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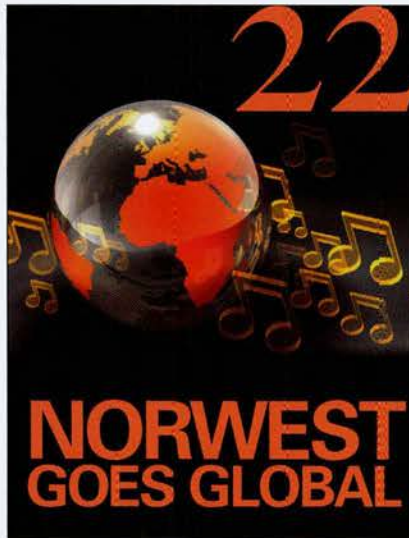
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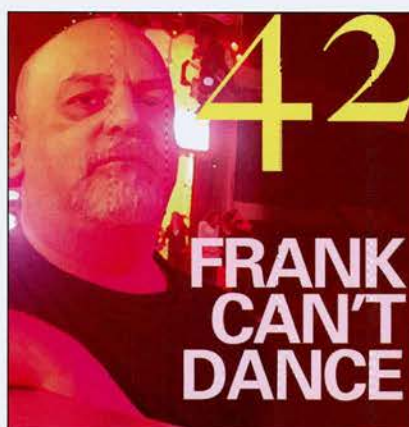
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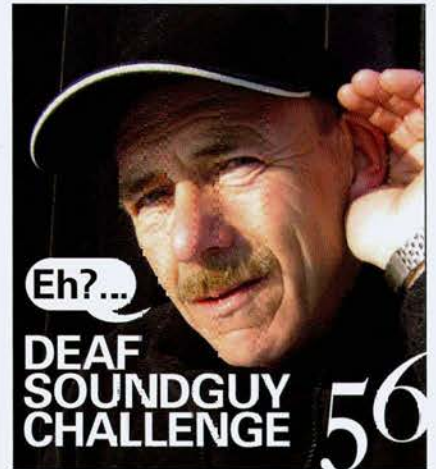
### NEW PRODUCT: RSS M400 V-MIXER



### FRANK CAN'T DANCE



### THE INSTALLER THE TALE OF DAVE THE WORM



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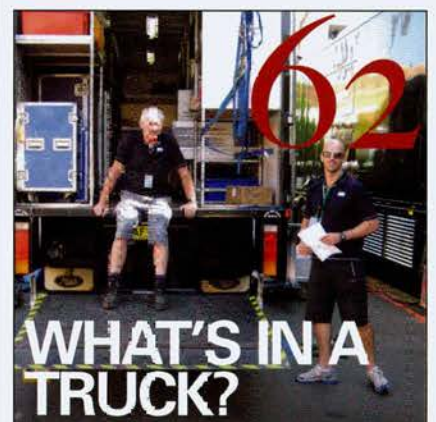
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**NEW EMAIL: juliusmedia@mac.com**

Web [www.juliusmedia.com](http://www.juliusmedia.com)

Publisher, Managing Editor: Julius Grafton

Editor: Andy Mackenzie

**NEW EMAIL: juliusmedia@mac.com**

call +61 2 9638-5955

Technical Advisors:

James Den-Ouden, Rob Zimola

Sales Steve James

**NEW EMAIL: juliusmedia@mac.com**

direct +61 2 9638 5955

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## CUE03

### Entertainment Training Resource

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

# EDITORIAL

## FLAME MAIL

Got enough steaming mail to warrant a letters page this issue, suffice to say we will let the letters do the talking. One was over-the-top defamatory of us and emailed to industry people with malice so it doesn't get a run – but read the rest.

## EXPLOSIVE END

Publicist Phil Tripp signed off his career with a bogus release promising to make a reality TV show about Glen Wheatley's home detention on release from jail. Wheat is well loved and the jail term was not fair. Tripp ran into a wall of flack for his gag.

## WHAT THE.....?

One of my students just had this email from a guy offering him a job interview: "I hesitated telling you the company I work for because it's company policy not to mention the company. I know it seems bizarre but it would be my arse on the line."

## WHERE DUE

Credit to 'World Tomination' Misner, opening his global HQ at Oxford in the UK, and announcing a rather large London expansion for his SAE global training conglomerate. All good stuff for a company that started in Sydney.

## CHUGGI

Australian Story recently profiled Michael Chugg, acclaimed by Elton John as Australia's best promoter. A heart warming profile, and a great tribute to a guy whose helped a lot of people and not boasted about it. A Tasmanian hero.

## NO PINK

Maybe it's vain to Google your name, but when I did I discovered I was once the manager of Pink Floyd. I wish. Never met that band. Also discovered I was a friend of AC/DC according to a book. Worked with them, but not a 'friend' as such.

## SEEKING STORY

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*Julius*

## THE JOYS OF OLD AGE

I'm not as old as some people I know, but I'm also no longer a young fella. Since our last issue I've been enjoying a sneak preview of some of the delights yet to come as I begin the dark journey into middle age...

I started off with a slightly dodgy left shoulder. This was followed up by a spasm in my back which caused me to lose most of the use of my other arm, landing me in hospital for a week's worth of high grade painkillers and scans. Once the collection of specialists had decided there was no clear solution to the problem, they gave me a big bag of drugs and sent me home with strict instructions to return if either of my arms came off.

Throughout the process, the one thing everybody was able to agree on was that my behaviour in the glory days of youth hasn't done me any favours. Strong as an ox and totally bulletproof, I could lift anything onto my shoulder and carry it a mile. I look around now and see a whole generation of young people doing exactly what I did, and they ignore me just like I ignored all the stupid old guys who didn't realise how tough I was.

On the positive side, I'm now old enough for people to accept me being temperamental and set in my ways. There's always a silver lining.

## NO NOTHING

After reading Julius' editorial and all the exciting things the internet says he's done, I decided to see what I'd been up to over the years. Nothing. Nothing at all. Oh, well...

## DOWNLOAD THIS MAG

After years of sharing a pdf version of this mag with you online at [juliusmedia.com](http://juliusmedia.com), including all the adverts, we've started collecting your email address when you download. The result is a nicely building email news list. Join it!

*Andy*

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# CXNEWS

## DEVICES, PEOPLE AND CONCEPTS

### BIZ AS USUAL AS BIG SHOW GOES ON

#### Staging Connections shakes off share price rout



*Ben Ashton, new-ish leader at S.C.*

Staging Connections is the market leader and largest production supply house in Australia. It has grown considerably larger in the last year or so, having acquired Bytecraft Entertainment. Together these businesses employ up to a thousand staff, and provide sound, lights, vision and staging for thousands of events annually.

If you believe some wild rumors, it's all over and the curtain is coming down. This is completely untrue, according to chief operating officer Ben Ashton. "We're a one hundred million dollar business in Australia, and we are ahead of last year on a dollar to dollar basis," he told CX.

Last month Staging held a crew conference in Wollongong, flying in 75 crew from their far flung operation. Next month another staff conference will be held in Melbourne. These are



where front line crew get to talk direct to management. And management is tight these days – four area commanders report to Ben Ashton.

Bytecraft is trading well, and in Melbourne it will be joined with Staging Connections in August when they both move into a large new complex. Crew have been told that there will be career opportunities across both organizations – Bytecraft are busy across summer when Staging are quiet, and Staging crew relish the chance to do some concert and festival work with Bytecraft.

The rumors relate to the share price. Staging is part of a broader company known as Staging Connections Group Limited, or SCGL which has businesses in seven countries. The share price has tanked this year, from a high near \$1.70 per share to a low of 35c. At presstime it was under 40c.

No public company enjoys a low share price, and with thousands of shareholders there is plainly pressure to get the value of the business higher.

Compounding things is a small gallery of disgruntled former Staging staff. It is no secret that the company endured some turmoil over the last few years. An exit strategy for senior management, led by founder Gary Hackett, saw the business folded into a public company. Of course the founders were well paid.

Somewhere in the transition, some egos were deflated, and as is always the case some outside business people managed to trample in a clumsy way across the delicate turf which is our specialized industry. Some dumb things happened, and some dumb people happened as well.

In February last year Ben Ashton was appointed to run Staging in Australia, and he endured a year's worth of calamities, including the Melbourne base burning down. "People don't realize we had the business running again same day," he says, "with all the computer data backed up to Sydney, and all our clients kept in the loop. All the staff responded in a huge way."

Staging's problems can be sheeted home to two broad causes: a profitable exit for the founders; and the share price slide which has to do with a lot of external factors. A strategy of uncontained growth by acquisition has also produced growing pains and an overall group debt approaching one hundred million dollars across all its global activities.

Likely outcome: someone will buy the entire group and privatize it. Without the scrutiny of the share market, the company can get on with what it does best.

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## WHERE NOW FOR GARY HACKETT?

Gary Hackett is the founder of Staging Connections, who engineered his own exit strategy and banked many millions of dollars when he sold out. He then rightly enjoyed the fruits of his success: building a new house on the Central Coast (near Sydney), traveling, and learning to race a pushbike.

In 2007 he launched AV Partners, a

new business which immediately set about competing against Staging Connections. After winning the lucrative Hamilton Island account in partnership with the resident manager (who had resigned from Staging some time earlier), he struck again in Perth with a proposal to Burswood Casino.

Staging retained Burswood, and replaced the Perth staff who defected to join Gary Hackett.

CX asked Gary how AV Partners was going.

"It's in a holding pattern at the moment," Gary said, "and it'll stay there while Staging sue me. They're telling people that we are facing court action, and that makes things tricky."

Staging Connections Chief Operating Officer Ben Ashton confirmed his firm is taking legal action, claiming damages relating to allegations of breaches of the terms of the exit deal that Gary Hackett signed with Staging when he left. He confirmed the matter was before the courts, and that the company felt it had a valid claim for damages.

"We are certainly serious about this," concluded Ben Ashton. CX



## ANOTHER HK SYSTEM FOR HIRE

Last year saw a number of AV hire companies take on HK Audio systems and the spread of these systems continues in 2008 with the latest AV outfit - WWave, in North Melbourne - taking on a Contour Array System.

Managing Director, Tom Fitzmaurice, says: "I can not believe the ease of set up and the great sound that comes from this system - it is so versatile. The staff love it and, since I bought it, it is just creating more and more revenue for us." CX

## DELUXE AUDIO CHOOSE SOUNDCRAFT VI6

Melbourne's Deluxe Audio keeps up to date with their hire inventory. Consequently a digital mixing console has been top of their shopping list for the past few months.

"Both Michael Shanahan, one of the other directors of Deluxe Audio, and I have spent the last twelve months using different digital consoles in all parts of the world, and at either end of the multi core," commented Dave Rees. "It's interesting how your perception changes once you've made the decision to purchase a digital console. It certainly makes you look beyond the obvious. After every gig or tour Michael and I would discuss the merits of the console we had been working on."

After their extensive hands-on research, Dave and Michael decided upon the Soundcraft Vi6, and became the first Australian hire company to do so.

"In a nutshell - it's easy to use, handles complex mixes, has a compact size, is reliable, is affordable, and sounds great!" declared Dave. "I think we've definitely chosen a winner."

The Vi6 has a unique integration of Vistonics II technology, developed with sister console company, Studer. It

uses touch-screen colour-coded TFT monitors with rotary controls and switches built in and around the glass, enabling direct access to all functions at all times and providing maximum information and visibility.

"I found my way around the console in no time at all," Dave said. "It really was a short learning curve. The layout is similar to an analogue desk, which of course we're all used to, with everything right there in front of you. The screen functionality is extremely user-friendly and totally ergonomic."

Soundcraft's new DSP package provides eight mono or stereo effects units that may be patched to aux bus outputs and then back into a channel input, or inserted into input or output channels. All effects are controlled from the console's graphical displays for full control integration.

Each of the 64 inputs offers high- and low-pass filters, four-band parametric EQ section, compressor, limiter, gate or de-esser, pan and more. All 35 outputs offer BSS dynamics and a newly implemented



[variable bandwidth] 30-band graphic EQ.

"A great deal of the development time was spent waiting for Lexicon to develop a new DSP engine just for the Vi6 and I can assure you it was well worth the wait - the 8 stereo FX are stunning to say the least," Dave remarked. "I also find the internal reverbs sound great. Add to that BSS gates, comps and EQ's and a control surface that is completely logical and you have something that engineers are going to love using. Plenty of consoles have basic processing on them nowadays, but having quality Lexicon processing built in certainly puts this console one step ahead of the others on the market."

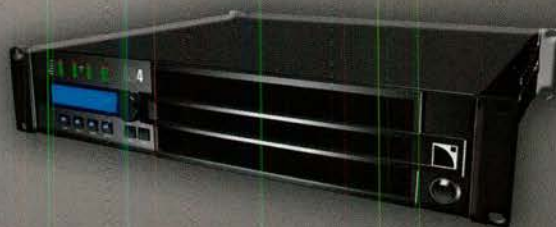
"I also like its compact footprint - having 32 inputs on each layer is a huge advantage," he noted.

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# TRADE SHOW OVERLOAD

## ENTECH in the firing line as new annual show, new magazine proposed

Australia's professional sound and lighting industry may suffer a trade show war as former ENTECH manager Louise Brooks announces a proposal to run a new show annually from 2009, starting in Sydney. It would run a few weeks prior to the long established SMPTE show which is also held in Sydney, then run annually with the off year in another state.

The surprising move comes after Louise resigned from ETF, a Staging Connections subsidiary which has owned and run ENTECH since 2004. Louise managed ENTECH from 2002 onwards, and previously left ETF between the 2006 and the recently concluded 2008 ENTECH to work with another trade show organizer overseas. She similarly worked on trade shows in the UK between the 2002 and the 2004 ENTECH shows.

Her departure from ETF was said to be completely amicable, and she says she was offered inducements to stay. ETF show director Rodney Cox wished Louise well with her new proposal. "ETF's team is in the planning cycle for ENTECH 2010, and our enthusiasm and passion for ENTECH are even stronger. The industry has clearly identified it wants ENTECH every two years, and that's what we deliver."

With the working title 'INTEGRATE 2009', the new trade show would break with convention and be located at the Entertainment Quarter in Sydney's Moore Park precinct at Playbill Venues. The show will be spread across the Royal Hall of Industries and the Hordern Pavilion. This provides similar floor space to the recent ENTECH show. Playbill is an excellent venue operator.

The advantage of the venue is cost, which is considerably less than the Sydney Exhibition and Convention Centre at Darling Harbour. The Entertainment Quarter (nearest suburb: Paddington) also features low cost car parking. Against this there are no hotels within walking distance, a major benefit at Darling Harbour.

Louise is partnered with Alchemedia, the publishers of Audio Technology Magazine and Venue Magazine. They have also announced a forthcoming Audio Visual magazine called AV. CX has been told that the proposed show will compete hard against ENTECH, but also SMPTE. Presumably the



*Parking at ENTECH: Is cost enough reason to abandon Darling Harbour?*

Integrate push will also impact on the Custom Electronic Design and Installation Association (CEDIA), who run a growing trade show every year.

Many ENTECH and SMPTE exhibitors are vocal about costs at the Darling Harbour Centre, much of which is for services like parking, electricity, rigging and catering – a particular gripe. Whether the dissatisfaction about costs is held against the trade shows, or against the venue, is not clear.

ENTECH and SMPTE are both mature events, held every two years at Darling Harbour, which work very well for trade visitors. These shows, along with the annual AMAC music trade convention, were all built on a broad model of industry consultation, with considerable investment in conference, workshop and social events. Each ENTECH reinvested as much as \$80,000 in external events, industry awards and courses when run by Juliusmedia. SMPTE and AMAC spend large sums to enhance their trade shows with educational and social programs.

Another big spend on ENTECH in the Juliusmedia decade was advertising, spent outside of the owner's magazine – as much as \$120,000 on one ENTECH show, to really build the brand and get the right trade visitors.

To launch a new event from scratch, at a different venue, against strong incumbent shows assumes there is a lot of new growth business in the sound, lighting and vision markets. It needs a lot of pizzazz, some really fresh ideas, a big advertising spend beyond the owner's magazines, and deeply lower costs for exhibitors and visitors. That was the climate when ENTECH was launched.

Here's the proposed trade show calendar – nine shows, two years:

|                |                   |
|----------------|-------------------|
| July 2008:     | CEDIA, Gold Coast |
| August 2008:   | AMAC, Melbourne   |
| July 2009:     | Integrate, Sydney |
| July 2009:     | CEDIA, (tba)      |
| July 2009:     | SMPTE, Sydney     |
| August 2009:   | AMAC, Gold Coast  |
| February 2010: | ENTECH, Sydney    |
| July 2010:     | Integrate (tba)   |
| July 2010:     | CEDIA, (tba)      |

Juliusmedia sold ENTECH to ETF in 2004 to raise funds for Julius Events College.

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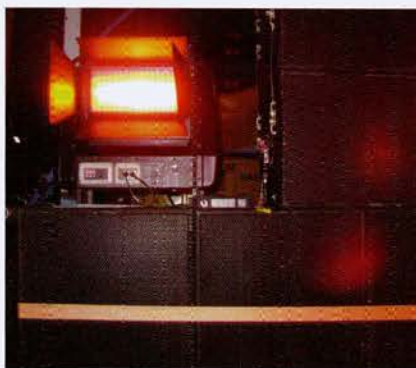
## WIRELESS SOLUTION FEATURES IN PARADE

With 300,000 spectators and a 4km procession, Sydney's Mardi Gras is probably the largest street parade in Australia. It has 150 floats and 10,000 participants.

Wayne Mulder of Sydney's Action Sound came up with a novel idea: a Wireless Solution system was featured on the Surf Life Saving Australia's float themed "Whatever floats your boat". The Wireless DMX was used to communicate between the two float trucks that traveled anywhere from 150 to 200 metres apart.

Dancing between the two trucks was a contingent of Life Savers, illuminated by 4 City Lights that were required to change color on cue. Mulder states "it was very important that the lights on the two trucks were in sync without the need to have two lighting controllers and two operators. Through the use of W-DMX we were able to control all the lighting from the front truck with one transmitter."

The Wireless DMX rig included a W-DMX BlackBox S-1 transmitter, to



transmit to the BlackBox R-512 receivers on each truck. The S-1 and R-512 system transmits and receives 512 channels of DMX (one universe) wirelessly through W-DMX technology.

Mulder states that "the Wireless DMX system never skipped a beat and there were no problems with signal strength or reliability." He also goes further to say that without W-DMX the project would have been impossible as "we wouldn't have been able to do it any other way." The Wireless DMX is a new addition to Action Sound's inventory, but due to its ease of use and reliability, it is sure to feature in many more projects.

## EVENT PRODUCTION ADDS DIGIDESIGN'S VENUE

Gold Coast based production house Event Production Management have purchased a Digidesign Venue console from Madison Technologies.

After being introduced to the console at Madison Technologies' stand at this year's ENTECH, Event Production Management's Managing Director, Leon Barreau, was impressed by the console's intuitive nature in comparison to others in the market.

"After 5 minutes of playing with the console, I knew the basics of how it worked," Leon said. "I could pick it up and start using it straight away. No other consoles, which I saw at the show, had that same usability". Leon also commented on how convenient the physical size of the console was. "The console is solid and robustly built, and the size is an important feature, allowing us to take up minimal floor space in venues" he added.



## SAVE ENERGY. SELECON'S 80V POWER SYSTEM

Selecon trumps a 50% reduction in power consumption from a luminaire that is smaller and weighs less. It's a powerful argument that is understood in theatres from Bangkok to Stuttgart; Brisbane to Novosibirsk.

Their 1.2kW 80V Pacific range delivers the high light output of traditional mains voltage 2.5kW / 2.0kW profiles while the 1.2kW 80V Rama 175 High Performance Fresnel delivers a beam with the appearance of a 2.0kW Fresnel.

The direct mains power supply removes the need for a dimmer while fitting into industry distribution systems for moving lights i.e. a mains

power circuit and DMX network; an instant saving in rigging and labour costs.

Along with performance advantages, energy saving and reduction in luminaire size and weight Selecon's 80V DMX Power Supply allows for significant capital cost savings on a venue's permanent dimming and air conditioning systems; features which have already been recognised and adopted by notable Australian venues such as the Civic Theatre in Newcastle and the Queensland Performing Arts Centre.

For temporary installations the DMX Power Supply delivers the performance and control of a fixed luminaire using the same cable and control distribution as for a typical moving light rig saving time and money on dimmers and multi-core cables.

[www.seleconlight.com](http://www.seleconlight.com)



## BOSCH ADDS DIGITAL RECORDING AND PLAYBACK TO DISCUSSION SYSTEM

Bosch's CCS 800 Ultro has already proven itself as a discussion system for meetings in council chambers, courtrooms and business. Now they've added an MP3 recording facility so digital recordings of sessions can be made for later playback or archiving. Built into the system's control unit, the MP3 audio recorder enables users to record MP3-compatible audio recordings on individual Secure Digital (SD) Cards. The recordings can be played back via a monitor loudspeaker integrated into the control unit or via the Bosch CCS 800 Ultro tabletop unit.

[www.bosch.com](http://www.bosch.com)

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# SSL BIRTH THE MATRIX



Here's a new idea: a solution combining the mixing console, router, and workstation.

Matrix is a SuperAnalogue 16 channel, 40 input mixing console with inbuilt signal router and multi-layer digital workstation control. It is designed to bring the soul of analogue sound into the process of digital workflow by providing the tools to work effectively in both domains simultaneously.

Matrix is composed of five main elements: a 16 Channel Console with Dual Summing Inputs, Aux Sends and

additional returns, providing more than 40 summed inputs to Mix output.

Then there is a 16+1 Fader, 4 Layer DAW Controller using Ethernet connection. This provides single cable, high speed workstation control for most popular DAWs including Pro Tools, Logic, Live and Reason.

What about an integrated, recallable, software controlled 32x16x16 analogue routing matrix. Eliminates the need for external patch bays, bringing outboard analogue processing into DAW workflow.

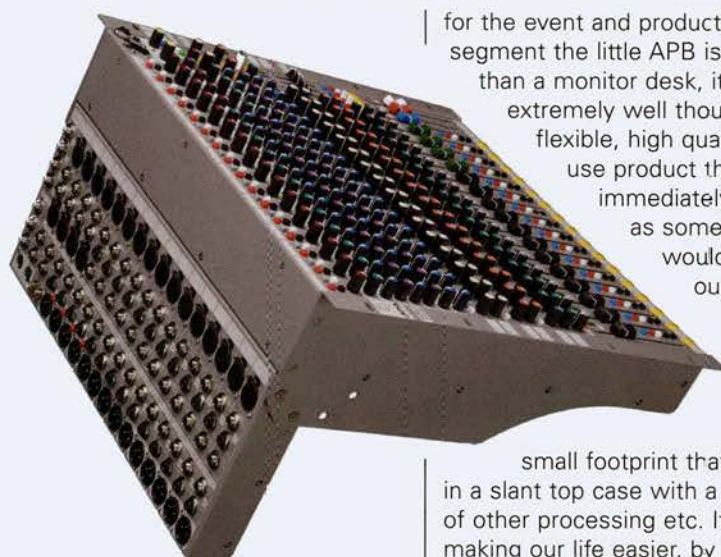
It allows powerful monitoring with independent Main & Mini monitor outputs, Artist Monitor output with independent EQ & source selection, three External Monitor inputs with source summing and front panel iJack input.

There is a Mac and Windows compatible application that provides platform independent project management and routing control, this includes FX chains and routing set-ups to simplify patching outboard units through the router.

The name Matrix is derived from its unique, software controlled integrated SuperAnalogue router. This manages the sends and returns of up to 16 analogue outboard processor units together with the assignment of the console's channel strip inputs and insert points.

Using the Matrix Java control panel software, any combination of outboard gear can be rapidly inserted into any of your console channels, essentially giving you the ability to run your outboard as 'analogue plug-ins' with your DAW.

[www.ambertech.com.au](http://www.ambertech.com.au)



## APB PRORACK CONSOLE MAXIMISE IN/OUTS

David Dempsey, sales manager at Music Box in Sydney waxed lyrical about the APB Pro Rack Monitor rack-mountable consoles at ENTECH. David, as well as two of his staff members who had both independently recommended the Pro Rack after the show, all agreed it was "the highlight of Entech 2008."

David said "all the new super high tech and expensive products aside,

for the event and production market segment the little APB is far more than a monitor desk, it's an extremely well thought out, flexible, high quality, easy to use product that I could immediately recognise as something we would utilise in our business structure. So many outputs and in such a

small footprint that can be put in a slant top case with a whole host of other processing etc. It is already making our life easier, by providing the flexibility for a range of applications from performance to non performance orientated events. The EQ and mic pre's are great, the LCR functionality, the balanced AUX sends.

"From a hire and production point of view, it is stunning."

APB's phase-coherent EQ design uses servos instead of electrolytic capacitors in the 4 band EQ with swept mids, plus variable HPF. There are 16 (Mon) or 20 (FOH) Burr-Brown mic preamps with proprietary front end circuitry.

[www.productionaudio.com.au](http://www.productionaudio.com.au)



## PENN EXPAND ROCKNROLLER CARTS

Since everyone is now embracing OH&S and it is cool to cart equipment, PENN have added more models and accessories to their groovy Multi-Cart line. The baby of the range will handle over 150kg, while the top end 'All Terrian' model lugs 226kg.

Now there's a piggy back cable spooler, for those times you need to roll out a long coms, fibre, Ethernet or dmx cable. They also have solid decks, and an expandable shelf kit.

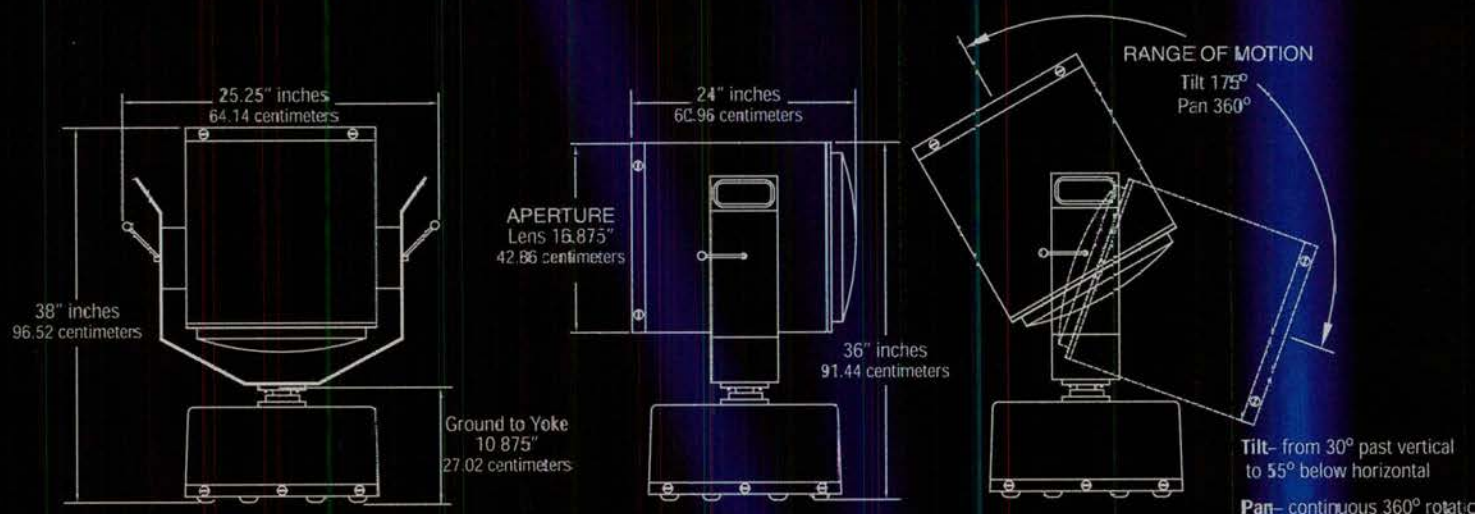
See [www.penn-elcom.com](http://www.penn-elcom.com) for more.



# THE SEARCH IS OVER

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The 4000 watt Xenon lamped searchlights consume 6 times more energy than the lamps used in the Sky-view searchlight fixtures. The Xenon lamps generally require a minimum of 30 amps per fixture while operating at 240-volts 3 phase while the newer technology Sky-view searchlights require only 5 amps per fixture, using far less energy to operate. Sky-view searchlight lamps also produce more than double the lumens per watt than Xenon lamps. More lumens per watt give a brighter light.

New 850 Watt Sky-view Searchlight vs 60" Carbon Arc Searchlight



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w: [www.megavision.com.au](http://www.megavision.com.au)

Attract attention for miles around and draw customer traffic to your venue's location

## RØDE UNI DELIVERS 30,000 VIDEOS

Since its launch on January 21st, rodeuniversity.com has held over 30,000 video classes to more than 5,000 students worldwide, proving that Rock n' Roll certainly is an international language.

"We are really pleased with the reaction to RØDE Uni" commented Damien Wilson, Global Sales & Marketing Director of RØDE Microphones. "We felt there was a need to offer some practical understanding of mics and mic techniques to new and existing owners of RØDE. So far the results have been fantastic!"

Peter O'Donohue, manager of Billy Hyde's Music in Sydney was officially the first student to graduate from RØDE University. Peter visited the RØDE Factory late last month to officially collect his RØDE University graduation certificate.

"I learnt a lot from the course" says Peter, "they managed to mirror many of my own ideals in regards to music capture being about empowerment not intimidation and snobbery."

RØDE University is an online modular training program, presenting studio microphone basics and tips and techniques via high quality streaming video clips.

Get started at  
[www.rodeuniversity.com](http://www.rodeuniversity.com)



## VUEPIX DOES FIRST GIG AT MOTORSHOW

After making its debut with ULA at Entech, Vuepix video screens have quickly made their way into the production world starting at the Melbourne Motorshow.

Purchased by Clifton Productions, the Vuepix P10 LED Video Screen was featured on the Kia stand at the Motor Show, used to display full color moving images of the cars.

The screens deliver high resolution with a pixel pitch of 10mm and are completely modular. They are equipped with SMD RGB 3 in 1 LEDs and have a pixel density of 10 000 dots per m2. The P10 screen is ideal for synchronous display of all kinds of text, graphics, pictures, signs, and any signal from DVI, VGA, Composite, Component and S-Video.

[www.ulagroup.com](http://www.ulagroup.com)



## LAB.GRUPPEN'S PLM SERIES LAND AT ENTECH

At hit at ENTECH was Lab.gruppen's PLM Series amplifiers, featuring a new Powered Loudspeaker Management System with inbuilt Dolby Lake processing.

The PLM 10000Q is the first product of Lab.gruppen's new Powered Loudspeaker Management Series. It comprises a four-channel amplifier, dual Dolby Lake Processor modules, Dante low-latency networking, and features for load verification and performance monitoring.

This was supported at ENTECH by Lab.gruppen's International Sales Manager Thomas Mittellmann.

[www.audiotelex.com.au](http://www.audiotelex.com.au)



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# Norwest Productions



Norwest have expanded their Lab Gruppen inventory to 196 units with the purchase of 48 FP+ 10000Q amplifiers.

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- Funktion Resolution Concert System
- EAW KF750, KF730, KF850
- EAW SB1000, BH760 subs
- 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, 1000
- Midas Verona, Venice

## WIRELESS DMX FROM DTS

Lighthouse Distribution announce wireless DMX from DTS. They did a recent road show where they were able to control LSC dimmers using a W-DMX BlackBox R-512 receiver controlled from a DTS Transmitter.

This was toured all around Australia without a single problem with dropouts or crosstalk. There are many sets of units used in theatres throughout the world, including many of the top Broadway and West End shows, and many architectural jobs where it is just not possible to run a DMX cable.

CX

# LETTERS

Flames, praise & emails!

### VALE DENIS IRVING

I have a heavy heart. We were working together on both the new Perth Performing Arts Venue and the Albany Entertainment Centre and it was an honour, they both have a lot of him in them.

Here's a line from Kenneth Rayner, theatre consultant in WA for Marshall Day Entertech for the Albany Entertainment Centre project:

"Denis was stoic to the last and 'died with his boots on'. As late as 48 hours prior he was checking on the progress of our project, and offering encouragement and erudite counsel in a breathless whisper - refusing to surrender."

Graham Walne, Mosman Park, WA.

### DISGUSTING

I have just been reading the most current CX magazine online and thought that I would share my disgust with the article published on page 8 "Stealthy Secret of Salisbury Road".

The company you are referring to by far one of the most professional production companies I have had the pleasure in dealing with. Their equipment and crew are top notch and leave many other production companies for dead.

It is the business owners right to stay under the radar and conduct his business as he feels fit.

Your article is disgusting, in particular the paragraph that says:

"CX would like to hear from anyone who may shed light on why the business pictured has a penchant for anonymity and secrecy. Information about the owners, contracts, clients, work done, professionalism, and any mishaps if they have happened would be appreciated."

I would like to think that the people behind the article and the magazine editors in general would have more professionalism and respect.

I am quite disgusted.

Brad Wright, Event Manager,  
Mardi Gras and Sleaze Ball, NSW

### GARBAGE

I was going to email you earlier over the whole (Stealth) issue but I figure by now you've received enough emails from people telling you how upset they are over the article and from what I understand enough advertisers pulling their business from your magazine too.

Rather than just upset (which I am as well) I just think the article is a load of garbage. Says nothing, wastes a page that could have had some actual content on it and is nothing more than a self indulgence on your part. What is sad is that Rocky passing away occupies a tiny corner of that page. I'm sure a man of your resources could have easily filled an entire page (if not 20) on the history and life of this great character of a guy.

What I'm more annoyed about is I've just read another article (Iron Maiden) which goes on in great detail about the entire audio system and then more or less has 'oh and there were cans and truss too' tacked onto the end. This is meant to be an audio AND lighting magazine and yet you continue to overlook lighting in every part of it continuously.

I don't know if there is any point of even providing this feedback given I wouldn't be surprised if we never even see another issue but I'm

continues page 21... ➔



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

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

Distributed by Group Technologies ph: + 613-9354 9133 [www.gtaust.com](http://www.gtaust.com)

**ART SERIES**



really just sick of the only lighting content being that which you buy from another publication which Cat usually links to on ALIA for free!

I feel sorry for the next generation of lighting folks coming through that really have lost a good resource for learning that was once your magazine.

**Clint Dulieu, Senior Show Technician,  
Australian Outback Spectacular. Qld.**

### STEALTH: A THREAT

I hope you have a much more friendly and supportive article ready for the next issue of your magazine.

Maybe talking about how amazing and talented (they) are.

How fantastic value for money they are.

How they continue to deliver outstanding shows flawlessly

How they support their clients 150% and go the extra mile for them.

And how committed they are to developing the future of our entertainment and event market in Australia.

Until I see this or something similar there will be no more opportunities for students of your college to work with me in the industry.

**James Klein, Technical Production Manager. Sydney.**

### STEALTH: RIGHTS TO PRIVACY

I have read the article, spoken to people and read emails. So I am not just following the leader- I am offering my thoughts.

Why have you violated the rights of (them) to maintain privacy?

I have every right to be private and only divulge information about me or my company to who I wish.

They have very good reasons and desire to maintain that confidentiality, as you are now aware of.

Many people or organisations have a low profile and like it that way, for whatever reason.

Julius you have always encouraged and been a great help and inspiration to many in this industry. I have known you for around 20 years. I have supported your business endeavours and college. You were a great help and mentor when we were getting Mandylights going. Myself and Richard had huge respect for you. Now I sit here writing this after talking to two guys who are well saddened, upset, pissed off and dismayed at your article. It's pretty bad when some of the best, nicest and hardworking guys in this industry are saddened beyond description. Effectively you have alienated them and a whole lot of others from you and your magazine. Add to this the fact that I am as equally dismayed, I am unimpressed.

Where did you get the Scientology line from? And the fungus references? If anyone put "fungus" and "Mandylights" in the same article we would be very unimpressed. Libel and slander are two words that come to my mind. Not particularly complementary.

Did you bother to talk to anyone who knew any "inside" info before you wrote this article? We all know about (them) and we know what to say and NOT to say.

You make mention of NO website. Crap. I Googled (them) - get the spelling correct. Yes it's not a big and flashy website, but you can contact them from it.

Where were you going with the professionalism and mishaps lines? These guys rock. They are great to deal with and always on the case. They are not running a 2 bit operation. It's slick and sharp. They deserve the credit, not the discredit. I will say at this time (they are) NOT the only supplier to MANDYLIGHTS, so it's not protecting or supporting our key supplier. We deal with all the suppliers in a fair and even way.

There are a lot of dodgy players out there, why not pick on them?

What you have done here is stoop to the low level that I would read in some trashy tabloid. I thought CX was a great source of great news and info.

Lift the industry up Julius, you used to. You lifted me and Richard and Mandy up.

Do it again.

**Greg Yates, Mandylights. NSW**

### 50 TIPS

Thanks for the 50 Tips for Better Lighting in CX (March). You forgot these: Use a followspot: it goes where all the other stuff doesn't, and usually the operator can respond faster than you can program a moving light.

Keylight: lift the speaker / star / performer out from the backdrop with a keylight.

Otherwise, rock on!

**John Preston, Email. Victoria**

CHEAPER THAN

# DAMAGE



### PACKING CASES

Heavy duty ready-made packing cases

Heavy duty ATA spec build

Ready-made:

- most models include drop trays
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Custom options including:

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### 2U AMP RACK

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- anti-static foam lined lids



### TRUCKS

100mm casters on 16mm board

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- standard & premium models available
- brakes on two casters
- aluminium "bumper" rim on edges



### LIFT OFF LID FOH RACKS

Heavy duty ready-made front of house racks

Heavy duty ATA spec build

Ready-made:

- inner 'floating' rack with lift off lid
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- water-resistant rubber lining
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By JULIUS GRAFTON

# NORWEST GOES GLOBAL

From nowhere to everywhere as  
Sydney firm hits the expansion button



Chris Kennedy.

**I**t's a long way from the basement at the Hills Centre in Sydney's north west, to Beijing, where large format event audio specialists Norwest Productions have just expanded. It's even further from the embarrassment of being thrown off the Hothouse Flowers tour in the early 1990's for messing up the sound.

Across twenty years Chris Kennedy has become a fully fledged sound engineer in his own right, and created the largest live audio company in the region with around 50 staff. Norwest has just taken on a serious equity partner, and is cashed up. They are ready to expand.

CX spoke to Chris at his Sydney HQ which doesn't have much in the way of office staff, other than Damon Hartley who's been doing the books for many years. Norwest have a vast array of equipment though, and a lot of it is unique.

Specialising in live audio and only live audio, Norwest can do any show, anywhere. They proved it by providing the audio for the Opening Ceremony of the Athens Olympics, held in Greece. They have done shows in many countries, and operate in a small world where maybe only five audio firms are as capable of high level international events.

When this writer first met Chris he was running Oz Management, a booking agency. It was 1990 and he booked me to do sound for a show. It transpired Oz had been set up to feed work to the band that Chris played guitar in, who worked the functions circuit. The agency quickly started to book other acts, most notably Jon English, Marcia Hines and John Paul Young – big earners at the time.

After a while Oz started to become a drudge for Chris, he tells of a KC and the Sunshine Band tour where the promoter needed twenty grand a show – double what Oz had booked before. "I worked really hard and got him \$240,000 worth of shows. Then at settlement he told me he hadn't made anything and he only had \$500 for me."

The balance of the agent fee, \$23,500 wasn't paid. The rot was in – it wasn't a business that was going anywhere in particular.

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Dave Renné, General Manager.

## CAREER CHANGE

Chris met a guy called Lindsay Hall who was doing sound for John Paul Young, and a partnership was born that quickly became known as A1 Audio. Over a few short years they ran tours with several new Renkus Heinz systems which were lighter, smaller and less costly than other systems. Money was made.

Then they overstepped, and bought two large, heavy, complex arena touring PA systems from a failed company called Star Capital. It was an audio firm that cost several million to set up, and which was crushed by Jands Concert Sound. At that time, around the end of the 1980's, Jands virtually owned the concert sound market.

A1 paid \$585,000 for two large rigs worth maybe five times as much – a T.Rbosound TMS 3 system, and a Martin RS 1200 system. Amongst tonnes of equipment were several huge Soundcraft Series 4 consoles, Tasco stage monitors, and 20 racks of amps.

"I didn't know what to do with it all," Chris says. "So I had a strategy of breaking it into three smaller systems that toured with acts like Skyhooks, 1927 and Icehouse. Back then the tours went for 12 or 14 weeks to support a new album, and if it took off, they would do a glory run of entertainment centre sized shows. I reasoned that one of the three would break through, and we would then do arenas and look terrific. It didn't happen."

Chris is diplomatic, but can't escape from the truth which is that A1 did not have the expertise. Jands Concert Productions did have expertise, so it was only a matter of



Dane and Ricky Cook.

time. Hothouse Flowers was the beginning of the end.

Murphy's law says an audio failure will happen at the worst time in the worst place and the not so magic moment came onstage at the Enmore Theatre in Sydney. A1 Audio lost the tour, Jands took over, and the damage was done. The company became known as Z-one. Zero And One.

"We put our efforts into the larger tours with the Star Capital equipment, and so we weren't doing the work we had before with the Renkus rigs. We had a whole lot of finance commitments, with the same turnover as before. My partner lost heart and left, taking some equipment. Then I arranged an auction with the finance company, sold the best of the Star Capital stuff and I was left with the dregs." Jands head honcho Eric Robinson would joke that his audio company had numbers on its equipment, while A1 had auction lots on its.

A1 Audio was dead. I reported the demise.

## NORWEST AND THE \$700 SIGMA

What wasn't dead was the resilience of Christopher Kennedy, with three kids to feed. He sold his house at St Ives. He was driving a wrecked Sigma that he sold when the registration ran out.

Norwest started with the worst inventory – the equipment no one wanted to buy at auction. Chris cobbled things together with a handful of loyal crew and did the shows – mainly corporate, driving an old truck, working 18 hour days and 80 hour weeks. He was 45 years old. He was knackered. I



Antonio Calvi and Adrian Riddell.

asked him at the time how he kept going. "You have no choice," he replied.

It was a real struggle for four years, really tough. Eventually the jobs got better, some money could be raised for new equipment, and things eased. Chris and his wife Suzy bought a house again, after four years and four moves between rented houses.

"I'm an eternal optimist," he says, "if I were in boiling oil, I'd think it's still OK because my head is above the surface."

Norwest started doing concert shows in the State Theatre in Sydney for a promoter who realised smaller off beat artists would sell seats. They combined corporate work with smaller concerts, and were under radar of most industry observers.

In 1999 several unexpected things happened, and the most staggering of these was that Chris's wife, his soulmate since they were teenagers, fell ill with cancer. "We were very happy and we were ready to be together for our whole lives."

Then a letter arrived from Morris Lyda who was in charge of collecting audio bids for the 2000 Sydney Olympics. By this time, Norwest had invested significantly in EAW loudspeakers and had some early discussions with L'Acoustic about becoming the Australian V-Disc outlet. The Olympics Ceremonies audio was to be managed by none other than Bruce Jackson – the J in Jands; and a legend across the world.

Norwest was asked to participate in a shootout, a demonstration, to

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fulfill a specification written by Bruce Jackson. "It required wide horizontal and narrow vertical dispersion from low profile cabinets on the field, and at the time we were the only audio company with a line array – the EAW KF860. Which was perfect for the specification."

Chris wasn't interested at first but then PRG – an American firm who also had EAW KF860's – suggested a joint venture. "I reasoned that Connections would be there and write a story, so it'd be good exposure". Norwest participated in the shootout.

They got the gig. And then, just days later, Suzy died.

### ENTERING THE WORLD STAGE

Norwest were working on preparing for the Olympics, Chris immersed himself to stave off the grief. By this time his three children had grown up, and one grandchild was on the scene.

In the windup towards the 2000 Olympics opener in Sydney, more equipment was acquired. PRG had some troubles at the time and started to fade out of the deal. Chris grew more confident as the months passed, and the solid scrutiny of Bruce Jackson, a perfectionist, ensured nothing was left to chance.

Bruce was deeply involved in the audio preparations, and arranged a deal with Klotz to provide digital audio networking around the Olympic stadium. The pieces were moving together.

"It was a great moment, one we wanted. The only downside was that any deal regarding V-Dosc wasn't possible". Jands quickly picked that one up.

History records that the opening (and closing) of the Sydney Olympic Games were world class, apparently seamless events. The audio won accolades. Norwest became a global player by reputation.

The critics said that Bruce Jackson made it all possible, but the buck always stops with an audio director. More events would prove whether Norwest was able to work beyond the aura of a legend like Bruce. They didn't need to wait too long.

The Goodwill Games in Brisbane,

and the Rugby World Cup in Sydney set the scene, and then the Athens Olympics loomed.

"Dave Rennie and I had flown to Athens a year before and met with Larry Estrin who was at that time Technical Director, and who had been Director of Communications at Sydney 2000. After infighting in the Ceremonies team Larry departed and Delta Audio were brought in and, to all intents and purposes, had the job. When (Australian Events Supremo) Andrew Walsh took over he was determined to make the whole process as transparent as possible at that late stage and resolved that he would call bids for all supply that wasn't contracted at the time. One of these was audio. I flew to Athens with Scott Willsallen and we spent ten days which involved visiting the venue, preparing designs, drafting proposals and finally submitting a response which was ultimately successful."

Australian crew worked onsite, Chris flew countless return trips on Gulf Air, in economy class. The ceremonies were acclaimed as the best yet, and the audio won



Old meets new - tower of KF860 with Adamson.

accolades again.

More major events followed, the Commonwealth Games in Melbourne, Singapore National Day, the Doha Asian Games and a one-off event in Abu Dhabi.

There's more to come: "plenty of stuff to do outside Australia. We Australians are very good at production, we have hard working, desirable crew. We are good

itinerants, we like to travel."

## ENTER ANACACIA

Anyone in business for themselves eventually wonders about succession, especially when they have a wife and children. Chris found the second love of his life Sarah and they have a young boy plus two slightly older children Sarah brought with her – a boy, and



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agirl.

"I also want to expand, I see opportunities to take in other audio companies. Plus I want to expand Norwest in China", Chris says.

Some discussions have occurred over the years. The founder of Staging Connections, Gary Hackett, had talks with Norwest some years ago about grouping the firm with others and floating on the sharemarket. Then when Staging Connections were on the acquisition path they came calling again. But the right deal wasn't there.

The talks consolidated the thinking about partnerships, and

Anacacia Capital came calling. They are a new private equity business who take a substantial but not controlling share, and provide direction. For Chris it was a perfect fit, since it can be done at the top.

Anacacia is headed by Jeremy Samuel, who was for seven years the head of private equity at the ANZ bank. He has assembled a small team of experts, with investment funds. They looked at 200 deals and the Norwest deal was the first.

What was paid is not known, since Anacacia and Norwest remain private companies, but CX estimate the whole value of Norwest at around A\$10 million. Anacacia now hold 40% of Norwest, with much of their investment returning to the company as working capital. It means Norwest have some cash in the bank to use for expansion.

The investment is also a sign of commitment by all concerned; Norwest's business model has concert work, corporate work, broadcast, theatre and large scale events work spread across markets and regions. It's attractive for any business to be diverse within a specialty.

### GO CHINA

Despite the Beijing Olympics work always being destined to a local company, Norwest have opened a branch there. The groundwork was done last year with Norwest crew member Aaron Mascarenha and his wife Nicola relocating.

Norwest then set about

establishing a legal company within China, a process which takes considerable time since the system in China is different. The Wholly Foreign Owned Enterprise that has emerged as Norwest China has equipment, and crew in place. It now has a manager, in the form of Simon Main who was the operations manager at Norwest HQ in Sydney.

Chris doesn't expect to get any direct Olympics work, but clearly knows he will get some supporting corporate function work, since there are a growing number of Australian event professionals working with international clients. Who all host meetings and functions around the Olympics.

Norwest have based some new Adamson concert loudspeakers in Beijing - the Adamson is a full on concert PA capable of doing Acer Arena. There are 24 x Y18 line array elements, 12 x T21 subs, Metrix and M15 (wedges). In addition Norwest China has Kudo, EAW KF730 and a pile of smaller corporate cabinets. The hope is that the Chinese business grows to the extent that branches can be established in Shanghai and Guangzhou.

"With Anacacia on board I have the means to finance expansion in China, whereas on my own I am limited to obtaining finance for new equipment in Australia", Chris says.

While there is plenty of equipment in China, and no real barriers to local audio competition, the kicker is the need to handle English speaking clients. "If the guy on the talkback doesn't immediately understand what 'Standby audio cue 17, GO' means, then the client isn't happy".

### EQUIPMENT

Investing for specialized large event audio is not cheap. Take fibre optic cables as an example. Norwest have around 5 kilometres of fibre optic cable, and at each end of each cable is a connector that costs around \$2500 to terminate. That means each cable carries \$5000 worth of connections, before you buy the actual cable!

Fibre is the key to massive events, and the Optocore systems at Norwest can handle 18 nodes anywhere in a five kilometer loop. A node is a break in and break out point, where the signal is routed via

thinking sound

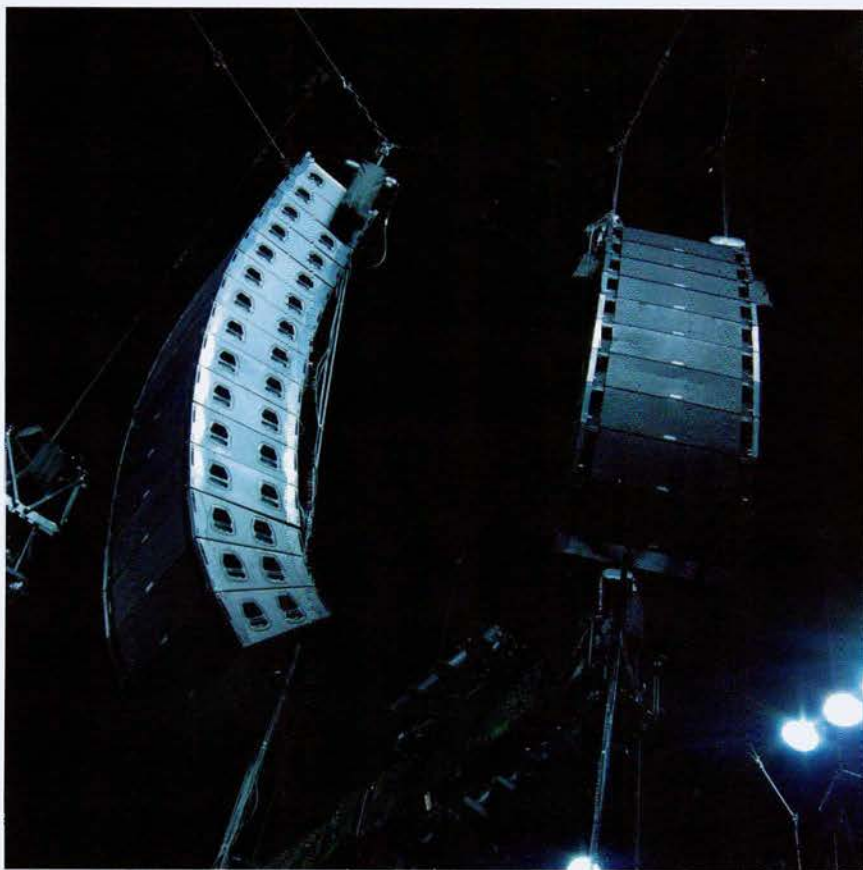


# HEARD

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Norwest supplied a mighty collection of KF760s for the recent Iron Maiden tour.

AES-EBU to a box with analogue audio in and out points. Hundreds of channels of audio pass through a single fibre optic cable. But since the system is designed as a loop, one cable can stop working while the audio still arrives from the other end of the loop.

The larger the event, the more redundancy and disaster planning exists. This in turn means that every item of inventory is fortified, strengthened and chosen for premium reliability. An audio company's reputation would probably not survive a shutdown during an internationally televised event.

Norwest have got backup plans for backup plans.

They have a serious heap of communications equipment, like 80 Clearcom announcer stations. How about 160 Shure PSM 20C in-ear monitor systems?

With wireless coming (from microphones) and going (cut to in-ear systems), wireless is a large investment in equipment and knowledge. Norwest have some fairly funky helical biplane antennas, RF amplifiers, and assorted arsenal to get signals in and out.

Other reasonably unique devices include two Pyramix multitrack systems, some SFX multitrack show replay systems, and a Timax Image Maker which essentially moves an audio point source around, with multiple cascading time alignment delays which can be generated to follow a moving source.

## SPEAKER SYSTEMS

The newest of Norwest's inventory is by Adamson. This came in part from the investigations of Scott Willsallen, aka Swa, an independent Australian audio designer and consultant who works with Norwest and others.

He says: 'After listening to the Adamson Y10 line source array what I heard I can only describe as the most intimate, intelligible and enveloping sound I have ever heard out of a loudspeaker system. I was some 40 metres from the arrays and the announcements from a live HH wireless on stage sounded like that person was whispering into my ear. The music was like the greatest red wine I have ever had; big, full bodied, beautifully precise and as the wine improved with air; the PA improved with level. Nothing leapt

out of the system at high levels, it felt completely linear at all levels.'

Some people have accused Scott of favoring Norwest for the show designs he does. In reality many of his designs have been fulfilled by various other audio companies for a wide variety of shows. More often, Norwest get the tender because they have the equipment that Scott has specified.

Another reason why Adamson, was Chris's conviction that people want to use it – a decision since born out by plenty of concert tours.

Norwest have 56 Y18 cabinets, and 56 smaller Y10. The Y18 is a three way box with a pair of 18" drivers inside – we are not aware of any other line array box loaded with 18" low frequency drivers. A pair of 9" midrange drivers, and two JBL 2451 high frequency drivers are arranged on a cunning drive module, known as the Adamson Co-Linear Drive Module. Thus enabled, the Y18 is theoretically the highest powered 3 way line array box on the market.

To further extend the already fat bottom end, a T-21 subwoofer can be added. This is loaded with a 21" driver. Norwest have 28 of these.

The second Adamson system is the smaller Y10 system, where the 3 way line array elements are loaded with 2 x 10" bass drivers, one 9" midrange and a single JBL 2451 high frequency driver. This loading is said to match the output of most other line array boxes on the market. The Y10 can use the T-21 subwoofers as well.

Rewind to the start of Norwest and the first new loudspeaker systems that were purchased came from EAW. Since then almost all EAW models have been carried by Norwest, most recently an EAW 760 line array was added. Along the way there are KF750, KF860, and a lot more. There are enough KF750's for a concert rig.

The KF860's are an interesting device, first made by EAW for outdoor sporting arenas and then specified into the Sydney Olympics because at the time they were the only box that would do the job the way the designer intended. In some ways they were the first line array boxes of any note, even though technically they are not a line array.

Between Adamson and EAW, Norwest have as many line array

elements as any other large audio company in Australia. But it goes on: they have 110 L'Acoustic Kudo line array boxes as well. The Kudo is a success story for L'Acoustic, whose V-Dosc system is limited in its sales distribution by a regional partnership agreement with Jands Production Services. This in turn hasn't stopped Melbourne's largest audio firm, Johnstone Audio Systems, who have acquired a V-Dosc system from other sources.

The Kudo system at Norwest suits many shows, and has enough bass extension to work alone for less intensely musical performances and corporate work.

But there's more: some years ago Norwest bought a Funktion One system, which came from the designer of many Turbosound devices at the time. The Funktion One system is not a line array, which means it can be configured to go wide or to wrap sound into strange places – something a line array doesn't do well.

Chris thought the F1 system would be taken up by Britannia Row in the UK, until then a major user of Turbo. If that happened, the

network effect would mean plenty of work in Australia. But F1 and Brit Row didn't consummate their marriage, and it was annulled. The F1 system still does plenty of work, but it isn't specifically what people want to use.

"I learned along the way that no matter what speaker system you have, it doesn't sell itself," said Chris. "It's a big mistake to think that – it's all about the package, the people and the relationships."

Downstream from all the very loud stuff are maybe 600 smaller speaker boxes, plus countless stage monitor wedges. There's a bunch of Tannoy reference monitors.

Amplification for all of this is preferably by Lab Gruppen, whose products have proven as reliable as Norwest can find anywhere. It's a weight to power, cost to reliability formula teamed with sonic outcomes.

## CONSOLE TIME

The usual lineup of analog consoles can be found: Midas everything, Soundcraft, Yamaha. These have many years life left,

since not everyone needs a digitally recallable console.

New digital consoles feature heavily at Norwest, with 2 x Yamaha PM1D, 3 x Yamaha PM5D, 6 M7CL and 40 Yamaha 01V. Bridging the rider gap, there are two DiGiCo D5 consoles, one of which is the 'T' or Theatre variant.

## FINALLY

It's all about the people, and like some other production firms we visit, they don't want to leave. It became an interesting exercise when the company was valued for equity investment because there are so many staff who have been there who are entitled to long service leave. This is something that affects the end value of a business in accrual terms. It's also something that says volumes about a company: that it's a stable, mainly enjoyable workplace.

There is a Norwest branch in Brisbane, and one in Melbourne. Chris doesn't rule out others.

There are other audio firms. It just happens that this one operates on a principle of excellence.




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# NEW PRODUCT: RSS M400 V-MIXER

By JAMES DEN-UDEN



Heading for the Mute  
Group #1 User Key

## THE BACKGROUND

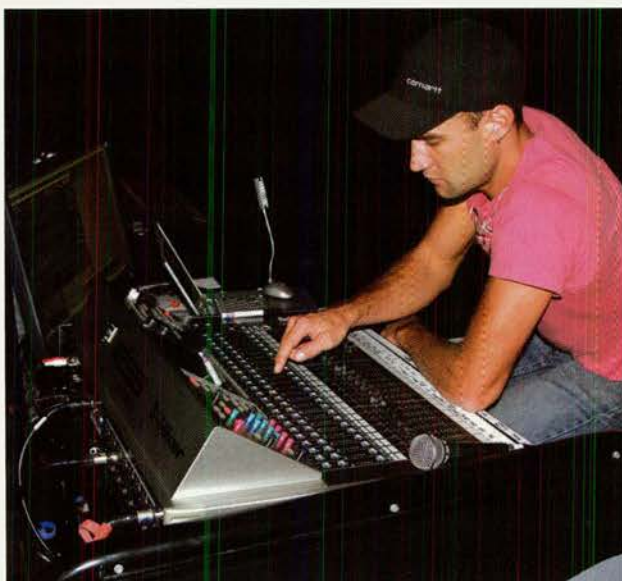
These days it seems everyone's got a digital mixer or several on offer – I went to Entech this year and all I remember was digital consoles, more line arrays, and an embarrassment of LED products. I didn't think too much of it when I was told Roland had a new digital console which was set to break some existing price points. Then they told me the price, and I had to have a look.

The M-400 V-Mixer certainly breaks a few barriers down as far as price is concerned, and on top of that there's a multi-track recording system which works hand in hand with it. More on all this later on, but for now let's take a look at the console.

## THE SYSTEM, AND HOW IT GOES TOGETHER

The M-400 console is designed to work with an RSS Digital Snake digital multicore system, which runs on the RSS REAC protocol (think Ethernet). The console itself has 8 XLR inputs and 8 XLR outputs on it, as well as three REAC ports (on Ethercon connectors – nice!). When you add in a Digital Snake this expands out to 40 input channels and 16 outputs. From these, you can route basically anything to anywhere you like. Now 40 channels is not a very large number by today's digital console standards, but by those same standards \$13,000 is not very expensive. The console itself weighs around 25kg, which is also quite a bit lighter than the last 40 channel analogue console I remember moving. The target market for this system is kind of hard to pin down and define. It could be good as a permanent install solution for small-medium size venues, but then again it would also work equally well for smaller scale touring productions. The system as a whole is certainly very practical so far as travelling light is concerned. Sorry, back on topic – the plugs and sockets: there are a few other ports on the back including MIDI, RS-232, USB, unbalanced stereo 2tk in, and digital 2tk out on SPDIF and TOSLINK connectors. There's also a 4 pin XLR connector for a desk lamp.

CX has covered Digital Snakes previously, but here's a quick refresher: The S-4000 has 32 inputs and 8 outputs, and the 1608 is half this input capacity though it retains 8



*The CXpert tries to break it*

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outputs. Whereas the S-4000 is a rack-mount device, the S-1608 is designed with more of a "stage-box" feel to it (though you can rack mount it). Pricing of the system including the console is around \$18k with two S-1608 stageboxes, or \$22k with the S-4000. There are in fact a gamut of configuration options, and having since read the manual I've decided not to list them but to suggest that the manual is a good place to start if you want to find out more. You can download it from the Roland website.

## HOW IT'S LAID OUT

The console has 25 motorised faders, 24 of which are arranged into 4 pages or banks or layers (or whatever you want to call them). The last one is the main output fader. Page 1 covers the first 24 channels, page 2 the next 24, page 3 is auxiliary send masters and DCAs (of which there are 8), and page 4 is a "User" page, onto which you can map input, output, DCA, or bus master faders. Page flipping is done with 4 large illuminated keys near the master fader. Each channel strip has a fader plus mute, solo, and select buttons.

On a steeper raked surface behind the faders is the control section of the desk, which is split into three sections. On the left are the headamp, HPF, EQ, dynamics, and auxiliary control buttons. In the middle is the LCD screen with a row of soft keys below, plus keys to access the effects section and metering. Finally, on the right is the menu navigation section plus hot keys for the patch and system setup, as well as monitoring, talkback, and 8 user definable keys.

## THE TEST CONDITIONS

I made a date with the M-400 console and an S-4000 Digital Snake at the Factory Theatre in Sydney to find out if we could work with each other. The Factory has a Nexio Geo FOH system which sounds nice and is blisteringly accurate, so seemed a good place in which to see how the console performed in the real world.

There are several configurations in which the system can be run; the S-4000 option gives you a main and a redundant cat5 line from the multicore box to the console, while the S-1608 allows you to take your inputs from two different places and have the outputs replicated across both boxes. A third REAC port on the console is kind of a "loop through"

which can be used to drive the multi-track recording system. The recording system is very cool since all you need is a computer with an Ethernet port and the appropriate software & driver (SONAR and the REAC driver).

## THE SETUP

The V-Mixer was supplied with a S-4000 Digital Snake, and 100m of cat5 to go between the snake and the console. Being the real world, I didn't bother to read the instructions, I just plugged one cable from the S-4000 into the console, and another from the S-4000 into the recording computer. It turns out this is not even a supported configuration, but it worked anyway. I can't see any reason running the system in the recommended configuration would detract from the performance in any way.

From the time the system was powered on till I had patched all the inputs and outputs to the places I wanted them, no more than 30 minutes elapsed. That either means I'm very clever, or the system is very easy to configure. Probably both. From this point I decided to insert

some graphics on my auxiliary outputs (which took another 2 minutes), and then configure some basic effects - that took a bit longer. Maybe 5 minutes.

## INPUT CHANNELS

The 32 snake inputs and the 8 console inputs can each be routed to any of the input faders. Each channel has individual gain, pad, phantom power, and phase reverse settings - all of which are scene recallable. Dynamics processing is available on all the XLR input channels, and includes gating and compression. Both of these are quick to get to, there's a display access button and a threshold knob for each. To apply a compressor to a channel you just select the channel, press the compressor button, press the "ON" softkey, and dial in your threshold. Attack and release times and ratios all start off with reasonably believable default values, so there aren't any nasty surprises to be had. Same applies with the gates. The compressors worked well on vocals - they were controlled but not in a brutal way. I also had a pre-show DJ



REAC inputs - this connection plus power is enough to make the system work



Preamp, EQ, Dynamics, and Auxiliary Control Section

and used one of the dynamics processors as a limiter on him, and even when pulling some serious level off the signal it was still pretty smooth. The realtime visual feedback on the noise gates is a nice touch and works well too, as did the gates themselves. Ratio, attack, hold, and release times are all edited on-screen and modified with the jog wheel.

Each channel has a 4 band parametric EQ, and once you've selected the channel you have rotary encoders for frequency, gain, and Q for the centre two (The low and high EQs are shelving filters) – they're colour coded too. There's also a sweepable high pass filter on each channel.

### ON-BOARD STUFF – EFFECTS & GEQS

The console has 4 on board stereo effects and 4 single channel 31 band GEQs. You can use effects channels to load additional stereo 31 band EQs if this takes your fancy. I set up a delay and a couple of reverbs on three of the effects, and used the fourth as my FOH stereo GEQ. The GEQs allow you to use the faders to

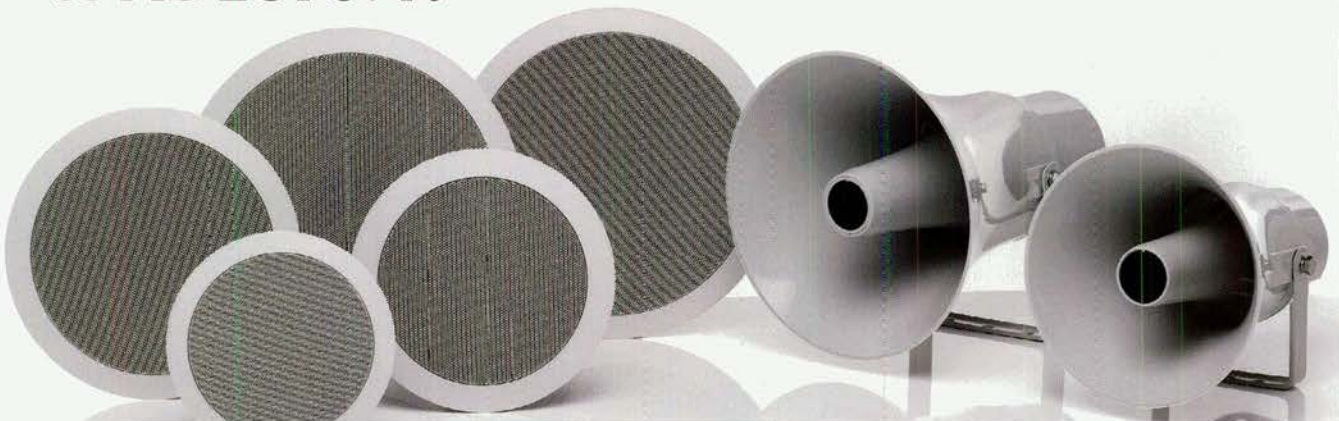
modify individual frequencies, and this is split up into two groups of 24 with a big overlap in the middle. A context-sensitive soft key allows you to flatten the GEQ, plus library functions are available. I didn't find a way to reset an individual band – some consoles allow you to do this by pressing the select button above the fader on which said band is represented. Maybe this feature will

show up in a future software release? This is a pretty small sacrifice to make in any case. Navigating around the effects section is very easy, with soft keys allowing you quick access to individual effects. Loading a new effect from the onboard library takes about 5 button presses and a jog wheel turn, and it's all very self-explanatory.



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M-400 Mixer and Sonar Recording System in the background

## 32+8=48?

While there are only 40 XLR inputs to the console, there are 48 input faders, which leaves some room for extra stuff once your multicore and desk inputs are full. The onboard effects 3&4 are set up by default to send from the last two auxiliaries and return on channels 41-44 of the console. 45-46 are the default inputs for the internal USB player, and 47-48 default to the unbalanced 2tk input.

The whole desk is pretty self-explanatory really. It's worth noting that I didn't read the manual and there wasn't anything I couldn't figure out how to do during the course of the show. Pairing up channels is simple, press select on the channel then press the "pair" soft key to join it to the adjacent channel. The two channels replicate each other in almost every way with the exception to this being gain adjustments, which remain independent.

## GREEN IS SAFE

There are "display access" buttons all over the control area for features

such as PEQ, dynamics, metering, and the patchbay among other things. The display access buttons are all illuminated green by default, and turn orangey/red when you press it to see that page. Changing page views doesn't have any effect on the output. Another way to look at this is that you can safely press any green button on the whole entire console without it affecting your mix. Whenever you exit one of the function display screens you'll find yourself back on the channel view screen.

## AUXILIARIES

Auxiliary sends are an uncomplicated affair. Choose a channel, choose an auxiliary send, and turn up the rotary encoder in the auxiliary section of the console. There's a button to throw the sends onto the faders, so you can quickly compose a monitor mix just by pushing up faders for the requisite channels. Switching between pre and post fader mode is done by pressing the auxiliary display access button, and happens on a channel by channel

level. If you need to switch every channel to pre-fade mode, it's probably quicker to use the console remote software.

## SPEAKING OF WHICH...

Remember that USB port? It connects to a computer so you can use the remote software for the console. Not too much to know about this other than it's full-featured and works in real-time. You can leave the software on one screen while accessing other screens on the console, and vice versa. I left the computer on the "metering" screen most of the time, and the meter response seemed pretty good to me.

## MUTE GROUPS, DCA GROUPS, TALKBACK AND MONITORING

There are 8 DCA groups and 8 mute groups, with dedicated display access buttons to access these quickly. I used one mute group for the band and assigned it to one of the user definable keys (which you can also make do a bunch of other stuff). There's a talkback section with various routing options, but being somewhat fixed in my ways I just plugged my talk mic into one of the console XLR inputs and routed it somewhere convenient. Monitoring is what you'd expect from a company which has some idea of what they're doing – since the only monitor speakers I had was the PA I stuck to using headphones which all worked nicely. I use a pair of Sennheiser HD280s and some consoles have problems driving these at any kind of level – the M-400 hit no such hurdles. I should also mention the scene library, which is comprehensive and allows all or selected parameters to be recalled, and stored to a USB drive.

## RECORDING – USB AND MULTI-TRACK

Two recordings happened for the show, the first was a multi-track which was done in SONAR, running simultaneously on the same computer as the mixer software. Initial configuration was simpler than expected, and I believe there's a Mac version of the REAC driver on the way (which had me cheering). I recorded 24 tracks onto a LaCie d2 quadra external drive running over firewire 400 with no problems. It took SONAR a little while to compute the

waveform images after I hit stop, but in all fairness the recording had been running for nearly 2 hours. Listening back later on, the tracks all came up clean and uninterrupted, with no discernable noise floor. There's not currently a simple way to feed the recorded tracks back into the console so you can't easily use the system for a "virtual soundcheck", but I get the feeling that was never the intent of this anyway. I think it's a more useful tool to take a live recording which could then be mixed down later on – for instance to go with recorded vision. One of the coolest aspects of the whole recording system is that you don't really need any special hardware – just a reasonably well specced computer with ethernet & firewire ports.

The other recording was done using the internal USB recorder on the console itself, which records in uncompressed WAV format. Again the result came up trumps and the 1hr 45 min set came out as a 1.15 Gb file. I just routed the main stereo output into the recorder, but you can choose from auxiliary busses as well. A nice touch is that you can boost or

attenuate the input level to the recorder, so if you're not driving your outputs too hard you can still achieve a reasonable record level. The recorder can be routed to the input channels for playback, and there are dedicated transport control keys.

## THE SUBJECTIVE STUFF

So there you have all the techno babble, now onto the thing that really counts which is of course, my opinion. I like it.

Everything on the V-Mixer is logical, it sounds good, and for something that looks cute it's definitely no toy. That said, anyone with half a brain should be able to use it. The S-4000 pre-amps are forgiving too - I let a channel run into clip before the show (I was curious!) and listening back to it on the multi-track recording later on it didn't seem to get gravelly, almost like it had been limited somewhere before it hit the A-D converter in the snake. Not to advocate poor gain structure, but it's reassuring to know that if things do get out of hand you're unlikely to wind up with truly horrible noises

going to FOH or your recording. You may not even notice (it really is that forgiving).

The overall feel of the console and indeed the whole system would best be described as solid. The big bright buttons for select, solo, and mute are splendidly easy to see, and the fader action feels good. Everything just works like you hope it would. It didn't crash, it didn't confuse me, and it didn't make me wait because it was busy thinking about stuff. Another nice thing which sounds irrelevant but isn't is that the desk doesn't seem to reflect light in the annoying way some others do – even when lit from directly overhead. It's a little thing, but it's nice to be comfortable at work. My only two vaguely real gripes about the console are: no global pre/post option for auxiliary sends exists as yet, and the mute group and DCA assignment system (which would be faster if you could pick a group then hit select keys to add or remove channels to or from it). I had to complain about something but given that's the worst of it, the V-Mixer scores two thumbs up and a big grin ☺

CX



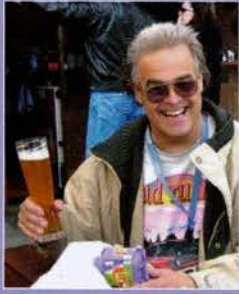
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# FRANKFURT

## 2008 Velvet ropes and door bitches

By **DUNCAN FRY**

**W**hen your plane lands at Frankfurt airport at 5 am, and you know you've got to stay awake until at least 8.00 pm if you want to have any chance of slipping into Euro time with the minimum of jetlag, what do you do?

Well, for me the answer is simple. Check into the hotel, shave and shower as if you've just got up, then head off downtown for a day filled with beer and sausage. Yes, I know,

it's hardly the ideal diet for last month's 'No pain, no gain' story, but what can you do? And the Frankfurters do make some great beer and delicious sausages!

This year the show was bigger than ever, with what seemed to me to be a large increase in good visitors, people who can make buying decisions there and then without having to refer back to anyone else. A glass of delicious Aussie wine, and the deal's in the bag. Maybe!

From a manufacturer's perspective,

the great thing about the Frankfurt MusikMesse/ Pro Light + Sound exhibition is that you can see pretty well all your distributors from around the world at the one time. It's cost effective, and they all get the same message at the same time.

So this year we decided to change the layout of the ARX stand to cope with the hectic 'appointments every half-hour for four days schedule' that we had already lined up. How could we keep passers-by from coming up and interrupting the meetings, we wondered? The answer was obvious – put a velvet rope and a door bitch in the entrance to the negotiating area. No-one ever dares cross a velvet rope, do they?

And it worked. People would come up, see the rope across the doorway, and stop right there, while I reprised my role as door bitch from daughter Fifi Trixie Belle's 17th birthday party!

Next door to us were Axel and the gang on the Optogate stand where as well as their infra-red noise gate/ mic switch they also had an electrically operated remote controlled mic stand upper and downer. A neat gadget, but what I was more interested in were the little bottles of rocket fuel that they would swig every morning to get the heart started. They came over to us with a case of it, handed them around, and showed us how to knock them back. Crack the top off, hold the bottle in your lips, let go of it and tip the head back. Aaaaah, it burns! Hits you like a sledgehammer in the chest, but certainly focuses the mind. They followed it with a little cup of espresso coffee, and then were ready to face the day. Me, I was ready for a snooze!

On setup day I wandered down the aisle to where the Fischer amps people had their stand. Last year, as well as playing an AC/DC DVD to demonstrate the ButtKicker rumble packs, they also played a Rammstein Live DVD "Music to Invade Poland to". Heavy duty right wing stuff. I



So we've got microphones called Black Hole, and there's a picture of a cute girl in mini black shorts. Hmm. Subtlety and good taste are certainly not high priorities with these guys!



"Ladies and gentlemen – welcome to tonight's Taiwanese Celebrity Dwarf mud wrestling.. in the blue corner, reigning champion Wun Hung Lo, and in the red corner, Lo Fat Sausage."



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Who would dare cross a velvet rope? "Sorry guv, can't let yer in – it's more than mæ job's wørth"

couldn't understand a word of it but just the sound of it gets you all fired up.

"Playing any Ramstein this year?" I asked the girl working there. She looked shocked, "Oh no," she replied, "We had so many complaints about it that we decided it was safer not to play it this year."

The Chinatown section seems to get bigger each year – this year the number of Chinese OEM suppliers seemed to stretch halfway across the hall, and it was the same situation in Hall 8, the other major pro audio hall. A lot of them seemed to be carrying the same or similar stuff, though so it does make you wonder how many of them are actually manufacturing, and how many are just third party trading companies.

Opposite the ARX stand was the Superlux stand, a Taiwanese microphone company, where workers were busily putting together what looked like a pint-sized boxing ring. What was going to be on display there, we wondered. Would it be Celebrity Taiwanese dwarf tossing? Wrestling? Midget mud wrestling? If it was going to be the latter, I hoped we wouldn't get splashed with excess mud.

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To digress for a moment: in the 80s I actually worked with the girl band Sweet Pain on the regular Topless Mud Wrestling night at the Pier Hotel, Frankston. So instead of the normal audience request to "Sit on your flute", on this night the girls in the band were continually being asked by the audience to "Get in the mud!" Not that there was any chance of that happening with this band. It was art, not entertainment.

The wrestlers would start off wearing bikinis, but after a couple of gropes the tops would slide off, and then it was on for young and old! The schedule for the evening was: band - wrestling - band - wrestling and so on, until everyone's fantasies had been satiated. I wandered over to the promoter with my drink, raised it up and said "Here's mud in your eye" but I think the humour was lost on him! Jeez it was messy. Mud everywhere, all over the stage, plus the mics, monitors and leads. Yuk. It almost made me want to stop watching, but as Jerry Seinfeld said when asked by Elaine why guys like to watch girls' cat fights "Because you never know when they might stop and kiss each other!"

Anyway, as luck would have it, the Superlux entertainment turned out to be none of the above. What it did turn out to be was a duo called the Crown Jewels - Monika and Steffi, two very attractive girls singing and playing hardcore country. How did Monika learn to play hillbilly country fiddle, I asked. "I study in the Czech Republic at the Prague Conservatorium of Music, she replied." And it showed; perfect pitch, lightning fast technique and effortless accuracy.

Sometimes there were so many people (predominantly guys, of course) squeezed onto our stand watching the girls that I was sorely tempted to start charging 5 Euros for 5 minutes. I'm sure I would have collected enough for an upgrade to business class on the way home! There was a collective groan from everyone watching when on the third day, Monika's boyfriend turned up. He looked like Fabio, but dressed as an extra on the 'Dude where's my car?' movie. Or maybe 'That 70s Show'.

So, for four 50-minute shows a day for four days, we watched their performances, and boy the time just seemed to fly by! Instead of Beats Per Minute we had Bounce Per



*The Dixie Czechs... Ah, drool*



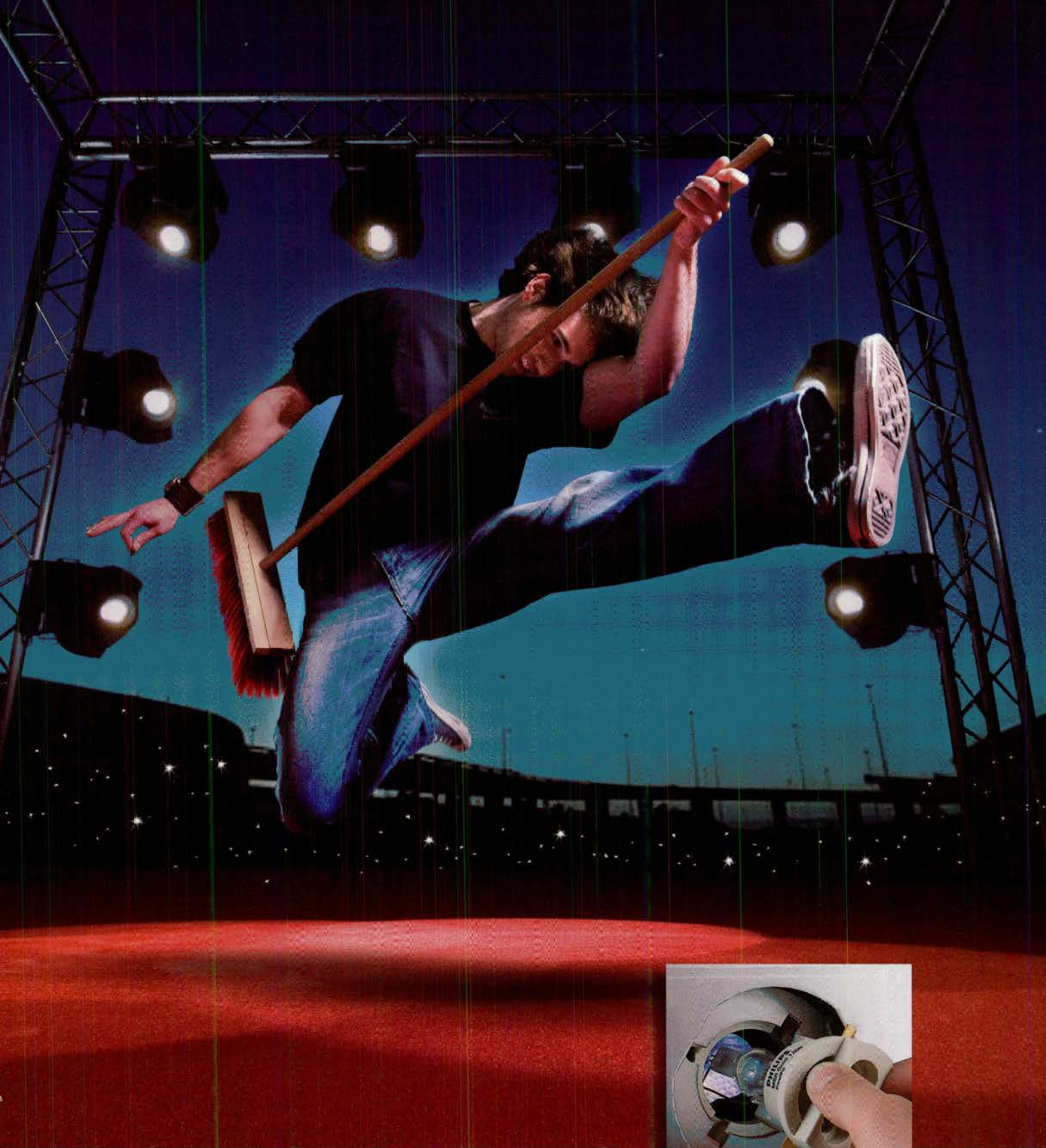
*A time to reflect upon the day and sink a few with customers and friends*

Minute, and after initially renaming them the Family Jewels, Colin came up with something much better; as soon as we discovered Monika was from the Czech Republic, they were obviously the Dixie Czechs! A name they luckily found most amusing.

Finally, I didn't quite make it to 8.00 pm on the day I arrived. After nodding off in my Tcm Yum Gong soup at the local Thai restaurant, I collapsed into bed at 7.30, burping happily. I think I was asleep and snoring before my head hit the pillow. Email me: [dunk@dunkworld.com](mailto:dunk@dunkworld.com) CX



*The sign says it all - Ian Ross from Audio Source in W.A. wearing a very bad homburg indeed*

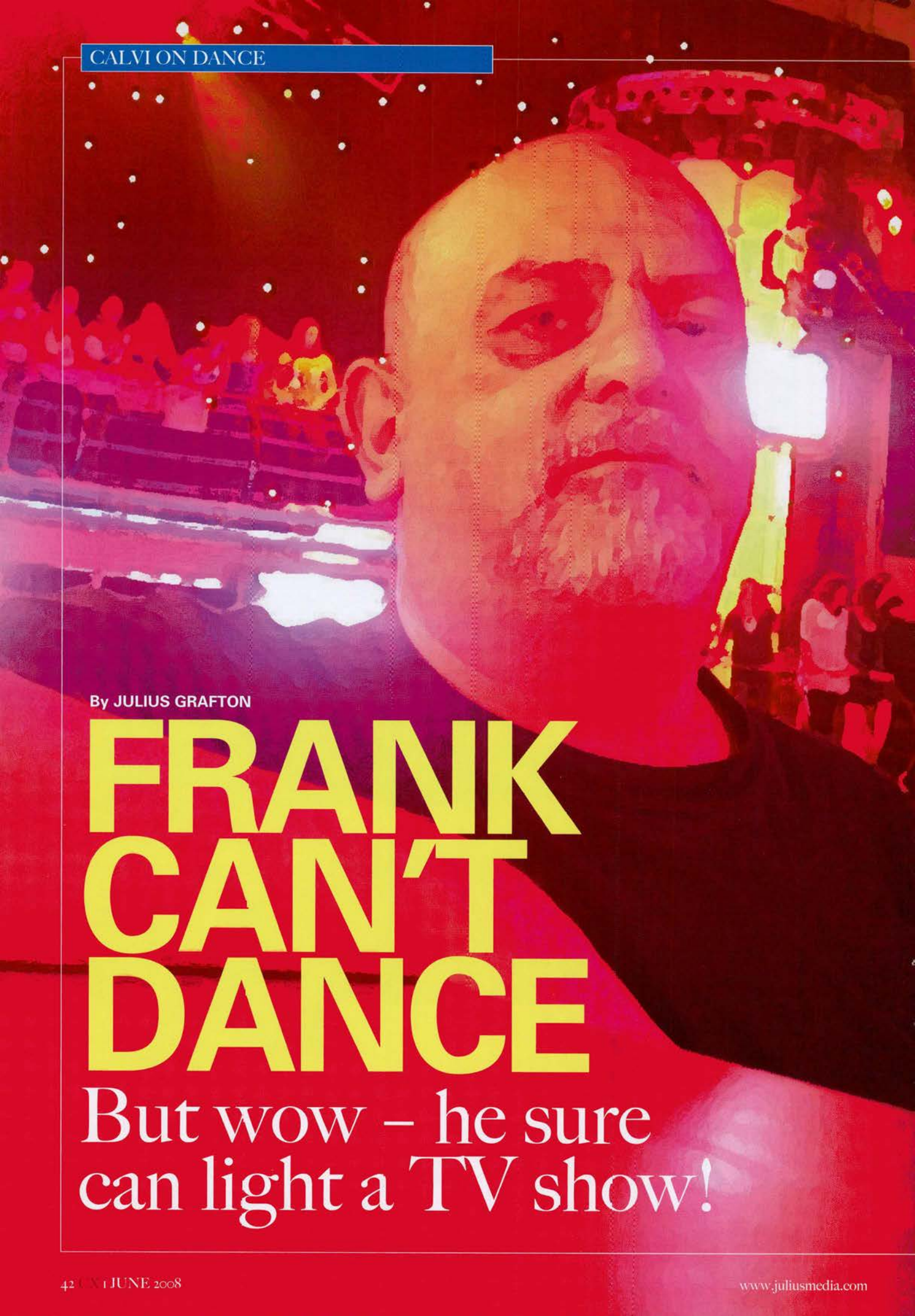


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CALVI ON DANCE

By JULIUS GRAFTON

# FRANK CAN'T DANCE

But wow – he sure  
can light a TV show!

**F**rancesco Calvi is one of those impossibly likeable humans. He describes himself as a cuddly person, and at one time he was in the hugely enviable position of hug-bunny to the models for the David Jones fashion parades. On a day off he would hunker down in his five star hotel room with up to a dozen models. In their underwear. Watching TV and snacking out on room service. Was he the envy of the rest of us? You bet.

But this is the story about the lighting of *So You Think You Can Dance*. The top rating TV show where dancers – REAL dancers, not the poncey faux variety – battle through elimination rounds over three months. It captured the viewing public because the dancers are great and the format is tight. The host is Natalie Bassingthwaite, a successful choice. She is the babe who fronts the band Rogue Tracers.

But a successful TV show isn't just concept, format, casting, promotion and direction. Nowadays it's increasingly about the visuals – the look that catches and holds the viewer mid flight. *SYTYCD* stops you surfing the remote, because it just looks so good.

Thank Mark Dyson. He designed the set. But in short order also thank the lighting director, whose creative kazzam makes the thing live. The set is wonderful under worklights, but nothing like you see on TV. When the lights go on, the set comes to life. Without light it is like an elegant corpse laid out for a viewing, all seamless features and smooth lines. But the lights – the lights breathe life into the sexy cadaverous corpse. Then it lives!

## ON SITE

Carriageworks is in a residential street, but so was the original industrial installation that overhauled trains. The new reality of a 40 million performing arts complex is that it is accessed mainly by foot. Forget parking. I walked from Redfern railway station – 10 minutes along quiet gentrified streets loaded with turn of the century terraces.

Redfern is crap-meets-nob, traditional public housing denizens filtered amongst those with a lazy 600 grand to buy a bolt hole. You can get punched out anywhere here without too much effort, or dodge the hassle by locking away and sail through like thousands of nearby uni students do every day and night.

Carriageworks was a very bad geographic idea for a theatre complex – but transforms into a great idea for corporate shows, rock clips and TV shows. So the NSW government gets my temporary vote for the infrastructure

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Photo by Jason McCormack courtesy of Network Ten

investment. By the way: the SYTYCD people say Carriageworks is great – people and facility. Please note.

Ultimately the politicians may yet put a walking bridge over the twelve railway lines to the south side, and rehabilitate the local street gronks who peddle drugs and bash people.

I go down from the street through the entry area, into the huge foyer where there are two hundred Moncay midday audience persons – drawn from dance schools so they look right.

Francesco's work experience student Lyndon Buckley, from Hunter School of Performing Arts in Newcastle, meets me. Lyndon is in year 11, and his entertainment teacher Kim Pink has clearly set him up properly. He is learning a lot. I am escorted past the dressing rooms and up high to the op area.

## START WITH THE SET

Work within the overall dimensions of the venue. Carriageworks is a lovingly converted railway shed that the Arts division of the state government transformed into a performing arts complex. The main space is called Bay 17 and is 11 metres tall – at around 1070 square metres, it's large enough for a set.

Mark Dyson came up with an adaptation of the American look for

the show, which itself is licensed from that market. But there, they have a kind of chrome look. Here the four towers, two sails, dance floor and judges' riser all take life from the lights.

Those four towers are covered in a translucent material, so Francesco can get inside and make them pulse. The show happens on the dance floor. With the audience kind of blended in.

Looking at the set from the rear of the audience bleachers – where Norwest have their audio operator – the judges' platform is far stage right. There are two towers each side, with two sails that counter curve. Plenty of integrated screens of the plasma variety carry imagery – and a large projection screen above the stage right sail does the signature three-dimensional logo. It's all designed and themed to look just so.

"In the old days the set would come with pracs wired up, like flouros in it. Now it's about 'what can I give you' – and the design process is pretty fast because everyone is freelance," Francesco says. He pours light into the set.

"The LED changed everything because it runs cold, and if there's a space as big as a matchbox, I can put light in there."

So this set is loaded with LED, and

lit front and back by movers. "Moving lights haven't really changed since the (Vari\*Lite) VL 1," Francesco says, "because it's all about changing a gobo, colour and movement." He is not particularly brand loyal about moving lights, and is much more interested in the holistic looks he can get from an entirely integrated system.

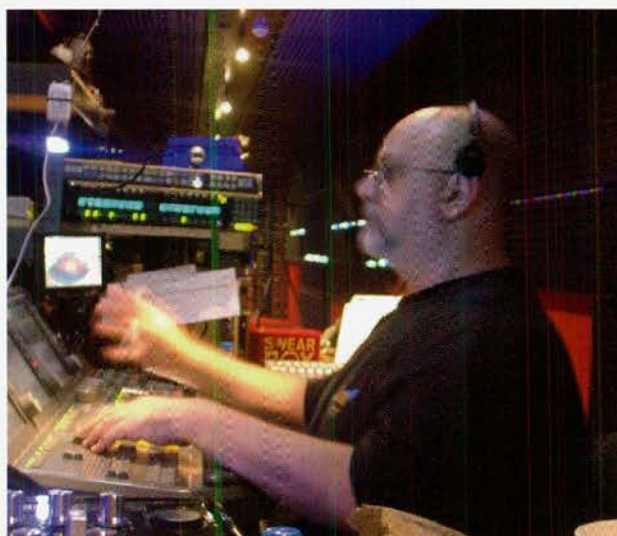
One design decision that was taken early was where to put lighting control. Francesco vetoed having it up the top of the audience riser next to audio, because he didn't want to see the set. Plus he says he didn't want a lot of creative suggestions being made, a product of being accessible to all the crew and management.

Which is why the lighting is driven from a blind hallway high in the venue, a bit a very nice hallway complete with temporary mood lighting, and lots of empirical support equipment. Like a coffee machine.

"I don't want to be distracted by being able to see the set," he says. So the show is monitored on screens – a high def monitor showing what is going to air, plus a screen onto which any camera can be switched. Then there are three little screens each connected to a \$30 camera set high in the rig. These are Francesco's locked off long views.



Main TV feed is the HD screen at bottom, the screen above can be switched to any camera. The little screens show the \$30 webcam images that Frank needs!



Calvi at the desk!

## INSERT A LOT OF LIGHTS

There are a lot of dimmers, cables and dmx everywhere, plus four followspots which generally always light the performers. "Someone called Julius gave me some advice when I was starting out – he said 'light the money' and that's what I do," Francesco explains.

A GrandMA is the lighting control desk of choice, with a backup console available if the unthinkable happens. The lighting has a backup generator as well, since the word 'blackout' is not compatible with live TV. And the second weekly TV show, the elimination round on a Monday night, is mainly live to air.

The lighting crew number three plus the follow spot operators. Francesco is assisted by two associates: Johnnie Earton and Chris Dodds. They had around 2 weeks of rehearsals and technical days to get the thing bedded down in early February. Then the season started and straight away the ratings were great.

The difference between good ratings and bad ratings can be felt on the set. "It's bad there are people looking at everything, tweaking, and analysing everything. Looking for faults. But if it's popular, everyone wants to be a part of it!"

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Photo by Jason McCormack courtesy of Network Ten

Each week settled into a routine that started with a Wednesday where the next show would be blocked in. With up to 15 routines, costumes that needed to be appraised for lighting, and moods to be established, this became a six to eight hour working day.

Thursdays are rehearsal day for choreography on stage, so there is time to make lighting states but there are no followspots. The day runs 10am until around 7pm.

Fridays are the big ones: a full dress rehearsal in the morning, then with follow spots, then the show is recorded from 4.30pm. The day ends around 10pm.

Saturday is a day off – the show is shown on Sunday night in Australia.

Then on Sunday there is a rehearsal for the Monday night elimination show's group dance number. This is shot on Monday afternoon and pre-recorded, along with the visiting band segment. The elimination show is then run live on Monday night, with the group segment and the band segment stripped in from the afternoon shoot.

Tuesday is the second day off, then it all starts again.

Francesco singles out for a mention the head of wardrobe: Janet Hine.

"I've worked with her before." Those who watch the show will recall a dance where the male and female were in camouflage outfits, doing a kind of bug or animal dance. The lighting of this was right on the money – it's when I decided to write this story.

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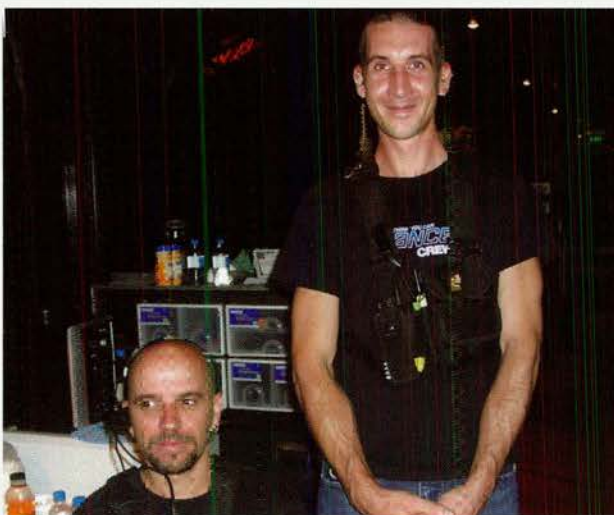
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Johnnie Barton and Chris Dodds (standing) Associate lighters to Mr. Calvi and both also working on new gigs for The Bcss.



Brad Garner, Frank Calvi and Tony Davies.

## THE SEASON

The crew say this fourteen weeks is better than a theatre season, because there is change every week. New routines, variety. The vibe is interesting: "It's really positive, because (these) dancers work together whereas singers (like on Icol, another Francesco show) are solcists."

I'm struck by the mood as I walk around. The dancers are relaxed and out talking to the studio audience. There is an absence of the ridiculous camp drama queen stuff you get backstage at some theatres. If there are prima-donnas here, they are away when I visit.

Then there is the catering. TV is a place where people are fed, and this show is a place where people can be fed twice at the same meal time, because Francesco's crew operate a black market BBQ outside. It isn't that they dislike the catering, it's just a lighting thing.

"We enjoy a sausage" says Francesco gnawing into a chocolate bar between takes. "In fact yesterday we had chicken, sweetcorn and honey mustard gourmet sausages." The alfresco lighting food court area has attracted its share of talent and visits from management, most of whom can rely on a feed. Followspot Operator Number One also has a dual role as Chef Number One, with a weekly roast special going under the hood. This is cut onto pita bread wraps.

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|                           |   |
|---------------------------|---|
| Jands F-P12 x 2.4k Dimmer | 8 |
| Jands HP6 x 5k Dimmer     | 8 |

### POWER DISTRO

|                           |   |
|---------------------------|---|
| 12 Channel x 16 Amp       |   |
| Rack Mounted Power Distro | 8 |
| Powerlock- 3 Phase Distro | 8 |
| Mains Cistro to Suit      | 1 |

### FOLLOWSPOTS

|                             |   |
|-----------------------------|---|
| Lycian 1.2k HMI Follow Spct | 4 |
| Lycian Medium Throw Lens    | 4 |

### SAFETY KITS

|                            |    |
|----------------------------|----|
| TRUSS SAFETY KITS          | 3  |
| Truss Ladder               | 3  |
| 2 x 13.5 MTR TRUSS         | 1  |
| 2 x 10 MTR TRUSS           | 1  |
| Horizontal Truss Lines 30m | 13 |
| 2 x 7 MTR TRUSS            |    |
| 8 x 9.5 MTR TRUSS          |    |
| 1 x FIBRE SYSTEM           |    |
| 2 x TOP MOUNT SHORT THROWS |    |
| Full Arrest Blocks         | 3  |



Audience line up in the foyer at Carriageworks.

Are there other benefits? "It's not what was in the brochure," Francesco complains in a joking way as we talk about the pervy of attractive women who do not seek out the lighting crew.

## THE WRAP

Finally Francesco explains why he prefers to obtain lighting equipment from Chameleon. "I've known Tony Davies since I worked at Graftons and he was at Lightmoves," he says. "They know how I work, they are really supportive and they work with me. Nothing against the other lighting

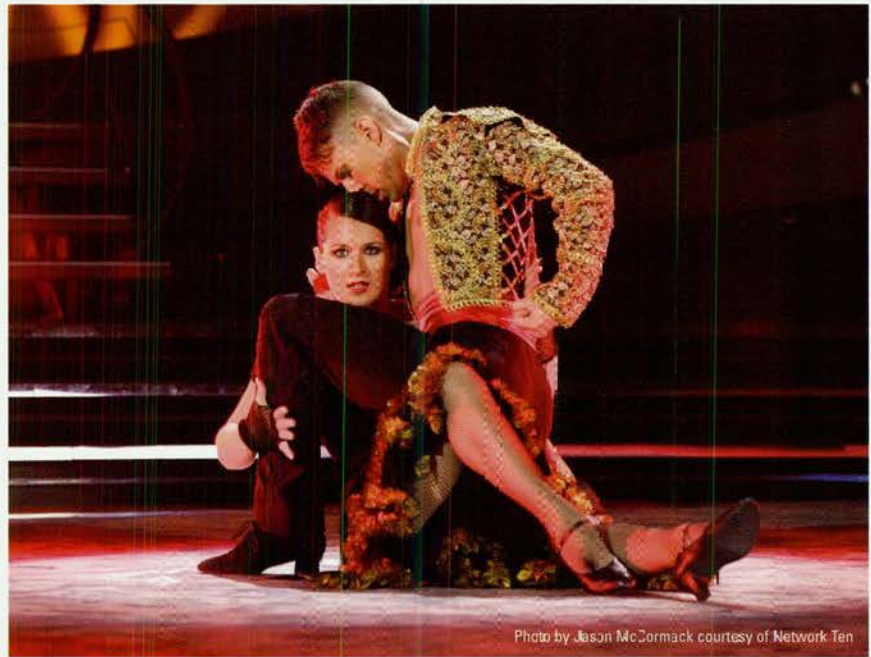


Photo by Jason McCormack courtesy of Network Ten

companies, but price alone is not a reason to change."

It is clear that professionalism, personality, efficiency and creativity have all fused together into a lighting team that produces a look for every segment, on time, and without keeping the rest of the production waiting.

Except for one moment: "We need to block Natalie through the next segment," says the voice through the comms. "Just wait five, I need to do a wee," says Francesco, laughing as he runs off.

They wait. There's almost no one else on set. Natalie can wait for Francesco. He's that kind of guy. **CX**

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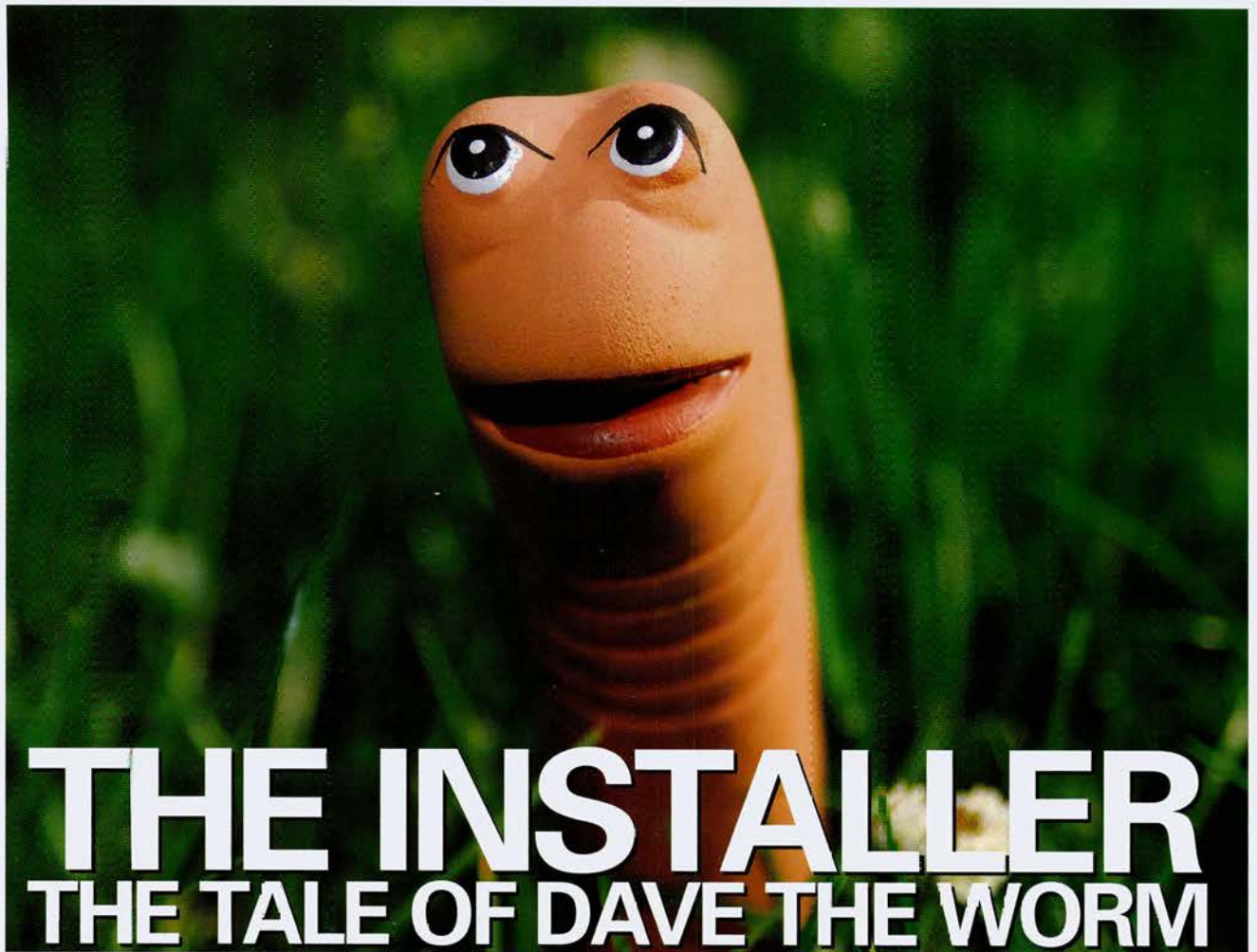
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# THE INSTALLER

## THE TALE OF DAVE THE WORM

Installer is active somewhere on the continent of Australia. He prefers to be anonymous lest some of his clients or suppliers get more gnarly than usual. This is his cosmic tour of strange people he encounters on the job.

Every larger installation company has a star installer. Curs is Dave the Worm, so named since he is happy to wriggle through cavities that most of us won't fit into. Because Dave is skinny. Hercin Chic kind of skinny, but more like Tapeworm skinny. I suspect the latter.

His diet revolves around nightly bongs and really cheap takeaway like Kebabs and non chain fast food. For some reason he doesn't get sick, and is always standing on the corner where I pick him up, at 7.05am. Dave has a happy disposition and a friendly chatty nature which grates a little when you are sweating at the top of a scaffold trying to hold a projector bracket with Dave's smelly armpit in your face. And he is rabbiting on about how some club has a biker in charge of security and how the manager is bawling the receptionist behind his wife's back, blah blah.

I've nurtured Dave since I can

depend on him. I know his vices, and I quite like the kid. But from time to time he skates close to the wind because he is a kleptomaniac. Stealing from other trades is not on, nor is pilfering other parts of the job.

The thing that gets me is that Dave will try to purloin (steal) things that he doesn't need, and has little chance of selling. He just can't pass up an opportunity, and has no apparent guilt when caught. Usually by me.

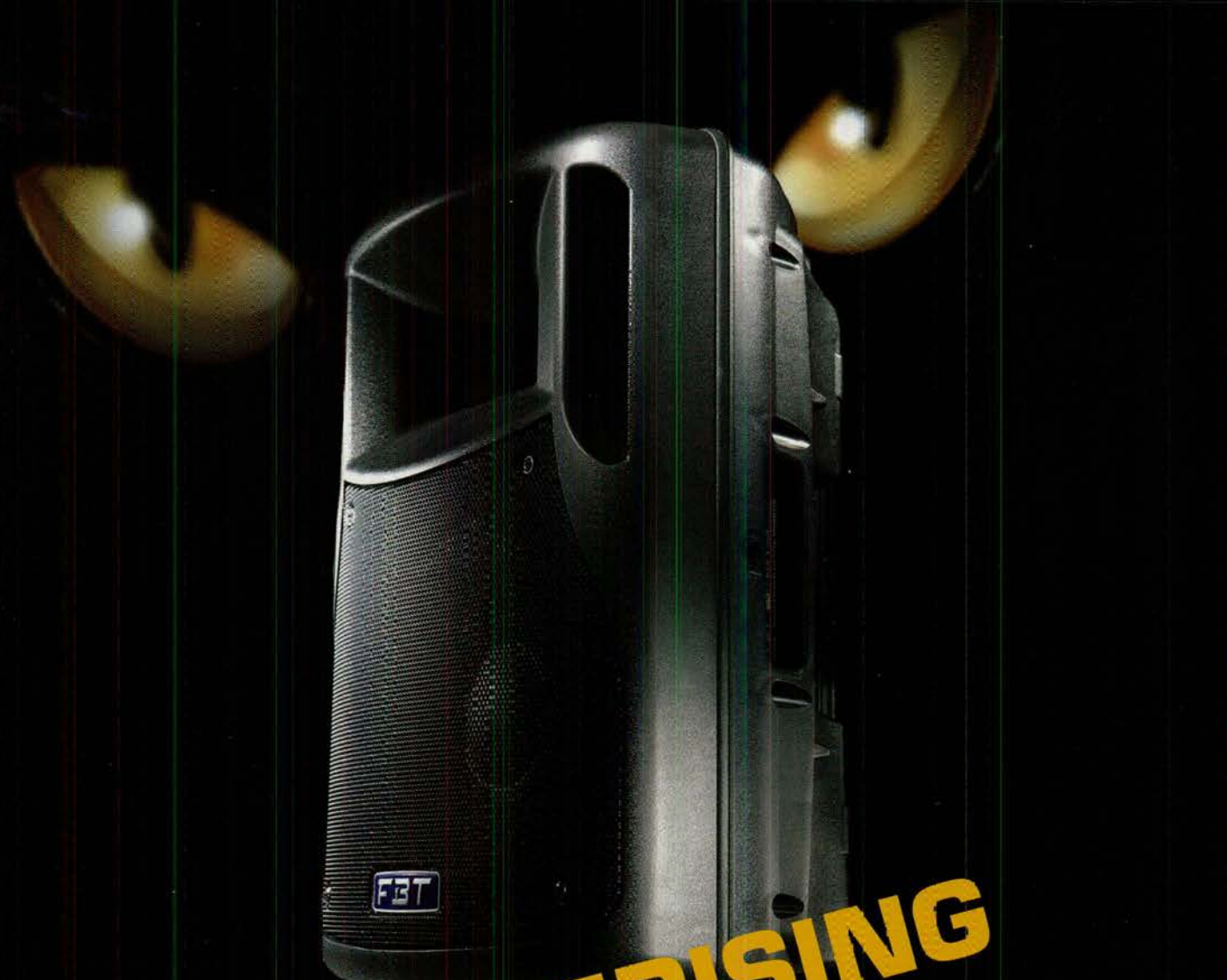
It had to stop when I was caught returning a carton of washroom taps to the site - I had to fudge a story that we had somehow managed to load them into our van in error, despite our work area being nowhere near were Dave 'scored' them.

We use Dave to great effect when we play sales rep shuffle, because Dave can lie directly without blanching. Even his mum can't know what is real and what is a fib. He tells her he eats his lunch, whereas every day he makes a big show of hurling the lovingly made

Bologna and Pickle wholemeal sandwich into the bin, before trowling four dollars worth of chips and gravy. Keeping his worm busy.

Dave is the guy in charge of ridiculous but plausible explanations when we've trashed, fried or shorted out a new device through either haste, ignorance or plain stupidity. He spent most of a whole afternoon carefully drying out a rather expensive small format digital mixer that we'd blown up by crowning with a litre of spring water. The bottle was perched on top of the adjoining rack. It gets hot on a building site!

With this one, Dave was able to solemnly declare to the harassed rep that the thing was DOA out of the box, and get a replacement. He was good at this, and also good at pulling down equipment and reassembling without trace, since the warranty cops usually look at the thing through a magnifying glass to try to prove exactly what we were usually avoiding. Liability. 



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# HISTORY

It messes with my mind reading through the archives down in the basement. The candle burns low and the Gimp grows restless in its cage as I grimace at the spelling, and squint at the crap photo reproduction. I hit the cage with my truncheon to silence the whimpering.

The bottle of Southern is empty, but comfort is absent.

Dust and mould is everywhere, the cold seeps into limbs scarred from bygone road battles. My bifocals fog from my labored breathing as the floorboards above creak. It is Mackenzie, enquiring with a trepidacious tremble in his voice down the ladder whether the old fart has finished the History pages for this issue...

## 15 YEARS AGO CONNECTIONS MAY 1993

### Angry Man

We reviewed the Aphex Type C enhancer, and because of concerns sent the review to them for a look beforehand. This is what the angry guy at Aphex had to say:

"It was highly irresponsible of the magazine to let people who don't read the instruction manual review a product". It got more intense: "The reviewers should disclose their methods ... This was not done for two reasons – incompetence or they were trying to discredit the company."

Fifteen years later, the review still makes sense (it wasn't THAT bad), and the angry man still looks angry. Then and now we refuse to run gratuitous reviews where the

outcome is always that the device is terrific.

### Disaster

Oh joy – a story of The Great Tivoli Disaster of '85.

Something about a product launch for the Renkus Heinz 'Smart' System in Sydney where the curtain rises and the band materialises through the smoke and lights and then the PA blows up. It didn't actually blow up, it just sounded like it. Blame the keyboard mains plug working loose.....

### Thunder

From Downunder. Not a dry seat in the house, according to Cat Forcer who forced herself to review a male strip show. Who says a techie mag needs to be boring?

### Departments

Gee Connections was a busy magazine back then. We had a crossword by The Punter, aka Robert Young at Jands. A cartoon strip, Join the Dots competition, and then there was egalitarian corner where battling lighting distributors wrote a column all about how great their stuff was.

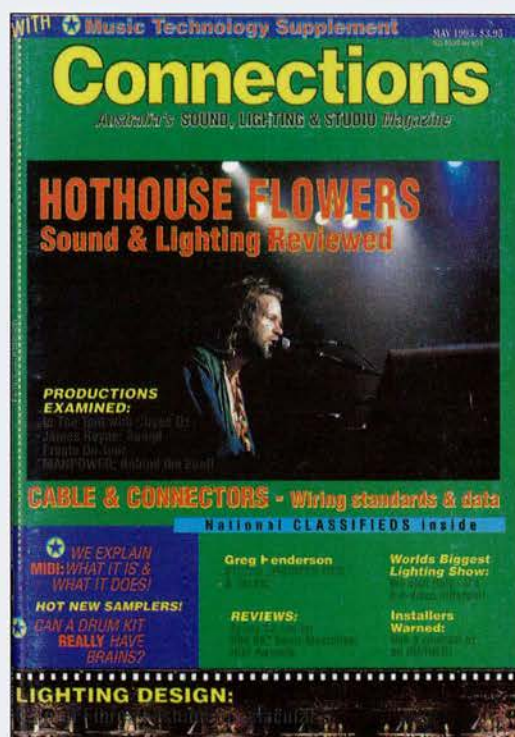
The National Tracking Guide detailed who was recording in which studio – pages of it. Example: Black Sorrows at Metropolis. John Farnham at Gotham Audio. Tina Arena at Studio RBX. A written tour of defunct studios!

### Cable Topics

Hmmm. A good idea for a story in 2008! We asked different peoples which cables they used and why. CLS preferred Olfex, in fact all the brands mentioned live on today. Watch CX for something like this.

### Rimini

Back in 1993 the lighting biz tended to look to Rimini in Italy each year for a window to what would happen next. This was a most exotic trade show destination, a seaside resort even if it was the off season and the weather was cold. Connections was



there, on a junket kindly arranged by the Italian Government who were excellent hosts.

### Go Figure

700 punters paid \$5 each to see new stuff at a high tech music show in Sydney hosted by Bava's Music at Parramatta on a Sunday. You couldn't get 70 people for free at a showing of this stuff in 2008! How times change.

### WHAT THINGS COST:

- AKAI DR-4 hard disk recorder. 4 tracks, UNDER \$4,000 from Australis. Wow.
- Mackie 1202 mixer: \$1149 from Anything Audio.
- Geni Strobe \$999 from the DJ Supply Co.
- Alloy tri-truss, 2m length \$350 from Collins & King, triggering a design dispute with CLS.

## 10 YEARS AGO CONNECTIONS APRIL 1998

### 24 Bit Entech

April '98 was the third year in a row – and the last – annual ENTECH. It

ran Sydney 96, Melbourne 97 and then here. The show would not return again until 2000, and remains every second year since.

### Oasis

They were too loud. Liam trashed his microphone every night. The monitor engineer had 17 wedges from 12 sends on a Yamaha PM 4000. What a nightmare.

### New Lights

The MAC 250 arrived for ENTECH, as did the High End System's Studio Spot. ULA announced they had taken on the AVOLITES agency, a good move. As it was April, and the mag came out on the first day, Jands decided to launch the Valvo Dimmer. This innovative product borrowed a little from Spinal Tap, and came in a rosewood cabinet. Strangely they got some orders for this thing too.

### Pacific Goes 10

Selecon did a major launch of their Pacific range at ENTECH, the most significant development yet for those esteemed Kiwi makers of stage lighting.

### Evil Empire

Haycom CEO Allan Hay was vocal about The Evil Empire, aka Staging

Connections, locking his firm out of some hotel convention facilities. He claimed that he was forced to pay a \$500 fee, plus \$50 per hour for a supervising tech, and that the arrangement was a restraint of trade.

This issue bubbled and fizzed along for years, in other states of Australia as well, and eventually the competition watchdog ruled that a Hotel was perfectly within its rights to write a clause into its venue hire agreement that required hirers to use house audio visual services.

### Digital Mixers

Spirit Digital and Yamaha 01V were both reviewed and came up not too shabby. But it has taken quite some time for digital live mixing consoles to really 'arrive' like they have now.

### KF860

Yep it was first of the line arrays, and funny enough this was the cornerstone of the Sydney Olympic ceremonies audio which we talk about elsewhere in this (2008) issue of CX. EAW were there first.....

### and also...

Allen and Heath launched the GL3000 mixer. Ramsa birthed the DA-7 which was hot competition for Yamaha's



02R digital mixer. Both are now long gone: Yamaha won that battle 99 to 1.

### WHAT THINGS COST:

- Soundcraft Series 5 mixing console: \$150,000 or so.
- Dual dbx third octave equalizer \$1995
- ProLite Series III 650w Fresnel \$175
- ETC Source 4 Par \$459



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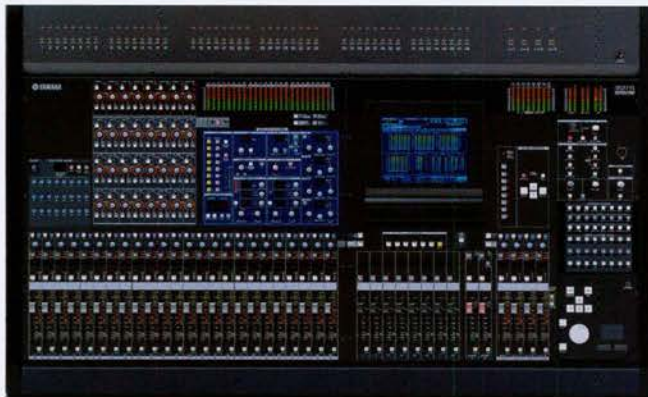


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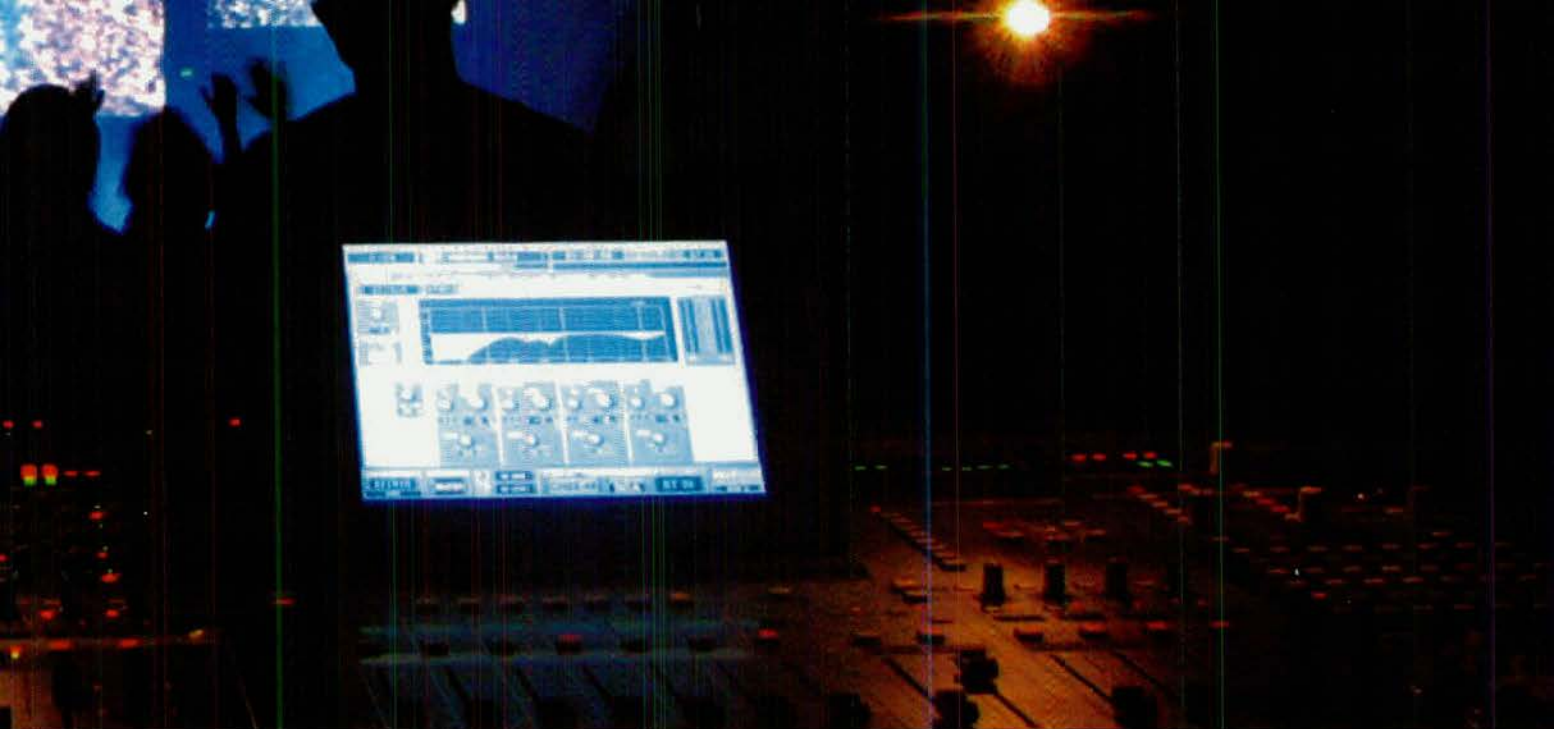
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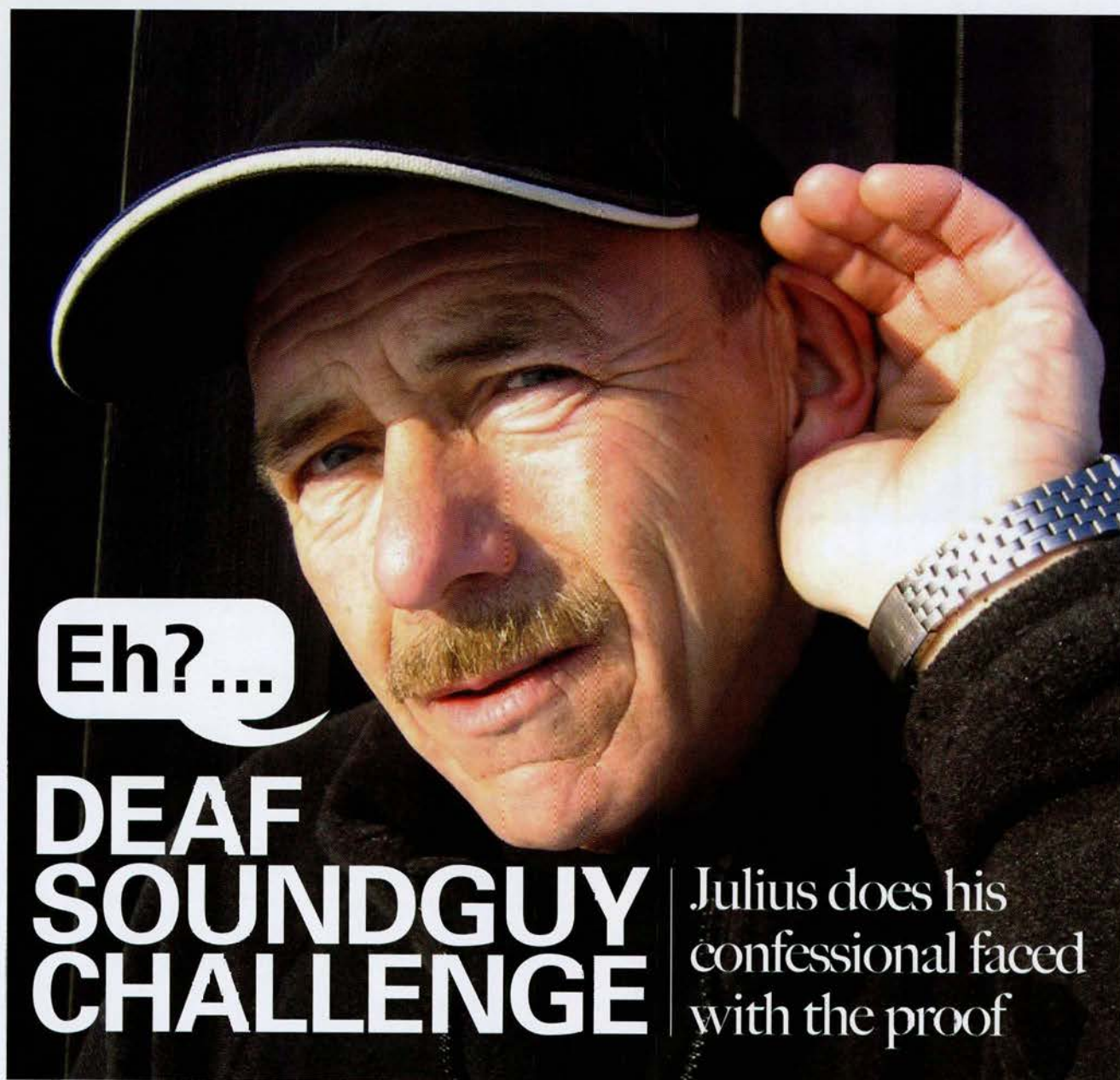
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I'm the only working live sound engineer anywhere who is prepared to admit: my hearing is faulty. I happen to know there are some live sound engineers out there with my condition. Because I can hear what they are doing.

Back the truck up to 1978. I was doing the rock band thing and not wearing hearing protection because it was for sissies. But even then, some of my colleagues were mixing too topky. When the JBL ring radiator (model 2402) arrived, we had a way to reproduce yet more high frequency material, the stuff above 8,000Hz or 8kHz. The ring did it in spades, and suddenly there was more sizzle. In some cases too much sizzle – it was too topky, or expressed another way: there was too much top end.

The engineers mixing too topky were already suffering high end loss, which I now have in measured doses. That's what this story is about. If I go to a show and I have enough top end in equal measure with the rest of the mix, then it's just too topky for everyone else in the audience.

My mixes are calculated to allow for my hearing damage.

Last issue James Den-Ouden (Jimmy D to his friends because the Dutch surname is too hard) had his hearing tested. Along with his mate Dribbles. Jimmy is aged 30, Dribbles is 20. They came out OK. In a moment of mischief he wrote in the article that I would have my hearing tested, and I didn't read the procs in time to stop the madness. Bad boy is he. So I reluctantly went and had a scan.

The audiologists at Northside Audiology in Sydney's Chatswood did the standard \$110 test. If you have a referral you get half back off Medicare. It was as Jimmy described: a pulse test for eardrum impedance, and then headphones on for some tones and words. Twenty minutes later the tester (Steve Reinhardt, qualified audiologist) printed out the results.

The scan is here for all to see. I am possibly sacrificing part of my reputation as a sound guy to show you how it is for those of us who don't wear hearing protection, or those who don't wear enough hearing protection. I am aged 50, and copped it as loud as it would go for a long time.

My hearing in both ears is down around 5dB from 3kHz and upwards. Which means I don't get anywhere enough sibilance, or sizzle. I am half way to a hearing aid, because with random words I am not properly hearing some of them. When my lovely wife Karen says 'Garbage' or 'Lawn' I so do not hear those particular words. In actual fact, I only properly hear 95 out of 100 words. I always hear 'beer' and 'gorgeous'.

I knew this anyhow, because at the college here we play with frequency scans, and the students hear stuff I don't. You can kind of discern the problems when you get used to listening.

When I mix shows, which I do several times a month, I mix less topky than I like, because I know (I knew) I was losing tops. I like to think that my mixes are pretty good – I sure do seek input, and I get told things like 'too much reverb on the vocal' or 'not enough kick' but never 'it is too trebly'.

So it's out there and now all you golden eared people will remember why I said at the time of the loudspeaker demo that my hearing isn't magical, so I don't comment on nuance and subtlety. That's for others.

Does this mean I am not as good a sound engineer as others? Not necessarily, it just means I am honest. 

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# PROFILE: MICHAEL QUINN



## What do you do?

I'm the Production Manager and Audio engineer for Revesby Worker's Club. I also do quite a lot of freelance lighting and audio work.

## How did you get to where you are now?

As with a lot of long term industry techs, I came to do this work mainly by accident; I arrived in Sydney, fresh-faced and full of big ideas in early 1980, looked for work in the paper and ended up working at a place called United Sound film studios who mainly edited film audio – they were running the rushes of the love boat!

My job was to thread and sync 13 2-

track tape machines, which for the 15 year old know-nothing I was at the time, was about as taxing as I could handle.

Not too long after that, I discovered the delights of the Manzil room (a wonderfully dark and filthy nightclub in Kings Cross which has long since passed).

The resultant hangovers made sure my tenure at United Sound was to be a short one; Luckily, I'd made friends with a man called Ian Rilen who gave me a job working for his band at the time – Sardine V. From that point onwards, with the 80's being as busy as they were, the work just kept coming – 28 years later, I've

realized that what started as a short-term solution to unemployment has kept me pretty busy for quite some time!

## Who has really truly inspired you, and why?

There have been way too many amazingly cool techies over the years to name, but the most impressed I ever felt about lights was the Australian opera season I worked on at the Victorian Arts Centre – Previously, I'd never seen the kind of subtlety or power that was possible with lighting.

I can't state strongly enough how much I've learned from watching

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older, more experienced techs and asking the right questions – Is someone doing something differently? – why?, How does it work? Etc.... The black art aspect of both audio and lighting is something I both revel in and deplore as it ensures work, but makes very difficult to replace people when required.

**Is there a gizmo, product or device that has changed your working life?**

The devices that have changed my working life most up until now have been moving lights. Ironically, I'd stopped operating lights and was doing all audio work when I found myself operating a fairly large, complicated moving light show for the first time – never having used any of the equipment before! After a very short crash course on the Wholehog 2 ( thanks Rob Easton), I've never looked back. Now, that skill keeps me working regularly either operating or teaching. Without moving lights, I imagine I would concentrate exclusively on audio work. (I'd gotten unspeakably bored with conventional lighting).

**What are your hobbies/interests?**

Sadly, my hobbies are mostly musical (bass, guitar, songwriting etc...) – no escape from the industry hahaha. – I even play with audio quite a lot at home!

The sanity comes from escaping to the bush for short periods (whenever there's a long enough break)

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

My family is quite spread out - one brother and kids in Perth; another brother and kid in country Victoria, not too far from my mother; father in London. I think like most families, we get on best when we only see each other rarely.

Nearest and dearest – Zorro the cat – apart from all my clothes looking like mohair unless I use gaff to take the fur off, he's about the easiest flatmate I've ever lived with.

**What do you see as significant trends in your sector of the industry?**

The current trend of the industry to use more training can only be a good thing – how many people have we all

worked with whose skills were less than advertised?

The approach of learn as you go has produced some incredible techs but also produced a fairly large amount of people who may have the talent but are lacking skills and training to realize this talent. Another issue in the past has been that while some skill levels are extremely high, a huge amount of these skills and techniques have been lost as people have left the industry – now we have the chance to codify and pass on some of this knowledge base that in the past would have been lost.

If experienced techs train new techs we'll have some kind of standard to start with.

A bonus for production or event managers is that the pool of competent techs is growing. No more long, painful explanations as to why Mr CEO spent the first 5 minutes of his speech in the dark or why the power point presentation was missing its audio.

Another current trend of the industry that I'm not so impressed with is the overuse of technology to hide a lack of skill – from an audio point of view the excessive use of inserts, effects and EQ just muddies the picture, all I can keep repeating is source, source, source – If your initial signal is good you don't need even a half of the commonly used gadgets.

Don't take me for some kind of weird dinosaur luddite, I'm embracing the technologies that I find are improving the overall job quality, it's just that with everything I've done in the audio field, I've noticed this one thing on nearly every show – more electronics = less fidelity. That does NOT mean use no inserts or effects, it simply means use what's required for the specific application and try to limit the devices in the audio chain.

Basically what I'm saying is use your ears and your brain – what do I want to do with the signal and can it be done another way? (ie mic placement).

Don't fall into the habit of always doing things exactly the same way – the live music world is way too dynamic for a single solution that suits every application.

Another interesting thing I've seen recently is the ridiculous situation of having top line systems like d&b and Nexo with an atrocious source (\$50.00 mics) Wakey-wakey – all

you're doing is making something bad louder in a very efficient way! If, for example, there is no bottom end in the signal, an EQ is NOT going to add it. The quality of the source is essential to audio - don't try to fix it, just get it right at the source.

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

There's never been a particular industry guru that I've wanted to meet, rather, I've tried to take the best of what I've see everybody do and learn from other's mistakes as far as possible – don't be shy about asking why someone is doing something in a particular way or what mics they use etc; a multitude of situations produce a multitude of solutions and if I can pick up any new techniques to make my job easier and more efficient just by asking a few questions, I will.

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

There would have to be at least 1 for every year I've been doing this work; unfortunately, a huge percentage of them are not fit for publication but touring with a mellotron sticks in my mind as mind as one of the weirdest.

For those of you who don't know, a mellotron is a keyboard type device with a bunch of tape loops attached to the keys – a kind of primitive sampling keyboard – the band I was touring with (Uriah Heep) had some of their latest album's backing vocals on it, amongst other stuff.

This particular machine takes great umbrage to being transported in any position but upright, so as we were packing cases for a flight to Alice Springs, we decided to try to fool the airport baggage handlers into transporting it the right way up by marking the case upside-down(a lot of crew will attest to the fact that, to the airport baggage handlers at the time, "this way up" actually means this way down)

Well, Trying to outsmart the system almost worked – when we got to Alice Springs, every single case came out of the plane with "this way up" pointed firmly to the ground, except the one case we'd deliberately marked wrong – the mellotron – much fun was had by all with the resultant tape tangles. CX

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Ian Brown and Michael with the tender truck



# WHAT'S IN A TRUCK?

We've all seen OB trucks at various gigs around the place, but what's inside and what it's for is a mystery to many production people. CX sent James Den-Ouden to find out once and for all what makes a serious OB wagon.

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Vision for live events usually serves one or more of several purposes; most commonly television broadcast, big screen feeds or recording the event. These can be done with the vision equipment most readers will be used to, but there are limitations. For starters a vision system is often a very complicated thing, and just getting all the gear into the venue can be a battle in itself – then you have to make it work! These vision systems are typically called “fly-away” kits, although that name implies that the kit has been purpose built. “Fly-Away” generally means lots of boxes that can be transported by plane or courier or in the back of a van. Just as often as not we find ourselves piecing together a vision system out of various bits of gear when we get to the gig.

There is a simpler solution – park the fully built and tested vision system outside the venue and just take the cameras inside: bring on the outside broadcast (OB) truck. Simply put, an OB truck is designed to provide multi-camera video and audio coverage of an event and either record this output, or send it to be broadcast live to television. The feed from the OB truck can be sent out on an optic fibre where such a facility exists, or alternatively by satellite uplink truck. It's uncommon for entertainment venues to be equipped with a video production facility, so most live concerts and sporting events (and in fact anything not done out of a studio) will be brought to your television by an OB truck. These trucks are available in a number of sizes and flavours, from small to large, analogue to digital, 4:3 to 16:9, and standard definition to high definition (HD).

How much truck you need varies depending on the size of the show you intend to cover and the budget. A pub gig will probably require a smaller truck than the Olympics, so a good guide would be to consider how many cameras you need and find a truck that caters to this requirement.

## SERIOUS TRUCK TIME

I went to a Fox Sports OB at the Sydney Football Stadium to see zer01zer0's truck, Digital 1. It's a 16:9 fully digital OB truck, built into a semi-trailer and hauled about the country by a Volvo prime mover. It's something of an imposing beast, and when you look at the specs you'll



What you need to tow a big OB truck!



VUA 2 & 3



Welcome to broadcast land!



D1 with side expanded - radio base stations under the stairs

understand why. The trailer has a dual axle unit, and has an expanding side (kind of like the truck in “Universal Soldier” but without all the cyborg dudes) to increase the internal space. Much of the engineering involved with the expanding side had to be invented along the way. The truck is divided into several sections from front to back: audio, control A, control B, VTR, engineering, and CCU.

D1 is one of the most significant OB trucks in Australia. zer01zer0 is owned by Harry Michaels, and is one of Australia's leading digital video providers, and D1 is a reflection of this. It's worth noting that D1 is a

very comprehensive truck and while it would be easy to fill the whole mag with info about it, sadly we don't have the space. Here's my best attempt to give a reasonable overview:

Control A – the place where the director, director's assistant (DA), graphics operator, vision switcher, and producer all work from. The director calls shots to the camera operators, and the vision switcher operates the mixer to put these shots “to line”. The producer watches over the whole process. D1 has always been a digital truck, and has recently been upgraded with a Sony MVS-

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D1 - tapes and replay server control



Karl Cooper in the Audio Control Room

8000G vision mixer, which is HD compatible. The production area has comprehensive monitoring and communications facilities, so from here everyone knows what's going on all the time. The thing I noticed about this truck is that it's very swanky. This is not your normal outside broadcast truck. It feels like you're in a studio control room with all mod cons and looks the part. You feel like someone is going to offer you a cappuccino. In fact, someone just has - the truck has a cappuccino machine as well.

Control B is a smaller cut-down production area, which can operate in conjunction with or completely independently from control A. Control B has a smaller panel to control the vision mixer, as well as monitoring and a Yamaha LS-9 32 for audio control. A second complete control room isn't a common find in the world of OB trucks, and adds another

## CREWING AN OUTSIDE BROADCAST

Having a truck is great but it's only half the equation, the other half is the crew. Here's a run-down of the basic crew structure for an OB.

- Driver - makes sure the truck gets to where it needs to be on time. One for every truck on the job.
- Technical Director - Looks after patching cables, arrangement of monitors in presentation, and initial camera level line-up. During the event they'll also look after controlling camera colour grading and signal routing.
- Tech Manager - liaises with the client and ensures their expectations are met.
- Broadcast Engineer - familiar with every aspect of the truck's construction and operation. The one person you actually want to see doing no work, because if they're working it means something in the truck's not.
- Cablehands - These guys work hard! While not much equipment goes out, there's a lot of cable and these people are the ones who manage it. Usually around four cablehands will be required for an 8-16 camera shoot. They also act as cable assistants for handheld cameras.
- Camera Operator - Pretty self-explanatory really, though you might not know they're commonly

known as "fighter pilots". Point, zoom, focus!

- Audio Director - The AD pans audio for the event and usually mixes the show. A big part of the planning is channel allocation and interfacing to the comms system. Whereas live mixes usually cater mostly to mics TV mixes involve a lot of VTR replays as well. I watched the show being mixed it's truly astounding how fast everything happens in audio.
- Audio Assist - Usually minimum of two (commentator's box & field) for sporting events. The AA's look after rigging microphones in the venue and on presenters, changing radio mic batteries, distributing IFB's, and all the other stuff you can't do from inside a truck.
- Comms Tech - Responsible for initial setup of the comms system and FF rack, and interfacing the system to all external parties (usually broadcast operations).
- Director - Calls the show, the camera angles, and when to switch to them.
- Director's assistant - The DA keeps track of timing and liaises with the broadcast operations centre regarding ad break timing. Most often the DA also looks after scoring and graphics for sporting events.

- Graphics Operator - Controls the computer which generates the on-screen graphics which are superimposed over the images from the cameras.
- Switcher - Operates the vision switcher - some directors will switch the show themselves.
- Producer - Oversees the whole production.
- CCU Op - Usually there will be one per two to four cameras depending on the event. They are responsible for maintaining consistency between different camera images for the duration of the show. This job requires a lot of concentration and quick reflexes!
- VTR Operator - Number of VTR operators will depend on the nature of the event, but typical sporting events would use around four. The EVS servers are always recording, and the VTR operator can re-wind and replay at any point in the show as per the director's instructions.
- Floor manager and Assistant floor manager - these folk interface with the director, producer, and the on-screen talent. There's normally one of each.

So all up that's around 36 crew, with about half of those working inside the truck.



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Briony John (Audio Assist) with field mics



Long lens camera in position

dimension in versatility to D1.

Moving right along, the next section of the truck is VTR. Although VTR is short for video tape recorder, D1 not only has tape machines, but also EVS video servers. We featured the Grass Valley Turboc a few issues back, and the EVS server has some commonalities with this but is a much more advanced video server. These are the machines which provide the instant replays you're used to watching of players scoring goals at the footy and so on, and they also handle the super-slow-motion replays.

Behind VTR lies CCU operations and engineering. Broadcast cameras run on triaxial cable, which not only carries images and power, but also comms and data to control the camera remotely. The CCU operators manually adjust the colour grade, black and white levels on each camera so the pictures match up with each other. Typically one CCU operator will look after two to four cameras, depending on the event. D1 supports up to sixteen triax cameras,

as well as six effects cameras (think of drummer or dressing room cameras).

Engineering in D1 is a rather serious affair. A large chunk of the weight of the truck is the 17 kilometres of cable which are threaded through it. Dual air conditioning plants (26 horsepower each) provide enough cooling inside the racks to ensure optimal operating temperature for equipment, and they'd keep your can of Red Bull cool too. That's really cool. The truck normally operates off two 32amp 3 phase outlets (including the air conditioning). That's less power than two dimmer racks use. There are racks upon racks of video distribution amps, processors, patchbays, and a very tidy power distribution system.

The audio control room is mostly occupied by a rather large Calrec console, with Genelec monitoring and a very respectable pile of outboard gear (Sony FX, Calrec dynamics, ClearOne Hybrids... Trust me, it's a nice list). External audio cables run into the truck through a porthole into

## SO WHAT'S WITH THAT OTHER TRUCK?

Obviously D1 is a very large truck, but despite that it's not large enough to carry all the other associated equipment required for an OB. A separate tender truck travels with D1 and carries all the equipment which doesn't live in the broadcast truck itself. Anything heavy has wheels, and the tender truck has a tailgate lifter to make light work of the load-in and out. This includes:

- Cameras and a variety of lenses ranging from small to very, very big
- Triax camera cable, audio cable, cat5 cable, power cable and of course vision cable. Long runs generally live on rollers to enable easy handling.
- Monitors, used in the venue to allow on-screen talent to see what's going to air.
- Commentators' boxes – primarily used for sporting events, these devices allow the commentators to talk to the director without their mic going to air. There's also a button to push when you need to cough!
- IFB units – IFB is "interrupted foldback", and used by the on-screen talent to hear the show as it goes to air, as well as hearing instructions from the director, and other on-screen talent. Especially important when the talent has to interact with others in a remote studio (news crosses and such).
- Microphones – Broadcast applications typically use a lot of tight pattern condenser mics for crowd effects, and fewer dynamic units which are primarily used for interviews.
- Headsets, RF rack, radios, batteries and chargers. These all form part of the communications system which is integral to the OB.
- Various other cases with batteries, mounting brackets, antennae, crew passes, and other sundries.

audio, and connect to a patchbay which is tidily hidden within a cupboard. Also in audio you'll find the communication system matrix, which is a Clearcom Matrix 3 Communications in broadcast land

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Oct 3, 4, 6.

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July 1, 2, 3

**Lighting Basics:** (3 days)  
July 4, 5, 7.

**Video Basics:** (3 days)  
July 8, 9, 10.

**Certificate Three:** (2 weeks)  
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### BRISBANE

**Stage OH&S:** (1 day)  
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is quite different to what you'd expect to find on a live event. Different people need to talk to different other people, so a matrix system is needed. Thus the director can be talking to the camera operators, while the audio director talks to the audio assistants. The communications system in D1 has 72 ports, and you can route conversations between any or all of those at once (point to point or party-line). The system also ties in with audio to allow signals to and from the console to be routed in and out of the matrix. Four telephone hybrids allow external parties (eg; broadcast master control) to appear on the comms panels as well. Different panels are customised to their operators and have different keys on them – for instance the director is unlikely to need to talk to the audio assistants, but the audio director will.

## GETTING IN AND OUT OF THE TRUCK

Use the stairs, unless you're a video or audio signal in which case you'll need to enter and exit the truck via one of the external patch bays. There are 5 of these, broadly split into power, vision, cameras, comms, and audio. Combine these with the internal patch bays, and this basically means you'll never need to plug anything directly into the back of a rack.

In basic terms, CCU Camera pictures all run back to the truck on triax cable, and once they pass through a CCU they come out as serial digital video (SDI). Effects cameras run into the truck as straight video then into a framestore, which synchronises these pictures to the rest of the truck and converts them to SDI. Everything in the truck is synchronised or genlocked to everything else. Images are processed by the Sony vision mixer, and at the same time an audio mix is embedded into these and the whole lot is then delivered as an SDI signal to the back of the truck. From here, the output can either be patched to a satellite uplink or a fibre link. This is basically how any digital OB truck would work.

## HOW AN OB WORKS

Trucks, drivers, and technical director arrive, truck opens up and powers up

Crew start to arrive (audio, comms and cameras), camera and audio cables run out from truck to required

locations

Cables run into tielines in venue where required

Cameras, mics, monitors, and other equipment taken out to required locations, setup, and tested

Vision link and comms to broadcast control established and tested

Director, switcher, CCU and VTR operators and producer arrive

Event starts, show goes to air

Event concludes, pack down starts in roughly reverse order to setup

The whole setup process including

testing and preparation happens in around 5 hours, which considering the complexity of it all is really fast. Come pack up time everyone hooks in and the job is done in about an hour and a half.

From the word go, the zer01zer0 team sure make it look easy. There's clearly some serious organisation and advance planning behind making it all look so simple. Thanks to Andries Theron from zer01zer0 for the tour, and to Keith Cooper from The Audio Collective for the photos. 

## SO WHAT ABOUT THAT OTHER, OTHER TRUCK? SATELLITE UPLINK: HOW AND WHY

The OB I went to watch was televised live on Foxtel. This was done by sending it out of the venue on a satellite uplink through a truck provided by Vision Uplink Australia.

VUA3 is a multi-channel carrier truck, capable of up to 8 simultaneous channels. It operates on the KU band (12-13 GHz), and can accept composite, SDI, and HD SDI signals. The truck has an internal 25kVa generator in the back, but can also run off a single 32A three-phase outlet if it's available. There's a built in air-conditioned control room complete with matrix router and audio provisions. The 2.4m Andrew dish on top is motorised and uses GPS technology to figure out which out which direction it needs to point. Tell it which satellite you want, and it will find it for you – clever eh?

Brendan from VUA has an extensive background in satellite technology, and was the first in Australia to do an HD satellite job. He explained it's possible to get a signal from Australia to America in one hop, or even as far as Cyprus without much difficulty. The signal travels very fast. The communication satellites that are used live about 34000 km away in space over the equator, not over Australia. The return trip to and from the satellite takes around 2 seconds. Add encoder delay to this, and all up it takes just under 3 seconds for the video signal to get from the truck to wherever it's being received. The current transmission standard is MPEG2. This is because satellite bandwidth is expensive. The more space is

used, the more it costs. 10 years ago, 1 video signal on the satellite would take up half a transponder (up to 24Mbit) With MPEG and encoding, the same quality picture is transmitted - top quality at only 9Mbit. Saves heaps!! MPEG4 is still under development and promises to become the new standard for program contribution.

Brendan explained a bit about how the technology works to me, and my basic understanding is this:

- SDI signals go into link truck
- SSDI signals are encoded, then sent up to satellite
- Encoded signals bounce off satellite and come back down to earth
- Foxtel (in this case) or whatever broadcaster it's being sent to receive the signal, de-encode it and transmit it on their TV platform

Of course you're not limited to one location to receive the signal. Multiple locations can also pick up the signal simultaneously, and provided they have the correct decoder they can make sense of it too!

Uplink trucks are commonly used where there is no alternative video path out of a location, or to back up a path when its important, or the existing path is inadequate. It's a lot cheaper to hire a truck for a day than to install a fibre. Probably the most useful aspect of a satellite uplink truck is that it lets you go anywhere, anytime, and send pictures back. It's not just used for sport, but also news and can even run data. Thanks to Brendan from Vision Uplink Australia.

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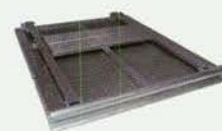
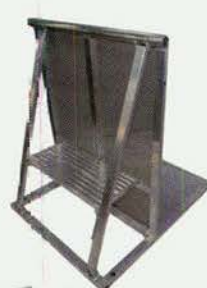
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# LIGHTING METRICS: THREE OUT OF FIVE AIN'T BAD

"I believe in the imagination. What I cannot see is infinitely more important than what I can see." – Duane Michals

By **RICHARD CADENA**

I was surprised to learn that three out of five people think I can't count, and the other three have no opinion. At least that was what I gathered from the e-mail after I wrote an article about the five lighting metrics but I only mentioned three. Apparently that doesn't account for all five.

There really are five lighting metrics, or five ways to measure light. The three that I previously wrote about were luminous intensity, luminous flux, and illuminance. Those are the most common metrics that we deal with as lighting designers. The last two, luminance and luminous exitance, are less frequently used in our day-to-day activities. Why? Because they have to do with light coming from a surface area, whether it's reflected light or generated light.

Luminance is the measure of the intensity of light coming from a surface in a particular direction. If, for example, a Fresnel produces 1,000,000 candelas and it has a 30cm lens, then the luminance, looking directly into the fixture, is 1,415 candelas per square centimeter. If it was a soft box instead and it still produced 1,000,000 candelas but it had a one square meter surface, then the luminance would be 1,000,000 candelas per square meter looking directly at the soft box at a 90° angle.

If we then stepped off to the side of the fixture and looked at it from an angle, then we would expect the intensity to drop. In fact, it drops in relation to the cosine of the angle so that the luminance is the intensity of the source or surface divided by product of the surface area and the cosine of the angle.

$$\text{Luminance (candelas per square meter)} = \frac{\text{luminous intensity (candelas)}}{[\text{area (square meters)} \times \cos \theta]}$$

The symbol  $\theta$  is the angle between a line drawn perpendicular to the source or surface and the observer. As the angle increases to 90°, the luminance drops off to zero.

The fifth metric, luminous exitance, is a measure of the total amount of light leaving a surface area. It's different than luminance because it includes all of the light, in every direction, that leaves the surface while luminance is only the light in a particular direction. This metric is similar to luminous flux except it's a measure of the flux divided by the surface area.

$$\text{Luminous exitance (lumens per square meter)} = \frac{\text{luminous flux (lumens)}}{\text{area (square meter)}}$$

Luminance is an important concept in this age of video-heavy production. The amount of light being reflected from a surface area dramatically affects how the camera reacts to it. If we have a large, highly reflective

surface on the set, then the reflected light can cause the camera iris to close, rendering all of the other areas of the set very dark. As a result, the contrast ratio will be very high with areas of the picture that are too bright and other areas of the picture that are too dark. That's why your school teacher used to tell you not to wear bright yellow or white clothes on picture day; your shirt or blouse would reflect too much light and your face would be dim by comparison.

The luminous intensity of reflected light depends greatly on the coefficient of reflection of the surface from which the light is reflected. The coefficient of reflection, in turn, depends on the type of material, its colour, and the spectral distribution of the incident light. A shiny or specular surface, like a mirror, will reflect almost all of the incident light while a diffuse surface, like velvet or painted drywall will reflect much less. The light that is not reflected is absorbed, and coloured surfaces absorb every wavelength except those around the colour of the surface. The type of light heavily influences the luminance of coloured objects. For example, an HMI with a discontinuous spectrum and very little red content will produce a very different luminance value with a red object than will an incandescent source.

In Stanley McCandless' book, *A Syllabus of Stage Lighting*, he

provides a brief table of coefficients of reflection for various colours under white light:

|             |          |            |          |
|-------------|----------|------------|----------|
| Dark Blue   | - 3-10%  | Gray       | - 15-60% |
| Black Paint | - 1-5%   | Dark Green | - 17-20% |
| White       | - 75-90% | Dark Red   | - 10-15% |
| Light Blue  | - 35-50% |            |          |

It turns out that the human eye evaluates reflected light differently than we might expect. If half of the light is reflected, then it appears very bright. What we might evaluate as the "halfway" point between total reflected light and total absorption is really about 20% reflectance. The Munsell system was developed to show equal visual steps, all things being equal, of reflected light. This is how it compares to the amount of reflected light:

| Munsell Value | Luminous Reflectance Factor (%) |
|---------------|---------------------------------|
| 0             | 0                               |
| 1             | 2.0                             |
| 2             | 3.0                             |
| 3             | 6.4                             |
| 4             | 11.7                            |
| 5             | 19.3                            |
| 6             | 29.3                            |
| 7             | 42.0                            |
| 8             | 57.6                            |
| 9             | 76.7                            |
| 10            | 100                             |

The zone system is similar to the Munsell system, except the zone system was developed by Ansel Adams and Fred Archer in 1941 to link film response to the human eye response. In the zone system, there are 11 zones ranging from 0, which represents black, to the Roman numeral X, which represents pure white. The middle value of gray is represented by the Roman numeral V. As in the Munsell system, the middle value represents about 18% reflectance.

Luminance can be measured with a spot meter, which is a reflected light meter with a very narrow field of acceptance, typically about 1-5%. It allows you to evaluate individual components of a set and figure out the exposure value and contrast ratio. Spot meters can usually read in f-stops, footcandles, lux, candelas per square foot or meters, foot-lamberts, or exposure values.

Perhaps the best way to evaluate the lighting, reflectance, and contrast ratio on a set is to view it with a video monitor. But if you don't have one, a quick and dirty way of making rough evaluations of luminance is to use a contrast viewing glass or neutral density filter to view the set. You've seen the DP or the occasional gaffer use the monocle-like contrast glass to view a set or to focus lights.

In the absence of a real contrast glass, a pair of cheap sunglasses with dark (not tinted) lenses will help. Just be careful not to use geeky looking sunglasses or you might be mistaken for one of the audio crew.

Send your reflections to the author by e-mailing [rcadena@austin.rr.com](mailto:rcadena@austin.rr.com).



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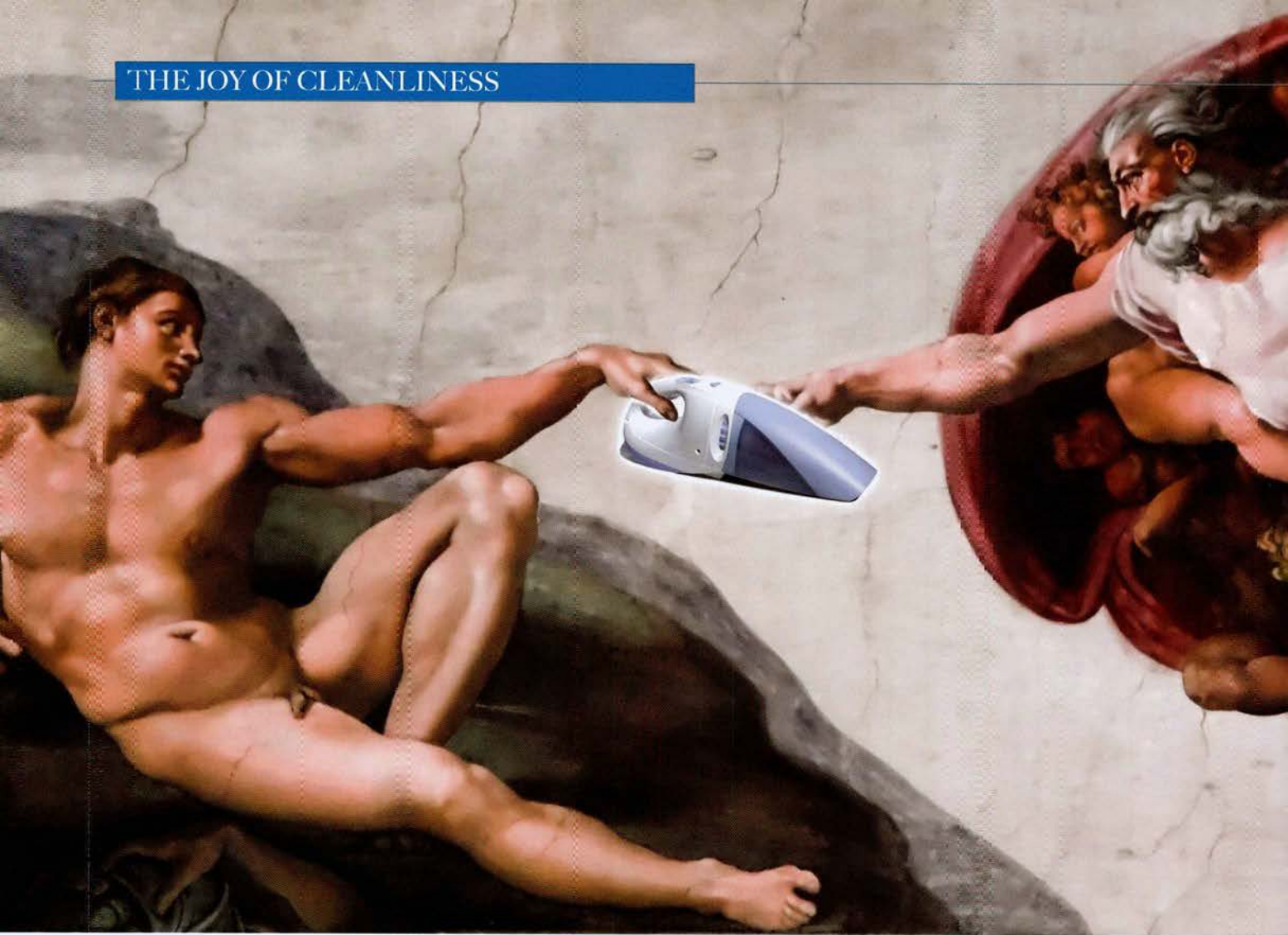
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# CLEANLINESS IS NEXT TO...

Reliability. Oh sure, people have also said it's next to godliness, but that's not what this is about. God helps those that help themselves, and if you're not looking after your gear I wouldn't bet on him coming down to do your maintenance for you. Here's a couple of horror stories from Andy's days in the service department...

**D**irty lenses are about as bad as it comes for lights. Dirt sucks all the intensity out and and it also tends to mess up the optical behaviour of the lenses. A really good thorough cleaning of the lenses periodically makes a huge difference to the operation of the lights, but you need to do it the right way.

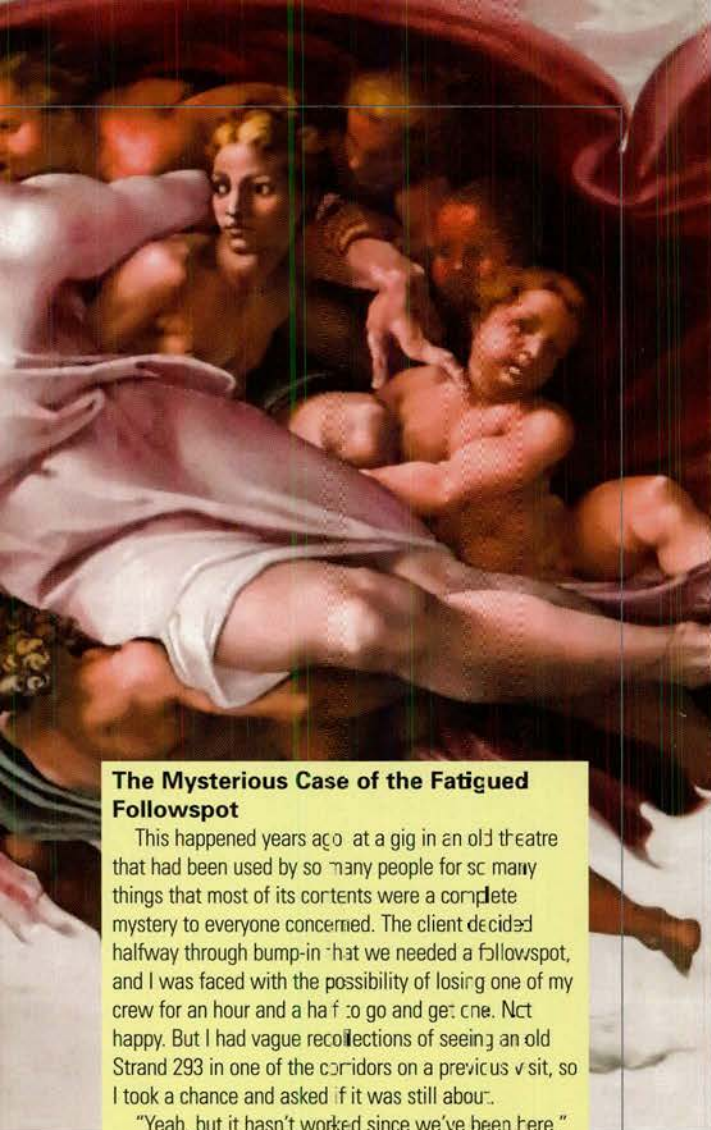
It used to be simpler – you could clean lenses with pretty much anything you wanted to, but modern lenses are a bit delicate. Current lenses make use

of softer, more easily worked glass which makes lenses easier to shape more accurately. This glass needs a protective coating to prevent the surface being scratched. Using some of the products we used to use in previous years on these lenses will just peel the coating off and lead to the ruination of the lens.

The best advice for cleaning coated lenses is never to use any cleaner you wouldn't use on your glasses. Microfibre cleaning cloths work quite

well provided the dirt hasn't been allowed to build up too much, and a little bit of water will soften any spots that are a bit more stubborn. A number of people I know swear by isopropyl alcohol swabs, and I've never heard of these peeling the coating so they're probably OK as long as you don't overdo it.

For really dirty lenses you can't go past hot soapy water – but I do mean soapy, as some chemical detergents can damage the coating. Things like



### The Mysterious Case of the Fatigued Followspot

This happened years ago at a gig in an old theatre that had been used by so many people for so many things that most of its contents were a complete mystery to everyone concerned. The client decided halfway through bump-in that we needed a followspot, and I was faced with the possibility of losing one of my crew for an hour and a half to go and get one. Not happy. But I had vague recollections of seeing an old Strand 293 in one of the corridors on a previous visit, so I took a chance and asked if it was still about.

"Yeah, but it hasn't worked since we've been here."

Really?

"Yeah — we tried it, but it just got hot. Didn't put out any light, so we figured it was stuffed"

Intriguing. A heater shaped like a followspot. I went to see this fabulous device.

The man was right — it did get hot, and quite quickly. And it didn't appear to be producing any light. But when I went round the front for a look I could just see a dull glow way behind the lenses, like the sun seen from the bottom of a deep muddy pond. After a few more minutes investigation I figured out that it was actually producing plenty of light — it just wasn't letting any of it escape. No wonder it was getting so ridiculously hot.

Leaving the heater to cool down, I went and grabbed a couple of screwdrivers (that's right kids, you used to need tools to get at the lenses in a followspot), popped the lenses out and gave them a good wash in some soapy suds. Rinse the lenses down with nice hot water to get rid of the soapy residue, wrestle them back into place and Presto! The heater shaped like a followspot becomes a followspot.

window cleaner and methylated spirits or anything stronger are likely to wreck the lenses, as will any kind of abrasive cleaner. Definitely don't put them in the dishwasher.

Faders are about the most likely thing to fail as a result of inadequate hygiene. They bring three points into play: They have a nice big slot in the casing for dirt to fall into, the dirt-gathering slot usually points up in the air (all the better for catching dust) and there's sticky muck inside to catch anything that falls in. If it



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### The Computerised Fader Lock

The call came in the middle of January from a distraught high school science teacher. The science teacher was calling because it was a problem with the lighting system in the hall, and science teachers have traditionally been landed with responsibility for lights because they're clever and understand electricity and stuff...

Anyway, the problem is that they've come back from the summer holidays and tried to fire up the lighting rig only to find that it won't go. All the power is on and everything's plugged in right, but the console seems to be locked.

Locked?

The faders don't move, so they figured there must be some kind of lock holding them in place. I explain gently that the Jands ESP includes no facility that would allow the faders to be locked in place, then organise (suspecting stupid practical joke by departing year 12 student or similar) to pick up the console and put it on the workbench.

The faders do indeed appear to be locked. The application of some fader lube and an inappropriate degree of force finally get one fader moving, but it seems pretty clear that this fader has faded its last.

So I took the lid off the console, desoldered one fader, and disassembled the carcass. Contrary to expectations, there was nothing recognisable as glue so my year 12 theory had to go out the widow. What there was, and there was quite a bit of it, was what looked like some kind of ceramic caked around the fader wiper. It cracked off reasonably easily when I took to it with a screwdriver, but the fader was well and truly deceased.

Removing a couple more faders confirmed that the problem covered the entire console, so I found myself replacing 60-odd faders. I will say this: replacing all the faders in a console at the same time is a whole lot less fiddly than just doing one.

Several years worth of accumulated filth combined with a hot summer in a locked bio box had just proven to be too much for the poor thing. The dust had soaked up all the fader lube then got mashed into lumps above and below the wiper, which was fixed in place permanently after the whole mass congealed over the summer. Thinking about the way the bio box was maintained (think of a landfill site with a ceiling and a big window) I wasn't really surprised.

So the console was returned in working order, along with a substantial invoice and a few carefully chosen words about the cost of this repair against the cost of a cover for the console. Lesson learned.

was a carnivorous plant it'd be perfect. For a piece of sensitive and critical reliability equipment, less than ideal.

Step one in preventing this kind of thing is not to let the dirt get in there in the first place – use a cover on the desk or store it in a case, or a cupboard, or whatever. Just don't leave it sitting on the table begging for a dusting, especially for long periods or

when there's work planned for the venue. I once spent several happy hours cleaning out an audio console that had turned white when the plasterers came through to fix the ceiling above it.

If you do get dust on your gear, clean it off with a soft paint brush and a vacuum cleaner. Don't vacuum the surface, vacuum the air above and

sweep the dust up into the path of the vacuum nozzle. Sweep parallel to the fader slots – going across them will just push more dirt into them. If the knobs on the faders are standard press fit ones, taking them off will prevent them shielding little balls of dust beneath.

If there's already a fair bit of filth in the faders, you may actually need to clean them out properly. There are a number of products around which will wash away the crap trapped in the lubricant, some of which are more effective than others.

Some people use WD40 and similar products, but my experience with these hasn't been great – they tend to dissolve the fader lube then harden and gouge the fader track to bits. You can adopt the two can solution, which involves special contact cleaner followed by matching contact grease, and I also had success with a product by the name of Lanox.

Whatever you use, spray it into the track and run the wiper up and down as many times as it takes for it to feel smooth. You can also get better mileage out of your faders if you occasionally give them a quick lube between cleans. And don't forget – the same things that apply to faders apply to rotary pots and push-button switches. A little work every now and then can save you a lot of grief.

Cleaning something really dirty is actually quite a task as lots of dirt that could have been easily removed in days gone by hardens to the point that it needs serious solvents to lift it. This is especially true of the residue from

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### The Dirtiest Desk in the World

This one was an audio desk, and it was in the worst possible environment for a console to be in. Trapped in the bio box (rubbish dump) of a club that didn't care for shows, and used only sporadically by those few poor souls whose budget didn't stretch to anything better. The club had no interest in retaining the services of a house tech, relying instead on the operators that periodically came through to fix the stuff they needed for their show. Not really a maintenance program to be proud of.

The desk had borne the brunt of the abuse, being the thing that the visiting operators used the most. It had apparently been uncovered for years, judging by the crunchiness of the faders, and some parts of the system had given up trying – the faders covered by bits of masking tape labelled 'dusnt werk' and similar were a giveaway.

Various operators over the years had explored a range of labelling techniques. If you lined the desk up in the right spot you could see how the channel labels written on the timber tabletop lined up with the desk channels. Someone else had experimented with using coloured markers to colour in the fader knobs, and the missing bits of paint all over the surface spoke of the use of gaff as a labelling tape.

But the worst was the strip down the front where you lean your elbows...

At some point, someone had used tape that left a sticky residue, and the forearms that followed had all left a little something of themselves. The result looked like the residue of a particularly unpleasant waxing session.

All up, it was nauseating. And I was in for the day – one of those gigs where you turn on the microphone and the lights in the morning so a boring person in a suit can talk about boring things to a group of disinterested boring people in suits who are only there because if they weren't they'd be in their office. I felt a little sorry for the desk in its awful state, and a lot more sorry for me having to sit next to it all day, so I took it upon myself to give it a bit of a cleanup.

By the end of the day, it still looked pretty bad, but the crunchy faders were less so, some of the channels that 'dusnt werk' had started working again, the out of date labels were gone and the console no longer had a beard.

tape – electrical tape is definitely better than masking tape or gaff, since gaff will remove the paint without help and the cleaning agents you need to shift masking tape will often get rid of the paint in the process – but even electrical tape will go bad in time.

I've already gone on at length about covers and regular cleaning, so I won't go there again, but I will make the point that the more something looks badly maintained and uncared for, the less effort people will put into looking after it when they use it. Give people a bit of gear that looks brand new, chances are you'll get it back looking the same way. Give them something that looks like you found it under a pile of old harvester bits in the shed and they'll treat it accordingly.

### IN CONCLUSION...

Dirt is, was, and always will be one of the greatest enemies of electronic equipment and in an industry where equipment failure can have catastrophic results it is inexcusable not to keep up a regular maintenance schedule.

It doesn't need to be particularly onerous – just pull the tape off the console and give it a sweep down before you cover or case it, give the faders and other controls a quick going over every six months or so, and treat the rest of your equipment with the same respect. Look after your gear and it will not only be more reliable, it will be more pleasant to work with.

So get out there and clean.



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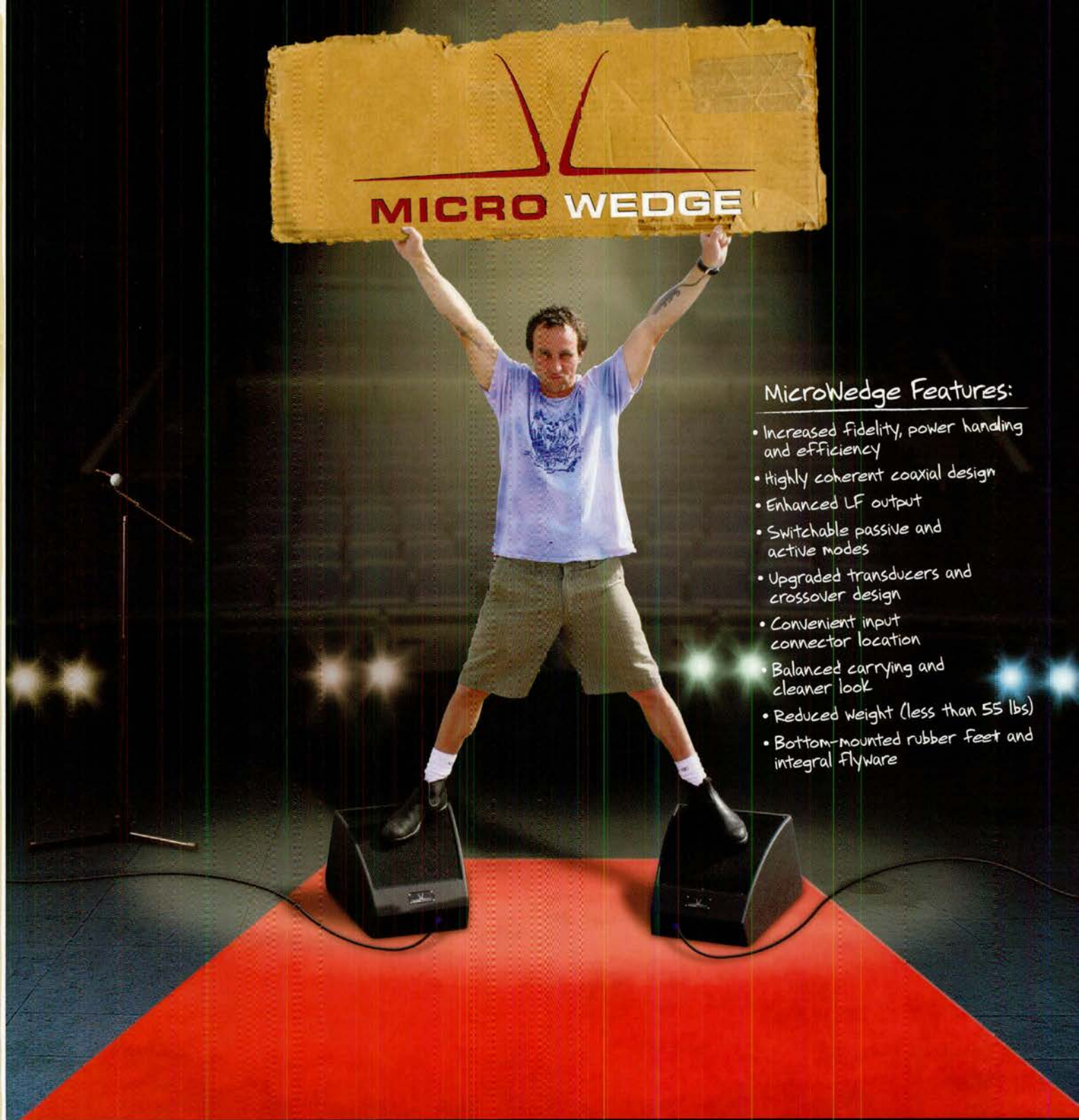
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