

Channels

NEW- Studio
& Broadcast
section!

FREE

The professional Sound and Lighting magazine

Number 12

15th March - 1st May, 1992

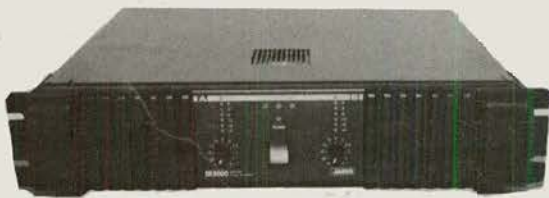
3000 watts

Jands debut new technology amplifier- the Split Rail SR-3000

SYDNEY- Probably the most anticipated product release for some time has been the SR-3000, Australia's first new technology high power amplifier. Manufacturers Jands Electronics have flagged a new direction with the SR-3000, which has evolved through the

past two years, and is said to benefit from 20 years continual amplifier manufacture at the company's huge St. Peters, N.S.W. facility.

To date the professional market has been evenly split between locally made Mosfet and U.S. origin Bi-Polar amplifier types, all of which fail to meet the ever increasing need for very high music power rating irrespective of steady state ratings. This is the answer to new generation loudspeaker power requirements, such as JBL's 2226 15" loudspeaker. What Jands have



done is to adopt Class G technology with a twist, thus referred to as 'Split Rail™ Technology', where a second 'rail' of output devices acts like a turbo-charger to handle musical peaks.

"This is the most efficient amplifier package made in Australia, and also the most powerful", Professional Audio Products manager Peter Twartz told us. It is understood the company has moved away from Mosfet devices in favour of Bi-Polar, for the 2 rack unit tall amp, which has a two stage toroidal power supply. -See P.5 & 17.



Today's chart sensation - tomorrow's feather dusters? And why wouldn't the lady LD be photographed?

Finding Nirvana

ON THE ROAD- Susanne Sasic is Nirvana's Lighting Director, a job which involves operating a lighting console in an area that is barricaded off like an island, surrounded by thousands of frantic and possessed fans. Nirvana might be a weird religious cult masquerading as a rock band, who infect their audience with some kind of utopian frenzied fever. For 45 minutes the three performers imitate musicians with absolutely no charisma and little apparent crowd contact. Somehow the people are ready, they perform by rote their role, which by and large seems to consist of throwing themselves against each other, or the stage. Even ON the stage.

"We have them led off, gently. Strictly no aggression", Susanne states with credibility.

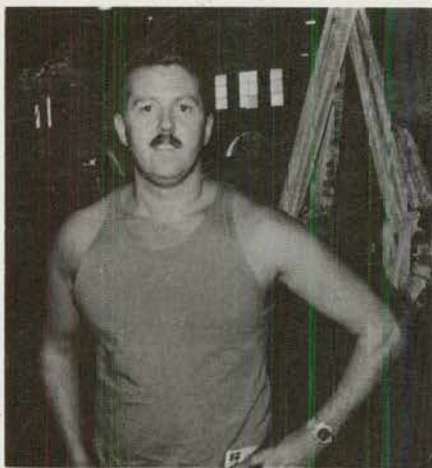
Inside this touring ritual, which draws sell out crowds (and indeed earlier in the week we saw the show, excess thousands of devotees who quietly riot outside), it is business as al

(Go to Page 10)

Tech triumph Less budget, but better Mardi-Gras party!

SYDNEY- If Christmas was called off due to political intervention, the politicians would be marched from their chambers on Monday morning. Likewise the Gay & Lesbian Mardi Gras is now such an entrenched tradition that nothing will stop it. Environmental (noise) concerns and ultra-right wing religious factions have created hiccups, nothing more.

The last Saturday in February is Mardi-Gras
(Continued on Page 9)



Allan Parkinson, Lighting Designer

PRODUCT TEST

Digitech VHM-5 Vocal
Harmony Machine

A vital product, so we dismantle it!
Our full test starts on Page 27.

Venues & Clubs

Our new section that details the inside workings of Nightclubs, Venues and Gigs around the world and at home. This issue we venture to London & visit a Japanese Disco - in Sydney! Starts Page 32.

4 MIXERS COMPARED

We line up four quality mixing consoles from four countries, all under \$4000 and compare. See Page 14.

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Huge Auction week

SYDNEY-Somehow two substantial stock Auctions will occur within days at the end of March. Industry Auctioneers Gray Eisdell Timms have pulled in two Sydney company's; A1 Audio and Total Concept Productions, across the last week-end of the month.

Given the type of equipment offered, it would seem the two Auction's are probably complimentary, TCP's Tony Musico told us at press time he felt the Auction was a better option than TCP's usual annual sale. Tony indicated a wide variety of goods would be offered, including Lasers, Audio, Golden Scan moving lights and even some of the car fleet.

On the other hand, A1 Audio chief Chris Kennedy asserts his auction will clearly end the restructuring the firm undertook when partner Lindsay Hall left. "I'm getting out of Lighting, and after the Auction will be left with a 24 TMS-3 system, and some smaller systems that will satisfy my clientele" he said. An indication of the volume of goods on offer comes from Kennedy's estimate that he carries well over \$1 million in hire stock, much of which will be offered, with other goods.

TCP's Auction occurs on Saturday 28th, and A1's on Monday 30th March. It is understood inspections will occur the day prior to sale, making the event worthwhile for those who must travel. *Info: call auctioneers : 740-6611*

Editors Note

This issue marks yet another increase in size, circulation and our first splash of colour. The continual growth of Channels has startled your editor, who ponders daily the whys and wherefores of this miniature phenomenon. More than anything, the feedback we get indicates a true 'thirst for knowledge' that is obviously begging. This industry, the Stage Lighting and Professional Audio industry is very small, so traditional means of imparting training and knowledge don't apply here.

If Channels can help in this regard then well and good, we'll keep an emphasis on disseminating hard core information, and as always, would appreciate your thoughts.

Significantly, the advertising content of Channels has boomed, which is directly why we can afford more circulation, more pages, and now some colour. With advertisers come the politics, you know- here's the ad, and here's the Press Release, so run this in the next issue like a good fellow..... The policy here is that Editorial must be mildly interesting, which is why some of the stuff we get sent is not used, but we do always try to contact the sender with some gentle suggestions regarding next time.

Finally, with this new prosperity comes a small budget to buy material, you'll see two imported articles in this issue, and we are very keen to buy locally written Product Reviews and general interest items.

Give us a call if you can help!
-Julius Grafton, EDITOR.

Channels

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1

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2

Amp & Effects racks

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Session Hardware

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Speaker Cabinets, Wedges, Quad & Bass boxes

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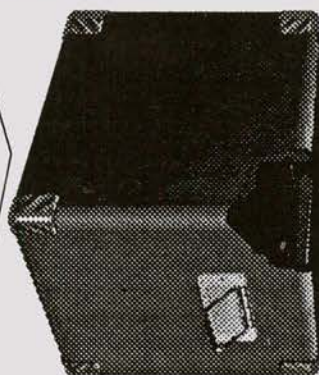
Absolute workmanship

6

PACKAGE DEAL
LIGHTING & P.A.
SALES

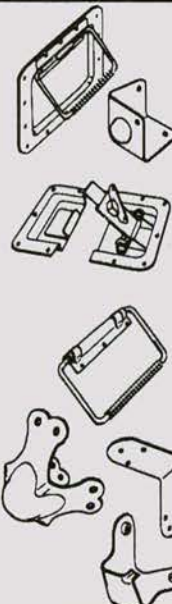
The Cadillac Rack ▶

Front & back covers locate into rebate at bottom of rack, with Velcro strip at top.



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Rack stripping ready for your effects or amps

Carpetted racks with F & B panels
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MACKIE debut Micro-Series Mixer



WOODINVILLE- WASHINGTON, U.S.A.: Mackie Designs Inc. have released a very small mixer, the Micro Series 1202, pitched squarely at the Pro-Sound and M.I. market. The 1202 has four mic or line inputs, then four stereo inputs, making it ideal for small musical combos who generate stereo programme from digital keyboards and suchlike.

Every channel has 2 band EQ, and 2 auxiliary sends for effects or monitors. There are two stereo auxiliary returns (or inputs) at the Master end of the little gizmo, a headphone output, and

balanced main outputs. Tape input and output RCA's are featured, with the input switchable into the second auxiliary return channel.

In Mackie-speak, the Micro-Series 1202 has no 'wall-wart', which means the power supply is built into the steel chassis. There is even a 48v phantom power facility onboard. The dimensions say it all - 11.5" wide x 10.3" deep x 2.2" tall. In metric terms - sorry, couldn't find a calculator!

In Australia Mackie are handled by ARX Audio Sales (N.S.W.) Pty Ltd, who advise they offer the Micro Series 1202 at a retail price of \$1095 including sales tax.

Topstage move

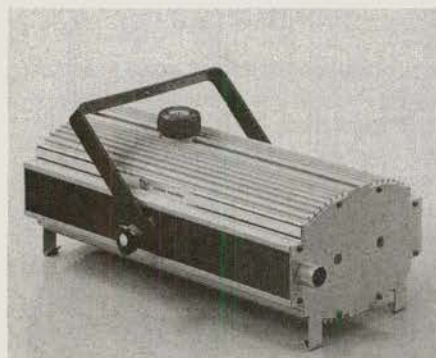
CANBERRA- Pro Sound & Lighting outlet Topstage Productions have moved, after their former Fyshwick premises were resumed for a supermarket development. The new facility is nearby, at 13 Wiluna street Fyshwick, with the phone number unchanged- (06) 280-5710

Italian LX manufacturers setup down-under

ROME- Coemar President Bruno Dedoro, along with Desisti President, Mario DeSisti, have announced a joint venture - in Australia. Coemar DeSisti Australia Pty Ltd will distribute products from both these manufacturers, and is headed by Peter Kemp who is no stranger to Italian lighting equipment.

A letter of introduction from both Presidents firmly states that technical support, spares and total manufacturer support are assured, including support for products sold in the past, as Coemar and DeSisti have been part of the Australian lighting scene for some time now. Fabian Barzaghi has been appointed as Sales Executive, operating from the companys premises in Victoria.

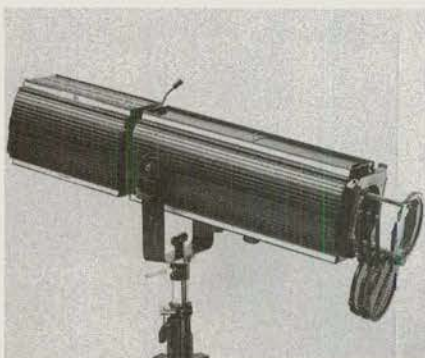
In addition to Coemar and DeSisti, TAS products are also handled by the company. TAS produce a range of theatrical fresnels, profiles and followspots, fog machines and quite a range of effects- which are controllable from any 0-10v analogue lighting desk.



TAS \$500 fog machine

Two products from TAS that illustrate where TAS figures in the Coemar/DeSisti scheme of things are the Macchina Fumo Mini (Mini Smoke Machine to you) which sells for about \$500 inc. tax, and the 1200 watt MSR followspot, which sells at around \$2k. A tungsten halogen version is available at about \$1000.

Coemar have a new line of followspots, the Testa line, available in tungsten halogen and



TAS 1000w tungsten halogen followspot

MSR, which feature the best full colour, foldout, high gloss brochure yet produced in support of a followspot. Forget the lantern, revel in the brochure! If you're very nice to the guys, they might send you one! (This reminds me of the Italian travel agent around the corner from Crown Street Public School, who figured there was little to gain giving glossy travel brochures to a putrid, dishevelled little punk with long hair, but I digress).

Coemar Desisti Australia's phone number is (03) 467-8666, or fax (03) 467-8667.

AUX 1

Unconfirmed rumours abound regarding the financial state of a major US processed PA manufacturer said to be in a "Chapter 11".

Musician Libido knows no bounds. Husband & 'raunchy singer' wife estranged when wife & drummer discovered bonking. Husband then has to replace Singer AND Drummer in band. Once sorted out, (ex) Husband takes up with accounts lady at Brisbane Music Shop, who flicks her husband. Blame the drummer?

Major outside broadcast in newly refurbished venue threatened by big time dimmer buzz at soundcheck. Esteemed OB crew call in contractor, who discovers talk back amp patched to completely different mains source by OB crew. Earth Loop is a basic theory, right?

Unfortunate parallel - some Channels readers evidently savour the delights of the strangely named 'Truth' newspaper, truly a grunge read. An item from the cover of said publication has been sent to us by at least two readers (we have their names). The first line says it all - "A masked man allegedly stripped and digitally raped two" etc. Our tasteless readers wondered if anything was Analog anymore?

Met a true 'illumination engineer' recently. Reg Wilson is a retired Philips Lighting wiz who can calculate lumens and advise on typical commercial lighting conundrums. His phone number is (02) 488-7078.



This is Aaron Chugg, who needs no introduction to those in the touring Rawk and Rawll world. Aside from being Michael's cousin, the Canberra old boy has made himself a name as an artist's engineer. (Mixing Console Operator; or Front Of House Engineer to you). Chugglet has departed these shores for the big apple, where he will spend their Winter, returning during our Winter. This way he will keep his carefully nurtured 'night look'. We wish the lad well, and look forward to hearing his traveller's tales when he returns.

John 'The Ferret' Barclay has departed Graftons Sound, the ever diminishing once-a-long-time-ago former repository of your modest editor, until sold to a South African accountant. Ferret had been employed by the latest owners as sales guru, fronting the offerings from the parent company, Australian Monitor. A replacement is not sought, it seems the old team (recently reunited) of Chris Royal and Jeff Stewart will fill the void left by the departee.

Can't resist - Sydney Opera House Senior LX Op Andrew Hudson and his lady Carmel have had a baby girl- Amy- added to the now nuclear family.

Long time Finance Director at Jands Electronics, John Paillas has left the firm.



Laserdiscs will knock pre-recorded VHS tapes off the market, according to Pro Sound News. Sony & WEA have committed to manufacture in the U.S.A., and of course Pioneer have been at it for yonks, while Philips make them in the U.K. Denon and 3M are producing base discs, while the industry awaits high definition TV for a real boom.

AKG's new Tri-Power microphones (released at the NAMM show, see report, Channels # 11) are headed down under. The Austrian company released the mics a little ahead of production, which is not uncommon at NAMM, the trade show falling just after the festive season. Local distributor is AWA.

BeyerDynamic do things differently- Sting will be the official non-endorser of the S170 series wireless system during his current tour. We take this to mean he will use it, but not endorse it. Many products are 'given' to celebrities for their personal use, on condition the manufacturer can boast about it. In this case maybe the deal ended with a freebie - and no fee was forthcoming for the usual colour tour pix?

DigiTech are on a high with their VHM-5 Vocalist pitch shifter. Legendary heavy metal house engineer Gordon 'Gungi' Paterson has used one with Judas Priest during the Operation: Rock & Roll tour. He adds up to 4 harmonies to singer Halford's voice, giving 5 part harmonies. His technique for using the gizmo is different: an assistant follows the lyric sheet during the gig, punching the unit in and out. "This machine sounds more like voices" he told Pro Sound News, referring to the Darth Vader type utterances of earlier devices, which also tended to Micky Mouse your voice at the high end! Rebel International handle DigiTech here.

A centrifugal blower cools the voice coils in Bond ElectroAcoustics new actively cooled loudspeakers. This is the 922nd manufacturer of loudspeaker systems to appear in the U.S.A. this month, and every one of them just has to have a marketing twist to get noticed. Hey- it worked! Maybe a speaker cabinet that uses waste heat to generate steam, which funnels through a cappuccino dispenser..... Seriously though, it might work

C-MAX Wireless Monitors are out now, from C.M.C. - Circuits Maximus Company in the U.S.A. - this is a transmitter and beltpack receiver combination, with a pair of ear pieces, and using the patent pending C:MAX psychoacoustic stereo environment. They do a wired version too, when you have a more static recipient of your foldback mix, like a brass section, and don't want goddam foldback wedges everywhere. It keeps your stage sound pure too, while giving a foldback engineer total control of feedback. Contact them by telephone on (703) 276-0125. This Product is thought to be unrepresented in Australia, but may, by chance, already be represented by an importer intent on keeping secrets. If this occurs, drop us a line so we can set the record straight.

Moving Light market hotting up

MELBOURNE- Coemar DeSisti Australia have announced their premium contender in the rapidly expanding moving light market- the Coemar Samurai, a 700MSI lamped unit that competes head on with Intellabeam and Golden Scan. The device was launched at the prestige SIB-Magis (Rimini) show in Italy just as we went to press.

Coemar have been ultra busy this year, with the Micro-Scan debuting against Clay Paky's Mini-Scan, a segment of the market that surely will boom if nothing else ever happens in the LX world. Micro-Scan falls in the \$4000 retail area, where Clay Paky's Mini-Scan has benefitted from an earlier launch and some effective promotion by Australian importers, L.A.V.A.

Samurai offers 11 dichroic colours plus white, 12 gobo's, strobe, full range dimming, remote lamp control, and a whole host of protection systems- like a security device to turn the lamp off if the cooling system goes out to lunch. Naturally, as

with all the devices mentioned herein, control is via DMX-512, accessed from a 3 pin cannon on the fixture. Your DMX-512 digital lighting console, like the Event, is just plugged in - no dimmer rack, no external powersupply, no ballast. A LED display even tells you what address number your Samurai is accepting.



Micro-Scan (above), Samurai (below)



Intellabeam does it in a smaller case, Samurai and Golden Scan are pretty much the same size. Samurai is 1115mm long x 445mm wide x 400 tall (from yoke top to lamphousing bottom). In the battle of the bulge, Intellabeam weighs

in at 25.9kg, Golden Scan at 32kg (575W model) and Samurai at 34kg.

For more information, call Coemar DeSisti Australia on (03) 467-8666.

Denon Double CD player for DJ's



SYDNEY: Denon importers AWA have announced a new, rack-mountable Dual CD Player, the DN-2000F. Specifically for DJ. use, this model supplements the DN-4000, which was released last year.

The CD player & controller are two units, the supreme advantage here is that both these units allow cueing, pitch control and instant start. The DN-2000F has the worlds first Pitch Bend feature, according to Denon. This allows the DJ to gradually speed up or slow down the speed of a CD where spot on beat mixing is required.

Another interesting feature occurs whenever you press the Search button to locate a track- a "Bullet" sound effect can be heard whenever the search function passes between tracks.

The play speed of each CD desk can be varied independently by +/- 8% to allow a smooth, rhythmic cross-fade between tracks, a pair of windows display track info. Best of all, the Cue Button allows sampling, so you can 'layer' your mix. This is a 'safe disco machine'- too many old DJ's are HIV positive from swapping needles! Price is \$2399 retail, from AWA. (02) 888 9000.

S.O.S. in Sydney have won a major government contract of some significance, according to sources. The sale represents a handy diversification for the long established firm.

Les Jones Designs have a largish nightclub installation on the boil at Parramatta in Sydney's west- Paradise, which includes a pile of JBL loudspeakers.

Freedman Electronics say they've already contracted plenty this year, including Mollymook Golf Club, Newcastle Workers Club, St. Georges Basin Country Club, and the supply of Servo Drive bins to the Opera House.

Jands Contracting has been busy finishing Sydney Town Hall, Burswood, and Kings School, with contracts recently for the Museum of Modern Art, Sydney University Great Hall, and 8 lecture theatres at Sydney University- each of which included JBL Control 10, 107 amps, Sony & Panasonic Video, and custom built lecterns with film switching on board.

-Be **BOLD** and confess your contracts, depress your opponents- FAX (02) 876-5715

'Lots Of Watts' kick off.....

A new name for NAEK, which is founder Greg Kean's surname spelt backwards- Lots Of Watts Pty Ltd is now at 47 Brodie street, Rydalmere, which is near Parramatta in Sydney's mid-west. The operation has moved into a 3000 foot warehouse, and introduced audio hire featuring compact PA systems. The firm now also offers moving light systems.

...with Moving Light Seminar

Lots Of Watts plan a moving light seminar for Tuesday 28th April at their premises- 47 Brodie Street, Rydalmere, where new products like Samurai and Microscan moving lights will be demonstrated, driven by a Jands Event Lighting console. The seminar starts at 7pm, and includes a 'hands on' session with the technology, which will finish 'when everyone's all DMX'ed out!' For details call Greg on (02) 638-0302.

Disclosure: Lots Of Watts director Caroline Grafton is married to Channels' Editor.

GLOSSARY

Biz talk A B C

M **Microphone-** you KNOW what it is!

Mono- 1 ear, speaker, or channel.

Multicore- a cable containing multiple conductors, typically as used in a PA where running 20 microphone cables to the mixing console is considered a little messy!

Monitors- the generally accepted name for 'Foldback' or in the case of a studio, monitors are what you listen to while mixing.

Memory Console- typical description of a modern lighting board with 'smarts' inbuilt.

Mid-bin- part of a 3 or 4 way PA that reproduces frequencies between about 250-1K2Hz.

Props & Stages Video

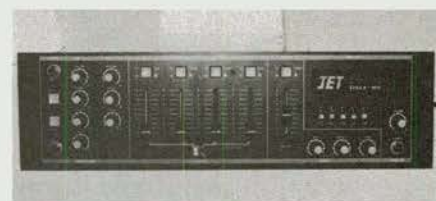
MELBOURNE- The Mazda 626 launch last year featured a huge half-globe of the world - with the car inside. Burkinshaw Consultants built the globe, which does the great reveal with fog, strobes and lots of flashing lights. This is one of two recent productions the firm feature in a promotional video, the other is the Miss Australia pageant. They supplied staging and sets for these.

Phil Burkinshaw has been around since Bill Haley, he introduced Australia to the Par Can in the dark days of 1973, and has been involved in the production industry virtually non-stop ever since. An 'experience' with a modular staging concept has evolved into Suprex Systems, who sell and hire a stage module that is aptly demonstrated in the above video.

Burko, as he is known, is not backward about coming forward, and his video is proof positive that Burkinshaw Consultants can deliver the goods, in terms of Product Launches, Conventions and events like so.

For hire or sales of stage modules, more info, or even an explicit glimpse at his video, call the man on (03) 748-6864, or mobile (018) 386-481.

Jet Disco mixer



SYDNEY- The JET DMX-101 disco mixer offers 4 stereo input channels with 2 mic channels, catering to most if not all DJ requirements, according to Freedman Electronics G.M., Colin Hill. The device was born from the company's less than pleasant experience with the Phonic MR-50. The JET unit offers ALPS faders & switches and is priced at \$625 retail.

Call Freedman on - (02) 797-9999

John Barry for Osram

SYDNEY- Osram have appointed John Barry Group as sole distributors for their Stage & Studio lamp lines, which include T, CP, and P2 class, with MSR's. Lamp sales supremo Wayne Ritchie tells us he is keen to win some business from Philips. Call him on (02) 439-6955.

How Jands put 3000 watts in 2ru

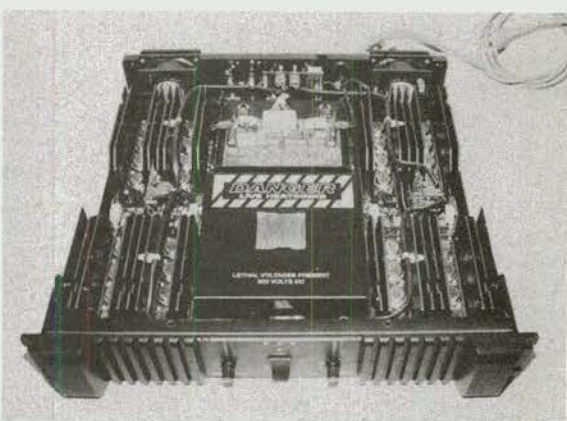
SYDNEY- The 3000 watt SR-3000 amplifier just released by Jands recognises the need for big music power, according to designer Doug Ford. "The fact that Peak amplifier power can- and should- be much higher than continuous RMS power is supported by a recently released JBL tech-note", he told Channels.

During prototyping the SR-3000 generated a lot of interest from the audio community to which it was exposed, who appear to favour a return to bipolar output devices.

"As an engineer, I'm equally happy to use bipolars, mosfets or even valves. I chose to use bipolars for four reasons. Firstly, our Golden-Eared boys had a definite preference for the tight low end sound of bipolars. Secondly, I wanted a truly symmetrical amp, and only complimentary bipolar pairs had the required ratings. Thirdly, these particular devices have a proven record of reliability. Fourthly, the amp can be designed with a non-exotic price.

The tag 'Split Rail Technology' has been adopted by Jands in an attempt to draw attention to the two separate sets of output devices used on each channel. "The second rail runs at 150v, and only handles the programme the first (75v) rail can't. Where our Split Rail Technology really shines is the transition between the rails, which is inaudible, along with the dual power supply that utilises a fairly conventional toroidal transformer but feeds the rails differently".

"What we've managed to do is get rid of a lot of wastage you find in a traditional amplifier's



SR-3000 internals- everything accessible operation, specifically heat.

The 2 rack unit tall amp is built using manufacturing techniques learnt over time, according to Electronics Manager, Terry Cooney. "Everything is accessible when the top cover is removed. High current and signal wiring are very well separated, and signal paths are short. All circuit boards can be serviced in situ. We've rebuilt our factory, with a filtered air dust free environment for assembly. Each amp is burnt in 24 hours at full power, and has 2 runs through our American Audio Precision test set. Every amp has a report printed from the test station".

Channels Snapshot

SR-3000 amplifier, power: 1,500w /ch, 4Ω
Size: 2 rack units tall, Weight: 19.9kg
Dual fan cooled, Full protection circuits.
Price is expected to be around \$3450.

JBL PRESENTS YOUR BEST INVESTMENT YET

System MR Series

Designed by Richard Priddle for Jands - powered by JBL. The most powerful passive loudspeaker cabinets available today - carefully tuned, and optimised for the 2226 15" loudspeaker. Crossover networks in the System 1400 and System 700 are ultra heavy duty, with massive coils and heatsinked power resistors, all tied down properly for years of trouble free, full power use.

Where ultra high power is required, specify SYSTEM. Nothing else comes close.

← FOH PA, Hire, Pro. monitor rigs, large venues.

Musicians, Small PA Hire, venues. →

5 Year JBL Warranty

on MR Series, and System JBL manufactured components.

Fully imported loudspeaker cabinets, wholly built and designed by JBL in the United States. Cabinets are constructed from Engineered strand Board, and covered in pebble-finish Tolex®, with Lexan interlocking corner protectors, even on the trapezoidal models. Components are JBL's new M-Series 12" & 15" woofers, with 3" voice coil & SHG™ magnet design. High frequencies are handled by a true compression driver, with pure Titanium diaphragm, mounted on a Bi-Radial horn.

System 1400

2 x 2226 VGC™ 15" woofers, JBL 2445 2" h/f compression driver.
Power: 1,200w (AES)
Continuous programme at 1m: 134dB
Frequency range (-10dB points): 37Hz - 20kHz
Nominal impedance: 4 Ω
Dimensions: 510 x 510 x 1245.
Weight: 90kg.
Provision for wheels, 2 handles each end.
\$3,895 inc. tax Retail.

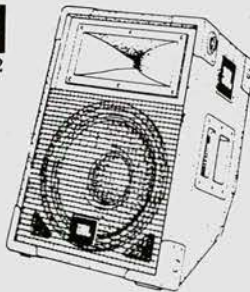
System 700

1 x 2226 VGC™ 15" woofer, JBL 2426 1" h/f compression driver.
Power: 700w (AES)
Continuous programme at 1m: 125dB
Frequency range (-10dB points): 40Hz - 20kHz
Impedance: 8Ω
Dimensions: 510 x 410 x 740.
Weight: 40kg.
2 handles.
\$2,095 inc. tax Retail.

System 1200 SUB WOOFER

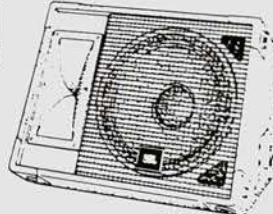
Power: 1,200w (AES). **Continuous programme at 1m:** 137dB. **Frequency range** (-10dB points): 35Hz- 150Hz. **Nominal impedance:** 4Ω. **Crossover point (rec)** 80 - 150Hz. **Dimensions:** 510 x 725 x 1245. 75kg.
Contains 2 x JBL 2226. \$2,195 inc. tax Retail.

JBL
MR802



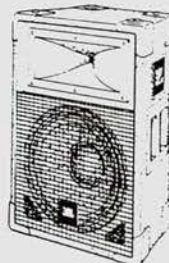
MR 802 12" & horn, foldback wedge.
Power: 250w. **Frequency range** (-10dB points) 55Hz - 20kHz. **25kg.**
\$1,199 inc. tax Retail.

JBL
MR805



MR 805 15" & horn, foldback wedge.
Power: 250w. **Frequency range** (-10dB points) 50Hz - 20kHz. **34kg.**
\$1,499 inc. tax Retail.

JBL
MR822



MR 822 12" & horn, trapezoidal speaker system with inbuilt stand adaptor.
Power: 250w. **Frequency range** (-10dB points) 60Hz - 20kHz. **23kg.**
\$1,199 inc. tax Retail.

MR 825 15" & horn, trapezoidal speaker system with inbuilt stand adaptor. **Power:** 250w. **Frequency range** (-10dB points) 60Hz - 20kHz. **26kg.**
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◆ Also available - **MR 835:** 3 way \$1799, **MR 838:** 3 way \$2299, **MR 818** Subwoofer 1 x 18" \$1599.

◆ System 80 Concert Subwoofer coming

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Steve Gilpin show-thanks

On behalf of the Misex camp and myself, I want to publicly thank all the people at Jands who participated in the Steve Gilpin Concert. They volunteered for the near impossible task of presenting 25 of Australia's top bands in a five and a half hour marathon that ran as close to schedule as humanly possible, and with a minimum of technical hitches.

The crew (in particular Ossie (John Vasey), Mal Collins, Craig Burrige & Nick Elvin) were excellent, and must have set some kind of record for smooth and efficient changeovers.

Once again I repeat my thanks for an excellent job and a complete success.

-Jim Blackfoot.

**Steve Gilpin was, of course, lead singer with Misex, who attained not inconsiderable success and toured relentlessly through the late '70's until 1984. Steve suffered fatal injuries in a car accident on the North Coast of N.S.W., on the way home from a gig. Former Misex manager Bob Yates arranged a memorial concert featuring just about everyone in the Rock scene, with the proceeds helping Steve's widow & young children.*

One of the nicest things about our Australian Rock Industry is that people pull together at times like this - remember Andy Durant? Congratulations to all concerned.

DAT tapes- monopoly?

Congratulations on making this magazine an industry forum! I have just been purusing Channels issue # 10, and the letter from Geoff Crane on the Yamaha DTR-2 (DAT machine).

I find the comments on abrasiveness of DAT tapes of interest, as I have been notified by my erstwhile supplier - AMPEX, that there is currently only one manufacturer for DAT tape in the world - SONY.

Evidently Sony supply the tape to all the brand names.

I would like to be proven wrong on this, as it begs the question of what happens to the format if they go chasing DCC, or some other market, and drop DAT.

Is anyone able to clarify the matter?

-Rod Louey-Gung, Director, Integrated Media, Darwin N.T.

**Sony Professional Products manager, Peter Norman, told us that yes, Sony supply Ampex with DAT tape, and Sony are a major manufacturer of the tape. It is unlikely Sony would drop DAT in favour of DCC - DAT is a professional medium, whereas DCC hasn't provision for code like DAT, and is slightly limited in terms of bandwidth and performance. Sony are chasing MD (Mini Disk), and of course build pro DAT machines like the PCM-2300. Geoff Crane at Yamaha reports there is more than one DAT tape manufacturer, indeed there is the amazingly named 'DIC DAT' company in Asia!*

Not funny, Part 2 (& 3)

They say that all publicity is good publicity as long as they spell your name right ... and ... I thank you for both.

Channels is, without question, the best publication in our industry. It is so pleasing to see how it has grown, developed, and been accepted as authoritative information by so many in what is a very ego and rumour ruled industry. You must be congratulated.

I have known & respected Steve Bray for a number of years, back to his E-V days, and thank him for remembering our newsletter.

"The Daily Pass", so named because we want it "passed" around "Daily" by our readers within their businesses ... and ... not used in their ablutions, it is an inhouse publication aimed at keeping informed the M.I. dealers, installation contractors and pro-audio hire companies in West Australia of the latest developments in our industry and in particular the brands we at Audio Source distribute.

On a sadder note, I would like to pass on to you my thanks for the very sensitive valediction of Andrew Horman. As West Australian distributor for Rebel International, I had a very close involvement with Andrew. I knew him from Klarion days and he truly will be missed and remembered well by the industry.

-Ian Ross, Proprietor, Audio Source, W.A.

In issue #11, page 7 Letters, under the heading "Not Funny", Alistair Dewar from the P.A. People Sydney was voted 2nd Funniest Audio Magazine Editor (*by correspondent, Steve Bray*) for his "Good Morning" greetings on all correspondence. Accordingly he responds as follows:

G'day (a subtle, yet imperceptible change of greeting), there I was, thinking: if it's good enough for John Laws and Robin Williams to open their radio programs with "Good morning (World/Vietnam respectively)", then it would be OK for "little old me" to use "Good morning" when I write my letters to "Audio Personages" *in the morning*.

I realise now that I was wrong. Only the "famous" can get away with it. But I've been mentioned in Channels - I must be famous now too! Still, I'd like to apologise for waking Mr. Bray with my "Good Morning" greetings. If "Good Afternoon" allows him more sleep, then I will gladly change.

Seriously though, I earnestly believe that what has been opened up here is a genuine debate that will rage on for a long time to come. Mr. Eray must be congratulated for his in depth research, and Channels must be thanked for allowing this matter to come before the public.

Yours sincerely, (I'm not game to use my usual close here, less it sparks another debate. The industry can only stand one debate of this magnitude at a time.)

-Alistair Dewar, Mover & Shaker Numero 2, The P.A. People, Sydney.

**This could get out of hand, readers.*

Ear Plugs required

I would like to buy a set of ear plugs that are capable of reducing the volume of sound reaching my ear drums without affecting the tonal spectrum. A friend read an article in your magazine which mentioned such a set of ear plugs.

-John Bisset, Hamilton, New Zealand.

**You're referring to the wireless foldback concept detailed in Channels last year- what you really want are available from a chemist shop.*

Theatre Consultant replies

Having now collected a full set of issues of your magazine, and having read them as well, I notice some criticism in certain contexts of 'consultants'. This may be well justified in some quarters, but one wonders how many of your readers/critics are aware of the real work of a theatre consultant such as myself?

Very often, in the early days of a venue, if we are lucky enough to get involved by then, we are effectively the sole representative of the eventual show operators and performers, and heavily outnumbered at design or planning meetings which are dominated by architectural designers, project managers and others with no real understanding (or even interest sometimes) in anything other than budget and time constraints, or political expediency.

I forward an article written some time ago in an effort to explain our 'raison d'etre' and hope it expands on these comments.

Best wishes for the successful future growth of Channels magazine.

-Denis Irving, Entertech Pty Ltd, Victoria.

**See PAGE 31 for Denis' article.*

WRITE TO CHANNELS- DO IT TODAY!

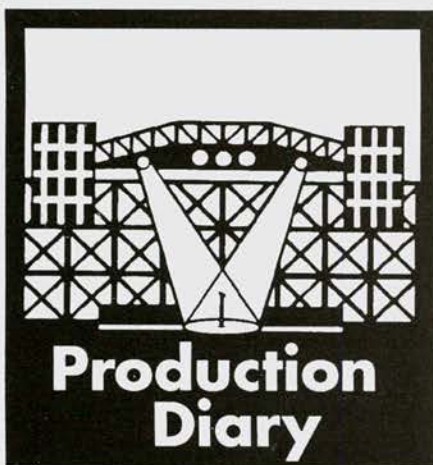
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Production Diary

Jands Production Services have had a variety of work on, **PETER ALLAN'S** tragically shortlived tour used Concords and JBL Modulares, with PM3000/40 FOH, PM2800 monitor console driving 2 R3 atop the new and very awesome System 80 subs, and 12 SLP JBL wedges. Celco 60 drove 60 Pars, 16 Profiles & 5x 4 way groundrows. 2 followspots made up the LX.

JIMMY BARNES continued his road assault, surely he is Jands best customer? The rig in question utilised 12 TMS3, 12 Sub-lows, PM 3000 & 2000 FOH, with PM2800 & 2408 monitor consoles. 6 JBL SLP, 4 DLP, 6 R3 & 4 new System 80 subs made up the monitors. Celco 60 again driving 80 Pars, with 20 Colour Wiz scrollers, 19 profiles and 4 f/spots with 2 smokers made up LX.

The **STEVE GILPIN BENEFIT** took 32 S4, 16 Sub-lows (hey- that's in the Hordern Pavlova, guys!) with 2 PM3000/40 out front and 2 Ramsa 40 monitor desks with every send used! 15 DLP, 6 SLP and R3 with System 80 cabs, AVO QM500 LX board for 192 Pars and heaps more. What a fitting farewell for a performer whose former band had very high production values.

ANDREW STRONG was out with JBL Modular, PM 3000 and PM 2800 monitor board with all Jands 920 amps driving the lot, Celco 60 and all the usual stuff.

BRIAN ADAMS bought a Soundcraft Europa 40 console to our shores for the very first time, with plenty of Clair Bros. S4s and Sub-Lows used. 28 VL2b Vari*Lites, and 10 VLA's were driven by an Artisan console with serial MIDI link, LX included Celco Gold with a lot of Mole Mags, mini-Mole Mags, Colour Mags and etc etc.

VARI*LITE AUSTRALIA have been out with David Jones, and doing plenty of one-offs like the Lord Mayor's Gala 150th gig at the Sydney Town Hall, and Hoyts TV promos.

By Royal Appointment? **Centrestate** had the Queen LIVE at Dubbo Zoo, where 4000 school children were appearing as a choir on the hottest day of the year. The poor little buggers were assembled at 10am for a 3pm performance, and kept in the heat the whole time. Meanwhile, the sniffer dogs were doing Allan Brownies truck, PA and person over, Brownie has the safest PA in the land he reckons.

he **Bandanna Entertainment** boys spent XMAS rebuilding their foldback with the addition of JBL AF-42 concert wedges, which fit nicely in their new 26' truck. Extra ARX FOH boxes have been added, taking the rig up to 10 mid/high boxes atop 12 subs. Just enough for Spinal Tap? In January Bandanna serviced GANG Gajang, The Riptides and the Wendels, with Buddy Guy in February including a State Theatre gig. Busy little Banana's!

Incidentally, Chief Bandanna Rick Doolan cautions any PA operator contemplating University type work. (I could have told him this a long time ago -ED) It seems the Bandanna crew were engaged by an innocent troupe of performers (a band) to supply the necessities at a function within the Hawkesbury Agricultural College. The gig was one of those all you can drink for \$30 type ones, like a B. & S. Ball maybe. The punters were true to the promise and what they couldn't drink, they threw. What they did drink they threw as well, only differently. They also passed their drink from a different part of their body, in one case all over the subs. The last straw was the multicore, which was used as a skipping rope.

**Editors suggestion: A technique utilised by myself more than once was the immediate cessation of the gig until a cash bond was paid against damage. A pre-prepared form, stating that any damage was the personal responsibility of someone in authority, who signed the form, also helped. Get tough.*

Stageworx Productions is Craig Elsely and Michael Walker, who can be remembered from the days when A1 Audio had a lot of Smart Systems and serviced artists like the Jon English and the J.P.Y. Nowadays the two are in business with a Smart System that works well, a Soundtracs 32 console, lightrig and truck. Give them a call on (02) 418-7678.

Tamworth Country Festival pix



Steve 'FLO' Law, Keith Urban's FOH man, at the Monitors.



This is TEX, James Blundell's LD, learning EVENT!

P.A. People spent Christmas and New Year in the park, so to speak, in a re-run of last year. (See Channels Issue # 4 for review). The events this year included Carols in the Domain, and the same night the guys handled Carols by Candlelight at Parramatta Stadium with the Turbo TMS-3 rig, driven by Yamaha PM 3000 and PM 1800 consoles. Back at the Domain the Carols were beamed out on Channel 7, mixed via a pair of PM 3000 after a transformer split. While that was going live, the audience mix was via a PM 3000/40 and a PM 1800/40, with monitors from a PM 2800/40 running 12 sends into 22 CA wedges. Lights were from PA People too, made up of 170 Pars driven by a Jands Instinct 60. In the park for the Festival of Sydney, the events ran like this- Symphony under the stars, Australian Made, Midsummer Jazz and the Australian Opera, all with big numbers of input channels.

AUSTRALIA DAY at Australia's Wonderland fun park saw 16 TMS-3's & 4 TSW-4 subs with a PM3000 for Kate Cebrano & Yothu Yindi, with Soundtracs 32-10 foldback console to 12 wedges. **JAMES BLUNDELL** in Canberra used much the same rig, with some extra TMS-3s and subs. **FISHBONE** ran 12 TMS-3, 4 TSW subs, PM3000, PM2800 to 16 wedges, and a Jands Instinct 60 channel LX for 80 Par 64.

In March PA People have the **ADELAIDE FESTIVAL** Elder Park Concerts with essentially the Festival of Sydney system (Bose trees and see above), with additional 16 TMS-3 & 4 subs for Debra Conway and Crowded House. Another series of Adelaide Festival concerts ran with 20 TMS-3's, 6 subs, PM 3000 & PM 2800 to 12 wedges, side & drumfill.

Then there is the **DIANA ROSS** tour occurring over the top of the above, which has involved the creation of up to 3 separate Turbo systems to cope with the schedule, which starts in Perth. The spec calls for a PM3000/40 with a Soundcraft 24 submixer, 48 TMS-3, 8 TSW-24 subs, various Creative Audio fill boxes, an FX arsenal, with a Soundcraft Series 4/40 monitor console running 14 sends to 30 wedges & 4 TMS-3 fills.

Bellingen Valley Sound & Topstage Productions handled a big swag of the Tamworth Country Music Festival peripheral events this year, ably assisted by a team from Jands who were on a mission that included final listening tests and user evaluations of the new SR-3000 amp. The Jands team included sales person Gutter Bolt and Audio Guru Peter Twartz, with Lighting Research Scientist David Timmins making a cameo appearance. The West Tamworth Leagues Club ran music all day and night for a week straight, and the abovementioned all ganged up and compiled a rig made up of JBL speaker cabinets, monitors, Jands amps, Jands Event lighting console and plenty of other Jands sourced product.

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Gay Mardi Gras

(from page 1)

day, where Sydney's largest street parade winds towards the Show Grounds for a party, starting at 10pm and running till dawn. Jumbo loads of overseas tourists converge on the harbour city for this event, something between 14,000 and 17,000 punters make the party one of the largest annual events of it's kind.

Sound & Lighting for the event are hotly contested, with many different companies involved over the past decade. To stabilise a working relationship, the committee running the event put the production supply to tender last year, choosing Troy Balance Corporation to do sound, and Jands Production Services to supply lighting.

Each year the committee calls for lighting concepts and this year chose Allan Parkinson's. Allan lived in New York for a few years, where he got into club lighting. Returning to Australia he carried on lighting work in various Gay Clubs, lighting some earlier Sneeze Balls and Mardi-Gras Parties.

He takes up the story behind this years Lighting Design: "Last year some designers won the job with a concept that utilised 32 bridled motor points. They weren't lighting designers, they didn't know the building (Royal Hall of Industries). They handed over this huge rig design to Jands, who are a fantastic company that can do anything if you want to pay for it, and the Mardi Gras paid for it. Once the rig was in and up, it couldn't move, it was a total waste of money."

"After that I sat down and thought I could bring it all back to something simple by looking at the building and using the points that are there to dead hang (a system)." "This year's lighting budget is \$20,000 less than last years, to pay for last year's screwup. Last year the Mardi Gras lost a lot of money overall, it has been restructured for this year."

"For example, last year it cost the Mardi Gras \$120,000 to move the Bell Shakespeare company out of the Royal Hall of Industries- they had a complete theatre constructed in there, and the Mardi Gras had to buy the last four performances outright." We asked Allan at this point if he'd prefer to read this story

before we printed it and he said "Don't worry about it, I'm not scared, I've always spoken my mind!"

The politics of an organisation like the Gay & Lesbian Mardi Gras are well understood by Allan, who is on the party committee, so if he is outspoken about things like this, so be it. How the situation arose last year where the Royal Hall of Industries was booked full of theatre across the Mardi Gras weekend defies imagination- but

things are not always as they seem, are they?

Just how matters politic affect large scale events like this is apparent when I call on the Thursday setup day. Organiser Katrina Martin is doing battle with officials from the R.A.S. (Royal Agricultural Society) regarding the rigging points for the sound system. At this



Lighting device of the future. 8 x DWE and/or ACL Par 36's for BIG punch, with a 20 gel scroller. Replaces 40 Par cans!

moment it is 3.20pm, the lighting truss is hung and the four wild looking outlaw rebel red indian type riggers (soon to feature in a Channels interview) are sitting about doing nothing while the figurative meter ticks over. Troy Balance Corporation's Denis Bourke is pacing the floor muttering darkly. Jands Lighting veteran Peter Rooney is cursing because until now he was way ahead of schedule.

The problem is the riggers just can't proceed without permission, and permission is the currency of the R.A.S.- a byzantine organisation that rules it's kingdom, the 60 acre Showground site slap dab in the middle of Sydney's Eastern Suburbs with an iron fist. Denis Bourke's sound system flying arrangements wouldn't normally mean much to The Rooney, except the lighting truss is cabled along a section of truss from one end back to the control tower- and that cable truss is *under* one of the three sound trusses!

Katrina Martin returns looking weary, a foretaste of the days to come. An assistant suggests the runner should get some wine. Up in the mezzanine offices overlooking the Hall Of Industries setup, a group of Mardi Gras workers on

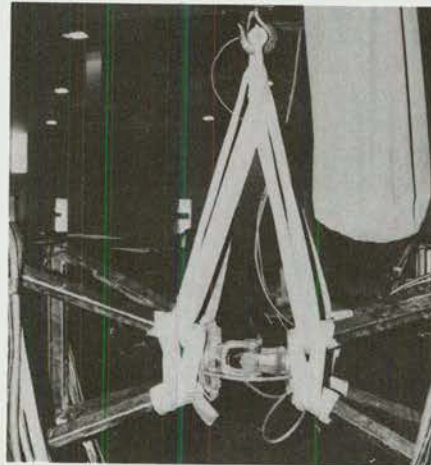
a coffee break surround a girl wearing black stockings, denim shorts and a T Shirt. "Kylie sat just here last year" she tells them, to delighted squeals. "She's my IDOL" one says, the group then discussing earlier years when certain substances were commonplace. "It was 8pm, and then the whole party was, like, OVER! I missed 9 hours, but I must have had FUN!"

Across the pathway in the Hordern Pavillion the setup is almost over- and it's three days early. Allan has eliminated flying points altogether here, with three scaffold towers that carry the lighting design. "Rigging wise you can do anything in the Hordern", Allan told me. "Because the budget was tight I decided to keep the riggers right out of the Hordern, and go with three scaffold towers- one is 28 feet tall, the others 24 and 20." The Hordern rig comprised Par Cans, Scanners, Strobes and two 5 watt 3 colour lasers from TCP. The lasers shoot into mirrors on the towers, which then beamed from tower to tower and outwards- very Star Wars. From inside the dance floor the effect was 20 lasers, not just 2. Geoff Rose was the laser tech,

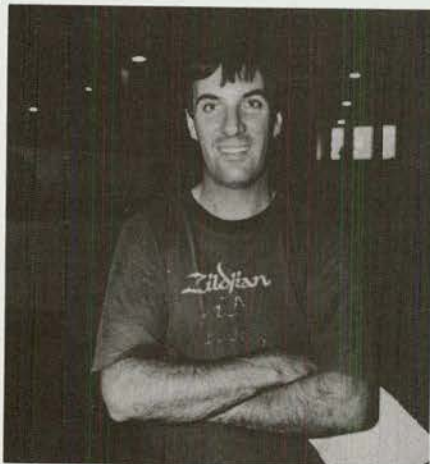
responsible for installation and operation.

In the main venue, the Royal Hall of Industries, the main lighting rig was flown on five chain motors- and comprised a truss with three universal joints that let it bend. "I spoke with Ian Messner (J.P.S. Rigging Guru) and told him what I had in mind- he was fantastic", Allan said. In fact the main lighting system used just 15 chain motors, made up of five for each of the main trusses, four for a pair of stage trusses, and one for the cable truss pickup.

The moving trusses were conveyed with the idea of a rainbow in mind. The universal joints allow the motors to work individually to configure each truss in an arch rainbow, or a 'W' or even 'M' configuration. Riggered on the two



Concert truss universal joint- needs little explanation really, but looks good!



Troy Balance Corporation's Denis Bourke



Laser Engineer, Geoff Rose contemplates

trusses were a total of 24 Vari* Lite VL-2b's, and 12 'Mole Mag's' as Allan called them- which are

(Continued on Page 38)

Finding Nirvana

(continued from Page 1)

most usual. The Australian leg of the Nirvana World Tour preceeded a trip to Japan, where the touring production business is a little different to here.

Susanne is unlike your conception of how a mega-platinum, wealthy American touring band Lighting Director would be. She is a New Yorker, tall and slim, with red hair and hip dress style. I extend this description because she refused flat stop to have her photo taken, which is a shame - because of the perilous deficit in the female lighting community. No reflection on Susanne, but it appears a little easier to get into the industry in New York, mostly because every club has a light rig installed, so the L.D. is only concerned with colour and focus, rather than rigging like here in Australia.

"I started with Sonic Youth about 6 years ago, doing their merchandising, then they asked me to do lights. It was a lot of small clubs with white lights and burnt out gels, they wanted me to pop in some darker gels. It was small clubs for a long, long time."

"The last European tour with Nirvana I got into using Clay Paky Golden Scans, I had four then, and use eight now." Susanne operates the Golden Scans on channels 67 - 94 of a Jands Event memory console. "The lighting company in England recommended I use the Event when I first started using the Scans. I'd heard of Jands consoles, and used the ESP in the States. I use the desk in single preset wide mode, so I can access everything. I've been using the Assign function, that's pretty cool, being able to throw things on".

Horror stories about punters abound, the Australian tour manager Baz reckons it's standard fare for punters to go frantic, frenetic and climb all over the stage. I ask how the hired Goons handle this, and Susanne informs me "They are, sort of, helped off the stage, minimum force, no violence, all they're after is a good time." It means she can't use floor cans at the front of the stage, which is protected by a mega crash barrier which is very cleverly built.

The band like to kick and trash their stage gear around at the end of the night, which helps the audience make their mind up that there will definitely be no encore. Susanne doesn't get caught up in the emotion of the moment, and to date has not trashed her console.

Production for Nirvana's tour was supplied by Revolver, who appear to have satisfied the visiting crew and band alike. The day after we interviewed Susanne, the band and crew flew to New Zealand, and then Tokyo to conclude the tour.

-Julius Grafton

Baz Barrett, tour manager.

Japan tour Notes

Baz Barrett and Susanne were discussing Nirvana's forthcoming dates in Japan, where things are a little different. Nirvana were to use Big One as the lighting company in Japan, where according to Baz, everything is 'just perfect', gear wise. Big One will provide an Event console, into which Susanne will insert an M Card with all her cues - 200 or so - loaded.

"All the crew there wear white gloves. There are many more guys than we're used to, and they all have a meeting before the tour to decide exactly who is doing what", according to Baz, who was last in Japan with Ratcat. At the first show, you have to be dead sure that everything is just perfectly how you want it, otherwise it's too late to change it!"

The local crew in Japan replicate every show, to a master plan, and work in such a hurry it's all done before you realise. Then they clean and polish the gear - very perfect. This all is possible because the average ticket price in Japan is four or five times what it is here, so production can be more luxurious.



Susanne's Mascot doesn't mind being pictured



Nirvana - Lighting Rider

All Lee colours.

1 white cyclorama
4 x 4 cell cyc lights, 1k per cell.

8 x 1200w Mark II Golden Scans- Golden Scans should be positioned on the truss so they can be focussed on the cyc as well as the stage. Scans must have at least 6 colours and 6 gobo's (Stars, Rings, Spirals etc) and strobing ability.

2 x 1500w strobe lights - strobes must have a splitter cable and a single remote control (with rate and intensity control) located at board.

84 x 1k Par NSP

48 x 1k Par MFL

24 x 650w ACL's with colour changers, Lee Colours 122, 116, 128, 106, 119, 196, 135, 105.

8 x 650w ACL's.

2 x 2k follow spots- Lee colours 141, 135, 128, 124, 106, 105.

Jands Event 96 channel board capable of controlling both dimmers and moving lights. Golden Scans control should be on board channels 67 through 94 as follows:

Channel	Function	Golden Scan numbers
67	Iris	1,2,3,4
68	Shutter	1,2,3,4
69	Colour	1,4
70	Colour	2,3
71	Gobo	1,4
72	Gobo	2,3
73	movement, left/right:	Scan 1
74	movement, up/down:	Scan 1
75	movement, left/right:	Scan 2
76	movement, up/down:	Scan 2
77	movement, left/right:	Scan 3
78	movement, up/down:	Scan 3
79	movement, left/right:	Scan 4
80	movement, up/down:	Scan 4
81	Iris	5,6,7,8
82	Shutter	5,6,7,8
83	Colour	5,8
84	Colour	6,7
85	Gobo	5,8
86	Gobo	6,7
87	movement, left/right:	Scan 5
88	movement, up/down:	Scan 5
89	movement, left/right:	Scan 6
90	movement, up/down:	Scan 6
91	movement, left/right:	Scan 7
92	movement, up/down:	Scan 7
93	movement, left/right:	Scan 8
94	movement, up/down:	Scan 8

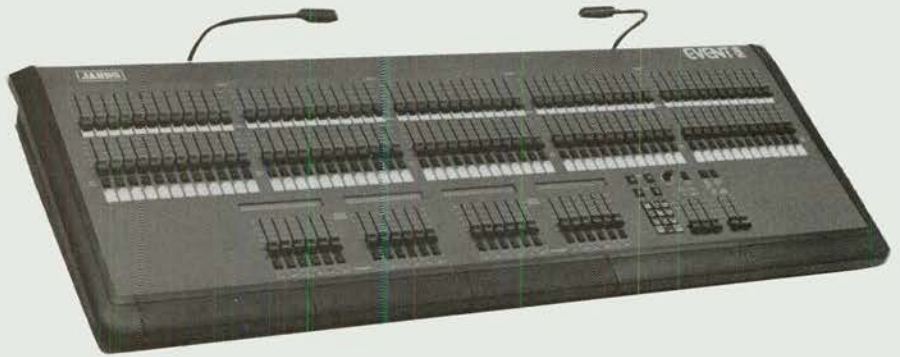
Nirvana's Technology choices

The Event console used by Nirvana was a standard 48 channel console, run in single preset wide mode to access 96 channels. A second option allows for '2 preset wide' mode, where the console operates in standard two preset 48 channel operation, with channels 49-96 operated 'blind', but only accessed by the Assign Masters. The Event's internal softpatch was used to give the 8 Golden Scans various addresses. *Event information available from Jands; (02) 516-3622.*

Golden Scan 2 is built by Clay Paky in Italy, and uses a 1200 watt HMI lamp. Like all currently available (by way of purchase) intelligent moving lights, the Golden Scan is addressed with DMX-512, the digital protocol that modern lighting consoles like the Event produce. Without DMX-512, (or RS232/423, another digital signal) an analogue input is required.

6 channels are required per unit, these are; (1) Iris, (2) Colour, (3) Gobos, (4) Strobe, (5) Pan and (6) Tilt. There are eight standard colours, seven dichroic filters, 2 gobo wheels with 4 gobos each, an iris, and a high speed 'stopper', which can be used to create a strobe effect.

Further flexibility is allowed by positioning the colour wheels in intermediate positions, for bi-colour beams, and shifting two superimposed gobos for an 'evocative effect'. The Golden Scan 2 weighs in at 44.5kg. *More information on Golden Scan from LAVA, (02) 816-4444.*



Event Plus lighting console is ideal for controlling moving lights, the DMX-512 Digital output simply daisy chains from lantern to lantern. Golden Scan (below) uses HMI 1200w lamp.



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Aphex Studio Clock	750
ART DR-1 Reverb	1000
ART 6 Gate	450
ARX SS-1200 (2)	1200ea
ARX SS-700	900
AUSTRALUX 6 X 6 MOTORISED SCREEN	
MATTE WHITE	500
B & H 6 X 6 TRIPOD SCREEN MATTE WHITE	250
BARCO 2846 Mult data 28" Monitor	4000
BEYER DT 109 headphones (6)	100ea
Burle Pan/Tilt head	500
Burle TC1910 dual 10" monitor rack mount (8)	50ea
Chief 3 tier slide stacker	400
Computar 6X zoom lens	450
Da-lite picture king 8 x 8 tripod, glass	450
Da-lite Picture king 7 x 7 tripod, glass	400
DBX 166/comp limiter	500
DBX 900 Rack frame	3000
(includes 1 x 902 de-esser, 4 x 903 limiters, 1 x 929 noise reduction module)	
Dataton Transpac	1500
Digitech 7.5sec delay/sampler	800
Duntech PCL-15 speakers (pair)	750
Electrovoice mic	50
Fairlight CVS	500
Fostex 4030/4035 synchroniser	3000
Fostex B16 tape recorder	5000
Fostex Interface unit: (Panasonics)	300
Fostex 4020 Midi controller	950
Graff cassette duplicator	4500
In-line 2001 Universal Computer/RGBS I/FACE, Mac VGA cables	1000
JBL 4430 studio speakers	4750
JVC BR 6500 Pro VHS VOR	1500
JVC TK885 CCD Camera Fujinon 8mm AA lens	1000
Kodak Navitar 70/120 zoom lens (3)	400 ea
Kodak Navitar 100/200 zoom lens	400
Lexicon LXP-1 Reverb	500
Lexicon LXP-5 effects	500
Lexicon MRC	500
Nakamichi 700ZXL cassette	900
Nady VR 501 Radio mic 200MHZ for on-camera use	500
Onkyo TA RW 490	500
Otari MX 505DA 1/2 TK R/R tape	900
Samson Stage 22 Diversity mic	
EV insert	800
SCV DI Box II (qty 3)	100ea
Sennhieser HD 25 headphones (5)	150ea
Sennhieser MD 441 mic	300
Sennhieser EM 100E/BK20 .2TV,	

900M diversity radio mic, MKE-2 mic	£500
Sennhieser MK3-2-2 mic (2)	150ea
Sony PCM 301	750
TAC Scorpion 24/16/2, 20 loaded, patch bay	12,500
Theatrelight Showmaster 60 channel, softpatch, D/Mtx	3,000
Turbosound TXD590 speakers, pair	2000
White 2/3 octave EQ	200
WRE Bulk eraser	400
Yamaha P2040 amplifier	350
York ML-4K wireless control for slide projector (2)	250ea

DESKS

Yamaha PM1800 24ch	25,000
Scundcraft 400B 32ch	9,775
Scundcraft Spirit Live 24ch (2)	4,600 ea
Yamaha MC2404	4,600
Yamaha MC 1604	3,220
Yamaha M916	3,220
Yamaha MC 2408M	5,520
Yamaha MC 1608 M	4,370
Yamaha EM 200	1,265
Peavey XR 600C 6ch	1,200
Yamaha M602	450
Scundcraft 300 32-8-2 in roadcase	20,000
Scundcraft 400B 24-8 foldback desk	11,000
Yamaha PM1800 40ch	33,000
Yamaha PM 2000 32ch	23,000
Jands 16ch desk in roadcase - be quick	600
LEM 6ch mixer like new each	600
LEM 310SEE 10 channel stereo powerrec mixer with delay in roadcase complete	1700
Bi amp 6 ch desk (ex INXS)	550

EFFECTS

Yamaha SPX 1000	1955
Yamaha SPX 900 (2)	1145 ea
Yamaha REV 5	1725
Yamaha D1500 (3)	363 ea
Roland SDE 555	403
Alesis Quadraverb	725
Jands 8 gate (2)	748 ea
Yamaha GQ 1031B (3)	536 ea
Yamaha Q2031 (7)	863 ea
Yamaha GC 2020B	403
Yamaha C2C (2)	1495 ea
Yamaha DDL3	1495
S/MASTER ACO-1	978
ADA Digitiser 4	800
Alesis Midiverb II	400
Boss DE20 Digital Delay	250
Yamaha KX-230	230
Yamaha KX 530	518
TEAC CD player	115
Yamaha TT400 turntable	322
Sony Discman	230

AMPS

Australian Monitor AM 1600 (4)	2530 ea
Aust Mon AM 1200 (2)	2875 ea
Aust Mon AMIK2 (2)	2185 ea
Yamaha P2201 (3)	1150 ea
Yamaha PC 2002	1725
Yamaha P120	863
PTM 1250	1400
PTM 950	1200
PTM 700	900
Jands 920 perfect cond	1200 ea
Jands M600	850
EHT 2000	2000

MULTICORES

Belder 28 way 15'	(2)	1840 ea
Canare 32 way 18'		1380
Jands 20 way 100'	(2)	920

MICROPHONES & DI's

Shure SM 58 (9)	173 ea
Shure SM 57 (12)	173ea
Shure SM 78	161
Shure PE 66L (2)	150ea
Beyer M38	253
Beyer M201	265
Beyer M59	207
Audiotec ATM 41 (2)	115ea
Audiotec PRO 3D (9)	127ea
Audiotec ATM-63	138
Yamaha MZ205	184
Senn ME441U	460
Senn ME86 (4)	288ea
Eleco Lapel radio mic	748
Eleco Q303 (2)	748ea
Boss DI (8)	184ea
Jands DI (2)	138

SPEAKERS

Australian Monitor F300 ea	115C
Aust Mon B400CD	1725
Aust Mon F500 d/Fill	1035
JBL 4770 qty 10, price ea:	3450
ACCTEC Mids (4) @	345
Stage & Audio drumwill (2) @	920
Stage & Audio low/prof (7) @	805
Wedges	700 pair
EV TL 3way bins pair:	1500
Renkus Feinz 2" flairs	80 ea
JBL Bi-radial flairs	135 ea
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MIXING CONSOLES UNDER \$4000

Cheap mixing consoles are an enigma—you get what you pay for - or do you? At this moment, in music shops across Oz and N.Z., there are plenty of mixing consoles that retail for about \$3,000. Some are perfectly suitable for their intended use, while some are criminally suspect in performance if not durability. Some in fact will, without too much doubt, malfunction well within the first year of use. Unfortunately, the brochure, the sales patter, or even your perception of the distributor's morals all tend to mean nix. Even the place of origin bears little on the result, as we find out.

We have scrutinized the marketplace to find a respectable cross section of products that meet certain standards, and bear in mind there are other products out there, some of which figure OK as well. These just seem to fit the bill, so here we are!

Our four mixing consoles come from four different places: Soundcraft's Spirit Live 8-3 (\$2495) is built in the U.K., Mitec's Studio Server 16 (\$3995) is from Germany, Yamaha's 1602 (\$2995) originates in Taiwan, and Mackie Designs CR-1604 (\$2995) is as American as Mom's Apple Pie. A truly global cross-section!

PRODUCT MARKETPLACE PROFILES

Soundcraft have three Spirit Live models—the smallest of which we look at here. Other models are 16 and 24 channel versions of the same creature, however the console profiled here is rack mountable with an optional kit. Soundcraft are arguably the largest manufac-

MACKIE DESIGNS CR-1604

- * 16 channels
- * 7 aux. sends
- * 3 band EQ
- * 4 stereo effects

returns
* Rack
mountable
* \$2995
retail

turer of mixing consoles in the World today.

Mitec are Germany's largest mixing console makers, who also offer a Studio Server 8, which is of course cheaper, but it seemed the Studio Server 16 was more relevant, as it isn't that much dearer than the 8. Of course it is intended for small recording studio applications, as is the Mackie.

The CR-1604 is Mackie Designs first product, Greg Mackie of course founded Tapco in 1969, so he has some experience. (Just some, OK, heaps!) They also offer a small mixer, the Micro Series 1202.

Then of course we have the Yamaha 1602, which is the largest in a family that span 8 and 12 channels. It, like the Spirit Live, is targeted directly at the Live (P.A.) market, and wearing the Yamaha title negates the fact it is built in Taiwan, right? Right. This is the only non-

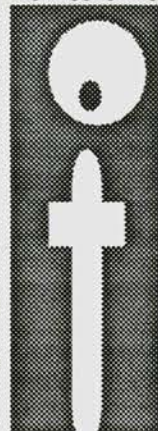


rack mountable console of the bunch.

THE BUSSES

What we have here is a pair of consoles designed for P.A. work, and a pair for your small recording studio. This in no way is a hard and fast rule, you could very happily slap your Mackie or your Studio Server into a stage application tomorrow, it is simply the methodology that is different. One way to overview this is the number of, and functions of the buses.

Soundcraft offer 4 auxiliary sends, (2 prefade, 2 postfade) so you can use two for foldback (prefade) and two for effects (postfade). The three main buses are Left, Right and Mono. The Mono buss is unique insofar



Product Profile

it can be selected at the input channel, and it allows a sub-woofer or centre cluster, or remote mix output, which is a nice touch. Don't confuse this with the Mono output offered by some other consoles, which is just a sum of Left & Right- Spirit's is a true bus.

Mitec also have four auxiliary sends, two pre and 2 post fader- but go about things differently with an in-line design, which we will explore later. They have two main busses, so it's a total of 6.

Mackie go off the dial with 7 auxiliary busses which are accessed thru four rotary pots, the 1st auxiliary has a dual function, a 'Mon' switch throws between the Aux 1 (post) and a Monitor (pre) bus, Aux 2 is post, while Aux 3 & 4 can be selected to Aux 5 & 6 by a switch, all are post. The two main outputs make 9 in total. Yamaha offer 3 auxiliaries (1 pre, 2 post fade) and two main outputs, total 5.

Soundcraft Spirit LIVE

- * 8 channels
- * 3 band EQ with 2 sweepable points
- * 4 aux. sends
- * 4 stereo effects returns
- * Mono bus & extra output
- * Rack mountable
- * \$2495 retail

THE ROUTING

Soundcraft and Yamaha do it like all Live consoles, that is you plug in your microphone or line input, then the signal runs via a gain control to the EQ, then the auxiliary sends 'tap' the line (either before or after the main fader) and finally you assign the main fader output to left or right using the Pan pot. Soundcraft have the added nicety of the Mono switch, so you can send your fader output to that output alone, or to the Left & Right master output as well.

Mackie have the twist we dealt with regarding the auxiliary sends, otherwise it's straight

to the Left & Right outputs- BUT an interesting feature is the Mute/Alt switch, which makes your main outputs independent of the main mix, rather sending them to an alternative left & right output. The 'solo' is true stereo, the only true stereo solo through all the channels and also the effects returns offered on any of these consoles.

Then we have the Studio server, which is an in-line design. The philosophy here has been adopted by all the major multitrack studio console manufacturers, idea being you plug your multitrack record and playback lines direct into each channel, so up to 16 tracks can be recorded on, and then monitored, without re-patching (and without an extra 16 busses!) In fact, the various switchable possibilities the Studio server offers could allow up to 32 tracks to be connected at one sitting - truly way above the market the console services.

THE EQ

Our live pairing both offer three band equalisation - but Spirit wins hands down by offering a sweepable EQ centre on the low and midrange controls, and also a 100Hz lowpass filter for disabling the very low frequency bit

and Studio Server with 4 bands set at 80Hz, 250Hz, 2.5kHz, and 10kHz. Every one of these machines allow +15dB and -15dB cut and boost on each control, except Mackie are honest about their midrange, which allows +12 or -12 only.

THE INS & OUTS

Soundcraft and Yamaha follow live console tradition with electronically balanced XLR mic inputs, plus balanced line inputs via jack sockets on every channel. Likewise this pair have an insert jack on each channel, so you can take the pre-EQ signal out of the console, process it with a compressor/limiter, noisegate or external EQ, and return the signal to the console via the same ring, tip & sleeve jackplug.

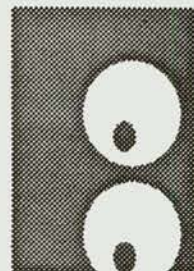
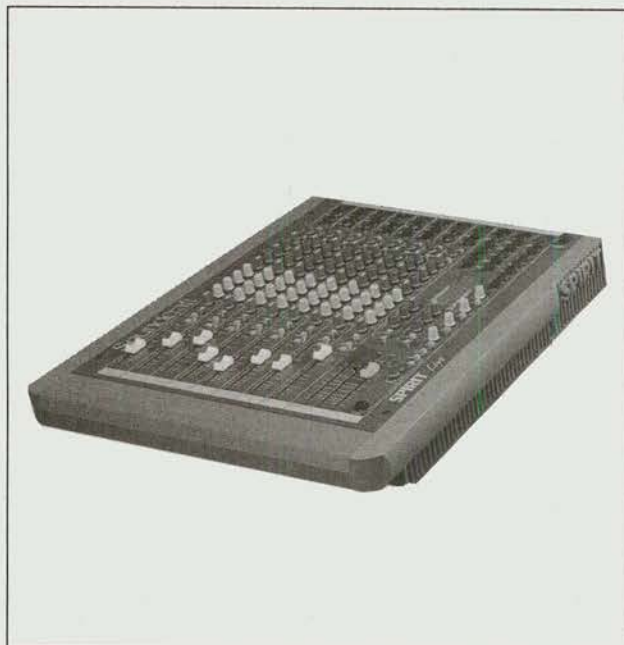
At the master end, Soundcraft let you hook up four stereo effects returns, via 8 jack sockets. Left, Right & Mono outputs are XLRs, with insert jacks. The four Auxiliary sends and a pair of tape record outputs make up the rest of the facilities. Yamaha allow a pair of stereo effects returns via jack sockets, then give you your three auxiliary outputs on jacks, with Left and Right master outputs on XLRs with jack insert points.

Mackie do it different, the first 6 inputs have an XLR for balanced microphone inputs, along with a jack for balanced line inputs. THEN the following 10 input channels only allow for an un-balanced jack line input. Insert jacks are provided for the first 8 inputs only. An optional input module or pod - the XR-10 - has 10 XLR's so you can expand the console if you want each channel to have a mic input. At the master end of the device are four stereo returns, via 8 jack sockets, balanced main outputs Left & Right (jacks only), Alternative outputs Left & Right, auxiliary outputs 1 - 6 plus Monitor, and a pair of insert jacks for the main L & R buss.

Mitec have it all, as an in-line console you connect your tape machine input and output to each channel, then you can have a mic - balanced XLR, a line input, plus there is an insert jack. This is on each of the 16 channels. Four stereo inputs via ring tip and sleeve jack sockets are supplied to feed the four stereo line input returns, then there are insert jacks for master Left & Right, and Record Left & Right. Tape left and right jacks and the main Left & Right output XLRs finish the picture.

METERING

Soundcraft use 16 LEDs which work on a Peak characteristic to read Left and Right



on pesky vocal channels. The Spirit low frequency sweep lets you access any frequency from 40 - 400Hz, and the mid sweep runs from 250 to 8kHz. Together these cover the whole usable spectrum, with the high frequency control fixed at 14kHz. Yamaha's mid sweep varies from 350 - 5kHz, with the high frequency control set at 10kHz, and the low at 100Hz. Yamaha have a three way EQ section as well, but only allow a midrange sweep, with the high and low frequencies already chosen for you.

Our studio duo do it with fixed EQ, Mackie with 3 bands, set at 80Hz, 2.5kHz and 12kHz,

cont. over

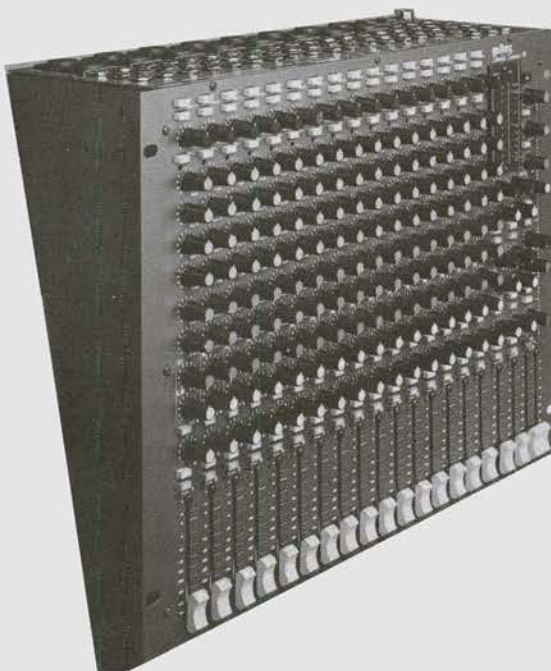
Product Profile

outputs, the Right meter can also read PFL/AFL, making every input & output readable. Yamaha have three conventional moving coil meters for Left, Right and Cue, which will

with the sort of features people want- like real EQ, and the extra Mono bus. They also offer an eight channel expander module, whereas the only other expansion option in this group

Mitec Studio Server

- * 16 channels
- * 4band EQ
- * 4 aux. sends
- * 4 stereo effects returns
- * 'In line' design allows 32 input channels for mixdown
- * 2 input paths
- * Rack mountable
- * \$3995 retail



read whatever is selected on the PFL/AFL bus (and then routed to the headphone output).

Mackie have 10 segment bar graphs, for Left & Right, which will read individual channels via the solo function. Mitec have 12 LEDs per ramp, otherwise it's the same pack drill as Mackie.

CONCLUSIONS

Individual flourishes abound, which is where each of these consoles differ. Is that a tautomer? Mackie's whole design is different to the point of radical. For example, there are no Auxiliary Master controls. Then Mitec manage to condense an in-line design into a rack mount package, which is certainly a first for this sized machine.

The Yamaha 1602 is the largest in a family of 8 and 12 input consoles. Yamaha carry their mixer family styling through to this console, generating a low price point via Taiwan manufacture, which is evident through small snafu's like a mis-aligned talkback mic input XLR on the example we tested. Although small cosmetics hardly affect performance, this writer has a total dread of anything built in Taiwan (or China, for that matter) and this is born from past experiences.

Conversely Soundcraft's Spirit Live in 8 channel format is the smallest in a line that extends to 24 channels. Soundcraft gambled on volume production on their U.K. line to keep their end cost down, opting to endow Spirit Live

is the Mackie's XLR input pod, along with some other Mackie ideas like their mixer combiner (for hooking up to three mixers together) and some interesting mounting and racking combinations. Mackie aren't as specific as the others about market segment, and myself - I'd be a little confused when my Pro-Sound dealer first ran the Mackie past me. The others all have their place- either pure Live, or straight Studio.

Mitec leave well enough alone with the Studio Server, which in essence is a specific package for a particular task. With an 8 or 16 track home studio, the Mitec is just right as a cost effective, small footprint inline console.

There are no winners or losers in this group, which represents a good cross section of the marketplace in 1992. Soundcraft and Yamaha are famous names, equally with first rate representation in Australia. Mackie and Mitec are newcomers, with small (but keen) importers. You decide.

Yamaha MC 1602

- * 16 channels
- * 3 band EQ with mid sweep.
- * 3 aux sends.
- * 2 stereo effects returns
- * \$2999 retail.

The side chain

To a degree the specifications of all these consoles are irrelevant. So we won't list them vis a vis. Let us examine the product as a product instead! Because we have established that each of these mixing consoles performs the task for which it is designed, we are already 90% of the way towards knowing which one suits. Perhaps this will help

BROCHURES. Yup, and guess who wins hands down? Mackie. The guy that does their marketing must have a Porsche, a Gold Amex card, and fly first class. That's because his budget knows no boundaries. In Your Face' is "The mixer journal that's so big it can't help being In Your Face' is just something else. It even has explicit factory pix ... a trend that startles anyone who's spent time in any electronics facility!

Soundcraft run a firm second, offering a short form brochure, and an informative and colourful catalogue. No questions un-answered here. They even have Posters, Stickers, and 'Spirit' keyrings. At presstime, Jands were anxiously awaiting a rumoured shipment of brushed aluminium 'Spirit' cod-pieces!

Mitec battle to overcome 'German' English' where the translation just doesn't quite cut it. For instance, "Rack me, Babe" and ... "Keep on trackin'" ... and even: "Let's spend the gig's together" are catchlines from their full colour brochure. Bizarre, but it's fun! Better yet is the optional 'Smoking Suit', which turns out to be an optional wooden frame for the rack mounting Studio Server. I love these guys!

Yamaha's brochure is OK, showing the 802 in photo form only, indicating their device may sell more often as an 8 channel unit.

CONTACTS

Mackie: ARX Audio Sales (N.S.W.)

(02) 879-6788

Soundcraft: Jands (02) 516-3622

Yamaha: (03) 699-2388

Mitec: Mitec Asia-Pacific (N.S.W.):

(043) 622 620



Amplifier Politics- looking inside

Why get excited about a power amp? What if you threw a pile of money at an amp project and lost it all? Julius Grafton explains why he watches the amp makers like others watch trains.....

Of all the audio products built in this part of the world, large power amplifiers have been most interesting to me, which is why I established Australian Monitor in 1986. At the time, it seemed like a good idea to improve on the large Mosfet offerings of Perreaux and Zetka Industries. I'd been to a Jands Dealer Conference wearing my dealer hat, and solicited Paul Mulholland's assurance that Jands wouldn't build a 1600 watt Mosfet amp - yet. So I would.

What we did at Australian Monitor was maximise the available technology, and package the product properly. With the 1600 watt amp in prototype format we built 10 which we spread about, trying to generate sales. I remember the horrible feeling when two were sent back

by Pro Audio's Nunzio Gambale, "Mate, they blew up!" he said. Another two at the King Tomislav Club suffered terminal mains switch disease, luckily the switch failed in the 'ON' position. The most upsetting thing of all was the review by Louis Challis in Sonics, which was lukewarm - and critical of the fact the mains fuse blew at turnon. We'd not factored in the toroidal transformers' mains inrush spike.

Overcoming all these teething troubles sure taxed us, what with the hunt for equity capital at the same time, and a chronic problem with Mosfet availability from Hitachi. We should have given up, and stuck with what was then a booming pair of Dealerships - one Lighting, and next door Sound. Then a potential equity partner from South Africa offered us \$400,000 for half the Sound businesses, which of course we thought was enough to properly launch Australian Monitor. Probably a million dollars went in before a profit was turned, by which time I'd long gone.

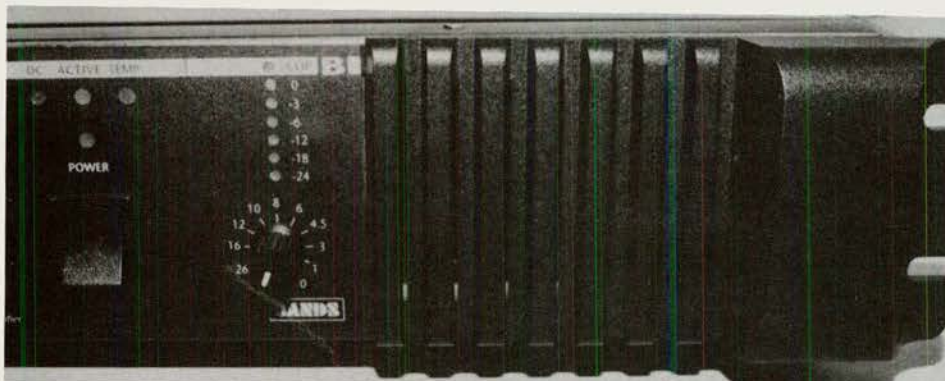
With the benefit of hindsight, what happened was that Perreaux were already suffering market decline, Zetka fell out with their distributor, and Jands stuck with the S920. Now the S920 was the product of an unhappy era at Jands, where the company that dominated the amplifier market in the 1970's and early 1980's with the J600, replaced it with a new series, the J700 - J1000 line. What happened was that the J1000CS, the top-of-the line Concert Series model, was a dud. You had to modify it to guarantee reliability. The experience led Jands to over-engineer the S920, which is one of the most conservative amplifiers ever built.

Now before you dismiss the S920, bear in mind that it is still, today, the most common

concert amplifier across the land, not just because Jands Production Services have several hundred examples. Plenty of other production companys use the S920 today. In fact, head to head with Australian Monitor's product, the S920 outsold A.M. until Jands decided reluctantly they, too, just had to enter the big Mosfet market - which they did with the 516, which was like the

Music being music, and loudspeakers being designed to produce music, lead the need for amplifiers to change their behaviour and be able to produce repeat music power, which is what the SR-3000 does. Jands could see this, as indeed could JBL - who produced a technical paper that put the argument.

Sure there were some fringey concepts from the United States with greater music power ability, but usually at the expense of ultimate reliability in this tough, hot and humid market. The gains in efficiency Jands have achieved with their new amplifier make for less weight (about 20kg vs. 32kg for a Mosfet 1600 watt unit), in a smaller package. For the first time in Australian amplifier manufacturing history an innovation in design has occurred, rather than the usual practice-copy or be damned.



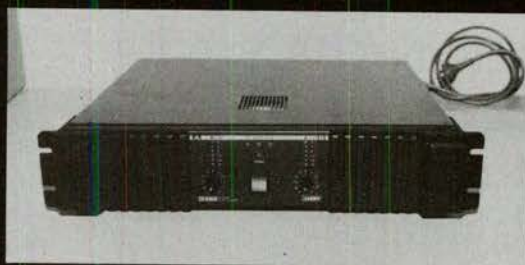
All loudspeakers are capable of sustaining short peaks of power at a much higher level than they can sustain on a steady, continuous basis, and the proper choice of amplifier is quite dependent on the loudspeakers ability to do this. - From JBL's 'Speaker Power Requirements' technical paper.

Preachers daughter. Plain and unexciting, a me too' product.

So since the heady days of the J600 which sold like the proverbial hotcake, Jands have seen their territory diminish, while others have come into a market that has assumed one basic rule: every new product has to have higher power than the one before, and has to be smaller. The quest for power has ignored the reality that an amp capable of 800 watts into 4 ohms RMS really only has an average power capability of a couple of hundred watts- the peak to average ratio is around 25dB.

Big RMS power was a selling point when we released the AM 1600 at Australian Monitor- after all, the Australian Army bought one to drive an experimental sonar project that needed to drive a bunch of compression drivers at high impedance with a reasonable amount of power. That is what RMS gives you- the rated ability of an amp to run indefinitely on a test bench with pink noise at the input and your 800 watts at the output. This is not the answer.

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ORANGE, N.S.W.

Travellers Tale

Duncan Fry tells how he was

Down but not out in New York

New York (or Manhattan, to be precise) is an island city easily held to ransom by anybody - garbage companies, unions, even exhibition freight carriers, as I found out when ARX had a stand at the 1991 AES exhibition in New York. We nearly didn't!

Industry insiders may recall that at the previous AES held in New York, some experienced pro audio connoisseurs managed to walk out with a giant mixing console from a locked and guarded room. Sort of sums up the place for me, although I must say that the taxi drivers I encountered were all very friendly and helpful - a big surprise. Everybody else treated you like scum!

For the show, Dave Park built 4 super skinny display racks, put them in 2 easily transportable road cases, and sent them off via the official show carrier. At 10 a.m. the day before the show I checked with the freight company. Had my 2 cases been delivered to the Hilton for the exhibition? "Well, Mr Fry, they are at the United Airlines terminal, but there seems to be some sort of problem with Customs." "What problems?" I asked. "I don't know, but I'll check and call you back at 12 noon."

Great. Here I am in the world's noisiest city, tired, jetlagged, no bottle of Baileys, a room on what sound like the busiest corner on earth, with car horns blowing incessantly, an oppressively sticky day, and an air conditioner that easily beats the traffic for noise. The only people not finding the

weather too hot are Algis and his wife, from our LA office, who are rugged up in overcoats and complaining about the cold. Californians!

12 o'clock. "We're still waiting, Mr Fry. The trucking company has been out to the airline, but have had to come back as your boxes weren't cleared. I'll call you when I have further news".

2 o'clock came and went, then 3, 4, 5, and then 6 o'clock. Bingo! Just as the whole of Manhattan clicks over onto overtime, miraculously my 2 road cases are cleared, ready, and already waiting at the shipping company's depot. But, of course, now it's officially the weekend!

"Can they deliver the boxes tonight?"

"I'm sorry Mr Fry, we don't do nighttime deliveries".

"Can they deliver them first thing in the morning?"

"Oh, certainly Mr Fry, but the truckers will want a special delivery rate charged."

"How much?" I asked innocently.

"\$300 for a Saturday morning delivery to Manhattan!"

The bottom dropped out of my underwear.

"How much?" I gasped. I couldn't believe it.

\$300 was expensive, even for New York. I mean, we're only talking about a 10 mile round trip from their warehouse to the Hilton and back. \$300!

I sat in the hotel and fumed. These bastards really have you over a barrel. They've already picked up the stuff from the airport, so I can't go out to the airline and get it; the shipment is at their warehouse where I can only get it on their terms. I was getting a fast lesson in how things are done in New York.

Bright and early next morning, dressed in my LA law suit (objection, Your Honour) I hail a taxi, give him the address, and off we go. A couple of blocks later he stops, and pulls out a map. Uh oh, this looks ominous. For a start the driver is Romanian, and he appears to speak less English than I do Romanian. Secondly, he doesn't seem to have a clue where he's going! Eventually he works something

out, grunts, and off we go, driving through some of the most run down suburbs this side of Tijuana. (But Tijuana is another story!)

We stop again, he turns the map upside down, and scratches his head. There's an old black guy sitting on a bench next to us. The driver leans out his window. "Excuse, please" he says, "Where is Brewer Street?" Unfortunately he pronounces it BREE WER street. The black guy shuffles over. "Say what? Bree wer street. Hmm..." he sniffs, scratches his balls and look around. "Hmm, Bree wer street. Well lemme see..."

While he's ruminating on all this, the taxi's meter is whizzing around like there's no tomorrow. I could be broke by the time this old bastard works out where Bree wer street is! "Well... Bree wer street... You sho' dat's roun' here? I would down my window before we

clocked up \$20 on his Hmning and Aahing. "Actually, mate, he means Brewer Street". Light dawned on him "Oh, Brewer Street - Dat's de fust corner heah."

"Thank you sir," I yelled, and slapped on the driver's window "let's go". We turned around the first corner and found the warehouse. I hopped out, told him to wait and unbelievably he turned off the meter! He's obviously new to this game I thought. I collected the two cases, put one in the back seat, one in the trunk, and we were off - back to Manhattan. By 9.30 we were outside the Hilton. Total taxi fare? \$45 including tip! A lot better than \$300.

As I mentioned earlier, Dave Park from



"Tell them to ??? themselves! I'll pick them up myself".

"Pardon me, Mr Fry?"

I repeated myself and she caught my drift. It didn't bother her - this is how New Yorkers talk to each other all the time.

"Well, I guess you can pick them up, but they still want \$50 to open up the warehouse on a Saturday morning."

"What's the alternative?" I asked.

"Well they can deliver it normally on Monday sometime!"

"Great - the show finishes Monday! It's not much good to me then, is it? Tell them I'll come out and pick them up at 8.30 a.m. Saturday morning. Bye."

Continued over

ARX had carefully made these 2 cases to conform to United Parcel Services size requirements, since we would be leaving them in the States for stores to have on display, and UPS is the cheapest, most reliable method of internal shipping in the U.S.A.

By a stroke of luck they were just half an inch narrower than the Hilton's escalators. So I put one in front of me, stepped on behind it, and pulled the second one on behind me. A neat concept, except that two thirds of the way up, I sneezed, and the second case slipped out of my hand!

Klunk - klunk - klunk it thudded back down the escalator, collectin people on the shins and ankles as it went. "Ouch - oww - shit - ouch!" they yelled as it klunked down. Luckily this guy at the bottom had a grain of sense and put his foot on it, and the case travelled back up with him. "Sorry - sorry - sorry", I said to the people following me, as they stepped off the escalator, clutching and rubbing their bruised legs and scowling at me. "Thanks" I said to the guy who had stopped it with his foot!

I hastily set up everything by 10 minutes to opening time, grabbed a coffee and a sugary sticky doughnut for some energy, and the show started. I had made it and even beaten the New York system!

Duncan Fry is a Director of ARX, who has written one of the best handbooks on PA- called LIVE SOUND MIXING. This is an invaluable aid to anyone learning the ropes, and is available from many Pro Sound outlets around the counrty, or from the publishers direct. Call Roztralia Productions on (03) 555 7859. Price \$35.95.

Do you have a Travel Tale for Channels? It could be a tour story, or a tradeshow, or even a holiday where you had some encounter with 'The Biz'. Fax it through to (02) 876-5715, or mail it to: PO Box 439, Epping NSW 2121 Australia.

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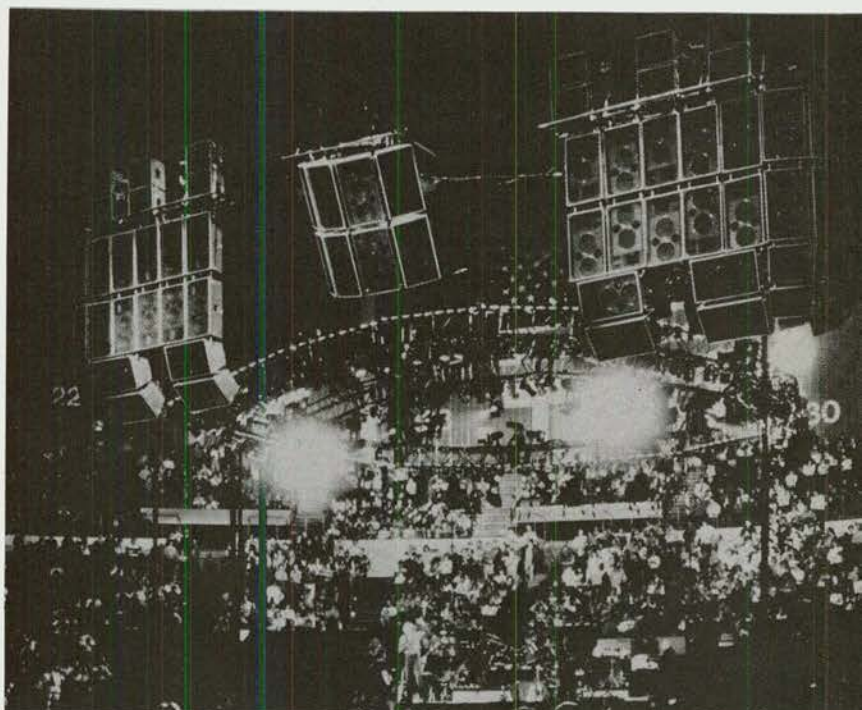
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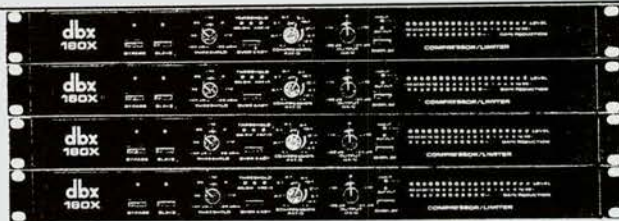
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Gotham crunches the business

Strategic link with Metropolis pays off

The atmosphere in a top recording studio is usually stratospheric, maybe manic! Gotham is different, built in a bushland setting from mud bricks and raw wood. Ross Fraser, who is best known as John Farnham's producer bought the place a couple of years ago when it was known as Fast Forward Studio. Fraser has a partner who prefers to remain silent, but he is someone who likes to record at Gotham!

Before the purchase Fraser & Co met with Tom Kehoe who runs Metropolis Audio, Melbourne's pre-eminent facility, and in an unusual display of logic an agreement was struck whereby Fraser would re-equip and open Gotham, with Kehoe managing bookings from Metropolis. The result is Gotham was configured more as a "project" studio. Having on site accomodation in the form of a luxurious farmhouse made the facility more suited

for a week or more at a time - without City distractions.

Nevertheless the brochure promises "everything you need can be provided", billiard table, heated pool and games room all make an enforced session bearable.

Not overly familiar with big time studio technology I was still very impressed with Gotham's control room, which is BIG. The rear wall has lounge seating for - say 12 people, with room to assemble a monster keyboard rig as well. The console is an SSL 4064 with 72 inputs run by a G Series Studio Computer. Today's cost would be around \$900,000 while Fraser managed to obtain his example in L.A., slightly

pre-loved.

Mastering is your choice, Sony 33 series Digital Multitrackers, Studer A80, Sony MCI-JH24, Otari MTR 90 and Tascam ATR-80 all present in

(continued over)



Home Studio squeeze

LOS ANGELES- The home studio trend is starting to bite the established studio community in this huge West Coast metropolis, according to our correspondent. In a market with over 200 professional recording facilities, many of which incorporate multiple studio's, the proliferation of home studios is sited as one reason for a serious decline in real turnover throughout the industry, along with the American recession.

The established studios are fighting back - by dobbing on home studios who operate without planning consent, and violate local regulations. "I've built a structure, bought my equipment, built a client base, and pay a receptionist. How can I compete with a guy in a brownstone cellar?" said one operator. "I'll do anything I can to level the score!"

With many long established and famous facilities closing, concern has arisen throughout the American studio education system, where graduates are now by-passing recording studios and seeking employment elsewhere. In many cases, established professional recording studio's cannot afford to pay a fair living wage with benefits, and obtaining a health plan for studio personell is becoming very difficult.

Most recently Spectrum Studio's in Oregon have closed their doors, the facility having handled artists like New Shooz, Doobie Bros. and Fleetwood Mac during it's 18 year history. It closed due to "our creditors, financial history, the recession, new technology, price cutting and the costs and difficulties of building a world class recording studio", according to owner Michael Carter, who will sell the equipment to pay the debts.

OUTTAKES

"There is only ONE RULE - there are NO RULES in the studio! - Spike (Producer/Engineer).

"The most important thing while doing vocals is to get the singer as comfortable as humanly possible. If somebody feels more comfortable playing guitar while singing, let them use an unplugged electric guitar in the studio. If they want to lie down, sit down, or have small speakers instead of headphones, go along with it. Under no circumstances should you laugh at a singer for any requests they might have to feel comfortable. -Rolf Hennemann- Engineer/Producer.

"When miking solo sax, I use two Neumann U47's. Place one mic a foot to a foot-and-a-half in front of the bell, then place the second mic about a foot and a half to the side and slightly to the rear of the bottom of the horn. This second mic should be facing the horn. bring both signals through the board. The one in front will be bright, the one at the bottom will sound warm. Dont use EQ, use a blend to get it right!". -Brian Campbell, Producer/Engineer.

Active file

Sydney's Damien Gerard Sound Studio has been busy, Pete Wells new album has been completed with help from Lucy De'Soto & Jon Stevens, Choir Boys did a 9 song demo across 2 days, MOON recorded a single for Chrysalis, Johnny Bachelor and The 182's have also demo'ed. Call them on (02) 692-9915.

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Studio & Broadcast Audio News

GOTHAM (continued)

an isolated, glass walled side room. Monitoring is a pair of JBL 4435, which remained from Fast Forward days. Kehoe told us there was pressure to go Quedstedt or some other "esoteric" type, but at the end of the day "we like the sound JBL give us, and they handle the room". The room is BIC.

Nearfield your choice of monitors can be NS-10, NS-40, AR Red Box and/or Auratone. Outboard is the usual array, Lexicon 480L, 224X, AMS-RMX 16, DMX 80S, Telectronix LA 2A, Urei, Yamaha, Korg, Drawmer, Roland etc etc. They have a B.A.S.E. as well!

The rooms offer a variety of dead, controlled and live environments, The main room or central space, is characterised by its liveness, emanating from the Murray pine floor and ceiling and mud brick walls. The area is a belt of bushland in outer Melbourne, with the access road winding around a Rudolph Stienen school then down

into a valley. At the bottom is a housing development, but 'we were here first!' said Fraser, and in any case only a bare minimum of sound leak occurs from the facility.

I spoke with Engineer David Hemming, who mixed the Redback Fever album for The Angles at Gotham. "Gotham has the big console, it's a nice room and a nice place to be. Steve James (Producer) & I spent two sessions there, over about a month in all, and really enjoyed it."

"We didn't really leave the facility, we stayed in the house and mixed until late, starting at about 11am. Rick (Brewster) was on hand most of the time, and his lady cooked for us!"

"The place is conducive to good working days, and we remained focussed".

Kehoe says configuring Gotham as a project studio makes for a better balance between Metropolis & Gotham, and Fraser as an in-house

producer can pull in work between bookings too. The rate card says \$2,350 per lockout day, which is apparently 'negotiable'. Album budgets still span the \$100 - \$200K range, and Kehoe says he honestly sometimes gets a call from bands with \$500 to spend on a demo. 'Some of them get time at Metropolis!' he claims, which would account for an all-time bargain if true. Tapes and engineers can add a fair lump to the hourly/daily rate as well.

The house at Gotham is an extra \$200 a day, and it's a 5 bedroomer- so accommodation savings are substantial vs. \$180 for a double hotel room with transport on top again. Serious callers can contact Tom on (03) 696-2111.

**Gotham have taken delivery of a Sony PCM 3348, 48 track digital recorder since we called. The device was installed by Sony.*

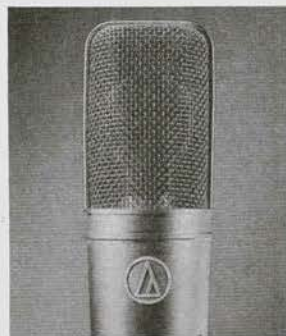


Microphones

Two recent offerings here- the Audio Technica AT-4033 Studio Condenser Mic is the one Phil Ramone won't give back, according to the advert!

Yamaha Australia offer Audio Technica products, and state the AT 4033 offers very high output, low noise, tremendous SPL handling capability (140dB, extended low-end response and extremely flat frequency response from 30Hz to 20kHz.

It offers a cardioid pattern, and is designed for critical studio work, vocals or voiceovers. The suggested retail price is \$899, according to Sydney dealers, The P.A. People. Call P.A. People on (02) 642-5344, or Yamaha on (03) 699-2388.



Audio Technica AT 4033 (left), and Rode NT (Rodent, get it?)



Likewise the Rode NT is also a Studio Condenser Mic, which comes complete with a foam windshield, mic holder & suspension mount. It has a -8dB pad switch, and a filter to allow you to tailor the sound to a reduced bass/increased treble response. Imported from China, by Freedman Electronics, who say the retail price is \$595 inc. tax. They offer a five year guarantee. Call them on (02) 797-9999.

Audio Oz re-jig NEVE

The latest release from Audio Oz is somewhat unusual in that it is "almost" a new product. The finished article consists of 2 Neve EQ Modules fitted into a new 1U x 19" rack mounting case with separate balanced mic/line inputs and balanced in/outputs. The twin Neve equalisers are true Neve EQ modules which have been removed from Neve consoles. They have been cleaned, serviced and put into a new rack unit with newly screened front panel and integral power supply.

Naturally supply is limited, so call Serge Rancev at Audio Oz on (03) 696-5690 for details.

Channels

Studio and
Broadcast News

Stories wanted

The editor invites submissions from anyone on Studio & Broadcast audio related topics. It is planned to run this section in Channels on a regular basis, or even each issue if material can be provided. Freelance contributors are invited to contact the editor, Julius Grafton on (02) 876-2612 to discuss story concepts and payment.

Suppliers and distributors may forward product news and information to: Channels, P.O. Box 439, Epping 2121, NSW. Fax (02) 876-5715.

Naturally enough, prospective Advertisers are encouraged to call Dayle on (02) 516-3622 for a great rate!

Digitech VHM-5 Vocaliser

How to harmonise without sounding like Darth Vader or Daffy Duck! By Derek Johnson.

Pitch shifting is no new ideal in the Digitech camp, with the IPS33 and IPS33B harmonizers having been around for some time now. What they and the latest addition to the Digitech range have in common is Digitech's collaboration with IVL technologies of Vancouver. IVL is perhaps best known for their Pitchrider series of pitch-to-MIDI converters, and this technology has obviously put them in a good position to tackle the problems of creating convincing artificial harmony production.

Such co-operation between companies is not all that common in our industry, but it's very good to see it happen, especially when the results benefit the musician in such a positive manner. And the live demos I've seen showed the Vocalist to be of definite benefit to musicians. In essence, the device can provide a multi-part vocal harmony live as you sing, and it can produce a few neat vocal effects including tuning up your off-key notes. Obviously, what is good live is also useful in the studio.

DESCRIPTION

It is unusual for an effects unit not to be packaged in a 19" rackmount unit. This is a bit of a revolution for a start, but the design is aimed at making the Vocalist more accessible and attractive to...well, vocalists. The unit is rather small, but sturdy looking. It's about the size of a telephone answering machine with a logically laid out, slightly sloping front panel. The reason it has controls at all, is that it needs to know something about the music you are performing - it can't just make a blind guess - or, rather, a deaf guess!

There is a 12-button 'keyboard' dominating the front panel, which is labelled with the note names, and an associated LED above each. This is used for selecting the scale key or chord root of the harmonies while singing. To the left of the 'keyboard' are three faders that control the level of the input, vocal output and effect output. On the keyboard's right are the Utility Store, and Harmony Mute Buttons. Top left of the panel we have four signal strength LEDs (marked at -30dB, -20dB, -10dB and 0dB), a three character LED programme number display, and below that the signal-lock LED.

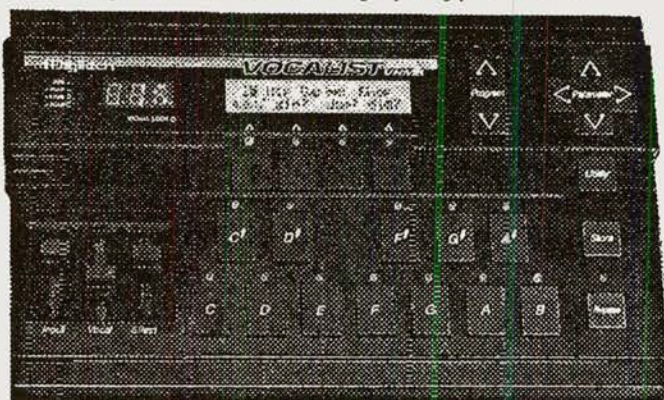
The main LCD panel is a 20 x 20 character affair that shows programme names and the four harmony variations available within that programme. It's big enough to be fairly informative during editing. Below the LCD are the four variation soft keys, each with a LED.

Next to the main display is the Programme button: press the upper section to increment,

the lower section the decrement, and hold down to scroll at high speed. Finally, next to that is the cross-shaped array of buttons for accessing parameters. The left and right buttons move be-

between menu screens, and the up and down buttons increment and decrement parameter values or enter and exit submenus.

Digitech are not known for high quality promo shots!



tween menu screens, and the up and down buttons increment and decrement parameter values or enter and exit submenus.

Connections are at the rear, and from the right comprise a balanced XLR mic input and a 1/4" jack for line-level signals; the input level to both is controlled by a +4dB/-10dB button. (Perhaps I'm being churlish, but wouldn't it have been nice to see phantom powering supplied on the XLR input for those users wishing to plug in a serious capacitor mic? Of course, this would have meant a higher cost.) Next is a 1/4" line-level output carrying the dry signal from either input.

A mix of the input signal and the harmonies is output via two jacks, and there is also a stereo headphone socket. A footswitch socket is available, designed for use with the VHM5 three way footswitch. Last of all are the inevitable three MIDI sockets, and the 9V power socket and power switch.

The Vocalist's full name is the VHM5 - Vocalist Harmony Machine 5- and the '5' means the end result will be a five part harmony, including the input note. Basically, the Vocalist takes the input signal, and using 16 bit sampling with 24 bit processing, generates up to four harmonies which, Digitech claims, maintain the character of the input signal and sound natural over large intervals. Apart from harmonies, the VHM5 can also be used for pitch shifting and correction, as well as providing chorusing and slight detuning.

TECHNICALITIES

There are 256 programmes on board the Vocalist, half of which are preset. Within each programme there are up to four selectable 'variations'. There are a variety of ways to harmonize or create effects. These are scalic

harmonies, chordal harmonies, a vocoder effect, and a pitch corrector. As the unit comes, the 128 basic programmes are arranged as follows: the first 16 are a grab bag, giving a quick first impression of what the Vocalist can do. Programmes 17-47 are chordal harmonies that sound correct over the indicated chord, regardless of the note sung. Chordal harmonies are arranged as three voice, four voice and five voice harmonies, where one part is always the input signal. The harmonies are voiced above and below the input in close and open forms. Four Variations per programme can be chosen for chordal harmonies, from major, minor, major 7th, minor 7th, dom 7th, minor 7 flat 5m, aug 7th, diminished. Programmes 48 and 49 are Vocoders, and 50 is a Pitch Correction programme. Special Effects (chorus, detune, pitch shift special effects) are found in 51-53, and Scalic Harmonies take up the remainder. The first programmes in this group use scalic harmonies to emulate some familiar styles of harmony (Carpenters, Supremes, 1940's, and so on). The rest are a wide variety of common intervals. The naming convention for these diatonic harmonies uses a '1' to indicate the position of the sung note. Numbers to the left of the sung note indicate harmonies in the octave below and numbers to the right indicate harmonies in the octave above. For example, 2-5-1-3-7 indicates two harmonies a second and a fifth below the input note and a third and a seventh above. There are four variations available for scalic harmonies: major, minor, whole tone and diminished.

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PROGRAMME EDIT MENU

Song edit is the first parameter you need to know about. It's here that you can prepare a sequence of chord changes to suit whatever song you're working on. For a painless introduction to this procedure, see page 12 of the manual - you'll be taken through all you need to do to produce gospel-style harmonies for 'Amazing Grace'. Well done to Digitech for this one - a highlight of the manual, which really gets you going fast and provides a very graphic illustration of what the machine can do.

Onto the other Edit parameters. Harmony Mute allows you to tune on or off the harmonies in the current variation of the programme

Continued over

you're editing. Next up is Harmony Volumes, although each individual harmony doesn't have a volume control. Harmonies 1 and 2 are assigned to the left output, and harmonies 3 and 4 are assigned to the right output, and each output has a volume level. Vibrato can be added to each stereo channel (i.e. two harmonies at a time), and up to +/- 125 percent of detuning is available for each harmony.

Pitch Randomize gives three levels of random pitch fluctuation - because 'only synthesizers are perfectly in tune' as the manual says. A Portamento control allows your harmonies to slide after you at different speeds.

Load New Harmony is a cue for a large sub-menu. First of all you choose the harmony type, and then you choose a variety of options which vary depending on your choice. These options can include scale type, chord type, voicings and so on. In Vocoder mode, the pitch of the harmony parts follows the input of a MIDI keyboard, with Pitch Bend so it doesn't operate like a traditional vocoder (other than being keyboard controlled). Pitch Correct is basically a monophonic version of the Vocoder mode. The available harmonies and voicing can be found under Harmony Edit. Finally, each programme and the variations within programmes can be named.

UTILITY MENU

As usual with hi-tech equipment, the Utility menu covers a number of global parameters. In the Vocalist's case, the Utility button hides such functions as overall MIDI change, MIDI programme change receive selection, and programme change map. There is also a 'Synth Play' function that comes in handy when setting up programmes and variations. It plays, with the internal synth (which is a buzzy little waveform), the harmonies that you are currently working on - very good for auditioning. You hear an input note (selected from the keyboard) and the harmony or harmonies you've selected.

You can also get a 'cue-in' note from the Synth Play page, to make sure you're in tune with the Vocalist, as well as an overall tuning reference; A can be set from 420Hz to 460 Hz, which should suit quite a wide range of pop and non-pop situations.

MIDI Parameters has a separate sub menu, and apart from the pedestrian facilities just mentioned, the Vocalist can be set to send a MIDI programme change or a MIDI note each time your key or variation is changed. It doesn't take much imagination to conclude that this means that all the chord changes for a song or songs could be saved along with the sequence data for that song, making the singer's job very much easier when it comes to gig or recording time.

The contents of the VHM5's memory can be dumped to or loaded from a MIDI librarian, and some continuous controllers can be assigned to some Vocalist functions. Mod Wheel could be assigned to control Vibrato Depth, for example.

Other parameters available for control include Detuning of the four current harmonies, vibrato delay, vibrato speed, harmony volume, pitch randomize and portamento speed.

Sibilance can cause problems for the Vocalist, so Digitech has included an 'Ess' sensitivity control to deal with just this problem. Another side effect of harmonizing devices is the harmonization of off-mic signals during moments of non-singing; the Harmony Gate Threshold addresses this problem. The footswitch utility sets up the dedicated Digitech three-way footswitch for a variety of uses, including various combinations of programme increment/decrement, song list advance, and bypass. This has its most useful applications in live work - you wouldn't want to forget to step on the bypass button for between-song chat, for example, unless you want to sound like a spaceman. (What about a Specemin? -Ed)

IN USE

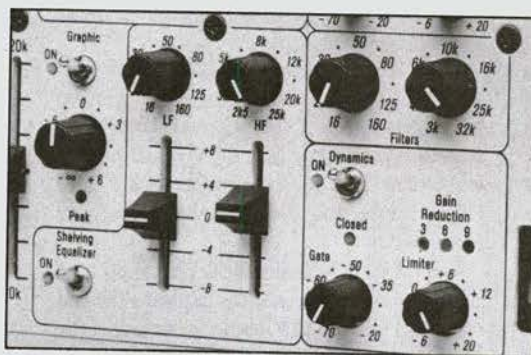
In use, the Vocalist is reasonably straightforward. Presuming that you know the kind of harmonies you want to use, initial setting up involves plugging in a mic and adjusting the input fader so that the signal lights up all the level LEDs with just occasional peaks to the red LED (0dB). Sing with the mic as close to the mouth as possible to exclude other sounds, and make sure you're close to the mic, that the input level is high enough, and that your cable isn't mangled.

I didn't do the singing during the tests, although the Pitch Correction programmes did a

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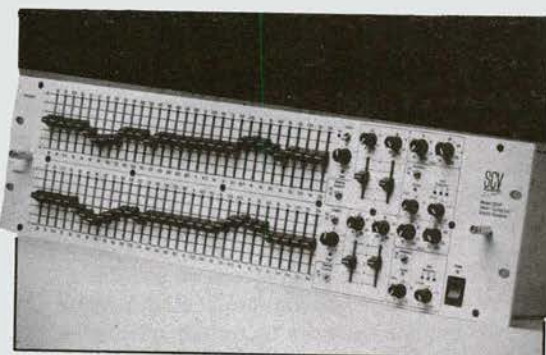


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valiant job of making some sense out of my vague croaks. I took advantage of a real singer, the particular species that is going to benefit most from the amazing technology on offer. As with all sophisticated technology, the VHM5 will do a good job with an indifferent singer, but a much better job with an excellent singer.

Let's get one thing straight right away; although technology has come a long way, we're not yet at the stage where electronically produced harmonies from a single input will bear close scrutiny- but the Vocalist's harmonization quality is certainly the best I've heard, and it works well in the context of a typical mix. Its pitch-tracking is very fast, with few glitches and almost no perceptible delay. This alone was astonishing. The quality of the harmonies is excellent, and although they aren't perfect in a musical context, the overall quality of the input vocal is maintained. While the harmony sound still has an artificial kind of edge to it, gone are the days of Alvine and the Chipmunks or Darth Vader. If you listen to them in isolation, the character of the original voice still remains - especially on upper shifts and harmonies - but there's still something eerily electronic about the effect. However, when you mix in the original voice, the unnaturalness fades into the background, leaving an impression of pleasing warmth and depth. The overall effect is of real four-part harmonies happening in real time.

Single shifts above the input signal produce interesting effects. In fact, speaking into a microphone that is being treated with an octave shift above can produce quite hilarious results.

Well, I laughed. But the effect is also very convincing. Single, wide lower octave shifts aren't as convincing, but are still usable. As you'd probably expect, wide shifts produce the most disconcerting effect, while close harmonies are the most convincing.

In Scalic harmonies, the tricky affair of dealing with non-scale notes can be dealt with in two ways; by setting them to 'slur' or to have 'no change'. Using a 'slur', harmony notes of one scale note slide evenly to the next scale note, with any non-scale noted (chromatics for example) not being harmonized. Set to no change, the non-scale note gets harmonized by the previous chord, which is probably okay if your non-scale passing note is C# between C and D; with a 5-1-3 chord, the C# would be harmonized by a G below and E above. Alternatively, harmony notes can be assigned to non-scale notes in the Harmony Edit menu.

IMPRESSIONS

While the packaging is small and initially flimsy looking, it is actually quite solid and weighty - certainly good enough to stand up to serious use, apart from the three fader caps being somewhat loose. And its size is such that I'm sure anyone could find a space for it in even the most crowded studio. Using the Vocalist in real time on stage would be tricky (although not impossible with practice), but I think a significant number of live users will have their harmonies triggered by programme changes or note numbers from a MIDI sequencer. The footswitch socket works best with Digitech's own three-

switch mode, which can be set up for a number of tasks. It may not be too relevant to studio use, but the footswitch is a bit small, light and liable to skate around the floor. Balancing a foot over it tends to misfire some of the switches, which is a bit distracting.

One small negative point about the packaging is that it really is a dust magnet, especially those nice little buttons. Once attracted, dust is hard to get rid of. So take a tip; keep it clean and covered when not in use.

CONCLUSION

The ergonomics of the unit are great, making it as easy to use as possible. The manual is logical and very accessible to novices as far as page 12. All the initial setup routines are explained clearly and carefully. Beyond that, the novice is in water slightly above ankle level. But for those of us who have grown up on other manuals (which we won't mention), the Vocalist's manual is very good.

Another small point is that although familiarity with the nuts and bolts of music and harmony are not prerequisites for using the VHM5, those that are on more than nodding terms with harmony are going to get a lot more mileage out of their unit. Hence, musical illiterates will find parts of the manual a little tricky and will probably resort to trial and error.

Looked at from a vocalist's point of view, Digitech's new toy provides possibly the first bit of electronic trickery aimed at tempting a vocal-

-Continued on Page 38

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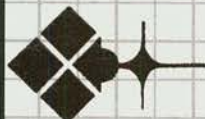
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The Connector Bible

Part Seven in a series

Cannon 'EP' Speaker Connectors

The basic Cannon EP range of connectors is available in a number of pin configurations, of which two are regularly used by Jands. The 'EP-4' is a four pole version that has been widely used for bi-amplification applications. There is additionally an eight pole version which is used for the connection of three & four way systems.

As with most connectors in the audio industry there are a choice of industry standardised wiring configurations for both connectors although with the EP-4 the differences are, fortunately, only in phasing.

The Jands standard is used on Jands AP-30 (also known as Series 3's) and AP-35 composite speaker systems; it is used by Jands Production Services on their Clair S4's; and most of the Turbosound TMS-3 Cabinets in Australia.

The Jands Concord cabinet uses a different wiring configuration.

The US/European standard is used by JBL on their "Concert Sound" and original "Sound Power Series" product ranges.

JANDS STANDARD THREE-WAY WIRING

Pin 1	Low freq. common
Pin 2	Low freq. hot
Pin 3	Mid freq. common
Pin 4	Mid freq. hot
Pin 5	High freq. common
Pin 6	High freq. hot
Pin 7	no connection
Pin 8	no connection

These cables are constructed Female-to-Female, with both amplifier racks and speaker boxes being fitted with chassis male connectors.

COLOUR CODE FOR MULTIRE CABLES

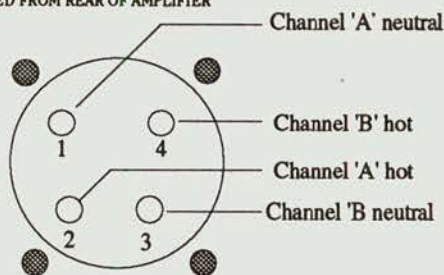
These are colour wiring configurations for standard Belden & Hartland cables. These colour codes assume the 'A' leg is connected to Pin 2 of an XLR connector.

Colour & wiring chart

Pair No.	'A' LEG Hot signal	'B' LEG Cold signal
1	Black	Red
2	Black	White
3	Black	Green
4	Black	Blue
5	Black	Yellow
6	Black	Brown
7	Black	Orange
8	Red	White
9	Red	Green
10	Red	Blue
11	Red	Yellow
12	Red	Brown
13	Red	Orange
14	Green	White
15	Green	Blue
16	Green	Yellow
17	Green	Brown
18	Green	Orange
19	White	Blue
20	White	Yellow
21	White	Brown
22	White	Orange
23	Blue	Yellow
24	Blue	Brown
25	Blue	Orange
26	Brown	Yellow
27	Brown	Orange
28	Orange	Yellow
29	Purple	Orange
30	Purple	Red
31	Purple	White
32	Purple	Dark green
33	Purple	Light blue
34	Purple	Yellow
35	Purple	Brown
36	Purple	Black
37	Grey	White

EP-4-14S output connector

VIEWED FROM REAR OF AMPLIFIER



Cannon EP4

JANDS STANDARD BI-AMP WIRING-

Pin 1	Low frequency common
Pin 2	Low frequency hot
Pin 3	High frequency common
Pin 4	High frequency hot

These cables are almost universally constructed Female-to-Female, with both amplifiers and speaker boxes being fitted with chassis male connectors.

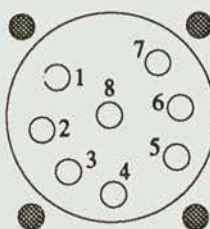
The most common variation on this is to reverse the phase of pin 3 & 4.

Cannon EP8

There are several main differences in EP-8 wiring which need care. There are two Australian standards, the predominant one of which for three-way-PA usage is based on a US standard. The second differs from the first and additionally there are two standards for four-way PA usage - a European, and a US standard.

EP-8-14S output connector

VIEWED FROM REAR OF AMPLIFIER



EP-4 Female Line connector.

- Continued next issue

Compiled by W. Peter Twartz
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THE GRAND

Catriona Forcer visits a newly-opened London venue, and finds some Aussie technology, ready to drive Golden Scans*

Not only had Vince Powers of the Mean Fiddler Organization gained a respected reputation as the man who restored Reading Festival and Fleadh Festival but also as the main instigator behind the re-emergence of quality live venues in London. Already the owner of the The Mean Fiddles, Subterranea and The Powerhaus, he has recently opened the new flagship of his organization, The Grand in Clapham.

The Grand is an Edwardian variety theatre situated by Clapham Junction which hasn't been in use for over 12 years. The Mean Fiddler Organization have bought it back to life using it for what it was originally intended - live music. Being a listed building, many of the original features have been kept or refurbished. The original architect was the rather eccentric Edward Woodrow who produced an eclectic building incorporating Japanese, Chinese and Spanish influences. Retaining the character of the place, the current architects Madigen and Donald, who were responsible for designing The Powerhaus and Subterranea, have entwined the old with the new. The result is a curious mixture of styles which, surprisingly, succeeds.

The renovation of The Grand was held up due to problems with some of the local residents who objected to a live venue opening in their neighbourhood. A music, dancing and liquor licence was finally granted after the opposition were placated by things such as sonic surveys. Due to

the fact that people had to be laid off when it looked as if there wasn't going to be a licence, only the downstairs of the theatre is currently open. In July it is planned to open the two balconies raising the audience capacity from 650 to 1,600.

"Bands that you would normally see at The



Astoria or The Town and Country Club will now be taking in this venue as a London date", explained David Phillips, the club's promoter. Acts already booked include Edwyn Collins, That Petrol Emotion, Fatima Mansions, The Godfathers and Soho.

Bryan Leitch of Art of Darkness was responsible for the lighting installation at The Grand, having already worked with Vince Powers at his other venues. A couple of years ago he rebuilt the system at the Mean Fiddler as well as designing rigs at Subterranea and The Powerhaus. Bryan has also worked extensively at the festivals as well as touring with bands such as The Manic



Paul Kellet of Encore (L) & Dave Freeth from the Mean Fiddler organisation.

Street Preachers and The Cranberries. Many people have not heard of him or his company as he admits that he loathes self-publicity (hence no photo of him) preferring his work load to grow with his reputation. "I've never advertised", stated Bryan. "I get work because I enjoy it so much".

The budget for the light and sound installations was fairly generous as good equipment was needed for such a quality venue. It was also necessary to have a comprehensive range because the load in is very small. David Phillips was confident that there would not be the need to bring in much gear, other than backline.

"I've kept the rig fairly standard, although versatile," explains Bryan Leitch. "It's not too fancy and there are facilities to mount effects such as Golden Scans on it. There is also the room out front to bring your own lighting board, if that's required. Loading here is next to impossible. Even when we've been working here delivering, it's been a nightmare. I must have had about 16 tickets even though the wardens knew we were unloading. However, there's a big car park down the road for the punters.

"I've got 18 colour faders, mainly on Lekos, as

Neo Pharaoh goes 'Connect'



SYDNEY- This nightclub within an international Japanese owned hotel has style enforcers aplenty outside, and big time decor inside. Connect is a theme night on Thursdays, we noted the press release promised the most spectacular lighting show in the southern hemisphere, so we went.

The press release was a fib, although the lights were OK in a disco sense, with Robo Scans and lots of stuff crammed up against the roof. The DJ direct from Tokyo, Kensei (pictured left) must have been good, because everything he played we hadn't heard before! This must indicate good, yes? The two lighting guys, Simon & Warren (pictured right) were really into it, which is better than being the other way around. The beer was \$5 and what more can we say?



it gives a lot of flexibility and I use them as an effect. A lot of people say colour faders are expensive but they aren't if you think what they can do, not just the colour changing but also the nature of the way they change. For the same reasons I've got Wybron 8-lights. I know they are bulky but they provide a reasonable amount of washes: good, solid washes without buckets of lights up there. I prefer to invest my money in good quality equipment rather than enormous amounts of Cans. We're aiming at getting moving lights in here fairly soon but, again, not lots of them. It'll probably be Golden Scans or Intellabeams as I don't think anything else is realistic. I don't intend to use them as disco moving lights, I prefer to use them in blackout and bring them up in different scenes. I'm also using quite a lot of Par 36 ACLs as well as Par 64 ACLs to give a nice contrast. Alongside these are two Pani followspots. Control is a Jands Event 96 way and a Pan Command 'Colour Cue' both linked to a colour monitor. Bryan Leitch is a great fan of Jands boards, already owning five, and he insists that nobody who has ever used them has disliked one.

"The Event is really user-friendly", enthused Bryan. "We've got it on screen which has much more information than just on the board. There are enormous amounts of Jands being used throughout Europe. A lot of people insist on an Avo or Celco board only because that's what they are used to, or they feel that they should use them. The facilities on a Jands are really advanced and, above all, it's logical. Some people say they are unreliable but none of mine have ever gone down".

The Mean Fiddler Organization approached Encore PA early in the planning of The Grand stating their specific requirements for a large sound system that was reliable and simple needing low maintenance. It was necessary for the system to be good enough for any calibre of artiste. An excellent in-house system was needed because of the local residents and, also, it was thought unwise to move heavy equipment around

a Grade 1 listed building thus minimising the risk of damage to the ornate interior. Fete Kellett, of Encore, worked closely with Vince Powers and Dave Freeth, the house engineer, in fulfilling these requirements.

Encore were pleased to take up the challenge of producing a powerful yet neat and tidy system, something that is next to impossible on the road. "When we originally budgeted for this job we decided to spend the money on the important things like the mixing desk, a good speaker system and amplification rather than on effects and gadgets", explained Pete Kellett. "We've supplied very high quality equipment which was really expensive. For example, the front of house mixing desk is a

Midas XI3 400ch which is quite complicated for a house installation but justified because of the sound quality. There are enough channels to generally cater for two bands. It really does produce the best live sound and it is British built. I was a little anxious that it might be over complicated but now, after a few concerns, my fears are diminishing. There is a sophisticated five way system which already has house equalization set up for the room which is a good starting point for the engineers. We've made the effects rack quite simple by not supplying too many effects but adequate and good ones which are quality units."

The monitor system is quite powerful, in fact, there are more amps on the monitor than the PA and it provides a very good stage sound. There were a lot of sound tests to check the sound

-continued over

"There are enormous amounts of Jands being used throughout Europe. A lot of people insist on an Avo or Celco board only because that's what they are used to"

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(Continued from previous page)

proofing which is so good that even with the sound on full blast it is barely audible outside. The monitors are all bi-amped except for the side fills which are tri-amped.

On stage there are no amplifiers; they are housed in the orchestra pit, so there is no speaker cabling. Encore also had a special plinth constructed for the monitor desk with a stage box built into it to make the cabling neater. The result is an extraordinarily clear stage compared to most gig situations.

A specific PA for the venue was built by Encore who initially had problems deciding where to place it. There wasn't much space between the proscenium arch and to stack the PA on stage would ruin the aesthetics of the room. It was also necessary to leave the attractive pillars at the side showing, rather than cover them with black boxes. There are no PA wings as the arch goes straight into the auditorium. Either side was a 7ft space, with height restrictions due to the ornate architecture, into which a large PA had to fit. Somehow Encore managed to install a neat, tidy 15kW PA system into that small space!

They supplied two megaphones which are built into the speaker system in case of a fire alarm. The PA can be switched off by remote from the box office in case of fire.

When the remaining two balconies open at The Grand later this year Encore will then install a flying system. □

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Theatre Consultant - friend or foe?

If it isn't perfect, don't shoot the piano player, says Denis Irving

Travelling around Australia, and talking to architects, engineers, directors, artists and technicians, one becomes aware that there is virtually no real understanding of each others roles, in the construction, equipment or use of theatre or club buildings - and increasing frustration on all sides as a result. I am sure, whilst reading this, those who work in the theatre environment can call to mind many experiences of problems and frustrations experienced when trying to stage a show, or equip a building, or pacify venue management, or carry out your role while you hopefully earn a crust. (Or occasionally, a little Jam- edible variety, not the painful one from which it is hard to escape, for avoidance of the latter is where the Theatre Consultant comes in!)

The prime task of the theatre consultant is to be aware of the aims and requirements of all concerned with the hardware of show business, from the broad outline of the club, hall, stage, studio or whatever; through the various items of equipment for staging, lighting, sound & communication down to details of modus operandi. From this, he or she can then arrange compromise, negotiation or explanation as required to produce a cost effective and workable result - if it doesn't, then the consultant just goes out of business!

There is usually a considerable time lag between the key phases of work on a theatre (henceforth, this term is used herein to encompass everything from a small caberet room to a 12,000 seat centre). The first phase occurs when someone decides that a new theatre shall be created, either as a new project or by rearranging an existing structure. This latter could be an old theatre or hall, or these days something less likely, such as a meat works or an old city incinerator. Much depends on the origin of the idea, plus background and enthusiasm of 'someone', as to whether the early proposals have architectural, political, economic or theatrical merit, or some combination.

For our purposes, it matters not which at first as long as the

project proceeds, except that stumbling block number one is certainly the initial budget. If too low, the job will not be finished properly, if too high, stillbirth is likely. Preliminary budgeting certainly includes staging technology, which in turn affects capital and running costs. Here, then is one of the theatre consultant's first useful purposes - to advise on the equipment required to suit the style of productions envisaged, its interaction with building design, and hence appropriate budget allowance.

Even more basic, is the choice of theatre format - will it be proscenium style; thrust stage, centre stage or what? Unless the end user is a member of the early decision making group, then a theatre consultant might help select the architect.

The next phase, after funds are allocated, the site chosen, and the architect appointed, is to produce sketch plans and first cost estimates. Here, trouble will almost certainly occur, as inevitably the dollar numbers will exceed those available, thus causing revisions of design and equipment. So far, it will be noticed by the astute reader, the eventual users (who actually put on the shows) have had little or no input to the processes, and indeed may even be unaware of the existence of any construction plans. So, a genuinely sincere design and finance team may proceed to modify, cut and change to suit their particular forte, and finish up with an unsatisfactory design - because - no-one was present to represent the actors, stage managers or other members of the production personnel.

Even if an experienced stage director, for example, was to become involved there is a good chance that further confusion could arise because the language and customs of show-business are vastly different to the language and customs of the design and construction industry. Even the fact that their working hours are different is a barrier - rarely is a theatre person at his best for an

-continued over

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Theatre Consultant

(Continued from previous page)

8am session and rarer still is a builder or architect happy to discuss technical details late at night.

The more usual situation is that designs and specifications proceed past the point of easy modification before a lighting person can check for angles, or a stage manager for scene dock space or the front of house manager for a well placed box office. Even sillier things have been known to happen, there has been more than one instance where a building has been finished only to find that the grand piano when arrived could not be put on the stage. One well-known building in the early days had a magnificent control room at the rear of the auditorium, its usefulness being reduced somewhat by a total lack of windows.

The point of all this is to demonstrate that with the best will in the world, construction of any theatre is a process fraught with traps and problems, all of which can be resolved in a manner both amicable and cost effective provided there is appreciation by all con-

cerned of the needs and priorities. Because relatively so few theatres are constructed in Australia (or anywhere else for that matter) there are almost no architects or builders with plenty of theatre experience, unlike the case with other specialised constructions such as schools or hospitals. Therefore, the theatre consultant whose principal professional concern is the construction and equipping of these buildings can provide invaluable advice and assistance. The resultant cost savings will always more than off-set the relatively small fees that the consultant is permitted to charge.

***Denis Irving** is a Melbourne based Theatre Consultant, who was instrumental in establishing Strand Electric in Australia. Now *that* would make a good story.....

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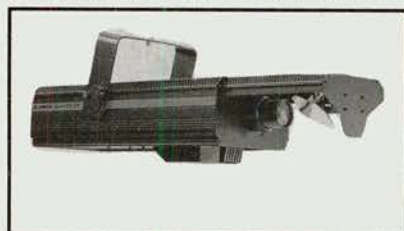
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Moving Lights - the A to Z, by Lots Of Watts.

Too many Lighting businesses in Sydney are run by people who are tired. They've probably been in business non-stop since the carbon arc was trendy. So they can't really get excited about new technology, unless they have an exclusive mandate to make a lot of money from it. Sick attitudes prevail.

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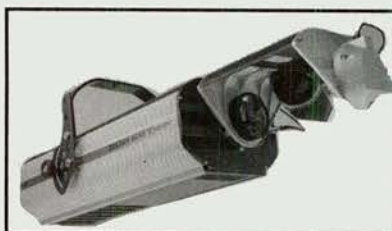
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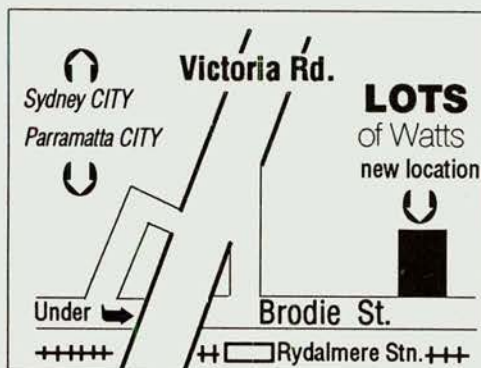
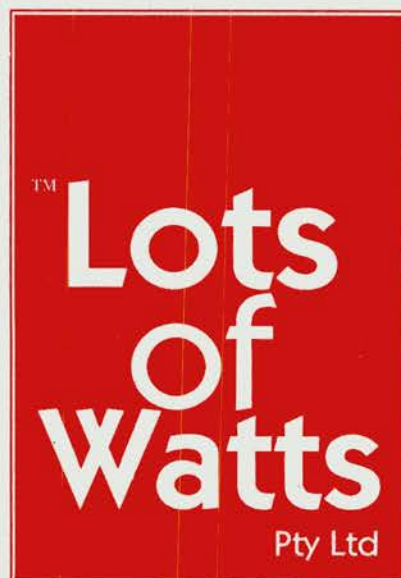
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NO RSVP REQUIRED - Just come! Tuesday 28th April, 6.30 till you're satisfied. Refreshments available.



Digitech Vocaliser Review
(continued from Page 25)

ist to part with money since buying their microphone. Welcome to the real world, I say!

Clever as it is, the Vocalist is still relatively expensive for much of the market sector that could benefit from its acquisition; a working mens' club duo might be able to sound like ten people, but they're still going to get paid the same as before! But if you need this kind of facility, what else is there on the market that will do the same job? There's also some serious R & D behind the product, and looking at it from the technical viewpoint, it's amazing that it's as flexible and easy to use as it is. And the fast tracking is really impressive. Newcomers to technology will have to be prepared for a short period of familiarization, although taking the time to get the most out of it, should definitely be a rewarding and enjoyable experience. And can you think of another piece of hardware that actually teaches you harmony while you use it, let alone makes it fun?

-Reprinted with permission from Home & Studio Recording magazine US Edition, February 1992. Tone, facts and conclusions are un-altered in any way.

*Digitech VHM-5 is available from Rebel International dealers at \$1995 retail inc. tax. For the address of your nearest dealer or for more info, call Rebel International on (02) 718-8054, or Fax (02) 718-8461.

Gay Mardi Gras production review
(continued from Page 9)

8 Par 36 lamps in one fitting, the lamp configuration is DWE and ACL's, for dazzling punch. This is like 4 Mole Fy together in one unit. A giant colour scroller with 20 colours makes each of these units into a single equivalent of say, 20 Par 64 cans!

Other fixtures on the trusses were 32 Par 36 ACL Par cans, 32 Par 36 scanners and 8 White Lightning Super Strobes - very economic in terms of rigging time and cables, but ultra versatile in terms of what you can achieve from the hardware. A giant cyc was flown on one edge of the dance floor at a 45° angle, onto which the 24 Vari*Lite's could project gobos, and chase colours. The stage had a front and rear truss, with 6 VL4 Vari*Lites for backlighting the acts, and Par cans for colour washes.

The grand environmental number occurred at 4.30am with an indoor fireworks display by pyrotechnician Sid Howard, with a disco version of "Somewhere over the rainbow", when the trusses went into 'Rainbow' mode for the first time. 6' balloons bounced down the room, coloured smoke and things happening non-stop for about 6 minutes.

Paul Kent from Vari*Lite Australia assisted Allan driving the Vari's, and Tim Blower worked the Celco 90ch manual board. "Tim would probably be the best analogue operator around, we work together, and Paul is great, I've worked with him before."

-Julius Grafton

Continued from Back Page

at a roadhouse, fuel dripped from the tank, water poured from the radiator. I thought this would be a good time to call my mum, as it might be the last time for a long time. We pulled out of the roadhouse, and it was apparent we'd made a wrong turn, but who was I to argue? After all, these guys have an incredible sense of direction - a bit like Ernie Dingo in Crocodile Dundee, right?

At 3am we reach Port Headland. We've missed the gig. Things are looking bleak, it's important we do the last gig at Wickham. The band arranged for a friends car to tow the trailer, it wasn't much better than the other wreck. Anyway, on the way to Wickham the lead singer/manager lost his wallet with all the money in it. The gig was another disaster.

By now I'd foreseen all this and arranged for the gear to go on a truck to Perth, and already bought myself a bus ticket home. The guys weren't much good as a band and didn't have the first clue about touring - but I thought very highly of them as people. It was a sad parting.

By a bizarre twist of fate the bus driver starts telling me how he'd seen a truck on it's side a few weeks ago, with gear everywhere! It must have all been Karmal

-Erik The Viking

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Dr. Light

I am writing to you to request some kind of information regarding Earth Leakage Circuit Breakers. I am not sure if you would be qualified to answer this.

Some areas needing answers are:
Regulations relating to lighting systems,
Benefits or problems of ELCB's when used with dimmer systems,

Correct installation and positioning of ELCB's in a system.

Another area I would like some information on, is the legality or otherwise of using Orange three phase circular cable in a system. I have heard it is not quite legal.

-Regards, Michael Gilders, Red Rock Productions, Footscray, Victoria.

For regulations appropriate to lighting systems, I would refer you to AS3002, which deals with temporary power installations for circuses carnivals etc, (which are not unlike most touring shows when you think about it!) the relevant section that covers ELCB's (which should be known as RCD- or Residual Current Device,) is that all general power outlets (GPO's) shall be protected by a current operated core balanced RCD.

You will note that this regulation applies to general power outlets, this would apply for instance to 3 phase break-out boards (meaning coming from a 3 phase outlet and breaking down to individual 240v outlets) but it doesn't apply to three phase outlets.

Regarding the use of RCD's with dimmers, this should be avoided as the dimmers will trip the RCD.

There has, of late, been some recent developments in Europe, of dimmers that use RCD's on their outputs, however that's more the exception than the rule when it comes to the rest of the world.

Correct installation and positioning of ELCB's - this is a matter for a qualified electrical engineer, as I always say, free advice is worth what you pay for it - nothing! Because there are different ways to do this, and because you are dealing with life and limb, I really prefer not to be definitive! Jands Production Services have just spent a fortune designing and fabricating new power distribution systems that incorporate RCD's, and these systems were designed by an Electrical Engineer.

Orange circular three phase cable- in electrical parlance *cabble* refers to wires that are permanently installed, and indeed Orange circular three phase is a cable for permanent installation. To be legal, you should use a flexible 3 phase cable, and I'm sure your friendly neighbourhood electrical wholesaler could help you, there are black flexible leads available, and don't forget to ask for

three phase, neutral and earth cable, or you'll end up with three phase motor cable that has no neutral

Further reading that will be of assistance is contained in AS 3008 and AS 3000, which are available from the Australian Standard's Association, who have offices in most capital cities.

Thank you for Channels. Can you please tell me if Mr. Michael Tanner has written any books on stage lighting, and if so, are they available?

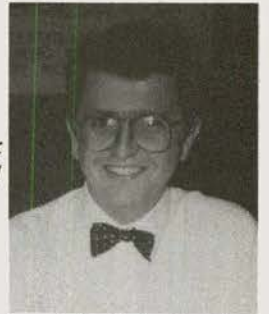
-P. Totaro, Sydney.

It gives me very great pleasure to answer letters like this. Try these: **The Light & Times of Michael Tanner**, (available from I. Print & B. Damned, now in it's fourth pressing) a weighty tome which deals with the difficulty of illuminating clocks, watches, hour glasses & egg timers, **Lighting for fun and profit (A fools errand)**, which examines lighting from a how-to-win-friends-and-influence-people perspective (printed by Uni. Woolloomooloo Press), and I have produced several pamphlets and discussion papers on the productivity increases that artificial illumination has had on Chicken Sexing and the impact that this has had on the life of weekend farmers. *Have YOU ever tried to sex a chicken? Or have you just seen the video?

AUNTIE FRANK

Frank Calvi has undertaken a change of career, after spending the past 6 years or so working for Jands Production Services. Frank has decided a change is as good as a holiday, and is now concentrating on a horticultural venture in Sydney. No-body can continue at the pace Frank established, so it came as little surprise to those who knew him that he would make a break. We wish Frank all the best.

Write to Mike
Tanner P.O. Box
439, Epping 2121
NSW Australia
Fax (02) 876-5715



Michael Tanner has been in the Australian Stage Lighting business for at least as long as almost anyone the Editor cares to remember. He has an encyclopaedic knowledge of lighting trivia. He usually has the answers, and if not, knows where to look, so prime your pen and get asking!

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Great Mistakes

"Are things REALLY that bad, Erik?"

I've been a freelance Sound Engineer for 6 years or so, mostly in Perth. **Nothing could have prepared me for the chain of events that occurred in 1990.** I was working for a 60's style concept band, with very shady management.

After gig number 11 (in 10 days!) we were overnighing from Perth to Geraldton, 450k north. At the time I was FOH AND monitor engineer, the previous monitor guy hadn't been replaced, on top of this I was the only licensed truck driver. As we hurtled down the road the other two guys went to sleep, a few hours later I joined them. This proved a slight problem as I was driving the truck at 100kmh at the time!

The truck went bush as I awoke, and attempted the great recovery, which was to no avail- over we went, skidding sideways down the road. In spite of this we were only bruised and confused. We hired another truck, did the gig, and overnighed back to Perth. I week later I was un-employed, it seems I caused an upset regarding non-existent workers compensation.

Anyway, the Production Company whose truck I had rolled lined me up a gig, I rocked up to the factory bright & early on Monday morning, supposedly picking up a small P.A. & Hiace type van for a week away. The P.A. was ready, I was looking forward to a week up North with a band - but hadn't been told exactly where or with whom. The factory manager smiled and said "I hope you're not racist, Erik?", whereupon things were becoming interesting, to say the least!

6 hours later a battered old HQ Holden arrived towing a do-yourself trailer - the illusion of an easy tour was shattered. The 4 occupants clambered out, the leader informed me the first gig was at Wiluna. WHERE? "It's OK, we got two days to get there, matey!" The map caused me to go into shock, just under 1,000k to go! Would the car make it?

Late that afternoon we left, with 5 people packed un-comfortably into the wreck on wheels. First stop Bindoon, where steam jetted out from under the bonnet, accompanied by strange noises from the engine room. A new water pump was installed, with 900k to go- it made no difference, a short time later the car overheated, we stopped.

"I was looking forward to my first decent meal in 2 days, which turned out to be the amputated tail of a marsupial who had died by misadventure then been thrown on a fire."

This was the chain of events the whole way. It would take us 2 days at an average speed of 60kmh, the car even had a blown head gasket!

Winuna- what can I say? This was hell! Flies, heat and dust- if they were going to give the world an enema, this is where they'd stick the tube. After being awake for 2 days the thought of a warm bed and hot meal entered my mind, but first - the gig. It seems this gig would fund the rest of the tour, the hall had 2 walls that were solid, and 2 that were wire mesh, and no electricity. I ran a lead from the roadhouse next door.

In the depths of despair I made my way across the road to the phone box under the signpost- the one that pointed down the Gunbarrel Highway to Ayers Rock & Alice Springs. I rang the Production Company to tell them what was (nt) going on, and to plead for rescue. The voice on

the end of the phone said: "are things REALLY that bad, Erik?"

The gig was an eye opener. 600 full blood aboriginals straight out of the desert. None of them spoke English, I had been told they thought nothing of spearing people, black or white. The band played and the temperature dropped to 0°C after it had been in the high 30° - not uncommon in the desert.

I'd been told the accommodation was out at the Emu Farm, and I was looking forward to my first decent meal in 2 days, which turned out to be the amputated tail of a marsupial who had died by misadventure then been thrown on a fire. Then I was shown to my bed, which was a mattress on the floor of a room with a view of a lot of wrecked cars, no door, and no glass in the windows. I huddled under the blanket & spent the night shivering.

The next morning the band were going into town to get some money from the mission, we scraped the ice off the windscreen, and got the money. Then they thought they should buy some Emu eggs, which were available at the Police station. As the car pulled up outside, a horrified cop watched as the trailer un-hooked itself from the car- luckily he found it mildly amusing, and by total chance one of the safety chains was on, preventing a major disaster.

The next gig was Meekatharra, 170k on dirt roads, and a fizzer. Then off to Port Hedland, by this stage we had no windscreen, but at least the car was air-conditioned! At sunset we pulled up

(Continued on Page 26)

Send your story to: PO Box 439, Epping
2121 NSW, or FAX (02) 876-5715

Back Bit

Long and tall, with zippy slider, smooth compliant moves, at first warm then very hot, the drip of sweat as your right hand moves backwards and forwards, you thrust the appendage towards Yes, the follow spot is a thing of beauty. Wish those dammed girls would get out the way, though!



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