



MONTHLY TECH NEWS

CX128 AUGUST 2017
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Holograms

A user's guide to blowing minds

In Profile: Dave Jacques

Band touring in 2017: The Bootleg Beach Boys

NEWS:

- Jands take Robe
- Mipro moves to ABA
- Helpmanns dazzle
- SMPTE goes well

ROADSKILLS:

- Grinspoon 20th anniversary album on tour
- Icehouse 40th anniversary tour

REGULARS:

- 20 Questions: Greg Weaver
- Biz Talk: Bleed them till they die
- Tech Tools: HDMI and HDCP
- Duncan Fry: Tale of two mixers

GEARBOX:

- Vuepix ER 5.9 touring led screen
- Clay Paky K Eye K20 HCR
- Sennheiser XSW2 wireless system

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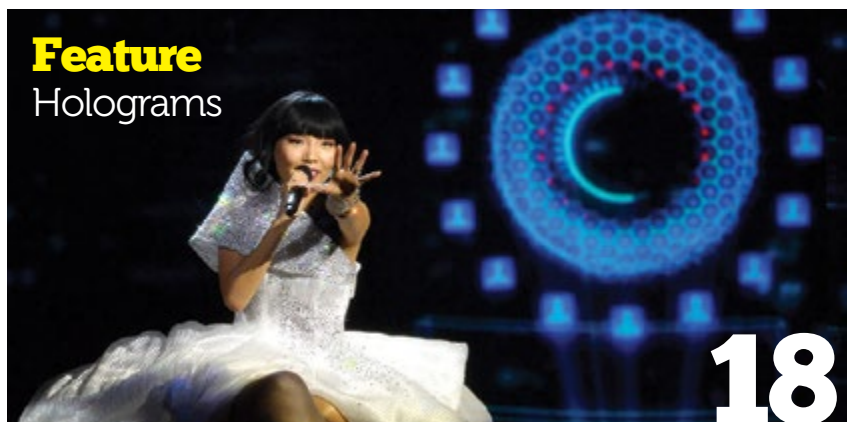
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CX ⁺ 128 2017 contents.



Roadskills
Icehouse 40th
anniversary
tour



Feature
Holograms



Gearbox
XSW2 wireless system



In profile
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• Cover photo: Tony Lukeman

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SMPTE 2017

Defies doomsayers

You'd be impressed inside the halls at the new International Convention Centre in Sydney as SMPTE 2017 pulled in the crowds. 97 exhibitors plus the right visitors made the show a success within its first hour of opening.

The convention had its ICC debut and without doubt the new venue helped the numbers. Built over the site of the previous venue, ICC condenses its footprint by going tall with two levels of tradeshow halls. SMPTE sat in part of the lower level. Themes hot on the floor were the shift to IP, with many sporting

venues installing Teltra's Digital Production Network. (DPN) This means the outside broadcasters can port multi camera feeds into the DPN so switching, CPU and other tasks – possibly audio mixing as well – are done back at a central control room. The push is on to trim the expensive site team on an OB, and put smaller trucks on the road.

Out the back of the show, some exhibits were devoted to drones, and to keep order the Civil Aviation Safety Authority were exhibiting as well. Like many industries, the upswing in drone capability is changing everything, the need to properly manage and pilot drones

over 2kg includes getting competent in aviation procedures. Drones over 7kg need the operator to hold even greater qualifications.

SMPTE's Australian trade show strategy has had its share of criticism in these pages over the years, but its strong showing this year belies all that - and proves the broadcast industry is evolving fast. The streamlining and simplifying of video and audio capture and edit means more content gets produced more quickly.

That's exactly what the networks and the cable channels are screaming for.

ROBE GOES TO JANDS

Robe has announced it would shift its Australian and NZ distribution of its Robe and Anolis brands to Jands. In the announcement, it asked current customers of ULA, who for 2 decades have distributed its brands, to continue to work with ULA until the current order pipeline is cleared.

ULA then made the following statement:

Universal Lighting and Audio (ULA Group) confirms Robe's advice that all parties who have been actively designing orders for Robe or Anolis products with ULA should continue to



finalise their orders through ULA.

ULA Group will continue to provide the same innovative and seamless client service it has been renowned for over the past 25 years. Robe and ULA will continue to provide full warranty support and service for all Robe and Anolis products sold by ULA.

The ULA Group brand has been synonymous with Australasia's most iconic and innovative projects and is a leading supplier to the entertainment, architectural, lighting and visual industries.

ULA Group continues to expand its focus on premium entertainment, architectural and visual lighting and video solutions able to meet the needs of its growing client base.

ULA's new 'state of the art' showrooms continue to be opened, with the latest in Brisbane last week, Melbourne to be opened on 10 August 2017, and new showrooms opening in Sydney, Perth, Auckland and Shenzhen before the end of the year.

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6 YEAR
WARRANTY



Helpmann Awards 2017

Better, brighter, happier

After a neat 100 years of existence, Live Performance Australia turned up the volume to deliver a large, sparkling and utterly professional awards ceremony for the performing arts industry on Monday July 24.

Sitting on the set of the musical *Kinky Boots* at Stephen Found's Capitol Theatre, the show started on time at 7pm and wrapped three hours later without missing a beat. Or a cue. (With one tiny exception, when the envelope for the second last award was muddled up, but presenter Deborah Hutton spotted the problem before an Oscars moment happened!)

How on earth do they stage this show, containing performances from many musicals, with so many people, on top of what is an already full backstage for *Kinky Boots*? Just rehearsing each of the nine segments is potentially a nightmare – for the 21 piece orchestra, conducted by the impossibly young Vanessa Scammell, and for the technical crew.

I found out later that rehearsals started at 9.30am on show day, with about 40 minutes for each performance – during which they have to be spaced, lit and run for cameras. There is time allocated for a hosts' rehearsal and an orchestra rehearsal.

Lighting Designer Gavan Swift adapted the *Kinky Boots* rig, augmented with more gear from awards sponsor Chameleon Touring Systems. As the awards are televised on Foxtel, he had the tricky task of working

for the two masters – an audience in the theatre, and an audience watching screens. It looked superb.

Later, Gav told me he added about 30 lights for the audience, then used the *Kinky Boots* rig as it was – since it was already pointing at the stage! "Stuart Anderson was the lighting director looking after Foxtel's interests and liaising between the OB truck and myself. Pat Smithers was the programmer. As a point of interest, the only guys on the lighting team were myself, Stuart and Pat. The majority of the team were the fabulous lighting ladies from *Kinky Boots*. Kathy Pineo was the head electrician and Sarah Kenyon-Williams was the followspot caller."

Sound Designer Shelley Lee also adapted the *Kinky Boots* system, supplied by System Sound, and added on a lot of everything to cater to the diverse performances. How diverse? Traditional musical from the cast of *My Fair Lady*, through to the rocked up number by the cast of *Green Day's American Idiot*.

I'd like to commend the audio execution – getting everything on and captured without missing a beat is a major accomplishment for a 'one off' televised live show of enormous complexity. Getting it all done while maintaining sonic consistency is a high art form. Hats off!

Opening with a *Kinky Boots* segment, the performances then veered off into the crazy with *Book of Mormon*, the glitzy with a big cast number from *Aladdin*, the Green

Day segment, and a slightly out of place piece of dance theatre called 'construct' by the Australian Dance Theatre. T'was strange yet compelling.

Next came the Sydney Children's Choir singing 'Lux Aeterna' for an 'in Memoriam' slideshow of industry people who have died over the last year. Sadly this segment seemed to go a long time.

Without an interval, the show kicked on with three or four award categories between each performance. Each award had four or sometimes five nominees, the various presenters would announce the category and a voice over would name the nominees. The envelope is opened, the winner walks up, and has 30 seconds to say – something. At the 30 second mark, Vanessa Scammell would fire up the orchestra and play them off and out. Somewhat sweetly, she could be seen mouthing 'sorry', to them!

Dami Im and Esther Hannaford sung a medley from the forthcoming 'Beautiful: The Carole King Musical', then Reg Livermore led the cast of My Fair Lady in a rousing 'Get me to the church on time'.

After the final slew of awards, Marcia Hines and the cast of Velvet closed the show with 'Turn the beat around' and 'No more tears (enough is enough)'. It was

SOME CREDIT DUE

Ross Cunningham, Chair of the Helpmann Awards; and Jon Nicholls both stood down this year after many years service to the Helpmanns. LPA Chief Executive Evelyn Richardson, and President Andrew Kay do a phenomenal job pulling the awards together on a shoestring. The 40 sponsors deserve all the recognition they get, and can be certain they are noticed supporting the industry.

a very suitable closer, leaving everyone happy.

There were a lot of highlights – Jan van de Stool was an utterly hilarious host; and Rob Brookman was a totally deserving recipient of the Sue Natrass award. Some of the acceptance speeches were priceless: Mark Coles-Smith was named 'Best Male Actor in a Play' for his role in The Drover's Wife. "What a trophy", he started, holding up his award. "And what a performance! To my fellow nominees, I'm not like you any more...."

Leah Purcell accepted the Best Play award for the same show – The Drover's Wife (which also won 'Best Direction of a Play'). She somehow just owned the moment – 'I was a grade C student at school, never destined to amount to anything. Well, let me tell YOU....' Wow, she just nailed it.

Technical awards went to Joachim Klein for Best Lighting Design on Saul, and Gareth Fry and Pete Malkin, for Best Sound Design on The Encounter. Anna

Cordingley took the Best Scenic Design award for Jasper Jones.

We filed out of the theatre, and those of us blessed with a Gold Pass boarded ten busses to join the glittering After Party.

Pictures by Lindsay Kearney, Lightbox Photography



THE AFTER PARTY

CX loves a party. If you're going to do it, do it properly! We were excited to walk up to the brand new Hyatt Regency Ballroom at Darling Harbour, opened earlier this year and utterly beautiful with a centerpiece of mirrorballs.

Staging Connections did a neat job lighting the room for a very critical audience. I did hear a very camp voice complaining, however, that the cluster of a dozen mirrorballs, ranging from small to huge, were all rotating "IN THE SAME DIRECTION!"

"I mean, you need SOME OF THEM going the other way! Look at THEM, they're all twirling COUNTER CLOCKWISE! Oh my GOD!"

Food stations were plonked in the middle of the room, with white coated chefs battling to keep up with the hoard of

revelers who looked like they hadn't eaten for a week. The cheese and anti-pasto table near us was plucked clean. Crumbs remained, until the sweating Hyatt staff reloaded it on the fly.

Trays of drinks were swooped on at the entry, one of which went West. I don't mind being splashed with bubbles, so long as they were French bubbles!

A bloke impersonating a DJ stood on a podium looking bored with a Macbook and a pair of designer headphones. Whatever he was playing was drowned out by the delirious babble of exhausted industry folk. There was glamour. There was beauty. And we were there too, amongst the benefactors, producers, and anonymous Government wannabes attached to whatever funding was dripping through to some parts of the industry, somewhere.

BYTES, BITS & RUMOURS

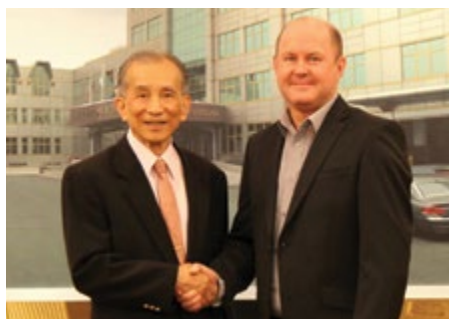
- The book we are most looking forward to (after Stuart Coupe's forthcoming book on Australian Road Crew) is **BRUCE JACKSON: SIX YEARS ON THE ROAD WITH ELVIS**. In it we are promised further and better particulars of the many stories (all true, we are sure) that the late and well loved Bruce - probably Australia's greatest live sound engineer of all time - told at past ENTECH shows. Like the time Elvis' girl would sit next to Bruce at the console. Then Elvis calls Bruce into the dressing room, a bunch of grim Memphis Mafia types standing around in suits punching fists into palms. Serious Elvis: 'Bruuce, Ginger tells me yar been pudding yer hands on her legs....'
- AV and theatre consultants **John Alekna and Malcolm Savage** have left Melbourne based Marshall Day Entertech to pursue other adventures and opportunities. On the other hand, Marshall Day Entertech have recently been joined by **Kheong Sen Lim**, formerly of Capital Venues Bendigo, and before that Malaysia Singapore Country Manager of Systems Electronics and Engineering, and principal of Acoustic Keys theatre consultants.
- **Chris D'bais** has left his role at Meyer Sound Australia and is about to start as Technical Director at the Brisbane Power House. Chris is an accomplished technical manager and took the challenge at Meyer, where he won a lot of respect.
- **John Butler** passed away in Moss Vale (NSW) last month, aged 84. Butlers Hire started in 1972 at Arncliffe (Sydney), a business that grew to the point John was supplying stages for all major promoters across the 1980's. John retired to Bathurst just five years ago.
He is survived by his only son Tony, 2 grandsons and partners. Tony was married for 49 years to Wendy who passed a few years ago.
CX fondly remembers how John would always bring his BBQ to a gig. If you treated him nice, you'd end up with a sausage sanger and a drink. It didn't matter who you were - band, promoter, or the bloke humping the boxes. Or even CX. Rest in peace, John.
- **Michael Hutchence's** daughter Tiger Lily is poised to inherit - something - after turning 21. Hutchence surrounded himself with 'advisors' to manage his dosh and had a tax structure built which was so good that when he died there was no money in his name. Just a bike. His principal advisor, Colin Diamond was unresponsive, to the enormous frustration of the family. Whatever happened will now soon be known as the inheritance matures. This all begs the question: what is a 'trustee', if you can't trust them? Further, who can force a trustee to do anything, if their 'client' suddenly departs?

EMAIL US: juliusmedia@me.com or text +61 408 498 180

MIPRO appoint Audio Brands Australia

This is the kind of audio gear you want to sell. It walks out the door in impressive quantities, and gets sold to people who pay. MIPRO is a highly respected manufacturer of Portable PA Systems, Wireless Microphones and Tour Guide Systems.

They've anointed Don McConnell, Director of Audio Brands Australia to distribute their brand. "We are absolutely thrilled to be appointed as distributor for MIPRO. Both myself and the team are very excited to be partnering with such an innovative and respected manufacturer."



MIPRO CEO, KC Chang (pictured with Don) added: "We have known Don for close to 20 years due to our previous business relationships. He and his team have extensive knowledge &

experience in managing the MIPRO brand. They know our wireless technologies and how MIPRO can serve their customer base."

Audio Brands Australia was established in 2013 with an experienced team of ex Hills folk focused on the commercial and professional audio markets. MIPRO was founded in 1995 and is Taiwan's leading manufacturer of Wireless Microphones and Portable PA Systems. All products are manufactured in MIPRO's own facility in Chiayi, Taiwan. See it at the Integrate show (29-31 August).

ACME SPARTAN HYBRID

01

The Acme Spartan Hybrid is a hybrid discharge fixture that can run in beam, spot, or wash mode. Powered by a Philips MSD Platinum 20R lamp, it has a colour temperature of 7800K. Its zoom range is 2-7 degrees in beam mode, 5 to 32 degrees in spot mode and 8 to 70 degrees in wash mode. It also features linear CMY colour mixing, three colour wheels, one static gobo wheel, one rotating gobo wheel, an animation wheel, an eight facet prism, and a six facet prism.

Australian Distributor:
ULA Group
www.ulagroup.com
or 1300 852 476



ATEN VM3200

03

The VM3200 allows users to independently switch and route video and/or audio content directly to various monitors, displays, projectors, and/or speakers simply by pressing front panel buttons. A built-in Scaler encodes the video format in order to provide seamless, real-time switching. The VM3200 is easily expandable and accommodates a line-up of hot-swappable ATEN I/O boards. This feature makes it ideal for large-scale A/V applications such as broadcasting stations, traffic and transportation-related control rooms, emergency service centres, and any application that requires customizable, high-speed A/V signal routing.

Australian Distributor: Aten ANZ
www.aten.com or (02) 9114 9933



AMX INCITE

02

AMX Incite presentation switchers include video scaling, windowing, audio amplification and processing, support for 4K60, integrated central control and distance transport. Featuring BSS, dbx, and Crown audio technologies. AMX Incite is capable of advanced video windowing with scaling. Users can send two sources to a single display in various preset configurations (side-by-side, top-bottom, and picture-in-picture), and the AMX Incite will automatically scale the sources to fit the resolution requirements of the destination display. Incite also includes "live production" style video features, such as transition effects when switching between sources. In addition to the base model, two models will be available with additional features and hardware options - a version with the addition of a 70/100V and a Stereo DriveCore (from Crown), and a version which includes a full AMX NX-2200 central controller in a two-RU footprint.

Australian Distributors: Jands and avt
www.jands.com.au or (02) 9582 0909
avt.tech or (07) 5531 3103



CHAUVET ÉPIX STRIP IP

04



Chauvet Professional's ÉPIX Strip IP is an IP65 rated, one metre LED strip. It features a quick programming mode that greatly reduces the amount of time needed to set up pixel mapping programs by allowing access to several prebuilt effects while using just a few DMX channels. Using the Épix Drive 2000 IP, which is required with this product, designers can control the Épix Strip IP via Art-Net, Kling-Net, or sACN to configure and program shows in a matter of minutes rather than hours. With 100 RGB SMD 5050 LEDs lined up in a row, the Épix Strip IP produces a bright output and high resolution graphics.

Australian Distributor: Showtools International
www.showtools.com.au or (02) 9824 2382

CROWN CDI DRIVECORE

05

The new Crown CDi DriveCore Series power amplifiers feature high channel density, integrated DSP, full-featured front panel controls with colour display and international power features. The Series includes 2 or 4 channel models at 300/600/1200-watt output power ratings, as well as 70Vrms and 100Vrms direct output for use in global installations.

A front panel screen and controls for simple setup allow customers to quickly recall JBL speaker tunings, configure amp inputs and outputs, and modify DSP settings. Bridgeable output channels double the power output by driving two output



channels as one. Industry-standard control options include GPIO and aux port control, AMX integration for use with 3rd party controllers, and compatibility with BSS Contrio Wall Controllers.

Australian Distributor: Jands
www.jands.com.au or (02) 9582 0909

EVENT LIGHTING PAR19X15

06

The PAR19X15 is Event Lighting's latest addition to its professional PAR series - designed to deliver bright output with 15W LEDs, and includes section control for creating diverse pattern effects. Powerfully bright at 12000 lux at 2 metres, the PAR19X15 includes features such as an LCD menu, 25 degree lens (9/15/50 optional), 16 bit dimmer, 3 and 5 pin DMX, RDM and Fade modes. Outdoor and indoor versions of the PAR19X15 are available which make it ideal to light up larger venues or outdoor structures.

Australian Distributor: Event Lighting
www.event-lighting.com.au
or (02) 9897 3077



HITACHI HILU7520Z

07

The new Hitachi HILU7520Z Interactive 75-inch UHD flat panel display has been designed for a variety of uses from boardrooms, classrooms, lecture theatres, foyers, and consultation rooms. Within its clean contemporary black bezel frame, it incorporates a host of features, including up to 20 points of touch (simultaneous), a bright LED anti-glare screen, wide viewing angle and 40W front facing stereo speakers. Both Windows and Mac compatible, it includes PC-less writing function, a LAN port for control, OPS slot, magnetic stylus pens, and front HDMI and USB inputs.

Australian Distributor: Hitachi Australia
www.hitachi.com.au or (02) 9888 4100



JBL LCT 81C/T

08

The JBL LCT 81C/T is a ceiling tile loudspeaker designed to easily lay into a 2' x 2' US-style suspended grid ceiling without the need for cutting ceiling tiles. The LCT 81C/T utilizes an 8-inch dual-cone driver with 1-inch voice coil. The extremely low profile depth of just four inches allows the LCT 81C/T to be installed into shallow-depth ceiling locations where other ceiling loudspeakers do not fit, such as in older buildings with low ceiling decks or in spaces where the above-ceiling areas may be obstructed by pipes or ducts. A built-in 10W transformer allows the LCT 81C/T to be used on 70V or 100V distributed speaker lines, or the speaker can be driven directly by a low-impedance power amplifier (at up to 20 Watts continuous average pink noise; 40 Watts program power).

Australian Distributor: Jands
www.jands.com.au or (02) 9582 0909



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KRAMER VS-88UHDA

09

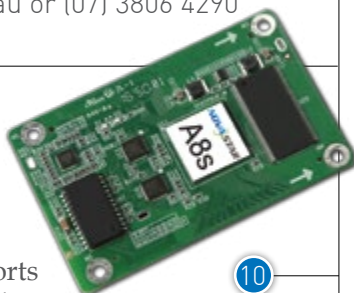
Kramer's VS-88UHDA is a high-quality 8x8 matrix switcher for 4K@60Hz (4:2:0) HDMI signals and embedded/de-embedded analogue audio. It re-clocks and equalises the signals and can route any one of eight HDMI, HDCP-compliant sources (selectable) to any or all outputs simultaneously. The VS-88UHDA offers audio flexibility where any embedded digital or analogue audio input can be routed to any embedded digital or analogue audio output in addition to eight ARC sources to produce an equivalent 24x20 audio matrix.

Australian Distributor: Kramer Australia
www.krameraustralia.com.au or (07) 3806 4290

NOVASTAR A8S

Novastars' new mini A8s LED receiver card for networked LED walls supports 256x256 pixels. It allows for hot backups including loop backup, dual card, backup, and dual power backup with seamless switching. Its 18bit+ processing improves greyscale performance in low brightness, while Novastar's ClearView technology automatically adjusts texture, size and contrast of images for best results. The A8s supports parallel output of 32 RGB and 64 sets of serial data. The unit is dust-proof, and is fitted with high-density connectors designed to stay firmly connected.

www.novastar.tech



10

PROCAB PRX505SF AND PRX506SF

11

Procab have released the PRX505SF and PRX506SF digital cable reels. Each model features Procab's DuraFlex CAT5E SF/UTP cable, terminated with Neutrik Ethercon connectors and assembled on lightweight, extremely strong and impact resistant reels. Duraflex cable is constructed using a double-extrusion technique with a polyurethane outer jacket and a PVC inner jacket. The conductor section consists of 4 pairs of stranded 24 AWG conductors, while the double shielding consisting of an overall aluminium foil surrounded by a tinned copper braid.

Australian Distributor:
Audio Logistics
www.audiologistics.com.au
or 1300 859 341



SHOWPRO BRIX FC

12

The ShowPro Brix FC is an outdoor-rated, high-output RGBW COB LED blinder with a modular design for deploying large arrays. It includes horizontal and vertical matrix mounting hardware for easy creation of curved displays. The standard lens kit provides a 23° beam angle, or you can easily attach a lens kit for a 38° wide flood. The unit uses software simulation to emulate halogen dimming behaviour, and runs silently due to advanced thermal management.

Australian Distributor: Show Technology
www.showtech.com.au or (02) 9748 1122



13 MACKIE MR SERIES

Mackie has refreshed its MR Series Powered Studio Monitors. Designed for home studios, content creators and multimedia, the MR Series is available in the 5" MR524, 6.5" MR624, and the 8" MR824 plus



the 10" MRS10 companion powered subwoofer. The MR Series features a logarithmic waveguide which provides an ultra-wide listening sweet spot and enhanced stereo imaging. Utilising extensive tuning by Mackie acoustic engineers, precision transducers, and high-performance amplifiers, MR Series monitors deliver an honest, accurate representation of the mix, so users can count on their projects to always sound the way they intended.

Australian Distributor: CMI Music and Audio
www.cmi.com.au or (03) 9315 2244

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MA NOTES

TECHNOLOGY



Aria Awards 2016

Home Nightclub Sydney

PRODUCTS RELY ON PASSIONATE PEOPLE GREAT BRANDS ARE BUILT ON TRUST

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SHOWPRO



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www.showtech.com.au

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history

1991: 2017

Each month we delve into **our archive** and highlight what was said, slurred, alleged and reviewed five, fifteen and twenty-five years ago this month.

➔ Channels August 1992 / 25 years ago



The possible formation of an audio, lighting and AV association led The News in Channels Magazine August-September 1992. Mark Carpenter convened inaugural talks, and while our editorial supported the idea we hoped that the interests of workers, manufacturers and distributors would be evenly represented.

In Features Peter Rooney from Jands talked us through the 16 tonne production of Jesus (Farnham) Christ Superstar at the Sydney Showground. The lighting design was by US-based Peggy Eisenhaurer and featured

just-unboxed LX technology such as an ETC Expression console (250 channels/1024 assignments), Lycian 1200w HMI Starklight follow-spots and DiSisti Piccolo 5k fresnels. David Morgan was the sound engineer, last in Oz with Paul Simon - officially, that is. Apparently Morgan was in Australia some months previous as a stand-by engineer for Prince's Australian tour. We were informed there was a dispute between Prince's management and sound engineer David Natale, so Morgan sat behind Natale during the show taking notes, unable to obtain same from Natale who was doubtless less than happy.

➔ Connections August 2002 / 15 years ago

The Editorial for Connections Magazine August 2002 reflected the industry at a crossroads technology-wise. In lighting, LED fixtures and the coupling of video imaging with moving light technology were new realities (but not yet LED profiles), and in audio, point-of-source line arrays were

becoming popular alongside new non-line array product. That month, we were also preparing more audio and vision conferences and seminars to keep the industry up to speed, and were advising CREATE Australia on entertainment technician standards.



➔ CX Magazine August 2012 / 5 years ago



Industry news in CX Magazine August 2012 reported that ES Group Australia (formerly Edwin Shirley Staging) had gone into administration with \$6 million debt. Also in News, the Sydney Opera House announced its Stage Management System Project comprising custom made stage management desks and d&b audiotechnik announcement systems. We also ran a story on the then new issue of the 'Technician On Duty' (this still vexes), and we spoke with Jon Caisley about Phase 1 Audio and Norwest combining forces in Western Australia.

Our technical feature profile that month was the audio and lighting installation for the renovated Hamer Hall (know also as The Melbourne Concert Hall). Big ticket items were:

1. The 12 tonne convertible ceiling used to transform the acoustics into one of three modes;
2. Possibly the most complex Meyer concert sound system in Australia featuring 147 self-powered elements plus Digico SD7 consoles; and,
3. A PRG v676 4000 channel lighting control desk, the only one permanently installed anywhere at the time. The late Frank Ward assisted the story.

A black DPA d:screet Podium Microphone is shown in the foreground, mounted on a circular base. The microphone has a long, thin, adjustable gooseneck and a black foam windscreen. In the background, several other similar microphones are visible on a wooden conference table, creating a sense of a professional meeting environment.

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HOLOGRAMS

A User's Guide to Blowing Minds

Whether you call it a 'hologram' or the 'Pepper's Ghost' illusion, projecting video that looks three-dimensional on-stage is now part of the production repertoire. While the technique was first described in the 16th century and popularised in the 19th, we now associate it with high-tech implementations like Tupac's posthumous performance at Coachella in 2012. With two competing toolkits on the market, we ask two leading Australian practitioners for their tips, tricks, and opinions on the state of the holographic art...

>> Musion Keith Urban hologram (Photo credit Belle Laide Events)

Haycom, the multi-city AV company that are now part of the NW Group, have been the exclusive Australian agents for London-based Musion for ten years. Musion are largely responsible for the modern phenomenon of live holograms, with their Eyeliner foil and rigging system the solution of choice for the majority of globally-watched events that used the technique, from Coachella to the Grammys. On paper, it's simple – Eyeliner is a clear foil that is stretched at tension over a proprietary frame. This is rigged above a stage at a 45 degree angle. A reflective surface is placed on the stage, and a projector beams on to it. The projected image reflects into the foil, et voila, a hologram! Of course, it's nowhere near that easy to get right.



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>> Musion Keith Urban hologram image at ANZ Grow Sydney
(Photo credit Belle Laide Events)



>> Musion hologram of RFDS founder John Flynn

Height, Width, Depth



>> Mario Valenti

"For a start, it doesn't go up quickly," said Mario Valenti, Director of Sales at NW Group. "Our crew need a minimum of six hours. Ideally, you want to do it in a venue that has height, width, and depth. It really works when it's built into a set, which stops it looking 'boxed in'. We've had great success with it at venues like The Hordern Pavilion and the old Pavilion at Randwick - ceiling height is really important. We've also used it from fly bars at the Sydney Theatre Company and at the Opera House. Tiered seating is a challenge, as you have to make

sure the audience aren't looking down onto the reflective surface on the stage. Having the audience spread 36 degrees either side of the illusion is optimal. When we've got a large audience and the angles are restrictive, we'll increase the foil to 12 metres wide, which increases the viewing angle. The ideal audience size is 400 to 500."

With the Eyeliner foil and the patented rigging, Haycom then need to provide their own projector, media server,

and high-gain surface for the stage. These can be anything suitable for the job, and Haycom chooses to use Christie 20K projectors with short throw lenses, Dataton's Watchout for media, and front-projection screens from their regular stock. "With Musion, it's important to have depth behind it," continued Mario. "You need space and lighting that creates the extra dimension of looking through and behind the image. Sometimes we get asked to do Musion in venues where it won't work, and we have to say 'no' because it would look two-dimensional. When we do a six-wide and four-high Eyeliner screen, four metres high, at 45 degrees, with a 20x11 reflective surface, that gives us an optical height of 2.9 metres."



>> An example of raw video content made for holographic projection

Content is King

The Eyeliner foil is the most expensive part of any Musion gig - and it's a one-shot deal per screen. After being tensioned, it's disposed of. "It is the big ticket item," Mario pointed out. "It's a clear acetate-type plastic surface that comes on a big roll. The rigging is part of the license and is patented. It's an expensive product. It creates the 'Wow!' factor, but it's not for everyone's budget." Even more important though, is the video content.

"Never underestimate the importance of the content,"

cautioned Mario. "We work with production company Shooting Star for content production. Every now and again a client thinks they can do the content themselves, but it's usually a disaster. There's all sorts of basics for hologram content that Shooting Star understand. For example, when filming a person on a green screen or black background, the lighting is really important - you need to create a silhouette around the subject for the illusion to work. The hardware's great, but content is where it's at. When you have both done well, the results are fantastic."

Silver Machine

The emerging challenger to Musion is Holo-Gauze, a patent-pending fine polymer gauze coated in pure silver, developed by English multi-media artist and inventor Stuart Warren Hill. It's a portable, easily rigged front-projection surface that's rapidly gaining popularity. The Gold Coasts' IKONIX, a projection mapping, bespoke content, production, and set design firm helmed by Richard Saunders and Zachary Burton, is the first in Australia to have multiple Holo-Gauze surfaces for hire.

"The Holo-Gauze is hung flat off a pole or piece of truss with no angling and little tension," explained Richard. "It takes 10 to 15 mins to set up. Projector wise, we won't go lower than 14,000 lumens. Most shows we use one or two Christie 20Ks, depending on budget and room. We install the projector close and high, pointing at a 30 to 35 degree angle down at the screen. The projected image passes through the gauze and falls behind the stage so it can't be seen by the audience. We position lights in a way to enhance the effect - we use a lot of profiles and beams to control directivity and spill."



>> Holo-Gauze at a private corporate event with a 'Back to the Future' theme



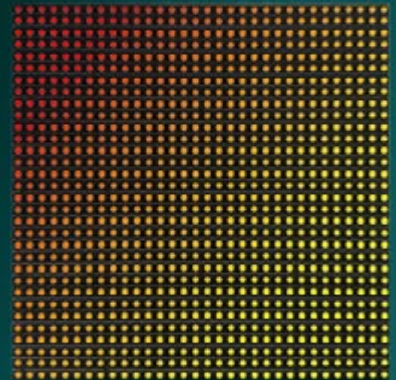
>> Holo-Gauze at the Gold Coast Commonwealth Games 2018 Queens Baton Relay Launch



>> Holo-Gauze set-up at a private corporate event in China (Photo Credit - CT Asia)

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Go Deep



>> Richard Saunders

"If there's any interactivity of performers with the video, we use side booms to light up the performers," he continued, "or light from above depending on the venue. There's a lot of hard shuttering to control the edges. For the best illusions, the bigger the gauze the better, which gives you a seamless image from left to right and top to bottom. A bit of backlight gives depth, and some people have been using LED walls at the back of the stage to give the illusion of depth - something going on behind the illusion makes it seem more real."

Like Haycom's Musion system, IKONIX provide their own projectors and media servers. "A pure black background in the content is key, so it's all about the quality of the projector and its ability to project true black," Richard elaborated. "We only use Christie projectors, and I believe the majority of our competitors do the same. Media servers don't have to be anything crazy; we use Avolite's Ai and on occasion QLab. If we're doing real-time interactivity with Kinect sensors, we might use Notch, Resolume, or d3."

Kid Gloves

With recent notable Holo-Gauze outings including Eurovision, Beyonce at The Grammys and superstar DJ Eric Prydz' 'Epic' tour, the product is rapidly gaining traction. "Its main point of difference is the brightness of the illusion," observed Richard. "It's also the only surface that can produce true stereoscopic 3D with glasses. However, because it's coated in pure silver, it's very expensive. We handle it with cotton gloves because the acid on your fingers can tarnish silver, so it's quite delicate. You can treat it like a gauze, but you have to maintain the etiquette of how you put it up. It travels in special bags and doesn't leave our sight."

>> Holo-Gauze at Dami Im at Eurovision 2016



>> Holo-Gauze on Eric Prydz's EPIC 5.0 tour (Photo credit Antonio Pagano)



Which letter – when added to the above title – best represents the job you do? Are you an ‘M’ or an ‘F’? I’m unquestionably both, but more often than I’d like to admit, I’m spending most of my time these days doing the latter. I must change my business card to reflect this seismic shift – Andy Stewart: Fix Engineer.

LISTEN HERE

THE LIFE & TIMES
OF A _IX ENGINEER

ANDY STEWART



There’s never a day that goes by when I’m not fixing something in a mix. It could be performance related: vocal tuning, drum and bass timing, even entire song structure and arrangement reworks. At other times it’s about fixing a technical issue: a buzz in an electric guitar track, clicks and pops from a dodgy converter, crackle in a vocal performance or all of the above.

It’s all part of the job, of course, and for these and many other mix and mastering related issues – all modesty aside for a moment – I possess countless solution-based skills.

But something’s changing, and I don’t think it’s my perspective.



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More and more people seem to be recording things in a sub-standard way, expecting the Fix Engineer to come to the rescue, sometimes from 50 different angles in one song. Are musicians doing this intentionally, or are standards just slipping? I think the answer is 'both'.

STUDIOS FOR THE MASSES

Or is it simply that – as many engineers would argue – because 'almost anyone can record nowadays' the standard (both in terms of performance and recording technique) has inevitably plummeted. Both of these factors contribute to the slip, no doubt. But it's a gross over simplification and an equally wild generalisation to cast a whole generation of musicians in this poor light. Frankly, if there had been equal access to recording facilities in the '60s, '70s and '80s the standard might well have been worse! It's also true that some of the best musicians I've even seen in a studio are playing in the here and now.

Good musicianship isn't a lost skill, not by a long shot.

But that aside, if there is an erosion in technical skill levels on both sides of the glass, it's primarily the recording industry's home studio-based 'middle-class' that undermine this so-called 'standard'. But even this assertion ignores a far more complex root structure in the recording industry than that.

Certainly in some cases – whether it was true in the past or not – artists aren't listening back to their performances with critical ears nearly as well as they once did when \$1,000.00 a day was the price you paid to hit 'record'. Bands were typically better prepared for session before they walked through the door in past decades otherwise thousands of dollar simply went up in smoke.

Conversely, when there's no 'ticking clock' to focus your mind on the task at hand artists can remain distracted by the busy world around them during a session – taking 10 calls a day on their mobile when they're supposed to be working, or texting while their latest take plays back in

the control room (I've seen it countless times). Sometimes there isn't a control room of course, or for that matter, an engineer. In some cases there's just no control at all... over anything!

WHERE'S THE FOCUS?

When you listen to some of the recorded tracks that play back here at The Mill – many of them captured in well-regarded professional facilities – you'd reckon half of them were recorded by a hearing-impaired person whose aids had gone flat. Buzzes in microphones and D.I.'d signals that leave you shaking your head in dismay; four-part harmonies that when played together (as harmonies are wont to do at some stage or other!) sound like the aftermath of a break in at the Tommy Two-Thumbs trumpet factory.

It's stuff that as a recording engineer I could never imagine letting anyone get away with for one second, let alone a whole session. Something is happening to the way many people approach the art of recording a song that is regularly – though obviously not always – producing a pile of underwhelming, dysfunctional and often times technically deficient recorded parts that require inordinate amounts of technical screwdriver work to get them roadworthy for the mix.

There are many reasons why this happens. Sometimes it's just poor musicianship of course, but poor performances are nothing new to the world of recorded music. It's almost as if some of the more naïve recording artists out there see functioning waveforms on a screen, and think: "cool, good enough."

Take it from me: it's not!

If you're inclined to say 'good enough' when performances really aren't, I would urge you in the strongest possible terms to get a second opinion in the studio – someone whose perspective you trust implicitly. Together, you simply have to work harder than you have in the past to get great performances. Don't rely on technical trickery to cobble one together later. This attitude is not only a bad way to approach recording,

it weakens your resolve to perform at your best. Performing under the assumption that technology will cover your arse when your takes come up short is a sure-fire way to produce mediocre music.

All too regularly performances aren't being scrutinised properly by musicians and producers (assuming one is involved). It's as if the technological crutch against which we all lean – computer software – has undermined the art of discerning the difference between a good take and a bad one. Critical faculties have been suppressed over time by too many years staring at a screen, and the expectation – some of it valid, some not – that DAW software will rescue any and all bad performances. Tuning, timing, editing and countless other tools besides all waiting at your fingertips, ready to transform you from hack into the star you long to be.

As long as you think this way, you will almost certainly fail.

But I think in some cases what's actually occurring here is it that artists genuinely sit in front of their rough mix and think: "Yeah! That's sounding cool!"

"To whom?" I ponder. "Your sick canary?"

WE ARE ALL COMPLICIT

If, like me, you spend hours a day fixing bad performances, gluing songs together not just with mix bus compression as we once did, but rather more literally with sticky tape and ten thousand performance edits, you could be forgiven for thinking that some kind of deception is taking place here.

To some degree or other fix engineers are tangled up in this deception, and must bear some responsibility for what's taking place.

Because what happens next is this: a music fan goes and sees their new favourite artist play a gig, and there they discover the truth. 'She's terrible,' they quietly mutter to themselves as they leave disappointed.

And they never go back for a second look.



Andy Stewart owns and operates The Mill in the hills of Bass Coast in Victoria. He's happy to respond to any pleas for recording or mixing help... contact him at: andy@themillstudio.com.au

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In Profile

Dave Jacques

Dave Jacques is a familiar face to the Australian audio community, currently heading up National Audio System's Project Team, which provides application support, engineering, and training for brands like d&b audiotechnik and Midas. Others may know of his extensive background in US touring. Some know that there's a rather special statuette in his metaphorical Pool Room. In his own words, Dave talks us through how his career developed and offers some wise words of advice for those seeking their way in our industry...

"I was born and raised in the eastern suburbs of Melbourne. From very early on, I was keen on anything that made noise, and music connected with me the way nothing else did. I started messing around with home hi-fi systems and built my own PA out of stuff I collected from junk piles. By the time I was 17, I had five small PA and light rigs that went out with DJs. I paid my brother-in-law to drive me around on Fridays and Saturdays to set up the gear, which I hired to DJs. In terms of gigs, I did a bit of everything, and in the later years of that business, it was private functions in venues and lots of mobile DJs. I then started some mixing work for friends in bands that I knew."



Home Made

"One day, at my sister's engagement party, I was running a PA made of stuff I'd built, and I met the founder of Powa Audio, John Boshua. He got talking to me. Years later, he said 'I knew from the moment I met you that you had the bug'. At the time, I was running my business out of my parent's garage, and the neighbours complained about gear returns at 2 and 3 AM, so I had to get a premises. John said they had space for me in their factory. The deal was, I didn't pay rent, but I was there day-to-day. I would help prep gear for their customers. It became a conflict of interest because we couldn't tell whose customers were who. We then made a deal that I'd sell out of audio and do lighting, and they'd sell out of lighting and do audio. I owned a lighting company that ran alongside Powa for years."

"I built a lot of Powa's PAs, and became their system tech. I'd also mix bands if there wasn't an engineer. They supplied bigger events like Youth Alive, a Christian event, so I used to mix a few of those around the country, as well as small tours with various Aussie artists. That's how I got hooked up with Melbourne Christian band the Paul Colman Trio; they needed a lighting guy, so I did the gig, and the lead singer said he had never worked with a lighting guy that got the flow of music before, and would I consider doing their lighting permanently? I said I was better at sound, and he asked if I wanted to mix. I ended up mixing five of their national tours, doing FOH and monitors plus lights. Mixing for Colman, I met a lot of touring acts from the USA. A few of them were keen to work with me, so when I finally got to the States I already knew a lot of people."

Arena Bound

"The first time I toured the US, I went over with Colman, who were opening for Christian Southern rockers Third Day on their 'Come Together' tour. It was 130 shows in a year, all arenas. Colman negotiated for the tour to employ me. Paul Colman, as a muso, decided that I could be a rigger. I show up on day one, at rehearsals, on a show with 90 points in the ceiling, and was introduced to a crew of 40 people as the tour rigger. I was like 'What???' I'm not a ticketed rigger. I know how to run chain motors and build bridles, but it's not my game!!' They said, OK its fine, they had ticketed riggers on the lighting crew. So I became the rigger, and also mixed the opening band. The second act decided they liked what I did and asked me to take over mixing for them, and then, three or four weeks in, Third Day was having audio issues, so they asked me



>> Dave mixing Third Day at Red Rocks

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to system tech for them. I loved the opportunity, and I'd do it again. It was hard work, but it was rewarding."

"The Paul Colman Trio broke up in 2004 and I went home to Australia. Six months later, I got a phone call at 4 AM from Third Day, and they wanted me to get on a plane. I became production manager and FOH engineer, for them, and I moved to the USA and lived there nine months a year for nine years. I worked for other Christian artists and I became the guy at the festival that would mix half the bands. I still do the odd tour; Third Day leave the door open, so I do as much as I can. It's great of them to be flexible."



>> Dave mixing Third Day at Red Rocks

And **The Winner Is...**

"Touring with Third Day, we multi-tracked all the shows, and in 2009, we decided to release a live record. So we recorded a bunch of nights, and what came out the end was a record and a DVD that did quite well. I got an email one day that said 'Congratulations on your Grammy nomination'. I thought it was spam and I was about to delete it, but I could see the first few lines of the message and it had my home address, which was not my mailing address, and very few people would have had it. They were saying they wanted to confirm my details, and they had a lot of personal information about me. I called the management company, and they said, 'Oh yeah, you've been nominated for a Grammy for 'Best Rock or Rap Gospel album 2009'."

"We got the nomination and I didn't think much of it after that as I thought there was no chance I would win it, so I didn't go. All of a sudden, we won. I was gobsmacked. It didn't sink in until the after the statuette got delivered. It was sitting in laser-cut foam in a box, and I had to sign a document saying I'd never sell it. I opened this thing and thought 'Oh my, I've actually won something!' The way I took it, is that it was recognition of a career of hard work, stupid hours, and giving a lot of your soul. But I'm mindful of the fact that there are so many in our industry that work as hard or harder and never get any recognition. I have respect for everyone out there giving their best each week and never getting the thanks they deserve."



>> Dave's Grammy

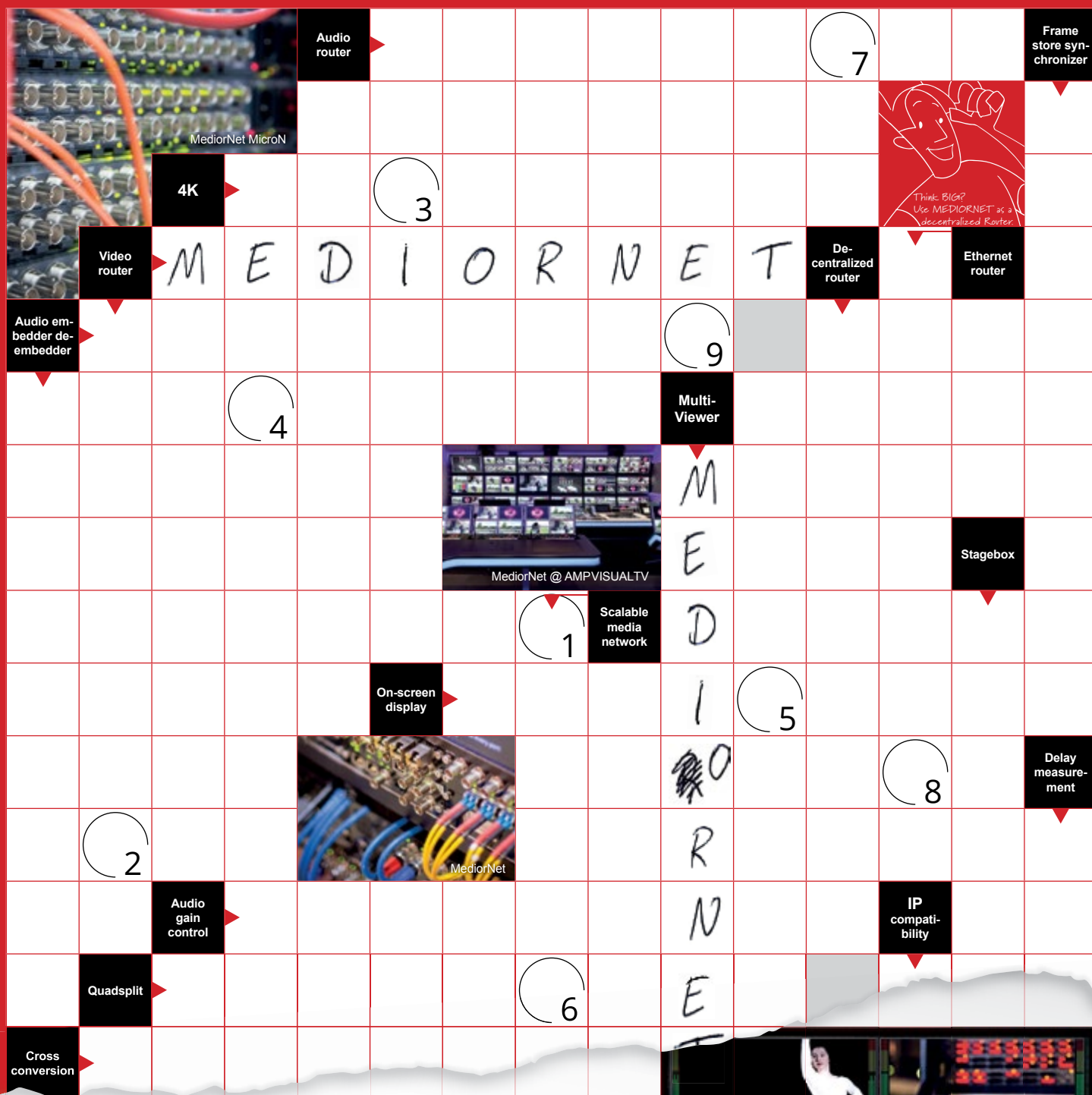


>> Dave's laser-cut Grammy foam

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The Power and The Passion

"I've often said that there are better engineers than me that never got the break that I got. The hard part of this industry is that it is passion-filled. The good thing about that is that you're driven to do things well, but along the way comes a lot of hard knocks. When you're personally invested in what you do and it makes up a big part of who you are, it can be a dangerous place. That's why I think there's a lot of cases of depression, as you don't always get the thanks for the hard work and the effort, especially when things don't go well. Yes, I've had a great career with a lot of highpoints, but there's been plenty of low points. It's hard to not take them to heart. You've got to get back up, have another go, and learn from what you did. John Boshua taught me that - take responsibility for your actions, take the bull by the horns, and fix the problems."

"I made the choice to come home to Australia in 2009 and try my hand at a normal life. I knew NAS's Shane Bailey back when he was at EV, and that's how that relationship started. My job at NAS allows me to spin the technical propeller on my head, and I've learnt a huge amount from the exposure to the companies we represent. NAS sees the value of having industry people with real-world experience on staff, and they realise it's important to keep skills relevant. If I go out on tour for a few months, they support that. NAS is unique in that regard and they've got good results from it. We have a lot of people in our technical team that have that background. It helps you understand what industry people go through and what's important to them."

"I've also recently built a broadcast recording vehicle with an impressive setup. It operates under the business name Audio2GO (look it up on Facebook!). It's been doing a little bit of work, but we haven't really told the world about it too much yet. It's a great mixing space that is well treated and has some awesome equipment and monitoring. I spend quite a lot of time working on broadcast mixes, multitrack recording and other projects in this space."

Good Advice

"If there's one piece of advice I'd give to young people starting out in this industry, is do your best to be smart with your money and save. That means when it's time to say yes or no to a gig, you can hold out for the show or tour you want instead of being forced to take what's going. I didn't come from money, so I had to do whatever job I could. The problem with that was some of the gigs I took were the kind

where you leave a piece of your soul at the show. We've all done them - ridiculous work and people demanding ludicrous effort for no money. Yes, do everything you can for experience, but if you can save six months or a year's pay, you could choose your tour, or take a chance on an up-and-coming band. That was a big win for me, allowing me to pick and choose a little more about where I worked and the kind of people I worked for. When you can negotiate for pay and aren't desperate, you're in a better position."



Band touring in 2017



Australian Tour

By Stephen Askins

I make a call to my buddies at Abstract Entertainment telling them I need some work as things were a bit quiet. I had previously worked as Production Manager for four Abstract Tours (Howard Jones, Midge Ure plus two with Psychic Sally) and had found them to be a great company to work with who treat band and crew very well. Of course, as soon as they allocated me a tour as Production Manager the phone and emails ran hot with job offers but such is life! For those who don't know, Abstract Entertainment is run by Roy and Enza Ortuso who are Sydney based concert promoters. Some of



the acts they are bringing out this year include The Bay City Rollers, Boney M, Wang Chung, Go West, Taylor Dayne and Paul Young. A lot of these acts will use a local band and crew which is wonderful for people like myself.

The tour I was asked to look after was The Bootleg Beach Boys, who come from the surfing capital of the world, Dublin Ireland! A quick glance at their Youtube clips and I realise I will be working with a brilliant live band that recreates some of the most difficult harmonies in modern music history. They have been established a while.

The band is the brainchild of Joe Mullins (keyboard, guitar and vocals) and also features Mark Maguire (guitar and vocals), Joe Leech (lead vocals plus various instruments), Fran King (bass guitar and vocals) and Damian Butler on drums and vocals.

As this is their first visit to the country and it is costing a lot of money to bring them out, we didn't have budget to travel with an audio mixing console so used whatever is at each venue - plus mixed front of house and monitors on the same console.

This presented a problem in that whilst I may operate or organise hundreds of shows a year, most of the gigs I look after

are in house and have Yamahas or old Roland examples. After doing pre-production for the tour I soon realised I had a very steep learning curve as the mixers included Soundcraft VI3000 and SI Compact 32, Midas Pro 2 and M32, Avid Profile, Allen and Heath QLD80, Digico SD9 and D1 plus Yamaha LS9/32, QL5, CL5 plus an analogue Allen and Heath! It should be noted that I'm 60 years old so this old dog needed to learn some new tricks very quickly.



>> Old fart



>> Juniors pre show



>> Juniors

:: TOUR STARTS ::

The tour started the morning of Thursday 25th May when the Tour Manager Jerry Van Der Slott and I meet at MJB Backline in Artarmon Sydney to pick up the backline and load the covered trailer we are hauling behind Abstracts twelve seater Toyota mini bus. A short drive to Wentworth Point to pick up the band at their rented apartments and after a few quick introductions we are on our way to gig one of the tour at Cessnock Performing Arts Centre.

The first thing Jerry and I notice is that this is not your average band. Instead of burying themselves with headphones, smart phones, iPads etc, they actually talk to each other. They also use the time in the bus to practice their vocals on existing songs and some new songs. Armed with just a ukulele they manage to stun both the Tour Manager and Production Manager with their harmonies.

Show one of the tour is a steep learning curve for band and

crew. The band were stunned by the long distances between shows as Ireland is much smaller than Oz! As the bands new mixer dude, I quickly sussed out what each of the five members require in their monitors. It's pretty simple, each member has their own send and needs their vocal loud with all others at 50% below them. A few other little tweaks and they are done.

As the tour progressed the soundchecks got shorter and shorter as the bands backline was sounding great and I grew confident in what they required. To give you an example of our day we, (the tour manager, myself and band), arrive at 4pm and in most cases all production was ready for us. We would quickly roll all equipment into place, unload roadcases then I would bugger off to the mixing console and see what was required. In the best venues, the desk was pre-programmed with my input list and all I had to do is set it up to suit the show, (high pass everything, get rid of all compressors and gates and then work backwards).

:: SOUNDCHECK ::

With the help of the house audio tech I would talk into each vocal microphone and get monitors tuned and happening. By

then the band were set up and ready to go so I would bolt back to the console as the band commenced warming up and started tweaking. If the venues digital mixer had an iPad with mixer app I would give it to the house tech so they could fine tune what the band required in their monitors. Generally, this

didn't take long and unless I had problems, soundcheck was completed sometimes within 75 minutes of arrival.

My philosophy regarding soundchecks is rather unusual, I rarely listen to each input channel individually as I'm more interested in the overall sound, hence my love of getting rid of all compressors, gates and so on unless they are needed. I'm also very aware of the difference in sound from soundcheck to show and have always believed that if I'm happy with sound quality in soundcheck, I won't have any dramas once punters are in the room, providing I have plenty of headroom.

After show one we head back to Sydney in the darkness and the band are on full alert to warn us of any drop bears on the road! Show two on Friday is in Canberra and we have a gig in the smaller of the concert venues with some dodgy

looking front of house and monitor speakers but we soon make it sound like a concert hall thanks to a brilliant band and wonderful local crew.

Show three on Saturday is in Thirroul at Anitas which is a very pretty venue with rather ordinary acoustics and a very large Digico D1 out front. I get set one happening as good as I can but then the venue owner tells me it's too loud. Memo to self, never listen to venue owners as his advice took me an hour to ignore and make good!

Gig four is on Sunday at Wests New Lambton near Newcastle and we are in the hands of one of the best house techs in Oz, young Sam Smith. For this show we have L-Acoustics with Midas out front and L-Acoustics monitors which make the band and myself very happy!

:: TOUR SETTLES IN ::

Week one was done and we survived a road trip that took us to Cessnock, Canberra, Thirroul and Newcastle. As the tour progressed I was so happy to see the amount of wonderful house crews out there. There were a few notable exceptions where when we arrived, bugger all had been set up despite our tech specification that clearly specified all should be set up and tested prior to our arrival. Experience has taught me that generally it was not the techs fault but rather inept management so nothing is gained by blasting the 'under the pump' tech. In those occasions, it was time to tell the band to bugger off for a while whilst I helped the local crew do what they should have done hours ago.

There was one venue who will remain nameless whose house tech arrived 30 minutes after we got there. We had driven 5 hours to get to this venue yet the management couldn't be bothered to make sure the tech started at a suitable time.

The tour was seven weeks long and due to budget restrictions,

we decided to drive band and backline around most of the country for all shows apart from the final three in Mildura, Adelaide and Perth.



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This means we have one amazing week where we drove up the NSW North Coast for gig at Ballina (750kms), then just up to the border for a brilliant show at the best club venue in Australia, Twin Towns where we are treated like royalty. The next day after a rather long after party, a very seedy looking band and crew head off for our next gig which is 720 kms up the coast at Rockhampton.

Whilst that gig isn't until Wednesday, we are keen to get there and have a few days off plus the band have a few radio interviews to do. We eventually arrive at 8pm on the Sunday night and head out for dinner only to find out that most of the restaurants are already closed for the night. The Tour Manager and myself go for the lowest common denominator and eat at McDonalds whilst the band find one restaurant who agree to stay open a bit longer for them.

It's sad to see some of these once great towns suffering due to economic downturns with many shops in the main street closed. Fortunately one thing we do on this tour is make people happy so hopefully we brightened up the punters lives for a few hours at each show. After the Rockhampton gig the Tour Manager has two days to get the tour bus and backline

back to Sydney whilst the band and myself fly back to Sydney.

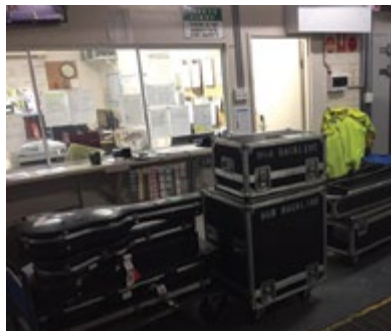
The tour grinds on and apart from the towns already mentioned we visit the following venues in NSW: Dubbo, Forster, Gosford, Wentworthville, Kingsford, Canterbury, Dee Why, Rooty Hill, Campbelltown, Castle Hill and North Sydney. We manage to squeeze three shows in Victoria at Wodonga and Pakenham plus Mildura. The last two shows are back to back in Adelaide and Perth and a fitting send off for the band with the punters at both venues goes nuts.

After seven weeks on the road I returned home from Perth to Sydney on the Sunday after the Perth gig and my life went back to normal. Big thanks to the band, our Tour Manager Jerry Van Der Slott, all at Abstract Entertainment, MJB Backline, Adelaide Backline and Lounge Backline (Perth) and all the crews and production companies that looked after us.

The award for best backstage catering goes to Norths Leagues in Sydney, closely followed by The Southern Cross Club in Canberra. The award for craziest crowd goes to Twin Towns. This tour was hard work but we survived it, the next one is insane so stay tuned.



>> Sydney to Ballina



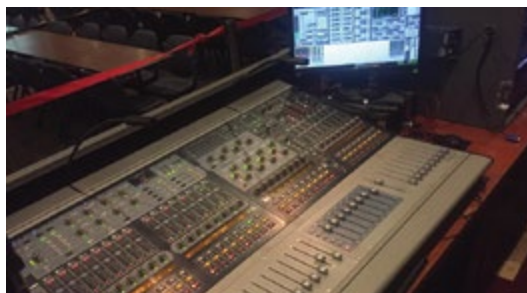
>> Twin Towns bump out



>> Opera House



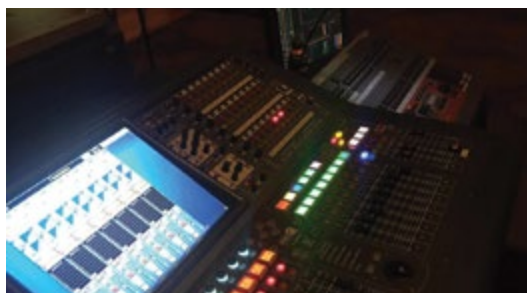
>> Mix position Juniors



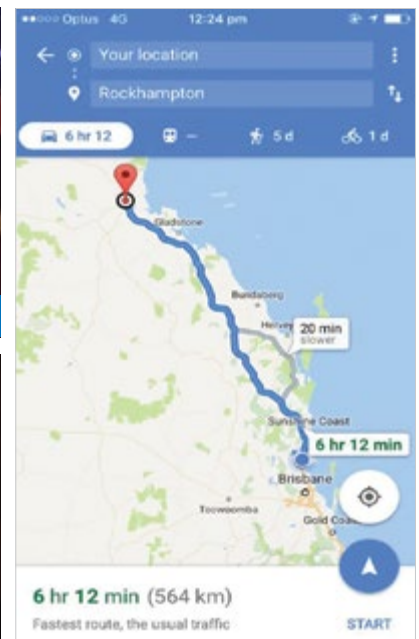
>> Rooty Hill



>> Twin Towns gig



>> The Cube



>> The long trip

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20

QUESTIONS with

Greg Weaver

Greg Weaver has been a Sound Engineer and Tour Manager for Australian bands for the past 25 odd years. He started as a PA owner/operator being a monitor engineer, then ran the hire department at Revolver Audio for a number of years. Greg took a few years off rock'n'roll in the mid-nineties to work his own IT consultancy business, before returning in 1997 and he is today one of Australia's busiest FOH engineers.

1. What are the three best things about your job?

Sense of satisfaction from arriving at a venue with minimum resources and making the best show ever.
Making music loud (where appropriate)
Travelling to new places.

2. And the three worst things?

Travelling to new places can sometimes be scary; I

struggle with the fear of the unknown.

Not being able to speak any language other than English when on European tours. I feel so dumb.

Being away from family.

3. What do you never leave home without when working?

Computer, printer, USB stick, phone, phone chargers, toothbrush.

4. What was the worst nightmare you encountered on the road?

Once on a splitter van tour in the UK, vehicle was taken off the road due to overloading. I had to unload all the local rental backline, leave it at the weighbridge station, and put the band on a train to get the vehicle to within acceptable limits. Drove empty splitter to London, hired new set of backline, met band at train station, did sold out London show.

5. What has been the strangest request from an artist?

Nothing any artist has asked me has really surprised or seemed strange to me. Ties into next question I suppose.

6. Who was hell to work with (probably best not to actually mention name but elude to it)?

I've been extremely lucky (or blessed) to have worked with only wonderful amazing artists. I can honestly say no one was hell.

7. What is the most stupid request you've had from a member of the public, artist or promoter?

Some guy walked past the FOH desk at the end of the



show just the other day and said 'mate you've just got to stop using JBL'. It was a house PA, I had no say in the matter.

8. In your opinion, what's the best show you've worked on and why?

So many great artists I've worked with over time. The Finn/Kelly series of shows in 2013 was pretty special.

9. What is the most bizarre sight you have ever seen at a gig?

Can't think of anything for that one.

10. Who do you admire in the industry and why?

I admire inspirational employers such as Paul Kelly, the sonic excellence of Collin Ellis, the razor sharp tour management of Stephen Zagami, and the constant wit of Christian McBride.

11. Which venue is your favourite and why?

I love the sound at The Enmore Theatre, and also The Tivoli in Brisbane.

12. Which recent piece of production gear do you view as a game-changer?

Digital consoles. No more setting up racks and racks of outboard gear.

13. What is the most outrageous thing you have ever done on tour?



I'm not the outrageous on tour type, so nothing. I mean I once ate a very large donut. And I mean very large.

14. What was the worst weather event you've encountered at an outdoors gig?

Soundwave Sydney 2015.

15. What would your ideal rig contain?

L-Acoustics, Avid Profile.

16. Which band would you most like to work for and why?

Brad Paisley. I have a (not so) secret passion for country music.

17. Do you have a favourite mantra to get you through the day?

Calm blue ocean, calm blue ocean.

18. What do you think of the Australian live music industry at the moment?

Although there are not as many live venues as there used to be, there are still lots of bands who want to hone their live performance skills, despite an ever increasing digital age.

19. If you could invent anything to do with audio, what would it be?

Wireless audio multicore.

20. What did you really want to be when you grew up?

Radio DJ, chef.

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Grinspoon



GRINSPOON'S 1997 ALBUM 'A GUIDE TO BETTER LIVING' IS BEING CELEBRATED WITH A SPECIAL 20TH ANNIVERSARY RELEASE ACCOMPANIED BY A THREE MONTH TOUR OF THE COUNTRY.

FOH engineer Tony Bryan has mixed for some of Australia's rock royalty: Birds of Tokyo, You Am I, Hoodoo Gurus, Spy v Spy, Parkway Drive and of course, Grinspoon who he has mixed for the past seventeen years. Tony was using EI Productions' latest audio purchase of an AVID Venue S6L. "I used it in Europe for Parkway Drive and really enjoyed it," Tony began. "Like most people I had used an Avid Profile before, especially as it's easy to get everywhere, but the first time I used the Venue S6L I noticed the difference in the transparency of my mix. The top end sounded better and everything seemed to run a lot nicer. I couldn't use my Waves plugins in the beginning but that was fine because all of the onboard dynamics were fantastic. It felt more like mixing an analogue console back in the old days when you didn't have plugins."

Tony remarked that mixing for Grinspoon is pretty full on due to the mixture of songs they have produced over twenty years, during which time their sound has changed. Trying to mix



each song on one night to sound like they did twenty years or fifteen years ago can be difficult but keeps him on his toes.

"I use the onboard multiband compressor for vocals and main output, as well as a few other little things, plus the reverb and delay," added Tony. "I'm

BY CAT STROM
PHOTOS:
TROY CONSTABLE

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pretty basic when it comes to mixing Grinspoon and there's no outboard gear on this tour."

The tour utilized a Martin Audio W8LC Line Array PA although at Sydney's Enmore Theatre the in-house Nexo system was used, as there is a cost to take it down and then reinstall. Plus it's fairly difficult to store all of the boxes.

"The Nexo sounded fine although there are a few things you have to do differently to make it sound the best," said Tony. "I'm sure all of the sound guys that read this will know what I mean. You have to do a few filters in it to get it sounding nice. Each PA is different in its style and configuration and you just have to adapt. It's no use being good on just one PA these days, you have to be good with all of them otherwise you get left behind."

For microphones there are Shure Beta B52 and B91 on the kick with the main snare utilizing an SM57 top and Sennheiser e904 bottom. Condensers are AKG 451s, C430s and Rode NT55s. Sennheiser e640s are used for the toms and Ddrum triggers are run on the kick and

"Like a lot of hard rock acts it's all about the crowd, getting the crowd noise in the band's ears and making them feel a part of the whole room," said Kez. "There's a lot of ambient mic stuff going on so that they feel they're at a gig and not in a studio. It gets the interaction with the crowd going which makes for a better show."

The lighting rig was designed by Anthony Petruzio who was still in Europe with Airbourne when the tour started. Bryce Mace of EI Productions took care of his lighting design, operated and programmed.

"The angled truss concept was loosely based on a design I did when I first started with Grinspoon way back in 1999 although back then it was mostly Pars and I think I may have had six MAC500!" said Anthony. "It's a fresh look on the old design. Even though it's asymmetrical, it's still a balanced design."

"Anthony created the design for the show and sent it to me after we discussed which lights we thought would be best for the show," commented Bryce. "We decided to go with Claypaky Mythos because we

"THE NEXO SOUNDED FINE ALTHOUGH THERE ARE A FEW THINGS YOU HAVE TO DO DIFFERENTLY TO MAKE IT SOUND THE BEST," SAID TONY.

toms. Guitars have a combination of two SM57 for the dirty channel and for the clean channel a KSM 32.

"On bass, we run 3 channels Pre, Post, Mic J 48s on the pre and post M88 on the mic," added Tony. "We then have Shure Beta 58s for vocals."

Phil 'Kez' Kesby has been doing monitors for the band since 2002 and was mixing on an Avid Profile, having abandoned his previously preferred console of a Yamaha PM5D as he didn't want to cart it around anymore!

"The band uses IEM's and wedges because they were starting to get too loud," said Kez. "We were playing small pubs with massive side fill, drum fill and it was just getting out of hand. So when the IEM's started to get a bit better, we decided to give them a try, but there's still a bit of low end stuff in the wedges. The good thing is that Tony's mix is so full I'm getting the sub out of the PA. Tony and I bounce off one another and that's how we get the Grinspoon sound."

The band uses Sennheiser EW300 G3 IEM with EV XWI5 and Dynacord Madras M18 powered subwoofers onstage.

wanted both big, wide aerial looks as well as sharp beams for rockier songs such as Dead Cat. Mythos could do both looks and gave us lots of options, plus they're bright."

A total of fifteen Mythos were used and these had been updated to Mythos 2 so they were even brighter! Anthony added, "I wanted the Mythos to have both spot and beam functions in one unit, and the colour mixing is also very important for me."

Once Bryce had received Anthony's design, plot and some basic notes, he set about programming the light show for Melbourne, Sydney, and Brisbane.

"Anthony then returns and I'm not sure if he's using my show file or not," said Bryce. "With one of the songs Scalped we wanted an eerie animation on each of the front band members so we put three of the Mythos on the front truss. It looks really creepy if they stand in the correct positions!"

For wash there are twenty-two Martin MAC Auras although the original spec was for Claypaky B-EYES but truck space was too limited for them. Four MAC Auras are on the upstage floor, eight above on the mid and rear truss, four on the front truss, and six

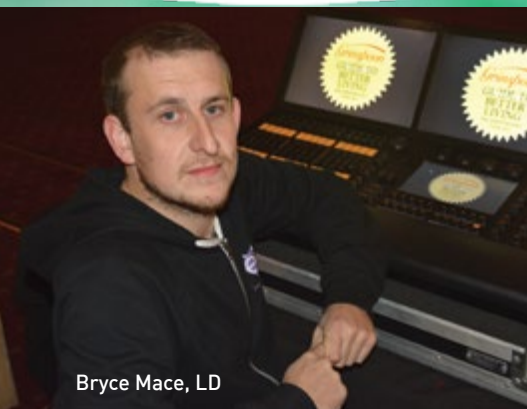
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Bryce Mace, LD



Tony Bryan, FOH



Phil 'Kez' Kesby, mons

for side wash on the floor. Anthony says that the MAC Aura was and still is, a great all-purpose wash.

Anthony wanted a good flood of colour from the ground behind band and chose eight Claypaky Stormy CC's to do the job saying they worked out well.

"The wide angle gives me what I need," he said. "The dimmer curve is not that great at lower levels, but that's not an issue in a show like this."

"The Stormy CC's are amazing at flooding the stage with colour," Bryce concurred. "You can turn a few Stormys up, turn the Mythos to beam mode and it straightaway looks like a rock show.

They really add an oomph of colour blast. I strobe them a bit sometimes but mainly I use them for colour wash."

Blinders are also located on the floor behind the band so at the end of a song Bryce can turn them up to silhouette the band in a warm glow. They're also on the diagonal truss across the back of the stage.

"With Grinspoon we always put four blinders across the front for some nice effects such as a slow chase during some of the slower bits of the songs and we also uplight the band from the front which looks very atmospheric," said Bryce.

Twelve Ayrton Magicblade-R are also rigged on

the diagonal truss along with Martin Atomic 3000 strobes. The MagicBlades are the centre piece of the show, first appearing during the sixth song and then delivering a variety of effects including the continuous rotate function.

"I don't like to use it too much as the effect will wear thin," added Bryce. "I use them slowly during Chemical Heart for a helicopter look, in Champion there's a really crazy part where the MagicBlades spin really fast and in other songs I may just have three pixels on. The vibe of the show is to use all of the light's function and use different looks out of everything they can do."

MA Lighting MA2 is the only console choice for both Anthony and Bryce, with Bryce using an MA2 light console to operate his shows and a setup of an MA command wing and fader wing at home for programming.

"I program every show at home so I'll never go into a show blind," he said. "A Grinspoon show is fairly full on to operate, there are a lot of little drum fills and guitar things you have to look out for. They're a full on rock band so they require a full on rock light show."

"I'm happy with the way it's come out and the job Bryce has done looking after it for me, but I'm really looking forward to getting back behind the MA2 and back out on the road with the band and the rest of Grinspoon crew," commented Anthony.

The set has a massive finale with Co2 Jets and Confetti canons from Blaso Pyrotechnics erupting from the stage. As red confetti rains on the audience you can hear the venue cleaners moaning.

A GRINSPOON SHOW IS FAIRLY FULL ON TO OPERATE, THERE ARE A LOT OF LITTLE DRUM FILLS AND GUITAR THINGS YOU HAVE TO LOOK OUT FOR.



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It's a 40th anniversary tour that just keeps on going - possibly running into the 41st year! Icehouse must have been surprised at the demand, both here and in NZ where they headlined a summer festival series.

BY CAT STROM
PHOTOS: TROY CONSTABLE

ANNIVERSARY TOUR



Icehouse's 40th Anniversary tour began in January and was still going in June. Alex Saad, who has been lighting the band for many years, said it was the perpetual tour that goes on forever and is loved by all the crew.

"We've been all over the country, visited many places twice, and done some Red Hot Summer shows," he said. "We actually sold out six shows at Sydney's Enmore Theatre which apparently has never been done before by any act. Over the tour we have played to over 200,000 people."

Visiting the tour at Sydney's Enmore Theatre, it is immediately apparent that this is a show all about teamwork with all crew team players. It's about being there for the band, everybody has a job and all are as important as each other.

ICEHOUSE



"People come to the shows not expecting to see such a high level of enthusiasm from the band and the scale and quality of production," added Alex.

Looking after the lighting on the road with Alex were Steve 'Flea' Molloy, lighting production manager, and Pat Scadden, surviving his first major tour.

The lighting formula is similar to previous tours with a front wash, front specials and an LED eye candy fixture along with a screen, but Alex explains that the shapes have all changed. The last tour saw seven different areas of screen but this time round there's simply the one large screen.

"We just wanted to get the message out there with one screen and not distract by doing too much," he said. "We've made the screen the focal point, encompassed as one look and that's why there are

ladders of truss framing it so people tend to look into the screen."

Screen content includes forty year anniversary material, looking back at the earlier days, as well as some newer high definition material. However some songs have the same content as previous tours simply because it works.

"People have tried changing it but we just end up coming back to the same content," said Alex. "It's the same with the lighting, there's always going to be a similar starting point. I don't need to reinvent the wheel, the wheel is already rolling on this but I am changing things all the time, little updates here and there."

The screen was supplied by Lighting Lab with Gary Davey looking after the audio visuals on the road. A total of 160 x P6.25 LED Arts Panels were



“I hate seeing cumulous nimbus clouds of any type of haze and then someone with a fan trying to disperse it,” Alex remarked. “Then twenty seconds later it’s gone. All I ever want is a simple haze.”



on this tour which made up the 9 metre x 3.6 metre screen that forms the backdrop to the stage. The screen itself weighed 720Kg and with the added joiners and cabling came to a total of 960Kg. The processor (and additional spare) used to drive to screen was a VDWALL - LVP603 which was connected up to a Novastar MCTRL600 sender card. The screen configuration was controlled via Nova LCTMars software. Power distribution was from an LSC PowerPoint 12ch distro with 8 circuits for the screen and one circuit for control.

Content was sent from a Hog to the screen via a Catalyst system that was hooked up to the processor at side of stage. The main signal is then delivered over two ports driving the left and right side of the screen. Two additional ports from the MCTRL600 are used to supply a redundancy signal for backup. So in the unlikely event of a cable failure, a signal is automatically sent from the back up port on the sender card to the screen.

“Each panel is 450mm x 450mm however back at the factory we soon learnt that we were able to reduce the set up time by casing the panels in pairs,” explained Gary. “By having the pairs pre-wired we basically cut the handling and wiring time by 50%.”

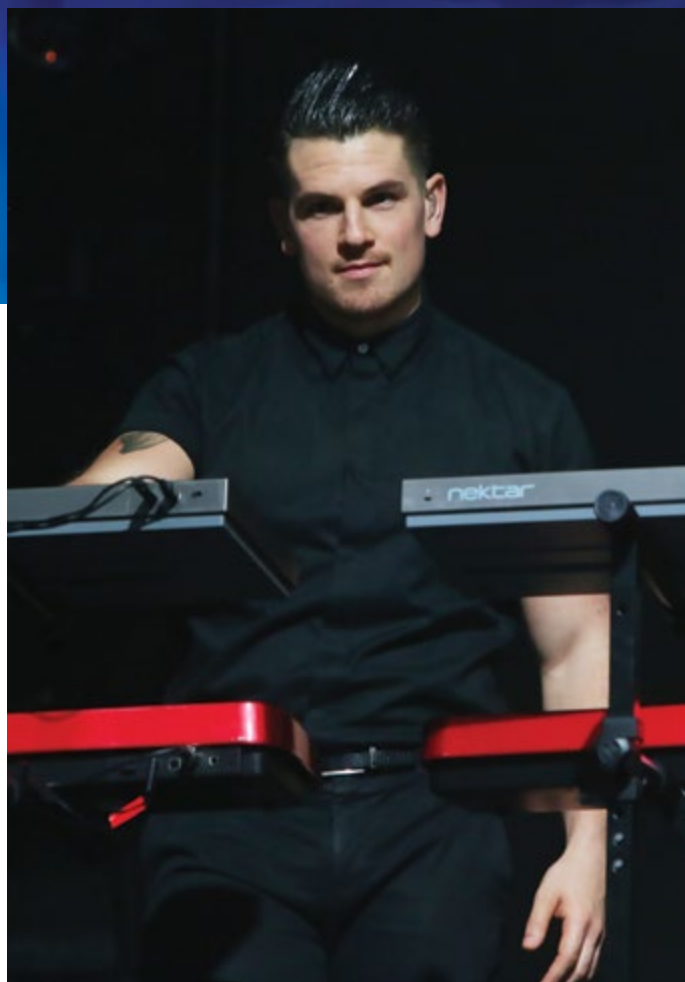
Screen level versus light level is an ever going concern with Alex commenting that the more

he does this work, the more he turns everything down. It's a better solution than overcoming brightness with more brightness, and the screen is run at about 60%.

"We check the levels every night as it depends on how the screen sits in the venue and how the haze is working and may bump it up or down a notch," added Alex. "We still keep the colour and intensity, it just doesn't have to be at full. There's nothing worse than trying to watch a show and you're cringing from the light."

For that haze, Alex prefers a Robe or DF50 to produce a haze that doesn't dominate the venue too much; you can feel it and see it is there but it doesn't detract.

"I hate seeing cumulous nimbus clouds of any type of haze and then someone with a fan trying to disperse it," Alex remarked. "Then twenty seconds later it's gone. All I ever want is a simple haze. Every part of the show has to be together so if the haze doesn't work, then whatever else you do in the show won't look good. The other day at a show, it felt very stark because there wasn't enough haze to bring out the beams. We had to use the venue's hazers and again they're trying to blow smoke up people's bums and you know it doesn't work. But you have to go with it."



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Key to the design are thirteen Martin Atomic 3000's which Alex finds quicker than LED strobes and uses sparingly. Fourteen Claypaky Sharpys provide the beam action. On the last tour, Alex used Claypaky B-EYES replacing them this time with twenty-four Ayrton MagicPanels (twelve from SWS and twelve from Above & Beyond) to supply effects although they actually only move during one song.

"I didn't realise that until it was pointed out!" said Alex. "I saw a show the other day where every song had all the lights moving and whilst that might be suitable for the local under-16 disco, there are other ways of making your lighting interesting without moving them. I like lots of two colour saturation, in fact I rarely use more than two colours ever. I don't like seeing 84 different colours in one look - except when I do an offset rainbow (#TradeMarkFX43) during the song Man of Colours."

Usually Alex requests Robe Robin LEDWash 600 fixtures for his wash fixtures but at The Enmore he grumpily had to have Martin MAC Auras. However he was enthusiastic about the Martin RUSH MH6 fixtures that are rigged beneath the screen. Using additional panel hanging brackets Gary came up with a simple method of inverting hook clamps so the MH6 fixtures can be 'hooked up' on a bar beneath the screen.

Whilst Alex never fails to produce a good looking light show, he never forgets that it is all about lighting the talent appropriately.

"It's about highlighting the correct action at the right time, pulling the audience's eyes to what you want them to see," he revealed. "Too many shows have lights out into the audience and that's not where the money is. As I've worked with Icehouse so much, they all know where to go position-wise onstage and we all know what each other is doing."

Alex has always been a Hog man, and this tour was no different with a Hog4 v3.5.1, Hog4 wing and a Hedgehog4 for back up.

"I just love the Hog and the new software is great," he said. "I keep my specials on the wing, so I can quickly highlight people. I've built the show so that every song has a page, there's a template of certain things such as strobes and moles plus there's a cuelist for the Catalyst media server."

As usual, the drawer of the Hog4 was the perfect place for Alex to keep his lollies.



THE TEAM AT THE ENMORE THAT DAY (PICTURE #)

- Larry Ponting - Tour/ Production Manager
- Alex Saad (12, 6) - LD
- Steve 'Flea' Molloy (3, 5) - LX rigger and FS op
- Pat Scaddan (1) - LX
- Gary 'cupboard' Davey (8) - LED screen rigger
- Richie Robinson - FOH
- Matt Debieen - Mons
- Christian McBride - Stage
- Tim Dudfield - Stage
- Christie Daly - Stage
- Marnie Colla - Ast. PM
- James Leydon (4) - Trucking Manager

VUEPIX

ER 5.9

TOURING LED SCREEN

By Julius Grafton



Vuepix have designed a fast and versatile rigging system for their ER series LED panels, which come in multiple iterations with both indoor and outdoor versions. The 12kg panels go together incredibly easy, assisted with Neodymium positioning magnets so that one person can set up a wall.

The outdoor versions are IP rated and also brighter, and come with a 5.9mm pitch (tested) and also 3.9, 4.6, 6.9, 8 and 10mm. They deliver 5,500 nits.

These outdoor units have genuine IP rated Neutrik 'Tru 1' power connectors, plus a Neutrik IP rated data connector. They draw a maximum of 400 watts mains, with a more normal operating consumption of a third of that.

The indoor guys come in 4.8 and 5.6 versions and push out 1,200 nits, using a different led chip.

ER modules are 500 wide x 1000mm vertical, with options for a 500mm x 500mm cabinet variant.

A neat feature: modules can be changed on the fly – there are four LED modules in the cabinet plus a removable control block in diecast alloy frame.

It's easy to see module status from the back too. The power on LED at the back is a steady red. Data arriving shows as a green flash with all modules flashing green in sync together. If for example you have dodgy link cable, by looking at the status LED's on the back of the modules, you'll see a slower pulsing green on the module without data.

You push a button, each push triggers a different test, like all red, all green, grey scale, or patterns. The test mode is active when the cabinet has no data. So setting up, connecting, and trouble shooting are all very simple actions.

To make a curved screen, you elect for a frame with a beveled edge. These bend in 2 degree increments up to +/- 10 degrees.

Rigging comes in single, dual or triple header various options like eye bolts, half couplers, trigger clamps. There are M10 captive treads on each corner of the rear of each module.

Like the majority of led screens, these use Cat 6 for control input. There is a 2 year standard warranty.

Brand:
Vuepix
Model: ER 5.9
touring screen
Pricing:
\$3,175 trade ex gst
Product Info:
www.vuepix.tv
Distributor:
www.ulagroup.com



KEYE K20 HCR

CLAY PAKY'S NEW WASH LIGHT

By Julius **Grafton**



The march of LED continues apace, the latest entrant from Italy is the long named K Eye K20 HCR. K20 is the fixture size, while HCR stands for High Colour Rendering. The 'K' originally stood for 'key lighting' but Clay Paky quickly reasoned this was too limiting.

Product naming is an art form, Clay Paky scored an ace with the Sharpy. There's only so many options – and you wouldn't want a wash light called 'Wally', would you?

Turn it on in 'white' mode and you get 11,000 serious lumens. The zoom range is 6 to 50 degrees.

With 37 LED's, K20 sits well over its smaller sibling the K10 – loaded with 19 LED's. As you expect it is a mover, but there is a forthcoming static version which amazingly is almost half the cost of this unit. More on that later.

This 20kg device has a six colour engine, with RGB, Amber, Lime and Cyan, controlled over 12 channels. There is a colour match ability to match to either Rosco or Lee colour numbers which helps a lot of designers who like to get particular about the colours applied.

Fan noise is 'very low', so a truss load of these should be virtually inaudible.

The static version is rectangular, and sits on a regular yoke. Having watched a lot of shows of many varieties, there is a strong place for a static wash unit. Plenty of events need the wash on the stage, without the need to remote deploy it elsewhere. The forthcoming static version of the K20 is also more weather resistant than the unit reviewed here.

But the big headline here is the colour temperature, where virtual perfect white light with a CRI of 97 is delivered.

By chance Lighting Designer Paul Collison was on hand when I saw the K20. He was particularly excited by the dimming ability, which has always been a limiting factor with LED.

"The fact that it emulates the tungsten fade so well means in a theatrical situation you're not having to compensate for the LED - because it behaves like a tungsten (source) and it honors the colour shift", he said.

"(Light) detail such as this is what we're employed for. This (unit) has a level of detail."

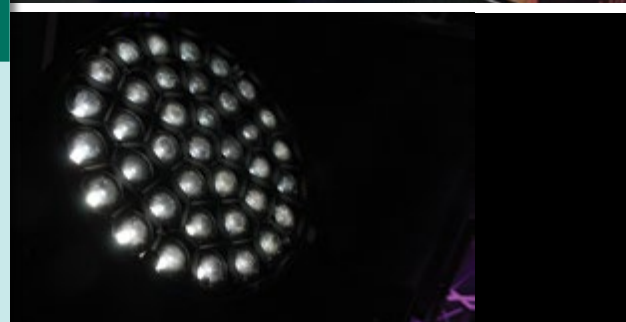
Indeed the K20 has various dimmer modes, to match the fade of various tungsten lamps - from 700 watts to 2,000 watts. Allied with accurate colour rendering and a tricky Osram (owners of Clay Paky) algorithm, it will deliver pro performance for theatre or TV.

An optional top hat helps kill halation, enemy of the low ballet ladder where all you want is the beam, not the stray glow out the side.

Give it a go!



Brand:
Clay Paky
Model: K Eye K20 HCR
Pricing:
\$12,599 inc gst
Product Info:
www.claypaky.it
Distributor:
www.showtech.com.au



A large advertisement for NW Group and Haycom. The background is a night-time photograph of a large stadium filled with spectators and illuminated by bright lights. On the left is a large blue circular logo with a white 'W'. To the right, the text 'NW GROUP' is in large blue letters, followed by 'WELCOMES TO THE TEAM' in smaller white letters. Below this is the Haycom logo, which consists of a colorful geometric shape and the word 'HAYCOM' in white. At the bottom, the text 'COMPLETE EVENT SOLUTIONS' is written in small white letters. Below this are logos for Haycom, Norwest, Cairellie, Oceania, and spyglass. At the very bottom, the text 'Sydney, Melbourne, Brisbane, Adelaide, Auckland, Wellington' and the websites 'nwgroup.co.nz' and 'nwgroup.com.au' are listed.



SENNHEISER

XSW2 WIRELESS

By Julius Grafton

XSW2 is what you categorise as an 'MI' wireless product, which means it is widely available from music equipment outlets. Yet it is far from the 'MI' wireless products of yesterday, which typically were very basic.

How basic? Start with true diversity. Really cheap, low spec wireless receivers have one antenna. Most have two. But that doesn't mean they are capable of 'true' diversity. Let me explain.

The expensive part of any wireless receiver is the tuner section. A non 'true' dual antenna diversity system has the 2 antennas and an electronic switch, which is driven by the signal degrading, so it switches to the other antenna in the hope the signal level at the other antenna is better. Given they are around 200mm apart, this is

wishful thinking, but it can help. Perhaps.

True diversity has two tuners, and the switch decides which one has the better signal arrival. It costs more money, uses more space, and more power. But more reliable reception. That's what the XSW2 has.

The external power pack is now slim enough not to bother the neighbor in the plug board.

The external power pack is now slim enough not to bother the neighbor in the plug board.



It has balanced XLR output to your mixing system, with an unbalanced 6.5mm jack as well. There is a switch for mic or line, an adjustable squelch (a control to kill the output of receiver if the signal strength falls below a certain level, like a noise gate for RF interference).

The antennas are removable, and the chassis is metal. Rack ears to mount one or two units in 1RU of space are supplied in the box.

On the front, there is an OLED screen that is mono not colour, but it is nicely readable. It shows RF level, audio level, frequency of operation and which memory bank and channel you're running.

The system comes in A band: 548 – 572 MHz or B band is 614 – 638 MHz. The choice of A or B in Australia is because Digital TV is here. You need to ask your dealer which one is the better choice for your city. This is a very good reason not to buy online, if you don't know.

In operation, you open up the system, hit scan on the receiver, find a clear frequency and go.

Then you sync whatever transmitter option you have. Hold the sync button on the transmitter, power light starts to flash. Press the sync button on the receiver.

The system comes in different versions: there is a body pack with lapel mic (ME2), or one with an ME3 cardioid headset. For muso's there is an instrument cable version. Then there are 2 handheld mic versions: 835 dynamic cardioid, or




Brand:
Sennheiser
Model: XSW2
Pricing:
\$649 - \$699
Product Info and Distributor:
www.sennheiser.com.au

865 condenser. All the mic capsules are made in Germany.

The body pack has input sensitivity control, 0, 10, 20, and 30db attenuation - and a little LCD display which is a bit hard to read! There's a mute switch, with a light showing green for good, red for mute. Connect your mic or input cable to the 3.5mm mini jack, which is threaded

for reliability.

Generally expect 8 to 10 hours of battery life. There is a 2 year warranty.



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Julius Grafton has met them all.

BLEED THEM TILL THEY DIE

Training shonks. Ripoff drugs.
D*bag guy in first class.

The appalling ripoffs of aged care patients by Aveo Group were laid bare in the media last month. I feel a growing wave of evil corporate behavior heralds a gaping lack of corporate policing. The known factor is that some (not many) humans will exploit any loophole for personal gain.

EXAMPLE 1. Bad pharma. Martin Shkreli (USA) runs biotech firm Turing Pharmaceuticals. It oiked the price of its essential drug Daraprim (after buying the rights) up from \$US18 (\$25) to a neat \$US750. He doesn't care what you think of him.

EXAMPLE 2. Bad training. Adam Mazen Wadi ran 'Get qualified Australia', a mob that promised it would get you a qualification against your experience. Example: you are a great stage tech, and you need a Certificate Four to get a permanent job in a regional theatre. Just call Adam! They tanked with thousands of people out of pocket for thousands each. He doesn't care, either.

EXAMPLE 3. Bad aged care. Aveo Group are a public company with the largest investor Mulpha - a Malaysian mob. They exploit the aged and vulnerable by selling a promise of 'aged care' in a retirement village. This comes with a massive contract, that stiffs the poor buggers in several ways. Way 1 is that every added service costs money. \$10 for someone to apply a bandaid, \$5 for a cup of Milo. But worst is the monthly maintenance costs of 'your' unit that you paid heaps for; and HUGE exit fees when you leave or cark.

They came in for a second round of media scrutiny with their new 'Aged Care' strategy. This is a beauty: convert tenants of their retirement villages to the more 'hands on' aged care product. Charge them on the way 'out' of their first contract, and again on the way 'in' to the new one.

Some lucky clients had the audacity to complain to the media that the promised 24/7 nurse was only, in fact, an orderly. And that orderly was not competent to take blood pressure readings. A far cry from a registered nurse. Aveo responded that they assessed the level of care required at any given property, and if they didn't think a nurse was required, then there is no nurse. Quite reasonable, really.

Guess what? No one on their board cares!

EXAMPLE 4. I just threw this one in, 'cos I knew a handful of these back in the day. My favorite airline Blogger is 'Lucky', from One Mile at a Time. He was on Lufthansa First Class from Frankfurt to San Francisco, and a Hollywood 'executive' was winning friends by SCREAMING into his phone stuff like this: "'Listen here you f&*#ing a@@hole, if this isn't done by tomorrow I'm gonna kill you.'" "You're not hearing me, you fa&&it."

The guy made the whole journey stressful for everyone. Hideous behavior.

So here's what YOU can do.

I'm all for positive action.

Martin Shkreli is getting his just desserts in court, charged with criminal fraud (not the drug price rise) in Brooklyn. The case makes riveting reading – like where he emailed the wife of one of his fund managers. It appears the manager had not made Martin happy, so he sends the wife a lovely email describing what a moron her husband is; and promising to render her and her children homeless. Lovely, isn't it? But he was only setting the scene to become known as "America's most hated man".

He may get punished for his fraud, but will likely continue to swim in his money bin and thumb his nose at the people reliant on his drug. Nothing we can do about this one.

Adam Mazen Wadi will possibly return to Australia at some point. He is currently holed up in the middle east out of jurisdiction as there are some hefty penalties he needs to pay. His caper was to promise to match you up with a registered training organization, who would effortlessly and expeditiously issue you with your desperately needed qualification.

The slick guys at Aveo Group are ripe for some feedback though. You can write to them, or call them up! To start, go to their webpage. Because they are an Australian Public Company, they are compelled to list the board. They might very soon now have some 'web issues', because the following people are very, very unpopular members of society just now.

Seng Huang Lee is Non-Executive Chairman. He is less likely to care about your polite letters and calls, as he runs a slew of (hopefully less) ruthless firms in Malaysia. Another of his outfits is Mulpha, they are active in Australia so you could register a passive protest by avoiding them?

Geoff Grady is Executive Director & Chief Executive Officer. He is a lawyer, so be careful what you say. He is quick to defend everything they do, and using binary ethics such as 'but this is perfectly legal' would probably assist his nightly sleeping pattern.

But I'm sure he would like to hear what you think! Strangely his LinkedIn profile cannot be found.

Diana Saw is a Non-Executive Director. She is also a lawyer. Jim Frayne and Walter McDonald, Eric Lee and Kelvin Lo round out the posse of professionals that governed over this unethical cabal of capitalism.

But the point of today's column is that this crescendo of appalling behaviour is increasing in tempo, and little seems to stand between a shark in a suit and a potential victim. To me it's actually worse than a belligerent bully hitting a smaller person, or a vindictive tyrant berating staff.

Unconscionable behaviour frays the human fabric. Trumpistic bombasm where the petard is hauled high with the grand leader emblazoned wide for hero worship frankly 'aint my thing. Taking money from people who have little is as vile a crime as causing injury with a blunt object.

The best thing we can do is make a firm but polite representation to our local federal member, and ask them what they plan to do to prevent any of this happening again. If enough of us do that, the data mine will flash an amber light, and our Government that we elected will be compelled to act. Or not.

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HDMI AND HDCP

A WORLD OF PAIN

By Simon Byrne

HDMI, which means High Definition Multimedia Interface is the consumer standard for video interconnection and it found its way into the Pro AV industry pretty quickly. I'd suggest not by choice, it is a huge source of problems and frustration. Because it is a standard for consumer gear of varying capability and can incorporate copy protection, it has a lot of problems when used professionally. It is a mess!

Products with HDMI first started to appear in late 2003. Manufacturers take out a licence to be permitted to use it and in the US, the FCC mandated that domestic TV's cannot be sold without it.

It is an awesome business for the HDMI licensors as manufacturers each pay an annual fee of \$10,000 USD plus a royalty rate of between \$0.14 and \$0.05 USD per unit. As of 2016 there are over 6 billion units with HDMI so it is at least a USD \$300 million business. Nice...

The HDMI licence defines the protocols, signals, electrical interfaces and mechanical requirements of the standard, the whole thing. As well as video, it can support up to 32 channels of audio, Consumer Electronics Control and on later versions, Ethernet. In order for a cable or device to carry the HDMI logo, it must be tested to ensure it meets the HDMI standard. Unfortunately though, a lot of cables come out of China that don't bother with meeting the standard, let alone the testing. Buyer beware!

Quite often (but not always) on top of the HDMI standard is HDCP which stands for High-bandwidth Digital Content Protection. HDCP is the technology developed by a subsidiary of Intel to protect digital entertainment content from piracy.

As technology develops, HDMI needs to keep up. Therefore there are incremental versions of HDMI, not unlike the way software makers release new versions of their product. Version 2.1 is the most recent version and it supports up to 10k resolution at 60 frames per second. So a V2.1 cable should always be compatible with V1.4 devices, but a V1.4 cable may not work if you are running a source that is relying on features of V2.1.

As of version 1.4 which is the most common standard at the moment (which was released in 2009), HDMI has a raw bandwidth of up to 10.2 Gbit/s. This is enough for a resolution of 4096 by 2160 pixels progressive at 24 frames per second.

HDMI cables loosely fit into 4 categories - High-speed with Ethernet, high-speed without Ethernet, standard-speed with Ethernet and standard-speed without Ethernet. There's no reason to buy standard-speed cables anymore, as the price difference is negligible between those and the high-speed versions.

It is all digital so provided it meets the HDMI specification and the version is compatible with your gear, that is all you need. So a certified \$15 V1.4 cable from Jaycar is going to perform exactly as well as the \$90 V1.4 cable that Harvey Norman sell. In most cases, V1.4 cables is all you need.

However, if you'd like to spend \$1,100 on a 3ft HDMI cable to "reduce picture harshness and greatly increase clarity" please call me, I've got a deal for you!

The cable itself has 19 conductors composed of four shielded twisted pairs with impedance of about 100 Ω , plus seven separate conductors. That's some clever engineering to stuff in a cable that is only about 8mm thick so as you'd expect, there has to be compromises. It is impossible to make a robust cable with that much in it and expect it to stand up to the rigours of Pro AV, so they fail a lot.

Inverse versions of the video data are sent over different conductors. One of these is out of phase with the other. The receiving device collects all the data, puts the out-of-phase signal back in phase, then compares it to the "real" signal. Any noise picked up along the way will now be out of phase, and as such it is effectively cancelled. Similar to how balanced (XLR) audio cables work.

Cable length is not part of the HDMI standard and reliability suffers dramatically with length. Depending on the resolution, 10 metres is about the maximum useable length for a standard copper cable, particularly if it has HDCP. After that, active circuitry is required and longer cables can have repeater circuits built into them. For longer runs, fibre cables or some sort of converter is required.

HDCP, which is to prevent copying of copyrighted content as it travels across connections, is a huge cause of problems. The standard actually states that it must "frustrate attempts to defeat the content protection requirements". Yes, make life difficult deliberately!

The system is designed to stop HDCP-encrypted content from being

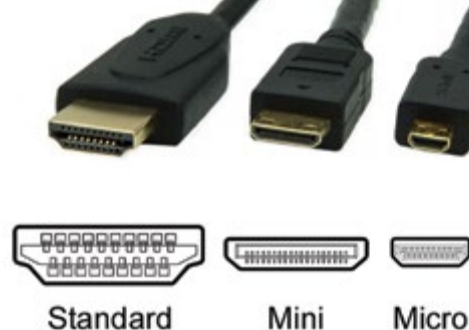
displayed on unauthorised devices which have been modified to copy HDCP content. Before sending display data, a transmitting device checks that the display is authorised to receive it by requesting the HDCP key (also called a Key Selection Vector) from the display. The source device confirms that the display is authorised to accept the HDCP encrypted content and if so, the transmitter encrypts the data to prevent eavesdropping as it flows to the display, the display decrypts the data so it can be shown. No problem if you have just a Blu-Ray player connected to your TV.

Beyond that, things get really tricky fast. Say you have a source device with HDCP going to two projectors via a vision mixer and a HDMI splitter. The source device will check that every device in the setup is authorised to accept the HDCP content. So it literally checks the vision mixer, then the splitter and then the 2 projectors. If you have a preview monitor or long active cables, it will check those too. Only after all those devices pass, will it issue the unique HDCP keys to all the devices and things should work.

However, now the source device is handshaking with not just the vision mixer, but the other devices as well. Obviously the potential for things to fail is high and hard to isolate, especially with longer cables. Perhaps one of your HDCP compliant projectors fail and you replace it with one that is not. In theory, it is just that projector that should not work with HDCP content, but I've seen cases of the image stopping at the vision mixer, as a consequence of something being non compliant further downstream.

I hear you say, my laptops aren't displaying copyrighted content so they won't have HDCP so I am OK! You'd think so, but some Android based devices and some later PC tablets encrypt all content at the output, regardless of whether the user is displaying simple presentation works such as a PowerPoint, or copyrighted works such as a DVD or downloaded movie.

Apple laptops, when connected to a HDCP compliant device, automatically switch all output to HDCP mode too. Think about it, you are displaying non HDCP content into a non HDCP display, all good. However if you insert a HDCP compliant mixer in the circuit, you can suddenly have problems because the Mac has now gone into HDCP mode which stops the content getting to the non HDCP monitor! This is a devious problem because if you don't know what is happening, you'd conclude that the laptop or mixer is at fault.



When I run Apple laptops, I output to a non HDCP compliant device (usually a Black Magic converter) first, then run everything SDI. That way I am isolating myself from potential problems before they start, as I have forced the Mac to not use HDCP. On PC's, with so many brands out there, it is completely unpredictable as it comes down to how the manufacturer implemented the technology. I just stumble around until it works.

I can't see this getting easier. The interactions between devices are complex and as technology develops, will only get more complicated. Combine that with the joys of HDCP and you've got the perfect environment for problems. As an example, with the release of HDCP V2.0 (which is yet to make into the mainstream), it has a "locality check". That is, if the round trip for establishing the HDCP handshake is greater than 20 milliseconds, it will fail. This is their test to confirm that the receiver is nearby. I wonder then, what could happen if a vision mixer delays an image by a single frame (40 milliseconds). Will it fail? Maybe.

As technicians, all we can do is be incredibly methodical in the way that we put together our rigs and avoid letting HDCP creep in wherever possible.

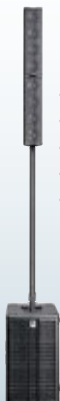


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Borderless Trading is Challenging the Supply Industry and Undermining Consumers

The ACETA Response

The global borderless trading and e-Commerce reality is presenting a significant challenge to the bona-fide Australian entertainment technology supply and service industry. However, it can also negatively impact some consumers who acquire systems, devices and services that are not covered by warranty, are not effectively serviced or supported, are non-compliant with Australian law, and devoid of product and public liability insurance protection. In addition, the purchase of technology outside of the known, established and territorially accredited domestic supply chain, increases the risk of acquiring knock-off and/or

forged products, a reality that has been with us for some time and one that is not going away any time soon, we are talking here about Intellectual Property theft.

It is a fact, there are many consumer product sectors that are innately safe and do not require warranty, service, support, or lawful compliant certification, however entertainment technology is not one of them. Most entertainment technology is best experienced prior to purchase, and once acquired needs the protection of a formal warranty, underpinned by local and effective service and support networks. In addition, it needs to be compliant in Australian law relative to EMC and safety, a purchaser should also be protected by public and product liability insurance cover. So, what is the reality of purchasing from an off-shore entity or even a local on-line presence that poses as an Australian site, promising the world?

Possibilities are they may not be subject to, or conform with Australian law, and not willing or able to deliver the requisite level of service and support, in all probability you won't have warranty cover. Now to double jeopardy, if you purchase systems, devices and services off shore and not through an accredited local supply chain you are deemed to be the importer, the agent, the responsible entity for the products EMC and safety compliance status as defined in Australian law. Secondly, should your acquisition harm or kill an individual(s), damage or destroy property, you will be held accountable, and do you have public and property liability cover in the order of twenty million dollars to adequately defend your



purchase and position?

The downside of global borderless trading presented in the preceding paragraph is the reality for numerous individuals and organisations whose experiences are constantly reported to ACETA. Whilst it will undermine industry sustainability and employment levels it will also compromise the well-being of many consumers, and for what? It would seem convenience, but most likely a real or perceived cost saving. We need to remember, the bona-fide local manufacturer, manufacturer's representative and service provider, bear significant costs to maintain compliance and ethical trading standards, including an appropriate service and support overhead, difficult to redeem given international pricing pressures, but necessary nonetheless. The off-shore supplier or on-line site usually doesn't bear these service, support and security overheads as they don't provide them.

To prevail in the face of global borderless trading, those committed members of the Australian entertainment technology supply chain will need to maintain a fair and moderate pricing policy, without jeopardising corporate sustainability. In addition, we will need to monitor and constantly strive to improve our service and support capability, but most importantly, ensure we are genuinely client focussed. In addressing these challenges to the benefit of both the supply chain and their clients, ACETA have undertaken several initiatives.

In the next month, ACETA will launch a comprehensive industry Members Guide, a publication that will present the entire membership, organisations who have committed to compliant trading and ethical behaviour, by virtue of their acceptance of the Industry Guidelines as defined in the ACETA Constitution, and acceptance by their industry peers. The Members Guide will be available and distributed to entertainment technology acquirers who seek reliable sources of supply. For international producers, it will assist in locating suitable trading partners, for those seeking a career in the entertainment technology industry, it will help identify potential employer candidates. As recently announced, ACETA will be convening the inaugural Industry Convention in May 2018. Amongst a substantial list of relevant subject matter, the challenges of global borderless trading will be addressed formally and informally in both forums and discussions groups, led by individuals invested and expert in the area of global borderless trading and associated issues such as e-Commerce.

The role of ACETA is to help guide our industry to a better and more sustainable place, one where standards are improved and we realise genuine development and increased employment opportunities. We also are committed to realising optimum consumer satisfaction be they individuals or organisations

This requires a unified approach, broader understandings and programs that offer our constituents personal, corporate and industry development opportunity, a prime example being the establishment of an annual industry convention.

All the best
Frank Hinton
President ACETA

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Fry



A Tale of Two Mixers... well, actually three!

“It was the best of times (when they worked),
it was the worst of times (when they didn't)...”

Some years back, when I was doing a lot of jingles, I needed a small mixer for the desktop production process. The ones I already owned were too big, and wouldn't sit comfortably on the long thin bench I was using as a work surface. Plus there really was little need for a 24 channel desk when you're only recording one channel at a time, and mixing on the computer.

When I first started doing them, I just used a single channel pre-amp for a front end, which was OK for just recording one track, but very limiting, and didn't really give me the flexibility in playback and monitoring that I needed.

Previously, when I ran a basic recording and rehearsal studio, I would do recordings with a couple of friends on the old faithful Teac 80-8 eight-track recorder and the infamous Gigmaster Mark 3 mixer.

Originally the place had no name, as I couldn't think of

a name that would capture the essence of old carpet smell, old beer smell, and its low budget cost structure. Advertising it as 'Rehearsal studio for hire - low rates' the first few daring customers who rang to enquire about the cost were stunned by the price I quoted - \$10 for 3 hours.

"Shit that's Pretty F---kin' Cheap" they all replied, and so PFC Music Services it became!

But I digress. Looking around at what was on the market in the way of small, economical mixers, I finally settled on a Soundcraft Spirit Folio Notepad. Extremely compact - about the size of an A4 piece of paper, with an external power supply that was almost the size of the mixer itself! And, a rarity these days, it was Made in England, not the Guangzhou Golden Happy Sunshine Manufacturing Plant # 3.

It had four mic channels, plus a couple of stereo line channels which also switched to phono for plugging a turntable in. This would be great for my long-term



project of digitising the legendary Fry vinyl archives, of which we may have spoken at some time in the recent past!

So I prevailed upon one of my long-suffering friends in the UK to get me one. It arrived, I plugged it up, and set to work. Built like a watch, it was very quiet and easy to use, but unfortunately had one design problem that rendered it totally unsuitable for my purposes. I should have read the specs more thoroughly.

But more of that in a minute.

Now, forgive me for stating the obvious for all the hardened recording professionals out there, who know all this already, but to record multiple tracks in this manner you need to be able to play one track, then listen to it and record another one next to it. Sounds simple, really, which it is when you know what to do.

Otherwise, when you do this for the first time, you end up with the first track, which is playing for you to listen to, recording onto your second track too, as well as what you're trying to record on the second track. And so on and so on, until the whole multitrack production ends up like one of Phil Spector's nightmares. Wall-to-wall mush with no discernable musical content.

'How to fix this' is the question I'm asked the most from friends and others who have the urge to record multitrack productions themselves.

So, what you need to do is monitor the original playback track without it mixing itself into all the subsequent tracks.

The answer is on the mixing desk already, by using the Monitor send knob, one of which is on every channel:

- 1/ Plug the output of the computer into a couple of channels on the mixer, but keep their channel faders down
- 2/ Run a lead from the output of the Monitor send and plug it into an old stereo amplifier or a little headphone amp
- 3/ Turn up the Monitor sends on your two computer channels and you'll hear it loud and clear in your headphones, but it won't go into the track you're recording
- 4/ When you want to mix it all together, turn down the monitor sends and push up the computer channel faders.

That's the principle, anyway. It's the easiest method I've found, since it's permanently set up for the way I work and doesn't need extensive re-patching/switching/remembering things every time I put down a track. Back to the little Folio; its problem was it only had one

Aux send, which was Post-fade, instead of a dedicated Monitor send which would be Pre-fade. So nothing would come out of the Aux send unless the channel fader was up, thus making it no good for the above setup!

So I put it in the drawer and bought a little Mackie 6 channel DFX-6, after first making sure it had a dedicated Monitor send! It worked fine for a few years, and then one day I turned it on and nothing happened. No LEDs, no sound, nothing. A quick poke around in the guts of it revealed that the tiny transformer inside the auto-ranging switch mode power supply had shuffled off its mortal windings and carked it!

Mackie had been going through various ownerships at the time, and do you think I could find even a basic power supply schematic for the mixer anywhere, from anyone? Fat chance. So into the bin it went, and I bought a little Behringer mixer. Same number of channels, same colour, same look-and-feel as the Mackie, and possibly made in the same factory? Who knows where things are made these days?

All I do know is that after a couple of years use, it suddenly died in the arse from the same problem as the Mackie - a cooked transformer in the auto-ranging power supply!

What to do? I was committed to producing some urgent tracks before an ever shortening deadline, and had nothing to do them on.

I was complaining about all of this to Col, my fellow ARX partner, and he said "What about that little Soundcraft you had? That's got enough channels for what you need, hasn't it?"

I explained the post-fade problem with the Aux send, and he laughed it away saying "Oh, I'll easily fix that. We used to do that all the time on mixers in the early days. Leave it with me." I pulled it out of my drawer and handed it to him.

Half an hour later he dropped it on my desk. "There you go," he said. "All done. Beautiful little circuit board in there. Very nice analog design. And a real linear power supply, too, with a proper 240 volt transformer, not a high frequency voltage wobbler".

When I arrived home, I plugged it all up, tried it out and it all worked exactly as expected.

What's more, it still does!

(Apologies to that wordy wordsmith Charles Dickens for borrowing the opening of A Tale of Two Cities)

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