

# OK



# IT'S GREAT TO BE WICKED

*Inside the Broadway Blockbuster*

**YOUR NEW PAY DEAL**

*- Win or Lose?*

*A close look at*

**BIG PICTURE**

**NEW AWARD SURPRISES**

*Focus on traineeships as juniors axed*

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*Theatrelight Cuemaster II*

*Manley ELOP*

*base hazer*

**PLUS**

*The big Off-campus  
Mega Test!*

**CUE03** Entertainment Training Resource

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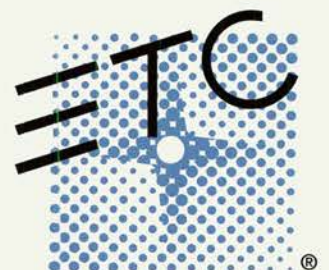
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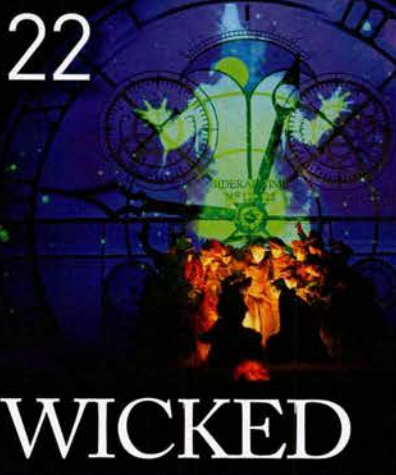


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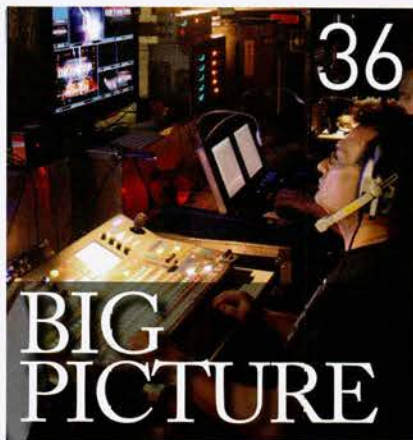
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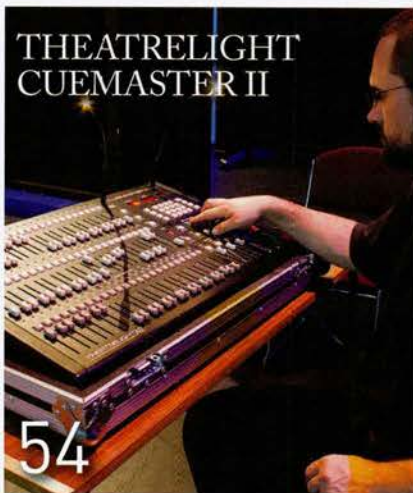
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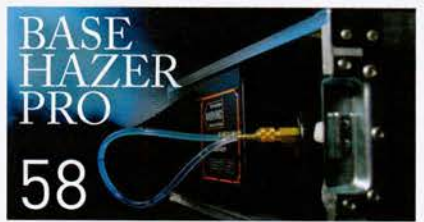


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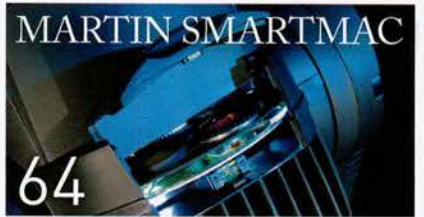
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## CUE03

### Entertainment Training Resource

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

# EDITORIAL

## WIRELESS COUNTDOWN

We applaud the work of AWAG, the wireless user group, who have been diligently lobbying the Australian government to ease the transition out of analogue TV. Long story short, around the world governments make billions selling wireless spectrum. In our case, we will face a grave shortage of frequencies for UHF wireless 'soon'. Which means around 2 years from now.

## ACETA

The Australian Commercial and Entertainment Technologies Association is the proposed name of a new industry body formed to represent the interests of importers and manufacturers. Inaugural meetings were to be held in eastern states in March. This new association comes via hard work from Frank Hinton (ATT), Paul Mulholland and Jodie Archer (Jands), David Bell (Syntec) and Steve Devine (Meyer Sound Australia). Hats off to them and all who support this.

## LIVE PERFORMANCE AWARD 2010

The arrival of the new industrial award is steeped in mystery, both the Media Entertainment Arts Alliance and Live Performance Australia were mute and did not return calls at presstime. Whether they had much or any input to the new industrial award is unclear - we don't know who, if anyone, from industry was consulted. Do you know? Please tell me.

## HARD TO FIND: MODERN AWARDS ON WEB

Here is the weblink followed by the exact award codes of the 4 new Modern Awards that affect us. Or this page you also can find the very evasive National Training Wage. Why is all this so hard? WEB: [www.airc.gov.au/awardmod/fullbench/awards.htm](http://www.airc.gov.au/awardmod/fullbench/awards.htm)

- MA000081 Live Performance
- MA000080 Amusement, Events and Recreation
- MA000091 Broadcasting and Recorded Entertainment
- MA000102 Traveling Shows

Julius

## MONEY MATTERS

2010 sees the arrival of a new lot of industrial awards, so now everyone can find out what they should actually be getting paid. The award for the production industry is likely to raise some angry responses, because it's likely to push costs up for those who've been paying cheap prices for labour.

The way I see it, there's good and bad in it, but mostly good - it'll make it harder for shonky operators to rip off their crew, and that can't be bad. We've seen too many stories over the years of people on day rates ending up working for \$5 an hour.

The people most likely to suffer are the ones who've been underpaying crew so they can undercut other people's costs. Those who've been paying decent money anyway will benefit as life gets harder for the undercutters.

## IDIOT PROOF

Way back in the olden days, every gig was a triumph of improvisation. With the limitations imposed on us by technology, we all developed plenty of skills to make sure we could still get the gig done right. Nothing was idiot-proof (or even slightly idiot resistant), so no-one could get away with being an idiot.

Now that everything's idiot-proof, we're building a better class of idiot. I've heard tales of touring audio guys showing up violently hung over, loading the digital console with last night's show file, then wandering off for a chuck. Then there's the 'lighting designers' who just spec a pile of movers on one long truss and figure they can sort the rest out with programming.

Don't be an idiot. Use the benefits of the new technology to put on a better show - not the same one with added laziness.

## PARTY

In this issue you'll find an invitation for our 20th birthday party on August 21. Please use the online RSVP request to apply for tickets - it is a free event, so the ticketing is important. Try to make it, we are laying on some tasty music and surprises!

Andy

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# CX NEWS

## DEVICES, PEOPLE AND CONCEPTS

### COWBOY CLEANOUT

#### NEW AWARD A TIME BOMB FOR RIP-OFF EMPLOYERS

The new year was only days old when the first implications of the Live Performance Award 2010 were felt at a Sydney production company. Alarmed at abusive practices, a young crew member contacted CX to confirm his work conditions did not include being forced to drive a company van to Melbourne in just 8 hours – on P plates. The 963 kilometre trip would legally take 11 hours minimum with breaks for a P plate driver.

Big employers cautiously welcomed the new industrial award, one of just 120 'modern awards' covering every industry in Australia. The abolition of thousands of federal and state awards and the creation of Fair Work Australia is a big move by the government.

"Nothing to fear" said Chamelon

Touring boss Tony Davies. "It will sort out the cowboys"

was the reply from Leko Novakovic, head of Adelaide production firm Novatech Productions.

But theatre workers are facing less pay with the rollback of the four hour minimum call to three hours.

"Producers are already inquiring about the possibility of cutting their minimum 4 hour call to a 3 hour call. In a 32 hour show week, this could lead to a loss of 8 hours pay per week", says theatre worker Lisa Benham.

The Sydney production firm employing the junior has prior form exploiting young workers. CX has followed this story since 2008 and has had legal threats in the

past from the firm. We can't name the company without facing legal action unless workers come forward and are prepared to be named. But we can detail some of the abuses.

"They make a lot of promises. There is no employment agreement. You can get rostered for 22 hours straight and then they give you a week off. I believe this is to avoid paying overtime", the young worker told CX. He cannot be named as he fears retribution.

He resigned when told he would be placed on a second three month period of probation, despite no complaints about his work. Emails to the employer to clarify his terms and pay drew "I don't care" as a response. The last straw was when the employer refused time off for a specialist medical appointment.

The firm concerned is very aggressive on the Sydney production market and known to undercut and work cheap. Their ability to charge less and underpay workers has

now been legally curtailed since the new Award covers everyone, and membership of a union is not required. Any worker underpaid can seek simple legal remedies later on by joining the Media, Entertainment Arts Alliance (Union). Employers face prosecution where they exploit workers.

In the case of the exploitive Sydney production firm, clear and regular breaches of the binding principles of Duty Of Care exist. As soon as any form of accident

*Continued page 10* .....➤

### JUNIORS SOON TO BE ABOLISHED UNDER NEW AWARD

#### NEW MINIMUM PAY LEVEL IS \$593.90 PER WEEK

The new Live Performance Award 2010 removes junior rates of pay from the industry after June 30, and makes it very hard to start a career. Anyone paid less than \$19.54 an hour as a casual can take legal action at any time. Modern Awards are simplified so more workers will know their rights.

Traineeships are under fresh scrutiny with the introduction of the new Award, because a formally contracted Traineeship under the New Apprenticeship Scheme is the only way to pay less than full adult wages. The National Training wage is around \$430 per week.

There are several significant problems with Traineeships for our industry. The first is little known but has major implications. School students studying Entertainment as a VET subject in High School are not eligible for an Entertainment traineeship if they already hold a trade Certificate – which is what the schools issue them. Higher education degrees and diploma holders are also unable to become trainees.

Traineeships are only granted to people with no trade qualifications and no certificates in any industry. Limited exemptions do apply to school based Traineeships – but the systems faults do not help entertainment at all. Traineeships are a valuable tool and come with a \$4,000 government payment to the employer. The government pays for training on top. Now traineeships are the only form of junior pay under the new award.

The second problem is a very small number of registered training organisations, or colleges, that actually provide traineeship

*Continued page 10* .....➤



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*Continued from page 8*

occurs, criminal charges could and should be applied against the directors and managers.

We prefer someone speak up, on the record, before then.

- **STAND UP** and be counted: email [juliusmedia@me.com](mailto:juliusmedia@me.com)

- **SEE ALSO:** Junior rates soon to be abolished under new award: Page 8  
Small shows will carry larger labor costs: Page 12.



*Continued from page 8*

training. Low demand and high facility costs make the training unprofitable. By way of example NSW has three active colleges but traineeship numbers fell to just 22 in 2009, down from 29 in 2008. There are over 600 funded traineeships available in NSW each year.

With the best applicants already holding a Certificate III in Live Production, Theatre and Events (CUE30203) from school, employers are

now forced to hire school leavers who did not study entertainment, and who may have little or no interest in the industry.

This aspect of the new Award is a cruel twist for Certified school leavers who must now convince an employer they are worth adult pay without further training. The only remaining pathway into the industry is with further study, and again there are only a small number of colleges offering industry recognized training in Australia.



## -VALE- RICHARD PRIDDLE

Cancer takes lives before time, acoustician Richard Priddle made 60 years before departing prematurely at the end of January. He had featured in the very first issue of Channels, the precursor to this magazine, almost 20 years ago.

CX knew him for a decade prior and ran into him in unlikely places. One was Hamilton Island where the first auditorium was burned to the ground. Richard was supervising the second and duplicate audio installation. Other times he would appear at the opening of a new recording studio - he designed more than 100 over his career.

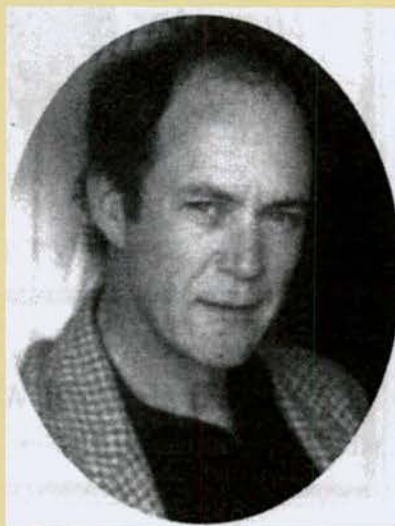
There is no shadow of any doubt this was a brilliant guy. His IQ was massive, and with that came the wonderful quirks of a brilliant mind. He toiled around in an old ute, was born in Sydney but raised near Forbes on the Lachlan River in the middle of the dry plains in western NSW and died in the same town.

You can take the boy out of the bush, but never the bush out of the boy. He went to Uni with his mate Barry McGregor who eulogized at the funeral.

"Through the past two decades Richard became THE sound studio designer in Sydney. People in the industry spoke with reverence when it came to the qualities of the rooms he designed and his teams built. His studios that I have visited are evocative of the ideas he expressed in his architectural work as a student - and an R.J.Priddle style is visible in the rooms, and they have a wonderful natural sound - his great 'ear' is apparent."

This was echoed by Peter Grisard, head of engineering at Jands. "He was brilliant, he had such a remarkable ear. This is a huge loss to the industry".

Michael White at Sound On Stage: "When first setting up Sound on Stage in 1979, Richard was directly involved in what to call the place; and he advised us on a number of speaker designs for Altec Lansing components. The speaker



systems developed during that period were ground breaking and the beginning of tri-amplified loudspeaker systems. There are a million other things I could say about Richard."

John Burnett knew Richard longest in the pro audio community. They shared a keen appreciation of acoustics and specifically amplifier design. Richard wrote to John late last year. He didn't do emails - a letter from Richard was meticulously typed, printed and mailed. With a stamp on the envelope.

"What I am seeing is that everything old is new again", Richard reminisced, "you put amplifiers in speakers 30 years ago and people said it was stupid and now every speaker box has an amp plate in the back. I pick up a studio magazine and see a design in a new studio that I did ten years ago".

The letter struck John hard because Richard was talking about the savagery of his particular cancer, long operations, having all his teeth pulled, not being able to eat, losing 50 kilograms - he was a tall, fit guy without weight to lose.

He said he wanted to move to the Central Coast and work with his son Tobias Jack (born 1988 to then partner Lou).

It was not to be. The dice rolled and Richard was farewelled in his hometown of Forbes early in February.



## CONTROL DEVICES FORMALIZES CDA AUDIO

Control Devices Australia has introduced CDA Professional Audio as the new face of its Audio Products business.

CDA Professional Audio will be responsible for all of the professional product lines like Prismsound converters, CEDAR Restoration and Sadie Recording and broadcast systems just to name a few.

Managing Director Rick Dowel put things into perspective: "I felt it was time our pro audio products had an identity of their own. So it was decided to start CDA Professional Audio. This new company will be headed up by Wayne Baptist and I know he is looking forward to the challenges of bringing a start up company to life."

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## SMALL SHOWS WILL CARRY LARGER LABOR COSTS

### Day rate goes out the door as penalties kick in.

Under the new 2010 Award, a standard production will almost always result in an overtime penalty for the crew. Full time crew can work up to 12 hours at normal time, but casuals must be paid penalty rates after 8 hours.

The new award is in place but in some cases the penalty rate provisions do not apply until July. Using the award as a minimum, a show cost could look like this:

- Travel from city to venue. 0.5 hours
- Load in to venue. 1.5 hours
- Set up 3.5 hours

Since 5.5 work hours have elapsed, a half hour meal break at hour 4 has now blown the timeline out. We are now at 6 hours, and ready for a sound check or rehearsal.

- Sound check / rehearsal. 1.5 hours
- Tidy up, break before house: 0.5 hours
- Doors open (dinner break): 1.0 hours
- Showtime 8pm – 11pm: 3 hours
- Fast load out/bump out: 2 hours
- Travel back to city: 0.5 hours

This all-too-typical show timeline contains 14.5 hours, all payable, and the casual crew are now back at base at 1.30am. If the last train, bus or tram has left the location, the crew must be taken home or put in a taxi at the cost of the employer.

Thereafter a 10 hour break must be allowed, if not then the crew are paid double time when they resume for the whole of the following shift.

### TRAINEE PAY: FULL TIME, WAGE LEVEL A.

Highest year of schooling completed	Year 10 per week	Year 11 per week	Year 12 per week
	\$	\$	\$
School leaver	245.00	270.00	323.00
Plus 1 year out of school	270.00	323.00	375.00
Plus 2 years out of school	323.00	375.00	437.00
Plus 3 years out of school	375.00	437.00	500.00

Pay per crew member (Casual, Level 4, sound and lighting tech) for the above typical example is \$419.47 – and that’s just what the crew get paid. The cost to the firm is more when you allow for insurance and superannuation, and the charge out to the client needs to be at least \$500 to break even. Oh, and if the show is being recorded, you need to pay the crew another 15.9% on top.

If you decide to deem your crew as unskilled stage hands, with Level 2 being the lowest practical rate in the new award, they still get \$390.72.

But wait, there’s more: a crewing service casual will get 52.5% loading after 11pm, and ordinary time before that. If this show had 3 loaders from 11pm for the new minimum 3 hour call, they would be paid \$89.38 each and probably need a taxi home at the end. The 3 hour load in during the day, at regular Level 2 stage hand rates would see them paid \$58.61. Naturally the crewing agency would charge more than this, to cover costs.

The 52.5% loading replaces penalties between 11pm and 6am – but a long day before 11pm pays penalty rates to agency crew after 8 hours work until then. Confused yet?

A touring show is handled differently under the new award – crew are paid

a flat 17.5% loading per hour whether casual or full time. They are paid by the hour, which includes travel time. With an average concert tour running five shows and two travel days a week, it is easy to see 80 hours worked and traveled for a weekly pay of \$1,970 for a casual, or \$1,577 for a permanent.

The real kicker to the new award is that all work done on Sunday is subject to double time - unless you are on tour.

For those specialist crew slaving away in a sound or lighting (or video or staging) factory doing prep work, the award is not kind to you. You get 17.5% penalty averaging component instead of penalty rates. Once you work more than 152 hours over 28 days, you get time off in lieu.

So back to the hypothetical show example: 3 crew cost \$1258.41 plus taxi fares, and 3 loaders in and out will be paid more than they were before the new award.

With no junior rates of pay, all that is left is the properly indentured full time employed trainee who would be paid as little as \$8.06 per hour (year 10 school leaver) or \$10.26 (year 12 leaver). But it remains to be seen whether many trainees will join the pitifully few currently employed in the industry. **CX**

## TDC EXPANDS TEAM

Live video firm TDC continues to grow its Sydney based operations team with the appointment of Simon Crossett. Simon joined TDC recently as National Operations Manager, with over 17 years experience in the AV industry.

Simon started in the industry as a technician and followed with longstanding roles at Austage, AM Staging and Avsound.

John Schryver joins TDC as an Account Manager. Having spent the past 5 years at Haycom in Sydney, John started out as a technician, then quickly moved into Operations followed by Account Management.

Michael Hassett, Managing Director of TDC said that “Simon and John join us at a very exciting time, as we continue to grow and provide further products and enhanced services to our clients”.

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Simon Crossett.



John Schryver.



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Selecon



# Safety. Simplicity. Precision. Performance.

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For us, safety, simplicity, precision and performance aren't options. They are the values that define a Selecon luminaire. Each of our products is the result of ongoing research and dialogue between our

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instrumental in helping us nurture and refine the many features that set Selecon products apart.

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## ACTOR FLYING SYSTEM LEADS \$5M VENUE UPGRADE

Flying Vampirates and Rock & Roll feature at Dracula's Cabaret Restaurant on the Gold Coast, with shows running six days a week.

The Neumann family's venue had a five million dollar upgrade that features a customised actor flying system. Dracula's technical manager John Taylor went to Specialised Stage Engineering in Wacol (Qld) for the system.

The design concept has the performer moving around the room on a predetermined path with the ability to move up and down and rotate through 360 degrees at any speed they require for the performance. The end result is the SSE Flycoaster.

The first hurdle was finding a track system that could handle the loads generated by a person moving in all 3 axes simultaneously. After evaluating a number of products on the market SSE chose Bomac Altrac - a monorail extruded aluminium track that could be bent to handle the radius bends. It is rated for a safe working load of 1000kg in a 2.3m span. The spans were reduced to maximise the safety factor for the system.

The existing roof structure did not provide enough mounting points for the 18m track so SSE fabricated a steel



I-Beam support superstructure.

Running on the track are 2 custom track carriages with 6 wheels each that helps to reduce the running noise of the carriages. Each carriage is rated for a working load limit of 500kg. From the carriage is a rotating harness attachment system which allows the performer to rotate through 360

degrees.

The winch system is composed of two separate Variable Speed Drive winches to handle horizontal movement around the track as well as vertical movement of the actor. These winch cables are handled by custom built runners and pulley systems designed by SSE to ensure that the cables do not jam or run slack at any time during operation.

Dave 'Kamakazi' Kume is the high-flying hard-rocker that soars his way over the audience with his guitar rocking out the Wings track "Live and let die". The performance harness and rigging allows Dave to spin vertically while the actor attachment system allows Dave to spin horizontally. His acrobatic skill at playing inverted power chords while spinning 5 meters over the heads of the audience is something to be seen. During the show the system moves at a relatively sedate speed of 0.5m/s but the system is capable of varying speeds up to 1m/s or more.

John Taylor, Technical Manager for Dracula's said, "The build of the fly coaster, along with the new mezzanine stages, really lets us create a cleaner looking flying stunt. The ability to load and unload the actor out of sight from the audience adds that extra wow factor when he is all of a sudden upside down in the middle of the room. CX



## -VALE- PHIL EASTICK

Phil Eastick died in Adelaide aged 55 at press time, after a very long battle against kidney disease. He had a transplant last year. He fought for around 20 years, but not too many people knew he was ill. CX first knew Phil from the road.

Phil attended (very occasionally!) Adelaide University Law School in the very early 1970s before deferring studies to pursue a career as a roadie. Phil ventured to the eastern states in pursuit of "Fame and Fortune" finding roles with different bands and ended up in Sydney working with Jands in its early days.

Adelaide had thrown up some extraordinary rock bands including Chisel and Angels, and

eventually Phil teamed with his cousins Mal Eastick on guitar and Rob (Fat Cat - sound) with an exemplary rock act, Stars in the late 70's. They moved over to the eastern states, and it was a bit of a family affair that fulfilled some childhood dreams. A life long friendship was also forged with Glenn Browning through this time.

Phil did sound for Hush and is seen on old ABC "Big Country" footage, circa 1974, introducing the band.

Phil wrote a chapter in the History pages of Juliusmedia.com about his times on the road, mostly referencing other people. He sought to set the record straight, and his words live on.

He toured with The Angels and with many internationals for Jands Concert Sound in its early growing days. "He just got on with everyone", says Colin Baldwin who worked alongside Phil with Hush.

Trips overseas led to work in the USA on tours with The Angels, Alice Cooper, Dio and others and eventually in to transport logistics for Quick Cargo

Workmates have stated "We will remember him for the legacy that he leaves us, his work ethic, his cheeky smirk.

spontaneous one liners, and dry as toast humour. He was a good man to have on your side."

Phil and his family (wife Robin, from San Antonio, and daughter Sarah) moved back to Australia in the early '90s, as his kidney disease needed treatment that the U.S. health system would not provide.

Phil soon found himself on various advisory groups and task forces for the new state government, which is where CX caught up with him again.

He was leader of the team that created the Ngapartji Multimedia Centre in 1996 and in 1997 signed on with the SA Government as a ministerial adviser, and served as a founding member of the World Congress 2002 executive committee.

He was a great advocate for the music industry, he called or emailed CX from time to time to pursue different issues, always with integrity and intelligence. Phil also was always there at ENTECH when an industry issue, summit or conference was held. He contributed on many levels, which is a terrific legacy.

Phil requested a private funeral, and a wake is planned in Adelaide sometime soon. CX

# THE YAMAHA M7CL HAS GONE MODULAR.

DIGITAL MIXING CONSOLE

# M7CL

VERSION 3

DIGITAL MIXING CONSOLE

# M7CL-48ES

## A NEW EQUATION: M7CL = REMOTE I/O + CONTROL SURFACE

### THE M7CL SERIES ENTERS ITS THIRD PHASE.

Upgrade your M7CL console to Version 3 software free of charge!

For more information, visit [yamahaproaudio.com](http://yamahaproaudio.com)

#### NEW FEATURES IN VERSION 3:

- VCM Effects: Comp276/276s, Comp260/260s, OpenDeck, EQ601
- Sends on Fader in M7CL V3 Editor
- Additional Recall Safe parameters
- ST In 1-4 now available for talkback
- Direct Sends on Fader access from M7CL knobs in Sends on Fader mode
- and more!

The **M7CL-48ES** is the plug-and-play digital mixing and multicore solution you've been waiting for.

In place of the 48 internal mic preamps on board the M7CL-48, the M7CL-48ES features a built-in EtherSound interface for instant access to 48 sonically superb, remotely recallable XLR inputs and 24 XLR outputs on-stage via Cat5e (when fully expanded).

With three expansion card slots available for live recording, Version 3 software on-board and full data compatibility with all M7CL consoles, the M7CL-48ES gives you world-class flexibility and performance, every event, every venue.

#### M7CL-48ES FEATURES:

- Built-in EtherSound interface for plug-and-play, 48-in, 24-out digital multicore connectivity
- Extra EtherSound port for permanent computer connection in 'ring' mode
- 8 x XLR Omni In/Out
- 3 x Mini-YGDAI card slots available for live recording
- M7CL V3 software on-board
- Full data compatibility with M7CL-48 and M7CL-32
- and more!

*PICTURED BELOW: Fully expanded M7CL-48ES system with 48-in, 24-out digital multicore (via 3 x SB168-ES units)*



*PICTURED ABOVE: M7CL-48ES rear panel showing built-in EtherSound interface*

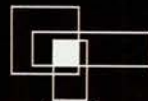


# YAMAHA

commercial audio

For more information on the M7CL-48ES and M7CL Version 3, please visit Yamaha Commercial Audio:  
[www.yamahamusic.com.au/products/commaudio](http://www.yamahamusic.com.au/products/commaudio)

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## MANDY AND GREG DIVORCE, SELL HOUSE

Greg Yates is a lighting designer with three decades experience who co-founded Mandylights in Sydney. The firm calls itself The World's Lighting Design Company. After several years, the fledgling partnership is minus Greg Yates, who has withdrawn.

At the time of its creation, Mandylights was an experiment where three lighting professionals combined clients and pooled resources. But the hyperbole quickly escalated, with ambitious claims from the brash and much younger associates, Richard Neville and Daniel Mercer. Tensions arose with equipment suppliers.

Differences came to a head and now Greg has left, to concentrate on lighting the regional tour of Cats. The premises in Lilyfield has been sold, and Mandylights has relocated to Chippendale—without Greg. CX

## TURBOSOUND NUQ SYSTEM FOR BUSY PRODUCTION COMPANY



Independent Sound Management Co in South Australia upgraded their aging audio systems as they were getting tired from 20 years of constant work. They settled on a Turbosound system made up of 6 x NuQ-12 cabinets, 4 x TQ-425 subs, Lab.gruppen FP10000Q amplifiers, Turbosound LMS-D26 Digital Management Systems plus a pair of NuQ-12P self-powered boxes.

The owners are happy. Tom and Jock Howlett said they already installed the same combination in the Broken Hill Entertainment Centre and saw the results

there. One of the first shows for the new system was with renowned trance DJ Roger Shah, who played to a packed house at St Pauls.

Tom says they bought the NuQ-12's and TQ-425 subs because of the flexibility it allows, as they can break it down into smaller systems or put it together and use it for raves and trance shows, or festivals and large indoor shows. The TXP-118 (single 18" self powered subs) add even more options.

[www.soundmanagement.com.au](http://www.soundmanagement.com.au) CX

## SMALL IS NOT IMPORTANT. THINK ZED

ZED-10 and ZED-10FX are the smallest mixers ever from Allen & Heath. They have two high impedance inputs, which, like a DI box, allow instruments to be plugged directly into the mixer. ZED-10 can handle up to four microphones and two stereo sources: iPod, CD player etc. ZED-10FX adds a set of effects derived from Allen & Heath's pro touring digital consoles ranging from classic reverbs and cascaded delay plus reverbs to shimmering flanger and chorus effects.

ZED-10 \$399 and ZED-10FX \$499.

[www.tag.com.au](http://www.tag.com.au) CX



## Honey I shrunk the mixer...





## SHURE PSM 900 PMS

They say the PSM 900 delivers a more natural sound with less noise and greater dynamic range than competitive wireless audio systems. The Active RF Gain Control automatically reduces receiver sensitivity when an overload of RF signal is detected. Best of all is the form factor, Shure say the P9R is the thinnest personal monitor bodypack available. The CueMode feature allows quick recall of up to 20 different monitor mixes on a single bodypack at the touch of a button.

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

## TOA UNVEILS NEW TYPE H LINE ARRAY SPEAKERS

Type H column line arrays are only 84mm wide and are designed to provide clear sound, high directionality and uniform volume within the targeted space. Sync-Drive technology ensures that a coherent sound wave emerges from the speakers, thereby achieving a linear response in the environment.

The speakers are well-suited to venues with highly reflective interior surfaces such as conference centres, houses of worship, education facilities and railway stations.

TOA's Type H column line array family comprises four models: long and short throw variants with straight or curved speaker alignment. The shorter designs are the SR-H2L (straight), and the SR-H2S (curved); the longer versions are the SR-H3L (straight), and the SR-H3S (curved). The short models contain 9 vertically aligned drivers and the long models come with 16 drivers

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



## LIGHTHOUSE DISTRIBUTION ENDS DISTRIBUTION OF CLAY PAKY

Lighthouse Distribution has announced they have resigned from distribution of Clay Paky products in Australia and New Zealand. Clay Paky is an Italian designed brand of internationally renowned professional lighting products.

"Our relationship with Clay Paky has been excellent with a number of high profile installations over the years. However, after a great 12 months and substantial growth from our DTS, designLED and CharaSys brands, we have decided to direct our focus towards our core products," comments Andrew Winslade, National Manager, Lighthouse Distribution.



# Hear no Evil

## The most-trusted wireless monitoring system gets even better.

The latest generation of evolution wireless; G3 is feature rich and comes with some of the most advanced state of art technology on the market. The EK 300 IEM bodypack is no exception; setting a standard by which all other monitoring systems will be judged. The EK 300 IEM compact receiver features new adaptive diversity technology for super-reliable reception. The headphone cable is utilized as a second antenna to banish audio dropouts. Additionally, thanks to features like, intuitive menu navigation a highly-visible backlit graphic display and a 42 MHz bandwidth offering 1680 tuneable UHF frequencies for interference-free reception, the EK300 bodypack will offer rock solid performance in any application. Audition a system today!



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

## Honey I shrunk the mixer...



### SOUNDCRAFT VI2 – SMALLEST 96-INPUT CONSOLE?

Vi2 inherits all the basic functionality of its larger brothers the Vi4 and Vi6, but

measures just 850mm in width, around half the size of a Vi6. It comes with one channel section of 8 input faders, and the master section holds 12 faders. The Vi2 can handle as many inputs as a Vi4 or Vi6 (72 and 96 channels respectively)

using the standard stagebox and local rack hardware. Three fully customisable layouts of the 8 input faders are available via the new user-defined fader page feature that is part of the V4.0 software update for all Vi consoles.

It could be easily brought in at stage side for monitors alongside an existing console at festivals, or in corporate events where input access is less demanding than a multi-piece live band. The Vi2 is also suitable for use as a space-efficient spare console, and as an easily transportable training or programming unit. The Vi2's Show files are fully compatible with Vi4 and Vi6 consoles, and also with the Virtual Vi Offline Editing software.

All the usual processing is accessible via the Local Rack, and even the 30-band graphic EQ's are available, by using a new paging system, accessed via the 8 output section faders and included in the new V4.0 Vi software for Vi4 and Vi6.

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



## YAMAHA M7CL SERIES EXPANDS WITH M7CL-48ES



Arguably the best selling middle market live sound digital mixing system, the M7CL has a new addition, with a remote I/O EtherSound version. The console worksurface loses most of its internal A/D and D/A converters, and gains a standard EtherSound connection.

This means one Cat5e cable is used to connect three SB168-ES stage box units supplying a total of 48 XLR inputs and 24 XLR outputs on-stage.

The M7CL-48ES automatically configures its connection to the on-stage SB168-ES units, eliminating the need to use ES Monitor software to establish the EtherSound link.

On the back of the console are eight XLR Omni inputs and outputs as well as

three Mini-YGDAI expansion card slots, providing additional audio connectivity (for live recording, etc) via such formats as analogue, ADAT, AES/EBU, TDIF, CobraNet or Dante, depending on the choice of card.

The M7CL-48ES is fully compatible with console data from Yamaha's M7CL-48 or M7CL-32 consoles.

Yamaha's new console launch coincides with the release of the Version 3 software upgrade for all M7CL consoles. Featuring enhanced functionality and several new features, the V3 upgrade will be made available as a free download for all existing M7CL users.

Version 3 software adds Virtual Circuitry Modelling (VCM) effects as

standard. The VCM effects comprise compression, EQ and tape saturation simulation patches from Yamaha's "K's Lab" division, programs already enjoyed by PM5D and DM2000 users.

Also included among Version 3's new features is Sends On Fader for M7CL V3 Editor, which allows remote Sends on Fader operation independent of the console. For example, using M7CL V3 Editor software, an engineer could remotely adjust stage monitor levels from a tablet PC while standing in front of the on-stage performers.

Price target for the M7CL-48ES is about \$50k, while the regular M7CL-48 console sells at less than \$40k.

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



## AMBER TECHNOLOGY NOW PLAYS THE BLUES

Amber Technology has added the BLUE Microphones range to its product solutions for the Australian market.

Amber Technology's Broadcast and Professional National Sales & Marketing Manager Garrick Simeon comments: "We are really excited to add Blue Microphones to our existing portfolio of professional recording, live performance and lifestyle products".

BLUE also recently launched the enCORE Performance series for live sound applications, along with a line of products catering to life outside the studio. These include high-quality USB products for both Mac and PC, iPod accessories, and an XLR-to-USB converter. Another new line for BLUE is the Yeti, the first THX certified USB microphone, and the Mikey 2.0, the second generation of Blue's popular microphone for the iPhone and iPod  
[www.ambertech.com.au](http://www.ambertech.com.au)



CX



## AVIOM INTRODUCES MT-X EXPANSION BOX FOR PERSONAL MIXERS

Aviom have expanded the usefulness of their Personal Mixer with additional connection options via the introduction of the MT-X Expansion Box.

The MT-X Expansion Box can be added to any A-16 or A-16II Personal Mixer and supplies additional audio connectivity options. In addition to the 1/4-inch stereo headphone jack found on the Personal Mixers, the MT-X also offers a 1/8-inch stereo headphone jack, as well as separate XLR left/right audio outputs.  
[www.productionaudio.com.au](http://www.productionaudio.com.au)

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### UWP Series UHF wireless microphone package

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## FOOTPRINT FRIENDLY

Allen & Heath has added two new models to the iLive digital mixing series, the iDR-16 3U MixRack and iLive-R72 rackmountable Control Surface. Together they provide a space saving, lightweight digital live mixing system, with the same power, sonic performance and flexibility as the larger touring iLive systems.

With these additions, the iLive Series now includes a total of 6 Surface and 5 MixRack variants, which can be mixed and matched in any combination, and share the same firmware, so that show files are transferable between systems via a USB key.

The iDR-16 MixRack and iLive-R72 Control Surface connect using Allen & Heath's proprietary ACE (Audio Control Ethernet) link, which allows cost effective long distance point to point control and audio communication over a single CAT5 cable up to 120m in length.

The fixed I/O iDR-16 MixRack provides 16 mic/line inputs and 8 XLR outputs in a compact 3U frame, with a further 8in/8out available locally at the iLive-R72 surface. All MixRacks, including the new iDR-16, feature the same 64x32 RackExtra DSP mix engine, providing processing for 64 channels, 32 mixes, and 8 stereo FX processors. The



latest dualcore DSP technology handles all the FX and mixing along with the full dynamics, EQ and delay for all inputs and outputs simultaneously.

Flexible in the extreme iLive's networking facilitates, for example, digital mic splitting and multi-track recording, with ACE, EtherSound, MADI, ADAT and Aviom interfaces available, while control can be via laptops, touch tablets and MIDI devices.

The compact iLive-R72 10" rackmount surface features 12 faders in 2 banks and 6 layers, providing a total of 72 colour assignable channel ID control strips. A built-in touch screen enables swift access to the processing, memories and system configuration.

Pricing is expected to be around \$8,500 for the iLive-R72 and \$5,000 for the iDR-16.

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



## EXTRA DIGITAL SNAKE OPTIONS

RSS by Roland have continued evolving their Digital Snake line up with a new 8 in 8 out Digital Snake I/O box. It features 8 XLR inputs as well as built in DI's with a Hi Z switch. Crucially it can be powered over Ethernet cable – first time we have heard of this!

Freedom from AC power requirements opens the Digital Snake up to a whole

new variety of applications from outdoor events or to any other venues where power is not easily accessible at the sound source. The S-0808 can be controlled by the free software application, the S4000R hardware remote or a V-Mixer. Adding further to the RSS Digital Snake development is a merge box called the S-4000M, that allows 4 streams of REAC (Roland Ethernet Audio Communication) signal to be merged into one over Cat5e. This allows 40 inputs to be selected from up to four simultaneously connected Digital Snake front ends of various models. Power over Ethernet can also be supplied from the S-4000M so the new S-0808 Digital Snake I/O can be connected and powered by a single Cat5e cable.

[www.rolandssystemsgroup.net](http://www.rolandssystemsgroup.net)



## BEYER ADD LIMITER TO HEADSETS

Beyerdynamic have created passive circuitry which achieves a similar effect to that of a complex VCA limiter at a far lower cost. Beyerdynamic's clever two-stage limiting concept incorporates firstly a smooth decrease of the audio signal by 6 dB then secondly a hard, protective, brickwall limit of the audio signal. This two step process ensures that sound quality is maintained throughout any peak in signal.

Headsets from the revised DT 290 series, DT 79C series and headphones from the DT 770 PRO and DT 250 series can be equipped with an integrated limiter.

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Rihanna performs on NBC's Today Show in support of her new release, *Rated R*, with her Sennheiser SKM 5260/MD 5235 and customized mic stand. (Photo Credit: © 2009 Film Magic)



## COLOR FORCE 72

Chroma-Q say their new Color Force 72 battens are a superior way to light a cyc. To adequately light a cyclorama the usual weapon of choice is a 1000 or 1250 watt linear halogen lamp sitting in front of an asymmetrical reflector that spreads the available light energy vertically as far as possible to produce an even coverage. Multiple units are then placed at spacings of around 1.5 to 2mtrs to provide an even horizontal coverage. As you can see, if you have a 10m wide backdrop, you very quickly chew up 5000 watts or more of power, to provide a single colour wash. If you then want to mix colours, the power drain expands massively. Add into the equation the cost of all those 5kW dimmers, plus the limited colour palette available using the combination of conventional filters and you soon see why the adequate illumination of cycloramas using LED sources has acquired the status of the Holy Grail.

Harnessing the output from the latest Luxeon Rebel LED's, the Color Force 72 delivers 12,000 Lumens whilst its 48" cousin is right up there with 8,000 lumens. But, if all that was required was output then we would probably have had a dozen viable solutions by now. The problem is that designers also want an expansive colour palette, a natural quality to the light, as well as a smooth linear fade that accurately mimics what they are used to from tungsten sources.

Chroma-Q have long been masters of the complicated maths behind getting LED's to fade smoothly from full to zero. They have a thing called "Magic Amber" technology so the correct amount of amber light is automatically calculated to deliver the requested colour, opening up the palette available to the designer.

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# HOW GOOD IS WICKED?

*Wicked, the Broadway musical, is a worldwide phenomenon. Long before the show ever made it to Australia, word was filtering back from far-off lands that this show was something big – something special. CX went to Sydney's Capitol Theatre to find out what's so great about it, and how they make it happen.*

By **ANDY MACKENZIE**

At the Capitol Theatre. Potentially the strangest looking venue I've ever been in. Not in a nasty way – it's just a building with a staggering amount of eccentricities. As you approach in the street it looks like any other big brown brick building, but as soon as you step inside things change. The décor is loosely described as 'Florentine' and includes all manner of remarkable plaster detail, statues, columns and so on. A living monument to excess in interior design.

And I'm here to see *Wicked* – a show which, by all accounts, has its own share of excess and opulence. As is always the case with these big musical extravaganzas, there is absolutely no possibility that you

could fail to realize that *Wicked* is in residence. Big shows like this burrow into a theatre, settling down into a comfortable nest in anticipation of a long season. Everywhere you look, there's traces of *Wicked*. The big posters and banners are obvious, but it's the little things – a sense of pervading green-ness – that really get into your head.

The impression that *Wicked* is taking over the theatre is even stronger in the auditorium. The sets spill out past the proscenium, petering out into the lighting positions on either side. These in turn extend slender fingers out into the theatre, touching the walls here, reaching upwards here. Occasional tantalizing glimpses of the theatre's own fixtures are visible through the gaps. The overwhelming impression is that *Wicked* may have once

been something on the stage, but it wants more and is slowly, inexorably, growing outwards to colonise the theatre.

The Front of House curtain is a map of the land of Oz, showing all those locations we've all known since childhood. But here, you can see them all: where does the yellow brick road actually go? How far west does the witch actually live? And what lies in the mysterious, unexplained south? As house curtains go, it's comfortably the most entertaining I've encountered.

The show hasn't even started, and I'm hooked already.

## THE SHOW

The general premise is pretty simple. Everyone knows the whole Wizard of Oz story with the girl, and the little



dog, and the munchkins, and the wizard and so on, but there's a whole lot of mystery surrounding one particular set of characters. The witches of Oz seem to exist only so far as the plot requires – really, we know nothing of them as characters.

Wicked purports to resolve this problem, giving the witches (all three of them – it's too easy to forget the witch of the east, crushed under a farmhouse in the first scene) each their own character, and their own history.

It all ties in neatly with what we all know from the old story, so you don't find yourself thinking '...but hang on, that's not right'. But despite how it all hangs together, and the simple facts match up, Wicked adds some much needed shades of grey to the absolutes of good and evil

espoused in the original.

And the script and production includes a few nods to the old film, all appreciated by the Wednesday night audience.

"There's no place like home...I never thought I'd say that", announces the youthful Elphaba – yet to be known as the Wicked Witch of the West. And when Glinda the good travels, she goes by bubble. There's a few more, and they're handled well – clumsy delivery can make such things trite and annoying.

The whole show's handled well – all the performances are excellent. The only character I struggled to find convincing was Bert Newton as the wizard, and that was nothing to do with his performance. It's just that...he's BERT! I guess that's the downside of being so well known.

## THE EFFECTS

The performances don't need to carry Wicked unaided. As befits a show so intimately involved with magic, there are plenty of clever effects.

For a start, people can fly. Well, some people. And some monkeys. And they all do it in different ways. As mentioned earlier, Glinda gets about the place in a rather splendid bubble. At the end of the first act Elphaba shows the people of Oz, in no uncertain terms, that she can and will fly if she feels like it. And of course there's the monkeys – anyone remember the flying monkeys from the film?

Things, and people, appear and disappear. Sometimes it's just clever set changes, like the flowerbed that pops up and then vanishes again almost as quickly – you don't notice it moving, just that



*There's a substantial amount of both light and sound hiding in the set.*



*Head of Audio Martin Tyrell.*



*Set design is all based around clockwork.*

it's not there anymore. At other times the appearances are part of the action – Elphaba rises through the centre of the stage.

One of the things that appears and disappears with amazing speed and precision is fog. There are moments when fog will suddenly envelop a certain area, and others when a clear patch will miraculously appear. Never before have I seen such control of atmospherics.

And then there's the wizard. Not the same as in the movie, but no less impressive.

## THE LOOK

The set follows a couple of disparate themes – in front of the proscenium there's a sort of ramshackle, building in disrepair, feel to it. Twisted vines grow

over twisted boards, staircases climb to small balconies. Behind the proscenium, things are a little different. There is a mechanical theme of cogs, chains and other assorted bits, also grown over with vines.

The other recurring theme is the clockface. Rumour has it that when set designer Eugene Lee was thinking about how best to capture the idea of time in his design on the day that he dropped and smashed his watch...

Costume and wigs are also extraordinary. Ever wonder where all the bizarre fashions that adorn the haute couture catwalks actually get worn? Oz, that's where. It's like someone told the designers 'OK – overall theme: green. Here's some really crazy drugs. Have fun.'

After I'd seen the show, I had an

opportunity to have a bit of a wander about and meet some of the technical team who make the show happen. Stage Manager Fritha Truscott met me at stage door (even stage door is Wicked themed) and escorted me into the world of artifice that is Oz.

## AUDIO

The first person Fritha introduced me to was Martin Tyrell, the head of audio. We started off talking about speakers, and the more we talked, the more I noticed that I couldn't actually find anywhere to look that didn't involve seeing speakers.

The entire rig is Meyer – the main FOH system consists of 16 M2D in four clusters of four, two clusters up high and two down low, along with 22 M1D arrayed above the centre of the stage. The



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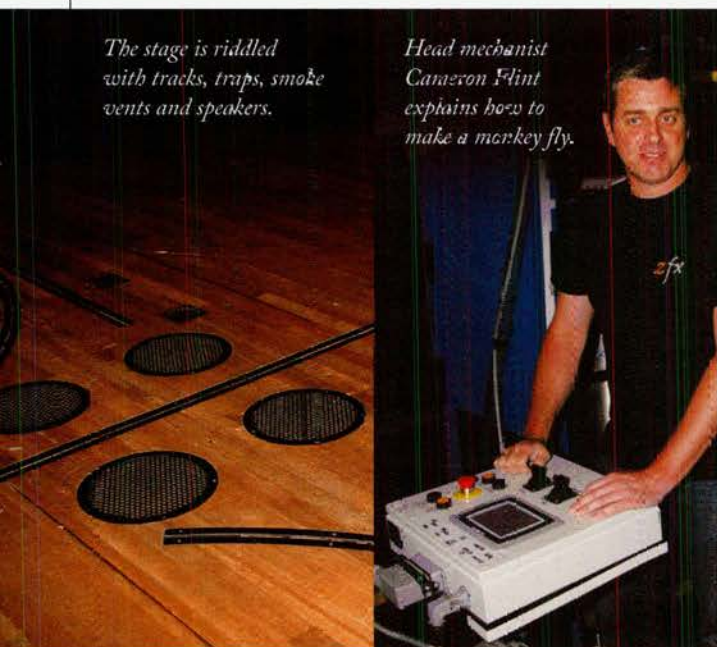
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The stage is riddled with tracks, traps, smoke vents and speakers.

Head mechanist Cameron Flint explains how to make a monkey fly.



low end is supplied by 6 monstrous HP700 subs, and there's plenty of it. UPM cabinets are hung under the balcony as delays, and there's a collection of UPJ boxes providing foldback.

There's also MM4s – tiddly-wee boxes containing a single four inch driver. They're along the edge of the stage as front fill, buried in the stage as foldback, you name it. "How many of these have you got?" I ask. Martin thinks a moment before responding "Heaps."

The system is controlled by five of Meyer's Galileo processors, and the RMS (remote monitoring system) software allows the operator to see what the system's doing at any moment.

The FOH console is a Cadac J-type – not really surprising, as Cadac have a very strong presence in theatre. Why so, I ask Martin. "The Cadac consoles are designed for theatre, so they have all the features we need. There are a pile of different channel strip options which means we can specify a desk to fit our purposes. They're also incredibly well built and reliable which I like."

The Cadac is something unusual in the current console market – an automated analogue console. "We're all waiting for Cadac digital, but...noting yet", Martin shrugs. This particular main/sidecar combination runs to about 70 channels – about half of which are radio microphones.

The radio microphones in question – 34 in total – are Sennheiser 5012 systems fitted with Countryman B3 capsules.



Five Galileo processors and racks of Yamaha amps (for all the MM4s). The DM2000 on the end handles foldback.

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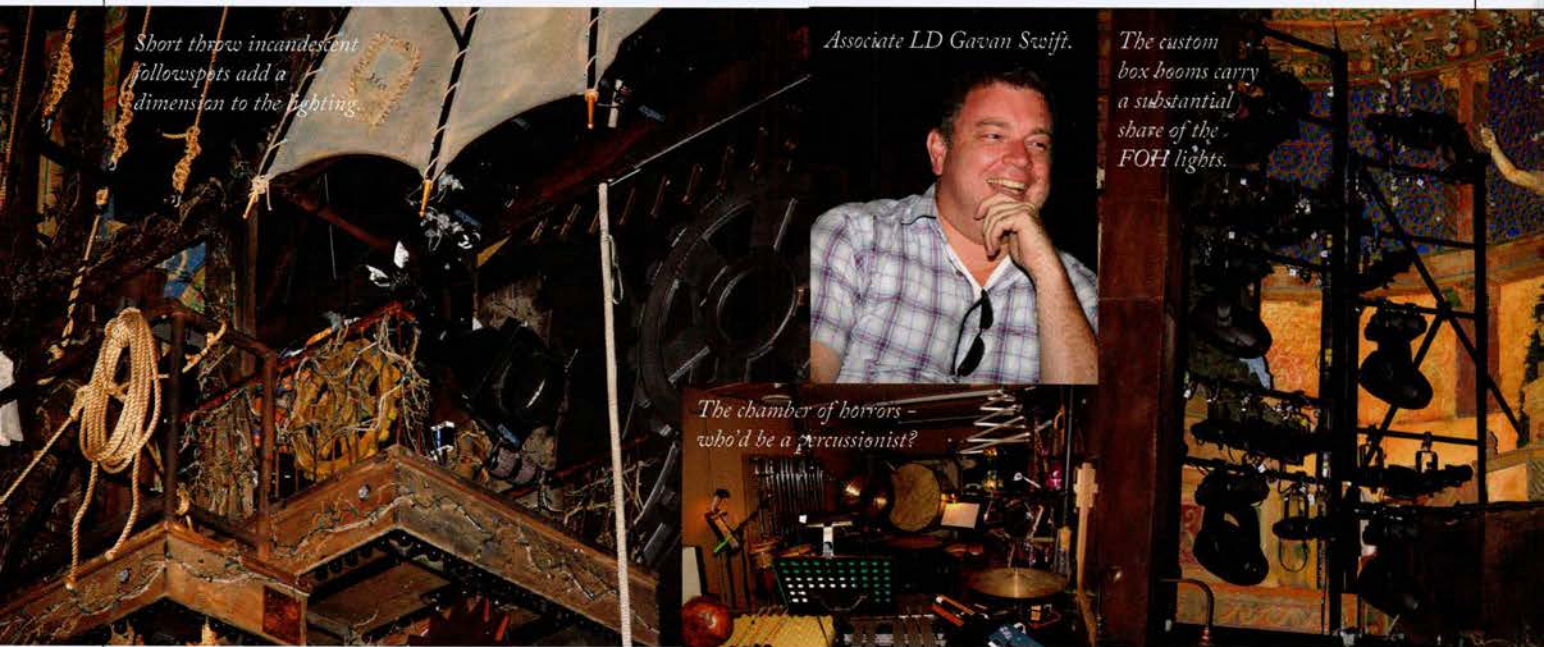


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The receivers are in a nest beside the stage, along with a monitoring computer and audio testing facilities. "This is a very amplified show so if we lose a mic, people are going to notice. Everything gets checked beforehand." And just in case, all the principals are loaded with a second mic so that if something does go wrong the operator can just switch over.

The orchestra pit, as always, is crowded and filled with the various things musicians leave behind them – music stands instrument stands and so forth. There's also no shortage of microphones – and the spec is obviously based on 'what we want', rather than 'what we can afford'. Every major manufacturer seems to be represented, and there's everything from SM57s to U87s, including a "really nice Sennheiser MKH800" that Martin singles

out for special mention.

In order to actually get enough isolation to have something mixable out of the pit, a number of noise control measures have been taken. Monitoring is all done on Aviom controlled headphones, there are Perspex barriers separating the lines of horn players, and the drummer is securely sealed in a little soundproof box. The percussionist gets his own little chamber of horrors in the bowels of the theatre.

There's an orphan keyboard near the foldback DM2000 under the stage. It's connected to the internet, as are all the others used in the show, so it's got the same voices available as any of the others. That way if a keyboard fails the player can leg it out of the pit to this one, put on the headphones and recall their Aviom settings, then pick up where they left off.

The samples used for effects playback from FOH are also accessible via the web so if there are changes to the sound design, new audio files can be picked up by the audio teams in the various cities where Wicked is playing. This came in handy when the Australian production needed to borrow an American Elphaba after the local one got broken – her recorded scream was available for download so it sounded like her. Needless to say, there are two samplers so if the main one fails over, the backup gets switched in.

## LIGHTS

My next port of call was the lighting department, to speak to Head Electrician Kath Pineo. She was rather busy, in the middle of a three monthly major

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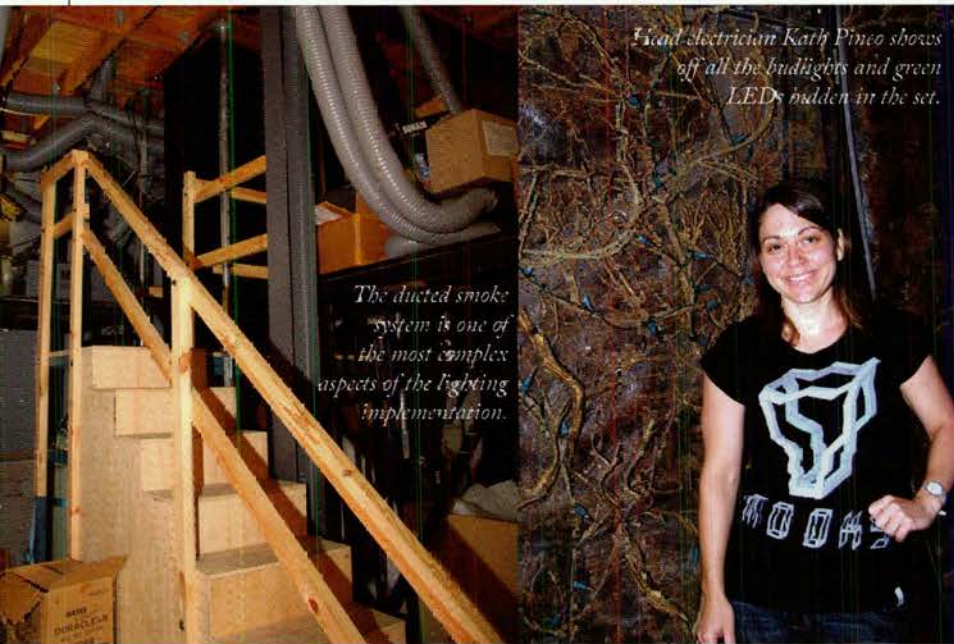


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Head electrician Kath Pines shows off all the budlights and green LEDs hidden in the set.

The ducted smoke system is one of the most complex aspects of the lighting implementation.

maintenance and focus check session, as was Associate Lighting Designer Gavan Swift. Fortunately, they were able to take a little time out to talk to me about the lights for the show.

Gavan suggested, and Kath agreed, that one of the trickiest elements of lighting the show is the smoke system. In order to achieve the amazing smoke control I mentioned earlier, there are thirteen fog machines – some ordinary ones and some cold-flow units for low fog – scattered around backstage and beneath the stage. These are all hooked up, via an extensive network of ducts, to holes in the stage.

Some of the holes are small and allow fog to simply seep into the area, others are larger and fitted with fans to pump out great billowing clouds. Depending on which machines are fired up, the fog

can appear almost anywhere. Zoned fog – cool.

There are also a lot of electrics built into the sets and other staging, primarily budlights entwined in the vines and green LEDs built in all over the place. It's all invisible until at the flick of a switch, the entire set lights up in either white or green. It looks very impressive. The moving sets get their DMX wirelessly in the interests of simplicity – they all still need to get power through a cable, but there are power delivery methods used, like the big knife connector in the stage, that are simply not a viable option for data delivery.

The remainder of the lighting is fairly typical of Broadway design, using lots of side and top lighting along with the big custom designed box booms built on

either side. There is not a huge amount of front lighting, and what there is comes mostly from the circle rather than the roof. "When the big theatres on Broadway were built, there was very little provision for front lighting," Gavan explains, "and you usually find that the shows are designed with those theatres in mind".

The moving lights in the rig – about 90 of them – are all Vari\*lite, roughly one third each of VL3000 spots, VL2500 spots and VL2500 washes. On top of that there are also about 400 conventionals, including an awful lot of source fours and about 100 colour scrollers. There are even two big 10k fresnels, used without lenses for shadow and silhouette effects.

Also included in the conventional count is a lot of cyc lighting. The cyc does a lot of work in this show, so it's important to get it right. All of the lighting above and beside the stage is rigged to tour, so when the show moved from Melbourne, it was simply broken down and trucked. According to Gavan, when the Sydney build was complete "we didn't need to do a complete focus – just check it, adjust a shutter here and there – most of it held from Melbourne."

The show is controlled by a GrandMA console, with the ubiquitous tracking backup. One console does the whole show, but three are used for the replotting when the show moves. Kath says, "it's the most efficient system for using three programmers." "No other console will do everything we need the MA to do", Gavan agrees.

There are five followspots used in the show – three from conventional FOH positions and one from high on the proscenium set either side of the stage.

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*A mechanical dragon called Stacy? Why not?*



*Madame Monble (Maggie Kirkpatrick), Glinda (Lucy Durack) and ensemble. Photo by Jeff Busby.*

Gavan says that these side spots are becoming more and more common in big musicals “It’s a really, really nice angle: it shows things other angles don’t, you can light people offstage, all the spill goes into the wings, which is great with the flying scenes. Also these are incandescent, so the colour temperature matches the conventional rig.”

Finally, there are two Barco 10k projectors fitted with Barco mirrors doing projection effects, fed by a Catalyst system. The projection system was supplied by TDC, the remainder of the lighting is from Bycraft.

## STAGING

Staging *Wicked* is a big job. Cameron Flint is the Head Mechanist, and he

knows exactly how big. “It’s actually easier here than in Melbourne. The Regen has very little space in the wings, so we had to store a lot of stuff in the air – we used 28 storage motors, rather than the six we’re using here”

When the show moved to Sydney, it filled 21 semis – 45 footers – and there’s 23 tonnes of scenery flown off the Capitol counterweight system. It’s plenty big.

Now that it’s in, the show runs with a stage crew of ten, including three flymen. A lot of the scenery is automated, so it’s largely a question of making sure that things get where they should, when they should.

That said, there are some things you have to do the old-fashioned way. The

dragon above the stage (called Stacy, for reasons that escape me) moves and flaps her wings when magic is used in the show. This is achieved by one of the stage crew pulling ropes for the head movement while pushing a foot lever to flap the wings. Cameron describes it as “like trying to do chinups while riding a bike with one pedal.”

The wizard head is another sophisticated puppet. A single shaft coming through the set piece allows an operator standing on the back to use a variety of twisting, pushing and lifting movements to control the behavior of the head, with levers like motorbike brakes controlling the eyebrows and the mouth.

In order to ensure that the show keeps happening the way it should, the staging

## BACKSTAGE TECH – THE THINGS THE PUNTERS NEVER SEE

There are so many aspects of how a production works that the audience will never see. Most of them are familiar to regular backstage workers, but here’s a couple of ideas that make life in the big theatre easier...

The practicalities of fitting a show into a theatre are such that things don’t always turn out exactly how you’d like them. Often, some of the cast and crew have essential sight lines obscured. In the case of *Wicked*, the person calling the show can’t physically see the stage. The orchestra pit drives deep beneath the stage, so from most positions on stage the conductor is effectively invisible. And if you think the cast have it tough, spare a thought for the percussionist – he’s separated from the conductor by two walls and a flight of stairs!

These problems are resolved by the clever

use of small video cameras and monitors – and where there are problems associated with seeing in the dark, infra-red cameras provide a solution. So even in blackout, the poor soul in prompt corner has a crystal clear view of the stage, and the cast can see the conductor. Something to think about – the absence of big screens doesn’t mean there’s no vision systems involved in the show.

SshhhCom is a clever idea developed by System Sound to allow silent communications between crew. In this case, it connects backstage to FOH audio control. Type your message in backstage, it pops up in front of the audio guy – who thereby

escapes the need to wear cans. It even has a bunch of commonly required phrases programmed into function keys to shortcut the typing of messages. Audio suppliers System Sound have a strong history of developing clever devices like this to service the super-narrow niche of theatre production.



*SshhhCom.*

## DEFYING GRAVITY - THE MAGIC OF FLIGHT

In Oz, some monkeys can fly. In Sydney there are four of them, each of whom has their own dedicated flying system and a technician to operate it. The motorised compensator system is supplied by ZFX in Louisville, Kentucky and offers amazing control using very simple controls. The system uses a motorised trolley on a track supporting two cable winches. The controller has two joysticks – one moves the trolley on the track, the other adjusts flying height using the winches. This enables the operator to achieve a number of flight trajectories including a pendulum effect which must be little short of terrifying for the performers.

Glinda's bubble follows a similar basic concept, with slightly more sedate

characteristics. The shiny chrome bubble, fitted with several bubble machines for greater effect, is also suspended from a trolley on a track, but the suspension system uses a concertina-type linkage instead of cables, eliminating the pendulum effect. Glinda is also spared the discomfort of a suspension harness – the bubble offers a platform to stand on while a clip at the rear prevents her toppling off. Much more dignified.

And then there's Elphaba's great moment of flight. As she soars into the sky over the people of Oz her cloak billows out, enveloping them all in its inky folds. She flies so high she almost disappears into the flytower. It's very impressive, and I've no idea how it's done. Magic?



*Chistery (Ryan Sheppard) Photo by Jeff Busby*

is on a six-week maintenance cycle. Each week some things are pulled apart and serviced – theoretically eliminating the need for any emergency repairs ever...

### COSTUME AND WIGS

Looking at the racks backstage, there must be millions of bucks in costumes on the show, all handmade and all tailored to their wearers. As Fritze points out, this makes it important that when members

of the ensemble are replaced, as happens from time to time, the replacements are the right size.

Even the apparently simple, subdued costumes worn by Elphaba and her sister Nessa-Rose are far more intricate when viewed close up and the wilder green extravaganzas worn by the ensemble in many scenes are absolutely amazing.

Wigs and facial hair are also impressive – everyone has their own personalized

bits and pieces. Little monkey beards, peculiar eyebrows, truly enormous hairstyles are all part of the wigs department's stock in trade.

Wicked is a phenomenal piece of production. Everything works seamlessly with everything, none of the technical stuff gets in the way of the show, and everyone I spoke to seemed to be having a good time. Chalk this one up as a win.

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# OH&S AGONY AUNT

*With Julius Grafton...*



## LABOR HIRE AND DUTY OF CARE

For a short time in 2005 we ran a crewing agency called Go Crew. For a tasty \$1,100 Telstra sold us 1800-GOCREW as a phone number. It all seemed too good, and we got a run of gigs. We supplied crew, drove around Sydney at dumb hours in a Tarago and then more important things got in the way.

A recent court ruling saw a labor hire manager fined \$5,000 – and the firm (Daly Smith Corporation) \$40,000 – because a worker they sent to a factory was injured. The factory admitted liability – they agreed their procedures were a factor in the laborer losing several fingers in a press. The factory were fined as well, of course.

The direct precedent implies this: if you send someone to work somewhere else, you must go and make totally sure they are inducted and that the procedures at the 'somewhere else' are bullet proof.

Which makes me shudder when I see thirty casual agency loaders bumbling about the loading dock of a Sydney arena, under the direct control of an offshore crew chief who wants four semis on the road by 1.30am to make a 4pm Brisbane load in at a festival stage. I counted half a dozen prosecutable incidents (jammed finger, crew running, climbing on cases, bending to lift, working off a ladder, no inductions) in thirty minutes.

I'm glad we threw in the Go Crew towel! Anyone want a box of 1800-GOCREW shirts? So you can Go Crew yourself!

## THEATRE DRAPES AND FLAMES

How 'flame retardant' are your drapes?

We purchased some new ones for our campus theatre space recently and I had a lot of discourse getting quotes from four vendors. We needed to be certain that our new black drapes were treated and as safe as possible for theatrical use.

Since Science Boy, Dr. Danger, Kandii and Andy were all on festive leave or in rehab, I was alone to unjumble the jargon and try to sort out the options. They try not to leave me alone, for obvious reasons



involving harm minimization and bad taste.

"All our fabrics comply with AS1530 part 2 & 3 standards", said the nice estimator at Jands. They quoted Velvet or Wool, and did not have a Velveteen option.

"Velvet and wool options quoted meets Building Code of Australia requirements for flame retardancy. All curtains will be labeled and certified in accordance with BCA requirements. Velveteen option will be supplied with the certificate of treatment issued by the flame retarder. We cannot certify this fabric as compliant with BCA FR requirements, as the fabric is not tested", said Michael Rafferty from STE Australia. I called to discuss further and he was very knowledgeable.

In the end we went with Velveteen from Reveal Productions in Melbourne

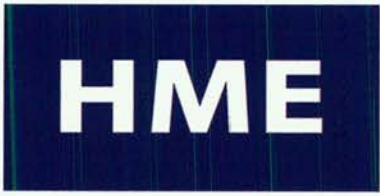
who did a nice job and delivered quickly.

The outcome: we have always considered all theatre drapes to be very flammable indeed. The Toyota launch bonfire at Oran Park and the Penrith Panthers theatre fire both started when lights ignited theatre drapes.

Since our campus is a small technical training facility and not a school or theatre, the slightly higher risk of Velveteen is manageable. We train our students to keep lights well clear of drapes and to avoid floor lights on 'H' stands that are not fixed in place and can be pushed onto drapes.

With our work practices, knowledge and supervision we say Velveteen. If you are a school, hire firm or theatre, we say go with Velvet or Wool. And don't let the label fool you: so far as we're concerned, all drapes burn. Assume the worst. **CX**

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



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# COUNTING CORES



*“Give me six hours to chop down a tree and I will spend the first four sharpening the saw.” – Abraham Lincoln*

By RICHARD CADENA

Over the holidays I reread “7 Habits of Highly Effective People” by Stephen Covey. The last chapter is entitled “Sharpening the Saw,” which is a reference to a story about a woodsman who is busy sawing down a tree. He’s been at it for hours and he’s exhausted. Someone happens upon him and asks why he doesn’t stop and sharpen his saw. “I don’t have time to sharpen the saw,” he says, “I’m too busy sawing!”

Sharpening your saw is a metaphor for renewal. I had an unplanned opportunity to sharpen some skills when the hard drive crashed on my desktop computer. Fortunately it’s not my main computer and I didn’t lose any valuable data. But I did have to replace the hard drive and re-install all of the software, including the operating system and all of the applications. I’ve been using this computer to edit a DVD about programming a lighting console. The software I had been using included a non-linear video editor (Sony Vegas 9.0), a lighting console offline editor (Hog3PC), Vectorworks 2010, and ESP Vision 2.3. I also use a graphics editing program (Corel Draw) to manipulate graphics.

Since this happened over the holidays it gave me the opportunity to spend some time relearning a lot about computer hardware and update my knowledge of the software we use to do our jobs. This computer was one I built about a year ago, and it uses an AMD Athlon X2 6000+ dual core processor running at 3.1 GHz. I chose this processor because of the price/performance ratio; it cost U\$107 (A\$122) with tax in 2009, which was very reasonable for a 3+ GHz processor. I really wanted a quad core processor to render graphics faster, at the time it was

about double the price. So I opted for the less expensive but still powerful processor.

The processor speed, I’m told, has a lot to do with how well a visualizer can keep up based on the number of CAD blocks (fixtures, set pieces, design elements, etc) in the file. Most of my projects have a relatively small number of fixtures – at least until Willie Williams retires and Bono calls me – so a 3.1 GHz processor has more than enough speed. I probably could have gotten away with a cheaper, lower speed processor, but I would rather have too much power than not enough, especially for A\$122.

The motherboard is a Gigabyte GA-M61PME-S2P, which I chose based entirely on the recommendation from the owner/operator of the small computer shop down the street where I bought the components. The power supply I bought is a 650-watt Green brand and it cost U\$96 (A\$109) with tax. It was also recommended by the computer shop owner and it turned out to be enough power.

The mother board has two double data rate dual channel (DDR2) memory slots and I bought two sticks of dual in-line memory modules (DIMMs), each of which has 2 gigabytes (GB) of RAM. I know from experience that more memory means better performance, especially if you’re multi-tasking a lot. Each stick of memory cost U\$33.50 (A\$38), and if you remember how much RAM cost in the ‘90s then you can appreciate what a fantastic bargain that is.

I could have bought two 4 GB DIMMs but a 32-bit operating system (Windows XP) can only address a total of 4 GB of RAM (232 = 4 GB). Windows Vista is available in 32-bit or 64-bit, so if you buy the 64-bit version then you can use as much RAM as the motherboard

will allow (typically 8GB).

You can also buy DDR3 now, which is twice as fast as DDR2 and is available in modules of up to 16 GB. But they work in groups of three, so it would cost a minimum of about U\$300 (A\$341) for this RAM. It’s tempting to find out how much that would improve performance but that would also require a new motherboard. I think I’ll wait a little while before I totally overhaul my hardware.

The only component I didn’t buy down the street was the video card because it’s the most critical part for visualization in lighting design software. I approached it with a bit of trepidation. A few years ago I was asked to review a new version of a popular visualizer, but my computer at the time didn’t meet the minimum requirements for the video card. So I went to an electronics shop and found out that such a card would minimize my wallet by about U\$500 (A\$568). I ended up maximizing my opportunity to get out of there without buying it.

The landscape in video card world has changed dramatically since then. Now, a video card that cost several hundred dollars back then is much more reasonably priced. For this computer I looked for and found a graphics chip that met the minimum requirements for ESP Vision – “a Direct X 9.0 compatible video card with at least 256 megs of RAM supporting vertex shader 2.0 or better and pixel shader 2.0 or better” – and for WYSIWYG – “PCI Express video card with Open GL-accelerated display adapter with 128MB (or better) of video memory, Open GL 2.0 Support.” I found a brand new ATI Radeon X1900 XT with 512MB of video RAM on eBay for U\$97 (A\$110) including shipping.

I already had a tower case and a hard

drive from an old computer, so I used them both. In retrospect, I probably should have bought a new hard drive since they're unbelievably cheap and the one I used ultimately crashed less than a year later. But then, had the hard drive not crashed, I would have missed this learning opportunity.

After installing the new hard drive and the operating system, I found that I couldn't get on the internet. I double checked my connections, swapped cables, and I even tried to use a Wi-Fi dongle but I couldn't get online. I spent about an hour on the phone with tech support troubleshooting the problem. We tried changing the IP address and reconfiguring the subnet mask, but nothing worked. Tech support finally declared that everything was fine on their end and that I would have to contact Windows tech support to resolve the problem. The OS was long out of warranty, so I would rather take my chances against Elin Woods and her golf club than face the long wait time and the high cost of out-of-warranty tech support.

It turned out that the dongle manufacturer's tech support were right about their end of things. After poking around in Windows device manager I

realized that the Ethernet drivers were missing. It had been so long since I first assembled the computer that I had forgotten about the CD-ROM that came with the motherboard and had all of the drivers. Once I found the disk and installed all of the software the internet came alive.

I eagerly installed all of the application software and everything worked beautifully, executing commands quickly and reliably. The graphics card does a fabulous job of painting the screen, even in the most demanding applications. I pause to reflect on this little slice of heaven because I know it won't last. Once the Windows registry becomes clogged with residual 0s and 1s the machine will slow down enough to make me long for a T-square and a mechanical pencil. To stave off that eventuality I reserve the use of this machine for graphics-intensive jobs only. I use my laptop for my daily tasks like email, word processing, and trying to keep up with all of the social networking sites. For that I know I will eventually have to pay the piper and replace my laptop on an annual or bi-annual basis (News Flash – laptop ceased functioning, new one has been ordered with DDR3). But that's okay; the prices are falling like the autumn leaves.

This morning I opened the newspaper and found an advertisement offering the very same motherboard/processor combination for U\$53.99 (A\$61) with tax. Some people go berserk when the technology they buy drops in price after they bought it. I paid U\$180.36 (A\$205) for the same hardware and I was thrilled. To get a state-of-the-art (at the time) high-end computer for under U\$500 (A\$568) made me giggle like a little girl.

Today there's an article in the paper about the new technology that Intel is working on. Remember that dual core processor I bought last year? Now you can buy a quad core processor for roughly the same price. But that's not what the newspapers are talking about. What they're talking about is – are you ready for this? 16-core technology. And 48-core technology. Intel, it appears, is making strides in multi-core microprocessor technology. How long will it be before we start talking about M-core (million cores) and G-core (billion cores) technology? It's hard to say, but this I know for sure; we all have to keep our saws as sharp as we can. There are some big trees growing in the forest.

*Email Richard Cadena at [rcadena@austin.rr.com](mailto:rcadena@austin.rr.com) and he will reply from his new laptop with DDR3.*



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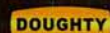


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
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# WHO DO I SUE? RESPONSIBILITIES FOR RISK ASSESSMENT

*In this day of "I have scratched my toe – we must sue someone immediately!" how many venues are working with clients to ensure that risks are properly managed?*

By **STEPHEN DEAN**

**D**o venues go through evacuation procedures with the clients, like the Stage manager or production coordinator? Do they check that the client has an approved First Aid Kit? Does the client have an OH&S policy and who is their responsible officer? And does the client have insurance?

Even if the client does everything right, the venue never gets away with not doing anything. The venue needs to comply with a whole raft of legislation to ensure the safety of their clients. The venue has a duty of care to its workers as well as the clients that hire the space. Venues can be pro-active in the risk management field by providing guidelines, such as a site safety booklet, offering guidance for the client.

## WHY DO WE HATE RISK MANAGEMENT?

Many people think risk assessment simply means paperwork and bureaucracy, but we have been doing risk assessment all our lives. When you cross a road you look both ways, then make a judgement call on whether to walk. This is a risk assessment: a process of common sense. It is not a process of trying to stop an event happening - it is a process of making sure that when it happens, it happens with the minimum of risk. We assess risks to work out ways to do certain tasks better and safer.

If we were to take risk assessment to the extreme and eliminate all risks, the stage would be level with the audience. The audience seating would be level, there would be no black outs or bright lights into to the cast's eyes, and they would have no make up on. Boring and rather plain. That is not what we are about. Risk assessment is about examining risks and working out a way to make the show happen safely and minimise the risk. We want to stop accidents, not events.

## DOCUMENTING RISKS

The risk assessment document is a daunting one for many clients, but even if it looks too hard they need to complete one. Many venues have it as a condition of hire. Any venue that does not is tangling with a potential minefield. This document proves to the venue that the client is aware of the inherent dangers of their event and their obligations to their cast, crew and audience.

Yes, the audience – they are also responsible for what can happen to their audiences in a lot of cases. This is too often forgotten. They just need to remember they are hiring the venue and part of their responsibility is towards their audience who they are charging to see the performance. The client, like the venue, has a duty of care to the audience. This is really the premise of the occupational health and safety act – duty of care.

If a risk assessment has not been completed by the client and there is an accident, the responsibility is going to fall on the venue as they failed to ensure that risks were properly assessed. The risk assessment shows that the client is not only aware of the risk but has considered ways to control that risk.

## MAKING IT EASY

Risk assessment is a two way street between client and venue. The venue needs to state its emergency procedures and the way it likes things to be run safely and the client has to make sure that their event is safe and complies with all regulations. If they are unsure of something they can always ring the venue, as most venues are more than happy to advise the client on such matters. Other venues, like the Mildura Arts Centre, produce guides to help clients use the venue safely. All of this information could be put together in a guide for hirers, which could also list nearby facilities etc. A great example of a system that works

is the Playbill Venues site. It is so easy for Playbill clients to get information on risk assessments and the venue's OH&S policies. Other venues could learn a lot from Playbill.


## WHEN THINGS DO GO WRONG...

If a client has an accident at their event, who is to be notified? Well if the accident is due to a fault by the venue, the venue has to be notified as soon as practical. But if the accident is the fault of the client, who do they notify besides their insurance company? Do they need to tell the venue of an incident that is not the fault of the venue? This is a bit of a grey area, and venues should have guidelines in place. Clients also need to have their own guidelines and it may be safest to simply report all incidents and then work out after the event who is responsible for what.

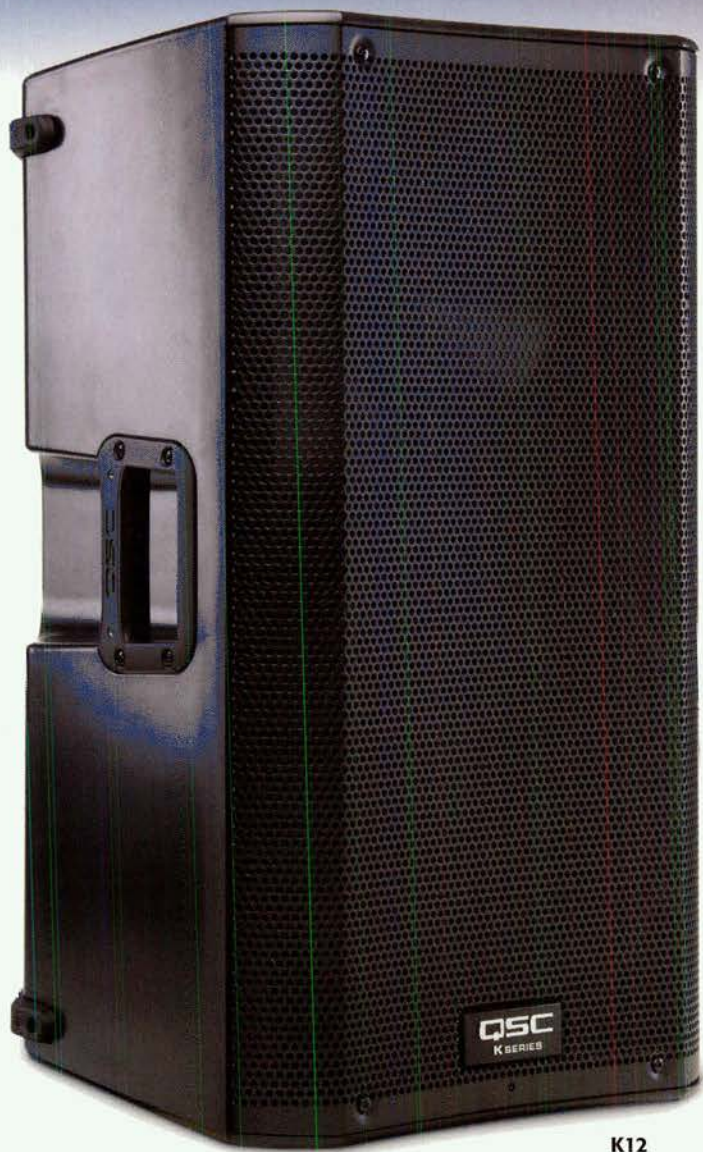
The venue should have a standard incident report form, but it will do no harm if the client has their own form as well. Documentation can save everyone all sorts of hassles.

Hopefully you will never need to go down the legal path, as I stated before Risk Assessment and Occupational Health and Safety is mostly common sense. But as always get advice from your local government as things do vary from state to state. Probably the best advice is to err on the side of caution – if you're not sure if you need to report something, do it anyway just in case.

People need to make themselves familiar with the legal requirements of the OH&S acts in their states, especially the fact that certain serious incidents are required to be reported to the appropriate authority. Currently there are state to state variations in the Acts, but the new federal law will resolve the differences.

We are here to entertain, not sue one another. 

# 1000 WATTS



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# BIGGER PICTURE AT BIG PICTURE

*It's been a few years since CX caught up with operations at Big Picture, the Sydney based video solutions firm. Since then founding partners have become one owner and the HQ has relocated into an impressive spread on the southern side of Sydney. Big Picture has also ventured across the Tasman, opening an office in Auckland New Zealand. CX paid a visit.*

By **JULIUS GRAFTON**

Joe Bonanno and Dennis Murphy met at the Sydney Entertainment Centre when Joe came in to help out on a gig. "It was AC/DC, and when the cannons went off, I knew that was where I wanted to be", Joe said.

Joe went on to work on the first video tour in Australia, for Mick Jagger in 1988, and he and Dennis collaborated to form the video arm of Arena Technical Services, or ATS as it was then known.

Back then video meant a couple of high screens and projectors for the back rows, who then didn't need to use binoculars to see the show.

Fast forward to 2010 and the firm has a growing inventory of LED technology, high definition camera systems, projection and other video gadgets for concert tours, festivals, corporate and television work

and events.

Along the way came some breakthroughs – when CX first met the partners they were supplying video for the Janet Jackson tour of Australia in 1995. That tour used Video Cubes on stage, with very clever dancing silhouettes and graphics. Their combination of display equipment, projectors and camera work impressed the act, so they joined the rest of the world tour. An Australian firm was on the road, internationally.

It's a story that happened again and again. In 2006 & 2007, Joe was the video director for the Black Eyed Peas world tours and Fergie shows. Big Picture had seven tonnes of gear on the road in the USA and Europe.

The company has supplied crew & equipment for international tours for Rihanna with Dave Hendy as Video Director.



*Joe Bonanno and the Big Picture premises.*



*Cliff Richard Stage Shot with Kindwin Flyer-12*

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“A few of us, Dave Hendy, Nick Bojdak, Stephen Pippett, have toured just about every remote concert location on earth, from Kazakhstan to deep south and central America. We loved almost every minute of it.”

**WHY AUSTRALIANS?**

I want to know why it is that international artists choose to tour Australian video overseas.

“Australia may be a relatively remote location but it is an A market for touring shows. We are now a major player on the world stage and the talents of individuals are noticed by touring production and there is a lot of talent out here”

But it comes down to the reputation of the firm. “If someone trusts you enough to ask you to do video, that’s what matters. It’s the people that work on our behalf that makes this all a reality”.

“There’s a growing number of Australians who have been picked up to work on international tours, along with the seasoned TM’s & PM’s, they have worked in the most challenging environments. These guys have seen how hard it can be, we aren’t building rockets out here”

On the other side of the coin, some tours bring video into Australia. “If there’s custom video built into the set surfaces then that makes sense as well”, says Joe.

**DEVELOPMENTS**

IN 2009, Big Picture Opened its New Zealand Office.

“You couldn’t get everything you need from one supplier over there, for a tour or big show”, Joe says. “We did almost all the major rock shows there last year”. The New Zealand operation is managed

by Paul Carpe in Auckland. “We can offer continuity of service across both countries”

Then there’s the logical step of opening in Perth, “Stay tuned”, says Joe

To manage these developments, there have been some new appointments at Big Picture. New faces include- Addam Crawford, Cooper McCoy & Jake Nakhla

“Six months ago, we moved to our new shed at Waterloo. It’s 2700 square metres of warehouse and office, with additional room for other companies who need some office space.

“Timing is everything so of course the move coincided with the arrival of our new daughter, Alexandra - perfect ! She has an older sister Georgina who is just 3. My wife Natasha is amazing, I’m not sure how she has put up with any of this. My 3 girls are my first family. They are

**THE TEAM**

SALLY RICE Production Administration

JON OKEYBY Client Services

ADDAM CRAWFORD Senior Project Manager

BRETT HAWKINS Operations Manager

SAMANTHA THOMPSON Reception

DARREN BRAIN Logistics

NICK BOJDAK Senior Engineer

DAVE HORSBROFT Director, Engineer, Camera, AV

NICK HEMINGWAY TD, AV, Client Services

COOPER MCCOY Trainee Technician

JAKE NAKHLA Warehouse

DENNIS MURPHY, DAVE

HENDY, PAUL WOOFE Freelance Expertise

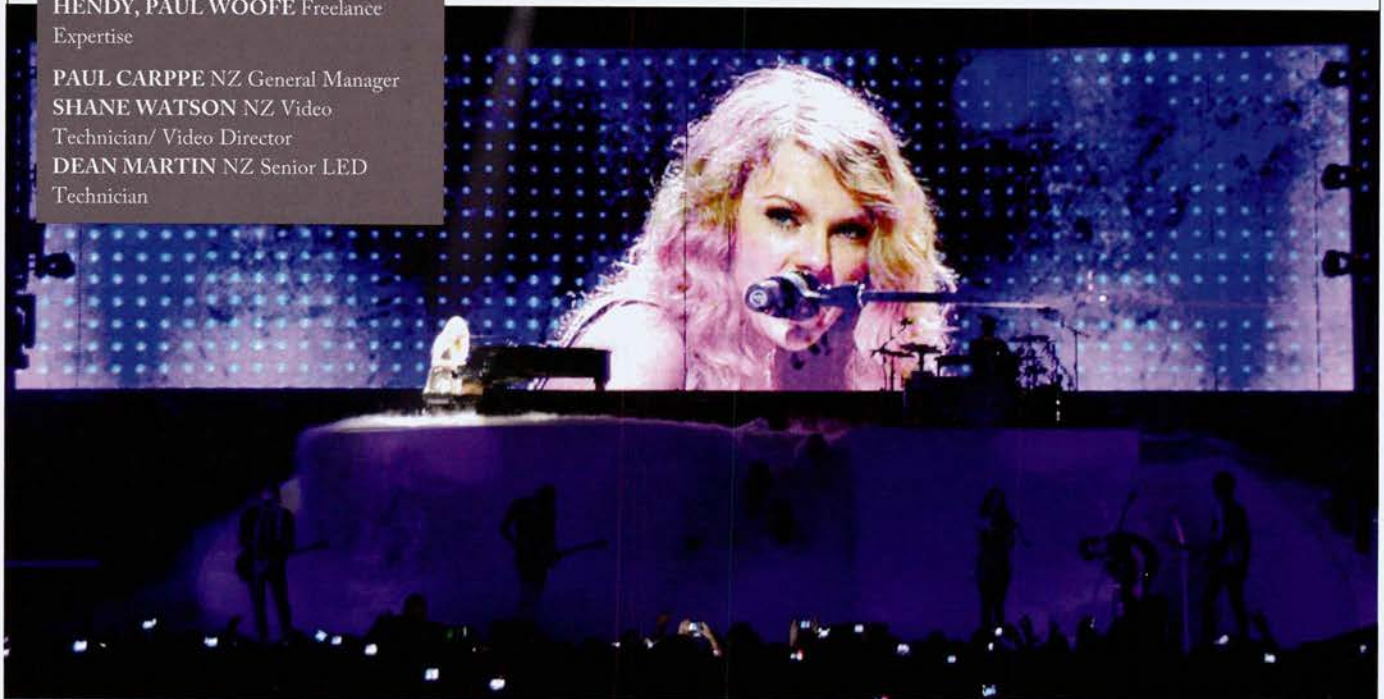
PAUL CARPPE NZ General Manager

SHANE WATSON NZ Video Technician/ Video Director

DEAN MARTIN NZ Senior LED Technician



Taylor Swift Video Control and Stage with 60' wide Mitrix screen.



the motivation and inspiration behind everything I now do”.

## RECENT SHOWS

Big Picture is having a massive summer, with significant tours and shows.

Big Picture started out 2010 with regular client The Sydney Festival, supplying the Domain shows with the regular LED screens and cameras, the Festival First Night had multiple locations and AR Rahman at Parramatta - the Festival have used Dennis and Big Picture for 16 years straight.

Taylor Swift toured with a complete high-definition Grass Valley HD Kayak & Sony HXC-100 camera system, many Barco FLMHD 20k Projectors and 80 square meters of Barco Matrix.

Cliff Richard and the Shadows used HD Cameras and 70 square meters of the new lightweight 12mm pitch Flyer-12 Kindwin Screen that Big Picture have introduced to the local market.

Then there is the iconic Tropfest Short Film Festival in Sydney, where Big Picture supplied the LED screens for the domain and direct pictures for the event feed as well as managing the network feeds to other cities, TV and regional areas.

The video laden Good Vibrations

Festival held in Sydney, Melbourne, Gold Coast and Perth: almost simultaneously has 4 stages at each city with a lot of cameras and LED

The new Top Gear Live Arena show at Acer Arena uses LED, projection and cameras, including a GigaWave wireless D-Cam unit.

Top that off with 2 weeks of Whitney Houston, with 80 square meters of Lighthouse ER-10 stage screen, a camera system and projection. “That’s February taken care of, bring on March” says Joe.

## THE FUTURE

Video Technology seems to be always on the move. I asked Joe how he feels Big Picture will deal with the challenge of keeping up?

“Now more than ever, vision is a part of any major show. Its expected by the audience, we live in a vision oriented world. We are well placed with the right high end production and display equipment. Show control equipment is where I see the next smart changes”.

“The biggest challenges are the sheer scale of vision elements being designed and of course the usual problem most vendors have with: all the gigs being scheduled at the same time. We have a

strategic partnership with Massteknik in Melbourne. They do good LED work and have a similar approach to Big Picture in the delivery process”.

“I think we are well placed with the right people and equipment, to grow into the next phase. Onward and upward.”

CX

## NEW TECHNOLOGY

### New products include:

The new versatile LED trailers (“Pods”) – 13 square metres of Lighthouse R16, with a telescopic mast that can rotate 360 degrees.

High resolution indoor/outdoor 10mm LED

Kindwin Flyer 12 - 12mm lightweight high quality/high resolution, indoor/outdoor LED

HD camera systems, with Grass Valley, Panasonic & Echo Labs “Atem” HD production mixers & multi-format mixers

Sony HXC-100 HD camera chains

Sony BRC-700 HD dome cameras with remote joystick operation

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# NEUTRIK



*Join us as we learn from the past! Rake over what were new ideas and think about how things change. This is the window into the past, since we have trouble predicting the future.*

## 15 YEARS AGO MARCH 1996

What a naff cover! The magazine had just had a staff overhaul, with around twice as many people as we now have – because back then it was a very different thing producing a magazine. This issue cranked in at 112 pages – an exhausting effort for what was then a monthly magazine.

## READER SERVICE CARD

I had forgotten this useful device from the days before the www became all pervasive. We had a 'Reader Service Number' on each advert and on a lot of new equipment articles. Readers circled the number on a free post card and mailed the card to us. We sent the reader's name on to the advertiser / vendor, who then presumably leapt onto the reader. We persisted for a few years with this until we realised no other publisher would work this hard.

## ROLAND V STUDIO

The \$4,000 VS-880 arrived, with a 1 GB Jazz disc as the media. It was a very useful addition to the digital recording landscape, which was undergoing a period of schizophrenia as formats came and went.

## \$4,000 DAT

15 years ago \$4000 was a magic number – Sony launched the PCM-2800 DAT and that was a widespread stereo tape format.

## CONVENTION CENTRES

Brisbane Convention Centre was open and defending its in house AV policy, and Melbourne had just opened without mandatory in house AV. In many ways 1996 was an important year.

## ENTECH 1996

Scheduled for April, this issue of Connections was fully loaded with visitor promotions and also the ENTECH AWARDS voting form. We remain very proud of the awards, and the magazine reminds me of the enormous amount of work – and cost – that a real and credible awards requires.

## DJ CULTURE

In 1996 there was a big run on turntables and CD decks – the era of the DJ was starting up in full. The mag had a bunch of features and articles and the forthcoming ENTECH would feature a DJ Championship. Little did we know this would turn into an emergency as hundreds of young dudes swamped the trade show on the Sunday and the bag check desk ran out of numbered tickets for skateboards. We ran very close to the wind with far too many kids in a draped off corner of the Sydney Exhibition Centre and the obvious problems of too much PA upsetting the exhibitors. Not our best idea. Not at all.

## DESIGN ESSENCE

Ian Wood started a new business, focussed a little more on the architectural side of lighting.

## WHAT WE PAID:

- Gemini TechnoMaster DJ Mixer \$320 (plus tax).
- Gemini CD 9500 dual CD deck \$1,699 (inc tax)



- Golden Scan 3 (waggly mirror mover) \$8,675

## 10 YEARS AGO CONNECTIONS MARCH 2000

## LATE FINAL EXTRA

The cover was stark and kind of attractive – this mag fell into the time void between deadline and ENTECH 2000. The previous edition was the show guide – published long ahead of the show so punters could know things. This issue was not the guide, and it was not going to be The Report, since it had to be in between. The difficulties of publishing!

## STREISAND

Our Bruce Jackson led with a story on his audio design for the concert of 2000 – the sensational Barbra Streisand was appearing outdoors in Sydney and Melbourne.

## DSP MEDIA

Australia had an emerging pro audio manufacturing base with the Sydney DSP Media attracting enough venture capital to relocate to Los Angeles. In 2000 there were dreams and there was money for dreams. It didn't end well for DSP Media.

## TELSTRA BIG POND BILLING SNAFU

We outed Telstra for an outrageous \$7,773 monthly internet bill. They didn't bother to respond in time, so game on. Eventually they caved, and we had a

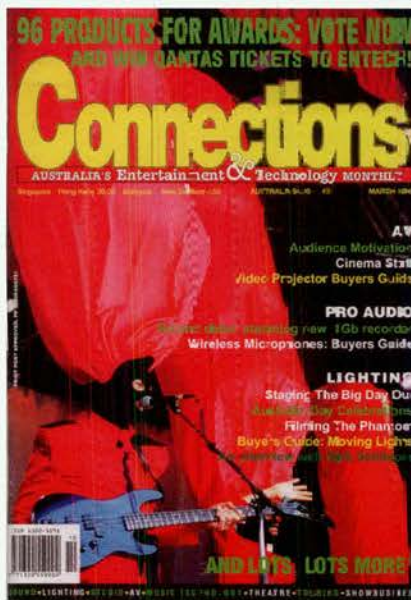
replay some years later that ended up on the front page of the Australian Financial Review and that evening's ABC news. People: don't let corporations overcharge you!

### MACKIE BOUGHT EAW

And there started the problems that now beset the corporation known as LOUD. "This is a win-win for both sides", said Greg Mackie. The loopy money guys were trying to leverage the fractious and divided pro audio manufacturing businesses, and history so far has not been kind – only Harman (JBL, Crown, Soundcraft, Studer) has made a good go of amalgamation.

### UP THE TRIPPY RIVER?

Michael Jackson (God bless your memory) cancelled his Sydney millennium new year's eve show and so his sound guy Trip Khalaf was at a loose end. "A case of good champagne, enough drugs to keep me and the entire village awake and snarling for a week, a big bottle of Viagra and these two gorgeous Lithuanian hookers I met last year", he wrote in his Total Production magazine



column. Best of all: his reflections on American music trends circa 2000: "Gangsta Rap has been replaced with this strange Euro Techo White Guys Who Can't Find One With A Drum Loop Dance Stuff Heart Throb Heaven, Boy Meets Girl stuff". Why can't we make things a bit more interesting and arm these kids?



### WHAT WE PAID:

- Trip Khalaf: Never enough!
- Yamaha AW44-16 16 track Modular Digital Multitrack: \$5,500.
- Mackie HDR 24 multitrack: around \$10,000.
- Jands Event 408 lighting console: \$9,831



Share your Obsession

# ENTECH 2011

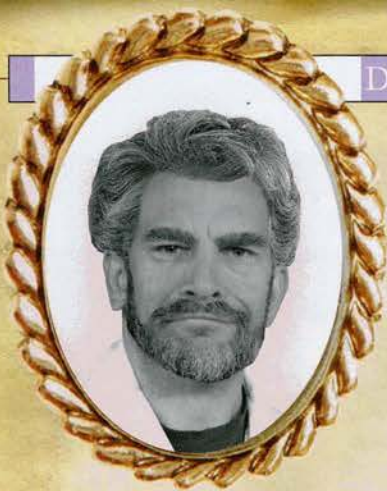
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# Dr Danger's COOKING WITH CURRENT

*Armed with nothing more than a dead chicken and a specially designed adapter lead, the good doctor sets out to see if all the hype surrounding RCDs really has any foundation.*

By **DR NIGEL SHORTCIRCUIT**

Once again, the labs at CX have been working overtime to bring you fresh exciting knowledge about the very fabric of science. This time around, I decided it was time to test the premise behind the compulsory inclusion of RCDs in electrical installations.

The conventional theory goes something like this: By putting a fuse or a circuit breaker in the active feed, we can cause the device to be isolated from the supply if there's an overcurrent fault. The theory continues: But if the overcurrent fault happens to be you introducing yourself into the current path, you'll be too busy being a smouldering corpse to really appreciate it when the breaker goes...

And so we introduce the RCD, which isolates the supply as soon as a small amount of current goes missing from where it should be.

But is the mains circuit breaker really that bad at protecting you? Time to find out...

## WHAT WE DID

Having again canvassed the idea of using one of the CX team, and having again been shouted down by people who selfishly put their own survival ahead of the advancement of science, we went looking for a suitable test subject. Unable to find any unattended bodies around the place, we were forced to use the only dead thing we could find – a chicken supplied by our local purveyors of fine poultry.

Having found our subject, the next step was to find a way to hook the unfortunate Dixie up to some decent

electricity. Idea one was to build up something rather special with a three-phase plug and some wire, but when we couldn't find a spare plug, we downgraded to a single phase version – plug at one end, bare wires at the other.

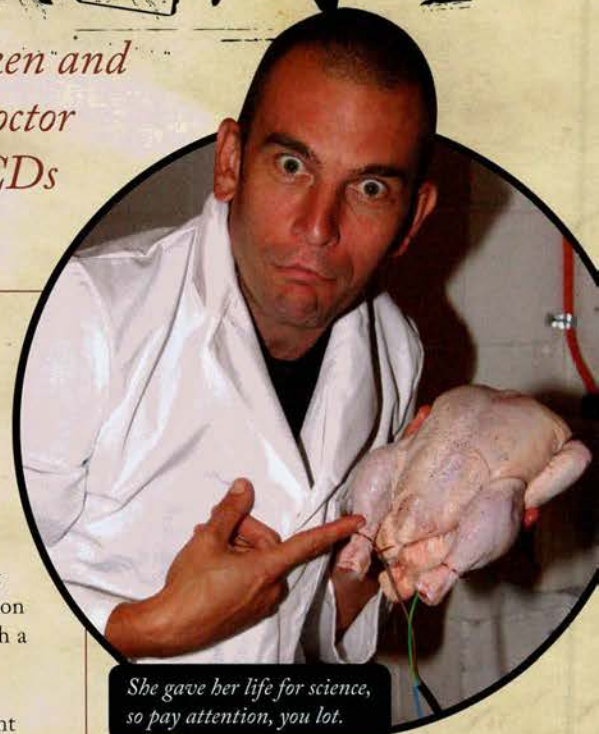
Most of you won't have one of these, and nor should you. Science Boy was at great pains to point out that no sensible or responsible person could possibly have any use for such a thing. So I had to make my own.

Then I used it to connect Dixie to the supply in a couple of different ways. First, active to earth from ankle to ankle, then active to neutral between the ankles – in each case simply knotting the bare wires around the limbs in question. The final connection involved plunging the wires through the skin and into the flesh of the chest – again connecting active and neutral.

In the interests of public safety, it should be noted that messing about with electricity in this way is extremely ill-advised, and I always take the greatest of care when doing so. In every case the supply was isolated from me at three points and we only energised the chook when we were certain that everyone was well clear.

## WHY WE DID IT

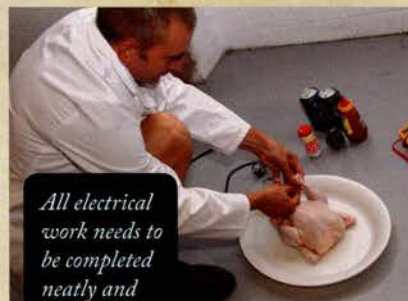
It's pretty simple really. The first connection was to see what happened when the RCD got to do its job. The active-neutral connections were intended to simulate the effect of bypassing the RCD, or of somehow getting into the active-neutral path (both very bad ideas). The final version of the test was simply based on what we thought might make the biggest mess.



*She gave her life for science, so pay attention, you lot.*

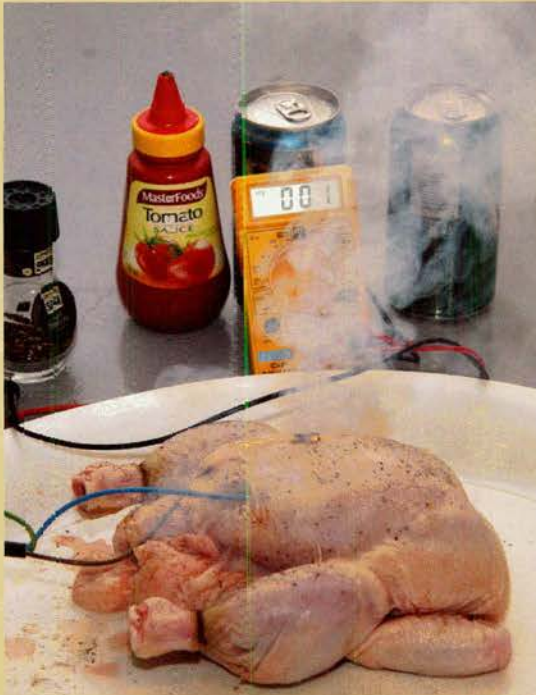
## WHAT HAPPENED

The first connection was the least exciting. As expected, as soon as we put any power into the system the RCD snapped, taking it back out (Fast enough that my finger was still pushing the switch when it went). Lucky Dixie was



*All electrical work needs to be completed neatly and methodically.*





*Oach. Sooner her than me.*

that protected from any further harm.

Experiment two produced rather more satisfactory results. Nothing happened for ten or fifteen seconds, then we started to hear a faint sizzling noise. It wasn't long after that we started to get visible arcing where the active wire met the leg, and when we gave up and disconnected her after about five minutes we found that both ankles now bore scorched rings where the wires had been – and the flesh close to the bone was cooked.

Experiment three proved even more satisfactory. Minus the resistance provided by the skin, the current could get started much faster so the sizzling began almost immediately. It then continued, accompanied by a reeking cloud of smoke, until such time as enough flesh had been burnt away that the wires no longer made effective contact. Quite disgusting.

And it's worth noting that in both the non-RCD tests, the circuit breakers did nothing. The supply remained live until we manually isolated it.

## WHAT WE HAVE LEARNED

RCDs work. This experiment doesn't really prove that they'll prevent you being killed, but it does prove that they act very quickly as soon as any leakage current is detected.

Mains voltage and current is enough to cook flesh. Not evenly, and not neatly, but cooked all the same. And if it's enough to cook you, it's enough to kill you. The value of the mains circuit breaker in terms of saving your life is exactly nothing. This is what you're facing if you get yourself across phases, between active and neutral, or act as an earth path in a system with no RCD.

If you survive, it's nothing more or less than blind luck, and the best way to make your luck run out is to start relying on it.



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# JULIUS REVIEWS AN ENTIRE PA SYSTEM....

*Turbosound Aspect \* LabGruppen FP \* Allen and Heath iLive \* QSC K12 \* Allen and Heath Zed \* Audio Technica wireless \* ARX EQ \* FBT Jolly 8*

By JULIUS GRAFTON

Summer is time for festivals and youth camps, so we put together a mega test and hauled it out to Stanwell Tops for a youth camp. Three days of tribal wars, water bombs and the occasional sliming were compounded by four rallies where the kids were rocked by a six piece band with six singers.

The gig went all the way, because we had to prep, crew and truck the whole lot in and out of the excellent Tops camp venue, which is perched above Stanwell Park at the northernmost end of the pristine coastal beaches north

of Wollongong. Tops has a five star reputation amongst camp sites, with terrific maintenance and cleanliness standards, along with a large auditorium good for six hundred or so.

## THE PREP

**MONDAY 0900:** Having secured pledges of equipment from our various vendors, we started the day at Thrifty where we were assigned an FP Fuso 'Fighter' 6 tonner. We didn't need anything as large for our production, but we had offered to haul all the kids equipment as well.

This meant two pickups, the first at

a private school who loaned their entire gymnasium quota of gym mats. That half filled the Fighter. Then on to the church, for a bewildering array of TV sets (for Play Station), 44 gallon drums painted lurid colours (stage props), a couch, windsurfer and stray boxes of stuff. By now the Fighter was looking full.

Technical Audio Group at Stanmore was next, where we didn't need the hydraulic lift platform because the equipment was so lightweight! This is the first time I've ever done a gig where the FOH and monitor consoles, and four powered wedges all were a one man lift!

We ended the day at CX HQ where



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we added our college's equipment (all our gear is donated, the college can't afford to buy equipment). The truck pack would need to be reviewed the next day when we collected the final components – the stacks and racks.

**TUESDAY 0830:** Don McConnell at Hills SVL greeted me at their despatch dock in nearby Silverwater. He handed me a fluoro safety vest, and we ventured down the back of the warehouse to a corner where he keeps his demo equipment. His drum kit was there too, presumably used to show off various Turbosound speakers.

It was immediately apparent that the Aspect PA and small LabGruppen rack would not fit into the truck, so I offloaded some props for the church guys to collect later.

Four Aspect TSW 218 subwoofers fitted exactly across the standard pantec. The four TA 500 top boxes sat exactly on top, albeit laid front to back, so they overhung the subs. The amp rack was a surprise because it was small and weighed just 30kg. "Will this thing do the work?" I asked The Don. He just smiled.

A quick trip across the road from HC to see Philip at DB Sound produced the missing link – extra cables and some DI boxes. Our college cable kit would not get us up, and my philosophy is to carry more than you need. Philip is really supportive – as are Lots of Watts, who are also located nearby.

At midday we were at camp, having loaded up on some food and drinks beforehand. It was stinking hot, high 3C's like the day before. We had big bottles of water. Lucy the college dog was with us.

I was assisted by Bruce and Junior who rode down from Sydney in the truck. Just like the old days, but without a slab of VB as a rider on arrival. Darn it.

**SETUP**

We scoped the hall and found 4 x 15 amp power outlets at the back, up on a building truss. Strange place, but we had some very long mains cables so no drama. I had the choice of 3 phase for the PA, but it was located in a kitchen and the thought of a 50 metre 3 phase cable and dizzy board turned me off. Plus there were only two power amps in my system (!) so 2 x 15 amp supplies were ace. We ran a third feed for the monitors.

Tops has lights, and Mark the house

tech and operations manager has added some LED pars that he acquired from Lighthouse Distribution last year. We had eight LED pars of our own, and the idea was to try not to fry the band with conventional Par's. So our lighting gear was limited to the Jands HOG1000 console we bought along and some LED pars. Easy.

Stacking the Aspect PA was easy, the TSW 218 subs on their ends make a perfect ground stack platform for the TA 500 3 way top boxes. Without the wheel boards, these weigh 52kg each which is easy for two guys to stack. Having said that, the subs come in at 110kg, which is at the heavy end of all subs. But the weight goes a long way towards the ultra



A good feature of youth camps is when the singers pitch in to help load the truck.



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*iLive T112 control surface*



*Aspect TA 500 connection*

low end performance – more on this later.

Plugging the PA together is a no brainer as well. Don't put together the rack in such a way that one NL4 cable ran to the subs which were then looped together using a short link cable, and one NL8 cable ran off to each pair of top boxes which were also linked. There was no possible way to mess up the patch!

Out front Bruce got the Allen and Heath i-Live T112 'surface' out of its box by himself, and figured out the correct Ethernet connection for the 50 metre Ethernet cable to the stage. A local power point sufficed since we were digital so we did not need the surface powered on the same earth as the stage.

He plugged a small Yamaha 12 channel desk into two local inputs on the surface, I figured we had an i-pod, and that someone would rush up with video and CD feeds at some point. Add on a desk mic, and it made more sense to have the little analogue outboard mixer and it paid off during the gig. The T112 surface doesn't have XLR inputs but it does have a host of 6.5mm inputs and outputs.

Meantime I organised the monitor and patch area. The iDR-48 mix rack has 48 XLR inputs and 24 XLR outputs. It connected to the T112 surface with the one Ethernet lead. The digital desk with

a remote rack like this revolutionises live audio since no multicore and return lines, not to mention mains power, needs to journey out to the FOH position! Too easy.

Next to the mix rack was the Allen and Heath ZED 436 mixer that was for stage monitors and ear packs. Why bother, when the i-Live has as many as 32 mix busses, and can easily send all the monitor mixes we need? Two reasons.

One was simplicity, I wanted an analogue board that the band could adjust if they needed more or less of something – and they always do. Second was simplicity again since James Johnson, a former student of my college would be the sound engineer. Third was redundancy just in case something went weird with the i-Live or its single Ethernet connection!

To connect up, I got Bruce to navigate the i-Live and find the input/output assignment screen. He then connected mic input 1 to output 1, and so on, all the way down to channel 20. So anything plugged in to channel 10 (say) would also appear on channel 10 of the ZED mixer. To physically connect the ZED to the mix rack, I had some short numbered XLR looms, so ZED channel 1 was patched to mix rack channel 1, and so on.

Finally I had Junior place four QSC K12 along the front of the stage as powered monitors. These are seriously cool kit – use them as FOH on end, or wedges because there is a wedge angle. They came back to the left and right outputs of the ZED.

Power on and we had FOH and we had monitors! The ARX dual 30 band EQ that I brought from the college was not required on the QSC K12's, because they just sounded so neutral and ready,

with heaps of headroom.

We got the two Audio Technica wireless microphones up and running, and called it a day at 3.30pm Tuesday.

(For the period from then until the first gig, see the tragic sidebox!)

## THE GIG

Wednesday evening the first gig was terminated before it began by the power grid going down due to a massive thunderstorm. Then the mix engineer became James Johnson, and he handled the next gig on Thursday morning.

We had already appraised the Turbo Aspect at soundcheck on Wednesday after the disturbing screwups caused by Bruce (see the sidebox) were ironed out and before the lightning strike.

Thursday morning and Thursday night rallies all passed off well, as did Friday morning. Kids were all camped out and tired as they got on their buses home, their small army of leaders also looked a little over it.

We started to pull down at midday, and were done by 2.20pm. By Friday there was just James and I, but this being an excellent kind of kids' camp, the band and some leaders pitched in to help without us asking. This time we were not going to transport all the extra sets and gym gear, because we needed to get all the gear returned to base and the truck back to Thrifty by 6pm.

## LABOUR AND COSTS!

The total time frame for this week (including a lot of driving time) went as follows:

**PREP** on Monday, 2 crew for 16 hours total.

**SETUP** on Tuesday, 3 crew for 25.5 hours total.

**SOUNDCHECK** on Wednesday, 3 crew for 18 hours total.

**GIGS:** one crew, 6 hours (planned for 8 but one was called off)

**LOAD OUT:** 2 crew for 18 hours.

A total of 77.5 hours, and using the new industrial award for crew this would have cost \$1,625.46 at the new Live Performance Award Level 4 assuming no penalties. Level four is categorised as a sound or lighting technician, a stretch for Bruce and Junior, but also a long way less than my humble self, a Tech Manager on level 13 pay.

There were a couple of hours worked exceeding the 8 hour ordinary hour limit in a day, so there would be a little extra to pay plus some travel allowances.

If this were a production company, they would charge up to \$400 per day per crew. The commercial cost of crew for

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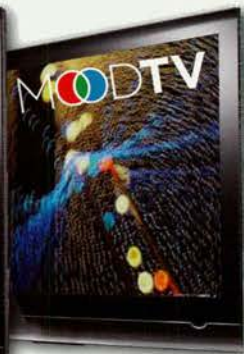
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*There's a lot of ways to get the sack. Be rude to the wrong people. Tell lies. Overstate your abilities and fail to deliver. Be late. In just 2 days this summer, Julius managed to add two more ways to the list.*

## STUPIDITY

Junior and I managed to leave the setup half an hour early, since we really wanted to make our next dropoff deadline by 6pm. There's a moment when driving an unfamiliar 6 tonner where you are kind of getting in the groove and then all of a sudden the freeway on-ramp is here. But to go to Sydney I had to turn off a minute ago. Now I'm headed the other way – to Wollongong.

Building up to 100kph to keep up with the coal trucks and traffic, I ponder the lack of exits between Helensburg and Bulli. But there are those 'No U-Turn, emergency vehicle's excepted' options. "We'll take one of those", I warn Junior. "Uh, OK" he says, looking a little alarmed.

Slowing down in the right lane of a freeway in a truck is something you really should not do, forcing the commercial truckers to change left and let rip with some air horns. I'm on the verge and I'm still doing 70. Slower, slower, now turn into the bypass – and it's blocked off with concrete barriers!

Aha! But there's a little gravel track down a dip. In we go.

Of course the truck gets stuck in there. It is 38 degrees and we are stuck, cab facing west into the blazing sun, traffic whizzing past behind and in front of us. People point and laugh as they motor past.

I call for a heavy tow truck and sit waiting for the highway patrol to come and book me. \$330 and one hour later we are headed for Sydney. We missed the 6pm deadline by 30 minutes.

## OBLIVIOUSNESS

Returning to that gig the next day at 3pm, the band is waiting. "Thank goodness you're here, we need to rehearse". The problem is that the "skilled" offsider, the one I left overnight with the rig, hasn't made much progress since we left him 23.5 hours earlier.

When I left, the front wedges were working, the PA was up and line checked and that was it. He should have finished the setup, checked everything, and been ready for the band.

I had seven muso's lined up waiting for in-car packs. We had 8, but they were not patched, checked or even identified. They were a type unknown to us. Worse

still, the mic up was a dog's breakfast so when the guy with the acoustic plugged in, his line went into the Guitar 2 channel. Guitar 2 was in Guitar 1, Guitar 1 was in acoustic. This mess had not been checked, so it was up to me to figure it all out.

"What have you been DOING all day?" I snarled through a forced smile since this was a Christian Kids Camp after all.

"Err, I've been doing segments and items all day since they arrived and they have all these dance segments and stuff", he stammered. When the buses emptied 300 kids, they all went into the hall to be vibed up, so a couple of wireless hand held mics were turned on. Then apparently my offsider – let's give him a false name of 'Bruce' to protect his fragile reputation – let himself be distracted by stuff all day.

"Bruce, you nong, you had from 3.30 yesterday until 11 today, WHAT have you been doing"?

Seems like all over confident young techies, he had dug very deep into the i-Live operating system and the Hog 1000, and made his laptop and FOH nest all nice. Plus in his limited defence he had hooked up the house lighting rig and got some scenes programmed. And he needed a sleep of course. But there's still plenty of time unaccounted for.

Then the hand held wireless mics started blatting and blasting with interference. "They were doing that today", Bruce said before realising he was further condemning himself. I got junior, aged all of 16, to figure out how to change frequencies on hand helds and receivers.

Then batteries started to fail. We had

spent 20 long minutes getting 6 of the 7 ear packs going, and the muso's were now watching the low battery lights come on. They had nothing else to do.

"Where are the 30 AA's you asked for?" I yelled to Bruce, who by now had his headphones on at FOH and could not hear me. I have 12 people on stage all standing around looking at me. The battery situation had been seriously stressed the previous day, "Bruce you really HAVE to make SURE that someone gets batteries TODAY", I said at the time.

"Err, I asked but no one has given me any batteries", Bruce replied. At this stage, if it were the old days before the bill of rights and political correctness and all that, I would have flown across the hall and dragged Bruce outside for some re-education. But he is 18 and I am 52, and we are at a Christian Kids Camp after all. I can't even use the universal language of entertainment.

I pick up the talk to the stage mic at the monitor desk and apologise to the band through the wedges, only to find that half of them do not work since Bruce had also, for reasons unexplained, plugged an un-terminated insert lead into one of the two wedge outputs at the console.

Finally at 5.30pm, a full 2.5 hours after the band arrived, we had sorted out their various ear pack levels and they could start to rehearse.

"Bruce, if this were a paid band, and if we were a paid production crew, you and I would be fired", I counselled him. His slightly dopey expression indicated he simply did not compute or had stopped listening.

"But it's all good now, isn't it?" he said.

Before I could summon a reply a huge thunderstorm rolled over us and a massive lightning strike took out the power grid, throwing the whole camp into darkness.

The band wandered off with acoustic guitars to sing with the kids by torchlight.

Truck booboo



this gig would be around \$4,400 plus GST.

But since this was a volunteer gig, the services of Junior, Bruce and James were all covered under their own agreement with the church, and my time is paid for by you – the CX reader.

Add on trucking: 3 days hire plus diesel, and consumables like gaff tape and you'd get to \$5,500 before you add in the equipment hire. My best estimate is that this production would cost between \$8,000 to \$12,000 plus GST on the open market.

## THE EQUIPMENT

### Turbosound Aspect PA

A truly monstrous bottom end from the four TSW-218 boxes which are each loaded with 2 x 18" drivers on a partial horn loaded design. These actually created noise complaints one kilometre away, the mix was only peaking at a modest 97dB(a) inside the hall, but outside and 500 metres away the sub low was pronounced. The system provided more energy under 63Hz than I've experienced so far in my 37 year career.

The top boxes were sweet: nicely even in response needing only room EQ. They have 50 degrees horizontal dispersion, so putting them together needed just a fist



of space separation at the front, with the two trapezoidal boxes touching together at the rear.

These TA500 boxes are 3 way, loaded with a 15" woofer, 10" mid driver and a high frequency driver on a yellow 'cheesegrater' Polyhorn. They may be switched between bi-amp (2 way) and 3 way. We had them configured for bi-amp, needing 2 not 3 amplifier channels.

Turbo suggest you use the LMS-D24 loudspeaker management system, a 1 R/U device that can be loaded with the DSP settings we enjoyed. We had the front panel locked off so it could not be altered or muted. Power on, and the PA worked. Too easy.

At 'Kids' level the system was idling and ominously capable of much more SPL. My best guess is the two subs and two top boxes a side that we had, allied

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**Allen and Heath iLive T112 mix surface and Allen and Heath i-DR 48 mix rack with 50 metre Ethernet cable.**

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**QSC K12 powered loudspeaker (also useful as a foldback wedge).**

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with the Lab amps, would easily handle a festival tent for 800 punters.

**LabGruppen amplifiers**

We had two amplifiers. That's it! The lows ran off an FP 14000 which offered a ridiculous 7,000 watts per channel into 2 ohms. As there were two TSW-218 boxes a side, each loaded with 2 x 18" drivers for a 4 ohm impedance each, they wanted 1,600 watts each for a 3,200 watt load at 2 ohms. The implied headroom (if Turbo and Lab are correct with their specifications) was more than 2:1 which is very, very healthy.

The other amp was a 4 channel FP 10000Q which delivers 2,100 watts per channel into 4 ohms. Since the pair of TA-500 top boxes needed 500watts for the mid/highs and 800 watts for the lows, we were similarly running a big headroom component.

Headroom is essential – your amplifiers should deliver at LEAST 1.5 times the required power of the speaker system at its given impedance.

You could use different amps for this system – the rule is always apply headroom, and make sure the manufacturer's notes are observed in relation to DSP settings in the loudspeaker management system and the

amplifier/loudspeaker relationship.

I am loving the new-ish era of ultra light weight amplifiers. My old AM 1600 monsters weighed 32kg EACH for a delightful return of 800 watts a channel at 4 ohms. Nowhere even remotely near what you get today, at more than double the weight!

**iLive T112 surface and i-DR 48 mix rack**

These babies won us over because they were so light in weight, and simple to use. The i-Live got a mixed reaction in earlier times with our review duo at CX who didn't like aspects of the system.

In the field, with young operators, the iLive shines. "I liked how everything is there, without using the manual", James said. He and even poor Bruce mastered the desk easily. At one point I suddenly demanded a mix send of just main vocals, which I connected from one of the spare outputs on the mix rack to my pair of FBT Jolly 8 powered loudspeakers.

These were plonked on the stage deck centre, facing out to give the front rows direct vocals as the Aspect PA was out a little and not directly covering the middle centre front.

Anything required was on the iLive,

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effects, auxiliary sends, matrixes and of course onboard dynamics.

James liked the sound of the preamps, and I liked the overall sound including, I am pleased to say, the way James did his mix.

### Allen and Heath ZED 436

It isn't intended as a monitor desk, but I had no problem generating six mono ear pack mixes and two stereo wedge sends from the ZED. It has 32 mic inputs, some stereo inputs and a host of outputs including six auxiliaries.

There is four band EQ with 2 mid sweeps, and four subgroups as well. All you would expect from an analogue board plus USB in/out for recording the main or some auxiliary outputs or returning audio from your PC or Mac. They bundle Sonar LE with the desk as well.

It is really inexpensive for the feature set, and quiet as well.

### QSC K12 active loudspeakers

These are a cut above the ABS plastic self amplified speakers you find almost everywhere, QSC have managed to produce a cabinet that is made from ABS yet looks like wood. It has aluminium handles and a steel grille.

A really lightweight 1,000 watt amplifier is loaded inside and the high frequency device provides a nominal 75 degree conical dispersion.

I used them for stage monitors, because I could. The high frequency sounded very sweet – I was surprised at the gain before feedback, and didn't need external EQ for this gig.

As with the Turbo Aspect system, I didn't get anywhere near running these to their limit.

## THE REST OF THE RIG

The AT wireless was fine, but I didn't really have much chance to evaluate it. The hand held microphones felt good. Battery life was hard to judge because church provided mid range batteries not heavy duty. Frequency adjustment was a snap – junior figured it out in a minute.

FBT Joly 8 are my combo tool powered little loudspeaker system, I can carry one in each hand and they do 101 things for me every week. They came just in case, and were indeed used for front fill.

And last but not least, our ARX dual third octave equaliser is a college favourite, very accurate and with really good fader response. At this gig, it didn't get used!

CX

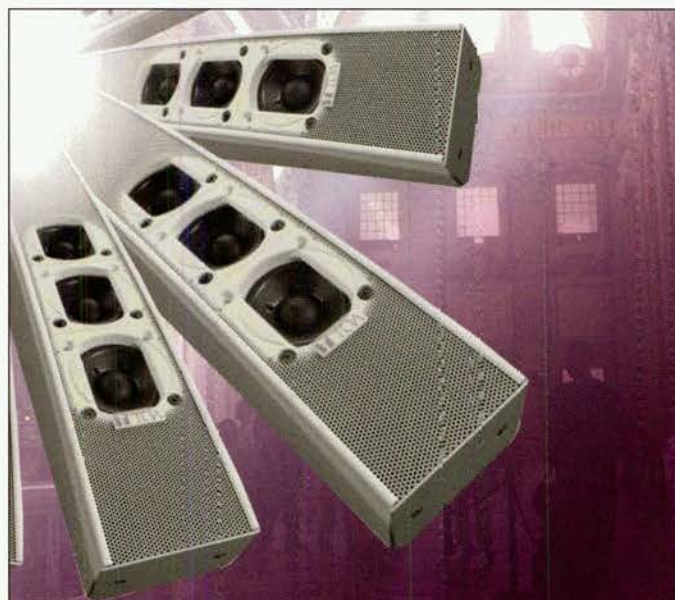
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Turbo and Lab Gruppen: [www.hillssvl.com.au](http://www.hillssvl.com.au)

Allen & Heath, QSC, A.T.: [www.tag.com.au](http://www.tag.com.au)

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# THE TROUBLE WITH TARQUIN...

*I don't want my MTV... I want talent*



By DUNCAN FRY

**T**alent. It can be a rare commodity, especially in this business. And the truth is, you've either got it or you haven't. If you haven't, then no amount of trying will give you it. You may muddle along with some degree of success for a while, but sooner or later someone with real talent will come along and blow you out of the water.

I was thinking about talent (or to be more precise, the lack of it) while reminiscing about a record launch that I once did for a band, back in

the 80s.

It was at the old Sydenham hotel in Richmond, Melbourne, where I regularly worked with the good ol' Rocket 88 Blues Band. Don't ask me why it was called the Sydenham, as Sydenham is a suburb a fair few kilometres away from Richmond.

Anyway, I was mixing one night for the Rockets, and a woman came up to me at the desk and asked if I could do the sound for the record launch party for this band she was managing. They hadn't done much live work, and they wanted

it to sound good to impress the VIPs who were coming along. It would only be about a couple of hours' work, tops.

I said I'd do what I could to make them sound better, but I was no miracle worker.

"Oh, they don't need miracles," she said, "They just need more experience playing live. We've paid for this record ourselves, just so we can show everyone how good they really are."

Ah, vanity, all is vanity, to quote the prophet Ecclesiastes!

Anyway, we agreed on a price, I arrived at the appointed time the following week and set up.

When everything was all ready I went up to her and said, "What's happening about a sound check?"

"Oh, they don't want to do anything like that," she replied. "They don't

want anyone to see them before they go onstage, so they can come running on and make a big impact!"

Hmmm. Knowing that those types of entrances are rehearsed for days if not weeks by professionals, I started to suspect the worst.

So, I set everything up on the mixer with my default 'no soundcheck' mode, so that at least something would come out of the speakers when they started. With any luck I'd be able to have it all together by the first chorus.

She handed me a CD to play non-stop until the band came on. It was the band's single, and she'd had the CD specially burnt at huge expense, as indeed it was in the 80s. She also had a stack of vinyl 45s to give out, some PR sheets and other bits and pieces. Everything was set for the big launch.

As showtime drew near, there were about 15 people there, and none of them, as far as I could tell, looked remotely like VIPs. The crew and assorted hangers-on outnumbered the invited guests about three to one.

I could see what I took to be the band waiting by the side of the stage, so I beckoned to the manager and said to her, "What are they waiting for?"

"Oh, they need an introduction – can you do it?"

Great. I get all the good jobs. Still, as they say, the show must go on if you want to get paid. So I plugged my soundcheck mic into the desk, pulled down the music, turned up my mic and said "And now, ladies and gentlemen, please put your hands together and give a very warm Sydenham Hotel welcome to... The Fudgepackers (or whatever they were called!)"

The band came bouncing onstage to a desultory smattering of handclaps, and my heart sank. They were what we used to call 'a haircut band' - Pseudo Echo meets The Bangles – except they were all guys. They launched straight into their single, which was not really a good idea.



Why, I hear you ask? Because, if you are going to be playing your erstwhile hit song live, when the recorded version has been playing for the last hour, then you'd better be able to approximate the playing and the sound when you come onstage.

But no, they were absolutely dire. Waving their instruments around, sometimes playing them, dancing, waving to the crowd, such as it was, looking at the floor, then waving their arms around again. A triumph of style over substance.

And, what's more, a singing bass player who was leaping around the stage as if he'd been given a turpentine enema.

The manager stopped working the room and came over to me.

"I can't hear the vocals," she complained.

"Neither can I," I agreed

"Well, can't you do something about it?"

"Such as?" I asked

"Well, you could turn his microphone up louder for a start."

"I could," I agreed, "But actually it's more than loud enough already. I tell you what, how about he learns how to sing into a microphone?"

I gestured towards young Tarquin who was gaily prancing around the stage

singing his tits off into thin air, waving his bass around, singing everywhere except into his microphone!

Whenever he got close to the microphone, you could hear him just fine. The trouble was that he didn't get close to it very often. And when he did, and you could hear him, he was so flat that you then wished you couldn't!

"Oh - are they directional microphones?"

"Of course they are - who in their right mind would use anything else for a band's vocals?"

"Oh no," she groaned, "Oh, they're directional; oh dear." And she rushed over to the side of the stage, yelling to him "Tarquin (or whatever his name was) they're directional microphones!" Talk about a little knowledge being a dangerous thing!

Tarquin paid no attention, but continued to flop around the stage, his mouth opening and closing like a stunned mullet just hooked on the gaff.

When she came back to the mixer, I said to her "Look, I can only do so much. They're just not ready for this. They all need practice in playing, not posing. Tell them to stop practicing in the mirror with one eye watching MTV, and learn how all

this shit works. Your microphone is your lifeline to the audience; you should never let your mouth get more than an inch away from it if you want to be heard. This -" and I pointed towards the stage - "this is what playing live is like. It's not a video clip. This is where you have to deliver the goods to an audience. You've either got it or you haven't"

I think everything started to sink in then. There was no need for me to add "...and these guys haven't." She stared a while longer at the debacle onstage, sighed, reached into her handbag, pulled out a bunch of notes and gave them to me.

"It's all there. Thanks" she said, then walked out the door without a glance behind her.

The band finally dribbled to a halt, I put the CD back on, and the audience drifted away towards the bar and the door.

The band came over to me. "Where's Darlene?" they asked.

"I saw her go out a while ago - she said she'll catch up with you later," I lied, and started unplugging leads from the mixer.

I never saw or heard anything more of them from that time onwards. When the 80s ended, I'm guessing their careers did too. CX



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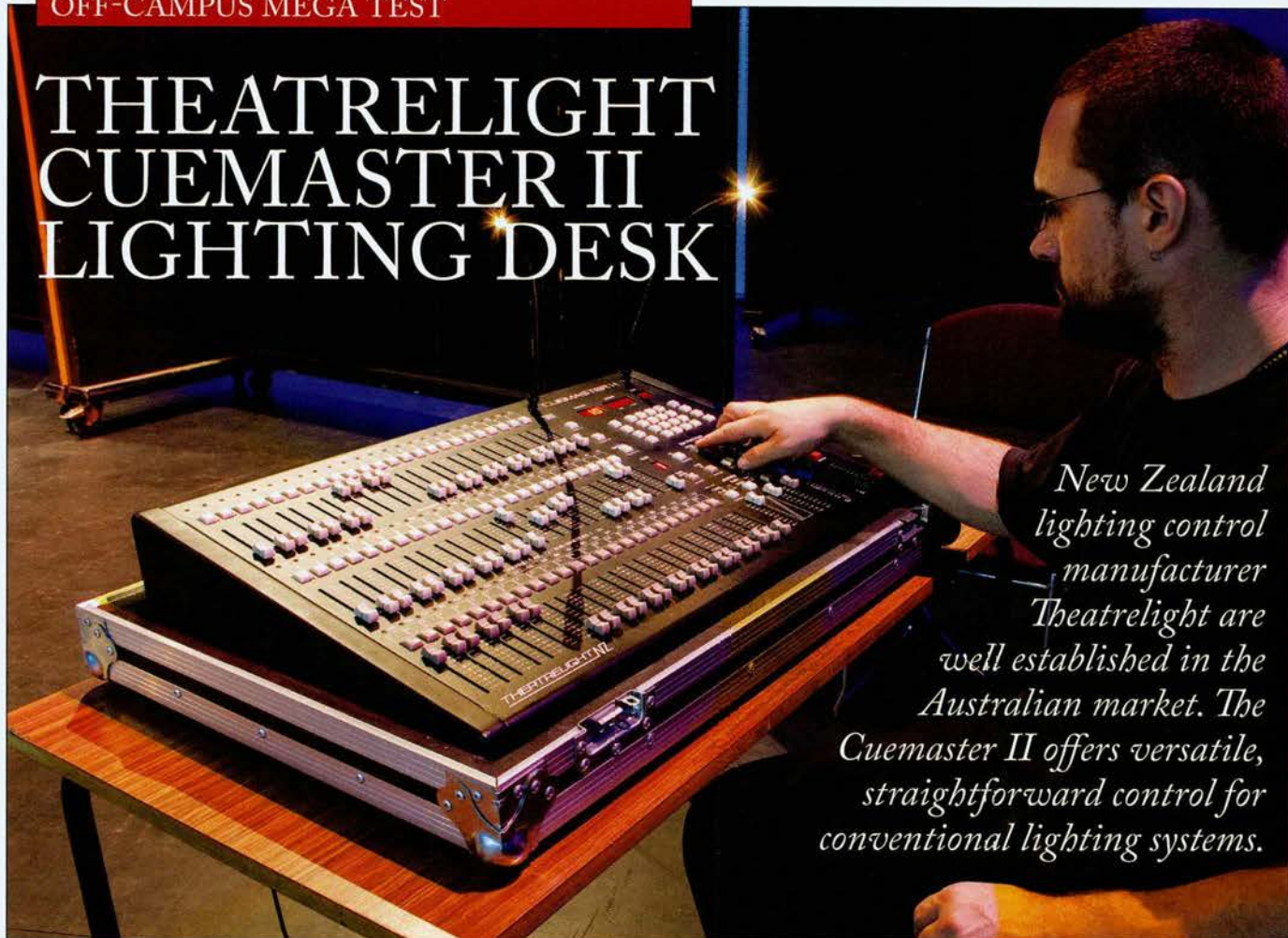
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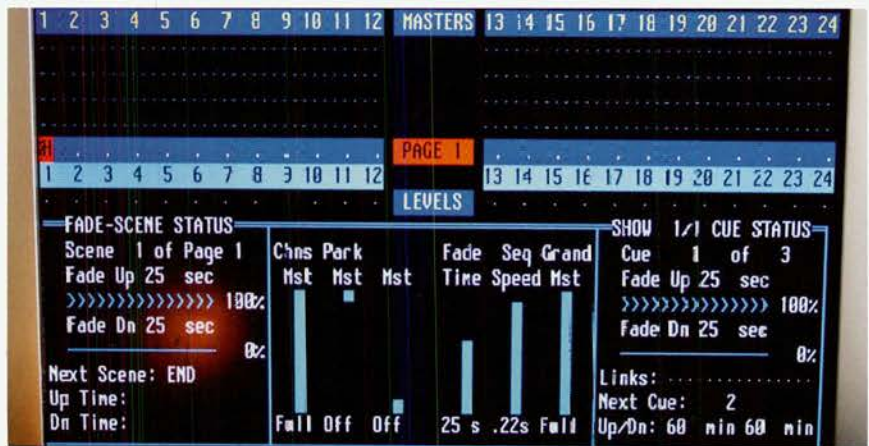
By STEPHEN DEAN

It first came across Theatrelight desks over 20 years ago and installed one of the first ones in SA into a high school. It was at the time a desk that was built tough and therefore ideal for a school. It also had a cheat sheet stencilled to the front panel for when the manual went missing. Since that time they have moved forward and improved but they are still solid and well built.

### FIRST IMPRESSIONS

The CueMaster II model that I have in my hot little hands is their top of the range model. When you purchase this console it comes in a custom made flightcase, complete with desk light, dust cover and the instruction manual. It is nice to get the desk with most of the accessories included in the price. The only thing you need to purchase is the memory card to back up your shows. Even that is likely to change in the near future - Theatrelight are promising they will be changing the memory card for a SD card and supplying one with the desk.

On first impressions this desk is solid and well laid out. It outputs 2 DMX universes and the expected monitor signal



Theatrelight monitor.

and there is even a port for a printer. On power up the monitor shows the default screen which has all the relevant details that you need to at least understand what is happening. A quick glance at manual reveals that the first page is a very quick reference guide to using the desk and recording a variety of lighting states. This is very handy for those that do not like to read the manual. Theatrelight have always written good manuals, and this one is very helpful - almost like a tutorial that takes you through the console's functions in easy to understand instructions

The layout of the desk is very neat and well labelled. Coloured buttons add to the clarity. The faders and buttons all have a good feel to them and the LED displays are big and easy to read. The only thing that is slightly different from other common desks is that the flash buttons are above the faders. The surface is easy to read under low light conditions. When a monitor is connected it displays all of the relevant information without trying to overload you with data like some desks. Another nice feature is that with a press of one button on the console you can darken the monitor so you can

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*Theatrelight full desk.*

observe the lighting state without the monitor destroying your vision.

## IN USE

The Cuemaster II desk is a 72 channel lighting desk. It operates as a single preset but with the use of their park function you can store the preset live and then set up the next preset. This is a space saving way of giving you a 2 preset 72 channel desk. Each bank of 24 faders can be with the press of a button 24 normal channels or 24 recorded scenes.

You have access to 288 channels from the faders with the press of a button. With the softpatch function you can then patch 1024 dimmers at any level to any of the 288 channels.

You can record lighting states on the first 48 faders only and on the last bank of 24 faders which have multiple uses as lighting states, chases or cue stacks (or shows as they are called in the manual) Here you can build whole shows complete with timing and play them back from one fader and the GO button. Where this desk shines is that you can record a show with many different acts, allocating each act its own fader, with a stack of cues on it. So if the acts change

sequence you can bring up each fader in what ever order you require it. You can also stack the stacks into another stack, so the whole show is one stack. Chases are also easy to set up. You can link events and have a show run by itself, a fun but scary concept - press the GO button once and walk away. Maybe not.

It does not take long to be able to record a variety of lighting states and get them playing back. At its simplest you have 4 pages of 72 lighting states. All the states, chases and cue stacks are totally editable and a handy feature is the Compare function that lets you compare an edited lighting state with the original state. Recording is just a matter of setting a lighting state up then pressing the record button. You then press and hold the record button and then press the Flash button of the location you want to store the state. For recording shows or chases you just press the record button after you set up each state or step and when you have completed that you then assign it to one of the last 24 faders by holding the record button and pressing the appropriate flash button. You can convert chases to shows and vice-versa. You can also record blind lighting cues

very easily.

With the desk you could record lighting states for moving lights. But it will be a long winded effort, similar to doing the task on a Jands Event or an LSC Maxim desk without the Patpad. This desk is primarily designed for dimmers and dumb lights.

## TO BUY OR NOT TO BUY

For those used to a Jands Event or LSC Maxim, operation is different but no more difficult. This is the market it is up against and it competes very well in that arena. Unlike many current consoles, the Cuemaster II is not designed to have any relationship with moving lights. This desk is designed for the more basic venues with dimmers and conventional lights, and a lot of schools, churches and community venues fall under this heading.

This desk is great for one night stand style shows as it takes very little effort to get a show happening, but if you require more complex lighting or the show is a long run you also have the ability to do these with very little effort. Someone walking into a venue to do a show will have no problems in getting their head around this desk. The operating system is very easy to learn which does make it ideal for schools and community groups. These users will benefit from having a desk that combines the use of memories to store cues and also the ability to function as a manual desk. Overall impressions of this desk are good, and by following the manual you will discover how versatile this desk is. So get yourself a demo, you will be pleasantly surprised.



**BRAND: THEATRELIGHT**

**Model: Cuemaster II**

**RRP: \$7417.50 inc GST**

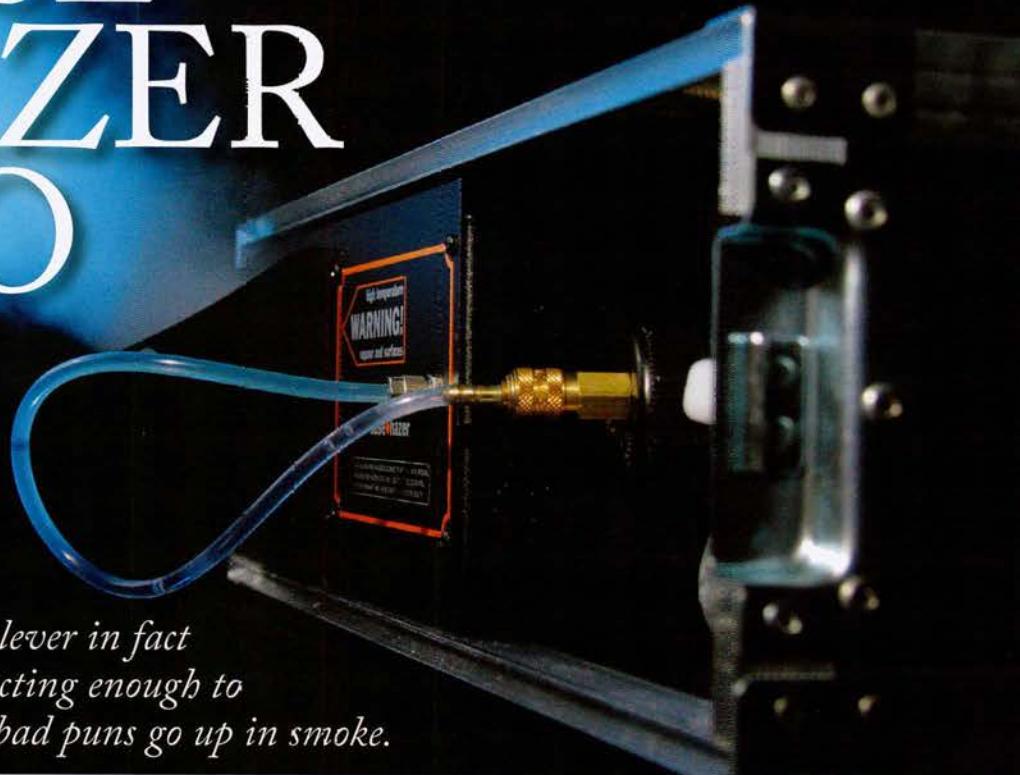
**Product Info: [www.theatrelight.co.nz](http://www.theatrelight.co.nz)**

**Distributor: [www.theatrelight.co.nz](http://www.theatrelight.co.nz)**



# BASE HAZER PRO

*The base hazer pro from hazebase is a clever idea – so clever in fact it's almost distracting enough to see all the usual bad puns go up in smoke.*



By JIMMY DEN-OUDEM

**H**azebase is not a name widely known in Aussie circles – though this may be set to change. The company has actually been around since 1991, selling and supporting machines built by Ottec GmbH.

The base hazer pro is a compact hazer built into a standard Amptown brand 19" 3RU rack case. This is a good thing – we like rack cases because A) they protect the gear within and B) they make things easier to pack into trucks.

So how does this work when you turn something that's full of liquid upside down? It doesn't really seem to be a problem – the base hazer pro sports a 5L haze fluid reservoir which sits neatly within the case and in fact the bottle sits sideways when the unit is in operation. A quick release brass fitting allows you to change fluid bottles. How long the fluid lasts will obviously depend on how hard you run the unit.

Similar to other units, the base hazer pro employs a 4 button control panel with 4 character LED display. From here you can manually set pump and fan rates, as well as DMX channel allocation and auto mode timing. The unit can be controlled with 2 DMX channels or alternatively from a 0-10V analogue control signal. The DMX input



is a 5pin XLR with loop through, the analogue is a 3pin XLR – don't get them confused! When using analogue mode the fan operates at whatever speed you set on the unit, and the analogue control signal varies the pump output. Weighing in at 18kg, it draws 1500W so if you use more than one you'll need dedicated power runs to each.

## HAZY ON THE DETAILS

We tried out the base hazer pro here at the office, and what splendid fun it was. We can confirm that the unit does indeed warm up in under 60 seconds, and once it's ready to go it does just that. Running at low pump and fan settings the unit is virtually silent, and subtle enough just to maintain a light bed of haze in a small, still environment. At the other end of the spectrum, the unit cranks out impressively high volume when dialed

up to higher settings. Everything in between is good too. As with any hazer, you'll probably want to spend some time to figure out which fan and pump setting combination works best for your environment, and keep in mind that once punters are in the door and the air-con fires up all your careful research will of course go out the window.

There's really not a lot more to say about the base hazer pro – it does what it does well, and at the end of the night it will probably be the quickest and simplest part of the de-rig. CX

### BRAND: HAZEBASE

**Model:** base hazer pro  
**RRP:** \$3,444 inc GST for the base hazer pro. base hazer fluid: \$165 for 5L inc GST.  
**Product Info:** <http://hazebase.com>  
**Distributor:** <http://lighthousedistribution.com.au>



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September 7, 2009

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## HOT TOPICS

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

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

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

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

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

## FEATURE DEVICE OF THE WEEK

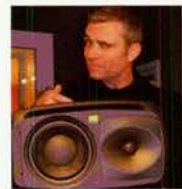


Cop this baby from RADIAL: the JDI Duplex. Probably the most versatile DI box on the market. Now distributed in Australia by Amber.. [More here!](#)

## PRODUCT REVIEWS



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## INDUSTRY DEBATES TRADE SHOWS

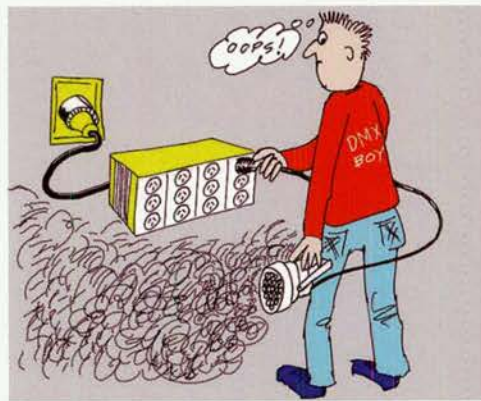
The Australian Audio, Lighting, AV and Staging suppliers have united for the first time to call for a debate on the trade show landscape, following three trade shows staged in Sydney in July. The addition of an annual Integrate trade show in Sydney, at a time of economic downturn, has polarized the industry.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

## SOUND GUY SHOT DEAD

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

## CEDIA ANNOUNCE ENTECH TRAINING

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



## CX MYSTERY PHOTO



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

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



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# MANLEY STEREO ELOP



*There are two types of audio kit – gear that does everything acceptably, and gear that does fewer things but does them really well. The Stereo ELOP doesn't have all the answers, but the ones it does have are firm, resolute and elegant.*

By JIMMY DEN-OUDEM

The Stereo ELOP from MANLEY is a 2 channel linkable optical audio limiter with a valve output amplifier section, and it seems to be MANLEY's answer to vintage technology for a new era.

The ELOP is one of the most nicely crafted pieces of audio gear I've ever laid my hands on. It feels expensive, and when compared to a VCA based solid state limiter it's certainly not cheap – though compared to its counterparts it sits about where it should in the scheme of things. Seriously, it's really well put

together – if someone were to drop a piece of rack gear on my head I wouldn't want it to be this one. The Sifam VU meters on the front are illuminated by yellow LEDs, so you don't have to worry about bulb replacement.

Inputs and outputs are both available on balanced XLR or unbalanced TRS. Large Gain and Reduction pots grace the front panel, along with switches for bypass, link, HPF, power and metering selection. That's about it for controls – attack and release times are fixed.

While this does limit the applications for the ELOP, it does prevent you from using really stupid timing settings. The

timing for attack and release varies too depending on the size of the peak encountered.

The switches on the front are real toggle switches mounted to the chassis, rather than some tiny thing soldered to a board. It looks like you could probably service it without too much grief, though beyond occasionally re-seating valve tubes MANLEY generally discourage this, the reasoning being that they've already made it to sound as good as it can.

## HOW GOOD CAN IT SOUND?

This depends on what you use it for. The ELOP isn't the single answer to all limiting needs in the world ever. It was originally intended as a tracking limiter, but has since had a sidechain HPF added which means you can use it across a whole mix.

I spent some time trying different material through the unit and found different settings work well for different things. You can use the ELOP over a vocal track to keep the level in check while recording, but equally it would probably work just as well live. The limiting isn't really obvious unless you try to dig way too deep with it. With sensible application however this shouldn't be a problem. Driving the output really hard the difference between this and a solid state type unit is noticeable – the maximum output is +30dBv which should be more than enough headroom for most.



*Front panel detail – beautifully well constructed.*

There isn't a sidechain input as such, but if you're wanting to trigger both channels from one source all you need to do is link the channels and dial up the reduction on the input you want to act as the trigger - then whatever reduction is triggered by that channel is applied to the other. The same applies in reverse, so you can quite happily run stereo sources through the unit without fear of issues associated with non-synchronous stereo limiting.

The sidechain HPF filter works really well and diversifies the applications for which the ELOP can be used - using it as a mix compressor didn't sound great with some sources, but when the HPF was kicked in the overall effect was pleasing. By triggering the gain reduction only from 100 or 200Hz up you can sort of use the unit as a "re-bottomifier" for tracks which are a bit thin.

## NO LIGHTWEIGHT

If you're after a rack of cheap limiters to throw about on tour, then the ELOP probably isn't the ideal choice (it weighs 5.2kg). If you're after a brutal brickwall limiter, again there are better choices. If you're looking for something which will provide gain reduction with subtlety and finesse, while maintaining high



Inputs and outputs - both balanced and unbalanced

end sparkle and detail then you should definitely check it out. It sounds great on vocals and would probably work equally well on brass, I'd probably even give it a go on guitars.

Warranty on the ELOP is 90 days from the date of purchase by default, which seems a little short. If you read on however you'll discover that this is just to encourage owners to register their purchase (it takes about 3 minutes), which then extends it to 5 years. Seems

MANLEY expect the ELOP to last, and looking at the construction that's not unreasonable. Tubes are covered for 6 months.

CX

### BRAND: MANLEY

Model: Stereo ELOP Electro Optical Limiter

RRP: \$3,299 inc GST

Product Info: <http://manleylabs.com>

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



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# RADIAL SGI

*While SGI is the name given to the Studio Guitar Interface from Radial, we discovered it has applications outside the studio as well as within.*

By JIMMY DEN-ouden

Imagine for a moment that you're Keith Richards and you've gone out to play at a nice little concert with your chums from The Rolling Stones. So there you are on the 50m x 50m stage, towering over 50,000 wild fans. Your guitar tech hands you a guitar, your smoke roadie lights up and hangs the ciggie off the corner of your lower lip. You put your best foot forward and kick the biggest thing you can see that's marked overdrive on your pedal board. Suddenly before you've even had time to grab a pick, you find yourself inundated with an immense roaring buzzing humming wall of noise hitting you square in the back. The audience looks perplexed. You kick the pedal back off and proceed to play an acoustic set which leaves everyone in the crowd, understandably, speechless. That'll teach you to use unbalanced lines.

So how do you balance a guitar line? Radial has an answer with their Studio Guitar Interface.

## BACK TO REALITY

The SGI system is a set of two small boxes – a transmitter and a receiver. They're made from 14 gauge steel and painted bumble bee yellow (so it's harder to lose them). Individually they look

much like DI units. The SGI-TX (transmitter) has a 6.5mm jack input for your guitar lead and a 15v DC power input socket. The system is supplied with a plugpack style adapter. On the other end of the unit is a male XLR connector, from which emanates your guitar signal as a balanced mic level signal (according to the literature). There's a "drag" control which modifies the impedance of the input side of the SGI-TX to accommodate passive pickups (which tend to be affected by impedance more so than active outputs).

You connect a mic lead to the output of the SGI-TX – any length is fine up to 100m. The other end of this lead goes into the SGI-RX, which turns the proprietary balanced signal back into an unbalanced guitar level signal, suitable to connect to your guitar amp. This appears on a 6.5mm jack connector, next to which is a ground lift switch allowing you to isolate the TX from the RX and solve ground loop problems

## WHAT IF I'M NOT AS POPULAR AS KEITH RICHARDS?

Well first off you probably can't help it. That's okay though as far as the SGI system is concerned – all you really need to be is someone who needs to

put a guitar amp a long way away from a guitar. The recording studio is an example – where guitarists like to turn their amps up to high levels to achieve a particular tone from the amp or cabinet. Put the amp in the studio, put yourself in the control room, and use an XLR tie line to get the signal to the amp via the SGI units. Mic up the amp and play from the comfort of the control room and keep your sanity intact. Or seal the amp in the toilet or a disused wardrobe while you play in the studio – you've got options.

In fact the "amp in the disused cupboard" technique can be employed for on-stage use too (we've seen it done). Mic up the amp in the cupboard and put the guitarist on a set of in-ear monitors. This makes for a much quieter stage and a cleaner overall sound, along with increased vocal intelligibility.

So there you go, the Radial Studio Guitar Interface. Good for more than the studio. Now where's that smoke roadie gotten to???

**BRAND:** RADIAL

**Model:** SGI Studio Guitar Interface

**RRP:** \$459 inc GST

**Product Info:** <http://radialeng.com>

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

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# MARTIN SMARTMAC



*Martin are one of the longest established and best respected manufacturers of automated lighting equipment, and their MAC series of moving heads are an industry staple. The SmartMAC is the latest and littlest addition to the family, and includes a number of design ideas to make it friendly to both production suppliers and the installation market.*

By **ANDY MACKENZIE**

I knew I was getting a small unit, running a 150W discharge lamp, so I was kind of expecting something like a diminutive MAC250. This turned out to be not quite right – the family relationship is evident in the build and finish quality, but the SmartMAC is definitely different.

For a start, there's the general look of it. The base is circular, and incorporates cover plates to conceal the connectors (standard IEC and both 3 & 5 pin DMX ins and outs) and the menu controls. This is nice for a sleek look in an installation. The appearance of the

head is dominated by the large heat sink at the back that enables the unit to run without fans. The massive heat sink also contributes to the substantial weight of the unit – about 20kg. There is also a conspicuous bulge over the gobo and colour wheels – more on this later.

And while we're on appearance, it's worth mentioning that the SmartMAC is also available in white, which should be attractive to the function centre market.

## MESSING ABOUT

The bulge in the head was the first thing to get my attention. It features an access hatch which gets you into the gobo and colour wheels. Once there, you can swap out gobos or colour filters quickly, easily, and without tools. If you've ever sprayed curses across the room while trying to fit a client's custom gobo, this will bring a tear to your eye.

The rest of the optical path is sealed off as usual, which is good – there's only so many places you want someone without tools to get.


The other thing that got my attention was the quick-release bracket. This is an alternative to standard rigging hardware for permanent installation. The bracket is fastened to the roof and the fixture simply twists in. A little locking screw prevents it accidentally untwisting. A nice clean installation without making the thing impossible to get down for service.

## AND HOW DOES IT WORK?

It works pretty much as you'd expect. The 150W lamp is possibly a little brighter than you would think – more like a 250W, but it has a similar kind of light quality. The option exists to use a different lamp which gives a lower colour temperature and much better CRI.

Movement is quick and precise and, while there's the usual noise we expect from the stepper motors, there is a quiet mode which makes the motors run slower to keep the noise down. As mentioned earlier, there's no fans to add to the noise floor.

SmartMAC is DMX controllable, but also offers a stand-alone or master/slave setup that is more than just a demo made. It's possible to program a sequence of cues that will execute automatically – so you can set up a rig to lamp on and run its program as soon as the power is switched on.

Overall, this little light has an awful lot in it, and I can see its feature set making it attractive to a pretty substantial range of users. 

**BRAND: MARTIN  
PROFESSIONAL**

**Model:** SmartMAC

**RRP:** \$4999 trade (+10% for white)

**Product Info:** [www.martin.com](http://www.martin.com)

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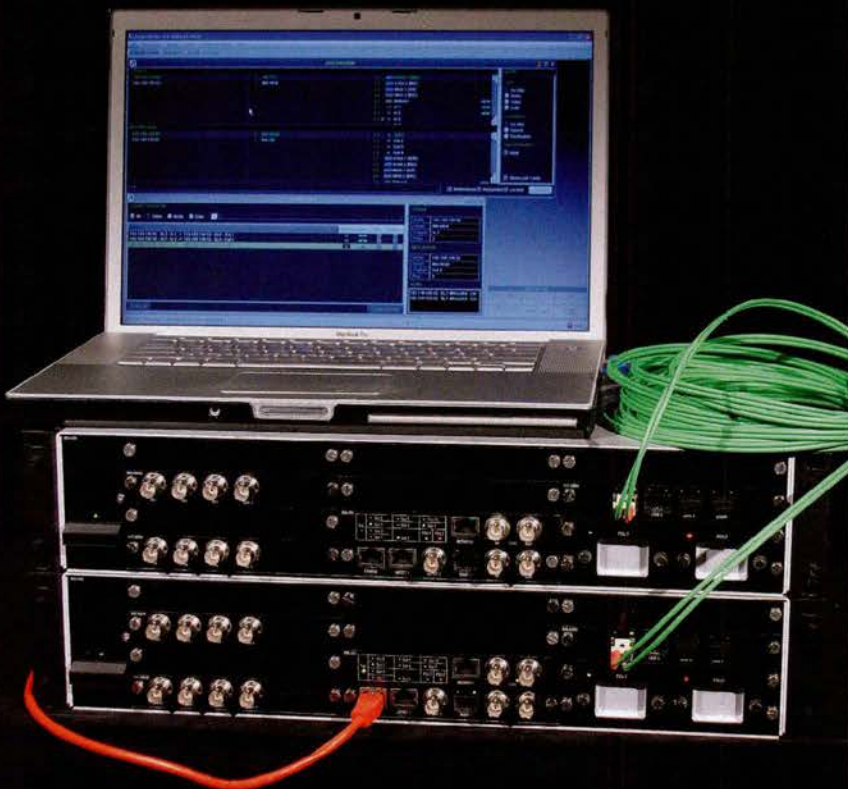
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# RIEDEL MEDIORNET



*MediorNet appeared one of the more benign looking pieces of kit to have graced our test bunker, but as we discovered it's a lot smarter than it looks.*



*MediorNet interface*

By JIMMY DEN-OUDEM

**M**ediorNet provides a signal transport & routing mechanism which allows multiple video, audio, data and communications signals to be encoded onto optic fibres and sent over long distances. Start with fibre, then run it from the origin location to the destination. At each end of this fibre, install a MediorNet frame. Then choose different cards depending on the signals you need to push around. The whole system including routing is configurable from a web browser connected to any frame in the system.

## FRAME UP

The MediorNet system is modular, so you only buy the bits you need. The basis of all systems is a frame for each end of the fibre. The frame is a 2RU box, and has options which allow the connectors to be front or rear mounted. The power supply is modular with a redundant option. The frame is horizontally force cooled by a fan module which is temperature dependant.

The frame has 6 "high speed" slots for high bandwidth signals such as HD video and link cards. The remaining 2 "low speed" slots handle less demanding signals such as audio. The main processing card includes 2x MADI ports (optical and BNC), an Ethernet port, 2x ARTIST ports (which run Riedel's ARTIST comms panels), SYNC in and out ports as well as a CONFIG port. The CONFIG port allows control over the whole network from one location. You're not limited to 2 frames – you can link from one frame to another and so on and several topologies are supported. Once a signal gets into the system you can route it to any other frame provided the frames

have adequate bandwidth between each other. You do need to think about how much link speed you'll need across the network to move your signals around, but once you tell the system where the signals from each port need to go it will figure out the most efficient way to get them there. In a multi-node network this is really clever.

## SHOW US YOUR CARDS

Two categories of cards are available for the MediorNet system – link and media. Link cards allow you to connect frames together via different types of optic fibre, and start at a basic 2 channel card which has 2 SFP slots which run at 4.25GBits/s. Such a connection would pass 4x SD Video signals, 1x Madi (64ch), 2x Comms and 1x 100Mbit/s Ethernet connection with ample headroom. Bumping this up to 4x HD Video signals, 1x Madi (64ch), 2x Comms and 1x 100Mbit/s Ethernet connection sees the bandwidth requirement jump to 6,249Mbit/s, so two fibres would be required (or 4 if you wanted some redundancy). Link cards are available to support this bandwidth and beyond.

Media interface cards include 4 channel HD/SD-SDI input and output cards, which support connection and transport of either 4x HD/SD SDI or ASI sources or 2x 3G-SDI sources. For those not requiring HD, SD SDI only versions of these cards are also available. Audio is covered with a 128 channel MADI card providing both BNC and optical ports. Other options include a RockNet card, which interfaces with Riedel's range of digital and analogue IO rack gear. A Calrec Hydra2 audio network card is also slated for future release.

## SOFTWARE

Once the system is running, you can plug a laptop into the CONFIG port and get into the software. The MediorWorks software is embedded in an internal webserver in the frame, and since it's Java based will run on PC or Mac. When using the software I found it easy to make the system do what I wanted it to.

MediorWorks gives you a list of all the frames in the system, and for each frame all the ports on all the cards. To route a signal through the system, choose the source frame, card and port number then choose the destination frame, card and port. Then click connect. MADI signals are routed as stereo AES pairs, so you can effectively combine multiple MADI streams to generate a new one. You can even cross route the ARTIST comms signals. Different network configurations can be saved and loaded into the system, so for an OB truck it makes for quick and easy turnarounds from gig to gig.

## THE BOTTOM LINE

Encoding many signals onto a fibre certainly provides some opportunities to save on cabling costs and labour, not to mention increasing the distance you can run many of these signals. Thoughts of juggling bandwidth and such have seen this process placed beyond the reach of us mere mortals for a long time, but the MediorNet system brings such possibilities within reach. It's a system that works well and doesn't require a huge amount of specialist knowledge to operate. While it's not a cheap system to buy, it is less expensive than hiring a network guru for a year. Construction is solid, and when considering that the functional benefits lie beyond the initial purchase price of the system it seems like pretty good value. **CX**

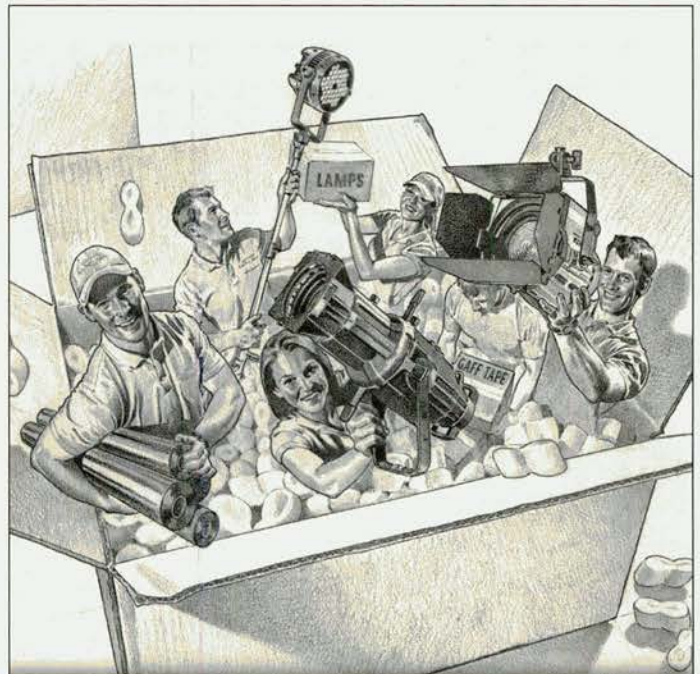
### BRAND: RIEDEL

Model: MediorNet

RRP: Depends on the configuration of the frame, however a basic one with some audio and video cards plus link card is around \$40k.

Product Info: <http://riedel.net>

Distributor: <http://riedel.net>



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# ZOOM H4N



*Room mic or desk tape? The H4n Handy Recorder from ZOOM lets you mix it up and have the best of both worlds.*

By JIMMY DEN-OUDEM

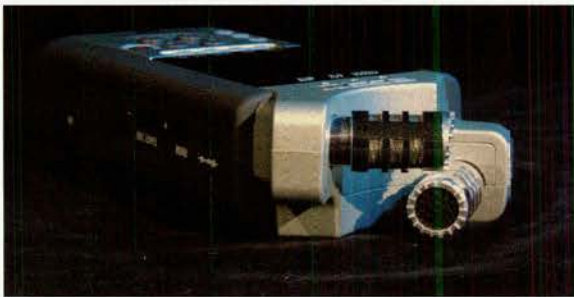
The H4n is a 4 track digital recording device which records to SD or SDHC memory cards in either WAV or MP3 format at a variety of different sample rates. Recordings can be made using the internal stereo mic, or you can use one or two external mics, instruments, or line inputs. Or a combination of these. Once the recordings are done, they can be internally mixed and encoded as a stereo file.

The unit is about the size of a multimeter, and runs on 2x AA batteries. Quoted battery life is 6 hours, or up to 11 hours record time in "stamina" mode. There's an AC adapter supplied in the pack, along with a wind sock, 1GB SD card, mic clip adapter and a plastic protective case for the H4n itself. The packaging is worth mentioning in that it's very appealing – the kit is nicely presented and includes all the stuff you'd expect. Also included is a USB cable and a copy of Cubase LE, so you can edit your creations on a computer if you want a bit more control than the internal mixer in the H4n gives you.

The internal stereo mic has rotatable capsules, which enables it to work with a 90° or 120° offset. The capsules are also set up correctly to avoid phase errors, and they seem quite robust. There's an internal thread on the back so you can mount the unit on a mic stand. Other input options are via XLR/TS combo jacks which can even supply phantom power for condenser microphones. Power and HOLD mode are via a side mounted recessed switch.

## FIRE IT UP

Getting up and running on the unit is very easy – perhaps this is why it appeals to the many musicians listed on the ZOOM website. Insert an SD card into the slot on the side, connect power, turn on and hit record. Straight away the unit jumps to record standby using the internal mic, however you can press the line input select keys to change over. Ready to go? Good, now press play. The large backlit LCD shows time remaining, time elapsed and equally importantly input levels. These are set using dedicated keys on the side of the recorder. Once you're done recording, press stop and it takes about a second for the H4n to close the file. Go again and it starts a new file. You can listen back to the recording using the internal preview speaker, or by connecting headphones. You could feasibly even use it as a high quality solid-state playback device.



*Rotatable capsules offer a choice of offset angles*

Once you're done, use the menu button and rotary encoder on the side of the unit to enter USB storage mode, and the SD card appears as a removable drive on your desktop. From here you can drag your files across to your computer with ease – the transfer runs at USB 2.0 speed. The USB port also allows you to use the H4n as a USB audio interface – so you could record directly into your computer with it if you chose to.

If you want to record more than 2 channels, there's a setup option in the menu to choose 2 track, 4 track or MTR (multitrack) mode. For multitrack purposes I'd generally opt for a more advanced system, but in a pinch it's good to know the option is there if you need it. Multitrack mode enables you to bounce tracks down and such, and it carries a bunch of other features too (even Karaoke mode) which will be of more interest to musicians than techs. Thankfully none of these get in the way of the basic operation of the unit.

4 track mode enables the internal mic and the stereo input simultaneously, and for each of these sources a stereo file is recorded. This facility positions the unit up as a perfect candidate for doing desk recordings with ambient room sound included. The TS inputs are for high impedance sources such as guitar pickups, but in the spirit of adventure I tried feeding a line level signal into it and once the input level was turned down far enough (0.5 on a scale of 0-100), it all metered nicely and sounded clean. I suppose you could always put some pads inline if excessive level proved a problem. Alternatively a stereo DI and some short XLR leads would solve the problem equally well. Talking of sounding clean, everything we recorded with the unit sounded good – the stereo imaging obtained when using the internal mic was especially impressive.

## ALL UP

The unit has more features than are listed in the above paragraphs, though ultimately some of these are more useful than others. All up the H4n is versatile enough that it will appeal to everyone from musicians right through to audio operators on corporate gigs. It's easy enough to use that you needn't read the manual to use it, it's well priced, and works exactly how such a machine should. It even looks good. Of course if you want your recording to sound like a classic "desk tape" you'll probably need to punch it through a "muddifier" plug in to add that authentic analogue cassette touch...

CX

### BRAND: ZOOM

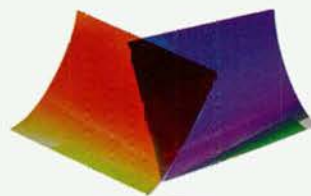
Model: H4n Handy Recorder

RRP: \$879 inc GST

Product Info: <http://www.zoom.co.jp>

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

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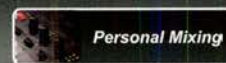
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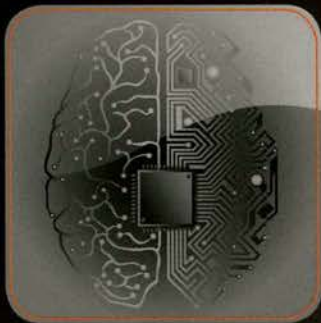
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