



MONTHLY TECH NEWS

CX136 MAY 2018
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The Employment Issue:

- How to get the gig, and keep it
- What employers are looking for – industry leaders sound off
- Get skilled – manufacturer training round-up

How To:

- Work with timecode on an MA Lighting dot2
- Mic speech with headworn and miniature mics

PL+S 2018 •

All the big releases from Frankfurt!

The tech of the XXI Commonwealth Games •

NEWS:

- Will the EU destroy theatre lighting?
- New CoR laws to affect touring
- 2018 XXI Commonwealth Games
- Hills add three
- Win a job at RØDE!

REGULARS:

- Andy Stewart
- Simon Byrne
- ACETA
- Duncan Fry

ROAD TEST:

- ETC Ion Xe
- Adamson S10
- Warm Audio WA-47 and WA73

ROADSKILLS:

- Bruno Mars
- Paloma Faith
- Robert Plant

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THROW DISTANCE AND COVERAGE

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FOR A PERFECT INTELLIGIBILITY

3-POINT RIGGING SYSTEM
FOR SMOOTH CONFIGURATION AND SET UP

ON-BOARD **RDNET** REMOTE CONTROL



dB Technologies 

VIO L208 *NEW*

Active 2-way line array module
HF 1x1.4" Neodymium • LF 2x8" Neodymium
DIGIPRO® G3 Class D 900W/RMS Amplifier
Max SPL 133.5 dB • On-board double rotary EQ
Control System

VIO S118R *NEW*

Active bass reflex subwoofer
LF 1x18" Neodymium • DIGIPRO® G4 Class D
1600W/RMS Amplifier • Max SPL 139 dB

VIO S318

Active semi-horn loaded bassreflex subwoofer
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VIO L210

Active 2-way line array module
HF 1x1.4" Neodymium • LF 2x10" Neodymium
DIGIPRO® G3 Class D 900W/RMS Amplifier
Max SPL 135 dB • On-board double rotary EQ
Control System

VIO S118

Active horn-loaded flyable subwoofer
LF 1x18" Neodymium • DIGIPRO® G4 Class D
1600W/RMS Amplifier • Max SPL 135 dB

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490MHz

500MHz

510MHz

520MHz

530MHz

540MHz

550MHz

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PL+S 2018

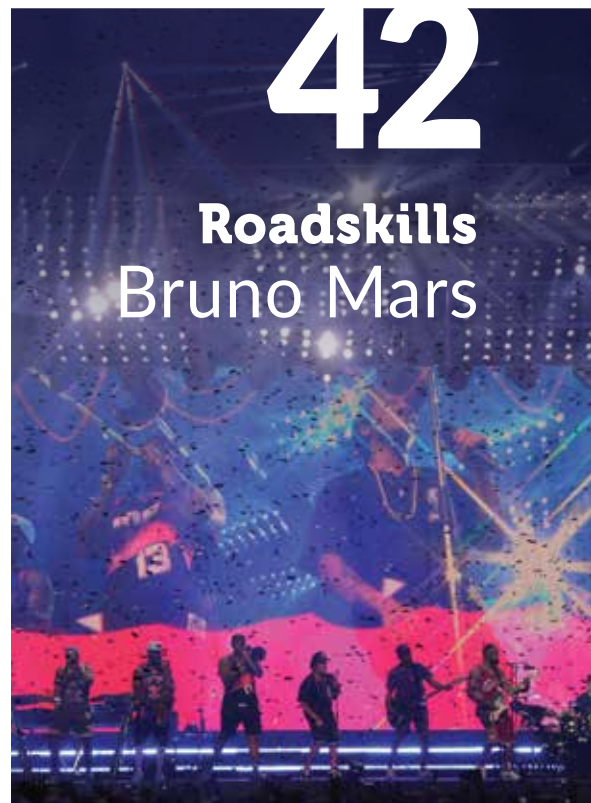
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Locked Bag 30, Epping NSW 1710 Australia
Phone +61 2 408 498 180
Email mail@juliusmedia.com

Editor: Jason Allen
Publisher: Julius Grafton
Business development and sales: Steve James
Layout: TIZAdigital by Karla Espinosa, Yelina Pino

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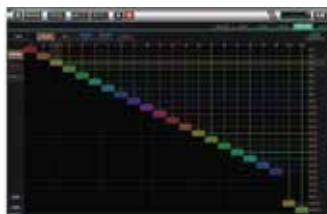
Big D - The new GUI for larger 1080p screens. With this new display you have a choice of running Gain inputs, EQ and dynamics or sends along with the usual faders and meter display.



4 Extra DSP Channels - The new channels can be patched as returns from USB DAW or LOCAL inputs (to double up on inputs for example).



Automix - The Ui24's Automix function increases gain for 'talking' mics and reduces gain for others on the fly, keeping the amount of total gain constant & creating a clean mix.



New Matrix Patch Window - You are now able to touch the matrix point you want joined or press and hold the point to remove the patch allowing for a faster patching experience.



Subgroup Ducker/Side Chain - The trigger for the compressor/limiter in the Subgroup section of a Ui24R can be assigned to any other subgroup that's before the one being used.

Whether you're performing, mixing, recording or producing, the Soundcraft Ui24R will always bring out your best. Visit **soundcraft.com** to learn more or find your local Soundcraft dealer at **cmi.com.au**

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EU considering damaging changes to lighting standards

The future of theatrical lighting, and in particular, tungsten fixtures, hangs in the balance as the EU considers changing laws that govern the efficiency of light sources. Johanna Town, Chair of the Association of Lighting Designers (ALD) based in Britain, warns that:

"There is currently an enormous threat being made to the way theatrical productions are presented.

The EU is proposing, in its Eco-design Working Plan 2016-2019, to change the rules that govern the light sources used in theatrical productions. In effect, they want to bring the vast majority of quality theatre lights - including specialist tungsten light bulbs (the familiar, natural, beautiful warm-feeling light sources that still form the major part of most theatre lighting rigs) and the specialist, high-quality LED lighting fixtures which have finally become available to theatres in the last few years - under the same rules that govern domestic and office and industrial lighting.

From September 2020 they propose to allow only light sources that meet a notional efficiency target, with no allowance made for the visual quality of those light sources, or how those light sources are actually used.

The impact on theatrical production across Europe would be immediate, and overwhelming.

Replacing existing lighting fixtures with new EU-approved sources would be incredibly expensive as it would mean

buying an entirely new rig of LED lighting units. It would be more costly still because it would likely involve replacing the building's entire lighting infrastructure - dimmers, cabling, control consoles - as well. For larger venues, this would be both hard to budget for and difficult to implement within the next two years. For smaller venues, it would be ruinous. They would, quite literally, go dark.

More troubling still: there are very few theatrical-quality LED lighting fixtures that come close to matching the beauty, subtlety, richness and poetry of tungsten light sources. Many shows and theatres have started adopting these fixtures but none of these fixtures meet the proposed EU standards; they would no longer be available. The indication from the LED manufacturers is that no new fixtures of this type will be able to meet these new regulations even by 2020.

The only option available would be much poorer quality lighting fixtures, and as a result a considerable degradation in the quality of production lighting and therefore in the quality of productions.

This would mean that the entire repertoire of works that currently exists would need to be given the stage time to be completely re-designed. That includes West End Productions which would need to close in order for existing units to be de-rigged, new ones put in place and for the entire show to be re-lit.

Several studies in recent years have shown

that stage lighting typically accounts for less than 5% of a theatre's total energy consumption.

The money spent on an enforced replacement of existing theatre lighting systems with poorer quality equipment in an attempt to create a tiny reduction in energy use is money not being spent on reducing the other 95% of a theatre's energy consumption, where much greater energy savings are possible.

It is also money not being spent on re-mounting existing productions, or creating new ones. Theatrical performances rely on theatrical lighting; it is the glue that binds every aspect of a performance together. Theatre lighting relies on having the right tools available to create just the right effect at just the right moment.

The #SaveStageLighting Campaign aims to demonstrate to the EU Energy Directorate the widest possible cultural opposition to these proposals.

It is absolutely essential that we are successful in our endeavour of securing an exemption for stage lighting from these proposals. This has the potential to harm everyone from technicians, actors and designers to agents, critics and audience members. The consequences of failure would be catastrophic to the entertainment industry and European culture."

For more information, you can email the campaign at savestagelighting@ald.org.uk

New truck laws affect us all: CoR

By Julius Grafton

Roderick Van Gelder's AESRG website reports that new laws will shortly come into effect. In mid-2018, the Heavy Vehicle National Law (HVNL) will be amended to provide that every party in the heavy vehicle transport supply chain has a duty to ensure the safety of their transport activities - Chain of Responsibility (CoR).

This isn't limited to the transport firm, here's my example of how it bites us all.

In February our ENTECH Roadshow had a tight schedule with long distance drives for the three semis. Opening in Brisbane on Tuesday, we needed to be in Melbourne at 4am on Thursday. Assuming the trucks

departed Brisbane at 10pm this was just legal. There was no margin for error.

Talking with our event cancellation insurer via our broker, Ken Killen of OzPrize & Weather Insurance Specialists along with our transport company boss Phil Duncan from ATS Logistics, we decided to run double drivers which reduces the trip time due to less legal break times. This cost an extra \$5,600 but it had to be done. The single driver legal time is 31.5 - by swapping drivers in Sydney we overcame this. Our gap time between the end of a roadshow in one city on a Tuesday (10pm) and the 4am positioning time on Thursday is 30 hours. We

try to shave this by getting the last truck out before 10, and by opening the first truck doors at 6am. That's our margin.

Further into the tour issues arose with load out times, due to a range of complexities including odd shaped freight (not many cases were the same), slow crew, and bad access like single loading dock or slow goods lifts from some of the ballrooms. The slow crew thing seemed to be a perfect storm - a lot of summer tours were stalking us, like Ed Sheeran. We had some not fresh crew and needed to monitor them.

Another tight leg was Sydney to Adelaide for which we allowed the

legal time of 27.7 plus we had some hours in reserve. It was just within my comfort zone.

This culminated with Perth where the 9pm departure became 12 midnight. It was a first for me, and to this day I can't pin down any specific reason why, other than that I was not there after 8pm due to my own fatigue factor.

That put the run back (74.1 hours) a few hours late. But the timings are not always simple because the legal rest breaks must fall where they fall. You can have a truck arrive at a venue and then not be legally able to be driven out when it is unloaded.

AESRG report that performers, security, loaders – everyone – can get caught if there is a truck accident down the line

caused by any of us delaying a departure.

The common sense approach is to have everyone fully informed of any tight truck departures, which is what we had in place for ENTECH. Even with that, we still broke our own system in Perth but fortunately those trucks had 3.5 days to get back to the east coast.



Rigging the 2018 XXI Commonwealth Games

Official Commonwealth Games rigging partner Harry the hirer Productions supplied more than 5km of truss and 600 chain motors to the event to complete all rigging requirements for broadcast lighting, audio, LED screens, and flag rigging. "With an event of this magnitude and the variety of installations, we needed a reliable truss system that could meet all the necessary requirements of the Games," said Simon Finlayson, General Manager at Harry the hirer Productions. The planning process for Harry the hirer Productions began approximately 12 months ago, with the team on site since January. "After a considerable scope-of-works change, a lengthy design phase and months of careful planning, we decided to expand our existing large Eurotruss inventory to have enough on-hand to cope with

the needs of the Commonwealth Games while continuing to rollout other events across the country," said Simon.

The Eurotruss system allowed Harry the hirer Productions to optimise set-up times, which was ideal due to the many deadlines a large international event imposes.

The Australian sales partner of Eurotruss, Showtools International, supplied Harry the hirer Productions close to 1000 sections of the Eurotruss Truss System. This is the largest truss purchase ever made in Australia for a single event.

"This purchase allowed Harry's to complete the event while simultaneously delivering the company's annual contracted work across Australia including the Australian Open Tennis, the Australian F1 Grand Prix, Virgin Australia Melbourne Fashion

Festival, Melbourne Flower and Garden Show, ATC Autumn Carnival, Australasian Gaming Expo, and many other shows during this period," concluded Simon.

More information about the HD34 and HD44 truss can be found here: <https://www.eurotruss.com/>

<https://www.harrythehirer.com.au/productions/>

Australian Distributor:
www.showtools.com.au



Hills wins three new vendors to strengthen AV portfolio



Hills Limited (ASX: HIL) announced it has broadened its AV product offering and strengthened its position as a complete solution provider for the professional AV market by signing distribution agreements with three new vendors for supply of their products exclusively across Australia and New Zealand:

- XTA Electronics Ltd and MC2 Audio (XTA and MC2) are technology partners based in the United Kingdom. XTA designs and manufactures professional audio processing equipment, specialising in live performance. MC2's professional audio amplifiers have gained a worldwide reputation for reliability and premium sound quality.
- Xilica Audio Design Limited (Xilica) provides configurable digital signal processing (DSP) systems which send audio to different areas, managing sound quality so it fits the environment.
- Application Solutions (Safety and Security) Ltd (ASL) is a leading manufacturer of public address, voice alarm, commercial audio and 3D control systems.

CEO and Managing Director, David Lenz, said "Bringing these brands into Hills ensures we continue as one of the largest value-add distributors of technology across Australia and New Zealand targeting the

Company's key markets, which include transport infrastructure, entertainment, education and health."

The XTA and MC2 products round out Hills offering in the stadium and performance market and compliment Hills distribution of principal speaker brand – Community Professional Loudspeakers, which focuses exclusively on loudspeaker systems. ASL, in combination with Community's mass notification speakers, will provide a total emergency paging and voice alarm solution that will integrate with Hills fire and security business, creating opportunities in the transport infrastructure road tunnel market.

The introduction of Xilica, which provides networked audio processors and advanced remote-control devices, will create opportunities across key verticals like health, education, corporate and government where audio, video or public address announcements need to be targeted to specific areas or rooms.

"These vendor wins enhance Hills ability to provide customers with industry-leading solutions and demonstrates the Company's capacity as a one-stop-shop for building technology solutions," Lenz added.

Win An All-Expenses-Paid Job at RØDE HQ in **Sydney!**



RØDE's My RØDE Reel 2018 comp is offering a paid, year-long gig with the in-house content creation team as a prize for the new category – **The Pitch**

RØDE Microphones, the proudly Australian-made pro audio giant, launched the 5th year of My RØDE Reel – the world's largest short film competition – on April 1st.

In 2018, RØDE has upped the ante. First, the competition this year offers the world's largest short film prize pool – \$1 MILLION – and more film categories to enter than ever before, including a brand new film category titled The Pitch.

WHAT'S 'THE PITCH'?

To be in the running, entrants will need to create and submit a 3-minute video "pitch" highlighting their creativity, skills and personality. Entrants are given complete creative freedom and are encouraged to think innovatively for a greater chance of winning.

WHAT'S THE PRIZE? A JOB AT RØDE, ALL EXPENSES PAID

The winner of "The Pitch" will be offered the opportunity to work at RØDE HQ in Sydney, Australia for up to 12 months. Depending on the winner's abilities and interests, they will become part of the RØDE Production Crew in any number

of creative areas in the field of film and production, including (but not limited to) pre-production, assistant camera operator or camera operator, sound recordist, boom operator, editor or editor's assistant, archiver, file manager, set runner, location scouter, researcher, artist liaison and so on.

Courtesy of RØDE, all of the winner's expenses will be paid including return flights, living expenses, accommodation, food, transport, medical insurance and reasonable spending money.

"The Pitch' is unlike anything we've ever done before," comments Damien Wilson, CEO of RØDE. "I'm incredibly excited to see the entries of budding filmmakers and producers from all over the world, and even more excited to meet the winner when we fly them out to Sydney. They're going to have an incredible time at RØDE!"

Entry into My RØDE Reel is now open, and closes July 31st 2018.

For more information, please visit the My RØDE Reel website: www.myrodereel.com/thepitch

Avid VENUE | S6L 1



Australian Distributor: Avid
www.avid.com or 0499 999 896

Avid VENUE | S6L now offers more component options to configure and scale a system to meet any production, space, or budget requirement. Customers can choose between five surfaces—including the new S6L-48D, S6L-24C, and S6L-16C that offer from 16 to 48 faders. These control surfaces can be paired with a choice of three engines, including the new E6L-112, and can be connected to any combination of S6L's four I/O rack options, including the new Stage 32 and Local 16.

2 Ayrton Mistral TC



Mistral TC is a versatile, feature-rich 300W white LED source spot in a small package. Calibrated at 7000K, with CRI greater than 90 and high TM30 readings, Mistral TC delivers over 14,000 lumens, and has a 7° - 53° beam spread. It includes CMY colour mixing, variable CTO and a six-position complementary colour wheel. The effects section includes seven indexable rotating gobos and nine fixed gobos, a continuous graphic animation effects wheel, 15-blade iris, a five-facet indexable rotating prism, and a soft-edge frost filter.

Ayrton MiniBurst



MiniBurst is a quarter-sized version of its big brother, MagicBurst. Equal in physical size to MiniPanel-FX, MiniBurst's 285mm x 285mm square face contains 960 mono-chip, daylight-white LED sources grouped into 16 pixels on a 4 x 4 matrix. Its dimensions make it extremely easy to integrate into lighting rigs of all sizes, yet it is capable of emitting up to 60,000 lumens, with a flicker-free output that is perfect for all TV and video applications as well as live performance.

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

3 Chamsys QuickQ



QuickQ-10



QuickQ-20



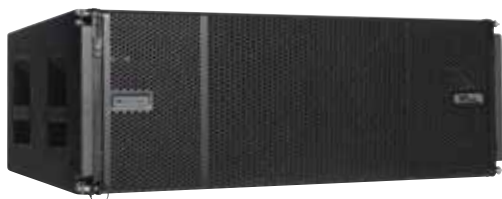
QuickQ-30

Chamsys QuickQ consoles are designed with a quick and easy user interface, 9.7" touch screen, and a comprehensive feature-set that bring simplicity and power to the small console market. Built-in Wi-Fi allows for remote control from a tablet or phone,

which can also serve as a 2nd external monitor. These consoles are ideal for students, volunteers, or part-time operators, and comfortable to use even by professionals on small-scale shows.

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

4 dBTechnologies VIO L212 and VIO



VIO-L212



VIO-S218

The VIO L212 is dBTechnologies' first full scale line array module designed for large touring sound reinforcement applications. An advanced DSP provides highly accurate intelligibility, sound definition and headroom. Integrated mechanics and accessories provides smart solutions to ease set-up, transport and storage of the systems.

The new active subwoofer VIO S218 is the perfect partner for VIO L212 in larger applications. A simple, effective dual sub configuration designed to enhance the reproduction of the lowest frequencies, boosted by an advanced DSP control and complete network capability.

Australian Distributor: National Audio Systems
www.nationalaudio.com.au or 1800 441 440

5 Epson Projector Professional Tool v1.10



Epson Projector Professional Tool v1.10 is now available across multiple Epson laser projectors (EB-L1100U, EB-L1200U, EB-L1300U, EB-L1405U, EB-L1505UH, EB-L1755U and EB-L25000U). This complimentary software makes installation of multiple projectors over a network easier with intuitive features such as geometric correction and edge blending. Adjustments to the projected image layout can be made easily on Windows7/8.1/10 devices without any remote control. It supports wired and wireless networks and the software can be easily downloaded from the Epson Australia website www.epson.com.au/products/projectors/software.

Australian Distributor: Epson www.epson.com.au or (02) 8899 3666

6 MA Lighting grandMA3

Founded on the legacy of the previous grandMA consoles, the grandMA3 represents a radical re-think of what's possible from a lighting control platform. The elegant new system-architecture incorporates new fixture, feature and effects-handling.

Features include huge multi-touch screen surface area, and dual encoders which provide users with intuitive control of additional features and functions and enhanced playback capability. grandMA3 breaks the limitations of Local Area Networks (LAN) with the ability



to access Wide Area Networks (WAN). Using the advanced MA-Net3 protocol, grandMA3 systems can output up to 250,000 parameters.

Software utilises a flexible new fixture concept developed to replicate the real-world physical components of the most complex fixtures.



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

7 Neumann U 67

Neumann have re-issued the U 67, first manufactured in 1960. The reissue is identical to the U 67 made from 1960-1971 - it uses the same capsule and electronic design. Key parts, such as the BV 12 output transformer, are meticulously reproduced according to original documentation. EF86 tubes are carefully selected for optimal

characteristics and lowest noise in a dedicated measurement facility. The power supply was redesigned to meet today's strict safety requirements and to accommodate the slightly higher filament current of newer premium grade tubes and the new power supply NU 67 V is fully compatible with older U 67 microphones.



Australian Distributor: Sennheiser Australia
en-au.sennheiser.com or (02) 9910 6700

8 SGM P-6



The P-6 combines the compact size and low power consumption of the P-5 series with the unique optical design and ergonomics of the P-10. This all-in-one LED luminaire features pixel-mapping control, long-throw capabilities with native 10° front lens, and all the benefits of magnetic easy-fit filter frames. It is a wash light, a strobe, and a blinder in a lightweight and robust design.

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

SGM G-7 Spot



The G-7 Spot is a fast, compact, and lightweight mid-sized moving head spot with high-output and low power consumption. Thanks to its white LED engine and CMY color mixing, the G-7 Spot is the perfect moving head for those who need maximum light output inside an easy-to-move luminaire. The G-7 Spot gives you solid construction, a high-quality beam, and an optimal projection in a very flexible assembly.

SGM VPL 1220-20



The VPL 1220-20 is a video pixel linear designed to create powerful pixel mapping and media effects. It is a versatile tool for linear and radial installations where high-visibility and a flexible setup are essential. This easily integrated fixture is suitable for a wide range of applications, including media façades, touring concerts, stadiums, theme parks or fixed or temporary tight space installation. The VPL 1220-20 is available in different lengths and also with an opal front glass.

Pro Light & Sound 2018

Frankfurt still delivers

By Julius Grafton



While PL&S was once the eighth wonder of the trade-show world, it still packs a punch for hordes of tech-heads from everywhere. Including Australia and New Zealand, since I kept running into people I wanted to talk to, and some I did not.

Strangely the hall managers don't care if you hang around half the night drinking on your stand! One such event turned ugly when some Latvian lighting guys attempted to finish a long session with some traditional wrestling. It's what they do, apparently, but the show security took it as an invitation to pile in and dished out some biff.

There were plenty of lost phones too, one luckless guy managed to lose his personal and his work phone to pick pockets, who target the things. Does anyone know how they un-brick them?

On with the show, this is it:

HD Ledshine

Please step outside.

Would you like a 33 ton, 16 x 9 (almost 4k), 144 square metre mobile screen? This monster is actually 16m x 9m and sets up in one hour flat! It's got 6.2 million pixels on board, which adds up to a lot of soldering. There was a lot of conjecture about its wind rating and it comes with a little weather station on top too.

But it is Belgian – so it must be safe.



Huge video wall

d&b SL Series - GSL

It's not a replacement for the iconic J Series. GSL is instead a line array system that delivers much more SPL and full broadband directivity control, for the largest events. It's been christened 'a destroyer of worlds'.

GSL8 is loaded with two newly designed 14" woofers for low end, and a single 10" out each side to provide full cardioid

performance. The design provides a very real low frequency usability, such that in some situations sub woofers are not required, especially in flown configurations.

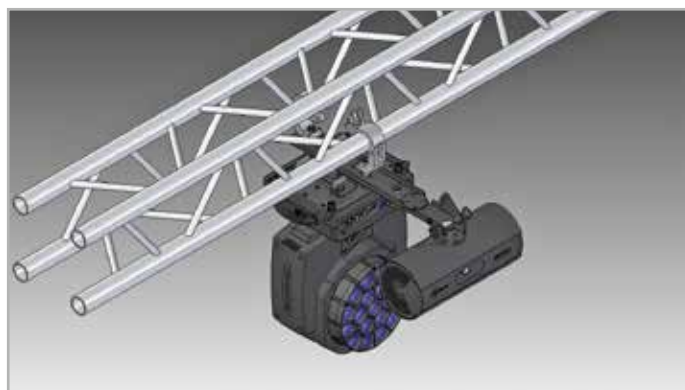
The result is +8db more audio from a full array than from a corresponding J array, across the 50 to 200Hz range. At 50hz, the SL delivers +10db more. This is quite startling. Midrange is delivered from one 10" driver on a mid horn, and highs come from 3 x 3.4" diaphragms. The overall cabinet weight is 80kg. The subwoofer offering is loaded with 3 x 21" drivers – two out front and one at the back to deliver cardioid.



Claypaky add on ADB

I was looking around for ADB to talk to them about their big install at Sydney Opera House, and discovered they were now part of the Claypaky family under Osram. I never did have the discussion, but I did see the Zac-Eye.

It is a 'magic box', an external device which can be connected to any Claypaky moving light via Ethernet. Its optical 3D sensor detects all the objects on the stage, and a sophisticated algorithm distinguishes human shapes from the rest of the environment.



Zac-Eye on truss



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gigacore10.luminex.be

With the performer wearing a tag, the box has a camera and sends out a pulsed infra-red light source. That encoded IR beam hits the tag and is reflected back. The camera only accepts that pulsed IR light, confirming the target. Sounds a bit Robo Cop, right? But it works! Now you have as many 'follow' spots as you want.



Zac-Eye tag

SGM STEP UP THE G

It's been roughly four years since the G Spot came along, one of the hardest outdoor LED movers with almost submarine water performance. I know this because we gave one a very refreshing bath in our loading dock.

Now this Danish company, who had a very clever entry show at the front of Hall 4, have upgraded the G Spot with two derivatives - the G7, which comes at a very keen price point, and the Turbo G which breaks the 20,000 lumen barrier. That puts it at Martin Viper level, bearing in mind the Viper has a discharge lamp.

Former Martin CEO Peter Johansenn runs SGM which some wag says stands for 'Some Guys from Martin', and it is unique in that every light is IP65/66 rated, and every light is LED.



SGM nail 'the lightshow'

FANCY AN ISLAND?

While L-Acoustics were really busy with their new L-ISA immersive sound system, reporting several touring implementations (including Lorde), they surprised many with an adaptation: the 'Island'.

This is a four metre diameter item of furniture which surrounds your couch, deck, or bed, and which comes complete with 23 speakers, two subs, and 24 power amplifiers. A futuristic 'Bubble' interface lets you put whatever music or movie noise you want through its L-ISA derived brain.

The finish is up to you - it's bespoke. Provided you have a room at least six by six metres, with the floor happy to take a tonne, you can have an Island in your dream home.

This is a Rolls Royce product. Not for most people. And if you have to ask how much it is (I did, they demurred) then you just can't afford it, old boy.



The Island insides

LSC CEMENT THE LITE

The Mantra Lite that is, selling strong in Europe as an entry level console. The Melbourne based manufacturer had solid interest across all their lines, and report that the humble dimmer rack is alive and kicking still.



LSC



The Island



grandMA3

The grandMA3 is a hit - the stand was swamped. There's a raft of new tricks and amazing industrial design - the way it folds is impressive in itself. There's huge new multi-touch screens, configurable dual encoders, and you can connect it directly to the web for software updates, technical support, and fixture downloads. That's just a few of around 20 new capabilities. The grandMA3 is the new big thing, and MA Lighting are number one across most markets.

Grand MA 3 in baby form!



Grand MA 3 in big form...



CONSOLES GET IMMERSIVE

L-Acoustic launched L-ISA (the revolutionary Immersive Audio multi-speaker machine that makes stereo obsolete) with day-one integration from the surface of some DiGiCo consoles. It means the live sound engineer can pan any input to any of many shorter front hangs of speakers.

Anyhow you should be all over that by now, since CX has been reporting on this since November last year. Now d&b audiotechnik has leapfrogged their French competition and announced a series of landmark integrations between their Soundscape (same ideas as L-ISA, different software and hardware) with its central DS100 Signal Engine and digital mixing consoles from leading manufacturers DiGiCo, Avid, and Lawo.

That steps things up. The announcement was made at live mixing sessions showing the console workflows and mixing live multitrack recordings at a large-scale demonstration venue at PL&S. This follows earlier announcements of integration partnerships with QLab show control systems, TTA Stagetracker and VST plugin formats.

Both d&b and L-Acoustic have their Immersive Audio systems in the market. Viva le revolution!



DiGiCo



MC2



DAS are a great brand that need a distributor in Australia

TALKING ABOUT CONSOLES

Lawo are kicking goals with the MC2 which does a pretty good job being almost all things to all people - live broadcasts, post-production, live mixing and the theatre.

MC2 comes in four footprints, from 36 to 96 faders, and incorporates handy features for working with video, including thumbnail previews of video streams directly in the fader labeling displays.

Across the aisle from DiGiCo was a similarly sized and just as busy stand for Allen & Heath. Now they are owned by Audiotonix, with SSL recently joining Calrec inside the same firm. This is one mighty, mighty machine.

The cynics have been silenced, after all, you have motoring manufacturers sharing platforms across brands, like VW, Skoda, Porsche, Bentley, Lamborghini and half a dozen others all owned by the one firm. Audiotonix are showing it makes sense to do it with consoles. More power to them.

THE REST!

Please understand this tradeshow has a phenomenal number of exhibitors. Some big audio names that were not there include Meyer Sound, Sennheiser, and Shure.

Robe had a sensational stand with a really professional show every hour - featuring ten dancers and acrobats. It really was classy, and showed off their eternally expanding range, including the new Tarantula which breaks through the 20,000 lumen barrier. That's the tipping point for LED; the discharge lamp is on its last legs now.

Finally there was talk of an exhibitor revolt due to a proposal to merge the MusikMesse (M.I.) halls with the more successful Pro Light & Sound halls. That idea went down like a tungsten lamp in a sauna.

Despite some obvious contraction in size, and the shrinking of the M.I. industry, I think I'll be at Frankfurt every year now. I had a ball!



Robe show

The Employment Issue

CX May 2018 is **The Employment Issue**, and we're looking at all issues in the industry related to employment – how to get a gig, how to keep a gig, and how to keep educating yourself so you get better at your job. From the employer's side, we find out what major companies are looking for in an employee, the challenges around hiring and superannuation, and discuss the thorny issues of training and certification.

As a second part to this feature, we've put together a big

round-up of some of the great product-specific training courses run by distributors in Australia and New Zealand, with all the info you need to get out there and up-skill yourself.

We hope this proves a valuable resource for you, whether you're trying to break in to the industry, trying to break out, or just keeping the tools in your kit sharp and relevant.

Jason Allen, Editor.

Nicole Russell - General Manager ANZPAC, Staging Connections – on passion, training, and pathways to employment



Nicole Russell is the General Manager ANZPAC at Staging Connections. She is responsible for leading the business to achieve strategic objectives and operational excellence throughout Australia, New Zealand and Fiji. Over the past 16 years, Nicole has held many roles within the Staging Connections business, in sales, venues and management positions.



GET ON-BOARD

Staging Connections are looking for skilled audio, visual & lighting technicians

Do you have experience with vision systems, digital audio, creative lighting, networking, streaming, rigging or interactive technology?

Have you worked in corporate AV, broadcast, theatre or events?

If you answered YES, we want to hear from you.
Send your details: recruitment@scgl.com.au



Passion for the industry

Everyone in this industry has got a passion for technology. When looking for new employees, it's vital that they have a passion for the industry and a keen focus on delivering exceptional customer service. If you don't like the late nights and the fast pace, then you're probably not cut out for it. Staging Connections works in-house at a number of five star venues, and there are high expectations from our clients.

Recruitment

We all work hard in events; they're long hours, and if we didn't have fun then we wouldn't be sticking around for long. Unlike some other businesses, we're not just looking for event industry veterans. We take on recruits at all levels. We try to find people that align with our core values of integrity, innovation, empathy, performance excellence, enthusiasm, and collaboration. If someone ticks the boxes in these areas, we're willing to take them on.

I think recruitment and retention is a big challenge to the industry. There is a genuine shortage of skills, and we can't rely on the traditional forms of recruitment anymore. We need to be proactive; we need to be talking to students when they're at college or school, explaining what our industry is like, and the potential career progression. A number of our people joined the business 15 or 20 years ago and have worked their way up to very senior positions. We've got technicians who came through and went into sales or senior management roles.

Access AV

Last year we were looking for new technicians, but we weren't getting much traction through the traditional recruitment advertising. So we created an event called 'Access AV' at ANZ Stadium. We invited people who were interested in the industry to come along and also invited colleges to bring students interested in learning more about a career in AV. It was a fantastic opportunity for them to meet technicians, get face-to-face with the production teams, and play with the latest toys. The attendees learnt a lot, and it opened their mind as to what this industry is, the types of jobs that they could do, and that they could specialise in a particular area. We had a lot of great conversations, and recruited candidates on the day. We've found that taking an active approach with the colleges and educational institutions is crucial.

Advice for Job Seekers

My advice to people trying to get into the industry is to do your research. There's so many great companies out there that provide mentoring programs, on-the-job training, up-skilling programs, and buddy systems. Those programmes are there to help kick-start careers. Across the industry, there's a great support network from trainees right through to senior technical event directors. You don't need to have all of the skills to get into the work force, just a passion for technology and events, and the right attitude. A lot of businesses are willing to work on the skills gaps, and bring people up to speed in whichever areas they need.

Women in AV Australia

We're involved with the Women in AV Australia initiative, run by Toni McAllister of AV1 and many of our industry peers, including AV1, AV24/7, AV Partners, the ICC Sydney, and Scene Change. There are many great companies coming together for this great initiative. We're talking to women in our industry to work out why they don't see AV as a career path in the same way as men. We've surveyed those women across Australia and we've got some really great feedback on where they came from, which was mainly arts, theatre, and film.

Many didn't realise there is much more to a career in AV other than live music concerts, there's a vast range of creative and corporate roles out there. We're looking at ways to unite and empower technicians, and we need to tackle things together as an industry.

Training

We've always had the traditional traineeship at Staging Connections, but techs these days really thrive on continuous knowledge and sharing. We've looked closely at our internal programs to make them more concentrated on the individual's training needs. We're doing skills analysis with our technicians and finding out from them what training they want and need. We're still delivering the fundamental skills, but we need to be more focused on people's careers and progression. And we'll be delivering this via a mixture of classroom-based and on-the-job training.

Chris Dodds, Director of The P.A. People, on knowledge and experience



For over thirty years, **Chris Dodds** has led conceptual design and execution for major projects - specialising in large scale 'design and construct' contracts involving innovation and leading edge technology.



Wireless Communications



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With 40-plus years under The P.A. People's belt, the ebb and flow of skilled people on our team has seen many scenarios and some of our staff have been here since the early days. Some have gone, some have come back or still freelance with us, and we are proud that our staff have made a contribution to the broader industry. You'll find PAP-trained people at Jands, Hills, Audio Brands, Sydney Opera House, ICC, and many other places.

From an integrator's perspective, what can we say? - knowledge developed from experience is a characteristic of professionals that have put in the hard yards over time and across a variety of

tasks - design, integration and delivery. It is simply not possible to 'desktop' this stuff and expect to provide solutions that serve venues (or major events for that matter) for their required lifecycle. To learn design and delivery takes time. We try to take people from an understanding of requirements of fabrication in wood and metal, through to programming and assembling complex systems. The nuances of system design and delivery can only be learned by experience; the concept of doing a two, three or four year course and then knowing what is required across the variety of projects we encounter is just that - a concept. It is not reality.

The same goes for rental; ours is not a cookie-cutter part of the industry. Every job throws up new challenges. Again, system design and technical smarts that work on the ground only come with rounded experience.

So, bottom line. We don't need a lot of people, we need the right people, and attitude is right-up-there as a requisite whatever level you come in at. People who 'want' to work is equal priority. The stuff we do isn't always easy, but the challenges are rewarding. Knowledge gained adds to skill-level, and that, at the end of the day is what (hopefully) keeps clients.



Gra Whitehouse - General Manager, Australia, NW Group, on training, superannuation, education, and worker's rights.

Gra came through the industry as a touring sound guy, and joined Norwest as a state manager in 2002. Now the National General Manager of NW Group Australasia, Gra believes in sensible and sustainable wage reform for the live production industry. He has a Masters degree in Business Administration, and a Diploma in Audio Production that he got for free in the early 90's because his mate was the lecturer.

Training

My current concerns are around the training organisations, and the preparedness (or lack thereof) they're instilling into people who are paying for those courses. That's not to say they're not teaching them their craft basics, but I wonder if there could be a higher degree of industry business understanding that forms part of the training? Currently school leavers or other budding production professionals are facing a bill of somewhere between \$16,000 and \$50,000 for a qualification, ranging from a diploma, to a Bachelor's

degree delivered by a private training organisation. Coming from that angle, (in my opinion) the systematic dismantling of the TAFE system as we know it is a bad thing for us, particularly in Queensland where it seems to have suffered the most radical commercialisation. There's still great lecturers out there and they're doing a great job where they can, but the enormous fees take away the whole ethos of TAFE, which was about accessible vocational training for the common woman and man. TAFE was for kids who weren't suited to the university system. Once you start making it a commercial

enterprise, like it's become, the discussion becomes about the haves and the have-nots. I think we need to find a way to get back to accessible training for everybody, not just hopefuls who have a lazy \$20k. What happens to all those kids who have a passion for the arts that would have otherwise lead them to a career in production, but have been stifled because "having a go" doesn't generally line up emotionally with "having a huge debt".

Superannuation

Ok, so they've come out of their courses, steaming hot and ready to roadie. About

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then, somebody says, "Yes, you can have a job but you need an ABN". So they get their ABN and then embark on a road of sham contracting with no wage protection and no superannuation. That's okay when you're 22, because superannuation's, like, 40 years away, and what do you care? You should care a lot. Don't look at it as retirement savings, look at it as 9.5% of your money that somebody isn't paying you! I think this is one of the contributors to the mental health issues we see developing amongst our retiring industry veterans. None of us ever think about life after 60 until we're mid-40s. And right about then, all those invoices you wrote as a sole trader, that somebody said in 1995 were an "all-up day rate", come home to bite a big chunk out of your arse. A 9.5% plus compound interest sized chunk. Ouch. That's a lot of arse. The ATO has been really clear on Employee/Contractor determination since 2010, but for some reason, as an industry we largely ignore it. And it's easy to see why. Doing the right thing as an employer is expensive; once you start paying people properly then your labour cost is bound to be around 15% more expensive than those who don't; there's the super, maybe state payroll tax, maybe higher Workcover premiums. Doing the right thing isn't free. But it's RIGHT.

There are, of course, those workers who are absolutely, very, very serious about being contractors, that's how they want to run their business. Many of them establish themselves as Pty Ltd companies and run their businesses correctly within that structure. Question number one on the ATO's Employee/Contractor Decision Tool (at bottom of text) which we've been using since 2011, asks "who do you pay to do the work". If you're employing a company to do the work, and you make the arrangement with the company (or the contractor acting as the company)

your arrangement is most likely solid. However, simply having an ABN (not Pty Ltd) leads to a series of questions that will almost inevitably point to the person being an employee in the eyes of the ATO, and therefore most likely be entitled to super, and also the likelihood of the employer having to withhold PAYG tax. You can't get around it with an ABN alone, according to the ATO. And frankly, given we're talking about casual crew, why would we want to get around that? They're the most vulnerable workers in the system. I commented on a social media post about this and I got a couple of PMs saying "You're making it hard for us smaller businesses. We couldn't possibly hire people if we had to start paying superannuation." That's like saying you couldn't be in business if you had to pay your rent, or your phone bills. The first thing you pay should be your employee's wages and entitlements, and if you can't afford that then you definitely shouldn't be in business.

The Award, WHS, and Quality Crew

Simply paying wages isn't the whole tale of course, you need to keep in line with the award. (MA000081, Live Performance Award 2010). The award has moved forward; there's been a wage determination every July, and the minimum wage has gone up progressively, albeit slowly. It's a competitive disadvantage doing things the right way and expecting the industry at large to follow suit, but it's not really a choice. The award provides certain avenues of flexibility that help us (Live production businesses) to operate within a more industry-specific framework. It's unwieldy, but... y'know... it's the law.

It's getting harder to employ great crew. There's a skill shortage, and here we are, back at that starting point of the vocational

education system dismantling itself. So filling from the bottom, ie, a sustainable workforce, has to be more than just opening the doors to a bunch of freshly-minted "producers" with high aspirations and HELP fee debts and pointing them to the truck. We (NW Group) want to be an employer of choice; that means paying people properly and legally, making sure they're safe at work, and then continuing their training in a manner that recognises we're a technology business in a quickly moving industry. We haven't got all the answers, nor are we perfect, but we're striving to formulate great training regimes alongside easy to manage, worthwhile WHS policies, and solid wage compliance. We know we're not alone with that stuff, there's a bunch of great companies focussing on the same principles; but there's still a cowboy element existing out there, they walk amongst us; they're the ones saving a bit on crew wages, and a bit more on PA Tower ballast...

How to Get Ahead

The upcoming employees that excite me, the ones in our business that are advancing, are the ones that come in with a thirst for knowledge and skill, but don't rely on us exclusively to provide it. They're the ones that stay back after hours and figure out how to use that piece of equipment themselves. They have the motivation to expand their knowledge in a cross-discipline fashion, sound lights, vision. You need to be connected to everything, to understand everybody else's discipline on some level. You also need to understand your entitlements as an employee, and insist on them.

<https://www.ato.gov.au/Calculators-and-tools/Host/?anchor=ECDTSGET&anchor=ECDTSGET/questions/ECDT#ECDTSGET/questions/ECDT>



John Maizels – a call for Education and Certification

John Maizels escaped from the corporate world to follow the dream of becoming an underpaid freelancer. He's currently a Technical Director in TV, a Broadcast Engineer, a live gigger, and teaches technology in TAFE and private colleges. When he's not looking for work he presides over Technorama.org.au and can often be found seeking a decent coffee and a solution to a better educated workforce.

If we all said tomorrow, "You're not going to get a gig unless you're qualified," well, I'd be out of a job. It creates an interesting situation for people who want to run training colleges. The regulator needs any institution that's conferring degrees to be able to demonstrate that their staff are on a development treadmill. Teachers must be qualified to a higher level than they are teaching. If they're teaching Bachelor students, they need to have attained at least a Bachelors themselves. If they're teaching Masters, they need to be Masters or higher. And who in this industry has a Masters?

We need to do something disruptive, and certification is an appropriately disruptive tool. It's one of the very few knobs we

as an industry can turn, but to have any effect a very large number of people need to get behind it, and that's a painful road. I am not saying the only way forward is certification, but I can see that the formula works. If industry leaders step up, the processes will create a better-educated workforce. At the moment, the workforce has no incentive to want to go and educate themselves. There are no goals, there's no reason to invest, and there's no reward for investing.

One option is to do exactly what accountants, plumbers, and hairdressers do, which is say, "If you don't have a ticket, you're not allowed to work." The impact of that is obvious: the people who want to work in that job go and get

the ticket through education, and then a test which says "you're OK on the gig". Because people need to go and do the education to get the ticket, that education becomes available. The demand creates an ecosystem and a business model.

But what's happened in this country is that the employers say, "We want an educated workforce, but we're not prepared to pay for it or recognise it". And no-one will pay for freelancers to go and get educated because they're freelancers ("why should we invest in training someone who's going to work for our competitor tomorrow?"). Despite our industry being hugely casualised, most employers don't have any interest in the freelancer training process. They want people to be trained,

but haven't stepped up to having skin in the game.

Let's assume there were courses available that were sufficiently rigorous to be meaningful and trustworthy. Why are people going to go and do those courses? Would successful industry practitioners pay money when they don't

have to? Clearly not. But I can see what has worked elsewhere, and a change is achievable. It's just that the education/reward cycle requires a huge culture shift for it to become embedded. And it's only when the relationship between education, recognition and employment becomes embedded that it's going to be

valuable for us all. That cultural shift needs involvement, not just at the technical level, but in the C-Suite; the COO, CEO, and board-level saying, "No, hang on, this is how we want to run our business. An educated empowered workforce, whose skills we're prepared to recognise in a meaningful way."



Options are everything - Showbiz can be very cruel - Julius Grafton on having a 'Plan B'

Julius Grafton is the owner and publisher of CX Magazine, and has worked in the industry in a staggering variety of roles for over 40 years.

julius@juliusmedia.com

I always worry about famous people like musicians and actors who have a 'break between engagements'. They can't serve a bar or flip a burger without someone yelling 'Hey Shannon, what you doin' here?' A disgraced footballer recently wrote his redemption chapter full of sins and the lowdown after a million-dollar season ripped by coke and assaults. He worked as a traffic controller. He chose the overnight shift, and still someone recognised and called his fluoro shirted arse out - 'Hey 'bloke', whadsap?'

Us black-shirts don't have the stigma of fame, we are free to work whatever we find and wherever, when the real work evaporates. Some of us have trades or skills elsewhere, so we segue back to the old work. Others are left struggling.

A couple of lowball but satisfying options exist, once you overcome your pride barrier. That's the thing that says you are a gun tech, great events person, or rocket organiser. You are for sure, but unless you get that \$40 an hour, you're screwed in our high cost cities.

Sydney life demands you pay \$300 a week for a room in a share-house or a share-flop, and the quality varies from great to very, very grungy. Further out you're paying \$250+ for a sweaty concrete room in a unit block 20km and a 40 minute commute. Some locations are a serious 1.5 hour commute to the city, with no certainty of trip times.

Australia's big cities are not affordable for lower paid specialists, like teachers, police and nurses. Or theatre techs, riggers, and people like us who work to keep the show on stage. There's no let up on this. 'Affordable housing' is a slogan but it is not an available concept.

Where to Go

Some of the greatest names in lighting design (no kidding) moonlight as factory hands at one of the big lighting production supply firms. It's a leveller for everyone, and a nice back-fill for them. I see 'esteemed everyones' at audio and video houses too. Working the floor is good discipline, good sweaty healthy, and it is a good look for the younger starters to see that reality.

It gets harder further out the food chain. That's why I recommend a couple of more elementary pursuits, namely The Gig Economy, and Community Work. Funny 'nuff, I've done both recently. Mostly to keep occupied as my media and events commitments have ebbed and flowed. I'm not one for the couch.

Airtasker and any of the random thing 'gig sites' where you flog your whatever is great, I haven't worked in them but I have hired. I got some Ikea assemblers who were a travelling carnival type couple, real salt of the earth and a lot of fun. Next time an I.T. guru who needed to get off the screens and onto the tools. Absolution at \$45 an hour (less fees and charges). You can't beat it for a cleaner, or a party chef. Maybe you need a thing delivered - just dial up.

No one gets rich in the Gig Economy. I did a run of Uber before and after it went legal, and really enjoyed the crazy. The money is basic, and you really have to account for car, fuel, and GST costs as you go, or you'll get flogged. It is a great stop-gap, easy to get in to, and ultra-flexible. You just log in when you want to drive, log out at the end, and each week the money arrives.

But my really satisfying gig is the Community Transport driver role where I drive a 20 seat bus one day each week when I am in Sydney. I am a volunteer, they give me \$25 lunch money, I drive the bus out at 7.45am. I collect my bus assistant Scott, and we then pickup 10 or 12 retired folk from their homes and deliver them to the mall.

We do a second run to collect more, drop them and then have a break before collecting the first batch with their weekly shopping. Scott carefully loads them and their shopping onto the Coaster Bus, with my back-stop help. We drive them home, he walks them inside, and carries their bags.

These guys totally rely on us, and we are ultra-careful about them, I drive like an annoying person avoiding potholes and speed humps, getting the bus and the drop-down stairs right onto their curb. They are us in the future, and they really appreciate us right now as we help them. I find it ultra-rewarding - and quite tiring given the level of care and interaction.

In addition, the team ethos in community care is, in the case of the Leichhardt-

Marrickville Community Transport company, quite excellent. Like-minded people looking out for each other as well as the customers.

What to Do

Too often I hear directly or through channels that someone is in trouble. It would be great if everyone had a 'plan B' that could be switched on before the eviction notice arrived, because at that stage you really need someone closer than me to advise you. I find that offering money brings short relief but soon more money is needed. At that stage the world is not a nice place. There are safety nets out there - Support Act is a great one, but you can't rely on the net.

I'd encourage you to actively get set up to drive Uber (or similar) and also go volunteer at a community transport company. Australia usually has one for most council areas, it is the backbone that keeps people mobile and independent and out of aged care. There are a variety of volunteer roles, including bus assistant (no license required) and independent transport driver - where you don't need that licence.

Working one day here and there as a volunteer will get you known in that network and get you connected. Most paid workers in community transport started as a volunteer and got hired later on. Consider it an investment of your time against the future - yours and the clients.

My community transport company are open to discussions with potential bus driver volunteers who may have a heavy license but not a bus driver authority (that is a separate permit that does cost money to obtain). So keep that approach in mind when you talk around your local area.

I would avoid 'buying a job' like a coffee shop or a franchise. That converts actual money into dead money unless you are a maestro who enjoys working 20 hours a day with a smile and not a pile. The final option is one that some of my friend circle have enacted - leaving Australia and living in the low-cost territories to our north. Which works great until you get sick.

Bring on that 'Plan B' and come tell me what it is!

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Training

Looking to learn more about a specific piece of gear? Need to get certified for your next installation or tour? Pro equipment distributors run a range of training courses on their brands, sometimes at their HQs, and often in other cities. Here's a run-down

on some of the training available. If you don't see the gear you'd like to learn here, either contact the distributor and ask about what training is available, or send a request to us via jason@juliusmedia.com and we'll see what we can find out!



Our trainers are the best in their fields and teach with first-hand knowledge and experience. The topics are presented comprehensively and are illustrated in detail. To provide you with the best tutorial environments, the courses contain real equipment and products. The ratio of students to teachers is limited to make the process as comfortable and effective as possible. The MA Lighting University training that we deliver is industry recognised, and attendees completing these successfully will receive a MA University certificate.

The training programme of the MA University is certified worldwide by MA Lighting, so we can guarantee continuity of knowledge independent of your training location.

The training programme consists of modular units; the knowledge gained on graduation from the grandMA2 User Training is the premise for all further training. To suit your specific needs the MA training programme has a special focus on Concert Touring/Live Events and Theatre/Musicals/TV/Film.

1 grandMA2 User Training **Duration: 2 days**

Requirements: The 'grandMA2 User Training' is a starter course intended for beginners with existing knowledge from grandMA2 online tutorials on the MA Lighting YouTube channel.

Aim: This course aims to make operators familiar with the basic functions of the grandMA2 lighting control panel, the panel interface and the main features of the software and operating philosophy.

Cost: \$189 + GST per person (includes training equipment, lunch & refreshments).



TRAINING SCHEDULE | Grand MA2

- » **NSW - Sydney:** 1 + 2 May 2018, 7 + 8 August 2018, 23 + 24 October 2018
- » **VIC - Melbourne:** 7 + 8 May 2018, 13 + 14 August 2018, 29 + 30 October 2018
- » **QLD - Brisbane:** 16 + 17 May 2018, 21 + 22 August 2018
- » **WA - Perth:** 4 + 5 September 2018
- » **NZ - Auckland:** 17 + 18 April 2018, 16 + 17 October 2018

2 MA dot2 Training **Duration: 1 day**

Requirements: There are no requirements for this course, however viewing of the video tutorials at www.ma-dot2.com will be an advantage.

Goal: This course aims to make operators familiar with the functions of the dot2 lighting control console, the interface and the main features of the software and operating philosophy.

Cost: \$29 + GST per person (includes training equipment, lunch & refreshments).



TRAINING SCHEDULE | MA dot2

- » **NSW - Sydney:** 3 May 2018, 9 August 2018, 25 October 2018
- » **VIC - Melbourne:** 10 May 2018, 16 August 2018, 1 November 2018
- » **QLD - Brisbane:** 18 May 2018, 23 August 2018
- » **WA - Perth:** 15 May 2018, 6 September 2018
- » **NZ - Auckland:** 22 May 2018, 4 September 2018

For more information, please visit www.showtech.com.au/training/



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- » Any training enquiries can be sent to: training@jands.com.au
- » Our Jands Eventbrite page where those with interest can sign up and seek further information: <https://www.eventbrite.com.au/o/jands-pty-ltd-6438533439>
- » We have also developed online training courses that cover a range of brands and products available from Jands: www.jands.com.au/e-learning

Shure Advanced Wireless Seminar



Frequency selection and coordination is critical to the successful design of wireless microphone and in-ear systems. This will become more so as the pool of available frequencies diminishes in coming years due to the digital dividend reallocation. Frequency coordination tasks become more complex as the number of systems increases, often to the point of requiring a dedicated RF engineer on large productions.

This seminar teaches how to successfully setup, deploy and operate multi-channel wireless microphone and in-ear systems. The seminar is tailored around real world scenarios as encountered in today's productions.

The Shure Advanced Wireless Seminar is a localised version, based on Shure factory endorsed training material, modified to reflect local Australian regulations and restrictions.

Topics covered include:

- » Radio Fundamentals and Frequency Allocation
- » Propagation, Antenna placement, Multi-path interference & diversity reception
- » Modulation (analogue & digital), Audio Processing, in-ear systems
- » Multi-system compatibility, intermodulation, interference, cables & distribution systems
- » Squelch, batteries
- » Wireless management tools

The training seminar makes extensive use of the Shure Wireless Workbench version 6 (WWB6) application for configuration, control and monitoring of wireless audio devices.

Recommended for any audio professional involved in the design and / or operation of wireless audio systems. Attendees should have previous experience with wireless audio systems and be familiar with technical terms and concepts.

Successful completion of this course qualifies you to earn 4 renewal units (RUs) toward InfoComm CTS accreditation.

» Shure Advanced Wireless Seminar (Melbourne)

20/06/2018 9:00 am

» Shure Advanced Wireless Seminar (Melbourne)

21/06/2018 9:00 am

» Shure Advanced Wireless Seminar (Adelaide)

04/07/2018 9:00 am

» Shure Advanced Wireless Seminar (Sydney)

25/07/2018 9:00 am



Listen to the difference
Installer Training

This course is installer-focused, and provides the information to understand and apply the relevant standards, the process to assess an environment for suitability, and provide a basic introduction to understand audio frequency induction loop basics. The installation of a specified and designed system is covered, including both perimeter and array loop types. The process for commissioning, testing and certification of induction loops, and troubleshooting the most common problems is also addressed.

The topics covered in the course include:

- Hearing Loop General Awareness
- Standards of Operation
- Site Assessment & Testing Procedures
- Practical Exercise – Site Assessment
- Installing Loops
- Interpreting Design Drawings
- Loop(s) Construction Techniques
- Practical Exercise – Create a Low Loss Phased Array
- Commissioning a Hearing Loop
- Practical Exercise – Commission & Certify a System
- Good Practise & Fault Finding

» Ampetronic Installer Training (Brisbane):

30/05/2018 9:00 am

» Ampetronic Installer Training (Perth):

20/06/2018 9:00 am

» Ampetronic Installer Training (Adelaide):

11/07/2018 9:00 am

» Ampetronic Installer Training (Sydney):

08/08/2018 9:00 am



**Eos Family
Level 1 (Basic)
Console
Training**

All the basics to start working with your lighting desk!

Are you new to the **Eos** lighting-control family and need to prepare for your first show? Learn all the basics of your Eos Titanium (Eos Ti), Gio, Io, or Element desk. The Level 1 course will give you a solid foundation of console operation and prepare you to expand your skills.

Course Structure:

- Identify key elements of the desk's user interface and navigation
- Manage show files (save, edit, delete)
- Patch conventional and multi-parameter fixtures
- Work with channels in Live mode
- Record, select and delete groups
- Record, play and delete a basic cue
- Record to, load and clear sub masters
- Create step-based effects
- Understand the basics of working with a multi-parameter device (introductory concepts)

» ETC Eos Family Level 1 (Basic) Console Training (Melbourne):

23/05/2018 9:00 am

» ETC Eos Family Level 1 (Basic) Console Training (Perth):

20/06/2018 9:00 am



Eos Family Level 2/3 (Intermediate/ Advanced) Console Training

- Patch moving lights and multi-parameter devices and edit device attributes
- Work with non-intensity parameters and their associated functions
- Record and recall palettes and presets.
- Use Direct Select and ML Control Modules
- Take advantage of discrete timing
- Use Mark and/or Auto-Mark functions
- Understand Update and its styles and modifiers
- Create Relative and Absolute Effects
- Create and use a magic sheet

Are you a current **Eos family** user who would like to better understand what the console and software are capable of? Have you mastered the basics of the Level 1 and are you now ready to take your programming to the next level? Are you ready to learn more about programming moving lights?

The Level 2/3 Skills class provides a more in-depth look at the next level of operation and working with multi-parameter devices on an Eos family console. After completing this level, you'll be able to:

Prerequisite:

To attend the Eos Family level 2/3 Training course you must have fulfilled one of the following criteria:

1. You must have attended an Eos Family training course previously or completed the Basic training course, which is offered on the day prior to this training.

OR

2. You must have completed online the ETC Eos Level 1 Essentials Skills course and submitted the certificate to us. This course is available on the ETC Learning Stage portal for a small fee.

<http://learning.etcconnect.com/>

OR

3. You have been given approval by Jands to attend.

» **ETC Eos Family Level 2/3 (Intermediate/Advanced) Console Training (Melbourne):**
24/05/2018 9:00 am

» **ETC Eos Family Level 2/3 (Intermediate/Advanced) Console Training (Perth):**
21/06/2018 9:00 am

4



NAS offers several training courses. Courses are offered as both open invitation to the open audio/AV community and also specific one on one investor training aimed to provide specific systems training once delivery of equipment has taken place to buyers.

A dedicated NAS Training page on our website can be found at:
<http://nationalaudio.com.au/pages.php?pageid=38>

We post links to all the latest training events to be held at NAS on this page. Further all events will be posted on TryBooking.com so simply click on the link that you are interested in and "Book Now" via the TryBooking event prompts.

Questions? Contact Bek Varcoe for info on any of our sessions – 0439 615 465 or via email at Bek@NationalAudio.com.au

Open Invitation Courses

d&b audiotechnik



Photo: d&b audiotechnik classroom training taking place at NAS's Melbourne training facility with Gert Sanner from d&b's APAC office in Singapore.

Three one day courses held in sequence, normally held 2-3 times per year at our Melbourne training facility. The same courses have also been (and will continue to be) held in Sydney and Perth from time to time. Courses are usually relaxed and offer an informal atmosphere with lots of opportunities for networking with colleagues once courses conclude for the day, usually with food and drinks provided.

» Day One – Product Workshop

Day One of the three day training course will cover, in depth, the full suite of d&b loudspeakers and amplifiers, explore the history of d&b, and the "d&b system reality". This day is aimed at those who would like an overview, and an introduction to d&b and to attain knowledge on their complete range of loudspeaker systems offerings.

» Day Two – System Design, Software and Networking

Day Two delves into Line Array theory, including system design using ArrayCalc software and systems deployment using R1 remote software and networking.

» Day Three – Sound System Optimisation

Day Three will cover Sound System Optimisation using both d&b and external software platforms. You will need a laptop computer to participate: minimum requirements will be advised in an email upon booking.



Photo: Midas PRO series training course in action at NAS's Melbourne training facility.

Three separate training courses are offered. Two for Midas PRO series and one for Midas M32 range. Currently the two PRO series courses are offered on sufficient demand, whilst the M32 series training takes place twice annually at our Melbourne training facility.

» CMDU – Certified Midas Digital User course for PRO series

The one day Certified Midas User training course is designed to enable an engineer to walk up to a PRO Series and mix their show. It provides as much hands on time as possible, while explaining the main day to day features of the system. It is very much an operator based course focusing on the control surface and user interfaces.

» CMDSE – Midas Systems Engineer Course for PRO series

This second day course, the Certified Midas System Engineers course incorporates all the information from the User (CMDU) one day course. In addition we go into more depth regarding system setup, networking, fault finding and diagnostics. The second day of the course is designed more for system technicians and owners of PRO Series systems rather than the engineer.

» M32 – Midas M32 User Training

A half day course focused on user training for the Midas M32 range of consoles.

dB Technologies

A straight forward one day course that provides an in depth look and listen to the complete range of dB Technologies products.

» Product Workshop

The full suite of dB Technologies loudspeakers. This day is aimed

at those who would like an overview, and an introduction to the outstanding value for money range from Italian manufacturer dB Technologies. Held at NAS's Melbourne training facility usually once or twice annually.

5



avt provides training to our customers in the following areas:

- » Harman Certified Control Professional | Commissioning
- » Harman Certified Control Professional | Programming
- » Harman Certified Control Professional | Designer

» Harman Certified Networked AV | Commissioning

» Harman Certified Networked AV | Designer

avt does not run a fixed training schedule, as courses run in cities according to demand. avt will be hosting training in the coming months in Sydney and Melbourne. To register your interest, or keep up-to-date with training available in your area, please go to <https://avt.tech/events/> or email training@avt.tech

6

Rational Acoustics SMAART Training



3-day Operator Fundamentals and Practicum

» Cost: Up to AU\$770 inc GST (Costs can vary slightly)

Please email Training@PAVT.com.au or contact your PAVT Account Manager for more information or to register your attendance or interest.

» Adelaide July 17, 18, 19 2018 – Registrations Open

» Auckland or Christchurch tentative dates July 3, 4, 5th 2018 – Please contact ASAP if interested.

Introductory one day classes are in the pipeline, perfect for beginners or anyone interested in the field of electro-acoustic analysis.



Looking for specific interest in Tasmania and Gold Coast for a three-day class before September. Any interest from other cities welcomed. Melbourne and Sydney will happen regardless, closer to the end of the year. Other upcoming classes this year include:

**Powersoft ARMONIA
Factory Training**



**Symetrix COMPOSER
Factory Training**



**ClearOne CONVERGE
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Interview with **Scott Buchanan,** Technical Director for the Commonwealth Games Opening and Closing Ceremonies

By Cat Strom



In order to deliver the creative elements of the Opening and Closing Ceremonies the technical team working tirelessly behind the scenes did what technical teams around the country always do – delivered competently and without fanfare.

Scott Buchanan, Technical Director for the Commonwealth Games Opening Ceremony, is a local residing on the Gold Coast who has come far in the event world having worked on the 2006 Asian Games in Doha, 2010 Delhi Commonwealth Games & Glasgow Handover, the London 2012 Ceremonies, 2014 Sochi Winter Olympic Games and the Baku 2015 European Games.

Scott, who refers to himself as just a plumber from Dubbo, found time to chat with CX between the Opening and Closing Ceremonies.

What is your scope of work?

Basically, we take the creative intent of the creative team and turn that into reality. Anything from scenic and staging elements for the ceremonies through to the technology used for lighting, audio and vision. We also arrange all the plant, forklift and EWP equipment as well as the labour force. It's an extensive scope of works but having a brilliant team behind the technical departments makes it somewhat easier.

Are there any major differences between the 2018 Commonwealth Games and other large scale events you've worked on?

Not really. This is the seventh Games I've worked on and they all have the same processes. There are some differences to normal shows, particularly accreditation requirements that need background checking and the process of having equipment screened and checked going into sites. Apart from that, there's no real difference to doing a corporate show – everything is just up-scaled. Of course, that comes with its problems as well such as running power cables over great lengths, as we are, which means power loss and you have to account for that.

The biggest complications you have with the Games is the security measures, which are there for a very good reason but they are the things newcomers to the Games get quite frustrated over.

Compared to other Games, it's no more or less difficult here on the Gold Coast.

Is there anything specific to the Gold Coast that creates technical issues? We've heard the RF environment is quite difficult.

Yes, spectrum is very tight particularly with all the digital television networks coming from Brisbane and NSW. Getting the frequencies you need to run a show of this size is difficult but we engaged early on with the Australian Communications and Media Authority and they've been fantastic through the whole process ensuring we get our requirements fulfilled, making sure the spectrum is clean and there are no unlicensed parties. They are

based onsite and if we identify anything, they get onto it straight away.

How many technical staff are you overseeing?

Jack Morton directly employ around 35 key technical staff, the number varies during the event, but then each of the contractors can have ten to forty staff and then the labour force alone runs into 160 people.

We engaged early on to provide an opportunity for students to experience such a unique opportunity of large scale events. 15 Students during the course of the project experienced working on the event during the design development, pre-production and the delivery stages.

I want to specially mention the hard-working team of volunteers that worked with the technical department. The event would not happen without this dedicated team that volunteer their time.

Were there any key pieces of technology that made a difference?

We had the BlackTrax system which I believe has never been used on the scale that we used it and it reduced the number of follow spot requirements for us. In fact we only had four follow spots as the BlackTrax system allowed us to track the beacons on the field of play. It worked really well, obviously there was longer commissioning for the size of the venue but we had allowed for this in our schedule.

We used Riedel's new Bolero wireless intercom solution and we were very impressed with the system. In my opinion, it's a game changer and the set up time was half of any other system I have seen before. The versatility of it is incredible, the programming and to be able to switch from panel to individual pack is something we utilise a lot in the show. To be able to talk direct to individual people down on the field of play, we bought sixty-five Bolero packs into the show and we ran out because they became a vital piece of kit for us.

We have around 600 lighting fixtures although we have joked with John Rayment that as the LED field has around 7000 LED pixels, it's got to be the largest amount of fixtures he's ever had! LEDs are making a big impact on ceremonies especially when combined with wireless technology. The LED star field was wireless technology, IR triggered and we had some other wireless DMX products. In 2012 in London we were looking at kinetic batteries and hopefully kinetics with power sources will become more popular. In 2012 the technology wasn't quite there and it still isn't, but technology is developing very quickly in the way we stage things.

Which technologies do you anticipate making an impact in future live events?

In the future audio, video, lighting and comms all need to get on the one network. Over the years there has been

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some understandable hesitancy from each of the disciplines, maintaining their own network and ensuring they have a system in place that is robust. But we are going down the path of fibre networks that can have all of the disciplines onboard and I think that's the next step as far as infrastructure goes; a fully redundant single network for all.

What technical aspect was the hardest to get right?

I don't think there was a single source of difficulties, it was getting it all to work in line with each other at the right times. A lot of these shows are run from timecode so once the system is up and running, and you're triggering via timecode, it's over to the computers to a certain degree. Making sure each of the technologies wasn't interfering with the other technologies was a challenge, not necessarily RF as it could be as simple as latency on some of the systems.

The biggest challenge with this show was definitely the weather. Wind affected our load in process and delayed some of the installation. We planned for such an event but we had an abnormal amount of high wind days however we managed to rearrange things to make the time back up.

Five minutes before broadcast started on the night we had very heavy rainfall. It was the icing on the cake as we'd had so much rain during the set up. Water got into some of the gear and whilst that's fixable after the show, there's not much you can do during it. We lost a number of lights on the field of play which was disappointing but to the average viewer they wouldn't have noticed it.

We had to keep an eye on the wind too as it was above parameters for Migaloo, the inflatable whale. Fortunately the wind dropped and he was good to go, but it was a tense time.

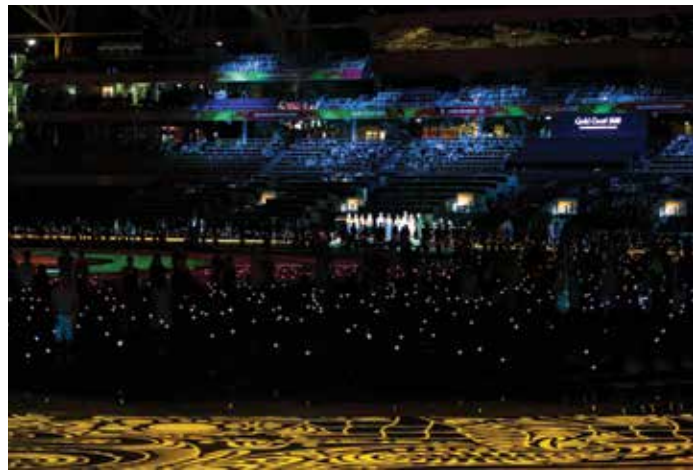
There was a lot of pushback against the fact that "overseas" companies won some of the technical and production contracts. What's your take on that?

Ceremonies are an international market and we have a fair and just tendering process that gave preferential scoring to Australian suppliers. However even with that preferential treatment, they still may not meet the technical requirements and commercial parameters to do the project. Having said that, the majority of suppliers were Australian.

Turning it around, there are a number of large ceremonies done around the world with Australian suppliers.

What are you doing next?

I'm taking some time off to get to know my wife and children again and also mow the lawns!



Lighting System

The main lighting system was comprised of over 350 high output moving heads with 154 Profile and 202 Washes, and for an even wash 10 Ayrton S-25 Wildsun MK2s.

For the audience lighting there were 104 GLP impression X4 Bar 20s, and 73 Claypaky B-Eye K20s. The field of play and scenic lighting utilised a combination of 35 x Claypaky Sharpy's and 50 x Claypaky Sharpy Washes.

In a bid to reduce the number of seat kills around the stadium the lighting designer John Rayment chose to utilise an infrared tracking system (Blacktrax) which would be supplemented by 4 x Robert Juliat Lancelot follow spots.

The BlackTrax system utilises 20 x 4.1 Megapixel motion capture infrared cameras located around the stadium bowl and roof. Over 40 cast members and scenic items were tracked using 24 beacons and around 50 stringers.

For atmosphere effects there were 12 x Haze Base Pro's and 10 x Look Solutions Vipers created the ring of smoke effect around the sand stage surround with the help of a compressed Air Venturi system.

Driving all of this was an MA Lighting grandMA2 with a fully redundant fibre ring to transport the signal around the stadium.



Starfield on trolleys, 7000 individual LED lights on bases were used in both the Opening and Closing Ceremonies (Photo: Ken Nakanishi for Jack Morton Worldwide)

LED Starfield

To create the starfield that surrounded the stage we worked with PIXMOB to customise their wristband product to remote the LED's from the IR receiver and

control module. These were then placed on carbon fibre rods to elevate them. The 7000 stars took two weeks to construct with the assistance of a team of volunteers.

Audio System

Norwest Productions, fronted by their Manager of Special Events, Andrew Marsh, provided the audio requirements for the ceremonies. The ground-stacked loudspeaker system consisted of 25 arrays of L-Acoustics K2, K1SB, & KS28 Subs. Amplification for the ground-stacked arrays consisted of 7 nodes of LA-RAKs and LA-RAK IIs, with LA12X amplifiers. Further flown arrays of K2 and K1SB were also powered by LA RAK II. The temporary Northern grandstand was well covered by a system of multiple pole-mounted ARCS WiFo in addition to the ground arrays.

FOH Control was handled with 2 DiGiCo SD5 digital mixing consoles connected to an Optocore digital network. Ian Shapcott was the main FOH Engineer and loudspeaker System Designer.

Monitor control was with 2 DiGiCo SD9i digital mixing consoles running Core 2 software enabling 96 input channels and 48 busses.

The in-ear monitoring for HLT and core cast groups were done utilising the Sennheiser SR2050 Dual Transmitters with 50 Sennheiser EK2000 Receiver Belt packs for Level 1 and 200 Sennheiser EK300 Receiver Belt packs for the Level 2 requirements. Additionally, to this, over 12,000 FM receivers of level 3 IEMs were used for all the mass cast and athletes.

As part of the overall package Norwest Productions also provided a broadcast audio truck to deliver a dedicated mix for broadcast. Jim Monk operated the Studer Vista 5 mixing console for both ceremonies, and fed his mix out to the host broadcasters.

Norwest supplied an integrated replay system, consisting of two complete and independent Merging Technologies Pyramix machines, each with dual 64 channel MADI cards, for a total of 128 channels of MADI output per machine. Machines were configured as dual redundant, with duplicate 64 channel MADI streams. Trevor Beck was the main replay engineer for the ceremonies with Stefan Fuller coming in as his number two.

Projection

The projection systems for ceremonies had Peter Milne at the helm.

The main projection footprint for the sand stage was achieved through mounting the projectors in the existing stadium lighting towers. This location was selected as the low height of the stadium roof produced undesirable angles. This foot print was comprised of 20 Christie Boxer 2K 30,000 ANSI lumen projectors split across two lighting towers. Four 4K Christie Boxers were also used during the Migaloo the Whale segment.

The control system was Modulo Pi's latest offering, the Modulo Kinetic, which controlled the main FOP and the Modulo Player for Migaloo.



The helium filled Migaloo was 'man-draulic' operated by 24 operators on tag lines plus there was a ballast vehicle.

Technical Credits (Core Team)

- » **Technical Director** – Scott Buchanan
- » **Technical Administrator** – Melanie McDonnell
- » **Production Manager, Systems** - Simon Toomer
- » **Production Manager, Staging & Scenic** - Don Mackenzie
- » **Production Manager, Technical Services** - Daniel Moriarty
- » **Production Manager, Closing & Comms** – Shannon Gobell
- » **CAD Design Manager** – Jason Coad
- » **Production Manager, Rigging & Pyro** – Scott Boundy
- » **Assistant Production Manager, Lighting & Power** – Scott Opie
- » **Assistant Production Manager, Audio & Comms** – Jessica McCloughan
- » **Assistant Production Manager, Projection & Broadcast** - Toomas Vann
- » **Assistant Production Manager, Staging & Scenic** – Daniel Paine
- » **Assistant Production Manager, Staging & Scenic** – Terri Richards
- » **Assistant Production Manager, Props** – Bridget McCluskey
- » **Assistant Production Manager, Closing** – Melissa McVeigh
- » **Assistant Production Manager, Rigging & Pyro** – Brennan Smith
- » **Assistant Production Manager, Technical Services** – Hayley Burke
- » **FOP Staging Manager** – Damien Richardson
- » **WHS Manager** – Michael Cunningham
- » **Props Runner** – Brad Tennant
- » **Dennis Murphy** – Stadium Screens Video Director
- » **Crew Chief** – Brad Voss
- » **Crew Chief** – Ricky Matepi
- » **Crew Chief** – Will Mathews
- » **Crew Chief** – Jamie Banko
- » **Lighting Designer** - John Rayment
- » **Lighting Associate Designer** – Nick Rayment
- » **Lighting Programmer** – Jason Fripp
- » **Key Follow Spot Operator** – Scott Erskine
- » **Key Follow Spot Operator** – Kevin O'Brien



Norwest



Josh Hyman, Show Caller (Photo: Ken Nakanishi for Jack Morton Worldwide)



Installing the pyro on the sand stage surround (Photo: Ken Nakanishi for Jack Morton Worldwide)



Lachlan Day, Norwest Audio Technician (Photo: Ken Nakanishi for Jack Morton Worldwide)



Volunteers sorting the LED lights for Opening Ceremony (Photo: Ken Nakanishi for Jack Morton Worldwide)



Left to right: Daniel Paine (Assistant Production Manager Staging), Scott Buchanan (Technical Director), Terri Richards (Assistant Production Manager Staging) and Don Mackenzie (Production Manager Staging) (Photo: Ken Nakanishi for Jack Morton Worldwide)



Left to right: Scott Buchanan (Technical Director), Kate Randall (Stakeholder Relations Director), Don Mackenzie (Production Manager Staging & Scenic), Shannon Gobeil (Production Manager, Closing and Comms) and Simon Toomer (Production Manager Systems). (Photo by: Scott Buchanan)



Norwest's Ian Shapcott at FOH mix

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By Andy Stewart

10 Tips for Attracting and Retaining Clients

Whether you're self-employed, or among the rare breed of studio engineers who works for a larger organisation, there are several ways to attract and retain clients. There are even more ways to send them packing. Which would you rather do?

When it comes to the recording 'industry' – and I put that word in inverted commas here because frankly it's not an industry at all – there are several important things to consider if you're determined to work in this esoteric employment field.

At the risk of starting out on a downer, I want to set one record straight at the outset. Despite what so many educators and magazines might say, the world of the recording industry is tough. Not physically – we're not coal miners – but emotionally and economically, most certainly it is.

Over the long term, there's no questioning the fact that the recording industry is a poorly remunerated, unregulated, union-less frat house of misfits who work long hours for less pay than a disgruntled 7/11 employee. Moreover, the job of audio producer/engineer sole trader also requires tens (if not hundreds) of thousands of dollars worth of equipment to get started. At the end of a long career your business is likely to be worth nothing to sell, the equipment mostly valueless (unless you bought old Neves and Neumanns), and statistically you're likely to have little or no superannuation stashed away. But the ride will be far more exciting than most jobs, and if you're good at it, immensely rewarding.

Provided you're happy with these conditions and prospects, let's consider some tips for making you successful in the field. By the way, this list is in no particular order and assumes you'll be doing the job for 25 years, not six months!

1 BE A GREAT LISTENER. Above all else, this is the key to becoming a really great studio engineer or producer of audio in all its forms, whether that be music, TV, radio or film production.

What does that entail exactly? Put simply, it involves everything to do with developing an affinity with

recorded sound in all its artistic forms. You need to learn how to make something sound great within its artistic context – not only for sonic accuracy's sake. If a recording session involves interaction with another human being (rather than just software) you need to develop a friendly working relationship with that person from the outset. If you don't the recordings will suffer. In all good recording chains the first link is not the mic but the artist and your interaction with them.

You need to listen to everything with your conscious mind: from the sound of a recording chain to the needs of your client, without bias or prejudice. What makes a great recording is never one aspect of listening, but rather all forms of listening working in concert: artistic, technical, emotional and electronic.

2 PROVIDE A COMFORTABLE AND INSPIRING WORKPLACE.

No-one likes to enter another person's work space to find old pizza boxes in the corner, equipment that looks good but doesn't work, or a sterile environment befitting a bank. Physically, a comfortable studio setting exists in the aesthetic middle ground between the sterility of a corporate foyer and the squalor of a teenager's bedroom. If your studio is reminiscent of either of these spaces, things need to change, and fast.

Of course every recording space is different, and no-one expects them all to conform to an arbitrary standard. No-one likes to feel like they've walked into the Westpac bank to record, but nor do people generally accept filth or mayhem – aesthetic or technical. A filthy, shambolic studio expresses a clear lack of effort on your part to welcome clients in, which unconsciously makes them think you don't really care about their music either.

Make an effort. A decent couch never goes astray, beyond which some cool musical instruments (that



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Pacific AV

ELS

EV Electro-Voice

ENTECH

work), good lighting, clean carpets, pictures on the walls and some fresh food are a bonus. Any audio production space where you've clearly gone to some effort to make people feel welcome is better than nothing.

3 BE TECHNICALLY PROFICIENT. It's all very well to be a good listener, but beyond this you need to be able to actually record something free of buzzes and clicks, with a tone befitting that voice or instrument. As an engineer or producer it's not your primary role to act as an artist's psychologist or friend, although that sometimes helps. Your job is to record artists well, in an atmosphere that makes them perform at their best, so that they walk away feeling amp'd that they exceeded all expectations.

This means developing your DAW software skills right down to the nitty gritty to ensure the recording process never gets in the way of your human interaction. It means learning mic technique: what microphones sound like in front of myriad instruments, how spaces influence a mic's placement, and so on. It also means understanding a bit about electronics, if only to be able to recognise when a piece of gear no longer sounds the way it should. If you can do this much you can then get help from a tech to fix it before the problem ruins your client's day. This is a vital skill to hone since, for an artist, a bad studio experience is a memory long held.

4 LISTEN TO OTHER PEOPLE'S MUSIC. No-one in this day and age expects an audio engineer, producer, film scorer or radio broadcaster to know every band on the planet or every film ever made. But blind ignorance of the world around you isn't the logical alternative. There's a happy medium here.

I've heard the statement: "Nah, I really don't listen to other people's music any more; I don't have time" on countless occasions in studio sessions. I can tell you it grates on me every time. The statement smacks of complacency and musical ambivalence, with a whiff of superiority thrown in for good measure. Listening to other people's music keeps you engaged in the art form, inspires you to do better, restores your faith in the process and enriches your sonic palate, all of which contributes to better performances from you.

5 BECOME A BRILLIANT COMMUNICATOR. This might sound like point one on the list, but it's subtly different. Communicating is about co-operation and shared intentions, the sharing of

information and ultimately, bonding. In the studio, this equates not only to listening well, but also sharing your ideas and intentions with others clearly and sensitively. Listening is all very well, but if you respond with grunts, shoulder shrugs or off-the-wall comments, it won't be clear to others that you've understood a word they've said.

6 DON'T BECOME A SMELLY STUDIO RAT. The confines of a recording studio are no place for a bad smell if you want to retain clients, and this of course includes you. Personal hygiene folks... it's a thing. If you smell, that's not only bad for your clients on the day, it's bad for your reputation and hence your prospects in the business. Not looking filthy helps too. A clean look at the beginning of the day makes for (the appearance at least) of a clean slate... and when someone hires your studio that's what they expect: a prepared space that's set for action. It's like staying in a hotel; would you expect anything less in that situation? Of course not.

7 PUT YOURSELF IN ARTISTS' SHOES. Being aware that recording can be confronting and scary for people as often as it is exhilarating, is crucial to understanding how a performer's mind works. One of the best ways to develop this sensitivity is to get involved in recordings yourself. Many of us already do, and that's great. But even if you're musically deficient, it pays to get on a mic and sing something, or play some bad guitar... anything to help get you into the mindset of a performer. The best engineers and producers work on both sides of the glass.

8 USE GOOD EQUIPMENT. Needless to say no-one likes a studio that has sub-standard gear. A few good mics, a reliable recording setup, stands that don't collapse, good monitoring and headphones, and so on all influence your performance, and importantly, how you're perceived by others. An old piece of gear is great when it's an analogue classic, not so cool when it's a 15-year old Pro Tools rig.

9 GET SOME SLEEP. No-one likes to hear an engineer complain about how tired they are from the huge session they pulled last week. All your client hears when you say this is that you're not up to the task. You might think you sound cool... you don't.

10 : BE A GREAT LISTENER... see point one.



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

How to: **work with timecode on an MA Lighting MA dot2**

by Michael
'Qincy'
Strathmann,
MA Lighting

"I need to do lighting to a very special song and I want to do it as precisely as possible"

- anonymous



Timecode is an external clock signal that cues lighting. You have to connect it with your console. There are two types that the dot2 console works with: MIDI and SMPTE

SMPTE: Is mostly what AV people use (i.e lighting cues for a video clip), they will supply you with the timecode if this is the case. The Dot2 supports 24, 25 or 30 frames and will figure out the frame rate so you don't have to do anything.

MIDI: Can be run through software such as Reaper. If you as the lighting operator are running this we recommend you use an external monitor.

To select which timecode you want just go into "Setup"-

"Timecode" and select out of MIDI and SMPTE.

You can see the timecode on your "external" screen.

Use your cue list to organise what looks/ effects/ movements you want from your lighting fixtures.

To "Trigger" the cue list highlight your cues and under "Trig", instead of "Go" select "Timecode". To select which type of timecode, click on the spanner in the top right hand corner of the window and select the type you want.

Click on "TC Record" and it will wait for the timecode to begin. Hit the "Go" button and start recording your show! Remember you can go back and touch up your timing manually once you have recorded.

MA Quick Tips & Tricks

by Gareth Mealing, Show Technology



Dimmer Tips to Try:

"Fixture" "1" "thru" "8" "@" "100%" "Please"

Select the fixtures you want and set them at 0% -100%, this will evenly increase the intensity between the fixtures in order from the first fixture at 0% through to the last fixture at 100% intensity

"Fixture" "1" "thru" "8" "@" "10%" "thru" "100%" "thru" "10%" "Please"

Select the fixtures you want and set them at 10% -100% -10%. This creates a curve effect, with the middle fixture/s being at 100% and the fixtures both ends at 10% intensity

To increase/decrease each fixture by 10% from set intensity:

“++” will increase dimmer by 10%

“--” will minus intensity by 10%

‘MA Key’ Tricks:

The MA key is a modifier key. When it’s pressed with other keys, they get an alternative function.

Pressing the “MA” key and numeric keys 0-9 opens the matching preset controls on the right screen.

MA 0 = All
MA 1 = dimmer
MA 2 = position
MA 3 = gobo
MA 4 = colour
MA 5 = beam
MA 6 = focus
MA 7 = control
MA 8 = shapers
MA 9 = video

MA Syntax Keys:

MA Pause = Park – This will bring up the syntax “Park”. To park a fixture press “MA”- “Pause” then select “Fixture” and select the fixture/s you wish to park and click “Please”

MA GO+ = Unpark - This brings up the syntax to “Unpark”. To Unpark a fixture press “MA”- “Go+” then select “Fixture” and select the fixture/s you wish to Unpark and click “Please”

MA @ = Stomp – This stops effects. To apply this to fixtures select “MA” then “@” to bring up the syntax “Stomp” and select the fixtures you want to apply this to.

MA Please = This opens the “Command line”

MA Off = This opens the “Off” window and gives you 4 choices to choose from:

- » Everything Off
- » Turn off all executors
- » Reset all special masters
- » Clear programmer

MA Time = This opens the “Timing default” window that allows you to change the default timing for cues and presents types.

These are only some of the functions available using the MA Key – To see the full list check out the “Help Menu”

How to: **Mic speech on stage with headworn and miniature mics**



Proudly presented by **DPA University**

Head-Worn Mics for Speakers

Auditoriums, churches, educational facilities, conference rooms, courtrooms and theatres are all places where one or more people speak to an audience. If that speaker is untrained, and/or doesn't know to speak up in a clear and articulate manner, this can be an issue. Moreover, the speaker may not use a handheld microphone. Or, he may employ a lavalier microphone, which can cause severe level changes when the speaker turns his head while talking. The best way to address this challenge is to use a head-worn microphone.



DPA 4088 in Theater

Head-Worn Mics for Singers

When a singer performs on stage with a microphone, he typically has to contend with sounds radiating from musical instruments, monitor speakers and other sources. To avoid this and still ensure the singer's voice sounds great, use a headworn directional mic. Compared to an omnidirectional mic, the cardioid design of a directional mic will pick up only half the amount of the background sound. Furthermore, the

low-frequency sounds from loudspeakers, drums, etc., will be reduced to a tenth or less.

Benefits of Wireless Systems

When employed with a wireless system, a head-worn microphone offers a number of advantages. As the microphone is close to the sound source, it does not need to be gained as much, which is beneficial when using several microphones simultaneously. In addition, it offers speakers the advantage of having total freedom of movement, including in front of screens or boards. With the DPA adapter system, the d:fine Headset Microphone series can be run both wired and wirelessly.

Microphone Technologies: omnidirectional or directional?

While few people select omnidirectional handheld microphones for the stage, these mics are much more popular for headsets in conferences, theatres and houses of worship. Most likely, this is due to the security of always having a defined and unwavering mic close to the mouth.

In order to realize the best use of their microphones, live engineers should be familiar with the proximity effect, wind sensitivity and rejection individualities of the different types of directional microphones. In particular, they should pay attention to the course of a directional headset's rejection, examining the microphone's most sensitive path and whether the rejection actually points toward the sources they want to attenuate.

For controlled environments, such as a stage set for a musical, the omnidirectional headset is preferred due to its more natural tone, lack of proximity effect and more forgiving need of placement accuracy. More than 30 channels live is not unusual for microphones used in these scenarios.

Live Engineering

The gain-to-feedback ratio is the most sought-after parameter in live engineering. If the ratio between the

sound level of the voice and all other sound levels around it were consistently at the right level, there wouldn't be a problem. But in reality, the voice is not able to compete with stage monitors or such instruments as drums and guitars. This is where the choice of using stage monitors or in-ear monitoring comes into consideration. While the in-ear system is preferable from a gain-to-feedback ratio perspective, the interaction between both a microphone and a PA speaker's off-axis linearity is what decides the matter. The more perfectly linear both are, the better the sound quality and the gain-to-feedback ratio.

Proximity Effect: How Close Can You Go?

With directional (pressure-gradient) headset microphones, the talent performs within a short distance of the microphone, influencing the bass level. A good headset will feature a proximity effect tailored to its exact application, working within a reasonable distance tolerance.

Omnidirectional Headsets

Omni headsets are sensitive to sound from all directions. The timbre of the sound remains constant regardless

of the distance between the sound source and the microphone. The positioning of microphones with omnidirectional characteristics is less critical; consequently they can also be better hidden. If the user is not accustomed to positioning a microphone, an omni-directional microphone is the obvious choice, as it is generally not very sensitive to wind, breathing and handling noises.

The omnidirectional d:fine Headset Microphones offer consistent audio performance at all sound pressure levels, impressive gain before feedback and stable construction. They are truly a plug-and-play solution for any situation.

Directional Headsets

Rejection occurs to the sides and rear of cardioid- or supercardioid-patterned directional headsets. This is why it's best to point them at the mouth, as the sensitivity to sounds coming from the rear is very low at this angle.

All cardioid mics boost low-frequency sound whenever the microphone is close to the sound source, a phenomenon called the proximity effect. This happens with the typical placement of a d:fine Directional Headset Microphone, which is just a few centimetres from the corner of the



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mouth. In order to get a flat response at this position, the d:fine introduces a correction, giving the user's voice a natural sound while reducing the level of distant sound sources, especially at low frequencies. For noisy surroundings, or a situation where high gain is needed, a headband microphone with cardioid characteristics is an excellent choice.

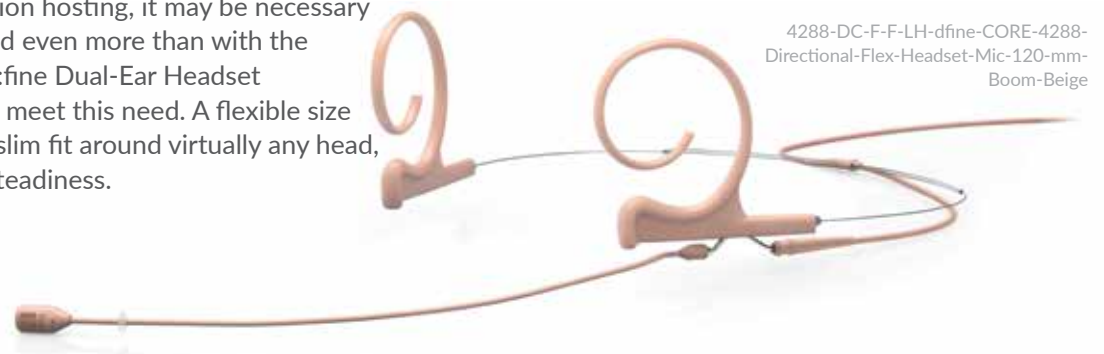
The d:fine Directional Microphone rejects side and background noise while creating higher separation from nearby sound sources. This improves the gain-to-feedback ratio and offers the user more channel control. As the natural voice intelligibility is preserved, along with very high SPL capabilities, one can both speak and sing into the mic with no hint of distortion.

Ergonomics: Single- or Dual-Ear Mounting

Single ear: The d:fine Single-Ear Headset Microphone automatically adjusts to each wearer through a steel-spring construction, applying consistent pressure, regardless of ear size, to ensure the earpiece stays in place. The wearer can take it off and on, with the piece adjusting or returning to its original shape each time. It is possible for the talent to mount the headset on their own, which makes the single-ear headset less assaulting to untrained users. As with wearing glasses, you tend to forget you are wearing the headset after a short time.



Dual ear: For applications with a high degree of physical movement, such as theatre and television hosting, it may be necessary to secure the fit to the head even more than with the single-ear approach. The d:fine Dual-Ear Headset Microphone is designed to meet this need. A flexible size and custom bend give it a slim fit around virtually any head, while offering safety and steadiness.



In short: How to Select an Omnidirectional or Cardioid Headset?

Choose an omnidirectional if:

- » You need a microphone that is not sensitive to positioning
- » The microphone is being used by untrained personnel
- » Background noise is not a problem
- » Feedback is not an issue

Choose a cardioid if:

- » Background noise is a problem (especially with low-frequency conditions)
- » Feedback is a problem

BRUNO MARS

By Cat Strom

Bruno Mars is the consummate entertainer; a singer-songwriter, record producer, multi-instrumentalist, pretty good dancer, and all round nice guy too. His 24K Magic World Tour, which sold out numerous arena dates in Australia, was a nod to classic shows by artists like the Jacksons and Queen, with Production Designer LeRoy Bennett and Lighting Designer and Programmer Cory FitzGerald echoing that era of vintage rock and R&B looks with a modern interpretation. Lighting Director and Programmer Whitney Hoversten has been on the road with the tour since it started in March 2017. The Sydney show I attended was the 131st. Not that he is counting.

"I think we have around fifty more shows this year," he said. "That's just the tour show, periodically we also do a residency show at the Monte Carlo in Las Vegas which has a completely different design."

Prior to the show opener, the main stage is masked by an Austrian curtain adorned with an intricate image of a golden crown. When the show begins, the curtain rises revealing Bruno Mars and his band on a bright, neon-lit stage set design from the 80's and 90's. The first song Finesse sets the tone from a visual stand point of what Bruno wants to accomplish with this tour. It is dominated by big blocks of primary colours, which were Bruno's idea, and Whitney admits the creative team cringed when they first heard about it.

"It's about a time period and it does set the tone for the rest of the show," said Whitney. "It's now one of my favourite looking songs in the show."

By the time they get to the third song Treasure, the video wall makes an appearance via automated motors, and at close to 7 metres in height and the width of the stage, it's a large

presence. Lasers make a massive appearance in the ballad Calling All My Lovelies and in Versace the 'tetris blocks' come into play; plexiglass lightboxes internally lit by LEDs that drastically change the environment.

The Tait Towers custom built stage features a lit up stage floor and eight elevating lifts that individually and collectively showcase Bruno, his band, and the performers at different heights. The creative team considered the audience sightlines from every seat in the arena and used the lifts to enhance those sightlines. The lifts are first used in Versace, as are more lasers.

"A lot of things in the show are very block-inspired to emulate the early 80's Par can rig but of course with modern technology, and that's where the Spikies come into play," said Whitney. "It's reminiscent of a Queen show with big banks of Par cans and the Spikies have been great at doing that."





The show utilises a whopping 795 Robe Spikies, with 375 Spikies built into five upstage columns, the other 420 contained in 20 moving over-stage pods, all constructed by Tait together with the automation systems to move them.

The five back columns are each loaded with a 5 wide and 15 fixtures high matrix of Spikies, and the reverse side of the column is covered in an RGB LED 'lightbox' paneling material for contrast. They rotate to reveal the different sides throughout the show.

The 20 pods over the stage are rigged in a five-wide-four-deep configuration, each loaded with a 7 x 3 Spikie format utilizing 21 fixtures per pod, and these move into a series of different looks throughout the set.

"The pods travel fully contained, except for the white fascias which magnet onto the front, we just pop wheels onto them and they roll away; it's a really fast process," added Whitney. "The Spikies were a brand new fixture hot off the assembly line when we started this tour so it was a bit of a risk using them but we've had hardly any problems. The few we did have, Robe was straight onto it. In fact I would say the Spikie is one of the most reliable fixtures I have worked with."

The pods first move several songs into the set during Marry You and this adds a whole new dimension to the stage and lighting. This is followed by Runaway which Whitney says is always a fun song to run as it is cued very heavily.

Forty-eight Philips Vari-Lite VL6000 Beams are rigged on vertical truss facing out, while 53 Philips Vari-Lite VL4000 BeamWash fixtures provide backlight, sidelight and a myriad of bright, bold effects.

"The VL4000 BeamWash fixtures are scattered throughout the rig and are used to light everyone onstage as well as act as an effect light," added Whitney. "They stretch the entire perimeter of the stage and are also on the downstage truss."

"The VL6000 is our big punchy beam, kind of like a modern day Syncrolite, which we use for big looks and they cut through everything."

A total of 214 TMB Solaris Flares are key components of the lighting rig with 70 on the downstage truss alone.

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These are mounted vertically, end-to-end, as a single 'bar' downstage for main audience effect lighting. A further 68 are mounted in the stage facing up, to under-light the transparent floor "cells" and 76 hung throughout the rig and upstage from trusses, for stage strobing and more effects.

"I've really enjoyed using the Solaris Flares particularly on the downstage truss where they are butted up against each other so there's really no break in the pixels," commented Whitney. "It's a lot of them in one place and LeRoy is probably the only designer who can get away with it!"

Pyrotechnics are a big part of this show with Pyroteck Special Effects Inc delivering a total of ten pyro zones: eight zones positioned across the mid-stage area along with two in the truss. To keep the stage as clean as possible, the pyros are flush mounted, literally embedded in the stage and loaded from the bottom. They also supplied the lasers.

Above the rig is a gigantic black drape to conceal all the show's 'gags' as they wait their turn in the spotlight.

Control was an MA2 with Cory and Whitney spending days programming the show prior to the tour. Despite being a year into the tour, Whitney is still changing and molding the design.

"I was in Bruno's dressing room half an hour before you got here talking about something I've changed," he added. "We bounce ideas off each other and with Bruno, it's never a complete canvas. But that's why he is one of my favourite artists to work with and I love that we are still changing things after 130 shows! In New Zealand we spent five hours tweaking one song together."

The majority of the show is time-coded which leaves Whitney able to focus on calling the eight ground-controlled spots. In Australia and anywhere other than the US, they were using SPOTDRIVE by [LITE]COM handlebar-based moving head luminaire controller which Whitney says is a great system, particularly as it can be attached to any moving light.

FOH engineer Bill Sheppell had only been with the tour a short time taking the place of Chris Rabold, who had to bow out of the tour. Bill was keen to work with a new



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Whitney Hoversten



Bill Sheppell



artist as his other clients, mainly Bon Jovi and John Mellencamp, whilst great, do not work as much as Bruno!

"It's been a good gig work-wise for me," he said. "Chris made it really easy because it was a planned changing of the guard. He worked with me as far as giving me his session files so I could see what was going on. Fortunately we both work on the DiGiCo platform so I could work from that, making it my own. Every engineer has his own way of doing things, but it was an easy transition between the two of us."

Bill took over in Mexico after watching Chris mix the show just once, however Chris stayed on for a couple of shows to ensure Bill was pushing the right buttons! Bill changed the session to suit his way of mixing, as well as some of the outboard gear.

"Basically it is now a heavily modified version of Chris' file but it was nice to be able to come in with all the input gains in the right spot," said Bill.

The Clair Global PA system per side consisted of sixteen CO12 boxes on the main hang, fourteen CO12 on the side hang and twelve CO8 on the upstage hang. Added to that were six CP218 flown subs and two more on the ground each side to fill in the centre. Four CP6 front fill boxes are built into the front fascia of the stage, along with four CP218 sub front fills in cardioid.

The main system was driven by rack-

mounted Lab.gruppen PLM 20K44 4-channel amplifiers, all of which incorporate Lake digital processing. Bill runs the show on a DiGiCo SD7, just like Chris did, and says that coming into a tour midway there's no time to change the horse you're on!

"It's my favourite platform at this time and the console I feel most comfortable using," he remarked. "I'm using a Waves bundle of H-reverbs, delays, pitch wideners ... but not a ton of effects on this show. There are two different delays on Bruno, a short and a long, and I use a doubler on his vocal to widen it, along with an AMS reverb from a UAD Apollo. Background vocals have an H-reverb and a delay for certain effects and cues."

Bill remarked that a Bruno show is very dynamic and certainly keeps him on his toes!

"The band is down a singer at the moment who did a lot of parts, so two of the horn players are covering those parts and they've settled in really well. I had to chase them around a bit but that's all settled down."

Bruno's microphone was a DPA d:facto with Shure Axient wireless system and Bill notes that his biggest challenge is that Bruno doesn't put his mic very close to his mouth.

"So I have to get his mic to where it sits well without picking up a ton of audience and stage bleed," he added.



**Michael Bolton,
every guitar
tech's muse**



"He's got a great voice and is super talented, but it's just the way he does it; he's making me work for it! The DPA d:facto is my favourite mic especially if you're going to have bleed in a mic, as it sounds natural. You can also cup the mic and it doesn't get too unstable, and it doesn't get super pointy."

The rest of the mics included Shure Beta 91A on kick 1, Telefunken M82 on kick 2, Shure SM57 on snare 1 top, Granelli 5790 snare 2 top, Telefunken M80SH on snare 1 and 2 bottom, Mojave MA-101FET on Hi-Hat and ride, Shure Beta 98MP on toms and floor toms, Telefunken M82 on large tom, Mojave MA-201 on overheads and Radial JDI on SPD and kick trig.

Monitor engineer Ramon Morales also used a DiGiCo S7. There are no wedges or any other loudspeakers for monitoring on stage; everyone is outfitted with JH Audio earpieces fed by Shure PSM 1000 personal monitor systems.

During most shows, there is a noticeable time when more audience members get up to go to the bar or to the bathroom. This doesn't happen in a Bruno Mars show.



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Paloma Faith

By Cat Strom

Photos: Troy Constable

Brit Award winning and multi-platinum artist Paloma Faith made her debut with the Sydney Symphony Orchestra at the Sydney Opera House in April. In an exclusive Australian performance, Faith performed songs from her new album *The Architect* and other favourites such as the ARIA #1 four-time platinum hit 'Only Love Can Hurt Like This' alongside the SSO. Surpassed only by Adele, Faith is the first female artist this decade to have her last three albums go double platinum in the United Kingdom.

The concert was one of several held recently that saw the SSO teamed with a variety of artists including Eskimo Joe, Kate Miller-Heidkie, Katie Noonan and Megan Washington. Whenever the SSO require mixing services for their amplified concerts they turn to Sounds and Motion's managing director Des O'Neill to provide the FOH mix for the orchestra and sometimes for the act too. "Due to the large number of microphone inputs required to mic up an orchestra and often limited rehearsal or sound check times, it sometimes makes sense in concerts like these to have one person mix the orchestra and another to take care of the band mix," he clarified. "For example, with Eskimo Joe there were over seventy microphones onstage for the orchestral instruments alone plus all of the band inputs, it makes for a fairly busy mix. For that show we had two consoles at FOH, a Midas Pro X for the orchestra and a Midas Pro 2 for Eskimo Joe, and both had independent inputs to the PA."

However with Paloma Faith, Des had his hands full mixing her, three backing singers, the band and the orchestra, all from a Midas Pro X. With around fifty



Paloma's voice has a lot of range



orchestral musicians and close to eighty mics on stage, it was a lot for Des to wrangle with only one rehearsal.

"Nevertheless, it's turned out well and sounds great," he added. "Paloma and her band had specific microphone requirements, Sennheiser Digital 9000 wireless radios with DPA d:facto II capsules, but the rest of the audio set up was standard to these concerts. The backing vocalists are great and it was easy to get a big, warm sound on them. Paloma's voice has a lot of range from deep and soulful to really delivering at a high register."

Along with the Midas Pro X at FOH, Des had Bricasti M7 reverbs for the strings to gain a nicer, more natural sound. He commented that when you're mixing an orchestra for this type of show, you need to get a lot of gain and close mic'ing the orchestra helps achieve this. Unfortunately orchestra aficionados tend to not like that close up sound so the difficult part is making it sound like an orchestra once you have achieved the required level.

"The Bricasti helps smooth out some of the hardness in the sound you can get from having microphones very close to violins and such," Des added. "The biggest hurdle when you're mixing an orchestra with a rock band is getting over the onstage sound of the drum kit as having a rock drummer in the middle of an orchestra results in a lot of spill. When you have eighty musicians on stage with eighty instruments plus over 100 microphones that are live at any one time, spill is a huge problem. Consequently the

drums are screened from the rest of the band."

Achieving separation and isolation of the instruments without spill from everything else around them is a huge challenge. Microphone selection and mic focus is key. Guitar amps are generally a problem as are loud vocal monitors. If the band is particularly loud, guitar amps will be placed offstage or behind the drapes just to get them away from the classical instruments and their mics.

For this show, Des used the SOH's selection of microphones; DPA 4099 for the strings, Sennheiser KMH8040s on woodwinds, Sennheiser MKH40s on percussion, NeumanTLM170 brass and Earthworks PM40 on the grand piano. The in-house d&b PA system was used, which Des says performs well in that space.

Des has been working with the orchestra in this capacity since 2014 and six months in to mixing gigs for the SSO, he decided it would be a good idea to have a consistent monitor engineer. Hayley Forward was brought on-board to try tackle some of the problems that were occurring where the stage sound was affecting the players performance as well as his FOH mix.

"It also gives consistency to the players especially as these gigs turn around really fast," commented Hayley. "It speeds up trying to get them to a happier place!"

In an attempt to try reduce stage sound, Hayley steers away from lots of foldback monitors onstage opting for a sidefill that is assignable upstage, downstage, left and right.

"The players don't necessarily want something turned up loud in their monitors so that its front and centre for them, they just want it raised a tiny bit as they're used to hearing acoustically," she added. "That works for a lot of the jobs but when critical monitoring is required, they use IEMs. We've trialed a whole bunch of different headphones and different ways of operation, and there's not one solution that has fitted every player in every concert."

At Paloma's show the percussionist, pianist, harpist, and Paloma's band were using IEMs, a common set-up although occasionally the brass section are on IEMs. Strings are rarely on IEMs unless the band is particularly loud and they need hearing protection as well as something to follow.

The show had two monitor consoles and operators; as well as Hayley Forward looking after the orchestra on a Midas Pro X, she delivered mixed orchestra stems to Paloma's monitor engineer, James Neale, for their IEMs.

James ran a Midas Pro 1 to cater for Paloma and her three backing vocalist's monitoring, with a few direct lines as well as a few mixes. They all utilised custom JH11 molds with Sennheiser 2000 IEMs. These concerts along with the SSO's soundtrack concerts such as Star Wars and Harry Potter have been hugely successful in terms of introducing new audiences to the Sydney Symphony.



Des



Hayley



James



Robert Plant

By Cat Strom

Photos: Prudence Upton

Robert Plant, the legendary singer of Led Zeppelin, returned to Australia along with his band, The Sensational Space Shifters, to headline Bluesfest and play a few sideshows including two sold out nights at the Sydney Opera House.



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Right: Sam Carrol, touring lighting tech, and Carl Burnett, LD

This year marks the incredible milestone of 50 years since Led Zeppelin's first album was released.

Lighting designer Carl Burnett has worked with Robert for over four years on what is basically a continual tour which he does in 'drips and drabs', which suits Carl just fine.

"We've just done a five week tour in the US, followed by two weeks off and then three weeks in Australia, followed by six weeks off," he said. "Being a bit older, it's very nice and gives me time at home with my other business – doggy day care!!"

Carl began working for Robert midway through a tour when their lighting designer left.

"His tour manager at the time saw me pop up on his Facebook feed and thought he'd ask me," said Carl. "On paper I got the gig but the final hurdle was going to meet Robert at his home which was ever so strange. He likes to see if he has a vibe with you."

Usually Robert does not get that involved in the lighting design although he has done for this tour, questioning Carl all the way!



Despite his heritage, Robert doesn't want a big metal show

"He wanted the lighting for this tour to be different," added Carl. "We used to have a few truss towers on stage but this time he didn't want lots of metalwork, preferring a neat stage. He wanted it to look beautiful and so straightaway I thought of drapes."

The draped background is also used for projecting onto although only three songs feature projection and it's not unknown for Robert to play only one of those.

"Once it was confirmed we would have projection, I talked Robert out of having screens, as the drapes were more suited," Carl remarked. "The projection artwork is a variety of animations created by Lucky Frog but as I said, there's not a lot of it."

"With his heritage, Robert doesn't want a big metal show and he often reminds me that he has done all that in the past. Consequently a lot of the show is understated, when you might expect a bunch of blinders flashing in your eyes, they're not. It's a bit more static than you'd expect it to be."

Carl said that his entire rig is spcified as Martin MAC Vipers however at the Sydney Opera House he had to make changes. In the air were MAC Viper Profiles and Viper Wash DX whilst on the floor there were Robe BMFL's; five BMFL on stands, another six on lower stands and one in front of each leg. The front truss held MAC Performances.

Chauvet Colorado Quad Zooms lit up the borders on each truss with Carl commenting that "you can zoom them and they're really bright plus they're neat and small." Two Unique hazers run either side of stage to pick up beams.

Carl was recently converted to using MA Lighting consoles, and at the Sydney Opera House was supplied with an MA2 light.

"I was a Hog man up until September last year mainly because I've never had the time to train on an MA and then go straight on a tour with one," he commented.

"Last year I did the training and then two weeks later I was on tour with Little Steven for five weeks. That's a simpler show so it gave me five weeks to get comfortable with the console. Afterwards I went straight onto programming this show which isn't a simple show."



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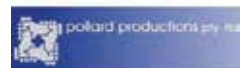
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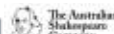
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By Simon Byrne

Get and Keep That Gig

I used to run a decent sized production company in Canberra. Our bread and butter was corporate AV events but we also did a lot of music industry gigs. At our largest, we had 22 full time staff and about 20 more casuals on the payroll.

I have to tell you, being personally responsible for paying out more than \$20,000 in payroll every week really gets your attention!

Labour typically accounts for up to about 50% of a company's outgoings, yet only 40% of the charge out. That means that whilst employees are absolutely essential, they are a liability if they are not bringing value to the organisation and must be properly managed.

An employee obviously needs to be able to carry out the duties required of them. This is expected of any employee, that aside what are the attributes an employer is looking for?

In my view, a great can-do attitude is super important. When the pressure is on, the last thing you want is added grief from your own team members! The boss wants and needs people that are totally reliable and this is driven by positive attitude.

Attitude extends to dealings with the client. Clients of course appreciate good gear, but what they really notice are the people that make or break a good gig. A good attitude helps the employee progress their career as well. Every job might be the one that leads to your dream gig so it makes sense to have a positive can do attitude on every gig that you do.

A good attitude is a win for the organisation that you work for, a win for the client, and most importantly a win for you.

As an employer, I can tell you that difficult staff are a liability and won't be called on when better people are available. There is just too much pressure in our industry already to tolerate staff who create more of it.

Our industry is demanding on our time and the work is often on during unsociable hours. Good reliable staff make themselves available for the ugly shifts too. The load in, pack down and load out are just as important as the show itself. When the show is finished, the Production Manager may have been working for 15 hours already and really appreciates it when the load out goes quickly and safely.

Stay healthy and well rested for work. The days are long. Admittedly back-to-back gigs may make it tough to get as much sleep as you'd like, so in those situations stay as healthy as you can.

Self-imposed problems will limit your options dramatically. Turn up to a gig under the influence of alcohol or drugs and you can kiss your job goodbye. No Production Manager responsible for the safe delivery of a job, or the rest of the team wants someone working alongside them that is unsafe.

Never burn bridges, it is amazing where people end up in 10 year's time and you might need to work with them in the future. They may even offer you your dream gig!

So where are the jobs? We are an industry of networks, therefore you need to get in front of the people who make the decisions on hiring. I don't think I have ever heard of someone getting a job in this industry without someone knowing someone.

Casual work is the way most people get into the industry. If you prove to be a good worker you will undoubtedly

move forward and more responsibility is put your way. This often leads to more permanent gigs and your career goes from there.

There are quite a few groups on Facebook where people advertise for crew. Get onto to these, get some work and make some new contacts. Whilst I mention Facebook, is there anything in your profile that may be problematic? You can guarantee that any employer looking to put on full time staff will have a quick look at the candidate's Facebook profile.

Corporate is where most of the bread and butter work is. It is more reliable but let's be honest, can be boring and the times can be ugly. Getting up at 04:00hrs to have a gig ready for a doctor's breakfast meeting is not that enticing. Being corporate though, it is consistent work where you can hone your skills and the pay is better at the entry level.

The music and theatre side of things is much more interesting, but harder to get into at a high level. There is less consistent work around so there isn't as many opportunities for full-time careers. People who want to work in this part of the industry should not be discouraged, just be mindful that you might find yourself in some lean times and plan accordingly. Who knows, that pub band you've been mixing could take off and so does your career!

The crewing services can be a good way to get in. Australia has some great crewing services and they often need to fill their books when the big gigs are on. You are expected to work really hard and efficiently. You get to learn how a big show runs as you get involved in some of the biggest events around plus you get to make

contacts. Be prepared to be shouted at. Don't worry, it's not personal. Crewing services are demanding of their workers, they have to be. They play a huge role in getting a gig up and running on time and they take great pride in getting it done right and quickly.

Formal (paid-for) courses – is it worth it? In government and education sectors, maybe, because formal education is more valued in those. However, not for getting a gig in the private sector. Unfortunately the production industry has had a chequered past in terms of industry training and it hasn't always delivered graduates who are better than the rest. There is no doubt that formal education makes you a better operator with a balanced perspective, but it is not an entree into a choice role.

Here is the thing; most of the senior people in the industry did not start their careers with a stand-alone course. That being the case, it is hard for them to visualise how a candidate is likely to be a better team member because they've done one. It is easier to simply

give someone some shifts and see how they go.

Some forward thinking companies such as AV1 in Sydney are introducing traineeships. Entry level staff get on-the-job training combined with formal education at TAFE. This is a great model because the employee gets the best of both worlds; the formal education backed up with real world experience and some pay. It's good for the employer too because they develop staff in ways that work for their operation. This should be the model for the future.

Internships. I'm also a fan of limited internships but it has to be real and not for unreasonable periods. Your time has a value but trading your time for knowledge is probably worthwhile as long as you are getting that knowledge. If you are a good proactive learner, you will get more paying work. A formal agreement setting out each party's expectations is essential for these arrangements.

Self-education is invaluable and the resources on the web are vast. The more you can learn, the better operator

you will be, the more useful you'll be and the more enjoyment you'll get from your work. Once again there are quite a few Facebook groups for all facets of the industry so get involved in those too. I'm constantly impressed by the depth of knowledge in Facebook groups.

The gig not floating your boat? Moving on is best for you and the employer. I'm a believer that everyone seeks out their own path in this world. If you are not happy with the direction of your career, change it.

Be ambitious and drive your career. I've watched the generation behind me and I'm delighted that a couple of my ex-staff are now mixing world class acts out of the US and UK, and several others have their own production companies. These guys and girls were smart, had the right attitude, furthered their education themselves, and of course were ambitious.





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ETC Ion Xe Lighting Console

By Jim Kumorek

First published in Church Production News

Add a couple of touch screens to the Ion Xe and you'll have a very powerful lighting control system.

Recently, Electronic Theatre Controls (ETC) released the latest member of its Eos console line, the Ion Xe lighting console. There are two versions of the console: one with 20 hardware faders (the model we reviewed), and one without. The Ion series is in the middle of the Eos line of consoles. All consoles in the Eos line run the same software and have the same capabilities. You can think of it as Eos being the name of the operating software, and Ion Xe being the name of the physical console hardware. While I often tackle reviews by going through the feature sets of the hardware I'm reviewing, it's not practical to do so with a console like the Ion Xe due to its extensive functionality. Any size rig, anything you can imagine, you'll be able to do it.

The Ion Xe can handle up to 12,288 output addresses, distributed across up to 256 universes of DMX, with four DMX ports built-in. The console has numerous buttons to access the feature set of the console: four encoder wheels to work with attributes of the selected fixture(s); a dedicated intensity wheel; and a Master playback section. Fader wings are available that would provide banks of playback faders to which submasters, cue lists, palette entries, preset entries and other items can be assigned. It does not have a built-in monitor, but supports two external monitors via DisplayPort jacks. These external displays can be touch-screens, which while not necessary, makes the console more user-friendly and volunteer-friendly. The video displays can be configured pretty much any way the user desires. Each monitor can have multiple layouts defined, and each layout can be subdivided into multiple windows. Each window can be assigned any of a few dozen pre-defined displays, from moving light controls, fixture lists of grids, palette and preset displays, etc. A keyboard, mouse, and Littlite are also included with the console.

IN-DEPTH LOOK

The Ion Xe is a command-line focused console. Generally speaking, the buttons and virtual controls on the console are used to build up a command line that the console will execute when you press the Enter key. In specific examples that follow, a word in brackets indicates a specific key of that name on the keyboard. All fixtures are assigned numbers, and you typically access them by number. There is another way to access them more graphically, which I'll describe later, but that's not the default and would take some work to set up. This can be good for a large rig that would be difficult to represent visually, but takes more thought because you would need to remember or look up the number of the fixtures you want to work with.

However, there are good tools for simplifying selection and manipulation of channels, and I've found that coming up with a plan for assigning fixture numbers can help. Channel Groups can be created to allow fixtures with a similar purpose to be selected as a group. For example, you can program group number one to be your house lights; group two to be your downstage front lighting; group three to be your band colour wash LED fixtures, and so forth. The Ion Xe can output DMX through its DMX ports, but also speaks the ACN, sACN, and ArtNet Ethernet-based lighting protocols. For evaluation, I was using ArtNet,



Ion Xe and wing

connected to the Ethernet port to my PC that was running a visualiser.

Let's dive into some specific things I liked, and some I thought could be better. Patching is quite easy and intuitive. One of the nice advanced features of patching is you can select a different dimming curve for a fixture when you patch it. This is nice when you're trying to blend fixtures with different light sources. There's a set of stock dimming curves supplied, but the extra cool thing is you can create your own dimming curves. For example, if you encounter a new fixture that ETC doesn't have a profile for yet, creating a new fixture type in the console is fairly easy and rather fun. Fixture selection is very flexible—keys are provided to add and remove fixtures from the selection. For example, if you wanted to select all your apron lights except for fixture five, and you've set up an appropriate group for apron lights, you would type the keys [Group] 1 [-] 5.


Cue recording is very straightforward, but ETC provides a ton of options to specialise cue recording for more advanced users. You can select what attributes are recorded; whether parameter information from submasters or other active cue lists are included in the record or only parameters entered manually are recorded. Multiple cue lists are supported by prepending the cue list number and adding a slash before the cue number. By default, cues are recorded to the last list recorded to. Recording a basic cue consists of typing [Record] cue-number [Enter]. The first cue list you record automatically gets assigned to the Master Playback section. Cue lists, submasters, palette entries, preset entries and more can be assigned to



Ion Xe 20

physical fader controls if you have a playback wing. If not, there is a software fader display that you can use for playing back cue lists and submasters easily, with large controls to give you confidence you're touching or clicking the right control during your show. You can also change the cue list assigned to the Master Playback.

Programming presets and palettes is easy. Palettes are parameter category specific—i.e., there are colour palettes, focus (which in the Eos software means pan/tilt parameter information) palettes, etc. Presets work just like palettes but can store all fixture parameters if desired. When used in conjunction with programming cues or submasters, updating the palette or preset means that your cues and submasters are also updated. It's also easy to copy parameter values from one place to another, making it quick to reuse parts of another look and speed your programming. Fanning parameters works very well. Fanning is the ability to set an initial point for a parameter on a group of fixtures, and then shift that parameter away from that setting across the fixtures. For example, tilting out a set of moving lights, and then fanning them towards or away from a centre position, or creating a gradient across a set of LED wash fixtures. What was particularly nice is that the on-screen moving



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ION Xe

light controls reflect the fan in a very clear way.

When programming moving lights, sometimes you discover that you move one fixture in the wrong direction to get to where you want to go, and you really needed to pan it in the opposite direction. The Ion Xe has a cool “flip” button with the pan/tilt block in the moving light controls display that automatically flips the fixture around to point at the same location, but from the opposite pan/tilt configuration. The effect engine is incredibly powerful. You can create custom paths for an effect to follow, and control how an effect fades in and out as you transition into and out of that effect. It was pretty straightforward to learn and use. And if one of the stock effect motions (such as a circle, or figure eight) isn't what you want, you can draw a custom curve for the effect to follow.

Magic sheets are an awesome function of the Ion Xe. A magic sheet lets you create a custom layout where the graphical components you use can be programmed to do a variety of things. You can also import pictures. So, you could use Photoshop to create a jpeg drawing of your stage, or even take a photo of your stage.

Then, import that image into a Magic Sheet, and drop fixture symbols onto the specific areas of your stage that they light. You could then draw rectangles under some of those fixtures to represent groups of fixtures. Touching on the symbols selects those fixtures; the rectangles you could assign to select the groups. There are a few things I think could be better, however. There are “softkey” buttons that change their function based on what parameter you are currently working with. And if you don't have a touch screen, you can either use the mouse to access them, which is rather clunky, or access them via the external keyboard's numeric keys when the Alt key is pressed, but this is also rather clunky. Also, there's no convenient way to have a set of buttons that when you press a button, it brings up a specific programmed look. You can almost do it with Palettes—if you press [Group] and then the palette button twice, it selects all fixtures referenced in the palette, and then applies the palette to the fixtures. Or you could create a cue list with each cue representing a different look, and then create a Magic Sheet with buttons that perform a “GoTo Cue xxx” command. (But that would not let you

bring up multiple overlapping looks.) Having something like the Palettes function that actually selects and applies the look in the palette to the fixtures would be great for many churches that rely on volunteers to run their services, particularly if your service style does not lend itself to a sequential set of cues. ETC states that a user can turn on “double-clicking” for direct select buttons which should perform a similar function.

THE TAKEAWAY

The Ion Xe is an incredibly powerful console, especially one with an RRP of \$28,960. Add a couple of touch screens (ETC states that any Windows 7 compatible touchscreen will work) for a few hundred dollars each, and you have a very powerful lighting control system. For basic functionality, it's pretty easy to learn, although new volunteers might find the number of controls intimidating. Advanced features would take some significant time investment to figure out, but that's common with most consoles of this power level.



Brand: ETC

Model: Ion Xe

Pricing: RRP \$28,960 inc GST (12,288 output version)

Product Info: www.etcconnect.com



ION Xe and wing

Adamson S10

By Scott Mullane

Scott Mullane is the owner of Brisbane's Aisle 6 Productions. His current touring clients include The Screaming Jets, Marina Prior, Darren Middleton and 7bit hero, and he has countless record production and recording credits to his name.

Aisle 6 Productions own 16 elements of Adamson S10 and eight S119 subwoofers. We've used the system both flown and ground-stacked, and sometimes fly the system with six or seven S10 elements per side because of venue trim height or low load rating restrictions. Ground stacking sees us setting it up with four S10s mounted two subs a side.

DESIGN

The S10 is aesthetically very pleasing, and this detail in design has flowed through to the engineering. What impresses me are the simple things; for example, the speaker grille only has four screws. A lot of manufacturers have larger amounts of screws to stop grille rattling, but this makes it tedious to remove. The way Adamson have designed the horn flare, the grille clips over the extension of the flare and then screws to the timber so it's supported in many locations. It's clever little things like that which really impressed me straight away, and there are quite a few.

FLYING MADE SIMPLE

The first time we used the S10 system, we flew it, and it was surprisingly quick. A colleague of mine recently commented that he'd seen the system pulled out of a venue's roof, loaded, and packed in the truck before the stage crew have even finished packing the stage down. If you do some preparation using Adamson's Blueprint AV software, you can print out notes for riggers with the loadings as part of your documentation for the show, and pass on cabinet angles as documents to your staff.

What physically makes loading easy is the fact there's four top boxes on each dolly and one person can set all the recommended box angles in the factory literally with one arm tied behind their back. There is physically no box lifting to re-pin the angle positions - you slide a slider into the correct position, and put the pin back in. The only thing moving is a slider, not a weighty cabinet. You get to the gig, wheel the dolly forward to pick-up point, hook it up, and



Adamson S10 and S119



E-Rack



Adamson S119

lift it into the air. It expands into the curve that you've created, then you put the next four under it and link them up. It's literally that easy. Also, there's no fly-frame needed when you ground stack an S10 rig. You put the mid-highs on top of the subs and the hardware is coupled together with pins. No inverted fly frames.

Patching the boxes is simple too – using NL-8, you patch into the top or bottom box, and then load the amps in sequences of four cabinets. A cross-over cable then patches between boxes four and five.

THE WEIGHTING GAME

I really like what Adamson has done in Blueprint AV with the weighting for performance prediction. They've got the regular A, C, and flat or zero weightings, but they've created their own weighting, which they call 'Y' weighting, which measures from 2kHz to 8kHz. It's really focused on vocal intelligibility and projection. Over the throw distance Adamson recommend that from front to back you don't have any more than a -6 dB roll-off. It's interesting to see what happens when you check Y weighting setting against A and C weighting. The Y weighting really does make a great starting point.

MIXING, EQING, AND SOUND QUALITY

Mixing on an S10 system requires a head-shift, in that you can't just walk up to it and start mixing like you're on any old PA. To really get the most out of it, you have to stop for a moment, listen to what's going on, and respond to what you are hearing. It is just so clean. For most of the shows we've done with the S10, including the acoustically terrible Suncorp Piazza in

Brisbane, we load the basic Adamson configuration pre-set and end up running no FOH EQ. We might notch out one frequency now and then, but any tweaking is more about coverage.

I also find that I'm using less channel EQ as well. The factor that causes the head-shift I mentioned is the lack of harmonic distortion, which makes the S10 incredibly clean, while producing high SPL. One or two engineers we've sat with as they've mixed on it have said "It doesn't go very loud, does it?" We then just show them a meter reading! Their brains are not processing it as 'loud' because there's no distortion. It's very clean, so it's very revealing. You've really got to create the tones that you want to deliver, which is obviously what we should be doing when we mix. It brings out the creative workflow, as opposed to the usual guerrilla warfare of trying to battle problems in the mix.

The mid-highs are great, but the subwoofers have particularly impressed me. The S119 subs are very good at producing the fundamental of the material. In most subs, you've got your fundamental tone, but the harmonics of that fundamental are not much quieter than the fundamental note itself. It seems to me it must be difficult to manufacture a sub that is not adding too much unwanted harmonic information into its output. The S119s deliver the same SPL across a broad sub spectrum only reproducing the notes you're putting in, with the harmonics attenuated below the fundamental quite a lot. Therefore, if you want to hear 40Hz, you've got to create 40Hz, not just 'wobbly stuff' that's harmonically relevant.

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Adamson S10

WEIGHTS AND MEASURES

As part of our research before purchase, we compared the size, weight and power output of the major line arrays in the market. Putting all biases about brand aside, everything we found that had an equivalent output to an S10 was 10 kilos or more heavier and 10 centimetres or more larger per element. We looked at the specs of accessories like VMB towerlifts; you can't hang eight elements of most high-output line arrays on those. But an eight-a-side S10 rig with a fly frame

weighs 238 kilos, which is within-spec. The two-way design means less amplifier channels when bi-amped, making the whole system slightly more affordable, and it's all less weight in the truck. Weights and measures really add up – it's an interesting experiment do across all brands; audio fidelity and sound quality can be subjective things, but weights and measures are fixed.

SUGGESTED IMPROVEMENTS

I'd like to see more configuration presets available in the

processors. For example, for when we run six or seven elements aside and use two elements for front-fill. With a line array it's not as simple as point-and-shoot, so you do need to be a little bit more sophisticated about set-up or you won't get the result you want. I have been reticent to try things that are 'outside of the Adamson box', but I believe the new advanced Adamson training that's been announced will empower me with more knowledge to set up more advanced configurations.



Brand: Adamson
Model: S10, S119
Pricing: P.O.A.
Product Info: www.adamsonsystems.com
Distributor: www.cmi.com.au

Warm Audio WA-47 & WA73 recording chain

By Andy Stewart

Two of the most highly prized, awesome sounding and prominently featured pieces of gear found in professional recording studios over the last half-century have been the legendary Neumann U47 tube condenser microphone and the Neve 80-series mic preamplifier. Everything that's ever been said about these two vintage classics – every fact, every impression, every sales pitch or desire – has been stated over and over, regurgitated by the online throng repeatedly and translated into Swahili to make certain no-one on the planet missed out. There's nothing left to be said, and no-one left who hasn't heard it all before.

But recently Warm Audio (from Texas, USA) put out recreations of both these audio doyens – in either a fit of egotistical madness or shameless brand association – and now they're in my cynical hands for review.

I couldn't resist. Despite feeling utterly disinterested in contributing yet another page of rhetoric to the endless tickertape parade of throwaway anecdotes that have spewed from the keyboards of the great unwashed the world over, when I heard Warm Audio's WA-47 and WA73 in combination two weeks ago, I was blown away.



WA73 internals



WA73



WA-47 internals



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On the WA-47 condenser, specifically, I thought this:

"This mic is f**king unbelievable!"

I dunno how many times I've said this to myself since, but it's happened every single time I've stepped in front of the mic. Not the most eloquent, insightful assessment of a microphone ever penned, I'll admit, but the phrase seems unavoidable.

I've recorded countless times with Neumann U47s over several decades – both tube and FET varieties – along with U67s and M49s, and various incarnations of 80-series Neve preamps (an 8038 console, 1081, 1064, 1073, 1093 and 1272 modules) and suffice it to say, the euphonics of both these tools are embedded in my bones. I own a bunch of them myself still and use them every day.

But before I even bothered to do a comparison shootout between either of the originals alongside their Warm Audio recreations, the likeness was unmistakable.

Now for some hyperbole...

THE 47TH RECREATION?

The WA-47 large diaphragm tube condenser mic has a sound as big as a house, with fantastic low-end power that supports vocals magnificently. I have been repeatedly astonished by how favourably this mic's low-end compares to an original Neumann U47. It captures a gorgeous large-scale sonic footprint with a fizz to match. The mic never sounds harsh or brittle. The combination of its beautifully crafted nickel-plated, solid brass barrel and tripled-layered cage headstock, its K47-styled capsule, Slovak Republic JJ5751 tube and TAB-Funkenwerk transformer all combining remarkably to do that thing original 47s are so famous for: turning sibilance and harsh transients into an immensely pleasurable sound more akin to a compressed puff of talcum powder than a dagger to the head.

This mic, like the legend it purports to mimic, is an experience to perform in front of: visually, sonically and emotionally.

Apart from the fact the spider shock-mount cradle could probably grip more confidently around the mic's girth, I really can't fault Warm Audio's WA-47. At any price this mic is a compelling option (once you set aside your vintage snobbery like I had to) but for the asking price of little over a grand, it is, quite simply, remarkable.

You want a '47 but can't afford an original (and hey, seriously, who can?)? Well this might be the answer to your prayers. Visually, sure it looks cool, albeit new – and who ever heard of a new looking 47? – but it's the sound of this mic that really clinches the deal. It will provide you with the sonics you've longed to own for years, of that I am certain. This microphone is not leaving The Mill that's for sure... not ever.

THE WA73 SINGLE CHANNEL PREAMP

Combined with the WA73 preamp, the sound of this recreated 'classic' recording chain is quite breathtaking. On vocals, the WA-47 is already a big, fat, creamy indulgence. With the WA73 preamp driving it, the focus just grows in clarity, scale and detail.

I have used the original units that these two Warm Audio devices replicate in combination with some sort of compressor, like a UA176, 1176 or LA-2A far more times than I've had a hot breakfast. Do the two chains compare? Absolutely they do.

The preamp has everything familiar to a Neve user: the grey regalia, the iconic red, blue and grey stepped rotary switches that click strongly and confidently, white rectangular buttons and so on. But so do about 20 other replicators that have attempted such recreations in the last decade or more.

The sound is what counts, and this is where the guys at Warm Audio have

clearly made an effort to distance themselves from the pack. Internally, the WA73 has a fully discrete signal path, including custom made Carnhill transformers and decent high quality capacitors, all of which are hand-wired and hand assembled in China. Warm's affinity with the sound of the original Neve preamps is borne out by repeated use. The WA73 is no cynical skin-deep recreation. It's a genuine competitor with an original Neve preamp module or console, but with one obvious advantage: it's new.

But the WA73 also has some key ingredients that engineers like me love to see and hear: a decent four-position high-pass filter, a polarity switch, a ground-lift switch (on the back panel), an output attenuator and LED output meter.

Having input and output control on the preamp immediately provides for a massive palette of tonal options, as well as control further along the chain, from clean and transparent to downright massacred. Want to sound crystal clear? This does it. Want to record a hammered vocal that sounds like John Lennon on the White Album? This does that too. Just crank



WA-47

the input, turn down the output and there it is: a bleeding circuit with analogue distortion for days. It saturates fantastically too... dial any amount of it you like to add flavour to any audio signal.

Additionally, the WA73 preamp has a 'Tone' button that varies the input transformer impedance when engaged. In combination with the WA-47 mic, this switch adds fizz and body, and a tad more volume to the signal, creating a hyper-real, larger-than-life image (a cliché, but true).

Particularly for the price, this preamp/mic combo is astonishing really.

I've been cynical of recreations of old gear for as long as boutique brands have been pitching them. But now I've come to appreciate at least some of them for what they are. These two bits of kit, in particular, could easily set you back around 30 grand if you were mad (or rich) enough to fork out for an original Chrome-Top Neumann U47 long-body, and a racked and serviced Neve 1073

preamp EQ module (you could also get a raw Neve 1272 module but then you'd have to mod it). For about one fifteenth of that price you can get a combo of a Warm Audio WA-47 and 73. Frankly, when a mic sounds this good (and has nine polar patterns for good measure) there's no contest. Get two of each and still have enough for a deposit on a house... almost.




Brand: Warm Audio

Model: WA-47, WA73

Pricing: RRP WA-47 \$1385, WA73: \$880 inc GST

Product Info: www.warmaudio.com






Distributor: www.studioconnections.com.au





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Here is this month's collection of random tech tips to make your life just a bit easier!

By Simon Byrne

Tech Tips

Protect your Ears!

There's nothing quite like the satisfying crack and thump of a live drum kit, the punch of bass and guitar amplifiers, and the energy of the vocals over the PA system.

And if a little is good, a lot is better, right? Everyone might be excited and having a great time, but you also may be doing serious hearing damage to yourself, especially if you work regularly at gigs. And if you lose your hearing, so goes your career.

Taking a few moments to put in some high-quality earplugs can literally save your hearing for the rest of your life.

Manuals on the Phone

Nearly everything has user manuals in PDF form nowadays so keep them on your phone for devices you use regularly.

It is really handy being able to quickly look up some information when you need to make something work.

Get some sexy (sensible) pants!

We need tough clothing but it needs to look acceptable in convention centres and hotels ballrooms.

Enter 5.11 Tactical Pants! 5.11 Tactical (pronounced 'five eleven tactical') is an American brand of clothing for military, law enforcement and public safety personnel. It is tough, hard-wearing stuff that looks good, ideal for the production industry.

It comes in this year's fashionable colour, black.

<https://www.511tactical.com.au>

Leatherman and Torch

Absolutely essential for every professional tech.

A basic Leatherman Multitool incorporates a knife, pliers, phillips and flathead screwdrivers which is what you need 95% of the time. My Leatherman Fuse has lasted me 15 years and I keep it in top shape by having it professionally sharpened once a year.

<https://www.leatherman.com.au>

You need a torch, and Led Lenser are the torch of choice nowadays. Super reliable LED technology and the battery lasts literally for days. Be careful that you don't get one that is too bright!

<https://ledlenser.com.au/collections/flashlights>

Put them both on your belt and you've got them handy whenever you need them.

And Footwear

Oliver Safety footwear - I love my Oliver safety boots. They are supremely comfortable which make them ideal for a long day and night's work. They have a range of both boots and shoes that meet safety requirements, look good enough for most situations and some of them feature non-metallic toe caps guaranteed not to set off airport metal detectors.

And they last. I've got a 20 year old pair which are worn, but the soles and leather are still in working order.

<https://www.oliver.com.au>

Reduced RF Performance

Not getting the range you expect out of your wireless gear? Try turning off the houselights.

Manufacturers are noticing that as venues change their house lighting to the more energy efficient alternatives, the RF noise floor is increasing as a result of the RF garbage that the cheaper LEDs spew out. Let's say a room has had 200 lights replaced - that is 200 new broadband noise transmitters.

Solution? Move your receiver closer to the transmitters and use high-quality directional antennas. Bandpass filters on your receiver antenna paths will also help.

Sun Protection for Equipment

Did you know that a black item placed in direct sunlight can easily reach temperatures exceeding 65 degrees? What colour is most gear? Black! Temperatures that are high are well beyond the operating limits of most gear. If your gear must be situated in direct sunlight, it is important to consider whether its temperature will get too high. Shade and cooling fans are essential in this situation.

Have you got any tech tips worthy of publication? Send them to:

techtips@simonbyrne.com



The Challenges Confronting our Industry - Real or Perceived, the ACETA Response



By Frank Hinton

Like many, our industry is confronted with demonstrable everyday challenges, including the maintenance of commercial activity, reduced profit margins and constantly increasing operational overheads. Specific aspects of sustainability vary by entertainment technology sector, and in this narrative, we will focus on those impacting manufacturers, in the knowledge that some of the themes affect the entire industry. The notion that Australia cannot compete internationally as a manufacturer is a false generalisation promoted in part by vested interests, in a landscape of diminishing leadership and inadequate government support. The historic reliance on mining and primary industry will not sustain Australia moving forward, the nation has to create and value add to support employment and commercial growth with a particular focus on export. ACETA fully intends to lead, unify and create development opportunity for the entertainment technology industry. At this point it needs to be stated that the views expressed herein are accepted in the public domain or are the considered opinions of the author and not that of the ACETA board of management or its administration.

Australia is one of the most over-administrated nations on the planet, with three layers of government, federal, state and local, two of which consist of both a house of representatives and a senate, five distinct entities in total, all with a substantial public service. Few nations can boast such a vast array of governance nor the cost impost it delivers. All layers of government local, state and federal have their hand in every one's pocket extracting numerous tax variants some transparent, many not. Therefore, we can begin with the fact that over

administration and, in relative terms, a massive public service sector, imposes a significant cost burden on individuals and business. The over-administration also results in duplication, validation of positions and departments, vast amounts of rules and regulation, lots of can and can't do resulting in complexity and red tape. This landscape may be bearable for well-resourced big guys but insurmountable for the majority, who are too small to confront the daunting complexity we call red tape. The regime that tackles the national constitution and reduces the layers of government to two (local and federal), will be forever acclaimed by the electorate, particularly if they allocate savings to decentralisation, infrastructure and the resourcing of manufacturing to increase commercial activity and employment, all of which creates new taxpayers. The above described scenario undermines the capability of small enterprise in accessing the resources that may be available, and compared to those we compete with, Australian manufacturers are under-supported. It seems our competitor nations understand the critical importance of value adding, a sector often populated by small to medium sized enterprises, once the back bone of this nation.

A skills shortage is undermining our manufacturing sector, and in some instances has forced companies to produce off-shore. Education in this country has become well and truly commodified with elements of the tertiary system focussed on lucrative export markets, whilst the TAFE system is no longer addressing core trades vital to our sector. The vast number of degrees being issued is undermining a once prestigious achievement, with industry reporting many degree students devoid of passion, aptitude or experience in their subject matter. ACETA is addressing

this issue from the inside.

All local manufacturers have to sustain themselves initially in a very small market place compared to their USA or European competitors who have infinitely greater numbers of clients on their door step. In addition, our southern hemisphere location places us a great and costly distance from most major markets. This is one of the reasons that our producers are incredibly resilient; they have to be. But on the rare occasion a door opens we are a force to be reckoned with, and for the few who have made it on the world stage we should be proud. Of critical importance is the expanding leadership vacuum that is not just confined to our industry, but a concern generally and as a starting point look at the example set by government. However space restrictions don't allow further examination, maybe another time. ACETA is across the leadership issue and developing responses to assist the membership.

The story so far depicts the glass half empty type narrative that many manufacturers fall in to, and there are many other challenges not mentioned, however we have chosen to live in this country and we have chosen to base our enterprises in this country, why? Do you want to live and work anywhere else? At the end of the day, and challenges aside, Australia is still a great place to live and work compared to many others and my pitch to you, join ACETA, unify, and together we can minimise these challenges and power up your chances of realising the dream.

All the best

Frank Hinton
President
ACETA

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Are you concerned about your mate's mental health?

FACT: Most Australian tech crew and roadies have attempted or considered suicide¹!

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www.entertainmentassist.org.au

Supporting the mental health of Australian entertainment industry workers

¹Passion, Pride, Pitfalls Dec 2014

By **DUNCAN**
Fry



Sha Na Na Na Get a Job

Workin' at the Carwash Blues

Sometimes it seems that everyone I speak to asks me how they can get a job mixing bands. I can't really offer much help on the best way of doing this, because there is no 'sure-fire' method that I know of. However, I can talk about some of the jobs I've had, to illustrate the reality that the job you start off with can be very different from the job you end up with.

The first job I had after leaving school was selling encyclopaedias door to door. This was truly a sh*t of a job; knocking on doors in the afternoons, making appointments to see the family in the evening, flogging them a complete 20 volume set of last year's edition, getting the invoice/contract signed, a cheque for the deposit, and off to the next one. If nothing else it forced you to fine tune the pitch down to a series of questions all designed for a 'yes' answer, with starry eyed parents believing that signing up for these books would have little Tarquin easily slotting into uni five years ahead of time.

If you were tolerably good at it you could get through three a night, and I earned enough to buy myself a car, an old Jaguar XK150s. The only trouble was that I never had any spare time to drive it, or hang out with friends, so after



about three or four months I left the encyclopaedia biz and got a job at a TV station in Mt Gambier, selling ads on TV to the local businesses. This was a great job - well paid, no pressure, no massive sales targets, just make a regular round of calls to see the shops and distributors that might be big enough to afford a TV ad, or even an ad campaign.

But Mt Gambier was a long way from Melbourne, and after a year or so I ended up driving the 400+k back and forward each weekend just for something to do. With no speed limit

and a fast car - I always aimed to be doing 100 mph (160 k) by the time I got to the speed de-restriction sign on the edges of the towns - there was always a nagging thought that one day my long distance hi-speed driving luck would run out.

So before that day came I left and got a job back in Melbourne, washing cars at Reg Grunt's 'Kilometre o' Cars'. The interview was pretty basic:

"Do you know how to wash a car?" "Yes."

"Can you use basic tools like a screwdriver?" "Yes"

"Can you read English?"

I started to laugh "Yes, of course I can!"

"Don't laugh," said the interviewer. "A lot of the car washers can't. That's why they're washing cars! OK, you can start at 8 o'clock Monday morning."

Half an hour for lunch, a ten-minute coffee break morning and afternoon, and that was it. From eight in the morning to five thirty at night I washed cars, cleaned out the insides, vacuumed the carpets, and steam cleaned the engine compartments. Two or three nights a week I would also do freelance loading gigs and try to stay awake long enough to get paid.

As boring jobs go, it wasn't too bad apart from the long hours. In fact I even got promoted, from not just washing secondhand cars but putting mudflaps and towbars on new ones. Sometimes I even installed the occasional electric aerial, because it turned out that I was one of the few people who could read the instructions! Ah, so that's why my interviewer had stressed that point.

Most of my fellow car washers were new arrivals who didn't speak or read much (if any) English, nor were they aware enough to complain about the working conditions. But mainly I fitted mudflaps. Lots and lots of mudflaps! So many that my nickname at work was 'Flaps'.

During the lunch break I used to roam around the back of the car yard, and one day I saw the rear end of an interesting looking car poking out from underneath a tarpaulin. Peeling it back I could see it was a classic 1957 Mercedes 300SL - the one with the Gullwing doors. So that's what old Reg spent his money on, because it sure wasn't better wages!

I lifted up the driver's door and climbed in. The interior was still in reasonable condition for a 40-year old unrestored car, and I settled in behind the wheel, munching my lunch. It was a warmish day, and the driver's seat was very comfortable, and it wasn't too long before I closed my eyes and slowly drifted off to sleep, dreaming of hurtling around the Nürburgring...

I awoke with a start to the sound of raised voices. Uh oh. Reg and a bunch of his minions were waving their arms and shouting at me. One of them came scuttling over. "Get out, get out! You can't sit in this car! Why aren't you back at work? Mr Grunt is very angry with you. Get back to work immediately! I shouldn't be surprised if you get the sack for this!"

I climbed out of the car, grabbing my bucket and sponge, "Lovely car Mr Grunt" I called out, and wandered back to the wash line. I never heard another word about it. When I finally stopped working there I had enough money to buy a small truck, which enabled me to put together a basic PA system and get started in the PA business. So I had no need to look for a job after all. However...

I was going to finish right there but I've been advised that it's not fair to leave out the time that I really did get sacked. I was hoping to spare myself the embarrassment, but my proof-reader insists on it. I once worked for an exhibition company, selling space in an exhibition of professional cleaning products. Not the most exciting of shows, and one that was extremely hard to get anyone interested in booking a stand there.

Eventually the two bosses called me into the office.

"Dunk," the first one said, "We've come to a decision. We're going to **let you go**."

"Great," I replied, poor naïve fool that I was. "Where to?"

They looked at each other.

"No," the first one continued, "We're **letting** you go!"

I still didn't get it.

"Yes," I smiled, "Whereabouts?"

Sensing they were getting nowhere fast with the subtle approach, the other one took over.

"Look," he said, "You're fired. Get it?"

Oh. **Now** I understood!

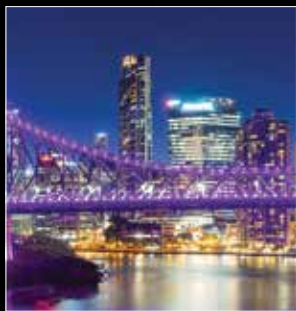
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