

CX

MONTHLY TECH NEWS
AUDIO · LIGHTS · VIDEO · STAGING · INTEGRATION

CX87, NOVEMBER 2013 \$5.50

BE Productions

Building a company
out of thin air(screen)

Legendary Shure

An ode to the SM58,
47 years young

GEARBOX REVIEWS:

- DTS Lighting Nick NRG 1201 (FPR)
- EAW MicroWedge MW10
- SGM X-5 LED Strobe
- Mackie 1402VLZ4
- Audio Technica AT4081

CX NEWS:

- Rod Craig, Tassie Production Firms Merge
- Randwick's New Grandstand
- NSW Govt Relaxes Hazer Ban
- LPA Debut Draft Safety Guideline
- Søren Storm, Audio-Technica & more!

ONLINE EDITION

Audio Logistics
Into the Void

Black Pearl

Buried treasure
in Melbourne's
south-east

Road Skills

Matt Corby,
The Cult,
One Direction

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CX87 NOVEMBER 2013. ISSUE 87. ONLINE EDITION

EDITORIAL BY JULIUS GRAFTON

NEW OLD PROBLEM

Saw a show recently at a big arena and from song one it was Mixed Too Loud. The audio had no-where to go. It was also mostly replay, despite a large backing band that were minus backup singers. The artist relied on his backup singers, who were there on the replay but missing in body. I am thinking that a show heavy in backing tracks can be light in live engineer skills. Any chump from the artist's social circle can learn to push some faders and hit the 'next scene' button. We are breeding a new generation of crappy sound engineers who will win work on false reputation. I feel sorry for the system engineers at live gigs who really know what they are doing; having to deal with prancing, dancing tossers that take the cheque, the glory, and mess up the mix.

GOOD DEBATE LAST MONTH

When Jason Allen guested in the editorial here last month with his trade show economic item, which said that the troika of tradeshow just concluded in Sydney (SMPTE, ENTECH, INTEGRATE) sucked far too much time and money out of the industry, some great correspondence ensued. Broadly most people agreed, but some questioned my follow on in Biz Talk about just how much money these commercial operators actually draw. A couple of people said I should have included our CX Roadshow into the story, and I guess if I did that then the AMAC Convention (Aust. music association) should have come in there as well. Whatever the case, I doubt many of you got to more than two of these events this year!

CIRQUE AND MJ

Also contentious was our story about Michael Jackson THE IMMORTAL World Tour by Cirque du Soleil. We didn't quite call it that on the cover, and didn't use officially sanctioned pix from the promoter. So they got a bit hissy, which happens. The idea was to run the story about the show before the tour got here. Anyhow I apologise for not checking with them beforehand to ensure the pictures they had on their press portal were actually representative of their show, and of course it would have been great to name the tour correctly on the cover but for goodness sake - you KNEW what we meant, didn't you? And I'm sorry for swearing at the PR flack.....

LIQUIDITY

Being media our bar is usually topped up, so the liquidity I'm referencing here is in relation to the staggering failure rate for festivals and tours this season. With Kiesha cancelled and various events looking very dodgy, CX recommends real caution before investing time and money in supplying anything to anyone who hasn't got a red hot record for paying out in the face of a loss. Our business principle is to never risk more than you have, and sometimes it's better to say no than to dive in. We now know of two outdoor events that failed the day before where the 'promoter' blamed the production suppliers for 'not turning up'. They didn't turn up because they were not paid.

- Julius**PUBLISHERS PANEL**

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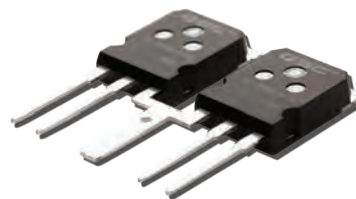
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NEWS

CX INDUSTRY NEWS



Rod Craig Dies Achieved Huge Success in Audio

The passing of Audio Telex Communications founder Rod Craig leaves a void because people who achieve so much are rare. In the 1970's he along with Roy Morgan and Alan Clarke saw an opportunity to become the distributor for Telex products in Australia. Audio Telex Communications began with two small offices in Sydney and Melbourne and just a handful of dedicated staff.

At Rod's funeral, caused by a virulent brain cancer that he battled over four years, the back story of what they did and how they did it came out.

'They picked a market and a strategy and stuck to it like glue', an insider told CX. 'They would always look at a decision through the prism of what the client would think. The client was always predominantly involved in installation and integration of audio.'

A packed church heard of a philosophy around a long view, totally at odds with the modern corporate practice of short term profits pursued by many enterprises. 'Dad made friends and always celebrated people', his son Stuart Craig, recently CEO of the Hills SVL subsidiary that was Audio

Telex, said.

Audio Telex was acquired by Hills Industries around five years ago, allowing Rod and his partners to retire and reflect on the considerable success that more than thirty years of company growth had brought them. Audio Telex Communications quietly grew to become one of the largest and most profitable specialist audio distributors, with a very large customer base and offices in most states.

Hard work, commitment and decency were often repeated tributes amongst the crowd who sent Rod off. He is survived by his wife, three children, and eight grand children.



Audio Telex Communications founder **Rod Craig**



Enter VJAM Tassie Production Firms Merge

Live production in Tasmania has become rationalised with the merger of three production firms to become VJAM. Launceston's Frontline Productions and The Sound Company joined forces a year ago. Now Hobart company Professional Music and Lighting Systems have joined as well, giving VJAM broader scope.

The group now offer d+b audiotechnik loudspeakers and touring racks. Launceston based Chris Veevers, formerly of Frontline, told CX the merger made perfect sense given the tight local market and the differing but complementary work the three firms do. Each had a slightly different strength, which are now applied across the group.

The Sound Company owner Jamie Howell and PMLS boss Nick Morse are all involved in VJAM. The new name doesn't particularly mean anything, but sounds cool according to Chris.



Chris Veevers



Randwick's New Grandstand

Modern Racing Requires Screens



Sydney's Randwick Racecourse has a new Grandstand costing 150 million. The venue sets a new international benchmark for networked TV and audio, courtesy of The PA People and Norman Disney & Young.

Around eight hundred screens are attached to the IPTV network over the entire site. The system deployed is from

Scottish specialist supplier Exterity. Audio comes from one thousand JBL speakers.

“This is the fourth major IPTV system we have deployed from Exterity” said Josh Jones, Senior Project Manager for The P.A. People, and this is easily our largest system. It has settled down without any significant issues’.



NSW Govt Relaxes Hazer Ban

But read carefully or court trouble!

The NSW government alarmed venues and production professionals in winter with a blanket ban on smoke machines or hazers where smoke detectors were isolated. Now Live Performance Australia has obtained a watered down edict, which re-opens the door for use of smoke and haze.

Now the advice is that the practice of isolating smoke detectors, which is a regular occurrence in most venues, cannot be undertaken unless it has been provided for under the terms of a development consent, construction certificate or a fire safety order.

Most venues have a compliant solution and/or one of the above, so the clarification was welcomed by the theatrical and events industry which had been skirting the previous ban in any case.



Members of Live Performance Australia can obtain more accurate advice from the association. Other states are also affected since the original ban was in response to requirements within the Building Code of Australia.



LPA Debut Draft Safety Guideline Feedback Required from Industry



**Live
Performance
Australia**™

Live Performance Australia have release draft Safety Guidelines for Live Entertainment and Events.

Phase 1 of the review has been completed and the working party is now seeking feedback from industry on the first set of Draft Safety Guides:

- **Electrical Safety Guide**
- **General Operational Hazards Safety Guide**
- **Hazardous Chemicals Safety Guide**
- **Event Rigging Safety Guide**
- **Work at Height Safety Guide**

The documents are available in both word and PDF formats from the LPA website at: www.liveperformance.com.au

A second set of Draft Guides will be released for review in late 2013, comprising:

- **Audience and Crowd Management**
- **Performer Hazards**
- **Special Effects**
- **Staging Equipment and Plant**
- **Temporary Structures**
- **Traffic and Access**
- **Work Environment**

LPA request feedback on any Guide by mid November. Please use the relevant response form provided for the Guide on their website: www.liveperformance.com.au

News Briefs



International lighting identity Søren Storm has joined Robe lighting's executive management team as International Business Development Manager. Søren's experience includes 16 years of working in top management for Martin Professional during which time he became one of the best known and liked 'personalities' of the professional lighting industry. Robe recently launched a new distribution outlet in Dubai.

Audio-Technica have become official partners with MusicFeeds.com.au. Music Feeds provides a platform for musicians across a variety of genres to showcase their talents, providing their viewers with up to date live performances from both Australian and international artists, music news, reviews and in-depth interviews. Since taking over residence at Megaphon Studio's, one of Sydney's oldest recording facilities, Music Feeds has been steadily building with music streamed live online for all to sample.

Darwin enters the big wet season with what it is believed to be the strongest public temporary structure in the world outside Skycity casino. This 'tent' can withstand winds to the equivalent of a medium range Category 4 tropical cyclone, according to Colin West, owner of Framelock Structures. He is entering the Skycity Beachside Pavilion into the Guinness Book of Records as the strongest public, temporary structure in the world. The pavilion is certified to withstand a 69 metre per second wind load – equating to 250 kilometres per hour. Colin and Darwin consultant engineer Peter Russell designed the 25 metre by 40 metre temporary structure for one third of the cost to build a permanent structure of the same dimensions.



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Anya is born from more than 15 years of research into technology that shapes and directs large-scale audio output. Anya adapts total array performance to deliver stunningly uniform high SPL coverage with such precision that the room effectively disappears. We call this Adaptive Performance™.

With Anya, you never have a reflection from a large wall because she makes it as if there are no walls. There is no ceiling, no roof, no nearby houses. With in-situ refinements, there are no balcony faces.

Nor are there any cheap seats. Anya so precisely crafts performance that virtually every location receives powerful, full frequency response. Sculpt the sound beam to reach the top of the farthest balcony, but not the wall just above it. Anya lets you be that exact.

Yet for all her capabilities, Anya is simple and intuitive. No complicated array angle, no addressing individual loudspeakers. Just tell Anya where you want the sound; she'll do the rest.

With the room eliminated, all that remains is a defined coverage area where the people that bought the tickets will experience what they came to experience – the artist.



EDITED BY JASON ALLEN

Philips Selecon Reduces Prices Of PL LED Luminaires



Philips Selecon has launched a new pricing initiative that will put its industry-leading PL1 range of LED luminaires within the reach of all lighting professionals keen to use them. Selecon's PLFresnel1, PLProfile1, and PLCyc1 LED fixtures are now available at prices more associated with their conventional counterparts.

"This is a hugely ambitious initiative," explains Australian Market Manager Peter McKenzie. "The Philips Entertainment brands have been selling LED luminaires for a number of years, but we have found that they are often perceived as expensive when compared to traditional lighting tools. This has put some of this exciting technology out of reach for those who are keen to use it. Our aim is to bring future pricing levels forward and offer them to our customers today."

The price reduction is available now and is a permanent change. For more information, customers can contact their local dealer, reseller or distributor –

www.seleconlight.com/distributors

Sennheiser HD 25 Aluminium Model

Introduced in 1988, **Sennheiser's HD 25 headphones** have attained iconic status as the choice of DJs and music professionals the world over. Audio specialist Sennheiser is celebrating the 25th birthday of its HD 25 headphones with the launch of the HD 25 ALUMINIUM, a new version featuring a unique aluminium finish. Built to withstand even the most demanding professional use, the HD 25 ALUMINIUM delivers peerless sound quality in headphones that are durable, comfortable and now even more desirable.

Improving on the best, Sennheiser has combined the longstanding sound signature of the HD 25 with a distinctive premium aluminium finish. Individually lathed from single blocks of aluminium, the metal earcups give the headphones a unique appearance while taking the clear sound to new heights by further minimizing the resonances in audible range.





Vari*Lite VL3015LT Spot Luminaire

The **VL3015LT Spot Luminaire** provides high output from a 1500W lamp in a luminaire that offers a zoom range optimised for long throw applications along with other powerful features. Many are even using this top of the line Spot in follow-spot applications with the addition of a simple yet smart new accessory.

Using a 1500W Osram double-ended short arc lamp to produce a maximum output of 41,487 lumens, the VL3015LT Spot features 10:1 zoom optics, CYM colour mixing, variable CTO wheel, two five-position colour wheels, three gobo/effects wheels, a beam size iris, and separate dimmer and ultra-fast strobe mechanisms. A standard palette of gobos, effects and colours is provided with the unit. Custom gobos, effects, and colours are available.

The new VL3015LT Spot Luminaire Followspot Handle is an optional accessory. This accessory (Vari-Lite part number 21.9698.9610) is designed to allow the VL3015LT Spot Luminaire to be utilised as a manually aimed follow-spot while still providing full attribute control via DMX. It simply bolts onto the rear of the lamp house allowing a local operator full control over direction with the rest of the parameters still under the control of the lighting desk.

Avid S6 Control Surface

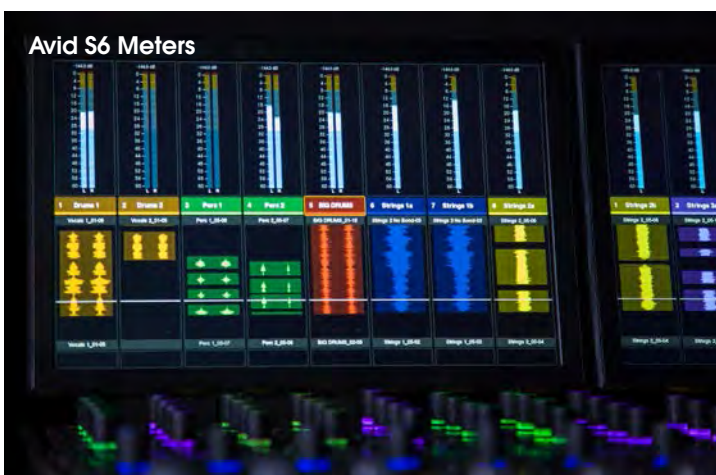
Avid has unveiled a major new addition to its family of control surfaces for sound recording, mixing and editing. The Avid S6 is designed for audio professionals in studio production environments, delivering the performance needed to complete projects faster while producing the best sounding mixes. In addition, S6 provides mixing professionals with a state-of-the-art solution that easily scales to meet their current and future challenges.

Built on the same proven technology that is core to the industry-leading ICON and System 5 product families, the Avid S6 enables mixers to quickly turn around complex projects while swiftly handling last-minute changes. With its unparalleled ability to simultaneously control multiple Pro Tools® and other EUCON™-enabled DAWs over simple Ethernet, S6 also speeds workflows and enables network collaboration on a single integrated platform.

The Avid S6's key features include modular design, superior ergonomics and intelligent studio control. Avid S6 will be available at Avid resellers worldwide in Q4 2013. As a modular system, S6 is available at a variety of prices, with M10 configurations starting at AUD \$24,199. (incl GST) and M40 configurations starting at AUD \$67,999. (incl. GST)



Avid S6 MAM



Avid S6 MTM



Anolis MultiChip Outdoor Luminaries

The **Anolis ArcSource Outdoor 48MC and 24MC Integral fixtures** are the newest additions to the Anolis ArcSource Outdoor range. The fixtures offer a high output from the latest LED multi chip technology, along with a full range of optics. Mounted within an IP67 high-grade aluminium housing these products are ideal for outdoor lighting applications, offering a solution to many landscape lighting scenarios.

With the stirrup mounting the new ArcSource products have a complete range of movement which can easily be fixed to stop any movement once the product is in the ideal position. Power and control are part of new high-pressure die cast aluminium housing. Wireless RDM/DMX makes these fixtures perfectly suitable for installations where cables cannot be accepted.



HK Audio's New E 110 SUB AS Subwoofer

HK Audio has not only unveiled a new subwoofer with the **E 110 SUB AS**, it has also taken the ELEMENTS series another step up the evolutionary ladder. As far as outward appearances go, the new subwoofer looks to be the well-established and very popular E 110 SUB A unit's twin. However, a look at the control features on the back reveals that the E 110 SUB AS sports two muscular 600-watt power amps. One of these ELEMENTS unit's 600-watt amps can drive both its onboard 10" subwoofer and an outboard passive E 110 SUB. The other amp provides plenty of juice to drive up to four E 435 mid/ high units or two E835s. These dual-amp capabilities make it easy to configure larger PAs using remarkably compact and light components.



ArKaos GrandVJ2

ArKaos have introduced their brand new ArKaos GrandVJ2, the latest version of the highly successful ArKaos GrandVJ software for VJs, DJs, clubs and musicians. The new software includes new features that answer the demands of customers in the forefront of the action. Two versions are available: GrandVJ 2 and GrandVJ 2 XT which includes a VideoMapper feature. New features for GrandVJ 2 include a brand new interface, VideoMapper module (XT version), new software activation system, new effects, support for audio files and a new interface.

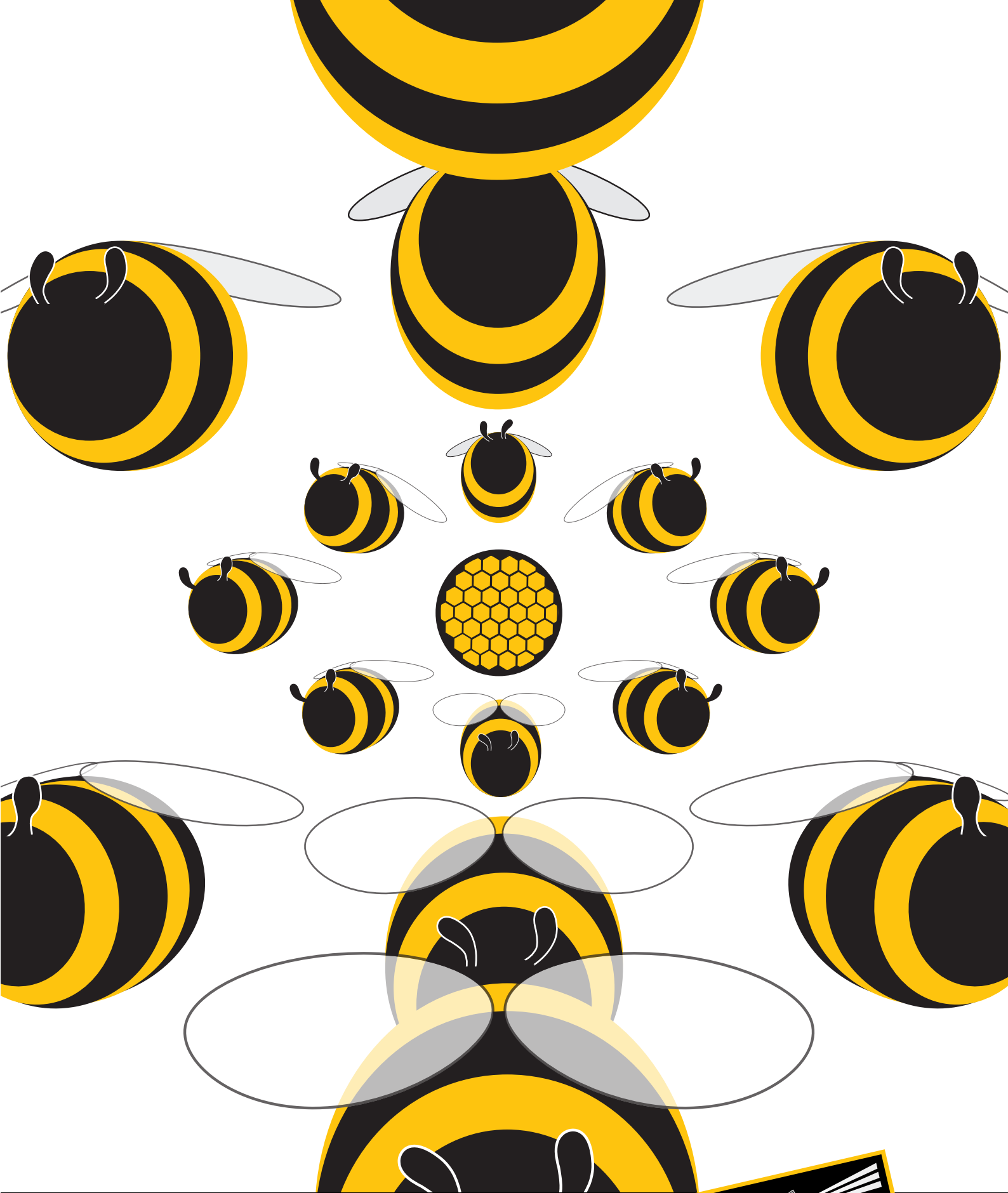


Barco and projectiondesign Single-chip ReaLED projector

Barco has introduced a brand-new LED projector. The top-of-the-line single-chip FL33 projector offers training, simulation and visitor attraction industries an affordable, yet durable high-quality product. The FL33 will be presented to audiences across several industry events in the coming months.

By combining projectiondesign's solid state ReaLED technology with Texas Instruments single-chip DLP technology, the FL33 offers an uncompromised performance and an unmatched 100,000 hours service life. Designed for multi-channel systems, it is particularly suited for mission-critical applications, such as 24/7 process control monitoring, visualization and simulation. Also, visitor attractions such as planetariums, domes, small enclosed environments and level D flight simulators for both civil and military aviation can benefit from FL33's flexibility.





Some buzz around Clay Paky.



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Shure Introduces Microflex (MX) Wireless

Shure Microflex Wireless is a digital wireless system operating in the licence free 1.9GHz band designed specifically for corporate boardrooms, lecture theatres and teleconference systems. Microflex wireless (MX wireless to its friends) is the perfect choice for corporate boardrooms, conference centres, and teleconference and video conference systems. It features true high quality digital audio transmission and supports military grade AES-256 bit encryption to ensure security of transmitted content. All components feature networked monitoring and control plus Dante digital audio delivery to ensure compatibility with corporate IP network infrastructure.

Operating in the license free 1.9GHz band means it's free of "digital dividend" frequency coordination issues associated with broadcast band devices and is capable of supporting up to forty transmitters per room. There are seven main components in the family and systems can be assembled using combinations of these



to best meet the required application. Microflex Wireless delivers true flexibility in intuitive easy to use form factor, without the compromise in audio quality that has plagued corporate wireless systems of the past.

Klotz '59er Guitar Cable

'59 was a very good year for music. Al Hendrix gave Jimi his first guitar, Elvis was leaving the army, the Everly Brothers and Ritchie Valens were in their prime and the music surrounding us was as 'hand made' as it was ever going to be. The solid woven tweed jacket on Klotz' new 59er guitar cable recalls this truly golden era for musicians, but only the style of this cable is vintage.

The proven cable, with a low capacitance of 115 pF/m, utilises both a conductive plastic shield and a bare copper spiral shield. The textile jacket adds extra resilience and protection without impairing its high flexibility. The cable's high-quality metal connectors are gold tipped to maintain a corrosion-free finish. A shrink sleeve at each end, extending from the soldered joint to beyond the connector sleeve, provides additional anti-kink protection.



Mackie Add Lightning To DL Series

By popular demand, new versions of **Mackie's DL1608 and DL806 digital mixers** are currently in production that feature the Apple Lightning connector. This will ensure that new customers are able to take advantage of the current generation iPad devices. These new Lightning version DL mixers will be available alongside the 30-pin versions.

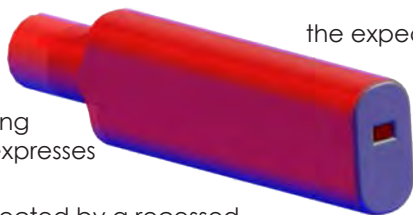
With DL Series mixers featuring the Apple Lightning connector, users can now dock their iPad (4th generation) without an adapter and use it for playback and recording. Only the connector type is different. Everything else is identical to a DL mixer with a 30-pin connector. iPad mini users can add the optional iPad mini tray accessory (available through any Mackie dealer) to dock and lock their iPad mini.



Artistic Licence nanoScope

nanoScope is a small battery powered tester for DMX512 and RDM. It is built into a 5 pin XLR connector with a plastic lens offering 360 degree viewing. nanoScope expresses all its findings with coloured light.

Two modes of operation exist, selected by a recessed slide switch which also doubles as the power switch. In 'Pixel Mode', nanoScope simply displays the first three DMX channels as an RGB mix. This allows nanoScope to be used as a pixel mimic to provide confidence that



the expected data is on the cable.

A flick of the switch selects 'Analyse Mode'. nanoScope displays a sequence of coloured blips, that represent different attributes of the DMX512 signal. The sequence comprises one long blip followed by a train of short blips. The long blip will be either green or red to indicate overall good or bad data respectively. When no data is detected nanoScope blips white every five seconds to conserve power.

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 **SENNHEISER**

BE PRODUCTIONS

HOW TO BUILD A COMPANY OUT OF THIN AIR(SCREEN)

Marc McAvoy and Cameron Mitchell have gone from DJing in the mid-2000s to running BE Productions, the dominant player in Australia's outdoor cinema and screen market. How'd they do it? Jason Allen sat down to talk projections...



Marc McAvoy and Cameron Mitchell are not afraid to take a risk. In 2005, they started DJing, and soon found themselves installing a PA into one of their regular venues. That was the genesis of the company, which is pretty standard in our industry. What happened next was not.

AIRSCREEN are a company based in Münster, Germany. For 17 years, they have produced inflatable movie screens that are portable, safe, easy to rig and sized up to whopping 40 metres x 20 metres. Cameron and Marc came across AIRSCREEN and had a lightbulb moment. "We saw the product and just thought it's perfect for Australia", recalled Cameron.

Seeing a huge gap in the market, Marc and Cameron got in touch with AIRSCREEN and became the official distributor for South East Asia, representing the product not only in Australia but also Thailand, Dubai, Malaysia and around the region. They brought a screen into the country, and set about putting it to work.

IT'S SHOW TIME

Amazingly, the fledgling BE Productions invested in their first screen with no job lined up. With huge confidence and faith, the company built up its customer base from nothing, confident in their gamble on the demand for the product. It paid off. BE Productions were invited to tender for Sydney

BY JASON ALLEN



Bledisloe Cup, ANZ Stadium

Olympic Park's 'Movies by the Boulevard', which is the largest outdoor cinema by attendee numbers in Australia. They were successful and hired in their AIRSCREEN, a 15K projector, 24 PA top boxes and 16 subwoofers and were soon showing films to audiences of 10,000 people on the busiest nights.

Here began the learning curve. "We really didn't realise the scale of the audio system and projection that you needed" Marc explained. "We were really in the dark. It forced us to scrape every penny and really plan our events. We learnt some hard lessons. We paid way too much for crosshires. We were just the little guys with this big inflatable screen; that was all it was."

INFLATION CAN BE A GOOD THING

Good management, planning and plain hard work helped the company grow from there. "Every year we've invested the money we made into the next piece of equipment" Cameron continued " We started off with the screen, the next year we bought a projector, the next year we bought the sound system. We lessened our crosshires every year and increased our revenue. As more jobs came along, we bought more screens, more projectors and more speakers. And that's how we grew."

This growth has seen BE Productions go national.

**MARC
MCAVOY**



**CAMERON
MITCHELL**





Moonlight Cinema, the national outdoor cinema company, operates in six cities and BE is their national supplier, picking up gigs in Sydney, Melbourne, Brisbane, Perth, Adelaide and Port Douglas.

The quick set up time and ease of use of AIRSCREEN soon started to get noticed beyond the cinema market. During the 2008 Soccer World Cup, BE were engaged by Elite Sports Properties to set up live viewing sites in Melbourne and Brisbane. Melbourne’s Birrarung Marr was graced with both a 16 metre and an 18 metre screen, catering to an audience estimated at 20,000 people. Brisbane’s Reddycliff Place was set up with a 10 metre screen that covered 5,000 people. “The World Cup opened up a lot of eyes to the capabilities of AIRSCREEN” said Marc. “To be able to go in an afternoon, set a site up, and get that amount of people to see a screen in action with minimal bump-in time. It really showcased us to a lot of different companies.”

BE Productions customer base has now expanded to include sporting codes and corporate clients, while still retaining their core business of outdoor cinema. The seasonality of outdoor events means the company takes on a lot of casual and contract work during peak periods. “It’s a staff that goes from five full timers in the office that swells out to 45 including events staff over the summer” Cameron related.

MAGIC LANTERN SHOW

With the image quality on the screen being the primary concern at an outdoor cinema event, what projection choices have BE made over the years? “At Olympic Park on our first job, it was film” remembered Cameron. “There was no digital cinema and all new release movies were on 35mm. We hired a Cinemeccanica Victoria 5 projector and eventually bought that system and used it for years until DCP came along.”

As digital cinema projection slowly came on the market, BE investigated the options and picked out their first product. “The Sanyo 15K was the best product for us in terms of price and quality” Marc surmised. “Our first large format projector was a 12K XF46 and we still have that in our hire stock. It’s eight years old, it’s robust and you can’t kill it” Recent product innovations have seen BE move to the NEC range. There are still a limited number of players in the DCP market, and some aspects to the technology that are yet to be proven. “Digital has brought our running costs down; you don’t need a 35 mm projectionist” Marc continued, “but we’re yet to see how a DCP will last on tour. These products are made for fixed installation, not to be bounced around on a truck.”

And any projector that BE invest in will certainly see its share of bouncing trucks. “We’ve done outdoor cinema



Movies by the Boulevard,
Sydney Olympic Park

in Olympic Dam for BHP Billiton” said Cam. “The Flix in the Stix short film tour goes from Rockhampton down to Ballarat, and everywhere regional in between. It seriously puts the equipment through its paces”

THE AUDIENCE IS LISTENING

With audiences spoiled by home theatre systems playing their DVDs in 7.1 surround, audio quality was a serious consideration when making a PA purchase. BE wanted to invest in a high-end product, but one that was versatile and capable of being set up by two people. After auditioning a range of systems, Marc and Cameron went with an HK Audio Cohedra Compact system, with eight elements a side. This gave them the ability to split it into two smaller systems of four elements a side.

Voicing and reproduction were also a deciding factor. “Our application wasn’t a concert or a nightclub. It needed good vocal reproduction for cinema speech” Cameron explained. “When we compared it to a lot of other systems, the Cohedra Compact’s speech replication was spot-on and really works with cinema.”

Cinema sound outdoors is a totally different beast to the centrally located listening position of a home theatre or indoor cinema system. With the subtleties of 5.1 or 7.1 lost in the environment, BE’s cinema events run on a left-right system summing the film’s LCR mix. “With outdoor cinema, you’re creating a social event” conceded Marc “It’s not really about 5.1 surround.”

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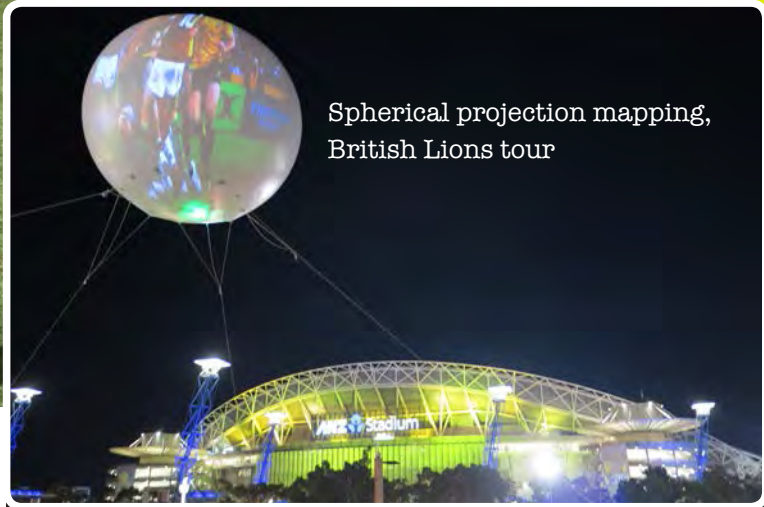


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Spherical projection mapping,
British Lions tour

CARN THE BLUES

Having become experts in the practicalities of projection outdoors, moving into projection mapping and architectural lighting were a natural step for BE. Through their relationship with Sydney Olympic Park, BE have developed architectural lighting and digital building projection for ANZ Stadium. Over the last two years, events that BE have provided their services to include the State of Origin, the Bledisloe Cup, the British Lions and Manchester United.

A major ‘activation’ around a sporting event at ANZ Stadium typically sees projection across the 88 metre x 11 metre frontage of ANZ stadium from four 20K Barco projectors on scaffold towers, with image mapping through Dataton’s Watchout software. Two 14 metre x 7 metre screens are hung in portrait mode from the stadium’s side spiral towers, with images beamed from two Sanyo 15Ks. For big games, up to 25 Clay Paky Sharpy Washes are deployed to light the buildings. “The Olympic Park train station has around 90 fixtures that we install into it”, Marc expanded, “plus we gel the existing lights, and then we turn it from gold to blue to red, or any other team colours that are required.”

The atmosphere and energy around the sporting codes has led BE to try out some new tricks. “We’ve recently been projecting onto a five metre helium sphere that floats 10 metres off the ground” Cam reported. “We map it with MadMapper and project a sphereised image onto it from

both sides. It looks like a hovering projected ball and it’s quite a good effect. I haven’t seen it done in Australia, particularly outdoors.” The activations have been a hit with their customers. “We received a letter from the NRL thanking us” beamed Marc. “They said they’d never seen so much activity on social media preceding an NRL game.”

MAPPING THE FUTURE

Major events such as Sydney’s Vivid Festival have brought projection mapping into the consciousness of the mass market. Corporate clients have seen what’s possible and now want to see this technology employed in the service of their brands. Cameron and Marc both see this as BE Productions direction for growth, and stress that creating the right content for mapping is key to an event’s success. “We’ve just brought a full time designer on board that gives us the ability to create more exciting content.” Cameron confirmed. “And we’ll be investing further in large format projectors” Marc added. “We’re looking to expand our 20K range to cut down on crosshiring”.

As BE diversify, they are moving closer to being a well-rounded event company than a cinema specialist. Their new directions have seen them secure new work in markets well past their single-screen origins. “We recently confirmed the Bradleys Head New Year’s Eve celebrations on the Harbour for NSW National Parks” noted Cameron. “A large, government endorsed New Year’s Eve party is a fantastic place to showcase our event skills, as opposed to being just a service provider. It’s good to be in the new realm of events theming and projection.”

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LISTEN HERE

10 THINGS THAT GO WRONG WITH A MIX (AND HOW TO FIX THEM)

Mixing records, albums, singles, iTunes uploads – call them what you will – involves a process where only one thing is certain: mistakes will happen. The best mix engineers in the world know this all too well, retaining enough humility to imagine their way around them. Others fail by defending dud mixes even as they're sinking to the murky depths below. Here are 10 examples of the types of things that can go wrong during a mix, and how to convert these misadventures into triumph.

If mixing music were like shooting a stationary target with an arrow (archery I guess it's called), there would be crack shots galore and Robin Hood would be yours, mine (and everyone else reading this magazine's) hero.

But hitting a stationary target is like shelling peanuts compared to mixing – it's for people with one good eye and a one-track mind. Mixing music is for 'multitrack thinkers': people for whom 'artistry' includes complex problem solving, where each target is different and there are countless routes to the bullseye. The challenge is staying the course sans map, compass or known destination.

Here are 10 common misadventures (in no particular order whatsoever) that can plague a mix, alongside some practical tips on how they might be resolved.

BY ANDY STEWART



1: ABANDON SHIP!

Many a mix is destined for the icy depths if you're too proud to admit that the course you've set has you sailing straight for an iceberg. It's the biggest mistake anyone can make: letting your pride and reputation get between your ears and the speakers. If you find yourself in this situation, face the problem head on, admit you're off course and set a new one. Otherwise you're heading for Davy Jones' Locker... and down there they don't take kindly to stubborn mix engineers.

The hardest part about making this decision is that it always feels like a setback. Precious time seems to have been wasted and your destination has retreated back over the horizon, out of sight. Don't think like this. Time has not been wasted! This turning point is reached during most mixes, not just occasionally, so arriving at this crossroad represents progress. Indeed, if you don't change course here you will only slow progress further in an egotistical attempt to save face, which makes no sense. How can a lame mix possibly allow anyone to save face? Retain your humility at all times and always act in the mix's best interests. Defensive engineers are lame engineers.

2: MY MIX IS TOO WET!

The reason for this is pretty simple: most people haven't a clue why they apply reverb in the first place, let alone how reverb works in nature. The result is commonly a washed out debacle where the background information pulls at the foreground detail in a vain attempt to provide depth.

Put simply: reverb is complex and mastering its application can take years. In the hands of a beginner it's the equivalent of a drunken teenager with an automatic weapon. If you're new to this craft the best advice I can give here is to embark on your first mixes without it. You'll be surprised how good you can make things sound regardless.

Of course most people won't take this advice, so here's a second tip. Almost every reverb manufacturer on earth provides a list of presets starting with big reverbs first, and short ones last. Preset 1 – Hall 1 – is by far the most commonly used reverb setting, and yet it's usually far too big for most songs and instruments. Head straight for the small rooms and 'ambient' spaces if you insist on applying reverb to things. Don't just open up a reverb plug-in (Large Hall) and immediately think, "cool, that sounds pretty good." Half the time it doesn't, you're just attracted to the impression of something small (and invariably soloed), suddenly becoming enormous.

3: IT SOUNDS COOL, BUT NOT HERE

Sometimes we sound engineers are too clever by half. We create sounds that are too complex: so rich and deep that they're almost mixes in themselves. These sorts of sounds can often be inappropriate when placed in the larger musical context – they take up too much tonal space and prevent everything else from finding a comfortable position between the speakers. The hardest discipline to master with respect of these sounds is to turn them down low enough that they occasionally work, or be strong enough to admit that, sure, the sound is cool, but it just doesn't work in this context. Unfortunately, all too often we lean the other way. We try to highlight them, even though deep down we may have already admitted to ourselves that it's probably the wrong thing to do. In doing so we misjudge the basic proportions of the mix.

4: I WANT IT DYNAMIC... BUT LOUD

Hmm... really? Sounds like a fundamental misunderstanding of the production process to me.

Most truly dynamic songs come out sounding hopelessly quiet when placed alongside the vast bulk of modern masters. On their own they may sound amazing, and I myself still long for a time when modern music decides to use more than the last 3dB of the 100+ of dynamic range 24-bit recording provides us with. But until there's consensus, super loose dynamic mixes will always sound quiet relative to their heavily limited brethren.

It's a common mistake to forget the end game: we're trying to produce mixes that translate out into the world remember? You know, that hideous place that's made up of everything from big PAs to faulty earbud speakers. In the end leaving a mix with too much dynamic is something mastering will simply have to address later. Provided you're careful, the trick to good solid, clear mixes is to put some gentle limiters across some of the loudest elements – drums and vocals perhaps – *before* their individual channel compressors, to help control these elements individually, rather than expecting the master bus limiters to do all the heavy lifting.

5: FLATTENED LIKE ROADKILL

Too many mixes are truly hammered by compression. Engineers sometimes unthinkingly apply it to anything and everything, whether it's loud or soft, detailed or background. Ironically, many of these mixes are also too wet, as an engineer tries to create depth after he or she has just taken to it with a sledgehammer. Sometimes all you have to do to create depth is leave some of the elements alone to drift in and out of the soundscape naturally. If you're both compressing the hell out of something, then

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putting a mountain of dynamic automation back into it, why not just leave it alone from the get-go? If something is coming up out of the depths of a mix to wave a brief hello before drifting back again, why compress it at all? If it's not pressing against the mix bus compressors and limiters you might as well give that sound what I call 'dynamic immunity'. Not everything needs compression so if you're going to apply it, always ask yourself: "why?"

6: THE ODD MAN OUT

Sometimes when you're establishing a panning regime, you're left with an odd one out... the balance is already perfect but for this one ingredient you've yet to place. It might be the 5th element, it might be the 50th; either way something now has to give to accommodate it.

Particularly when a mix is sparse, this problem can be quickly and easily turned into an asset. So often every corner of a production is taken up with raw ingredients: tiny bells and tambourines, backing vocals, extra guitars and strings... you name it. This usually leaves no room for distinct extra mix features like an eccentrically weighted reverb or delay for instance.

But when there's very little in the way of instrumentation, standard panning conventions can create very large holes in the left/right balance, and this can be a *good* thing! If, for instance, you've got three simple musical elements: a guitar, a main vocal and one backing vocal, do you put the main vocal in the middle, the guitar on the left and the BV on the right? To my ear this rarely sounds very good. But if the main vocal and guitar go in the middle, and the backing vocal is panned left, what then fills the void on the right? Try putting a delay out there... something that would otherwise be spread underneath everything else. It might work a treat.

7: PHASE ALIGNMENT, WHAT PHASE ALIGNMENT?

My pet hate, and this is the thing I preach to others more than just about anything else, is phase management. There are in fact two different problems potentially in play here, typically lumped together under the banner of 'phase problems': phase and polarity. Phase problems are the result of two or more waveforms of similar (or identical) type being misaligned *in time*. When these are played in the mix, their timing mismatch makes the waveforms fight one another, producing an emaciated tone and perspective that none of the elements individually possess.

The other is *polarity inversion*, where two identical waveforms are flipped upside down relative to one another. Time plays no part here. The problem is usually caused by a poorly wired cable or microphone. When these two sounds are panned hard left and right and played together, they sound hyper wide, yet in mono they don't exist at all, disappearing entirely! If two sounds are inverted, flip one with the 'phase button' (incorrectly described) and the problem is solved.

The simplest way to combat actual phase problems in a mix – provided you hear it as a problem the way I do – is to ditch one of the elements altogether. If there are two mics on a guitar cabinet and no matter what you do, the two channels in combination just sound peaky and thin, mute one. Not only does this action simplify the mix, it makes the sound

in question stronger and translate better across different speakers. Alternatively, pick one of the two channels and make it different somehow. Compress it, put delay on it, filter the hell out of it and stick it in a corner as a wall echo if you will. The less these two waveforms resemble one another the better.

8: WEEDING OUT THE DROSS

One issue a lot of mix engineers fail to address time and time again is whether a sound should be in the mix in the first place. More so now than ever before, overdubs are applied to songs in less than methodical fashion, sometimes in the mere hope that something good might come from them. That's cool; sometimes the results of this approach are fantastic. But occasionally a poorly played, less than relevant instrument is left in a mix session file because no-one was prepared to ditch it at the time. Indeed, sometimes the decision is intentionally left 'til mixdown. But by then sometimes it's often forgotten that Sound X was ever intended to go anywhere other than the scrap heap. As a mix engineer it's important to question – diplomatically of course – any sound that seems poorly played or inappropriate, rather than trying to jam everything in there whether it be good, bad or indifferent.

9: IS THAT SUPPOSED TO BE DISTORTING?

Distortion is a sonic ingredient common to a wide variety of mixes, but like every other element, getting the dosage right is critical. A common mistake is to administer a dose that sounds great up loud on big speakers *before* the mix has enough bus compression or limiting across it. Later, when the digital reality of final mastering kicks in and the speakers are more modest, that dose can often be too high and the mix can start sounding like white noise: grainy, thin and nasty rather than big and tough.

Keep the end game squarely in mind, rather than trying to impress the three people in the control room. Distortion increases rapidly as things get compressed and limited. If it's a key ingredient of your mix, try applying some test mix bus limiters and compressors to the stereo output, and A/B your distortion-rich mix against a popular rival. You might get a rude shock at this point, but it's much better to suffer that now while the mix is still in progress.

10: TIMING & PITCH

I'm way over my word count here so I'd better keep this short. If elements of a mix are on the nose in a pitch or timing sense, it's your job to fix them. I'm not talking about making something perfect – that's a meaningless term. I'm merely suggesting everyone make his or her own decisions about what constitutes bad pitch or off timing. Trust your instincts. If a particular word or beat constantly catches your ear, address it until the problem dissolves away. Turning a performance into something a robot might have played isn't what I'm advocating... just don't let the artist wake up one day feeling embarrassed about it, and then blame you.

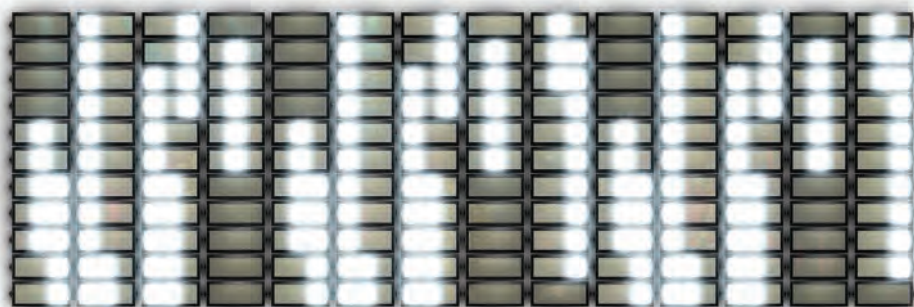


Andy Stewart owns and operates The Mill in the hills of South Gippsland. He's happy to respond to any pleas for recording or mixing help... contact him at: andy@themill.net.au



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LEGENDARY SHURE

HOW A HUMBLE MICROPHONE DOMINATES LIVE SOUND

ODE TO THE SM 58

**JUST 47 YEARS YOUNG**

AT THE OLD SHURE HQ THERE IS AN OLD GUY AT A DESK IN THE CORNER NO ONE TALKS TO. HE HAS A LOT OF FILE BOXES STACKED IN A HUGE PILE. HIS JOB IS TO COLLATE NUMBERS OF MICROPHONES SOLD, AND TO WHERE.

Actually Shure is in a stunning modern glass fronted building in Chicago, and there is no old guy who counts microphones. They don't really know how many SM 58 vocal microphones they have shipped, but it must be well over a million.

The SM 58 is the top selling, hand-held vocal dynamic microphone in the world, and has been virtually every single year since it was invented. This makes it the single most successful product in the history of professional audio, if you don't include the XLR connector.

Intrigued at why the SM 58 continues without impediment, I had a look at the history and also at the way they build and design things at Shure.

RADIO PARTS

In the 1930's, Mr. S. N. Shure diversified his radio parts business to design and build a microphone. In the Great Depression, his radio business had declined and he took on distribution of a microphone, which gave him the idea to design and build a better one.

Thus in 1932 they launched the Model 33N Two-Button Carbon Microphone. A short while later, in 1939 they launched the Model 55 Unidyne Microphone - the first single-element unidirectional dynamic microphone.

BY JULIUS GRAFTON

PROFESSIONAL RECORDING STUDIO

EARLY DAYS



the microphone. It was the predecessor to the SM57.

By 1966 the SM 57 (adapted from the Unidyne III a year earlier) was joined by the SM 58. The round windshield minimised popping and provided a safety screen for the cartridge.

That single-element design made for a smaller microphone which was less expensive, and, therefore, more accessible to all. Then the war got in the way, and the company built airplane headsets, pilot throat microphones and navy ship microphones around the clock.

Then in 1959 the Unidyne III Microphone was the first high-quality unidirectional microphone to be used by speaking into the end (“end-firing”) rather than the side of

DESIGN HURDLES

Chad Wiggins is the Category Director of Wired Products. He told **CX** that the microphone housing is the same then as is sold today.

“In 1964 we made significant technological advancement with a sophisticated shock mount. This allowed the capsule to be housed in a handle. It’s called the Pneumatic Shockmount -

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we haven't seen any dynamic microphone that has been able to duplicate its performance attributes."

"Now the mic could be hand held, a self windscreens mic with a ball grille. It was the world's first ice cream shaped mic and thus the blue print for everything we see today."

Chad explained that back in the 30's Shure created a unidirectional pickup pattern by introducing a port in the rear. They studied and resolved pattern control, because feedback was a recognised problem the minute anyone amplified anything and introduced a microphone.

Then there is the chamber behind the magnet assembly, known as the rear cavity. "The cavity volume behind the capsule influences low frequency response. It damps the diaphragm. Resonance frequency of an SM 58 is 125 Hz. A second chamber is included behind the first, and only in our pneumatic shockmount. There is another resistance between the 2 chambers. The whole assembly then is mounted on a specifically tuned rubber part."

"Then all you need to do is to stimulate the diaphragm with sound!"

Every production run is audited carefully. "Every small change makes a big difference to performance", concluded Chad.

SURPRISING TESTING

Shure HQ is at West Touhy Avenue in Niles, a satellite of Chicago in what they call Chicagoland. The building is very impressive – seven floors, massive glass facade all fashioned by a German architect for a merchandising company that diversified into dot coms in the 1990's.

They went bust with the dot com crash, and Shure came along in 2006 and paid 30% of the construction cost. Then they added on a technology annexe, in effect a tall space that extends out the back for a couple of football fields or so. The glass and concrete finish was matched up to the main tower.

In the massive foyer are rows of exotic plants – when I was there bromeliads featured. I asked about this. It transpires



CHAD WIGGINS

MIC LISTENING LAB



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**SIDNEY N. SHURE
THEATRE**



CQE LAB

the owner of Shure is Mrs Shure, widow of the founder. She purchases the foyer flowers and shrubs on her own account, and every six weeks or so they are changed out. The retired flowers and shrubs are carefully packed in cardboard carry cartons for the staff (called associates) to take home.

There is a massive atrium in the foyer, with three glass elevators. It is easily the most impressive manufacturer building I've been into, within our industry.

Out in the Technology Wing, I get the tour and meet Lane Dulaney - the director of corporate quality. He is both revered and detested across the marketing, design and sales floors since he alone must sign off EVERY new product.

While the procedures will surprise you, it transpires that the original SM 58 went through something similar since Mr. Shure transitioned the whole firm to conform with military standards numbers 810 and 202 in order to build during the war.

After the war, some questioned the need to maintain manufacturing to these standards. He stood firm, and today the firm still adheres to these standards. It is eye opening.

WE MAKE SWEAT

Shure have built their own test tools, like the sweat machine. In all seriousness they analysed sweat scientifically and had a formulation created that comes in big gallon bins.

A machine sprays sweat into and onto products, which makes a unique test for synthetic perspiration. The machine has a Shure part number, and there is one at each of the three factories around the world.

How would you test microphones and electronics? Heat and cold are easy, Shure go from -29 degrees to +74 degrees Celsius, which is extreme by any measure.

All products are tested in research and development, and all products have to pass all the tests before Lane Dulaney will sign them as good for production. Then various products are random tested from production batches to ensure there is no quality fade.

Minute measurements are taken, panel printing is examined under microscopes, for position and precision. There is a salt fog testing chamber, a switch cyler for electronic devices, and a cable flex test machine that will find the weak point on any cable. Once the product fails under load, an x-ray is taken to find the point of failure.

How about solar radiation? A ten day cycle emulates 20 hours of sunlight a day, for a highly accelerated test. Indeed the acronym HALT or Highly Accelerated Life Test is used a lot.

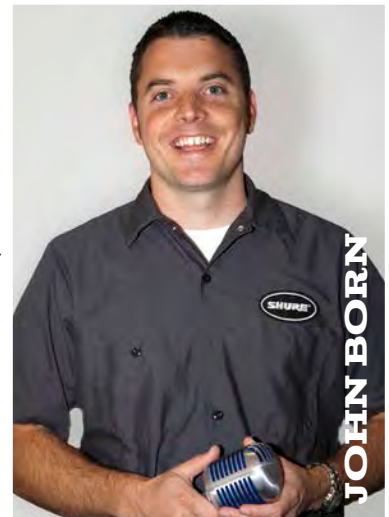
They blast nitrogen on the the product while it is being vibrated.

The philosophy is to find a fail point, fix it, then find another, fix it, and repeat. "We invest in critical reliability", said Lane.

Boris Libo shows us the drop test, which is quite simple. All products including KSM ribbon microphones undergo a 2 metre drop onto a hardwood floor, and on to a concrete floor, a total of ten times. Frequency response is checked each time.

LISTEN UP...

John Born is the product manager for wired products. He showed **CX** through the audio measurement facilities at Shure, starting with the anechoic chamber. Another Shure test machine pivots a microphone in a semi circle, a few degrees at a time for quicker measurements.



JOHN BORN

There is a studio, where microphones, instruments and live sound systems can be brought together. Shure conduct blind listening tests of their own product against competitor products. They benchmark each product in the comparison, using good ears sourced from within the company.

Shure have a process to find a critical listener, involving sequencing a track and lopped playback. They say that critical listening is an active process, and being Shure they have measured what makes a good listener.

"We obtain data from a board set of listeners", says John. "But the final decision maker is the product manager", and that would be John in the case of wired microphones.

Chad Wiggins characterises the job at Shure is - "to produce a design with high levels of reliability. We are a success due to the complexity of our process. And we have to be humble".

Which is as good a credo as we've heard anywhere.

*** Julius flew to Chicago as a guest of Shure.**



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AUDIO LOGISTICS

Void Acoustic's Air Motion V2

INTO THE VOID

Melbourne's Audio Logistics are a relatively recent entrant into the highly competitive pro audio distribution market in Australia. Their point of difference? Some of the most visually arresting gear you can buy. Jason Allen looked into the Void...



Audio Logistic's Adam Dullens comes from a strong AV Installation background. Mainly working in bars, pubs and nightclubs, he's got a strong grip on what a venue owner needs and expects from their AV investment. So how did he make the big leap from installer to importer?

"Audio Logistics started out of a frustration on my part as an installer in not being able to get products in a timely manner or what I considered to be adequate support in Australia", explained Adam "I was thinking there must be a better way, so after a year of research, I thought 'OK it's time to put my money where my mouth is'. Two and half years and many overseas trips, meetings and listening tests after that, we now distribute six brands in Australia."

BY JASON ALLEN

Void Acoustic's Air 10



Nexus 6 Front



From their Preston warehouse and showrooms, Adam and the team represent six brands: Belgium's Audac (100v line, mixer amps, ceiling and surface mount speakers) and Procab (cables), Canada's Audio Video Metals (racking, accessories), Taiwan's Decous Audio (premium designer ceiling speakers), the USA's Posh Speaker Systems (surface mount and ceiling) and their premium line, the UK's Void Acoustics.

It's Void Acoustics that really make Audio Logistics stand out from the crowd. Void specialise in products for the club market that are as visually arresting as they are premium quality. If you've seen a product like the Air Motion V2 (pictured), you don't soon forget it. Like many other pro audio snobs, this author's first reaction to Void was that if it looked like that, it couldn't possibly sound any good. Like

"When I plugged in after recabling my live rig with Klotz cables, it was like a veil had been lifted from my sound. I was able to back off my amp's EQ because the air I'd been missing was already there. That's when I knew it was time to rewire my studio with Klotz"

Mark Lizotte, 2013

KLOTZ
CABLES

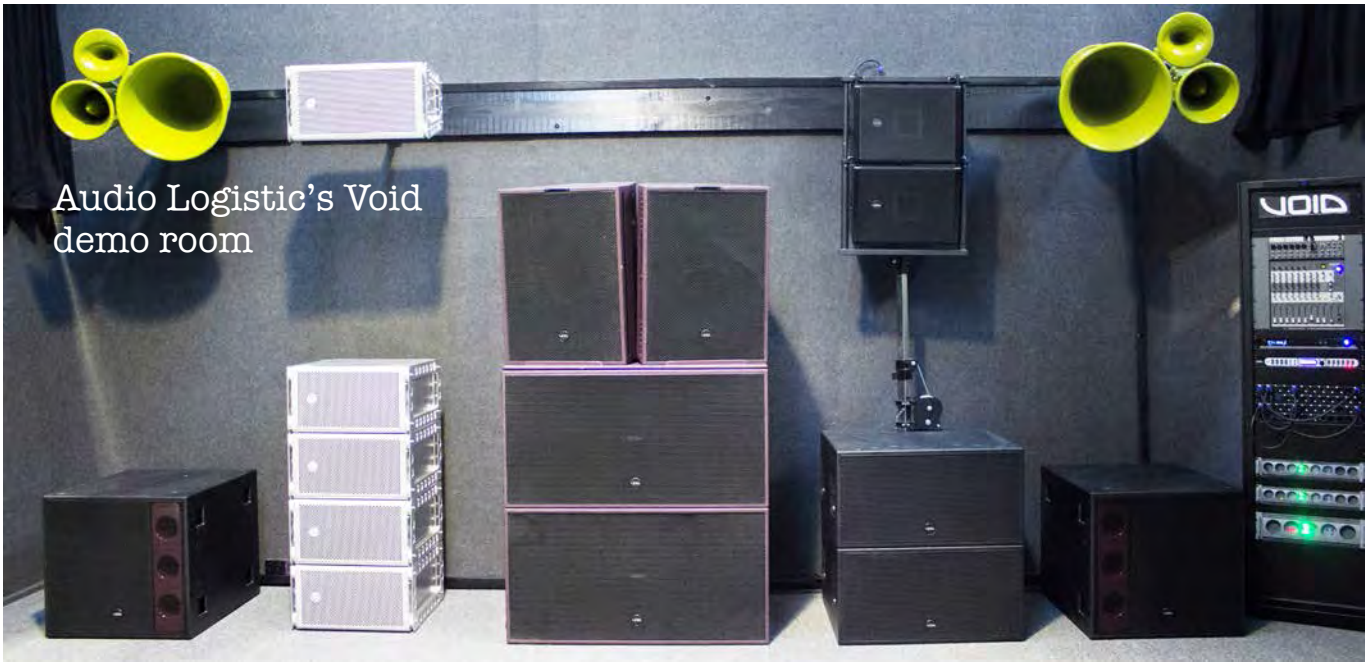
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Audio Logistic's Void demo room

most preconceived notions, this is shattered when you get to do a listening test.

Even Adam was sceptical when he first investigated the brand; "When I took the trip to go and see Void Acoustics, I thought 'this could go either way'. Either they'll turn it on and it will sound fantastic, or it will be the complete opposite and it will be all style and no substance. Thankfully, it was the former. They do a lot of R&D, they make all their own drivers and everything's made in the UK. They do their own amps and processing too. We bought in a few products and fell in love with them."

Realising that Void's looks were simultaneously their greatest asset and their greatest liability, Adam has recently

completed work on a dedicated listening room at their Preston premises. Two full walls of Void loudspeakers can be auditioned in a curtained-off, acoustically pleasing space, letting the products shine on their merits. "We want to have a space where a club owner, installer or architect can come down, have a listen in a comfortable environment and determine if it's the product they want to go with" Adam shared. "We want to make it boutique. We're a destination when it's not your everyday job. We want our products to become a household name. We want people to say 'that speaker looks really cool – it must be a Void Acoustics product'. We don't believe there's anything else on the market that looks like it, and audio-wise it stacks up against any of the other major players out there."



Audio Logistic's Void demo room



Demo room playback,
processing and amplification

Void have made great inroads into the club scene in Europe and the UK, with recent installations powering party mecca Ibiza's premiere nightclubs. Void are now also targeting the touring market with their Arcline line array series. "They're really making a name for themselves" said Adam of Void's touring products, "and we're hoping to do the same here".

Adam is currently finishing off a second critical listening space on the building's second floor showcasing the range of ceiling and surface mount speakers from across their brand portfolio. If you'd like to get down and hear what Audio Logistics have on offer, give them a call on 1300 859 341, or look them up at

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‘... JUST SIT IN THE DARK & QUIET AND BREATHE IT IN.’

ROSIE MORONEY RELISHES THE STILLNESS OF THE THEATRE JUST BEFORE CAST AND CREW ARRIVE TO TRANSFORM IT INTO SHOW MODE. FIVE MINUTES LATER AND HER GENEROUS SMILE AND SUNNY EFFICIENCY LIGHT UP THE BACKSTAGE GLOOM. FOR THIRTY YEARS SHE'S BEEN AROUND ALL SORTS OF TECHNICAL TRAPS, WITH PLENTY OF ADVENTURES ALONG THE WAY. I CORNERED HER OVER TEA AND BISCUITS TO TALK ABOUT IT.



Centre – up a scissor lift focussing Sony 1040s and running slide shows in the late 1980s. It's been great tasting all the production areas over the years and it's really helped my work over the last few years as a stage manager and production coordinator.

JH: Where do you work now and what is your favourite venue?

RM: These days I split my year into two six month blocks. In the warm months, I stage manage one night stands, like Adelaide Symphony Orchestra concerts, and do festival events. In winter, I'm production coordinator for the Something on Saturday program for children at the Festival Centre. I love outdoor events like WOMADelaide but my favourite venue is the Centre's Dunstan Playhouse. It's where I started and I still love it. So many truly wonderful memories! When I was resident board op there, I'd arrive for a show mid-season before the stage was fired up and just sit in the dark and quiet and breathe it in. Magic!!

JH: How did you get into working in technical production?

RM: In year 12, I did work experience at the Adelaide Festival Centre. The first week was in publicity and I immediately knew it wasn't for me – I didn't want to sit in an office all day! The second week I went to production and found working on a stage much better. My school was quite enlightened — for 1982 — so they let me volunteer my time while I trained as a lighting board operator. In December that year, the board op for the Playhouse left and I was in, and never looked back.

JH: What areas of technical production have you done?

RM: Just about all of them. I specialised in lighting for many years but I often worked with the mechs on big shows looking after props. Basic sound – nothing fancy but I've made tapes for shows and can set up mics and make them work. I've also done a fair bit of AV at the Convention

JH: Who have been the most important influences in your professional life?

RM: Initially, it was my big sister Helen. She produced rolling rock shows in the late '70s and watching her inspired me. Other early influences were LX techs Denise Lovick and Laraine Wheeler who taught me board operation and essential basics like filing colour and lamp maintenance. And I have to thank Chris Luscombe who made me roll cables for six weeks so I wouldn't knot them! We'd spend two weeks each year on lantern maintenance – stripping down every part of the old 23s, 123s and 223s, scouring and oiling shutters, and cleaning lenses. And there are other people who've inspired me. Stage manager Di Misirdjief and director Neil Armfield stand out as special.

JH: What has been your most satisfying gig and why?

RM: Probably Peter Pan — again in the '80s. It was unquestionably my greatest challenge as a board op! Focussing was a hoot. I was flown around the rig in a harness because we couldn't get a tallescope on the set. I had two LX boards – a DDM and an FX board. On opening night, I experienced incredibly sweaty palms for the first time in my life. But it worked and the opening night party was unforgettable!

BY JEANNE HURRELL

World Expo in Brisbane was the best long-term gig. The people, the shows, the weather, the camaraderie and the rewards were all wonderful. It was one big seven month party!

JH: What's been the gig from hell and why?

RM: There's a couple I've let myself forget but one remains fixed in memory. It was an outdoor Festival show with an all-scaff set. During bump in week, it poured with rain and everything was water-logged. The day of Opening night, lightning was forecast but despite the crew arguing to cancel, the director insisted that we go on. With OH&S these days, you wouldn't go on in a pink fit but back then it was a bit different. At pre-show check, each circuit we switched on went bang but the director insisted we continue. We chatted with the actors about certain death when the lightning rod set was hit and they finally said no. But, by then, the audience was already in!

But I love outdoor shows. Working in the fresh air is revitalising after a winter in dark control rooms. I don't mind the heat. Even stage managing the last Fringe parade during a 40-degree heat wave was fine. And bad gigs are always tolerable when the crews are great.

JH: What's your favourite theatrical genre?

RM: That's a tough one. Twenty years ago I would've said drama or classical ballet. But these days, I have most fun working as a stage manager with companies from around the

world so I'd have to say festivals are my favourite. You get to appreciate multiple cultures and different perspectives. For example, on the last few Oz Asia Festivals, I've looked after a Korean company who thank the local crews by cooking them a huge meal after bump out. Fantastic!

JH: How do you manage your life as freelancer?

RM: It's always a balancing act. I try to lock in contracts year after year if I can but it's important to be flexible and take work when it's available. The important thing is to never burn your bridges. I'm lucky to have a partner who works full-time so that takes some of the financial pressure off and allows me to pick and choose a bit. But, sometimes you end up working huge hours one week then none the next. It's just how it is.

JH: What advice would you give to someone who wanted to work in technical production?

RM: Talk to people in the industry. Work experience is great – really worthwhile. Give this career a fair chance but, if you don't love it, then maybe it's not for you. Communication is a vital skill. Regardless of your sex, there's no role you cannot play, no department you can't work for. I like to look after my crews because I know that one grumpy crew member can kill a bump in. Look out for each other. We all have bad days and even bad shows but thirty years on, the good outweigh the bad and I still love what I do.



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THE MILL REPORT

The Singapore SSL

If you're working in an unfamiliar studio, what precautions do you take to prevent your mixes coming out sounding like dull, bass-heavy foghorns or thin slices of white bread? Have you made sure you've tuned your ears and your thinking to the new environment? Hope so.

There are two motivations behind the topic for this issue's Mill Report. Firstly, since most recording engineers tend to work in only one studio environment nowadays – at home primarily – their capacity for travelling to 'away games' seems to be diminishing. Secondly, I'm off to Singapore tomorrow to mix and teach for a week – an 'away game' if ever there was one, so I thought now might be an opportune time to address a few of the dos and don'ts involved in this peculiar escapade.

IN SINGAPORE, EVENT-LESS

I'll be in unfamiliar surroundings, recording and mixing on an unfamiliar console in an unfamiliar country. Consequently my head is full of plans about what to take with me so I'm at home in these alien digs.

But there's a problem. I can't do the most obvious thing: bring my main monitors along for the ride. I've been parked in front of Event Opals for a few years now but unfortunately the studio in Singapore uses mainly Genelecs



and Questeds. But because my 'other' main monitors happen to be Questeds I'm hoping this will constitute familiarity enough. Either way it will be fascinating to see what some of my recent mixes sound like in these different, high-end, Singaporean surroundings.

MY LISTENING TACKLE BOX

Things I will be taking along with me are a hard drive, loaded up with recent multitrack files of mixes I've worked on in the last few weeks. These are songs I'm right inside at the moment so I'm intimately acquainted with every nut and bolt of their makeup.

I'll be taking headphones I know well, including Sennheiser HD650s and a pair of four-way Ear Monitors Australia in-ears that sound fantastic in all contexts. I'll also be taking several recent CD releases that I've been listening to heaps in recent months. These will be on constant rotation, patched into an external input of the console.

I'll bring my iLok along for the ride too, only because I doubt some of the plug-ins I currently use will be familiar to the studio, although in this case I'll be mixing primarily in the analogue domain on an SSL Duality, so it's not a critical item. But hey, it's light, so I might as well take it.

HOME & AWAY

The main trick with mixing 'away' is getting comfortable with the tonal balance of the studio monitors as soon as possible. Setting up your own speakers is pretty useful in this regard if it's at all practical – in my situation this week, it really isn't – for the obvious reason that it eliminates the most basic point of difference between your own environment and someone else's: the monitoring... well, sort of.

The problem with this theory is that in different environments your own monitors can sound quite different.

BY ANDY STEWART

It's an important fact to acknowledge actually, because there's only one thing more dangerous than using someone else's monitors in a foreign environment, and that's your own monitors assuming they'll sound identical. They won't.

It's certainly a good starting point nonetheless. It makes you feel comfortable from the get-go, seeing your old mates parked in front of you like loyal co-workers. To me the idea of sitting in front of some yellow-coned KRKs for instance would immediately have me reaching for the sick bag. No offense to KRKs loyalists, but I just don't like them much – at least I didn't the last time I encountered them.

But speakers don't sound familiar if there's nothing playing through them that you know well.

A/B SWITCHING

Without doubt, the single most important thing to bring along with you to any 'away game' is a CD, or collection of songs, that are known to you in a deep and meaningful mixing sense. Ideally these should be songs that sound great out there in the big wide world – commercial hits even, though that's not critical. The most important thing about these songs, regardless of their pedigree, is that you *listen to them* regularly during your time at the console.

Don't leave them in the suitcase; don't leave them on top of the CD player. Put them on constant repeat, and make an effort to ensure their output is comparable to the listening level of your mix. Patch the CD player into one of the console's external inputs so that any time you hit that switch there's *Jump* by Van Halen (or whatever it is you like to A/B with) playing on the monitors.

In the end, the A/B switch is the most powerful tool you can establish in a studio. It allows you to instantly compare your work with something else, and in the context of a foreign environment where the room, the speakers, the console and the outboard might all be alien to you, it's both comforting and highly informative. Don't hesitate to set this A/B switch up as your highest priority.

THE SSL FORMULA

The SSL is an interesting oval to run out onto when you're playing away, particularly for the first time. I imagine it's a bit like playing at the MCG – the opening bounce is daunting and the crowd of knobs might overwhelm some, but the focus remains the same.

These consoles are without doubt one of the finest pieces of audio equipment on the face of the earth. Personally, I'm pretty familiar with them, but for the uninitiated, a word of warning if you're one of the lucky few who's about to work with an SSL for the first time. SSLs are a bit like a Formula 1 car: they look basically like any other console, but if you're not careful with the throttle, you'll be into the wall around the first bend.

The EQ on an SSL is pretty amazing, but a little tends to go a long way so try not to overcook it. The same applies to the compression. Top speeds can be reached in no time flat so don't get cocky.

Mixing in a studio that's new to you, especially a new commercial facility, has its hazards and pitfalls, but provided you take a few basic precautions like the ones mentioned here, you should be fine. All that's left to do then is apply your skill and enjoy the ride. And remember, you're one of the lucky ones, so make the most of it.

Enjoy.

ANDY STEWART RUNS THE MILL IN VICTORIA, BUT HOW HE DOES IT FROM SINGAPORE WE'RE NOT TOO SURE. HE'S ALWAYS HAPPY TO ANSWER QUESTIONS ABOUT RECORDING, MIXING OR MASTERING.

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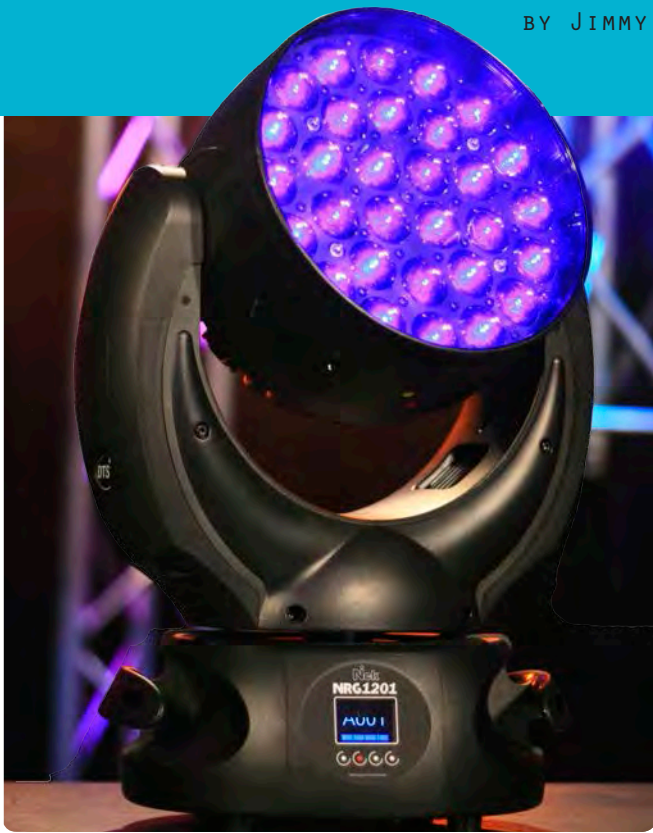


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DTS LIGHTING NICK NRG 1201 (FPR)

OR, HOW I LEARNT TO DRAW CIRCLES WITH A MOVING HEAD...

BY JIMMY DEN-UDEN



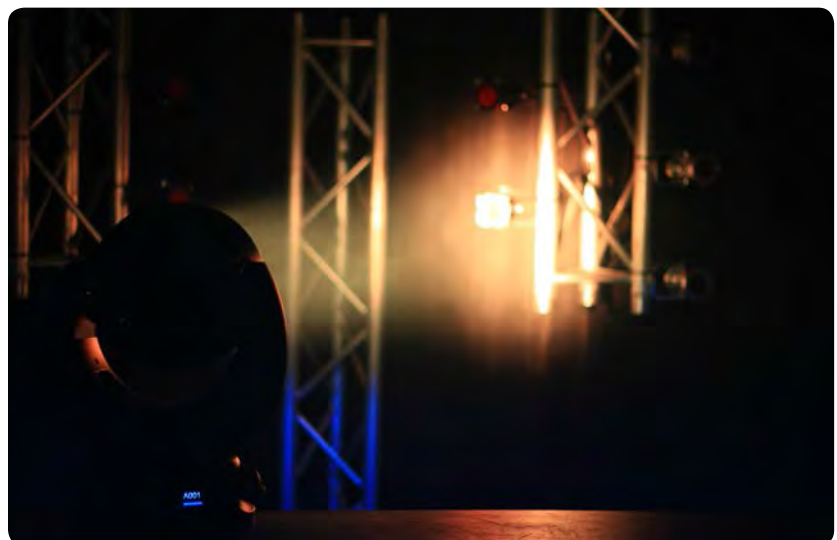
DTS LIGHTING IS AN ITALIAN COMPANY, AND WHILE THEY MAKE A LOT OF ARCHITECTURAL PRODUCT THEY ALSO MAKE FIXTURES FOR ENTERTAINMENT. THE NICK NRG 1201 (FPR) IS ONE SUCH UNIT.

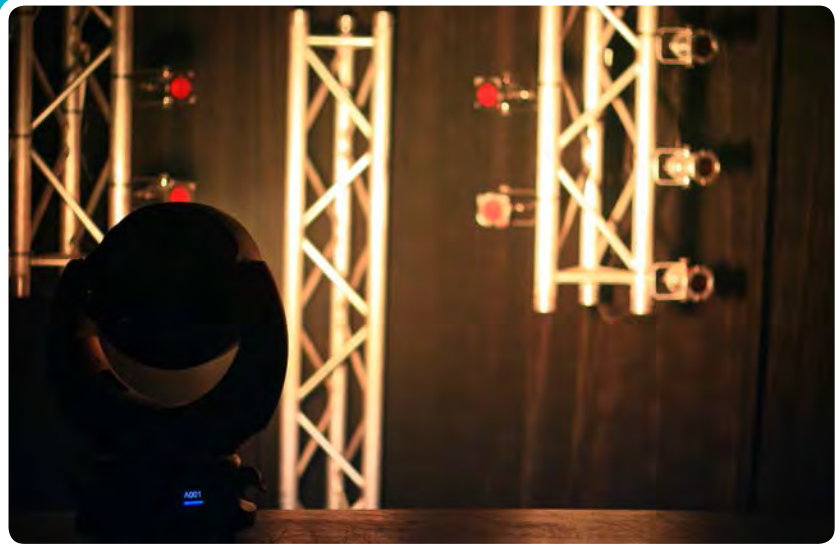
The NRG 1201 uses 30x RGBW LED modules, and while their power rating is not stated in the spec, DTS claim exceptional brightness / power consumption. It certainly seems pretty bright for a unit which pulls relatively low current. I measured it at pulling 420W with the fixture moving in both axis in full white, however going to a saturated colour the consumption drops to around 150W. I didn't have another kind of fixture against which to compare it, but the output seems to be about right for the size of head and number of chips involved.

The beam is certainly flat and even, and the motorized zoom allows for angles between 8 and 50 degrees. Getting from one end of the zoom range is fast, my rough timing measuring it at about 0.6 seconds. Colour mixing is smooth and the dimming frequency can be manually adjusted on the fixture to prevent flicker on camera.

The NRG 1201 occupies 20 DMX channels for control, which is nice since it makes it easy to figure out the next address in your head (just add 20!). Within this range are a few options for macros which allow you to call up preset colours or open white at pre-determined colour temperatures between 2800K and 8000K. The fixture uses 20 channels regardless of standard or extended control modes. Menu setup is via a LCD display and four adjacent buttons, and is all relatively straightforward.

Power input and loop is on EtherCon, with 3 and 5 pin XLR providing the same capability for DMX. Ethernet and wireless control options also exist. The actual head part of the NRG 1201 seems disproportionately large in relation to its body, but I think the key here is that DTS has packed a lot of electronics into the base very tightly, and consequently they've been able to make it quite compact. Rigging options include four roto-lock positions and a dedicated safety wire attachment point. Using two roto-locks, you can only attach a single clamp to the unit, so I think it's designed to operate on its feet or inverted, but not angled in-between these positions. At 10.5kg it's not a heavy unit, but it's more weight than I'd really want to cantilever off one clamp alone. Tilt is a fairly standard 270 degrees, and the NRG 1201 covers this in about 1.2 seconds. Pan is INFINITE thanks to the Free Pan Rotation (or FPR) – it's literally possible to keep turning the head continuously in either direction at varying speeds. This feature is controlled by an additional channel – set the channel value at zero and the unit acts like a normal head with 540 degree pan range. If you've ever tried drawing circles around the home position of a moving head you'll know it's not normally possible, but with the NRG 1201 it is.





Continuous rotation is nothing new for disco effect lights, but they commonly achieve the effect using mirrors. Seeing the feature in a fixture such as the NICK 1201 is something new to me. That's not to say it doesn't exist, but this is the first time I've encountered it. Presumably it's achieved with several sets of concentric contacts where the base joins the yoke, since cable connections simply wouldn't allow this. I don't know if that makes the unit any less or more susceptible to failure, but I can't imagine DTS would implement a system inherently prone to failure – it would be bad business sense. Our guess is that the base sends power and some kind of digital / multiplexed control signal to the head, thus minimizing the number of contacts required. When physically forced out of its position, the head seems to reliably get back to where it's meant to be. The unit has cooling fans which kick up a noise when it starts up, but quickly settle down to within very acceptable limits for stage use.



The NICK NRG 1201 (FPR) is a competent unit. It does many of the same things as many other units of the same type, but the FPR feature really does distinguish it as something a bit special. I like that I turned it on and it did exactly what I expected it to do first time around, and then around and around again!



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 MODEL: NICK NRG 1201 (FPR)
 RRP: \$5375.00 INC GST
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EAW MICROWEDGE MW10

LITTLE BOX, BIG PERFORMANCE

BY JIMMY DEN-OUDEM



I LOOKED AT THE ORIGINAL MICROWEDGE 15 SOME YEARS AGO AND WAS ABSOLUTELY BLOWN AWAY BY IT. THE CURRENT GENERATION MICROWEDGE IS A COLLABORATION BETWEEN DAVE "RAT" LEVINE AND THE ENGINEERS AT EAW. THE RESULT IS AN EVEN BETTER WEDGE.

The MW10 sits toward the other end of the scale from the 15 (if you want to go even smaller there's also an MW8). The 12.5kg Baltic birch enclosure houses a 10" woofer, and 2.5" voice coil compression driver with 1.4" exit, arranged in a co-axial configuration. The drivers are passively crossed-over inside the box, so you feed in a full-range signal. EAW have released several "grey box" presets for use with Powersoft amplifiers. The "white" preset gives basically flat response, the "grey" has a little HF reduction applied, and the "blue" preset has been optimized by Dave Rat for feedback rejection across a range of commonly used vocal mics.

Our test boxes (we had a pair) were supplied with a Powersoft K3, which is capable of generating way more power than the MW10s actually require. The boxes are good for 500W RMS, but will handle peaks of much higher power. I didn't try just running the MW10s off a dumb amp with no processing, since I figured using the things in the prescribed manner would show them at their best. If you had existing amp stock you needed to use, an EAW processor in-line would

still let you take advantage of the "grey box" presets. The nominal dispersion pattern of the MW10 is 90 degrees conical, and operating range is listed as 65Hz to 20kHz (+/- 10dB). I'd say the useful range actually starts from more like 100Hz, from which point the frequency response is virtually flat to around 8kHz. This reflects not only the data, but also what I heard when listening to it. Much as others would disagree with me, I really like wedges to have a flat response, since it makes their interactions with microphones more predictable.

Dave Rat's influence (as a working sound guy) on the MW10 is quite evident. Features which are simple but important have been included – a carry handle inside the port being one of the most obvious. The dual NL4 speakon connectors are recessed into the ports, so there's no way to



NOTE EXTRA NL4 CONNECTORS UNDERNEATH



kick them out or break them in half with a carelessly placed clodhopper. The grilles are seriously strong. I stood on the centre of the grille on one leg and jumped, and my 85 plus kilos barely caused it to deflect.

A joyous truth of building a dedicated wedge is that you can set the angle to the floor at whatever you want – often with a dual purpose FOH box this is harder, so floor angle suffers. The MW10s have a 27 degree upward angle to the floor, which is perfect. Considering wedges are most commonly used on the floor, it makes sense to take advantage of this fact. The MW10 is ported along the lower front edge, so it couples with the ground to achieve better LF output. The boxes can be placed on their backs and will stand up securely with the driver facing directly outward.

I ran the MW10s with some track on the various presets – the white preset sounds a bit boring for replay but the other two are good. Next test was a using a selection of vocal mics to see how they worked – not surprisingly the MW10s aced it. It doesn't take a lot of effort to get seriously loud, good vocals out of these boxes.

Maximum long term output for the MW10 is stated at 122dB and it's not much of a stretch to believe this. These things produce a surprising amount of output for their size, and it doesn't sound like it's much of an effort even when pushed considerably hard. They're a bit small for a festival stage, but unlike most other 10" boxes I would fearlessly put these in front of a lot of rock bands. They'd be perfect for jazz too because they're small and visually unimposing.

BRAND: EAW
MODEL: MICROWEDGE MW10
RRP: \$3610.00 INC GST PER BOX
PRODUCT INFO: WWW.EAW.COM
DISTRIBUTOR: WWW.PRODUCTIONAUDIO.COM.AU



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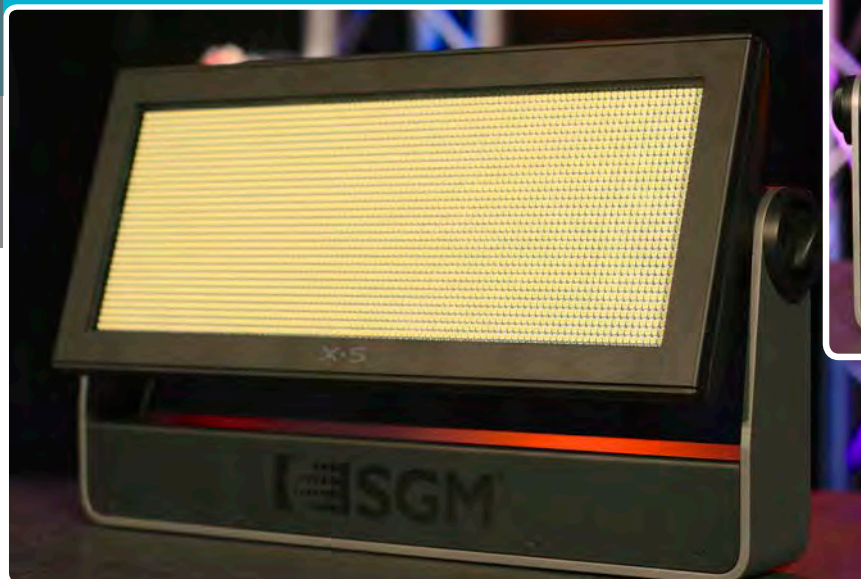


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SGM X-5 LED STROBE

PUNCH ON

BY JIMMY DEN-ODEN



The X-5 is totally convection cooled, so there are no cooling fans to add to the noisefloor of your stage. The entire back plate of the head is one huge heat sink and it seems to work well. Even after 10 mins of very solid use it was still quite cool to the touch.

WHEN TOO MUCH LIGHT IS BARELY ENOUGH, YOU NEED THE X-5 FROM SGM. IT'S AN LED STROBE FIXTURE WHICH IS COMPACT AND PACKS A RIDICULOUS PUNCH. IT MIGHT EVEN BE THE FIRST REALLY SERIOUS CONTENDER I'VE SEEN FOR REPLACING XENON STROBE UNITS.

The X-5 contains 2970 white LEDs, with a rated lifespan of 50,000 hours. Which is quite a lot for a strobe when you think about it. The LEDs are split into three individual segments, and you can control each segment independently. Physically the construction of the X-5 is impressive. It feels well built, and it looks like someone actually spent some time on designing the case, rather than just drawing a black box. The unit has a modest base with nice wraparound casing which forms the yoke in which the head sits. The base has four roto-lock mounting points, and the head can be tilted through 110 degrees then locked in place with twisty knobs at each end. DMX input and loop-through is on 5 pin XLR, and dual PowerCon connectors facilitate power input and loop. With a stated current draw of 4A, the X-5 is efficient enough that you can connect a pair of them to a 10A circuit. That's a bit of a first.

There's an OLED display with a slightly perplexing menu navigation system adjacent. Jumping through menu options is done with the left and right keys, which is an odd choice when everyone else just uses menu/up/down/enter. It's a valid choice, but why does it need to be different from everything else on the market? Still I figured out how to choose the DMX mode and start address without looking in the book, so I guess it's good enough.

The unit has a variety of control options ranging from single channel mode through to 7 channel control. Each mode gives you progressively more choices as the channel count increases. The upper protocols allow you to adjust on & off duration when strobing, which is quite cool, and essentially impossible on a Xenon fixture. A number of ramp-up and down effects as well as lightning and random modes are available. Of course you can adjust intensity (in all but single channel modes) just in case you're in the mood for subtlety.

If you don't care about subtlety, punch the intensity up to full and watch the X-5 fly. But put on your sunnies first, because the thing is really, really bright.

The X-5 has a blinder mode, where it sustains full output for a period of several seconds. After this time it ramps the intensity down, presumably to avoid cooking the LEDs. Remember it's convection cooled.

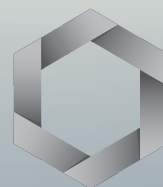
SGM make some pretty wild claims with the X-5 – extreme luminous output, effects never delivered before by a strobe, one fifth the power consumption. The good news is that it's all true – the X-5 does everything it's supposed to and does it well. The confusing menu system is really the only let-down in what is otherwise an absolutely brilliant fixture in every other way.



BRAND: SGM
 MODEL: X-5
 RRP: \$1999.00 INC GST
 PRODUCT INFO: WWW.SGMLIGHT.COM
 DISTRIBUTOR: WWW.ETAUST.COM

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MACKIE 1402VLZ4

WHEN YOU CAN'T FIND A TANK...

BY JIMMY DEN-ODEN



Corporate AV applications frequently call for a small format console to mix a few line sources and maybe some lectern and radio mics, or some combination thereof. Sure there are plenty of digital consoles which will do the job, but sometimes it's hard to justify sending a \$4k desk when you can only reasonably bill \$40 for the hire. Drummers more frequently bring backing tracks on an iPod with click on one channel and track on the other. They connect the iPod to a small mixer and monitor one side, while the other feeds FOH.

There are a myriad of applications in our industry where all you really want is a reliable, tough little analogue mixer. The 1402VLZ4 is just such a thing. It's part of the latest generation VLZ family. It's got Onyx mic pre-amps, 128.5dB of dynamic range, and multi-voltage power supply which must be manually switched to suit the local supply. I recently pulled a first generation 1604VLZ out of an installation where it spent the decade prior. Dusty and well over-heated for 10 years it had suffered the worst kind of abuse – neglect. The rubber feet had dissolved and melted all over the rack shelf, but it was still fully working. It was only being removed because the people who once knew how to use it had all left and the new crew wanted something automated and fiddle-proof instead.

That was the build quality ten years ago, and Mackie reckon the VLZ4 series is even tougher today.

The 1402 is a 6 mic/line and 4 stereo line input console with stereo and an alternate 3/4 output. It's got real faders, a solo bus, a control room output, and two auxiliary sends both with stereo returns. Phantom power is a global affair – turn on the switch and it goes to every XLR. If you're using radio mics, best connect them at line level using the TRS inputs to avoid problems. There's also a stereo RCA tape in and out section, and you can monitor the tape return on the control room / headphone output.

Channel controls include 75Hz HPF, dual aux sends (aux 1 is globally switchable pre/post and aux 2 is post fade), 3 band EQ, pan, mute and solo buttons. A 60mm fader completes the channel strip. The channel fader caps look a bit weird but they're actually really good to hold onto – they feel nice. You can solo in PFL or AFL modes. There are a few other nice touches on the

1402VLZ4. Dual outputs are available for the main mix on paired TRS and XLR connectors. There's a switch to change the output to mic level. Channel inserts are provided on individual TRS connectors for the XLR inputs, and thoughtfully enough there's even a label to tell you they send on tip and return on ring, and even where they sit in the signal chain.

I jammed some test signals through the various paths on the 1204VLZ4 and looked at the output. All the controls do what they're supposed to, though it looks like the HF EQ is more of a shelf than a notch filter. I plugged in a mic and had a listen and it sounds good. Gain, EQ, noise floor and even the headphone amp all operate at believable, practical levels. It's like many other small format analogue mixers in most ways, but Mackie market the VLZ as being "built like a tank". I had to find out.

Since faders are always susceptible to impacts, I elected to put the smaller brother (the 1202VLZ4) through the ringer rather than the 1204, since it has pots instead of faders. That and a smaller input count are basically the only differences.

I dropped the 1202 on its base and on its head a few times from a metre off the deck. Then, just to be sure, I jumped up and down on the pots a few times. Somewhere along the line the mic/line output select switch lost its button inside the mixer guts, but the TRS line outputs were still working fine. This aside, it still worked afterward and it didn't even look too bad for the ordeal. You can't really ask for much more than that!

BRAND: MACKIE
MODEL: 1402VLZ4
RRP: \$899.00 INC GST
PRODUCT INFO: WWW.MACKIE.COM
DISTRIBUTOR: WWW.CMI.COM.AU





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AUDIO TECHNICA AT4081

FIGURE 8 RIBBON MIC

BY JIMMY DEN-OUDEM



I think this is something of a first for CX – this month we’re reviewing the Audio Technica AT4081, which is a side-address pencil shaped ribbon microphone with a figure 8 pickup pattern. Figure 8 is a polar pattern which will be less familiar to many live sound users than say cardioid or super-cardioid. Equally unfamiliar will be the concept of applying +48V to the line on which the mic is connected – as a general rule most ribbon mic’s will unceremoniously self destruct at the slightest hint of phantom power.

So why a ribbon? Well, it’s something different. We look at a lot of dynamic and condenser mics in **CX**, but we can’t ignore the fact that more and more users are now taking ribbon mic’s on the road for live use.

The AT4081 is an unimposing little beastie measuring just 155mm in length. The build quality feels nice and the element has a reasonably stout screen on both sides. Unlike many other mics, the screen is not made from woven wire, but rather a metal plate with holes punched in it. Consequently it would be easier to ding. The mic is supplied with a suitable windscreen and clip which has a plastic base and a stiff rubber clamping mechanism to hold the mic. Once you tighten up the grubscrew there’s a nice solid lock, so there’s no danger of the mic sliding out of the clip. A

thread adapter is also supplied, and the whole lot arrives in a foam-filled carry case.

Given my perception of ribbon mics traditionally being fragile, I’d err on the side of caution and keep the AT4081 in its supplied case, even though it would likely hold up okay in a “pencil case” type mic bag. While it’s built pretty tough, AT recommend you avoid blowing directly into the mic and use the supplied windscreen for close-up vocal use. Sensible suggestions really.

The 4081 is deceptive in appearance – it looks little and tiny, but it sounds monstrous and kind of huge. It knows how to get up and boogie hard. Low-end is loved up, and the top end will get snarly if the source does. Looking at the frequency response chart it sounds like you’d expect it to. The mic is stated to be good for input SPL up to 150dB, so you’d get away with putting it on all but the most extreme guitar cabs. Once you’re in that territory mic selection tends to matter less since excessive stage levels usually see guitar channels muted anyway.

If guitar cabs aren’t your chosen thing, the 4081 is tactile enough to work on strings, horns and other things less forceful. The isolation of the rubber mount is pretty good, but it needs to be. Handling noise is high (somewhat expectedly), so forget using it hand-held.

The polar pattern graph seems accurate to me, though the figure 8 pattern takes some getting used to. It’s well controlled and I observed a very pronounced attenuation (or null) at the sides of the mic. One thing I noticed is that the AT4081 really doesn’t like to be crowded – placing solid objects at one side of the pattern tend to see the response of the other side turn thin and barky. I don’t think it’s an uncommon characteristic for this type of pattern so I’m willing to forgive it.

I like this mic a lot for what it is, and because it sounds good enough to justify the price tag. While I think the 4081 is certainly robust enough to deal with the trauma of stage use, I’m doubtful as to how practical it be with spill on a noisy stage. I think attempts to isolate the mic would probably negate the niceness of it. On a nice subdued jazz gig I reckon it would work well, and similarly I think it would rapidly become a go-to option for studios looking for a good room ambiance mic at a reasonable price.

BRAND: AUDIO TECHNICA
 MODEL: AT4081
 RRP: \$999.00 INC GST
 PRODUCT INFO: WWW.AUDIO-TECHNICA.COM
 DISTRIBUTOR: WWW.TAG.COM.AU



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International Standard BS EN 13200-3:2005 (Spectator Facilities) Annex A
WA Health Directorate 2004 (Guidelines for concerts, events and organised gatherings)
Crowd Control At Venues And Events. A practical Occupational Health and Safety Guide. WorkSafe (Vic) September 2006
Australian standard AS/NZS 1170 parts 0.1 and 2:2002 (AKA loading codes)
Australian standard AS/NZ 1664: 1: 1997 (Aluminium structures)
Australian Standard AS 4687-2007 (temporary fencing and hoardings)
MCK Metals Pacific. Strength and resistance load testing, November 2006
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BLACK PEARL

BURIED TREASURE IN MELBOURNE'S SOUTH-EAST

Melbourne's Black Pearl Studios have kept a low profile since opening 18 months ago. Whispers of incredible backline, beautiful rooms and premium outboard circulated like legend. Jason Allen followed a treasure map (OK, a GPS) to a quiet street in Moorabbin, Victoria, to find the gold...

WALL OF VOODOO - AMPS AND CABINETS

Black Pearl's owner and operator Yury Kogan is a softly spoken, self-deprecating man that prefers to let his work speak for itself. His work, in this case, is Black Pearl Studios, one of the most unlikely things to find tucked at the rear of an industrial estate as you could imagine. Open 18 months ago, but only beginning to be promoted now, Black Pearl is an audio and instrument nut's oasis in a desert of, well, Moorabbin.



BY JASON ALLEN

**STUDIO
A'S LIVE
ROOM, WITH
YAMAHA
C7 GRAND
PIANO**

**STUDIO A'S
CONTROL
ROOM WITH
SSL 4000 E
SERIES**

Yury started out in the Australian industry in the 1980s, branching out as many do from being a musician. Leasing a house in Elwood, Yury and his colleagues started producing their own work and working on outside projects. He moved on in the 90s, working with a string of artists and then partnering in two small studios in the 00s.

Black Pearl was a long time in coming. The property was secured in 2006, followed by two years of planning and



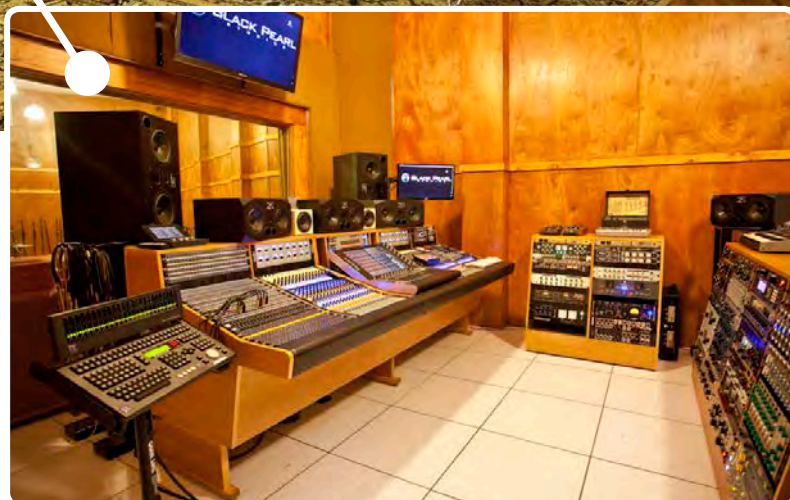
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STUDIO B'S CONTROL ROOM WITH API/ TONE LUX MODULAR

STUDIO B'S LIVE ROOM



permits applications. The contract to build was signed at the end of 2009, and the keys were handed over at the end of 2011. A lot of time and effort went into perfecting the room acoustics, and you can hear it.

The backbone of the complex is two large studios, A and B, the former boasting an SSL 4000 E series console and the latter a modular Tonelux / API. Studio A's live room is 120m² and comes complete with a Yamaha C7 grand piano. Studio B's space is 110m² and Yuri considers it "The best drum room in the world." You can record to ProTools, Radar or even 24 track analogue tape. There's even a Studer A827 2 inch tape machine if you want to master to Reel-to-Reel. Monitoring in Studio A gives you a combination of Focal, Dangerous Audio and Avantone Mixcubes. Studio B is graced with two sets of Adams, Avantone Mixcubes and the ubiquitous Yamaha NS10Ms. Outboard and external preamps in both studios are a who's who of desired gear. Teletronix, Drawmer, TC, Lexicon, Universal Audio, dbx, Cranesong, Neve, Telefunken, Urei and Manley all make an appearance. Clocking and synch is via Antelope Isochrone. The huge selection of microphones doesn't disappoint, with sought after models from Telefunken, Neumann, Microtech Gefell and Schoeps (among others) augmenting the standard workhorses from AKG, Shure, Beyerdynamic and Sennheiser.

The truly exceptional thing about Black Pearl is the dazzling array of high quality, often vintage, often custom-made backline and instrumentation on offer. Over 140

guitars, 30 bass guitars, three organs including a Hammond B3, 10 drum kits, 40 snares, 140 guitar amps, 30 bass amps, more than 450 pedals and a range of modern and vintage synths are available to anyone hiring the studio. You simply select what gear you want from their inventory, and when you get to the studio for your booking, it's set up and ready to go.

"It has to be a turnkey facility in today's world." Yuri philosophises. "Some players and musicians have great ideas but can't afford good backline. I'm a stickler for those things and like everything to be perfect. Treat every song as its own entity and they can have different guitars, different amps and different pedals for each song. You need another amp to go for a different sound? No problem – pull it out, plug it in and you're ready to go. You don't have to wish you had one; you have one. The longest it will take is if you have to go to the studio next door to get it."



JUST SOME OF BLACK PEARL'S SOUTBOARD



ACOUSTIC GUITARS, STUDIO B

“Recording at Black Pearl is geared up to be a fluid process” Yury continued. “We organise pre-production sessions. Customers come in, they meet the engineer, they discuss the project and choose the guitars, drums, basses, keyboards, amplifiers and whatever else they need. We have everything set up and ready to go for them in the room when they come in. The session starts at 10 o’ clock, and by then everything is on and warmed up. The drummer comes in and adjust the drums, the engineer adjusts the mics, takes levels and then they’re tracking. If you’ve booked 9 or 10 hours, that’s what you get. There’s no wasted time. It has the effect that by about 4:30, everybody is happy. We very rarely have a late night or long session”

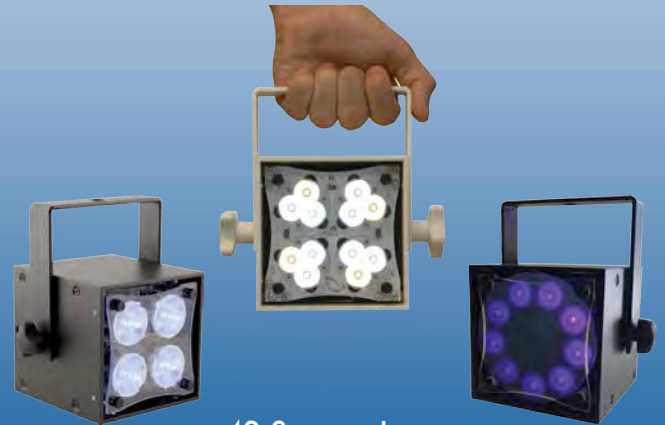
House engineers include Julian Mendelsohn, based again in Melbourne after his glittering career in London saw him produce hits for the Pet Shop Boys, Elton John, AC/ DC, Bob Marley and Paul McCartney, among others. Terry Hart is also a regular, and has worked with artists such as Powderfinger, Paul Kelly, Kimbra and the Hilltop Hoods.

Black Pearl is located at 9/21 Capella Crescent, Moorabbin, VIC and can be contacted on (03) 9939 7209 or at www.blackpearlstudios.com.au



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NOVEMBER
2013

ROAD SKILLS

MATT
CORBY

The
CULT

ONE Direction

BY CAT STROM

Matt Corby PHOTOGRAPHER - Troy Constable
The CULT PHOTOGRAPHY - Bob King
One Direction PHOTOGRAPHER - Bob King



"The Resolution" national Australian tour followed the release of his The Resolution EP which scored top ten iTunes charts in UK, Sweden and New Zealand as well as Australia. Matt had also been on tour with his band in the UK and Europe, playing headline shows to sell-out crowds and festivals including Glastonbury, Blissfields, Barn on the Farm and Longitude & Latitude.

Matt Corby

Australian singer / songwriter Matt Corby has just finished his biggest tour to date playing all the major Australian cities.



Lighting designer Mike MacDonald produced an elegant and thoughtful design to suit the artist, utilizing some more unusual pieces of gear. The lighting concept has always been to keep the vibe raw, organic and intimate onstage - after appearing on Australian Idol, Matt was keen not to be presented in a flashy and commercial light.

Sydney's Hordern Pavilion gig (photographed) showcased the full 'A-rig' with all requested lighting gear present except for the eight Martin MAC Vipers which were substituted by Vari-lite VL3500.

Not prepared to give up his artistic vision, Mike knew that sometimes not all of his lighting requests would be met on this tour and so for each more unusual piece of equipment there was a more common stand-in option. For example the eight 2K Mole Richardson Skypans can be substituted by

JARAGs or 5K fresnels keeping the popular tungsten look of a warm glow.

"You can always find Martin MAC700's and MAC2000's in Australia but they've have been used on every touring show in Australia for the past ten years, so I avoided them," said Mike. "I specified the Vipers initially for their optics, zoom range and colour temperatures, they're a great fixture. However, the VL3500's have worked fine in their place and are definitely the workhorse of the rig."

The Skypans could only be sourced out of Sydney and so were toured with the show. Together with a wall of twenty-six Duets they form a backdrop of lights. Adding a further scenic element are twenty-four 25w vintage incandescent light bulbs mounted upon adjustable straight mic boom stands.

Toby Dennis & Mike MacDonald



“The budget wasn’t that great and whilst the look of just the VL3500’s and the six Martin MAC TW1’s is great, there are bits missing in the

stage,” remarked Mike. “The idea was to have that random look of incandescent light bulbs to fill the space as we are playing 60ft stages and I don’t have enough equipment to really fill them. I just didn’t have the budget to get four more moving lights to maybe project break up gobos through the band.”

A fair amount of generic lighting is in the rig including eight ETC Source 4 Profiles on the front truss picking up the keylight, twelve Selecon Pacific 12° - 28° deg with scrollers in the wings, and a few PAR64’s with Scrollers on the floor. Ideally Mike would have preferred MAC Auras instead of Selecon Pacifics with scrollers but he still succeeded in giving the stage some depth and effective sidelight. There is one ETC Source 4 with an iris, also on the front truss, used for the song ‘Untitled’ where it lights up Matt and the only other lighting are the vintage bulbs. It’s an effective look especially as Matt sways in and out of the light.

Adding a splash of eye candy were eighteen Sunstrips which really come into their own when Mike delivers a rain effect during the song ‘Resolution’ whilst still keeping a classic tungsten feel.

“You can create a really big look out of the Sunstrips,” said Mike. “The Duets can create very big shapes just by fixture placement. You can just have them at 10% and create depth to the stage.”

Mike favours using high saturated colours and tungsten together and so each Skypan has an LED PAR lighting its’ reflector.

“The LED is pushed into the back of the reflector and it’s very effective,” commented Mike. “It also gives some more colour to the show without putting it in spots or washes – just an easy way of creating another look.”

For control Mike prefers a MA Lighting grandMA2 Lite with backup console although the tour was the first time his programmer and operator Toby Dennis had transitioned from a grandMA1.

“I have always been a MA1 user and hadn’t made the transition across to MA2 yet, but this has been the perfect opportunity to tour an MA2 as Mike was there during pre programming,” said Toby Dennis.

“The grandMA is a great console; easy to use, easy to network, reliable and just works every time!” Mike added. “My first ever show with Matt Corby was at the Corner Hotel Melbourne playing 700cap shows. It has been great to see Matt Corby’s showmanship develop as an artist. Cues from that very first show are still there. For instance, the song ‘Souls a Fire’ and ‘My False’ have had the same blackout cues from day one! Still works every time, now just on a much bigger scale.”

Chameleon Touring Systems supplied the rig, with Frontier Lighting picking up in Perth. “Chameleon’s Crew Chief Michael “Simmo” Simpson and dimmer tech Danny North were both very accommodating to all our requests,” said Mike.

Mike is now based in London, where there is obviously much more work for him, and is about to go on the road with the UK boy band Lawson.

Lighting Supplier: Chameleon Touring Systems
Audio Supplier: JPJ Audio



The Cult's Electric 13 World Tour

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Twenty-six years after releasing their iconic "Electric" album, The Cult are touring the world performing for the first time, the album in its entirety. The live show also includes a second set featuring tracks from the bands eight other studio albums. I somehow doubt this will happen with One Direction.

"It's good old rock'n'roll, straight forward, no frills," remarked Gary Yost, monitor engineer. "They are excellent musicians and pay great attention to detail. Their attitude is that if the song isn't perfect, it isn't worth playing. They are very conscientious about what they play as they really do

want to give the people the best they can every night."

For Gary, the show involves a high level of concentration whereby he can't look away from his Midas Heritage H3000 analogue console for even a moment.

"All my attention is 100% focused on the artist," he said. "If they look at me for whatever reason, I have to be able to fix whatever is wrong. It's a very intense two hours."

Gary has twelve monitor mixes, two of which are in ear mixes whilst the rest are all floor wedges (Clair 12am). The band doesn't like digital as it's not fast enough.

"Digital has now been around long enough that some of the young kids have never seen an analogue console and they wouldn't know what to do with one," remarked



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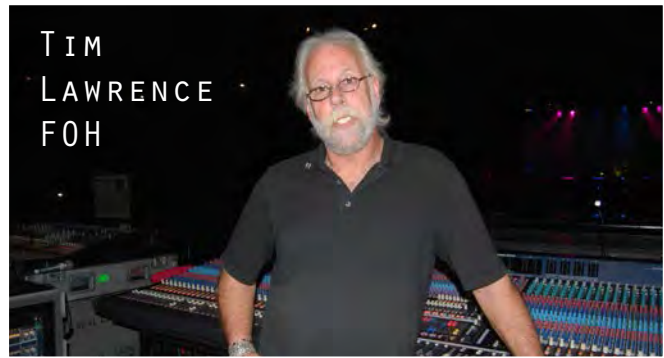
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Gary. “They’re afraid of them particularly all the knobs, and so I’ll talk them through and by the end of the night, it’s the neatest thing they’ve ever seen. It’s funny that that transition has been made and they now think analogue is new and exciting.

“I don’t use a lot of processing as they’re a straight forward rock band – no gates on the drums as we like to let them ring and play free, I don’t use any compression as the band like things to be raw and natural so that’s the way we mix them onstage. For me, less is more.”

The only microphone for Ian Astbury is the Shure SM58, despite having an endorsement for Sennheiser’s in ear monitors, not so much for the SM58’s audio quality, rather the way it feels in his hand. I guess when you’ve been on the road as long as him you get pretty used to certain things. However, when the band are carrying their own gear they use a full Sennheiser package for everyone else.

Tim Lawrence is also on an analogue console at front of house using a Yamaha PM5000 which he is happy using although he describes it as not quite as sharp, clean or efficient as an analogue Midas console. His outboard gear included an Avalon 747 (2 channel) on 5k L/R output (inline), an Avalon 737 in line on lead vocal and a TC Electronics 2290.

“The Avalon compressors are for Ian’s vocal whilst I also have Dbx 566 compressors for the other vocals and BSS for all the other instrumentation, adding some warmth and grain into the signal path,” explained Tim. “The TC Electronic 2290 is my favourite but then the TC Electronics D2 delay, is also a really nice sounding unit. Then of course I have the Lexicon reverbs and the old fashioned Yamaha SPX990x2 multi-effects processors. I try to keep it as simple, plain and straight forward as possible.”

Tim describes the band as very interesting to mix as they prefer a 1980’s mix with very little sub. In the 1980’s you just had bass, mid-range and top end and that’s the way the band like to have it mixed.

“Some people dig it and some people don’t,” added Tim. “Sometimes I have people come up to me complaining that there is no bottom end washing all over the room, but that is how the band prefers it. I stand on that middle between what I think sounds really good and what the band think it should sound like. It’s a delicate walk on a very thin sword. There are a number of tricks that I do that are basically frequency based, I’ll take the offending frequencies and I’ll drop them, then I’ll take the sub-harmonics of those frequencies and for what I cut, I add on the back end. So if I cut 125 hz, I’ll take the sub-harmonic of that which is 60hz and the lower sub-harmonic of that which is 30hz, and I’ll

boost those to give me the frequencies that I need without being offensive to the band. It’s a mathematics game, and shading game, something a lot of younger engineers haven’t quite figured out yet.”

Tim happily admits that he is very opinionated when it comes to ‘young engineers’ believing that most of them regard a computer as their bible. In fact he has had to ‘let go’ three system techs over the past five years all of which he says were great at computer programming but will never make it as audio engineers.

“They didn’t study signal flow and gain structure, they don’t understand the characteristics of certain dynamic processors, they don’t quite understand the real dynamics of signal processing period,” he stated. “When I have a systems tech tell me that Smaart Live is saying the room is flat, I reply ‘is Smaart Live paying \$67 per seat’ and to that they never have an answer.”

Tim describes audio engineering as an art and a craft, as well as a science that takes years to learn how to read an audience and how to mix bands properly.

“Each band has its own individual sound, a signature so to speak, and the engineer has to learn that,” he added. “The biggest mistake some engineers make is that they don’t listen to the band properly. They walk in cold thinking they can mix any band. But the whole deal about being a FOH engineer is to re-create a true representation of what that band really is playing. I’m not here to add my 2 cents worth, I am not a 6th member of the band, and I’m not here to make the band sound anything other than what it really is. My favourite quote is “there is a reason that the band has sold over 6 million albums and people want to hear the music just like it was recorded.”

Tim was using the Hordern’s inhouse L’Acoustics V-Dosc PA rig, the same rig he uses religiously in the US. It was configured in six high cabinets per side along with eight subs per side too which was really too much bottom end for Tim and The Cult.

“It’s zoned out in three different zones per side so I can control the volume on one zone,” he began “For the top cabinets, what I’ll do is aim it back to the last two rows of the building. The front two rows will be louder at that short distance, but I’ll do what is called an audio taper: I’ll turn down the bottom cabinets so they’re not quite as loud because the bottom boxes don’t need to produce the sound pressure levels like the top cabinets to reach the back of the venue. This lends to a smooth even volume walking from stage to back of hall.”

Lighting Supplier (Sydney): Chameleon Touring Systems
Audio Supplier: JPJ Audio



With over 11 million Twitter followers, 15 million Facebook fans, 1.5 billion YouTube views to date, two hit albums and numerous number one singles, UK boy band One Direction sold out their Australian tour nano-seconds after the tickets went on sale almost twelve months ago (I wonder how much interest that earned?).

I thought it would be a fun show to cover and I knew that the sets and lighting would be fabulous if Paul Normandale was involved. It was anything but fun with paranoid, rude security and a tense vibe to the tour. OK, I understand that security for One Direction would be very tight but hello, I am ancient and have given up lusting after twenty year old boys. As of last Easter.

Production designer Paul Normandale produced a bright, flashy and colourful show turning the cityscape arena concept of creative designer, Elizabeth Honan, into reality. The two-layered LED wall sections comprised a 25m x 9m back screen and a moving LED 21m skyscraper in front. At one point the band is transported aerially to a second stage via a tracking platform (that resembles London Bridge).

"In essence it's a basic skyline of LED with London influenced imagery to highlight the bands origins," said Paul. "It is also used to hide the various tricks of the show. It allows us to morph via video content into a range of different scenes and settings. It was important that the set became a vehicle for the boys to be as close as possible to their fans."

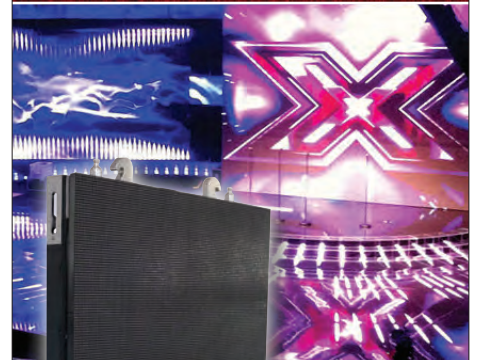
As the flying bridge has to track from the stage to the B-stage a gap has to be left in the front of the lighting rig to accommodate it passing through. To overcome this lack of front position, Paul designed six fingers of truss, housing MAC Vipers and MAC2000s, and four triangular pods in between the fingers, each housing three Mole PAR Beams, six MAC101 and seven 4 lites. The pods are on a Kinesys system so that they can form a variety of moves and looks.

Martin fixtures dominate in the rig with plenty of MAC Vipers, MAC2000 Wash XBS, MAC Auras and a whopping sixty-three

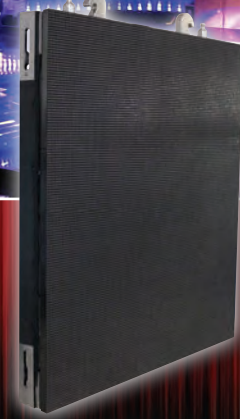
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MAC101s. Most notable are the MAC Auras and MAC101's which are dotted all over the set and rig. VersaTubes are used to underlight the Perspex floor of the B-stage as well as the flying bridge. Of particular note is the inclusion of twenty-six of the new SGM X-5 white LED strobes mounted on vertical pipes and bases, positioned under two special ramps, stage left and right.

Lighting director for the tour Dave Lee was using a WholeHog 3 console which he reckons he could program blindfolded!

"It's second nature to me and going from show to show to show I don't really get a chance to learn a new console," he added. "It's a busy tour but the show goes up surprisingly quickly. Paul designed the rig around pre-rigged truss so we basically build it out on the arena floor in the morning and then once all of the rigging points are in, we wheel everything into position and up it goes."

Lite Alternative shipped out the WholeHog consoles and the four SuperNova fixtures with Chameleon Touring Systems supplying the rest of the gear.

XL Video supplied nearly 210m2 of LED screen, comprising the down stage LED which took the form of Skyscrapers and the high resolution LED side screens. Nine Live contracted Big Picture Australia to supply the 190m2 large upstage LED wall, using Kindwin's Spider 30N5 LED. Big Picture also supplied two touring crew, Colin Rendell and Bobbi Novleski.

The side Imag screens were also in LED 3mm pixel pitch, which XL Video brought over as part of the world touring system. For the Auckland shows, Big Picture New Zealand supplied these side LED screens in Unilumin 3.75mm.

In the past monitor engineer David Martell tended to do FOH audio but now prefers to do monitors in order to rest his ears a bit seeing as he is getting older!

"I'm using a Yamaha PM5D digital console just because they always work," he commented. "You can switch them on all over the world and they'll work which is what we need on this show as it's a very intense tour. Not only do we have some matinees but we also have VIP sound checks every show day. Reliability was premium."

Dave reveals that the band use very little in the



way of onboard effects, just a small amount of compression and reverb.

"That's about it as they like their vocals quite dry," he explained. "My main concern is keeping on top of everything. I have five boys who are each demanding in their own way plus a full band. I run fourteen mixes and really have to be on it. They're all using in ears but unfortunately don't always keep them both in so we have a downstage mix as well for wedges (L-Acoustics 115XT HI-Q enclosures). Depending on the size of the place, we may also have cross fills. I ride the lead vocal through the downstage wedges as well their own mixes."

My interview with FOH engineer Mark Littlewood didn't go too well after a dressing down by security. I was embarrassed and he was concerned how the 'incident' reflected on him. Consequently it was somewhat brief. Mark has worked with quite a few boy and girl bands including Atomic Kitten and Girls Aloud so he is used to working with a background of screaming girls. For PA he had an L-Acoustics V-DOSC system with SB218 subs and dV-DOSC underhangs.

Mark also used a Yamaha PM5D console citing that you can get them anywhere and that they don't break down. "I might go more upmarket next time and get a SD7, but for now the PM5D does what I want," he said. "All effects are internal, nothing fancy. My main challenge is to get the vocals through all of the screaming. The trick is not to turn it up because they'll go up with it. I keep it at a reasonable level and after the first or second song, they quieten down and you can get your mix together. The first song is completely annihilated by the screaming, you can't hear anything apart from the bass guitar and the high hat."

Lighting Supplier: Chameleon Touring Systems
Audio Supplier: JPJ Audio
Video Supplier: Big Picture Australia



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STUFF FOR THE BRAINY TYPES

MIC POLAR PATTERNS AND WEDGE PLACEMENT

BY JIMMY DEN-ouden



HOW MANY WEDGES DO YOU USE ON A GIG, AND WHERE IS THE BEST PLACE TO PUT THEM? IT'S A DISCUSSION I'VE HAD WITH SEVERAL PEOPLE, SOME OF WHOM BASE THEIR RESPONSE ON SCIENCE, AND SOME ON HABIT. "POINT THE WEDGES AT PEOPLES EARS" SEEMS TO BE A RECURRENT THEME.

I agree. Wedges pointed at the audience become in-fills, in much the same way side-fill boxes with really wide horizontal patterns often become a smear on the main PA. Wedges definitely need to be aimed toward the performer's ears.

But where you put them in relation to the mic stand is another matter entirely, and too often overlooked. Why does it matter? Because of microphone polar patterns. If you're looking for maximum gain before feedback, you need to consider the mic polar pattern, and the number of wedges you use.

I'm going to go out on a limb and say that most people use cardioid mics for vocals on stage. Which is fine, there are

a lot of great cardioid mics out there. More often though, we're seeing super-cardioid or hyper-cardioid mics used – lots of them are condenser mics. That's fine too. What many users forget about is that the pattern not only effects what happens in front of the mic, but also behind.

Take a look at **figure 1** – a typical cardioid polar pattern. You can see the mic pickup has a "null" directly at the back. Looking at **figure 2**, a super-cardioid pattern, there's a distinct lobe. These lobes affect how much gain you can get out of a mic before it will feed back through the wedge or wedges.

If you use a single wedge positioned directly behind the cardioid mic in **figure 1**, you'll achieve up to 10dB more rejection than if using a pair of wedges positioned 45-50 degrees out from the mic. Sure you'll have 3dB less total output capacity, but I'd take the extra 10dB of vocal for preference.

On the other hand, using a super-cardioid mic with the single wedge configuration will suck. Two wedges about 50 degrees off the back axis of the mic will sit nicely in the null of the mic, and again buy you more gain before feedback. For free.

All that's pretty basic though, and here's where it gets interesting (read complicated). While polar patterns can be simplified as shown in **figures 1 & 2**, in reality they're more complex. Both front and rear pickup varies dependant on frequency – see **figure 3**, polar plot of a DPA d:facto II vocal mic, as an example. It might look a little bit wiggly, but it's actually one of the most uniform back axis plots out there. So if that's an example of well-controlled back axis response, imagine the variations on a poorly controlled mic... If you

think massive lobing at specific frequencies isn't going to cause you grief with wedges, think again. Now consider the fact that low frequencies tend to be more omni-directional than high ones when they emerge from the wedge, so they don't both reach the mic at the same SPL as each other. Now add in frequency response and pattern control of the wedge too just to further the confusion. Oh, and while you're at it don't forget room acoustics and proximity effect too.

With so much stuff going on, doesn't it make sense to start out by avoiding the obvious problems first? Put the wedge or wedges in the null of the mic to get more gain before feedback.

I'm not saying the above is categorically right for every situation, but if you're looking for maximum gain on a mic which remains on its stand, it might be worth taking into account the basic rules of physics at the outset. After all, planning is still a good thing to do first.

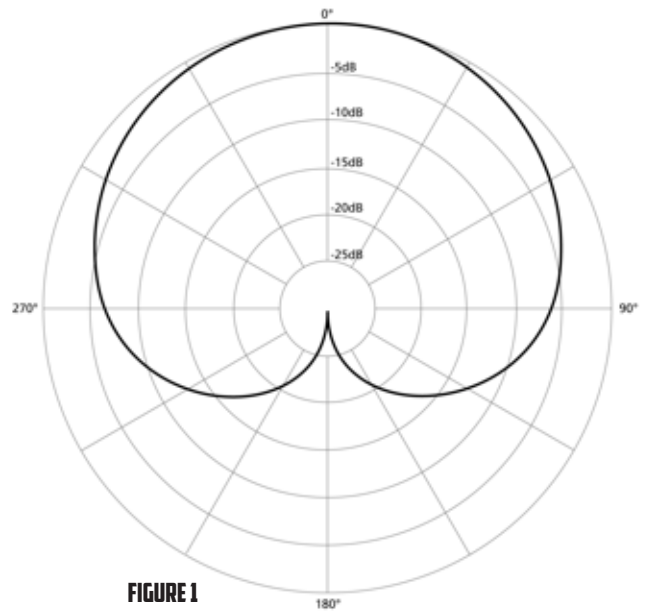


FIGURE 1

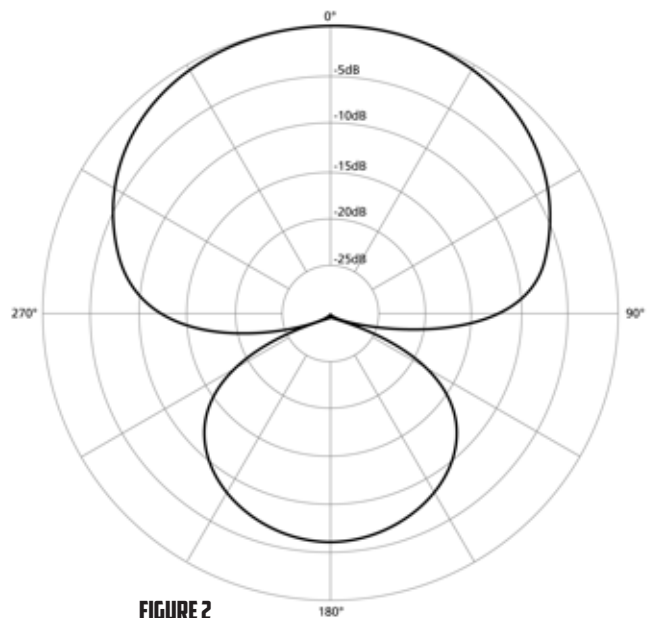


FIGURE 2

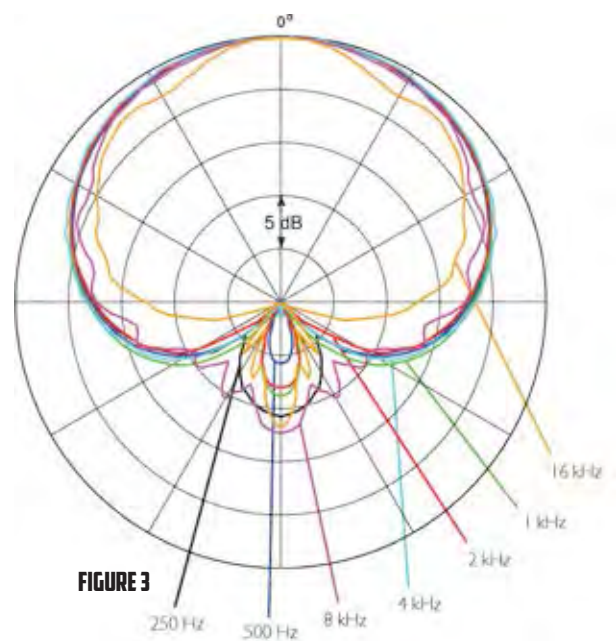


FIGURE 3

AND NOW FOR THE BIT I FOULED UP LAST ISSUE

The more astute among you may have read the Brainy Types feature last month and thought "hang on, these pictures don't make much sense". You're right, they didn't.

As Duncan Fry was so keen to point out to me on the phone, the pictures didn't actually depict what the story said they should. I tried to put him off and blame it on persistence of vision on LCD screens, but it didn't wash. The guy builds mic splits for a living, so my attempts at deception were futile.

So please, see below the pictures in the correct order.

Thanks Dunc, does it make sense now?

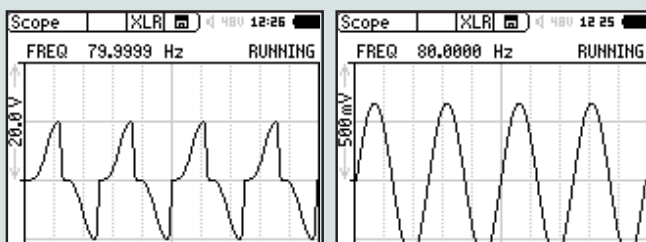


FIGURE 1

FIGURE 2

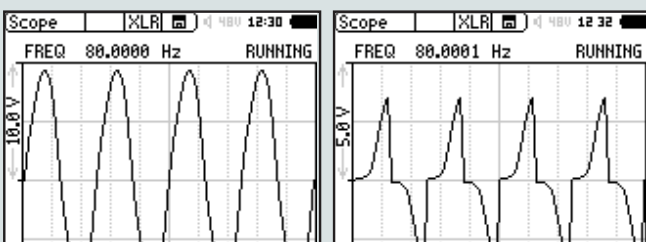


FIGURE 3

FIGURE 4

WHAT-IF?

What If a load brake hoist is installed upside-down?

Way back in early 2010, we published an article entitled “What If I need to use a single wire load-brake winch to fly a batten?” and we concluded that, while doing such a thing is far from “World’s Best Practice”, if some basic precautions are taken and the selection of components and the design of the installation is carried out with a thorough Risk Assessment and the installation is professional and diligent, then the installation will most likely be as safe as is reasonably possible, and provided operators are trained and the installation is maintained, it will continue to be so.

BY ANDREW MATHIESON

We hadn’t, however, considered the possibility that someone would install a load brake hoist as in the picture below.



We stumbled across this very recently, in a fairly new installation, and yes, what you are looking at is a single wire, load brake hoist, installed INVERTED!!

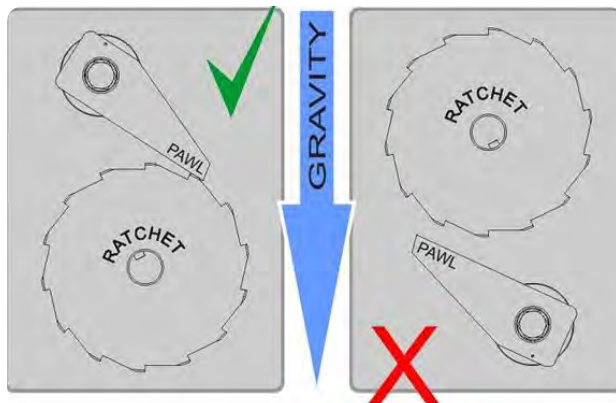
We have blacked out the compliance plate on the picture - the hoist is of well known and reputable manufacture, and is designed and tested to the requirements of AS1418.1 and the point of this article is not the hoist, but how it is installed.

At this point I'm guessing that the reactions to this are going to be either "so what is the issue?" or "You have to be joking right?" depending on whether you understand how a load brake hoist works or not.

A load brake hoist requires the ratchet to be locked in place (in this case by the pawl) when lowering the load for the load-brake to operate. If the ratchet can freely rotate, then there is no brake on the hoist.

You could control the load down if you have the strength to hold it with the rotating handle, but if you let go of that handle when the ratchet can free-rotate, then the load is going to freefall downwards.

So in this installation, the only thing that is keeping the brake engaged is a small spring, and if that spring fails...



Let's get all "legal" for a second - AS1418.2-1997 (Serial Hoists and Winches) states (Section 1.7.3) "...(d) The pawl shall be positioned so that engagement with the ratchet wheel is effected by gravity should its operating mechanism fail..."

In the case of this installation, if the operating mechanism (the spring) should fail, gravity will prevent the pawl engaging with the ratchet wheel.

The frustrating part of all this is that the manufacturer of the hoist clearly states in the installation instructions that the hoist must NEVER be installed in the manner shown in the photograph.

The only "excuse" for this installation is "I know better so I never read the instructions" or worse "I know better so I deliberately ignored the instructions."

Good luck defending this one in a court of law.

This article forms general opinion only and must not be relied on without a detailed, professional risk assessment undertaken specific to your situation. Consult a professional staging company every time you consider anything that may involve risk with flown objects or people.

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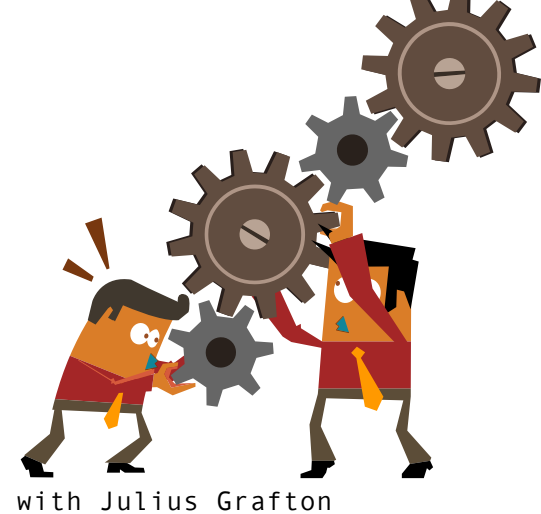
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BIZ TALK



with Julius Grafton

MUSIC. FILMS. BOOKS. NEWSPAPERS. STREAMING TOWARDS THE ABYSS, WHO WINS?

THROW MAGAZINES IN THERE TOO, BECAUSE THE WORLD-WIDE-WEB HAS ENABLED MASSIVE DISRUPTION TO TRADITIONAL BUSINESS MODELS IN THE CREATIVE UNIVERSE. THE MUSIC INDUSTRY FELL EARLY AS USERS EMBRACED DOWNLOADS THAT WERE MOSTLY ILLEGAL AT FIRST. TEN YEARS AGO A CD COST \$30, SO THE RECORD COMPANIES WERE LOW HANGING FRUIT.

I find myself using Spotify almost all the time instead of iTunes. This means the modest ten bucks a month spent renting the online streaming 'radio' that is Spotify, has replaced much more than I usually invest buying songs on iTunes.

Thom Yorke from Radiohead recently said Spotify was 'the last fart of a dying corpse', implying the music industry was that corpse. A \$10 download from iTunes generally returns just under 10% to the artist, unless they own their own product, in which case the return is 60%. That shows the place to make money in music is (still) as a middleman, since the 'record companies' are taking almost half the gross of an iTunes sale!

Spotify on the other hand pays the artist about \$15 per thousand streams. It isn't clear what they pay the label.

Streaming can work for unknowns. New York-based band Spirit Animal released "The Black Jack White" and got a boost when Napster founder Sean Parker added it to his Hipster International playlist, followed by 800,000 people. They then got around 450,000 Spotify plays in the next month, generating \$15 x 450, which totals \$6,750 – great chunky change for a new act.

But for established acts that may have sold 100,000 iTunes songs, the \$20,000 Apple would pay them fades away when 100,000 Spotify plays generate just \$1,500. Which is why Yorke and his band avoid Spotify.

Interestingly Spotify and its ilk (Rdio, Deezer, Grooveshark, Nokia Music, Rara, JB Hi-Fi Now and others) seem to have driven illegal download volume down.

Spotify boss Daniel Ek told a panel at South by Southwest this year that his goal is to have one billion people using streaming, instead of piracy sites.

At least music has revenue streams online, to replace the almost redundant CD, but all this throws even more emphasis on live touring, because it is a place the internet can't invade beyond ticket sale websites.

Music artists now know they have to work well live to live well. This augers well for **CX** readers engaged in live performance! It also means acts that record but can't play live generally will not survive, which in theory makes for more rehearsal and better conduct on stage. Unlike the glory days of the music industry where us live folk would do battle with a studio band who didn't want to be on stage!

Books, film, newspapers and magazine don't have live performances, so those of us working in those silos can and do feel the cold wind of change. At **CX** we have a steady growth in digital advertising which relies entirely on us building our already strong audience online. We nailed our own internet TV medium several years and now watch in amazement as Fairfax and News attempt the same, sometimes with terrible audio or production outcomes.

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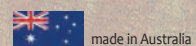
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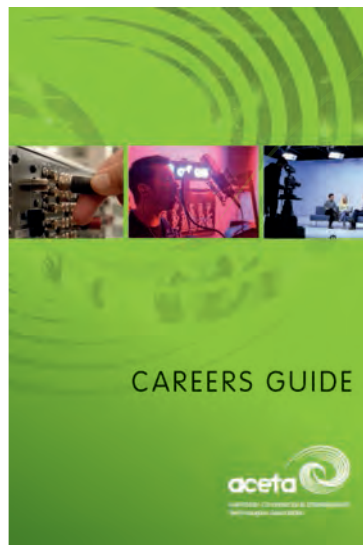
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October is Board meeting month so here's a round-up of the topics on the agenda this meeting.

Trade shows

As you know, ACETA put considerable effort into looking at the crowded trade show calendar. We wrote a white paper advocating for one big show under the same roof and held meetings with the major trade show organisers but then Barry O'Farrell pulled the rug from under us by announcing that Darling Harbour is closing for three years whilst it's razed and re-built. Even so, we can't blame him for what was just one more boulder blocking the road to achieving our goal. It was pretty clear which show organisers were prepared to play ball and which weren't. Coming soon is a report on how our efforts to create the 'One show to rule them all' panned out.



Careers guide

ACETA has produced a careers guide to our industry, outlining many of the career paths we offer and, for the first time, putting them all in one place. We have been distributing this in soft copy to tertiary students and are about to embark on distributing it to careers advisors around the high schools of Australia. It can be downloaded from the ACETA website and feel free to distribute it through your own networks.

AWAG

With the change of government the wireless audio issue is now front and centre. When in opposition, Malcolm Turnbull and Bruce Billson (now minister for communications and minister for small business, respectively) appreciated the issue and assisted where they could. It was Malcolm Turnbull's intervention that ensured that the ACMA had to develop a transition plan. Sadly, it was delivered to Anthony Albanese, as the then minister for communications, shortly before the election was called. Albanese then refused to release it claiming the government was now in 'caretaker mode', despite our argument being that because they were in caretaker mode everything should

be shared so appropriate policies could be developed by all parties. We should recognise here the support of Senator Scott Ludlam, the Greens senator for WA, who it would seem at the time of writing this has lost his seat. He fought hard for fairness, often tabling questions to attempt to force answers from ministers or their departments.

We had a few dramas during the election, notably rumours of a group in Brisbane who were preparing to block the wireless audio at Kevin Rudd's election launch in protest about how wireless audio users were being treated in the transition to digital. This got picked up in the Daily Telegraph in Sydney and apparently caused some ructions with the security services involved because this could impact on the security of the prime minister. Of course, nothing happened. All anyone needed to do was remember there had just been three industry shows at which beer had flowed and talk had got big. Of course, it was possible, but would anyone really try? We did notice though that Rudd used a wired mic.

We have opened discussions with the new ministers offices and understand that Malcolm Turnbull's office has already had some discussion with the ACMA about the issue. Clearly, the minister has bigger fish to fry at the moment with resolving the NBN issues, but we wait to hear his response to our issue at it currently stands. The clock is ticking, as they say, and there isn't much more time that we can waste twiddling our thumbs as politicians are otherwise occupied.

The AWAG Facebook page is now gathering likes at a massive rate. We have hired a social media strategist to help achieve this and it's certainly working. Thanks to Jands for offering a Shure system as a competition prize on the Facebook page, and to Audio Products Group for an AKG package, and to Sennheiser for a package. These competitions will run for three weeks each, as an incentive to get people to like the page and then we can post info there about the issue. Which we have been doing.

We then had some heated exchanges with the ACMA, who didn't like the tone of our Facebook posts. We pointed out that we didn't like them posting media releases to their website announcing that the industry was now putting written statements and warning labels on products that couldn't be used after the end of next year, without so much as saying one word about it to the industry. Do they think we are cruising their website every day looking for changes? And as we pointed out to them why would you try to control the roge product? Why wouldn't you take the same

approach as with digital TV and mark the products which can be used? We did radio interviews on Radio National, 2GB and ABC Brisbane, amongst others, talking about the issue. And the media release's self serving comments about how the ACMA was doing this to protect consumers most definitely stuck in our throats. We have spent six years trying to get a fair deal for consumers, which has fallen on deaf ears in the minister's office, the department and the ACMA. And now we're being cast as the bad guys? Anyway, sometimes having a row can clear the air, so read the next story.

RadComms

Ian Harvey, Executive Officer of ACETA, was invited by the ACMA to speak at RadComms about the wireless audio issue. His slides and the transcript of his presentation are on the ACETA website and can be downloaded.

Ian was also invited to dinner by senior and very senior management at the ACMA at which he was able to put the case about the unfairness and impracticality of the current plans, and repeat the fair and practical plans that AWAG has been putting to the ACMA, the Department and the previous minister for the past six years. It was a very fair hearing. Time will tell if anything comes from it, but we can't say it hasn't been discussed at the highest levels of the ACMA.

Manufacturers manifesto

The manufacturers manifesto is close to being finalised. This will form the basis for the work to be undertaken

for supporting Australian commercial and entertainment manufacturers. Please keep an eye on your inbox as this will be distributed during October. Feedback always welcome.

Industry statistics ... the latest

This has proved a challenge. The main issue has been the cost to collect the data. Clearly members wanted a confidential data collection mechanism, but the usual contenders for such a role (namely an accounting firm) were just too expensive. But we have now found an online service that is more reasonably priced. There's a start up cost to set up the structures that we need, but after that it's just routine costs. So we plan to start with mics and speakers, as the two most popular and populated segments. Then we plan to roll it out across other segments. This should be launched in November and will only be available to members at a modest additional cost.

That's it for this issue of **CX** magazine. By next month we should have the trade show report and manufacturers manifesto distributed, and the industry statistics underway. And there should be more clarity about what, if anything, this government will do to ensure fairness for wireless audio users at the transition to digital.

If you don't already subscribe to the ACETA newsletter please go to the website at www.aceta.org.au and sign up. It's free and it's available to anyone. The AWAG Facebook page is at www.facebook.com/awagaaustralia

Is Your Wireless Microphone Ready for the Digital Dividend Restack?

With the Digital Dividend Restack now only 15 months away people are obviously starting to wonder what they should do with their existing wireless microphone systems. Especially after some media outlets reported recently that if you operate a wireless microphone system in the 694MHz-820MHz frequency range after 1 January 2015, you may face large fines and/or jail. So for a limited time, Shure will take your existing wireless system off your hands and offer you a great price on a new replacement Shure wireless system that you know will last you into the future.

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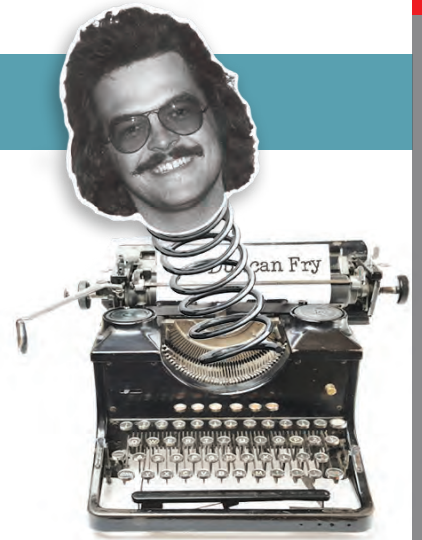
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Country gigs

A surfeit of little boys



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I always liked doing the odd weekend country gig. Not all the time – you’ve got to have some kind of life - but one a month was fine. On the plus side, you could charge more, you had a weekend away at someone else’s expense, you got to see a fair bit of the countryside (even more than you expected should you run off the road!), spend a night in luxurious accommodation, and pay nothing to go and see a band. On the minus side you had to drive all day and work all night, and put up with the band whining like a Lada gearbox if things didn’t go as planned. The good ones would be fun; the bad ones could turn you into a psychopath in a split second.

One of the first ones I did was in the Victorian country town of Shepparton. The memories all came flooding back to me a few weeks ago when I was driving through the town to pick up a bike I had bought online. Why does no-one living conveniently around the corner from you ever sell things on online? But I digress.

For this gig the pub had an ‘entertainment lounge’, consisting of a large tin shed out the back, with a concrete floor. Obviously good acoustics were at the bottom of the list of requirements for a pleasant night out – the ease of hosing it out each night being at the top!

The audience that night appeared to consist solely of bikies and their women, and desperates of both sexes from the nearby fruit canning works. The one common denominator

was copious amounts of beer, which lubricated things so well, that surprisingly there were no fights!

A guy from the canning plant lurched over and leant on the mixing desk in front of me.

“Hey mate,” he slurred, “This is the thing what controls the lights, isn’t it, eh?”

I looked at his two hands. One of them had ‘H A T E’ tattooed on the four knuckles of the left hand. I looked at the right. Traditionally it should have had ‘L O V E’ tattooed on it in the same way, but that was a bit tricky, since he appeared to have lost a complete index finger, thumb and knuckle in some ghastly canning accident. In order to maintain a sense of symmetry, however, the letters ‘L U V’ had been tattooed on the remaining three knuckles!

“Yes mate, this is the lighting desk,” I replied. Of course it was the sound desk, but it’s not a good idea to try to explain things rationally to drunks, or to argue with them. He squinted at the knobs - red, blue, yellow, white, and then at the stage where the band was bopping away under a wash of green! He turned back to me.

“So how do you get the green colour?” he asked, a look of rat cunning on his face, but I was ready for him.

“Well, you have to use a bit of the yellow and a bit of the blue,” I replied, pointing to the corresponding knobs. “They mix together and make green!”

He nodded his head in understanding and drifted back into the crowd.

For some reason the singer had brought his girlfriend along to watch him perform. Maybe she couldn’t bear to miss him for one night (unlikely); more likely she didn’t trust him. Personally I think it was the latter, so he had deliberately picked the worst gig so that she would never want to come to one ever again.

She took one look at the venue and the crowd, and then positioned herself near the mixing position for safety, and clutched at my arm if anyone came too close to her. I think she felt that this type of gig was beneath her – as did we all, but we were getting paid to do it!

In front of us, across the dancefloor, we could see a very, very drunk girl slowly but determinedly making her way towards us at the mixing console. Perhaps she wanted to request a song from the band; perhaps she wanted my autograph or something. We’ll never know, since she didn’t quite make it.



When she got to a couple of metres from the mixer she fell face downwards on the floor. Two guys helped her to her feet, and in doing so, ‘accidentally’ managed to peel off her T-shirt.

Topless, she put her arm around one of them, smiled a big beery smile, and then threw up all over him!

“Yuck - s**t”, he yelled, immediately letting go of her as she dropped insensible to the floor.

I turned to the singer’s girlfriend, who had been watching the scene with a look of horror on her face.

“Hey, your sister’s having a really good time tonight, isn’t she?”

She glared at me in disgust.

“How could you possibly imagine I could have something like THAT for a sister!” she hissed icily, and disappeared into the ladies toilet, only venturing out at the end of the night.

Looking at the gig in retrospect, I think the major mistake the pub made was to serve bowls of frankfurts for supper, about half an hour before the end of the night. They were only complying with the law, of course, since in those days a pub was required to serve a meal if it was open past the normal closing time of 10 o’clock.

This ‘supper’ was usually something quick, easy, and above all cheap. It was often just a bowl of chips; this night it was

bowls of boiled cocktail frankfurts, or little boys as they are more commonly known. Still, what with all that beer consumed, and everybody wanting to have a dance before the end of the night, it wasn’t very long before what went down began to come back up.

Pretty soon little pink piles of half digested frankfurts started appearing everywhere; on the tables, on the floor, back on the plates, on peoples’ shoes, and even in the drinks! Someone even managed to neatly land a couple of slushy piles onto the multicore cable running down to the mixing desk, so naturally at pack up time I called my trusty assistant Chris over.

“Chris, mate, could you look after the multicore while I pack up the mixer?”

“Yeah, no problems, Dunk”, he said, and started coiling it up into its road case. Suddenly the chef’s special frankfurt and beer surprise with digestif jus (don’t look for that on Masterchef!) slipped through his fingers.

“Aagh, a pile of spew, aagh”, he yelled, wiping his fingers on his jacket in a reflex action. “Yuck, now it’s on my jacket!”. He turned around to see me wetting myself with laughter. “You bastard, you knew that was there, didn’t you!” I was laughing so much I could only nod my head.

I don’t think he’s forgiven me yet!



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