio and still images all take up a lot of space in their raw digital format so it is extremely common to reduce file size through a range of compression techniques. Lossless compression methods allow files to be compressed in a way that allows them to be precisely regenerated, but unfortunately don't usually compress complex files sufficiently to be really useful.

Most files compressed for storage or streaming are squished using 'lossy' compression techniques which, as their name implies, lose some of the data in the compression process. The data loss is generally confined to several of the least significant bits so it is not particularly noticeable under most circumstances – but in some situations, particularly when dealing with heavily compressed files, the difference can be obvious. Lossy compression in video usually appears as poor colour blending due to a reduction in the number of available shades, while in audio it is manifested as a lack of clarity and detail, particularly in high frequencies. Any time you're using a compressed file, check that it's not going to look or sound bad – and that includes using MP3 players for background music.

Too much accuracy

This probably doesn't worry the video folk like it does the audio people, because they're mostly pro-accuracy. For the audio people, however, accuracy is not always what's required. The colouration of sound as a result of the idiosyncrasies of analogue gear is regarded as an important part of what the sound engineer does, and digital audio is often criticised as being 'sterile' or 'lacking warmth'. Digital equipment manufacturers are aware of this

criticism and are taking a range of steps to overcome it, but it's still not uncommon to see racks of analogue outboard hanging off the side of the digital console. It's kinda like the way guitarists cling to valve technology despite its astonishingly poor distortion figures compared to solid state.

Accessibility

The flipside to the reduced footprint of digital worksurfaces is that sharing controls between functions means that not all function controls are immediately accessible all the time. In an operational sense this can mean that certain functions will take longer to access than they would on an equivalent analogue device but well designed equipment generally makes commonly used functions more easily accessible than those more rarely used. Most digital audio consoles, for example, will provide a complete set of EQ controls for the selected channel but share one set of controls between two dynamics processors.

Software syndromes

There are a number of potential issues associated with the use of software, most of which need not cause any significant problems

providing users are conscious of them and act accordingly. Things to remember include:

Version compatibility can cause a problem, particularly if you're trying to drag a file back to an earlier version of the software. Always aim to keep your equipment as current as possible.

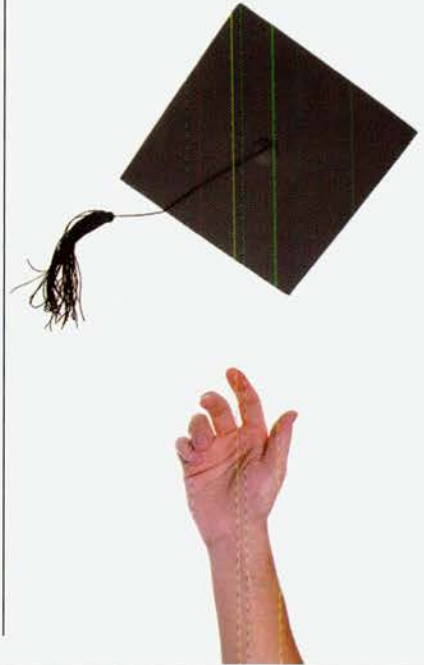
Software developers have been known to get overexcited and include features that are useless to the vast majority of users simply because they can. In many cases this gives users the ability to accidentally do things they may have cause to regret. As long as you remember the old rule about not playing with stuff unless you have some idea what it does, you should be OK.

New versions of software will sometimes have one or two bugs. The designers do their very best to get rid of them, since they don't like looking stupid, but they don't know that you're going to come along and try to do *this* by turning *that*, pushing *this* twice and then sliding *this* to the left...oh look! It's stopped working. If you check all the functions you're going to use and the way you're going to do it – and made sure that it works as you expected – you should

be fine. And if it doesn't work as you expect, don't immediately blame a software bug. Marvellous as you may be, user error is always a possibility.

So there you have it. All of some of your questions about digital stuff answered. Hopefully it will clear a few things up.

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NEW DIRECTIONS IN VISION

BY JAMES DEN-ouden

Our editor asked me this month to take a look at large format display technology, but since I can't actually fit a LED wall into my house to try out, I declined and said I'd rather take a look at media servers. He agreed, and so it came to pass that shortly thereafter, I decided that vision as we once knew it is, if not dead, seriously wounded. In the same way digital has impacted audio technology, vision too has undergone some massive changes in the past few years. We are now witness to a blurring of the lines which once separated things like playback from control, video from lighting, and the display from the source.

Visual media on large screens is becoming more prevalent in live production for a number of reasons, but the main one would seem to be to add interest to an act. Another reason would be image magnification for large scale events (so the drunk people in

the cheap seats can see the act), however since this hasn't changed so much I'm going to focus more on the content replay aspect of things.

Perhaps one of the best applications I've seen of vision content in a show was when I went to see Coldcut last year. Their act comprised 2 DJ's and 2 VJ's as well as a gamut of sequencers, samplers, decks, computers, video gear, and enough midi patching to keep one occupied for a day or two putting it together. Sound on the show was completely interactive with vision – the samples they played incorporated both audio and video content. The video feed was reproduced for the crowd courtesy of a couple of very big Barco projectors, running in über-widescreen mode behind the DJs and VJs. I found myself watching a visual representation of what I was hearing. It was very cool. The point I'm trying to make here is that without the visual aspect the show still would have been good, but the visual was really what

made it interesting.

There are lots of different ways in which visual media can be implemented on a show, and certain fundamental rules used to apply. You would have once or more video sources, since without these the rest of the system would be largely inconsequential. There was usually some control equipment along the signal chain to allow switching/mixing/layering of sources, sometimes with effects. Finally, there was one or more display devices. Nowadays all these elements can be incorporated into one device. Hence, it can be a bit difficult to categorise exactly where equipment fits into the picture. Not being one to back down from a challenge, I'll give it a go anyway...

Again, my usual disclaimer applies. The items listed below are not necessarily the best or the only ones which will do the job – they're listed as examples of the technology available. As a way, do your research and try before you buy!



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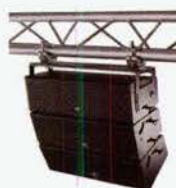
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MEDIA SOURCES

Once upon a time back when I was a wee young thing, video was played back on Betacam or VHS decks. These were phenomenally expensive at the time, however they served us well for a number of years and so the price came down. Analogue has since taken something of a fall to digital, and nowadays the more common type of playback is usually a digital device, either hard-disk or DVD based. Various digital flavours of Betacam are still available and widely used in broadcast, however for events where quick cueing of source material is required a device which offers instant (or near instant) cueing may be preferable to one which needs to first spool through tape.

The first product I'm going to take a look at is the Pioneer DVJ-1000 (<http://www.pioneerdj.com>). If you're familiar with the CDJ-1000, the DVJ is basically the same unit but with the obvious differences being that it plays DVD as well as CD, and has video output as well as audio. This product is pretty clearly pitched at the DJ market, however I can see other applications for it. Having been in a situation where I was trying to cue DVD playback from a conventional player, I'm not a big fan of the latency often experienced between pressing play, and the thing actually playing. For this reason alone, I think the idea of a DVD player which can respond like CD player is a good one. I assume it will also play standard CDs, which gives it a nice second purpose.

Hard disk based media servers are a nice way to go if you need to queue content for specific points in a show – say a product launch. The idea of these is that content is loaded into the box before the event, then can be recalled near enough to instantly for replay. Content is loaded in different ways on different machines. Some units will require you to “ingest” or play the content into them via video inputs – this can sometimes allow the unit to serve as a recorder and replay device. Other systems allow data transfer of video files, from a firewire / USB drive, or network connection. Hard-disk servers can, however be picky about the formats in which the file has been encoded so be aware of this! Keep in mind these devices are basically computers, and while a DVD player might not give you fantastic playlist control, nor is it capable of presenting you with a blue screen of



Grass Valley Indigo.

death in the middle of a show. A couple of examples of hard-disk based replay systems are as follows:

Grass Valley Turbo iDDR (<http://professional.grassvalley.com/products/turbo/>) – touted as a VTR replacement unit, the turbo can operate from the front panel using an in-built LCD touchscreen, or can have a monitor, keyboard and mouse connected for more permanent applications or where better control is required. The system supports standard or high-definition output, and 10-40 hours of content can be stored depending on bit rate. The Turbo iDDR is capable of simultaneous record and playback of different media clips. Pricing varies dependant on configuration.

Playbox (<http://www.playbox.tv>) – this system is targeted more at atv broadcast than a production environment, but it could also be used in an unattended situation (such as a tradeshow stand, or video wall in a public place). It's fully computer based, and made up of several pieces of software which allow capturing of media as well as generation and replay of playlists. The system supports SD & HD payout as well as streaming, playback of clips still being captured, payout logging, and remote control through GPI or a number of other interfaces. Pricing varied dependant on configuration.

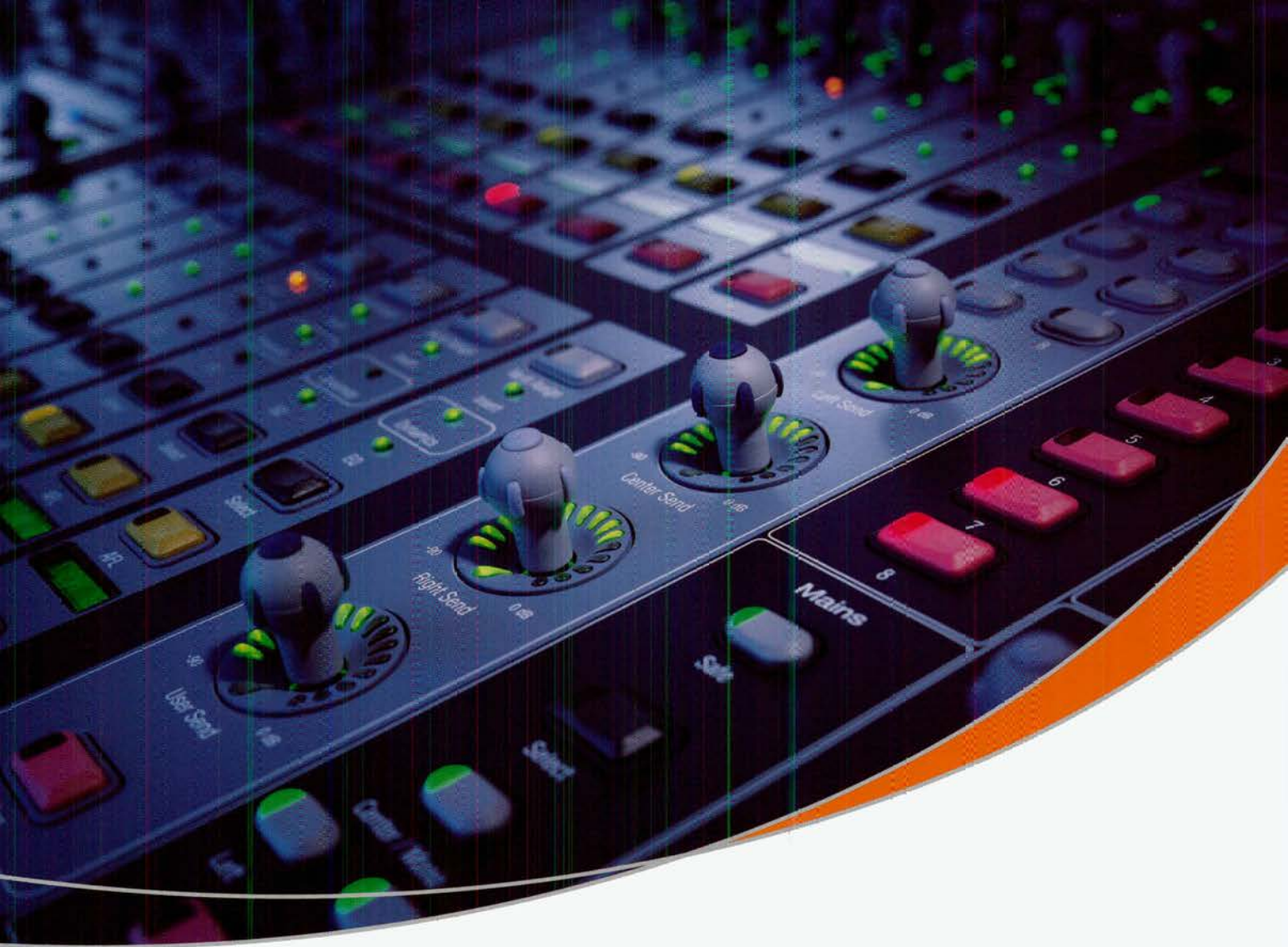
The range of media servers is huge, and the above is merely a small selection. Playback is great, but

chances are you want some way to control it too... Bring on the vision mixer / digital effects unit. These can be as simple as a mixer with a few composite video inputs, or can range right up to full blown broadcast grade switchers. For live events, something which lies between these two extremes is probably a good option.

SWITCHERS AND MIXERS

We featured the Ediol V-440HD some months ago, a unit which has standard and high definition inputs and outputs, as well as an internal upscaler and some clever digital effects. At the simpler end of the scale lies the Ediol V4, a 4 channel unit with a T-bar type cross fader and four inputs. The V4 would be suitable for applications where HD was not required.

Moving along a step, we find products such as the Folsom Presentation Pro (<http://www.folsom.com>). This is a product geared toward presentation work. The basic idea of this unit is to take a variety of inputs from different sources with different types of signals, scale them all to a selectable native resolution, and output a seamlessly switched signal to the display device(s). This unit also offers a logo capture facility, which can be used to “grab” a frame of video which can be routed to the output in the absence of a valid video source, which is a nice touch for corporate type gigs. The unit also features an audio switcher, and all the



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inputs and outputs are on HD15 connectors, though composite / s-video / component sources can be connected with the use of a breakout cable.

If you're after something of a fancier ilk, something like the Grass Valley Indigo (<http://professional.grassvalley.com/products/indigo/>) could be an option. It is a fully integrated unit with a range of inputs and outputs including SD & HD composite, SDI, and DVI, and it supports a range of different resolutions. It's got some auxiliary outputs (which are the same kind of thing as an auxiliary send on an audio console), as well as an inbuilt stereo channel audio mixer. The inputs and outputs for this unit are all on the back of the mixer control surface. Once you move to larger mixers, you will typically encounter units on which the input and output connectors are on a mixer frame, which is separate from the control surface. The frame houses all the vision processing electronics, and the control surface is basically just a remote. Does anyone see a parallel here to a digital audio console?

Of course the usual rules do still apply when it comes to pricing. The more a thing does, the more it costs. Pricing on the gear listed in this article varies significantly depending on configuration and also how much of it you are willing to buy...

TOTAL INTEGRATION

What if you want to integrate your playback, vision mixing, and effects all into one unit? Well, good news – there's a box which will do it. In fact, there are several. I'd be more inclined to call the following units content servers rather than media servers, since what they output is content which can be put straight to screen without the need for additional processing or switching. Keep in mind that the more you process your video, the longer it will take. Some devices can add up to 8 frame latency to your signal, which is more than enough to be noticeable to the human eye. In other words, if lip-sync is an important aspect of your production, check the latency of the processing equipment you intend to use.

Green-Hippo's Hippotizer (<http://green-hippo.com>) is available in three flavours; Express, Stage, and HD. The Hippotizer is a computer based system which is supplied as an integrated software and hardware package. The feature set is basically the same across all three models in the range, with the key difference horsepower. The upper range models give you higher resolution, more video

layers, and more effects engines. Green Hippo also sell content packs (Hippo Feed), because as they quite validly say it's not much use having a great media server if your content is lousy.

Martin (<http://www.martinpro.com>) offers the Maxedia product, available in Compact and Pro versions. The Pro model is probably the better one to look at in terms of comparison to the adjacent products, since it offers multiple layers, as well as custom video input/output hardware. It's also got other interface options including Sony, ArtNet, and DMX. The system runs on Windows XP embedded, and is shipped with 5 content DVDs, with further content being issued at regular intervals.

New Tek's Tricaster (<http://www.tricaster.com.au>) is a turnkey, portable, live production system. The studio model will accept input from up to 6 cameras, and includes a "virtual VCR" which allows playback of clips. Outputs include analogue (composite or S-Video), VGA, and Windows Media Stream and Archive formats. A broadcast mixer style hardware interface is available for those who prefer not to use a mouse. The biggest selling point of this unit would seem to be that it does a lot of stuff, but it's small, compact, and you don't need a broadcast engineering degree to operate it.

Catalyst PM v4 is now supported by SAMSC Designs (<http://samsd.com>). It offers multiple layers (up to 12), overlapping transparent sub-mix outputs, and supports movies up to 4096x2048 resolution. SAMSC is a system which interfaces to Catalyst PM to allow standalone, cue list, or DMX based control over video and lighting equipment, video switchers, and Sony professional decks.

High End Systems (<http://www.highend.com>) offers the Axon media Server, which ships with over 1000 stock media clips which are protected by the embedded XP operating system to ensure consistency across all units.



Folsom Presentation Pro



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New Tek Tricaster.

3D objects, media files and still images may be imported onto the system, and the graphics engine has a list of features too long to poke a stick at.

Great, so now you've got a video signal what do you do with it? The logical choice is display it (or start preparing a really good excuse for why your video budget was so damn high when there were no screens!).

DISPLAY DEVICES

In the past, the range of display options were linked by one common point – you set them up where you wanted them to be, and there they remained. While this is still the case for most display technology, it was only ever a matter of time before someone looked at a projector, looked at a moving light, and started to get clever ideas.

One of these clever ideas led to the High End Systems DL-1, which in its simplest terms a moving head with a 5000 ANSI Lumen video projector instead of a lamp. 1" channels of DMX control 400° pan and 270° tilt, as well as focus, zoom, and video input

HIGH DEFINITION, STANDARD DEFINITION, WHAT'S IT ALL MEAN?

Okay, to understand this we first need to explain a few other concepts, the first being how a picture is made up.

A standard definition PAL video signal has 25 frames per second.

A video image is made up of pixels in rows – also known as lines.

A standard definition PAL video signal has 625 lines of pixels.

An interlaced signal is made up of 2 fields (or "scans"). The first field scans all the odd numbered lines of picture information, and the second scan addresses every even numbered line. So it takes 2 fields to make a frame. The human eye doesn't see this since it's scanning the picture at a rate of 50 Hz (50 times per second).

A progressive signal scans every line in order.

There are a few 'High Definition' standards floating about, the main purpose of which seems to be

marketing large screen flat panel display devices. The one true standard for HD is 1080 lines, progressively scanned (1080p). How much difference there is between this and 1080 interlaced, 720 progressive, and 720 interlaced is something of a matter of opinion. Mine is that if your content isn't up to spec then the better the display's ability to show detail, the more obvious it will be that your pictures suck.

It might also be worth considering the additional costs of operating in HD – everything costs more, and mixing and matching high definition with standard definition is rarely successful. HD media feeding an SD display is going to waste, and SD media feeding an HD display will just make the display look bad. Unless you have a really good reason for working in HD, it probably isn't worth it.



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parameters. A choice of Composite, S-Video, VGA, and RGBHV input options is available, and the unit has a mechanical shutter to allow true blackout. An optional camera can be fitted to provide a video feed of whatever the fixture is pointing at.

Want to make it simpler again? Okay then... The High End Systems DL-2 is something like a DL-1, except that it is equipped with an internal media server. Content management can be done remotely via Mac or PC over Ethernet, and the DL-2 is equipped standard with an internal Super HAD camera and IR illumination. The idea of this being that with more than one unit, you can feed video from one DL-2 to another.

Robe (<http://www.robelighting.com>) have a similar product with the Digitalspot 5000DT. Two digital gobo layers are supported, with a range of independent effects available on each, as well as a bunch of common ones which affect both layers. Linux operating system, DMX and Ethernet interfaces, and a 5" TFT screen with Robe system navigation are included features. Video inputs include composite, 2x s-video, and VGA, and pan & tilt ranges are 530° and 280° respectively. A variety of file formats can be uploaded onto the inbuilt content server for replay on either of the digital gobo layers. The native resolution of the display panel is 1024x768 pixels.

Obviously once you start looking at using moving head projectors, the role between lighting and video operator becomes less defined since both are critical parts to making the things work. I'd suggest that establishing solid communication between these two operational areas and a good working relationship would be the first step towards ensuring your show runs smoothly!

There you have it. Video has changed, and chances are it will continue to do so. Data encoding is getting better, networking is getting faster, and I'd say it won't be too long before we see IP based video making an appearance in live production too. There are now a multitude of ways to enhance a production with video, and how effectively this is done remains to be seen. Given the "melding" of video with lighting, I think lighting and video professionals working together now have the scope to achieve some great results. Group hug anyone? **OX**

VIDEO FORMATS, A PRAGMATIST'S GUIDE

A long time ago, we started with composite video. It was all we knew, so it was the best thing we knew. It's still around – if you still own a VCR it most likely has a composite video output. Composite gives reasonable pictures on a small screen, however it doesn't travel incredibly well over long cable runs, though this is unlikely to worry your gran when she's watching repeats of question time. Connects on RCA connectors, or BNC (a much better connector) if you're dealing with professional equipment.

S-Video (or Y/C) separates the luminance (brightness information) and chrominance (colour information) components of the video signal into 2 parts, and these run down separate conductors. This allows the signal to travel over distance with less degradation than composite. It also has greater bandwidth than composite, so the picture quality is better. Probably the biggest downfall of S-Video is that the connector most commonly used for this format (mini 4 pin DIN) is horrible, and tends to wiggle out of whatever it's plugged into. This won't necessarily obliterate your picture, though it may turn black & white if you lose the chrominance line.

RGB is better again. It is the format in which video originates from the CCD in the camera which captured the video to start with. 3 full bandwidth signals are carried in this format (Red, Green, and Blue), with luminance and sync information on the green line. Most of the higher end seamless switchers and vision mixers will accept RGB as a valid input signal format. Generally you'd connect up an RGB device with BNC connectors. 3 lines are required to transmit this signal format. Whilst most broadcast cameras won't output RGB from the head directly, the RGB signal can be obtained if a CCU (camera control unit) is used, which also brings you the benefit of iris control (but cameras are another whole story).

Component video (YUV, Y/Pb/Pr) – commonly confused with RGB. This is essentially a cut-down version of the same thing, comprising one full bandwidth signal (Green), plus two

sub-component signals. Fully assembled they form a picture of near RGB quality. This is primarily a consumer format, and is very commonly used as an output for DVD players and set top boxes. If you have a plasma screen or big LCD, this is a pretty good format to use to connect your source devices up. BNC or RCA connectors are used for component video, as are 3 separate video lines.

RGBHV – Just like RGB, but sends horizontal and vertical synchronisation pulses along an additional 2 lines. This is one of the more common formats in which to transmit high resolution images to display devices since it travels better over long cable runs than most other formats. HD15 connectors are often used for this format, however equally common is 5 BNC connectors attached to a 5 way video loom.

SDI – Serial Digital (ITU-R BT.601) is a digital format which will carry component quality pictures, plus four groups of four audio channels which are embedded into the signal. Plus some data. The great thing about digital formats is that they either work or they don't. No earth loops, hum bars, or any of the other problems associated with analogue video will affect SDI. BNC is the connector of choice for this format, and be aware that your cable must be able to support the bandwidth of the format (270MHz), which is significantly higher than analogue video. In other words, the stuff from your local electronics store won't cut the mustard.

DVI & HDMI are formats which are both high quality, however the inability to easily terminate them in the field is enough to ceter me from delving too far into their specific natures.

A nice easy recipe for decent video images is to send your display device an input signal which matches its native format, and to make sure your sources are all delivering the highest quality output of which they are capable. Then you just need to rely on whatever technology you insert between these elements to sort the rest of it out.



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PROFILE: RYAN MARGINSON

BY JOSH GREEN

Ryan is a young freelance lighting designer making a name for himself Australia-wide for his work on a variety of productions ranging from corporate through live concerts and into theatre. Like many of the young guys in this industry, Ryan got his first taste of lighting while at school.

Jonathon Stanley was the guy who made the lights work at Ryan's school, and when he invited Ryan to have a look at the Futurelight moving heads and how the Hog1000 would control them, the lighting bug bit. For the remainder of his school career, Ryan was always available to work with and learn about lighting.

After finishing school Ryan found himself a job at Hornsby RSL in Sydney's north, developing a greater range and depth of skills in lighting. At the same time he was doing some all-important multi-skilling learning the rudiments of audio and vision. As well as giving him the opportunity to learn more about his craft, his time at Hornsby allowed Ryan to meet a lot of people from all areas of the industry and establish a network of useful contacts.

Since then, Ryan has had fingers in many pies, designing and providing lighting for theatre productions including 42nd Street, Little Shop of Horrors, Crazy for You, Guys & Dolls and South Pacific. He has also worked on concert performances for bands including The Wiggles, Grinspoon, Spiderbait and The Screaming Jets.

As well as his live production credits, Ryan has been successful in the club scene, working on 'alternative' events such as Kink, Sounds on Sunday, RnB Superclub and has providing services for venues such as The Arthouse, Wallaby & Pontoon bar and Candy's Apartment.

While much of his early work has been in Sydney, Ryan has been working hard to establish himself interstate and has worked in every state over the last three months. During this period he has been working on MSF Events' Entrepreneur of the Year Awards – a tour which has



taken him through Perth, Brisbane, Sydney, Melbourne and Adelaide. Over the same period, Ryan has been doing systems and operation for the Triple J AWOL tour, which will shortly take him to Tasmania.

Has all this hopping from place to place and state to state dampened Ryan's enthusiasm for travel? "I'd really like to go overseas and experience big shows. If I build up my portfolio and get some contacts over the next few years, then I can put myself in the best position to travel and work overseas. I would like to follow lighting as far as I can, to the best of my abilities and seek out every opportunity".

Ask Ryan what he thinks is the key to his success, and he's quick to tell you that it's largely down to hard work and the confidence to back yourself. "Yes I'm young but I feel my confidence has been the force behind where I am today and I have the determination to go further. I really want to pursue this and think it's just another part of me coming out: I want to go far, and I want to take myself there".

When offering advice to others just starting out, Ryan suggests "Get in there and get your hands dirty. Don't presume that you can go straight to the console, do the hard work and earn your way to the desk. Learn from others, get involved and have the right attitude to do it. It may not always pay well, but it's not about the

money, it's about learning and getting the experience."

What is it about lighting that gets him? "I love being creative. Putting in lights and putting on a show is all about being creative. I want to create something different, something that somebody hasn't already done, so each time I try new things. There's a lot of love in what I do, it really is my love, passion, hobby, absolutely everything I do, and it is my life. I just love getting involved, getting my hands dirty, jumping in the deep end and being creative as much as I can and creating the best with what's available" Ryan sees working with, and getting the best from, what's available as being critical in his role. "My biggest achievement would be my understanding of production management. What matters most to me is doing the job right, understanding how the systems work, getting them up as quick as possible and putting on a professional and astute lighting show".

Finally, who does Ryan see as a big influence on his career? He quickly names Richard Neville, another of the young lions of Australian lighting. Richard has been a mentor to him and taught him a lot about lighting, especially for theatre and corporate events. "There is a lot of thought process behind any event and thanks to Richard I've learnt a lot and met the right people. I take my hat off to him".

CX

A LA RECHERCHE DU CHOSSES PERDU

In remembrance of lost things



BY DUNCAN FRY

Sorry to all you modern classics scholars out there for my paraphrasing of Marcel Proust's masterwork in the title to this story, but it sums up everybody's list of things they wish they hadn't sold, or just plain lost.

I was discussing this phenomenon with Tony Burn from the Resource Corp the other day, and he gave me a great quote. He said:

"No-one ever regrets buying a guitar, but everyone regrets selling one."

How true. Who knew that those items we so casually bought and sold in the golden era of music would come back to haunt us in our baby boomer dotage? Who, in fact, had any idea that people in the noughties would have the remotest interest in paying thousands of dollars for musical instruments we disposed of for three fifths of sweet F.A?

A mate sent me a link to an Ebay page a few weeks ago, advertising a Dallas Rangemaster Treble Booster from the 60's.

This was a popular gadget in the early days for cranking up more treble response from a muddy sounding amp, and also overdriving the pre-amp for some gritty sounding distortion. He ended the email with 'Bet you wish you had one of these!'

I laughingly thought to myself who'd pay anything for one of these things. I bought one secondhand in the late 60's for fifteen bucks, but didn't like the sound of it at all, and promptly threw it in for nothing with an old Jansen amplifier (New Zealand Fender-like combo) that I sold for a hundred bucks.

When I looked at the web page, and then looked at the price, I nearly choked on my lo-fat croissant and coffee. It had sold early for the

staggering Buy-it-Now price of US\$3,999! Or nearly five grand Australian. Why didn't I just put it away in a drawer somewhere instead of giving the thing away?

There are some things I occasionally regret selling, but I justify their sale on the grounds that I used the money to make more money, or do something I'd always wanted to do.

For example, I sold my early model E type convertible for a pittance in today's prices, but I used the money to go to the States for six weeks in 1975 and have never regretted that. While I was there I bought a second-hand Rickenbacker 12 string for only US\$200 to replace the one that was stolen from a TV studio in the 60's. Two hundred sounds like a bargain, doesn't it, but it was actually even better than that, because at the time one Aussie dollar bought you one dollar and 25 cents US, making the actual cost of the guitar \$160 Aussie!!!

There are times when I regret selling my Vox AC30 amplifier, but I used the money to improve my PA system, which earned me far more than I ever got paid for playing the bloody thing!

However, I do regret selling my Epiphone Crestwood guitar for \$300, even though I only paid \$100 for it at the Sunday market in 1980. It was a very clean and looked after guitar that made me a tidy profit, but you just don't see them for anything less than a couple of grand these days, if you see them for sale at all. But as I said before, who knew?

It's a common saying that if you can remember the 60's you weren't really there. Well, I'm not sure about the 60's because I remember them quite well. However, there seems to be a great chunk of the late 70's missing from my brain, especially when it comes to musical things that I used to own. I don't remember selling them, or losing them or what on earth I did with them, but they're just gone.

Take, for example, my original Fuzz Face, the world's best sounding fuzzbox ever made. Delivering huge



Dunk's 1981 trio.



FUZZ-FACE.



Dallas Rangemaster Treble Booster.

fat gurgly distortion, it was the size of a mic stand base and cute, round and red. It looked like a smiley face with knobs for eyes, a foot switch for a nose, and a Dallas Arbiter logo for a smile. Best of all, the bottom cover was only held on by a single screw, so if you removed the three rubber feet the whole unit would swivel on this screw, and follow you around the stage! I paid about thirty dollars for it back in the late 60's, after trying out any number of fuzzboxes. Original ones like mine have only become valuable in the last few years, and can sell for about \$1200, so up till that time I would have only got what I paid for it, so it would have been hardly worth bothering to sell.

But it's gone, disappeared, never to be found, along with my original Vox Wahwah pedal. Where did they go? What did I do with them? Answers on a postcard please, because I haven't got a clue.

More worrying is whatever happened to my good old 1975 Music Man HD130/210. Best amp I ever had. A hundred and thirty watts RMS, two ten inch speakers, sounded great, loud

as buggery, and it would fit in the boot of my Mini Clubman GT. What more could you want in an amplifier? Good question, which makes me wonder where it went. Something like that anyone would remember selling, surely.

But somewhere between 1978 and 1982 it just disappeared from my life, together with my early Les Paul Jr double cutaway guitar.


Actually those Music Man amps are becoming very popular again. I bought a replacement one on Ebay a few months ago, for the bargain of the century price of only US\$209. The auction page said it wasn't working - 'The light comes on but there's no sound.' Understandably there weren't many bidders with good news like that. When it arrived to start its new life in Australia, I plugged it into a 110V supply and sure enough, it didn't work.

A quick look inside showed that it had no tubes (valves). No wonder it didn't work! As soon as I put a set of tubes in, it miraculously came to life! Makes you want to ask the seller what he thought those little holes in

the chassis were for, doesn't it?. The truth is, unless you are a guitarist or over 40, which the seller obviously wasn't, you don't know about tubes/valves at all!

So what I'm hoping with this missing chunk of memory and equipment is that I didn't lend them to someone one night, in an alcohol and giggle-cigarette induced haze, or left them at a party and went away on tour the following morning.

I'm also hoping that (a) it's not the early onset of Alzheimer's, and (b) someone from a house I once lived in, or a party I went to, will phone me one day and say "Hey Dunk, I was cleaning out the shed on the weekend and guess what - I found an old amplifier and couple of your guitars and stuff. Shall I pop around with them?"

I'll definitely go out and buy a Lotto ticket if that happens. 

Got a missing chunk of the 70's as well? Email me on dunk@dunkworld.com and we'll cry in our beer together!



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THE LIGHTING GUY WHO ATE A COUNTRY TOWN

Julius is dispatched to country NSW and returns with a tragic tale of good intentions gone wrong.

I went to a town in the Riverina at presstime to talk to school kids in a cold school hall. 100 of them struggled to hear me as the PA was hopeless. There was no EQ, a 20 year old Peavey mixer and the intelligibility was such that I ended up putting down the \$100 microphone and shouting instead.

The lighting was no better. The school had 4 Par 64's and 3 groundrows, and they struggled to put on shows and hold meetings with almost impossible production.

Talking to the teacher afterwards I heard a story that I've heard many times before in different forms. It goes like this.

A hometown boy apparently makes good in the Sydney lighting biz and works in clubs and on shows. He wants to help his alma mater and show his skills, so he

offers to light the annual musical for free. The school will only need to pay for lighting hire. It sounds like a pretty generous offer so they agree to trust his judgment.


The musical is held in the old town theatre, and by the time production week comes along it's obvious this is going to be a big show – the size of the truck alone gives that away. But the lighting guy is playing his cards close to his chest, not wanting to ruin the fabulous surprise he has in store. There are a few concerns when the rigger needs to cut holes in the roof for the chain motors to suspend the mother grid, but things start going up into the rig. MAC2000s, LEDstrips, spot chairs and all kinds of other great stuff.

In the end, the school gets a lighting rental bill for \$27,000.

A quick calculation costed

something adequate at about \$5,000, so by my estimate \$21,000 was over spent. You could mount a reasonable argument that 27 grand would buy a lighting system that would let the school do all the musicals they wanted. Along with the waste of money also came the stresses of getting a massive stack of equipment up, and programmed. Lots of kids lost interest in entertainment just because it was so stressful and exhausting being shouted at for three days solid.

And that's why I was struggling to be heard, in a badly lit school hall. Because some well intentioned lighting guy from Sydney had blown the budget by overlighting the musical. So the school no longer has the money or the enthusiasm to fund entertainment.

Another one bites the dust... 



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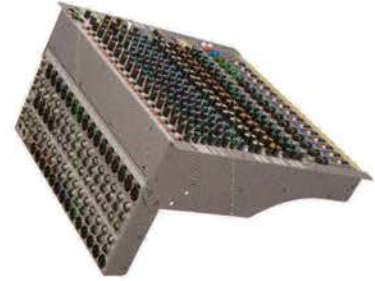
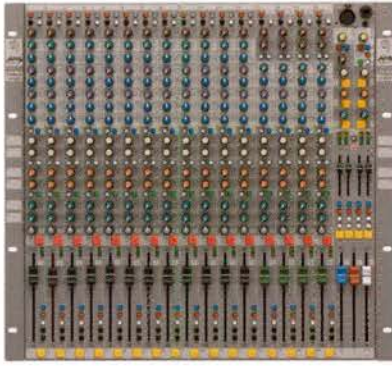
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