

Connections

SOUND • LIGHTING • STUDIO • AV • MUSIC TECHNOLOGY • THEATRE • TOURING • SHOWBUSINESS

Release your own recording

Major Survey. How to prepare for it, What it costs, Who you should call.

Greg Simmons delves into duplication: CD's, Cassettes or Vinyl: you choose. Starts on Page 44

New Touring Wages— What You Get!

Detailed on page 6

BRUCE & DAVE'S REAL AND GENUINE PRODUCT REVIEWS:

Yamaha SPX 990 Effector,
Digitech VHM-5 Vocal Processor,
Peavey Bassist Pre Amp.



MIXERS

- Our annual survey of Live Sound Mixing Consoles. All the models, all the prices.

Starts Page 58

- How to be a BETTER Live Sound Engineer!

Page 56

OPCODE VISION 2

Music & Sound Production on the Mac. Detailed: Page 89



Barry Downunder - Live

Exciting! Page 28



LIGHTS - CAMERA - ACTION! On the Home & Away Set.

Vision & Audio ...Page 75

Everts	16	Lighting News	66
Phil Tripp	23	Buyers Guide:	
Letters	24	Profile Spots	74
LIVE: Cruel Sea	34	MultiMedia	75
Hire Biz Buz	35	Duncan Fry	83
Studio News	39	Classifieds	84
Tracking Guide	50	MI Monthly	88
Brian Canham	54	Techno Gawk?	97
People	64	The PA Page	98

Bangarra Dazzles!

Page 32



Selecon Profiled: we visit the New Zealand LX success story

Page 68





**THE BEST OF
BOTH WORLDS**

Who needs a separate studio and live mixer when Spirit Folio Rac Pac will do the job of both, perfectly?

Rac Pac is a no-compromise, multipurpose console, that - unlike any other mixer at its price - is built from the ground up to exceed the exacting demands of studio and live users.

Rac Pac's features put many a large desktop mixer to shame: 10 mono and 2 stereo inputs with up to 28 inputs at mixdown; a real 4 bus group section, a post-fade direct out on every mono channel with separate pre-fade inserts; PFL Solo switchable to Solo-in-Place, 3 band EQ, 6 aux sends, 6 stereo returns, High Pass Filters and many more. With -129dBu microphone amps and 95dB fader cutoff, Rac Pac is more than quiet enough for quality digital multitrack work.

Rac Pac is a great desktop mixer. It's equally at home in a rack where, by relocating the connector field to its underside, it takes up just 8U.

Spirit Folio Rac Pac doesn't cost the earth, yet it gives you the best of both worlds - without compromise.

There isn't room here to tell you more about this amazing mixer. Phone, fax or write for full details and your nearest Dealer.

SUPERB SOUND QUALITY

UP TO 28 INPUTS AT MIXDOWN

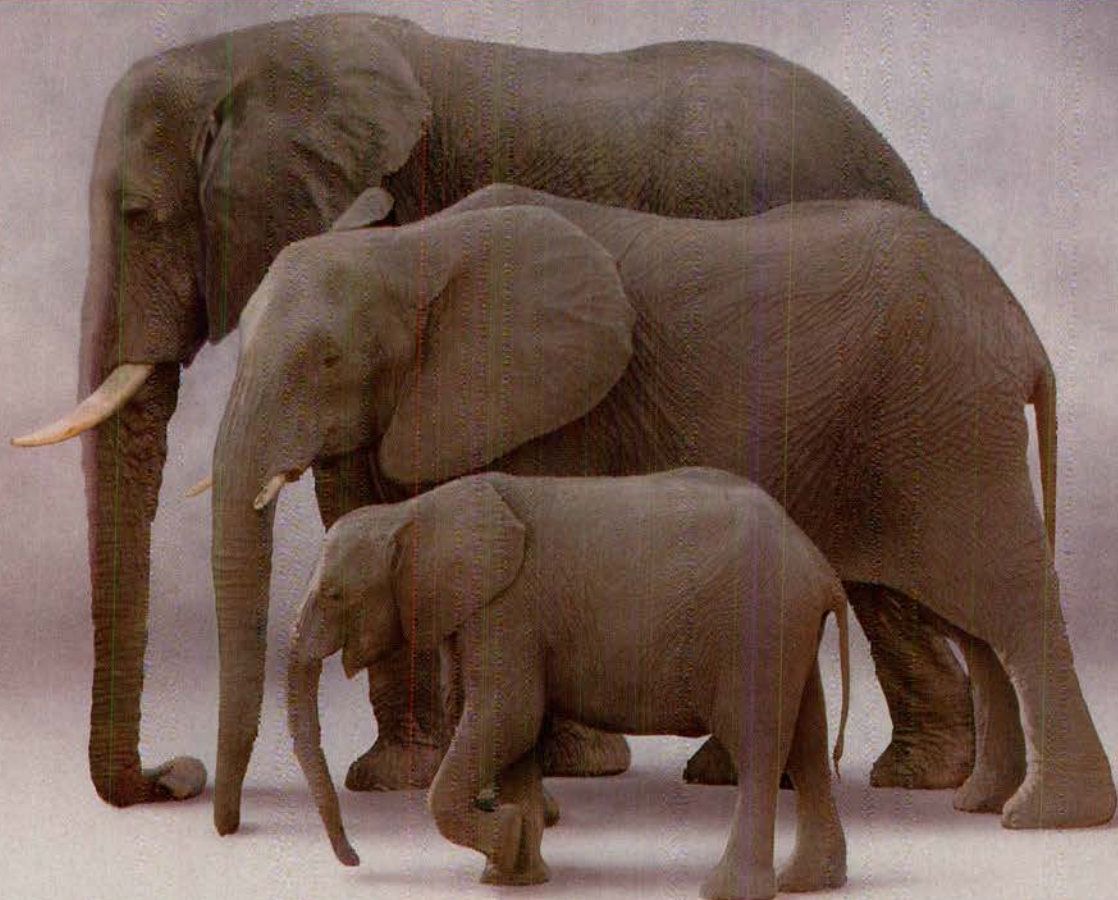
POWERFUL FEATURES

Jands Electronics Pty Ltd.
578 Princes Highway,
St. Peters, N.S.W. 2044, Australia.
Phone: (02) 516 3622, Fax: (02) 517 1045


SPiRiT
By Soundcraft

Write in Reader Service number: 119

H A Harman International Company



MEMORABLE POWER, UNFORGETTABLE VALUE

For over twenty years Martin Audio has produced the world's finest loudspeaker systems. Now, through dedicated research, the EM Series has been developed for today's needs in the installation market.

With intelligent controllers and a new range of mounting hardware, they are designed to meet the installation requirements of the

contractor, the acoustic demands of the operator, the aesthetic needs of the architect and above all, represent performance value for the client.

THE EM SERIES

These features make the EM Series the first choice for theatres, conference centres, bars, nightclubs. In fact, any installation where quality, performance and power are required.



A HARD ACT TO FOLLOW

Martin Audio Ltd. 19 Lincoln Rd, Cressux Industrial Estate High Wycombe, Bucks, England HP12 3RD. Tel: +44 (0) 494 535312 Fax: +44 (0) 434 438669

Distributed in Australia by AR Audio Engineering Pty Ltd. Level 4, 140 Sussex St, Sydney NSW 2000. Tel: (02) 299 3656 Fax: (02) 299 2240

Write in Reader Service number: 129



SYSTEMS INTEGRATION

Sydney Welcomes You! All leading brands of equipment are on show at ENTECH '94- and Entry is **FREE** to trade, after easy on-site registration!

WORKSHOPS & SEMINARS

Our **Workshop** program is carefully structured, with concise, snappy informational sessions on-the-hour, in fully equipped lecture rooms **just metres from the tradeshow floor**. \$10 per Workshop, or delegate package for \$145. Call (02) 876-1411 or check the September issue of *Connections* for details!

ENTECH AWARDS DINNER

Friday night October 7th, the night *Connections Magazine* readers awards are handed down! Entertainment, awards and great socialising! **Book NOW** - \$45/head, call (02) 876-1411.

ENTECH HARBOUR CRUISE

Meet the Australian trade, afloat on the greatest harbour in the world. The ultimate floating forum, drinks, food and comedy by night.

Thursday evening, October 5th. Book now, \$25/head. Call (02) 876-1411.

CHEAP FLIGHTS & ROOMS

Fly to ENTECH for 40% off with QANTAS*, call this number ONLY:- 008 020 047

Stay in a great apartment or hotel from \$90/night. Call Show Travel (02) 352-9999.

NEW ZEALAND VISITORS:

Four days and nights with flights! From NZ \$810. Call Show Travel in Auckland, 9-275-9110.

ENTECH is an activity of **Connections Publishing Pty Ltd**

Call **02 876-1411**, fax **02 876-5715**.

PO Box 439, Epping NSW 2121 Australia.

*Major trunk routes only. Seats Limited, book now.

(Connections: ACN 058443182).

Trade Shows

Studio ProSound Lighting Digital Recording Contracting P

The logo for EntTech '94 is presented as if viewed through a yellow telescope. The word "EntTech" is written in large, colorful, 3D block letters (E: blue, n: pink, T: grey, e: yellow, c: red, h: green) and is positioned at the top of the telescope's lens. Below it, the year "'94" is written in large, bold, black block letters. The telescope itself is yellow and tapers from the lens on the right to the barrel on the left. The background is a dark blue space filled with white stars.

EntTech '94

Entertainment Technology Trade Show

Sydney Exhibition Centre,
Darling Harbour.

Thursday 6th October. 10am - 6pm.

Friday 7th October. 10am - 6pm.

Saturday 8th October. 10am - 6pm.

eedn't Be Boring!

theatre Equipment Stage, Tour, Venue, Nightclub Vision AV

SHOWBIZ

NEWS & UPDATE

Concert Technicians and Production Staff offered cover from July 1st

NEW AWARD DETAILED

The Media Entertainment and Arts Alliance has apparently managed to obtain an award for Technicians employed in the entertainment and presentation services industry. The matter was before the Industrial Relations Commission during May, whereafter the union prepared a circular which summarised provisions of the award 'obtained'.

Connections has obtained a copy of both documents. The union circular says the award applies to both factory and tour employees of Jands Production Services, Vari*Lite, Showcorp, CS Trilogy (the PA People, Sydney), Troy Balance Corp, McLean Audio, Clearlight Shows, and Warehouse Sound Systems. The union states it plans to expand the employers

covered by the Award "to provide comprehensive industry wide national coverage."

The award is effective from July 1st for one year. As a minimum rates award it sets the legal minimum entitlement, according to the union document. "Where better arrangements exist now it does not disturb or change such arrangements".

In short the award provides for a starting wage of \$320 for a first year sound and/or lighting trainee or tour assistant. The steps are then:

	(Factory/Touring)
• Trainee 2nd year	\$372/434
• Assistant tech	\$398/480
• Trade person	\$425/513
• Technician	\$450/532
• Supervisor	\$502/584
• Tech. Manager	\$644/726

Tour per diem is \$40/day, and the casual hourly rate is the week rate divided by 38, plus 20%. This provides a minimum tour casual hourly range of \$13.70 to \$22.92.

Tour crew 'full time' will work 19 days in a four week cycle, and enjoy time off in lieu of days off not available in the 4 week cycle. Time off means:- no overtime.

One unclear provision is the "break of at least 9 clear hours between work completed at one venue and work commencing at another where venues are more than 500k apart. Where not given the employee shall be paid \$500". Sadly this appears to fall short of defeating the dreaded overnighner.

We have no info re. membership fees. For more info, we guess call the MEAA - (02) 333-0999 •

ALESIS SIGN ROLAND, KORG, STUDER for ADAT

The Alesis ADAT digital 8 track (on VHS tape) format is adding some steam with the announcement that Roland, Korg, and Studer have signed on as joint developers.

These three join an ever increasing number of major players in the international music industry, such as Digidesign, J.L. Cooper, TimeLine, EMAGIC, Steinberg and Ampex who are now supporting the Alesis standard.

New releases from developers includes the J.L. Cooper Cue Point, an MMC compatible controller for ADAT allowing computer control of almost all recording functions.

Locally ADAT sales run hot, Sydney dealer Sound Devices report selling 100 ADAT's in the past 12 months alone.



Danny Dunn's head (left), composer Philip Smart, producer Antoine Palade, & engineer Melissa van Twest with Opcode's Keith Borman at Sound Devices

Music Link chose Sound Devices in Sydney as the venue to launch Opcode's Vision 2.0, and Studio Vision Pro. music and sound production software. (See Page 89). Sound Devices is a newish Pro Digital and MIDI store where almost everything that's viable is there, on the floor, demo ready. Truly a store for the 90's, worth a visit. Owner Lewis Mallia (right) & co. are at 265 Sussex St, Sydney. (02) 283-2077.



Connections Magazine

Published by Connections Publishing Pty Ltd. ACN 058443182.

All Mail:

P.O. Box 439, Epping
NSW 2121 Australia

Phones:

Advertising: (02) 876-3530.

Editorial: (02) 876-2612.

Faxes: (02) 876-5715.

International prefix: (+61)

CompuServe: 100242,3662

Editor: Julius Grafton.

Feature Editor: Catriona Forcer

Studio Editor: Caroline Grafton

Audio Technical: Greg Simmons

Contributing writers:

Tin Tin Stromm, Duncan Fry, Howard Jones, Paul Bryant, 'The Idiot', Bruce Waite & Dave Macken, Phil Tripp, Barry Bardoe, Michael Orland, Peter Kemp, Ray Bond (Singapore)

Advertising: Caroline Grafton.

Admin: Elaine 'Wicked' Auld

Graphic Art & Layout: Josh Luo,

Catriona Forcer, Julius Grafton.

D.T.P. System: Apple Mac, PM5

D.T.P. film output: BMB Graphics

Film imposition: Omicron

Publishers: Caroline & Julius

Grafton. (Unrelated to 'Grafton Sound & Lighting', Sydney.)

Newsagents Distribution:

N.D.D. - call (02) 353-0512

Music Store, Direct Outlet

Distribution: 50% discount!

Call us direct: (02) 876-3530

Subscriptions: AUSTRALIA:

\$29.50, NZ: \$55, Asia \$60, Thailand/Korea/Japan/China \$70, USA \$90, Europe/UK \$100. Int. airmail, all AUD \$, all 12 mths.

Submissions: We WELCOME well written articles and stories for consideration. Send hard copy, pref. WITH PC or Mac word processing disk file. Photograph prints, B&W or colour WITH negatives, & transparencies (preferred) also welcomed. Send stamped self addressed envelope if return of material is required.

All contents © Connections Publishing Pty Ltd, 1994. Nothing herein to be reproduced in any way or transmitted by any means without the express written consent of the Publisher. No Warranty is extended in respect to any information herein. Opinions expressed in Connections are not necessarily those of the Publisher. Materials herein reproduced in good faith. Corrections made wherever material errors occur. It is a condition of purchase that the Publisher does not assume liability or responsibility for loss or damage that may result from any inaccuracy or omission in this publication.

100% Produced & Printed in Australia.

ABSTRACT POWER

with Beauty



DAH GIEHL PHOTO. BY RON TAYLOR

ABSTRACTFLASH



MONSTER MOON



GLADIATOR



HYPERMOON



WILDSTAR



SCENESETTER



SCATTERSPOT



STARBURST



MASTERSTROKE



ABSTRACT STOCKISTS

NSW & ACT

Black Express Light & Sound
Ph (02)559-4363 Fax (02)558-4923
Lightmoves Technologies Pty Ltd
Ph (02)560-0000 Fax (02)538-2333

WA

Audio Source
Ph (09)354-2185 Fax (09)354-2354
Kosmic Sound & Lighting
Ph (09)242-2844 Fax (09)444-1144

SA

Osmond Electronics
Ph (08)410-1111 Fax (08)410-3322

NT

Mighty Music
Ph (089)854-224 Fax (089)854-224

VIC

Audio Visual FX Pty Ltd
Ph (03)534-5440 Fax (03)525-3044
Australian Disco Services
Ph (03)484-1178 Fax (03)484-2624
CPN 2 Lighting & Sound
Ph (03)380-8004 Fax (03)380-1667

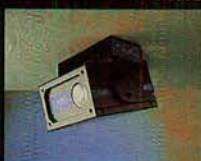
QLD

Creative Lighting & Sound Systems
Ph (07)252-5686 Fax (07)252-4778
Entertainment Lighting Supplies
Ph (075)93-5105 Fax (075)93-5161
PRO L.A. Lighting & Audio
Ph (075)75-3667 Fax (075)72-4478

NEW ZEALAND

Lighting Supply Company
Ph 64 9 838-9217 Fax 64 9 834-4326

TWISTER 2



Write in 120 on Reader Service Card

FOR INFORMATION ON
ABSTRACT LIGHTING
PRODUCTS CALL
(075) 290-688

Scoop!

RICH ROLLED

At presstime a coup inside Rich Music Studios saw the holding company placed in receivership and founder Paul Rich removed. This caps a tumultuous year for the Sydney recording and audio education centre, which will now trade on with 'all bookings unaffected'. More: see Studios.

Trade Show and Conference that is 'all things vision', on in July.

SMPTE

The Society of Motion Picture & Television Engineers host their sixth conference and exhibition in Sydney July 5 through 8th.

The exhibition occupies two halls at Sydney Exhibition Centre in Darling Harbour (venue for our forthcoming ENTECH '94 trade show). The conference and seminars are held over the three days of the exhibition. Charges range from \$45/day (students) to \$108/day for non-members. Three days cost \$90 - \$220.

* **Tuesday 5 July:** Archival & Image Capture. 11 topics.

* **Wednesday 6 July:** Digital/Post Production. 20 topics.

* **Thursday 7 July:** Broadcasting & Distribution, Compression. 13 topics.

In addition a 'lead in' one day Widescreen Television Seminar & Conference will be held on Monday 4th July at the Australian Film & Television School.

Details: Belinda Loveridge, Professional Conference Management, (02) 976-3245.

Tired Of Waiting For Market Share, Progressive Outlets Go Hunting via Promotions, Expo's, Open Days ...

DEALERS PROMOTE

AVD - Audio Visual Designs - is a Sydney based outlet which sells, services and installs studio equipment, and has moved gracefully since 1985 with the Technical Revolution that is upon us today.

Connections recently visited AVD at the tail end of a three day Pro Show, where the firm decked out their shop in Haberfield with some extra stock, invited their suppliers, and played open house to customers and tyre-kickers alike. We're always impressed with people who actively promote like this, so we had a look-see.

The Tascam DA-88 digital 8 track machine is the current hot seller, with sales to Soundfirm (8 machines), SBS (2), Keith Walker (2), Mario Millo of Windchase Productions (3), and Studio 48V (3). Furthermore, owner Peter Strohkorb (below) hopes to place 14 machines with the ABC real soon now, after 10 months of serious groundwork. When I called there were no fewer than five machines on the floor, in stock.

AVD are Tascam pro-products dealers for NSW, and they also have some other unique feathers for their bow. Take for instance the area of hard disc recording.

Perhaps the star turn of the AVD Pro Show was Peter's unique combining of several DA-88 machines

with Yamaha's DMC 1000 digital mixer. This combination, linked to video, provides a pretty impressive audio post editing suite operating in the digital domain, with nearly 2 hours recording time on the DA-88's - "and that's a feature movie!" enthused Peter.

This willingness - nay, experimentation - is where a dealer adds value to a distributors products by combining other brands to form a package. In this case, Yamaha have their own digital 8 track recorder, the DMR-8, which is designed to mate with the DMC-1000. The DMC 1000 is a lot of mixer, with three SPX 990 modules inbuilt, and digital automated everything. The DMR-8 is a proprietary format recorder, the Yamaha tape allows 40 minutes recording time. It costs heaps more than a DA 88, it isn't popular. Thus the AVD package. Yamah get DMC-1000 sales, Tascam get DA-88 penetration. Nirvana?

AVD are at 51 Ramsay Street, Leichhardt. Phone (02) 716-0211.

• **BAVA's Music** will hold a MIDI show at Parramatta Park Royal on Sunday June 19 in the afternoon. It will cost a few bucks to get in, but is a noble and well intentioned effort, however - we had to call them several times to get this info.



We publish Monthly except :

This is the JUNE/JULY issue. Next issue **August** (deadline July 15), then a special issue, **September/October**, which is combined due to our trade show ENTECH '94 occurring early October (deadline August 15), **November** (deadline October 15) and **December/January** (deadline November 15th).

EDITORIAL

So now there is an award wage for touring crew. The Union concerned, the Media, Entertainment & Arts Alliance, has not in the past inspired much confidence from the industry. Some past office bearers committed acts of utter bastardy in their dealings with the theatre community that left people speechless. Today's fresh crop of brighter office bearers have managed to obtain an award with some employer consultation, but along the way put many smaller production companies offside with their heavy handed 'demand', which arrived unannounced via registered mail.

The lack of explanation at that time lead many, who are not familiar with the excessive and unreal nature of a log of claims, to think very poorly of the union. This is, of course, bad PR.

If the union think that getting the award is the hard part, they'd better think again. Now they must create some confidence with production company proprietors and more importantly, prospective new members. They must also tread lightly, because unlike the captive theatre community, the more mobile touring industry will be a lot harder to police.

The union obviously has a five year plan, which includes extensive recruitment and education programmes, along with some moderate initiatives to very slightly restrict some non-critical international crew working here when locals can easily do their job.

While I'm sure the mechanics of establishing an award has otherwise occupied the union, I'm not certain they've got the rest of the plan in place.

Let's hope I'm wrong, because the award is a good thing.

-GRAFTON.

Unprecedented Campaign Heralds New Soundcraft Compact Mixer

Rac Pac Studio/Live Mixer

Soundcraft's Folio range is a family of budget mixing consoles that carry the traditional virtues of the market leading firm to music stores and small buyers.

The Rac Pac is a 19" rack mount or free standing console with 10 mono and 2 stereo channels, plus four stereo returns. A total of 28 inputs at mixdown can be achieved, and the 'Pac has a neat channel direct output for each of the 10 mono channels.

With six auxiliary sends, and three band EQ with sweep midrange on the mono inputs, Pac Pac has a lot of features in a small footprint. It offers four subgroups, solo-in-place monitoring, 2 track returns, and plenty more.

At the important end of the device (the outputs) we've checked noise and THD specs, they are quite respectable.

* Call Jands (02) 516-3622.

JANDS THROW WEIGHT BEHIND RAC PAC

It might only cost \$2995 - a pittance in pro-audio terms - but the new Folio Rac Pac mixer from Soundcraft is getting the largest rev up of any new audio product released this year to date.

Jands have adopted an aggressive marketing stance in the 1990's, putting considerable faith in a very large network of dealers, and, according to the firm, firmly backing them by not dealing direct.

The Rac Pac Launch comprises a series of functions at Dealerships, where punters can enter a draw to win a Rac Pac, or a Shure Wireless system. The launch round is underway now, through all states. Call your music store.

Underpinning the seriousness of the firms intent, is the provision of free display racks for participating dealers, and a virtual blitz of advertising and media PR. •



TRAVEL

• Check your bag destination tags at checkin. Connex Caroline Grafton lodged her bags with Qantas for the Hong Kong leg of a trip to Rome last month. While the QF person was most obliging (even upgrading the grateful Cas) the bag was only tagged to HK. Of course arriving in Italy sans bag isn't so good. Irony is the QF person said 'I'll tag your bag to Rome', but didn't. There was a change of airline in HK, so be particular where this happens!

• AND - double irony - despite the fault resting 100% with Qantas, Alitalia paid out 50% of the cost of the essential items Cas was forced to buy while waiting 4 days for the baggage!

MORE >>

Sony Music Mastering Services

THE NEW ERA

mastering the future, today!

CD Mastering

No NOISE® Restoration

24 Bit Recordings and Mastering

CD-ROM Mastering

Super Bit Mapping

Reference CDs

Digital Signal Processing

Dubbing Facilities

Sample Rate Conversions



60 HUNTINGWOOD DRIVE,
HUNTINGWOOD, N.S.W. 2148
TELEPHONE: (02) 839 0290
FAX: (02) 839 0202

RICK PRICE • MARGARET URLICH • TOMMY EMMANUEL • RICHARD CLAPTON
THE BLACK SORROWS • SPY Vs SPY • AUSTRALIAN CHAMBER ORCHESTRA
DIED PRETTY • CALIGULA • THE CLOUDS • THE MIGHTY REAPERS • MIKE NOCK

**BREAK THROUGH
THE SOUND BARRIER**

**EVENTIDE I.T.C. GOTHAM AMPEX AUDITRONICS DBX
BOOMSHADOW FOSTEX STUDER SOLID STATE LOGIC DOLBY
AUDIOPAK ORBAN BRYSTON SENNHEISER REVOX GARNER
TAPE CARE PRODUCTS RYCOTE STL TANNOY SEDCO**

Audio & Broadcast equipment

SYNTEC

INTERNATIONAL PTY LTD

60 Gibbes Street, Chatswood, N.S.W. 2067

Tel:(02) 417 4700 Fax:(02) 417 6136

Perth Firm Audio Sigma Offer Neat Devices

Aussie Audio Balancing Interface

The CD player, the MiniDisc and the stereo VCR, while primarily designed as 'consumer' products are becoming increasingly popular as recording-producing tools in the professional, semi-professional and educational environments.

Since this type of equipment was intended for domestic use, problems often arise when attempts are made to interface these products with professional 600 ohm balanced line input and output systems - such as professional mixing desks, or sound reinforcement or distribution systems.

Audio Sigma manufactures in Perth, to their own design, a range of audio equipment balancing interface units. Models are:-

UBA-2 - Two channels, unbalanced to balanced; (*pic, below*)

UBA-2R - Two channels, balanced to unbalanced;

UBA 2M - Two channels, one unbal. to bal, other bal to unbal.

Other variations are available, including dual stereo and units with four stereo channels.

Unbalanced connections are RCA, balanced XLR. Level controls included. Systems 240v powered. Call Diana Yarrall, (09) 276-8066.



KICK MIC

The new TG-X 50 Microphone by Beyer Dynamic, is designed primarily for close miking of the kick drum in recording and live performance applications, and also close miking of stand mounted and floor toms, speaker cabinets and musical instruments.

It is claimed to reduce unwanted shell ring in the kick drum's signal.

The freq. response is 15Hz to 18kHz.

Retail \$495.

Details from Amber Technology (02) 975-121



TRAVEL (continued)

• Poor Qantas. Seems we've met more than a few critics lately, who say that since the big TAA (oops, Australian Airlines) takeover, the giant Kanga has lost its way.

A recent couple of o's trips confirms that while the airline cannot be faulted for equipment, scheduling and safety, the cabin crew attitude is somewhat inconsistent. Asking around, we find a common gripe is the disappearing act that crew effect, especially on longer flights aboard the 747-400. This craft has a stairway from the rear left toilet area, leading to a crew sleeping area near the tail. They do like venturing there!

One gold flyer told us he was switching to Air NZ due to crew attitudes. That's a change!

MORE >>

PEOPLE

• **Sara Hood** has been hired by Yamaha Music Australia to act as corporate PR manager. The firm has created this new position to support the re-engineering that has taken place under the current managing director, Sam Takeuchi.

Sara has a PR-consulting background covering some 12 years.

We at Connections think it's a great move, Yamaha could use some positive news these days!

• **Andy Tait** has moved to Anything Audio (the retail arm of Australian Audio Supplies) in Sydney, after a stint selling audio at Graftons Sound.

FIXUP: DENIS IRVING

You remember our cover last month was a blisteringly great photo of the new works underway at the Capitol Theatre, taken by Peter Elfes? (*We paid for, and commissioned the shot, too!*) Well in the story I referred to theatre entertainment technology consultant **Denis IRVING** as Denis IRVINE.

I've done this before too, which compounds the feeling of gross uselessness that descends upon ones head when a repeated mistake is pointed out. Denis trades as ENTERTECH, and can be reached on (055) 92-2033. • **JG**

APOLOGY RE: E602

In April we ran a scoop! item on page 44 regarding a new recording studio opening in the Whitsunday Islands.

The piece came down the net from our writer Greg Simmons, who sent it after deadline as an April fool joke.

On my own, late, with my common-sense (CG) away in Italy, I ran the item. Simmo was aghast. "No one would ever believe that", he gasped!

Well they did. We had a LOT of calls, even Diesel wanted to record there! Sorry, sorry. • **JG.**

SOUND EDUCATION COURSES

ADVANCED CERTIFICATE - DIPLOMA - PRODUCER
Full Time - Part Time - Day or evening courses



The ONLY internationally accredited course
18 colleges worldwide

SAE is the largest audio training college established in 1977. Individual studio time - Record your own music - Organised theoretical lectures - Access to all our studios worldwide!



Call for NEW colour brochure and studio tour:

SYDNEY	02 - 211 3711
MELBOURNE	03 - 534 4403
BRISBANE	07 - 369 8108
PERTH	09 - 325 4533
ADELAIDE	08 - 376 0991

LONDON - PARIS - BERLIN - MUNICH - AMSTERDAM - SINGAPORE - VIENNA

AMPLIFIERS

ARX SX Series

The new ARX SX series of amplifiers are all 2 rack units high, with variable speed fan cooling, resettable protection systems, and toroidal transformers. They were designed right here in Australia.

Power: SX500: 270w @ 4Ω,
SX 800: 400w/4Ω, 300w 8Ω,
SX 1500: 720w/4Ω, 600w 8Ω,
SX 3000: 1,000w/4Ω, 600w/4Ω.

The SX 1500 & SX 3000 have a new IO comparator based soft clip system. *Amps pictured right*
Details: ARX (03) 555-7859.

AMPS UNLIMITED

The firm run by Les Goding who distribute Ampower amps advise new contact/ distributor details:

Melbourne 03 354-7184,
Sydney 02 533-5336,
Queensland 075 760-643,
South Australia 08 338-2399.
WA to be advised soon, they say.

Yamaha 'H' Series

Yamaha has recently developed a new kind of amplifier technology called HED (High Efficiency Drive) Technology, said to make power amplifiers more efficient than ever before. HED amplifiers are said to respond instantaneously to transients of virtually any magnitude without distortion, particularly in the low end.

Models H7000, H5000 and H3000 are compact 2U rack-mount units, delivering 750, 500, and 350 Watts per channel into 8 Ohms respectively. Bridged mono mode can be run- (1900W - H7000, 1400W - H5000, 900W -

OTARI MINIDISC RECORDER/PLAYER

The Otari MR-10 Series MiniDisc Recorder/Player, offers two models- the MR-10 MD Recorder (which has comprehensive editing and titling facilities), and the MR-10-P Player. Both are supplied with full function remote controls.

Editing functions include Auto Cue, Rehearse, Next Play and Last Play Search modes; automatic and manual Track Mark, for the entry of cue points; editing functions including Divide, Join, Renumber

and Disc/Track Title; mono/stereo switching; parallel and serial control interfaces; and large, easy-to-read front panel LCD displays. Both units features balanced analogue outputs on XLR type connectors, together with an unbalanced (Type II) digital output. They come in compact, table-top enclosures. Optional rack-mounting hardware can place three units in a standard 3U 19 inch rack space. *Amber Technology (02) 975-1211*



H3000, into 4 Ohms).

When conventional amplifiers drive loads they make use of only 20-30% of the electrical power they consume. By contrast, Yamaha HED amplifiers are claimed to be approximately twice as efficient, meaning that for a given output they require about half the AC power.

Muting isolates the speaker outputs for several seconds after power-on, DC sensing circuitry shuts off outputs if DC greater than +2Volts is detected, thermal protection is provided, and a power limiter reduces power output if a

short or other fault results in a speaker load of less than 1 Ohm.

15-pin Monitor/Remote terminals on the rear panels of all three H Series amplifiers provide compatibility with MediaLink™ (Lone Wolf) protocol networks for state-of-the-art computer-based system control and monitoring - an important feature in large systems with many amplifiers in remote locations. The H Series amplifiers allow power and channel mute control as standard, with status monitoring of pre-relay output level, clipping, output on/off, and heatsink temperature. Level control via an optional circuit board.

All H Series power amplifiers feature: variable-speed forced-air cooling with dual fans; calibrated input attenuators for repeatable settings; balanced inputs with XLR and TRS jack connectors; 5-way binding post speaker terminals, and a pin-1 ground lift switch, handy for removing ground-loops. All share the same physical dimensions - 2U, 19 inch rack-mount with a depth of 455.8mm. Weights are 26.5kg (H7000), 23.5kg (H5000) and 17.5kg (H3000).

*Details call Stephen Leonard, Yamaha Music Australia, on the toll-free InfoLine (008) 80-3049.



Yamaha HED amplifiers

TRAVEL (continued)

• On CompuServe, the travel forum has a neat ATTACK mode whereby users bag out every airline from A - Z. Because it's mostly used by Americans, most of the experiences are local ones.

Some interesting extracts:

- NorthWest airlines, commonly referred to as NorthWORST, gets a lot of attention. One rather interesting tale relates to a serviceman ex New York stranded in LA en route to Japan, for a week due a ticketing snaffu.

- KLM gets it in the neck for rotten business class between the middle east and Europe - the pax says it took an hour to issue the ticket, etc.

- A TWA passenger who's just been hit by a piece of falling trim complains to the hostess, and is told: "Whaddya want - comfort or low prices?"

- TWA gets a pasting in a forum called 'TWA LIED TO US!' which is about an advertised 'Comfort Class' not actually being available on ten of it's aircraft at a given time

- Continental get it in the neck heaps, while:

- Virgin is rated fairly well.

Then they had a survey on the cybernet, and came up with Qantas as fifth favourite international airline, which is really good considering the participants were mostly yanks.

• Still more Compuserve goodies, they've got some more yarns you may enjoy, like:

- the fat lady in the toilet routine, never flown before, and from habit flushes whilst seated. Of course you guessed the rest. Spent the whole flight jammed there.

- the dentures in the dunny routine, lady insists on their retrieval upon landing, then admits she won't put them in her mouth any more!

MORE >>

Sound Scape 'The Median' in Hard Disk Recorders

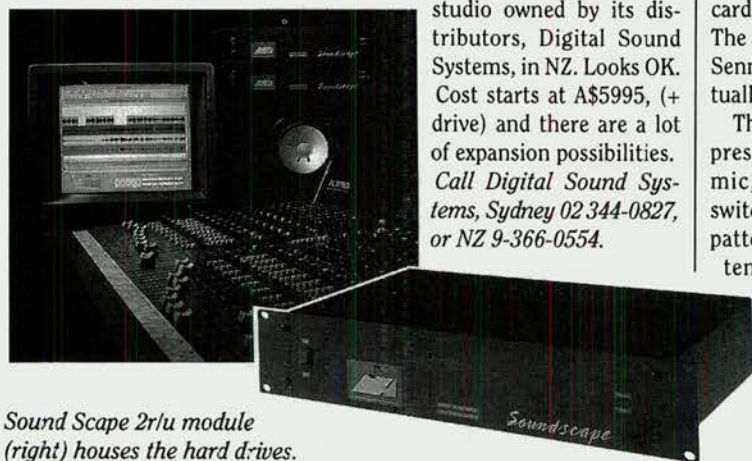
The Hard Disk recorder market is brim full of players, and not yet fully mature. Because people are buying these products.

Sound Scape comes from the UK, and is pitched at the middle of the market at a median price. It is different in that it comes with a 2 r/u recorder/drive/hard disk module, so your PC is only crunching, not storing data.

Sound Scape offers a variety of hard disk options to be installed in the module - ie: with for 4 physical tracks, the module can store 25 minutes of audio on 130MB.

Additional modules can be added. Sound Scape comes with the card you need in the PC, and the software. It's got editing and EQ, & 64 virtual tracks.

I saw the thing in action in the studio owned by its distributors, Digital Sound Systems, in NZ. Looks OK. Cost starts at A\$5995, (+ drive) and there are a lot of expansion possibilities. Call Digital Sound Systems, Sydney 02 344-0827, or NZ 9-366-0554.



Sound Scape 2r/u module (right) houses the hard drives.

Sennheiser Mics

The MKH 20 - 80 family of condenser microphones are top of the range precision devices. 7 models make up the range, offering a variety of pickup patterns, including omni, figure 8, cardioid, super cardioid, and lobar. The promise from Sennheiser is virtually no noise.

The MKH80 P48 pressure gradient mic, (right) has switchable pickup patterns, and extended low frequency response.

More details: Syntec, (02) 417-4700.



TRAVEL (continued)

• Despite what we said about our national carrier earlier, it seems Frequent Fliers can get an upgrade of sorts if they ask. It seems some international aircraft have provision for economy service in business class seats. They even have a couple of rows at the rear of the upper deck for this.

A very frequent flier confirms this, and your editor got the better seat recently on a 747-200 combi flight from NZ. The combi has upstairs as business class, and the downstairs business class cabin is wholly economy service. Cool eh? Just ask.

Got a travel story? Fax us!

♦♦♦

NEW Anchor EXPLORER has just made your portable PA look and sound second rate. (But we'll give you \$300 for it anyway)

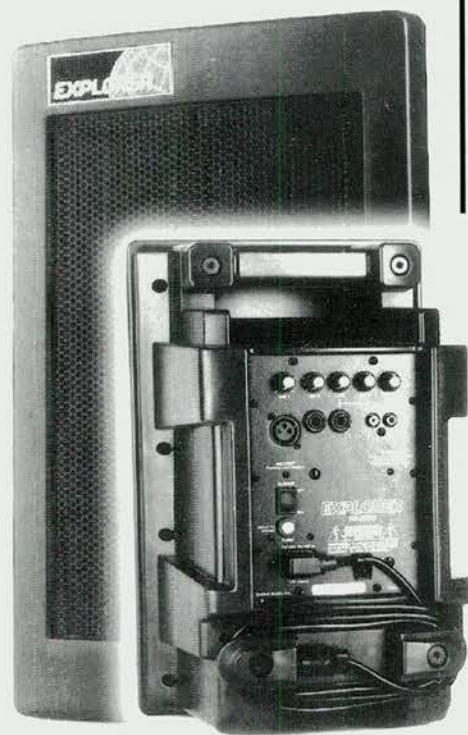
Because EXPLORER weighs only 10kg, your portable PA has just become too heavy.

Because it doesn't come with EXPLORER's tough plastic casing, 'Smart' battery conditioning, protection circuits and 2-year warranty, your heavy portable PA is now less dependable.

Because EXPLORER gives you more connectors and options, your heavy and less dependable portable PA is now considerably less convenient.

And because EXPLORER gives you better sound, you'll feel like listening to some soothing words & music.

So trade up to a new EXPLORER and get flawless performance, rugged steadfast dependability and convenience - at least your second rate portable PA will get you \$300 back on any EXPLORER with radio mic - but only till June 30th.



Exclusively distributed by:
ESA Audio

703 Heatherton Road, Clayton South
Ph: (02) 562 4605 Fax: (03) 547 6683

Write in Reader Service number: 148

“THE RIGHT TOOL FOR THE JOB”

There's no substitute for the right tool.

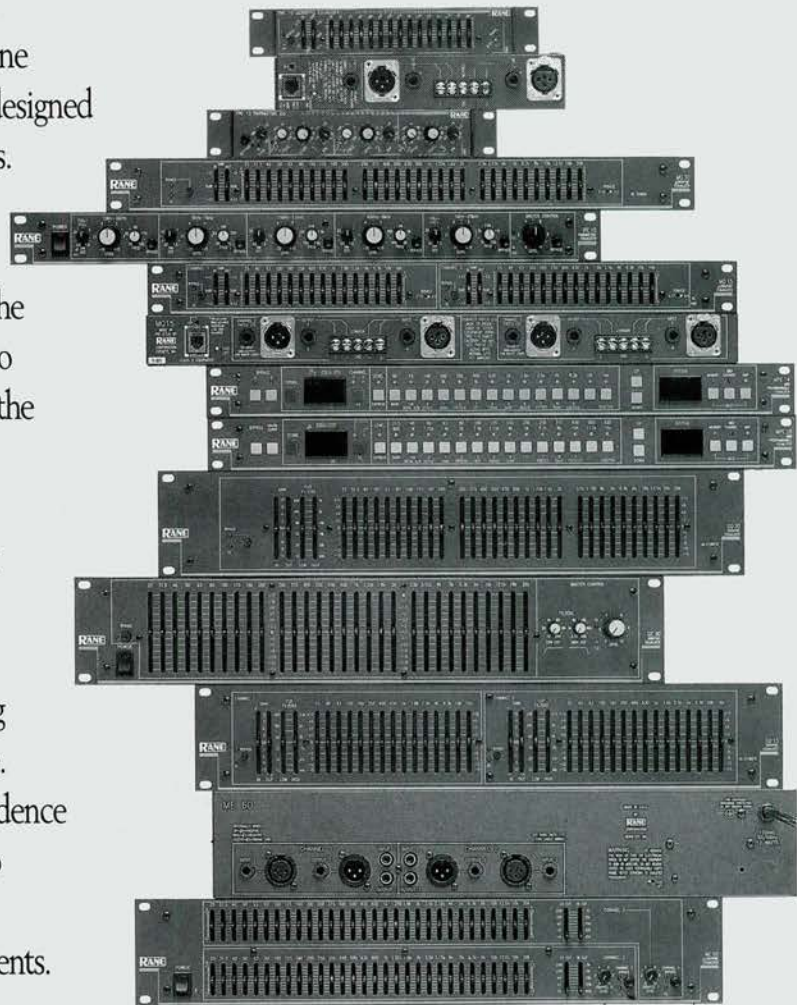
So when it comes to equalization, look to Rane for a superlative arsenal of equipment designed exclusively for commercial applications.

A recognized leader in equalizer technology, Rane offers an extensive line of commercial equalizer designs, from the standard-setting GE 30 dual-mode graphic to the compact FME 15 HR-format graphic to the programmable MPE series. All are safety agency exempt and fitted with a full compliment of connector hardware to meet your specific needs.

Every Rane equalizer offers the same proven reliability and uncompromising studio grade sonic quality, regardless of price.

So you can choose with confidence from a variety of models to satisfy a wide range of budget and format requirements.

Whatever your job, we've got the right tool.



Jands Electronics Pty Ltd ACN 001 187837
578 Princes Highway, St Peters, NSW 2044 Tel: (02) 516 3622 Fax: (02) 517 1045



Vicki Gordon

Catriona Forcer talks with someone who's not afraid to say what she thinks! (and yes, the music industry IS sexist, but we all know that. So what to do about it?)

Recently hailed as Australia's champion of women's music, Vicki Gordon not only operates Australian Women's Contemporary Music but also heads Republic Records as well as running Vicki Gordon Management. Vicki hails from New Zealand where she began her career as a musician/singer/songwriter playing the guitar and drums. After moving to Queensland she finally became a musical director in theatre before moving to Sydney in 1988 and forming AWCM.

"Through AWCM I've produced things like Australia's first all girl rock festival and Australia's first Aboriginal & Torres Strait Islander Women's Music Festival," Vicki told me. "We also developed 'Scratch' which was a training programme to train women in areas of radio broadcasting and DJ work. Projects like that help improve the status of women at different levels of the industry nationally."

The AWCM is a non-profit making association which acts as a support body for women in the music industry giving free device on recording contracts, publishing contracts, booking agents, management etc. They also run training programs, like sound engineering, despite minimal funding. Vicki is most concerned with the areas which women have the least access to - business and technical. Board members include Rosemary Blight (video), Damien Trotter (Sony Music), Martin Fabinyi (Regular Records), Mark Moffet (Producer), Kathy Bail (Rolling Stone), Lesley Sly (Writer), Lindy Morrison, Marianna Annas (Simpson Solicitors), Colleen Ironside (APA) and Vicki herself.

Vicki set up her management company two years ago and she is currently managing aboriginal artist Brenda Webb, performer Richard Newell and a writer. Brenda Webb is also signed to Vicki's Republic Records as is the band Cactus Child.

"Republic Records is a multicultural contemporary music label," explained Vicki. "I'm interested in extraordinary talent and people, regardless of gender, who have something really positive to say through their music. I'm also working with a nineteen year old Tongan boy who is the most extraordinary talent I've ever come across."

Vicki is interested in people who want to do something to contribute to changing the way things are and making the music industry a better place. She believes that the business mentality in the music industry has strangled the creativity. Vicki describes the Australian music industry as a 'boys club', with Kim Frankiewicz of rooArt being an exception, and so the only way to do things is by yourself.

"I'm very concerned at the lack of all girl bands in the industry and I'm looking to sign one this year," said Vicki. "The music industry is very sexist and women's positions in the industry are just as bad as they were ten years ago. (Yes, sexist, no, 10 years ago it was worse. -ed) There is more profile of female musicians through the independent scene - The Hummingbirds, The Clouds and Club Hoy for example - but it's still a very indie sound. There's still not one recognised female producer in the country and there are no more than five female 'working' sound engineers in the country. 96% of radio broadcasters and DJ's in this country are still men. There are only three women who run their own record company and I'm one of them. The only reason that any of the women have got to where they are is because they've done it themselves not because the guys have come and offered to employ them. That doesn't happen. Women invariably don't get employed past middle management in major record companies and we know of record companies that consciously block women. It goes on and on. There's a lot of work to be done in that area and I'm sure I'll still be moaning about it in when I'm 65."

Vicki will be particularly busy this year with Brenda Webb (Hey Little Black Girl, Melting Pot) who has been described as a 'rising star' and Vicki believes she will be huge. She is deeply committed to making the music industry reassess itself and make it more effective. AWCM are currently putting together footage about women in the music industry and they hope to show the final film to schoolgirls throughout the country. They are also in the middle of developing a national database for women in the music industry which they hope will have an impact on the employment opportunities for women. AWCM also try keep a monitor on the representation of women in the music industry. For example, last year a female editor of a rock magazine did a review of Club Hoy stating that the band 'needed a good raping' and AWCM, after speaking to the artists and record company, blew the story open to the media. Also, when Euphoria were together, it was bought to AWCM's attention that the lead singer of the band had been replaced by a blonde model who was lip synching in the video.

"We never sensationalize these things but stick to the facts so the industry can't get away with these things," said Vicki. "I think a lot of people were glad we exposed that one or they could have set a precedence."*



HIGH RESOLUTION ANALOGUE AUDIO

"I believe it's VITAL to have the right sounding equipment as it affects not only the way you play but also the choice of notes you play" Billy Field - Artist/15 years Paradise Owner.

"...I've never experienced such uncanny transparency and purity of sound" Michael Stavrou - Engineer/Producer.

ONLY Analogue offers you the best in audio and only Paradise offers you the best in analogue.

Lockout Rate (14hr.max) \$850/day.

For Full Rates and Data card

(02) 357 1599.

Paradise Recording Studio



n e a r



.....or far.

PURE CLARITY

The Cerwin-Vega ProStax[®] Series feature impregnated phenolic diaphragms in the mids and proprietary ferro fluid cooling system in the high frequency compression driver virtually eliminating power compression and reducing distortion.

Coupled with the world famous Cerwin-Vega! bass, these speakers exhibit superior clarity - whether you are a Headbanger or in the back row of Opera in the Park - at an affordable price.

Cerwin-Vega
ProStax
Turn it up.

Exclusively distributed throughout Australia by:
ASHTON ADMOR Pty.Ltd.
34 Hargreaves Street, PO Box 305, Belmont, WA 6104.
Phone: (09) 478 3800 Fax: (09) 479 1941.



Write in Reader Service number: 125

Events

WHAT'S HAPPENING

- Immedia will host the **Music Technology & Business Conference** in Sydney during September this year. To be held at the 600 capacity ABC Radio Centre's Goosens recording hall, on Saturday 3rd and Sunday 4th September, the conference will examine how music, games and other entertainment programming will be supplied to consumers in the years ahead.

At a very reasonable \$150 for both days, or \$100 for one day, you get a gaggle of speakers, far too many to mention. They will expound on the Superhighway and deal with issues of appeal to anyone selling music to the public.

Get more info from Phil Tripp and his people, on (02) 212-6677.

- The Australian Film TV & Radio School will hold an **Audio Education Conference**, on **July 4th** in Sydney. Call Steve Murphy on (02) 805-6582 for more information.

- **NSW AES AGM & DINNER** (Call (02) 948-4577) Tuesday June 14th.

- Abstract Lighting Trade Shows: (all welcome)
June 24/25/26: Darwin, call (089) 854-224
July 19/20, Brisbane, call (07) 252-5686,
July 26th, Gold Coast, call (075) 72-0133,
August 2, Melbourne, call (03) 484-1178,
August 10, Sydney, call (02) 559-4363,
WA and SA: look for dates in August Connections or call Universal Lighting & Audio's hotline - 008 039-025.

- National Entertainment Technology Association of Australia (**NETAA**) technical seminars in Sydney: Lighting Angles - 14 June, Lighting desk operation 22nd June. Call 02 697-4860 for details.

TRADE SHOWS

BROADCAST ASIA, Singapore 1st - 4th June
INFOCOMM Anaheim 9th - 11th June
RADIO MONTREUX Switzerland 9th - 11th June
World Lighting Fair, Tokyo, 16 - 18 June
APRS London 22nd - 24th June
SMPTE '94, SYDNEY July 5 - 8
Pro Audio & Light Asia, Singapore July 6 - 8
Summer NAMM Nashville July 30-31
I.A.A.M. Minneapolis July 30 - August 1
PLASA, London, Sept 11-14
ENTECH '94, SYDNEY 6 - 8 October
Melbourne Music Expo, Oct 22- 24
AES 97th, San Fransisco Nov 10 - 13
LDI Reno USA Nov 18 - 20
NAMM, LA, late January. What are the dates?
98th AES, Paris Feb 28 - March 3 '95
Musik Messe Frankfurt March 8 - 12
AES 5th Australian, Sydney, April 25 - 27
AIMS 1995, Sydney Sept 4 - 6

Your EVENT here: FAX the details to us by the 15th of the month for inclusion. Plan ahead, be PR SMART. No cost to you.... our Fax (02) 876-5715.

FOUNDATION 2000 is a new digital audio production platform from Fostex, which offers virtually total flexibility. For example, it will interface with a Mac, handle up to 7 SCSI devices, store to hard disk or MO, and even

link to Fostex's RD-8 digital 8 track ADAT compatible recorder. It offers extensive machine control and synchronisation, has modular hardware, and a very ergonomic edit controller.

This features a touch sensitive

screen with soft keys for selecting the display of track data, metering, and mixing parameters. Best of all are dedicated keys for cut, paste, fade and trim functions.

More details from Syntec International, (02) 417-4700.



• **T.C. Electronics' M5000** Digital Audio Mainframes have been sold to the Sydney Opera House and the Sydney Town Hall. Both were supplied by Sydney T.C. Electronics Dealer, Studio Supplies.

The Sydney Opera House acquired an M5000 for use in their recently refurbished production studio. The studio will employ the M5000 for reverb and effects in the pre-production of background music and effects programme for drama performances. Fitted with optional stereo digital inputs and outputs, the M5000 can be digitally linked to Sydney Opera House's Akai DD1000 Optical Disc Recorder for optimum sound quality.

• **A 68 ch. Allen & Heath** Saber mixing console has gone into the Melbourne Uni Music Faculty. - Studio Connections.

APHEX Four Channel Rack Packs



APHEX Easyrider, a four channel intelligent compressor that varies attack and release characteristics dependent on the texture of the input signal. Just dial in the amount of gain reduction, choose fast or slow time constants and adjust for output gain - it's that simple.

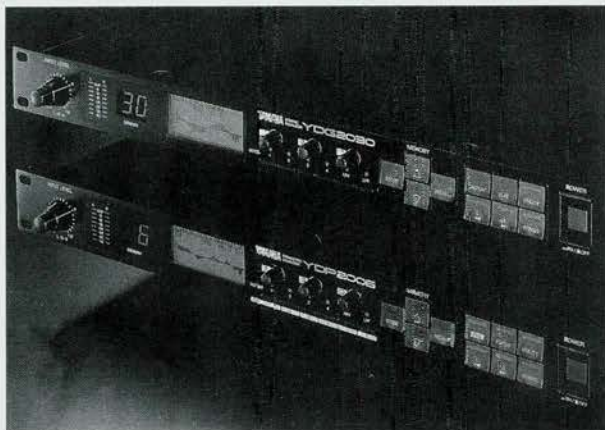
APHEX Logic Assisted Gate, a four channel fully parametric noise gate with ultraclean audio path and click free performance. Logic assisted detector circuits ensure absolutely positive and consistent operation, and allow the user to quickly and easily find the right threshold.

Call **EAST COAST AUDIO** now for the name and location of your nearest APHEX stockist. Phone (03) 428 9797 or 018 381 481 or Fax (03) 427 9898.

Broadcast Technology Pty Ltd. A.C.N. 005 689 752 RAY WELCH ADV.



Write in Reader Service number: 136



EQUALISERS

From **YAMAHA** comes the YDG2030 Digital Graphic Equaliser and YDP2006 Digital Parametric Equaliser (above). Both units boast 20-bit A/D and D/A converters with 110dB dynamic range, 20Hz to 20kHz frequency response, THD of less than 0.007%, electronically balanced inputs and outputs, and MediaLink™ network compatibility.

In addition to EQ, each channel of the YDG2030 and YDP2006 also provides a variable delay from 0 to 714 milliseconds, adjustable in sub-millisecond steps, ideal for loudspeaker phase alignment, distance compensation or other applications requiring precise programmable delay. And, up to 40 complete equaliser setups can be stored in internal memory for recall as required, recalled using front panel keys, via MIDI or the Y-485 serial control bus.

The YDG2030 features two channels with

30 1/3 octave EQ bands from 25Hz to 20kHz. EQ settings may be performed to each channel individually or simultaneously. A sweep function permits a preset amount of boost or cut to be swept continuously across the frequency range, handy for isolating problematic feedback nodes.

Yamaha's YDP2006 Digital Parametric Equaliser offers a choice of two EQ modes - 2-channel 6-band parametric equalisation with four programmable notch filters plus

low and high pass filters, or single channel 12-band EQ with eight notch filters plus high and low-pass filters. In either mode, the YDP2006 provides ±12dB gain control and Q from 0.5 to 10 for each EQ band.

For large scale applications, equalisers may be networked via Yamaha's Y-485 serial control bus or Lone Wolf's MediaLink™. Up to 31 units may be included in the network, with all parameters remotely accessed and controlled from a single master equaliser or a computer running Yamaha's QS1 Software.

Available for both MS-Windows™ and Macintosh™ computers, the QS1 software provides complete remote control of YDG2030 or YDP2006 equalisers, as well as Yamaha's DEQ5 and DEQ5E Digital Equalisers. The single software package offers full control and graphic display of all equaliser parameters, with convenient on-screen sliders, rotary knobs and EQ response curves.

* Call Yamaha for details: (008) 80-3049.

AND MORE EQUALISERS

From **RANE** comes the GE 60, two 1/3 octave graphic EQ's in a three rack unit case. With 45mm faders, the GE 60 allows precise control, and has Rane's interpolating constant-Q performance feature.

'Constant Q' means constant filter bandwidth is maintained at all slider positions. Adjacent filter overlap is minimised. The 'Interpolating' part means that if your problem frequency lies between fader centres, which are fixed at one third octave intervals, the equaliser will deal with them because it produces a smooth peak or dip between any two adjacent sliders.

Front panel controls include overall level for each channel, overload indicators, and slider bandpass filters. Inputs and outputs are balanced via XLR, jacks, or terminal strip.

Call Jands for more: (02) 516-3622.

PORTABLE SOUND

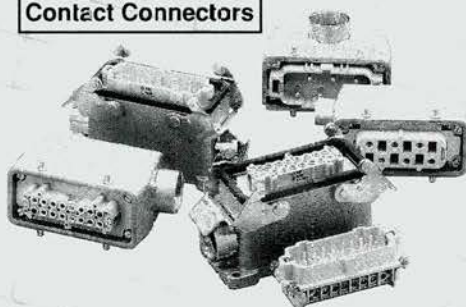
The **EXPLORER** is a neat, portable PA - in a box from Anchor Audio. Built in a tough plastic case, this good looking thingo weighs 10kg, not much for what it is. What is it? It comprises speaker, amp, and if you option it, a wireless mic receiver too, all in one unit. You plug it into the mains, or there is a battery powered version with inbuilt charger. Viola - instant audio!

There are two low impedance mic inputs, along with one balanced XLR input. It's got a wide frequency response & the AC model will drive an extra loudspeaker. Details from **ESA Audio**, (03) 562-4605.

MC
AUSTRALIA

Multi-Contact Australia Pty Ltd

Contact Connectors



High quality rectangular, industry standard lighting and power connectors available with screw terminations from 3 to 32 pin and for crimp termination from 7 to 128 pin. Available in single or double lever locking configurations in top, side and front cable entry. Rollers mounted into locking clips to ensure smooth but positive locking. A wide range of glands with or without cable bend protection can be provided.

"Contact" has been used by industry majors for many years giving trouble free long life operation.

Sole Australian Agents: 53-55 Whiting Street
Artarmon NSW 2064
Phone: (02) 438 3600
Fax: (02) 438 4737

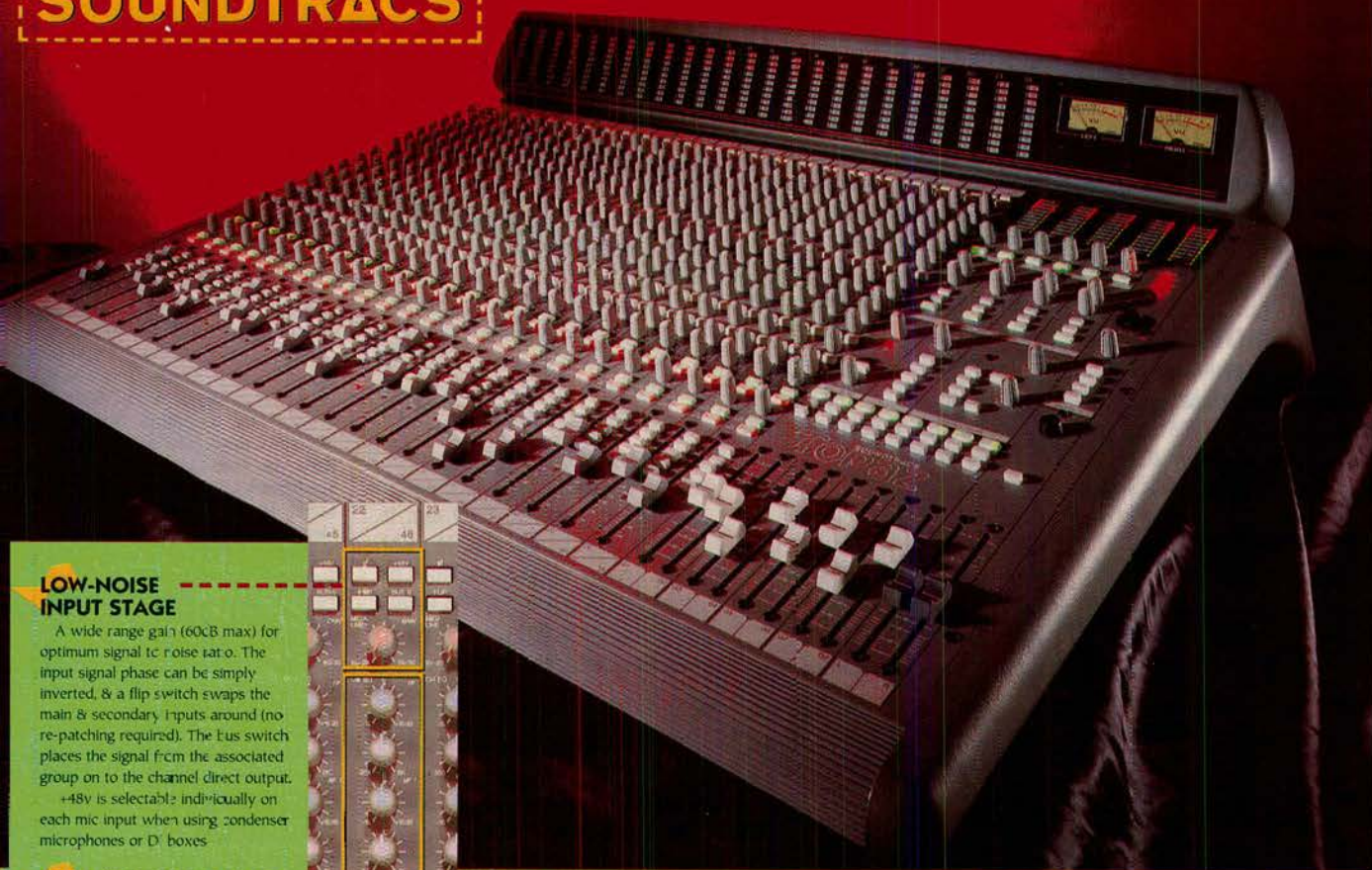
3/1904 Beach Road
Malaga WA 6062
Phone: (09) 249 3003
Fax: (09) 249 4912

3/80 Webster Road
Stafford QLD 4053
Phone: (07) 856 4200
Fax: (07) 856 4681

10 Nicholson Street
Coburg VIC 3058
Phone: (03) 383 3733
Fax: (03) 383 4526

Write in Reader Service number: 127

SOUNDTRACS



LOW-NOISE INPUT STAGE

A wide range gain (60dB max) for optimum signal to noise ratio. The input signal phase can be simply inverted, & a flip switch swaps the main & secondary inputs around (no re-patching required). The bus switch places the signal from the associated group on to the channel direct output.

+48v is selectable individually on each mic input when using condenser microphones or D boxes.

ATTENTION GRABBING MAIN EQUALISER

From a Soundtracs console you can expect an EQ section that puts you in total control of the sound & Topaz does not disappoint.

Two sweepable mid range frequencies (50Hz to 1kHz & 350Hz to 8kHz) put you right in the bubble & overlap well with the high (2kHz), & low (80Hz) filters. - All -15dB.

EQ defeat button removes the equaliser from the main channel.

VERSATILE SECONDARY EQUALISER

High & low shelving filters operating at 12kHz & 80Hz respectively. 15dB of boost or cut provide effective & functional reshaping - sufficient to sweeten or enhance any line level signal.

6 SWITCHABLE AUX SENDS

The 6 pre or post fade auxiliary sends can be split in almost any way. Both inputs have one dedicated pre-fade auxiliary each & can also access any of the remaining 4 (post fade).

THE SECONDARY INPUT STAGE

The secondary input has controls for pan, level, illuminated solo & mute in conjunction with a dedicated equaliser & access to the auxiliary sends. In addition, all secondary inputs may be fed to a stereo bus (monitor mix), separate from the main bus, allowing you to create a totally independent stereo mix. It's like having two mixers in one.

ROUTING & CHANNEL CONTROLS

You can route the main channel signal to any of the eight audio groups via the channel pan &/or direct to the main LR outputs using the 10Cmm long-throw fader, illuminated channel solo & channel mute.

Write in Reader Service number: 154

A dedicated multitrack recording console must provide the following: Superb audio performance, exceptional equalisation, versatile monitoring, comprehensive patching and 1st class ergonomics.

All are in abundance in the stunning new Topaz Project Studio Console from Soundtracs.

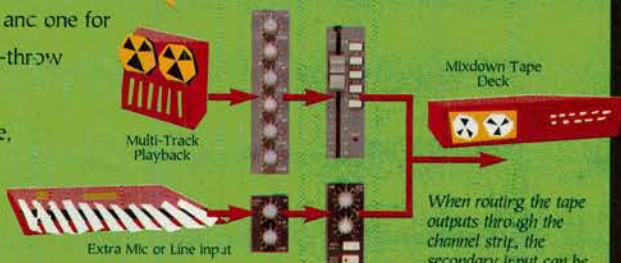
Unlike other 'budget mixers' Topaz is a dedicated multitrack console with the tools to make recording smooth and hassle free.

The dual input design means you have two independent inputs on each input channel strip. One for tape tracks or line sources, (with rotary fader), and one for mic or line sources, (on long-throw fader). These can be easily swapped around at any time, particularly for the mix-down, without re-patching.

Add independent EQ sections for both inputs, 6 auxiliary sends accessible between both inputs, 8 groups with separate outputs as well as a send facility to the output of every channel, a comprehensive Master Module, the choice of 24 or 32 inputs with up to 72 inputs at mix-down, the ability to handle up to a 32-track tape recorder without re-patching and you have a console that is set to do more than just become the class leader.

It completely re-defines the term "budget".

DOUBLE INPUTS DURING MIXDOWN



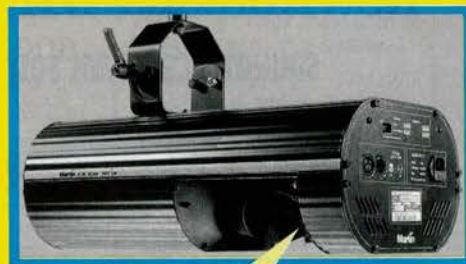
When routing the tape outputs through the channel strip, the secondary input can be used for an additional mic/line source. - Giving an incredible 64 inputs with EQ in mixdown on the Topaz 32.

TOPAZ

PROJECT STUDIO CONSOLE

For information on your nearest **SOUNDTRACS TOPAZ** dealer, please contact:
AMBER TECHNOLOGY Pty Ltd ACN 003 231 187

Sydney (02) 975-1211 Fax (02) 975-1368
Melbourne (03) 646-5811 Fax (03) 646-5887
Brisbane (075) 29-0619 Fax (075) 73-1550



**DREW MUIRHEAD
CORPORATION**

QUALITY WITHOUT COMPROMISE

for HIRE of the world's latest lasers, intelligent lighting, disco effects and sound there is only one choice!



AUSTRALIA'S HOME OF:

- Aquarius MK II Laser Systems
- Goldenscan "3" 1200 Touring Version
- Roboscan Pro 218 MkII plus 2032 & 2308 Controllers
- Emulators
- Theatrelight Desks
- Scan Command
- Robo Colours

- Gem ZR Series Smoke Machines
- Tiger NRG Rotating Gobo Effects
- Disco Effects - Clay Paky, Martin.
- SL 1200 Turntables
- Disco Mixers - Numark, Melos, Gemini.
- JBL 1400 Systems/Jands SR3000 Amps
- Rigging
- Par Cans



**Australia's most competitive HIRE rates available now!!!
Ring Drew Muirhead for a quote today.**

dmc Lighting & Sound, 613A Elizabeth St, Surry Hills NSW 2010. Ph: (02) 319 7177 Fax: (02) 310 2685

OPEN YOUR MIND WITH AUSTRALIA'S LARGEST INTELLIGENT LIGHTING COMPANY

Phil Tripp Writes....

The Brash Crash

It's ironic that the retail chain whose ass the record industry has been kissing for the past few years managed to rack up \$60 million in trade creditors in addition to almost that much owing to the banks before it was put into an administrative protection. It's tragic though that the musical instrument and audio industry has also been savagely hit by Brash's woes but isn't it a result in both cases of too much credit extension and too little financial restraint?

It's amazing that those companies—and we're talking record labels owed millions or equipment suppliers kissing high six-figure sales goodbye—let the situation get so out of hand. With several months of clear media scrutiny portending an inevitable crash, it would appear that the policies of companies in the professional music industry aren't that professional when it comes to credit, payments and tracking.

The only humour in the situation is seeing companies like Edels asking to see the books and operational particulars in a scenario of attempted rescue. It's more likely that they were looking to see what deals Brash had with suppliers, its centres of profit and loss, and other business practices in order to hone its own operation rather than acquire another one. It seemed to be a way for Edels and perhaps Strathfield Car Radio to get their name in the media and financially big-note themselves rather than a real plan to buyout. After all, when was the last time you saw their names in the Financial Times?

While Brash Holdings whimpered from the effects of its buying sprees of other companies, upgrading and opening of new stores, huge advertising budgets and fire sales, it's the small businesses that nurture the music industry who'll get hit the hardest, not the multinational record companies or global gear merchants. They have their overseas parent companies to pad the blow of major losses and they'll be able to trade out of this setback. But for the small independent record companies, accessories and services suppliers, custom guitar and instrument makers and even bands who put stock into the stores that will get singed and commercially crisped.

It was always the mom 'n' pop record shops or small indie operators who the credit controllers of major record companies put on tight reins. All the while the chart stores of which Brash's had many, got free goods, deals, concert tickets, t-shirts, incentives and other perks to hype the charts. What was the situation with musical instrument and professional equipment suppliers? did they too pander to the big boys at the expense of the boutique side of the industry? It would appear that the 'supermarket' approach to selling music or music making equipment is in serious need of an overhaul along with the credit policies of the industry. Enough said.

• It's not easy in publishing land now that companies suffering the Brash rash are cutting back their advertising dollars at the end of the financial year to save money. One prominent street paper has been served with a wind up order from a former printer who is owed around \$30,000. Another music magazine has been hit with a letter of demand for almost \$9000 for not paying for its second issue while the first printer is whistling for over \$7500. And yet another music

magazine has several writers owed several hundred each, overseas colour separators are hanging for mid-five figures and there's been some internal turmoil. A new music instrument and gear title advertised for March publication failed to appear as of late May and it appears that Brash's Power Picks Magazine is no more.

• But on a brighter note, former Power Picks editor Anthony O'Grady has teamed with music manager John Woodruff to create a new charts oriented publication titled *Music Network* which will be fortnightly, on subscription only (available from (02) 357 4966) and will track momentum of records through both radio and retail reports in addition to other goodies.

• On a lighter note, it's amusing to see the number of conferences and seminars on new technology, interactive multimedia and other entertainment gadgetry that are springing up. Connections has the Entech bash in October and IMMEDIA! has a two day conference on New Technology and Business Affairs in September—both at low prices. But there's a three day multimedia conference whose rather tacky and ordinary brochure arrived today with a price of \$1875 and another on a similar tack - \$1400 for two days.

• Both BMG and EMI are racing to the technological starting gate for interactive records, the first one likely to be Girlfriend's multimedia CD single in August as the first homegrown product. BMG overseas has done a deal with a major developer, Warners is full speed ahead in the US putting together interactive music titles as well as delving into delivery systems while IBM and Blockbuster Video are gearing up in-store kiosks for record retailers that would allow customers to make their own CDs in six minutes or so.

• Speaking of music conferences, the big one in June is International Music Market in Singapore which is their second and expecting a roll up of up to 500 but mostly geared to record companies and publishers. The MIDEEM organisation is planning an Asian music trade fair much like their January shindig in Cannes France to exploit this market. They also have an interactive multimedia trade fair in December called MILIA which will be its second year. And just past is the Music West conference in Vancouver in which Australians figured prominently. Not so the Canadian Music Week where the Australian spotlight and panel were cancelled at the last minute.

• I'd just like to take this moment (and last 50 words) to congratulate my partner, Lisa Treen, on filling just over \$4,000,000 in annual wages for jobs in the first two years of Music Staff's existence. The week of May 15, she filled six jobs—two for Castle Communications, one each for Rondor Music, Mushroom Records ACME Merchandising and EMI Music Publishing. It was a business conceived late one night as half a joke which everyone said would never work because they'd already thought of it and rejected it. She's done a lot of hard work, and made about 90 people very happy by placing them at every level of the industry from receptionists to record company managing directors.

AUX 2 Gossip

Long before the Brash Crash, Yamaha MD Sam Takeuchi had been wielding the axe. Staff morale is at rock bottom, and after another reshuffle last month which saw two long serving staff depart, Rob Henneman was moved to cover the position of Southern Sales Manager. It was in vain, because he then resigned from Yamaha, having secured a new career in Communications. On the way out he expressed great disappointment at events within the firm. His position within Yamaha was to be advertised, he said.

The macho little guy the hetro's at a Sydney Theatre complex lovingly call a 'bloke's pool' (that's what the fax says) has a book the rabbi wouldn't approve of, and what's worse, he is attempting to achieve the result the books title promises. It's called: "Grow your foreskin back!" We will resist the temptation to bring you a pictorial if - and when - the impossible occurs.

On matters not dissimilar, we read a nice item in the Sydney Morning Herald regarding Bell Company's set designer Michael Scott-Mitchell and LD Mark Shelton. The pair checked into a Newcastle Hotel with a prop for the play - a wedding cake. When they arrived back that night, the room they shared (to save money) had been made ready by eager to please staff - with the double bed turned back on both sides, and pink towels laid out!

They were going great guns, we hear, in the Targa Tasmania. Until Ian Messner rolled the car! Jands Electronics MD Robert Young and Jands Production Services had been planning the firms entry in the rally for the past year, and had roped in sponsors. After fighting for several days to lead their class, the Escort entered a corner not on the map, and rolled into a shallow creek. Luckily for all concerned the duo were able to depart the car intact, and returned to Sydney with the car, which is said to be not too badly damaged.

• **David Gibson** from Copperfield Sound in Qld heads up a series of nice messages this month on Reader Service Cards. He says: "There is no improvement on perfection". *Suckhole, Crawler - but ta! 3 people read his.*

• **Melanie Ardon** from Perth says: "The magazine is very interesting". Ditto.

• **NOBODY** has written in to complain about the tits and flesh in Caroline's Rimini Review last month! Shock! But we had calls asking for the number of the Bloke In Red on P. 23!

• We know we've got a lot of professional industry people as readers, but we are unashamed to report we have a lot of less experienced and starters too. **Peter McDonald** from Newtown Victoria asks for "more basic 'how to do it' articles for us beginners. 2 people read his copy of Connections.

• **Chris Merritt** from Mermaid Waters in Queensland says exactly the same thing. *He reports 3 people read his issue of Connex.*

• **Martin Lambert** from Macarthur ACT says we should do more backline product profiles.

• **TRANVESTITE ALERT.** Is 'The Idiot' a tranny? "The column in previous issues hovers between being written from the point of view of a woman, and then a man. On minute 'she' is complaining about harassment from male sound and lighting guys, then in the next article 'he' is complaining about having to wear condoms when returning from overseas tours! I have had a gut feeling that lighting people were somehow 'not quite right'! Innocent sound guys - there is but one course of action. It's backs to the wall, lads, until The Idiot is unmasked!" - **Duncan Fry.**

The Connections letter box is open for you! Just write, fax or CompuServe your thoughts, feedback, or complaints (*especially!*) to: **PO Box 439, Epping NSW 2121 Australia,** Fax (02) 876-5715, CompuServe 100242,3662.

Ray Bond in trouble 1:

Imagine my surprise to discover upon reading my old show buddy Ray's article on Frankfurt (*Connex May '94, P.8*) that our new amplifiers are designed in the U.K.!

What am I going to tell my wife? All that time she thought I was upstairs at home with a few bottle of Port bashing away at my CAD station working on the SX series. Now she finds out some POM designed them!

Where was I during all this? Spirited away into the night looking for the pleasures of the flesh perhaps? Not bloody likely in Sandringham. Duncan calls it a giant retirement village, zimmer heaven!

For the record, our new Amplifiers were designed in Australia by Simon Hurrell and me, here at ARX. We do employ the services of a well-known English design consultant to play with different concepts for us, perhaps Ray got his wires crossed there, or was it the fact that we were next to C Audio, a well-known U.K. manufacturer. Or is it a case of the well-known Aussie techno cringe? We may never know!

Keep up the good work.

• **COLIN PARK, ARX, Melbourne.**

Ray Bond in trouble 2:

REGARDING RAY BOND'S LAST 'FAR EAST ASIA REPORT' (*Connex May '94, P.68*)

Your article 'New Loudspeaker Technology?' appears biased to such a degree that one would start to think you were now secretly working for a major speaker manufacturer. Maybe it was just a bad show day.

1) You say Servo Drive have not delivered? Bullshit, the Bass Tech 7 is now used on most large scale tours world wide. The current users list is too long to include in this letter. There is no speaker system currently available that can provide the same continuous low frequency output if you compare the size and power requirement. When talking maxi-

mum SPL, one cab will deliver 107.5 dB 1 W, 1 M(28Hz - 125Hz) and has a power compression of less than 1.5dB at full power. JBL eat your heart out! These cabs are not for everyone; most live system operators would not know what to do with a real 28Hz capability, and your average pub band doesn't really need much below 40Hz. They are also a bit over the top for Karaoke; maybe this is why you haven't seen many around? I have found them to work best when crossed between 80Hz and lower, and so we are talking about serious sound systems that require high output down to 25Hz and lower.

2) The Torque drive development you dumped on seems very interesting, but as I have only seen basic spec's, I cannot really comment. I will ensure you receive all future product updates as they become available. I can however tell you that the engineers who designed Servo-drive and Torque drive systems are considered by those who really know, as some of the leading minds in acoustics and electro acoustics, and would not produce a product that was of 'no use'.

3) As for your JBL engineer's comment, who cares? What do you expect him to say, "Oh shit, I better go away and slash my wrists as this is a great idea that I did not think of".

4) "Far from loud enough"; says who? Tell it to Bose, Celestion, S.A. and the many other companies who make 'comparatively low' SPL, but high quality, low distortion speaker systems. Did you calculate the maximum SPL for full power? Did you find out what the power compression at full power was? Are you fully conversant with the systems recommended use?

Yes Ray, I have represented SERVO-DRIVE here for many years, and yes, I believe in the product, but no, this is not sour grapes from a disgruntled importer, it's the facts.

• **Peter Freedman, FREEDMAN, Sydney.**
-Bass Tech 7 used on 'most tours worldwide?'
Dunno 'bout this one, Peter -Ed

The ARX Quadcomp®. Four Compressor/Limiters in one Rack unit. A world first, and much copied. With controls for Threshold, Ratio and Output, a 10 LED Gain Reduction dis-

play, and Hardwire IN/OUT switch. Plus, the unique ARX numbered marker panel to write on. No more pieces of tape everywhere! The rear panel features Balanced Inputs and



Victoria and Tasmania: Tony Hosking 03-888 6555; NSW: 02-879 6788 Dave Croxton; Queensland: 074-424 233 Rod Watts; South Australia: 08-356 6601 Peter Asztalos; Western Australia: 09-354 3185 Ian Ross; New Zealand: +64 (0)9 378 9863

Write in Reader Service number: 124

Cat Forcer in trouble:

RE : NEWCASTLE WORKERS CLUB - (CONNECTIONS - APRIL 1994) - REVIEW OF CROWDED HOUSE CONCERT.

In Catriona Forcer's review of the Crowded House concert at the Newcastle Worker's Club she offers a quotation from Dave Harding stating that "there is nothing to allow you to hang additional lighting above the stage".

As the electrical and lighting designers for this installation, we wish to point out that this statement is incorrect. We refer you to the attached lighting and power layout for the Auditorium which indicates eight 1000kg suspension points over the stage and four over the audience for the attachment of staging or lighting rigging. This is in addition to allowance for six stage lighting bars (three hand winched) over the stage, one (motorised) at front of stage and two (future) over the audience. (*Quite true - Editor*)

A great deal of time and effort was expended by this office and the rest of the design team to ensure reasonable allowances were included in the building to accommodate future performance requirements.

As is the case with most, if not all, new projects there is never sufficient funds available or allocated to the performance aspects of a venue to suit all requirements but we believe the system designed for the Worker's Club addressed the brief effectively, within budget and to the Client's requirements.

That said, the matter of which equipment or facilities are available to users is dependant on the briefing the users receive from the operator of the venue and on management's policy for the use of facilities.

It is good to see honest assessment of venues but perhaps all aspects of the claim should be investigated before so called "informed" opinions are expressed.

Incorrect information expressed in quotations such as this produce in inaccurate impression of an excellent venue.

• HARON, ROBSON P/L, Sydney.

Editor in trouble: 127

I read with some concern your article in your May edition of Connections. (*Unionised Crew*)

The log of claims referred to in your piece is by the sound of it a "roping-in" log. As the M.E.A.A. is a Federally Registered Union, it is necessary that all relevant bodies are individual parties to that award. In order to do this the Union must make unacceptable claims to create a "dispute" so that there is cause to go to the Commission.

Essentially, then the Union is correct in pursuing this in the way that it is, as the current legislation demands that this should be done. As to the issue of which union should have coverage, the M.E.A.A. is clearly the right one.

The writer worked in Britain from 1968 to 1973 as a lighting and sound technician in theatre, film and the concert industries and because of the diverse working coverage had to be a member of three unions (N.A.T.T.K.E. for theatre and concert lighting, Actors' Equity for sound and stage management, and the E.T.U. for film work. As a result, his collective union fees were a real burden.

It has been said that a worker get the union he/she deserves. Certainly a union is only as good as its members want it to be.

It is always hard to properly organise a highly casual and transitory union. In the circumstances, I believe that the current union has the potential to provide the right balance of services whilst remaining accessible to its members.

In the end it comes down to the willingness of its membership to involve themselves in its activities and its members to speak up if they disagree with directions taken by the union.

In these difficult times, there are many issues that need to be addressed and the role of the union should be more than setting minimum pay rates.

Turning your back on the Union is throwing away a chance to have some control of your future.

• SIMON JENKINS, Sydney.

Mixing the Wrong Way

As most of your readers are involved in sound and lighting in one way or another I thought I'd put pen to paper to appraise them of a jazz musician's requirements and feelings.

I play trumpet and sing the odd song too, preferring after many years of frustration to carry my own sound system when working with a band. Often this isn't feasible, with the venue insisting on providing its own sound system and operator.

Such was the case at a recent jazz concert staged at a Sydney metropolitan area civic centre. Despite turning up 90 minutes early to do a "sound check" and discuss requirements, the entire concert was made most uncomfortable for us musicians (and me in particular) due to the operator.

As jazz is basically an acoustic music style it follows that any amplification should merely be an enhancement of the instruments and their relative natural volume to each other.

The band however, still needs to be able to hear each other as naturally as possible on stage so as to interact with each other musically. The way to achieve this natural sound on stage is to set the balance to the band's satisfaction at the sound check session, give them a full "front of house" mix in the monitors then leave the desk entirely alone for the rest of the session. Put the lid on it, go for a beer, read a book, do anything you like, but please don't touch any of the settings.

Very occasionally during that particular show we needed to read some music from a music stand. I'd mentioned this at the sound check, asking for some "down lights" at that time to enable us to read properly. In fact the reverse happened and we were hit with full face spots which naturally dazzled us and greatly hindered reading. The same operator was doing the lights too...

All such musicians can only enumerate a handful of venues where it did work out right, a sad indictment on operators in general.

• ERIC HOLROYD, Sydney.

Outputs, plus individual Sidechain insert points for de-essing and other neat tricks! Cool new good looks and superlative precision

circuitry make the Quadcomp® the compressor for today's audio professional. Like to know more? Just call us.

Get Four For The Space of One!

ARX®

ARX SYSTEMS P/L, 33 ADVANTAGE ROAD, HIGGETT, VIC 3190, AUSTRALIA. PH: 61 3 555 7859 FAX: 61 3 555 6747

A digitally controlled sound handle the largest airport or

Crown introduces digital system control that's affordable for even small installations.

Installed sound is moving to digital control. But if you're like most contractors, the huge cost and steep learning curves of existing systems have made you think twice about specing digital sound control.

Crown changes all that with the introduction of the IQ System's MPX-6,™ SMX-6™ and IQ COM-Q components. Now, the same IQ System® with the capability to handle airports, stadiums and convention centers also makes economic sense in

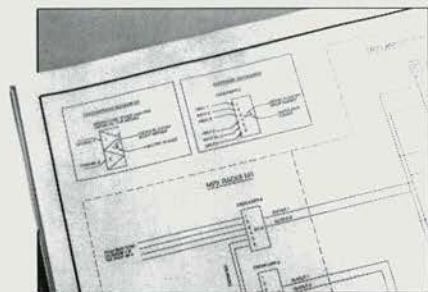
IQ SYSTEM
2000

bringing digital control

to churches and boardrooms. With its intuitive operation, no other system is as easy to use as the IQ System.

A different approach to digitally controlled sound.

The IQ System is unlike existing digital systems which are expensive, difficult to learn and susceptible to total system failure. Designed around highly sophisticated yet relatively inexpensive components, the IQ System is easy to use and highly



The IQ System gives you the flexibility to design systems that match the exact needs of an installation—no matter how large or small.



Entry-level IQ System: MS/PC-DOS-compatible computer, Crown Com-Tech 200, MPX-6, loudspeaker and microphones. Approximate retail price of this system is \$3,700. Prices may vary depending on specific components and configuration.

reliable. IQ components are designed to keep the system operating even if a host computer should fail.

Because of its outstanding flexibility, the IQ System may be tailored exactly to installation needs, while leaving further expansion possibilities wide open.

As additional components are introduced in the near future, you'll discover there's no more flexible or cost-efficient system than Crown IQ.

MPX-6. Expanding signal routing and control capabilities.

The MPX-6 is one of two IQ System multiplexers which make sophisticated control and routing of signals easy and affordable. Digitally controlled by a host computer or IQ COM-Q tape controller, an MPX-6 can route and switch six mic/line inputs, two summed outputs and two independent bussing outputs. Any level of any input can be routed to any output with a controllable range of 120 dB in 1/2 dB increments. This ability to route both incoming and outgoing signals provides unsurpassed

system flexibility. But that's not all.

Multiple MPX-6 units can be combined to create 6x4, 12x2, 24x8, etc., mixing capabilities. In fact, you can control up to 24,000 inputs with just one IQ System!

The MPX-6 may also be used remotely in distributed intelligent control systems to reduce long microphone line runs.

With the addition of the MPX-6, the ability to route signals in complex routines is not only possible, but easy.

SMX-6. Sensing multiplexer.

The SMX-6 builds upon the MPX-6 with additional sensing and configuration capabilities. It contains six mic/line inputs and four outputs like the MPX-6, but adds the capability of monitoring the pre-attenuated levels coming into the inputs.

Unlike other devices such as automatic mic mixers, control and con-



The Crown MPX-6 multiplexer and SMX-6 sensing multiplexer provide unsurpassed mixing and routing/switching capabilities.

figuration of the SMX-6 are achieved with downloadable software. These downloadable instructions, called Algo™ Packs, allow the contractor to program specific capabilities into the processor of the "intelligent" SMX-6. Automatic mic mixing, video-follow-audio switching and impedance and equipment checking are just a few of the many possibilities. It may also be combined with the MPX-6 for in-

Use this **FREEPOST** card to get information on products advertised in **Connections**. **FREE!**

Some advertisements carry a Reader Service number. Write in the number (below), and we will pass on your details to the advertiser, who will send you product information. Allow at least four weeks. For more immediate action, call the advertiser direct. Tell them you saw it in **Connections**!



Reader Service Card

NAME	
BUSINESS	
ADDRESS	
CITY	
POSTCODE	STATE
YOU A SUBSCRIBER? <input type="checkbox"/> Yes <input type="checkbox"/> No	
PHONE (optional)	
FAX (optional)	
MY OCCUPATION IS:	

IMPORTANT: Write in **ISSUE DATE** HERE. We can't process this request without it! *

Issue:.....

WRITE IN READER SERVICE NUMBERS HERE

Please tell us how many people read this issue of **Connections**? (Important for us!)

My Suggestions to improve the magazine:

BURRY: Card no longer valid after 60 days past the date.

Use this **READER
SERVICE CARD** to get
FREE information on
products advertised in
Connections!



Reader Service Card



No stamp
required.
Postage Paid
if mailed in
Australia

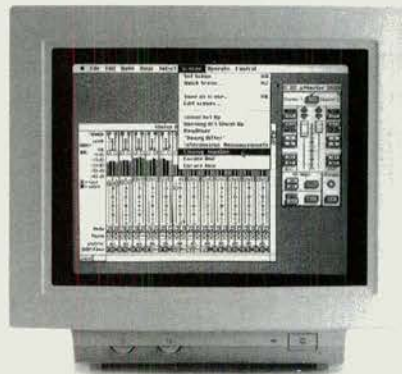
Connections Publishing Pty Ltd,
READER SERVICE CARDS,
Reply Paid Permit # 9,
EPPING N.S.W. 2121

Use this **FREEPOST** card to get free information on products in this
magazine. You can also fax this to: (02) 876-5715

system so versatile, it can the smallest church budget.



IQ System software is available for both MS/PC-DOS-compatible and Apple Macintosh systems. Designed to be user-friendly and intuitive, the



system eliminates the need for the extensive training required by other systems. The basic IQ software is available without charge with any IQ component.

creased mixing and routing capabilities at a reasonable cost.

PA-422 compatible.

Both IQ System multiplexers provide an option for being driven directly by any computer with RS422 or RS232 communication. An additional multiplexer option provides compatibility with the PA-422 standard and allows multiple PA-422 devices to be independently driven from each multiplexer. This permits control of compatible digital delay units, parametrics, third-octave equalizers and more.

No-Fee IQ System software.

Unlike other systems, the basic IQ System software is provided without charge with any IQ component. Software is available for both MS/PC-DOS-compatible and Apple® Macintosh® computers. Because of the many possible applications for these components, command codes and protocols are included so specific routines may be programmed by the contractor or system user.

IQ COM-Q. Complex system control made simple.

The IQ COM-Q component makes system configuration as simple as playing a cassette tape. Designed to digitally record the commands from an IQ host computer onto almost any tape medium (cassette, open reel, DAT), the COM-Q permits the system to be configured by simply playing back the appropriately recorded tape for a desired system change. This not only



The IQ COM-Q makes sound system configuration as simple as playing back a cassette tape.

allows for quick and simple changes, it permits those without extensive training to control the system. Contractors can pre-program configurations in-house for an installation which then requires only an IQ COM-Q and interface-capable component to run the system. With multitrack recording, the COM-Q can initiate complex audio and system commands

useful in applications such as theater productions and crowd movement at theme parks.

Installation ideas.

The design flexibility and sophistication of the IQ System may make you rethink how you design installations. Here are just a few of the many possible applications.

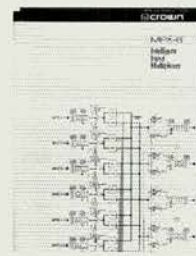
Small Conference Center

The IQ System multiplexers can decentralize audio system installations, reducing wire and associated costs, without decentralizing control. For example, one multiplexer and one Com-Tech® can be used to control the signal routing for two banquet rooms.

Surveillance/Security

The IQ System can be used to create a surveillance system in high-security areas. With strategically placed microphones and Crown multiplexers, audio or video-follow-audio monitoring is easily achieved.

For more information on the IQ System and system components,



free literature including datasheets and an application guide, call David Gable on ;

(02) 684 1022

 **CROWN**
Guaranteed Excellence

Distributed locally by Bose Australia Incorporated
11 Muriel Avenue, Rydalmere, NSW 2116
Tel: 02 684 1022.



BARRY MANILOW

'GREATEST HITS & THEN SOME' TOUR

Catriona Forcer talks to the crew about:

- * *In Ear Monitors,*
- * *Air Freighting gear,*
- * *The Mix,*
- * *Lighting,*
- * *Pan Command*
- * *Touring Asia.*

House sound mixer Ken Newman has spent many years working with 'adult contemporary acts' such as Shirley McClaine, Liza Minelli and Paul Anca. He joined the Barry Manilow entourage at the beginning of the current tour in 1992. In the USA, Ken works with the company A1 Audio of Hollywood. Some of the sound equipment for the Australian tour was shipped over from the States, mainly FOH console, foldback, effects and suchlike, Jands supplied the rest, comprising a Clair Bros. S4 Series 2 PA system.

"We're using the Carver amps, Clair drive system and the TC EQ's," said Ken. "It's a

really nice system which we like a lot."

For front of house Ken was using a Yamaha PM4000-64 console and effects included Aphex Type III, BSS TCS804, dbx 120-essers, 160 & 165 limiters, Evertide H30C0, Klark-Teknik DN514, Lexicon 224XL, Lexicon PCM70, Meyer CP10, Summit TLA100A, Yamaha DEQ5 and Yamaha SPX900.

"We could get 90% of the equipment here but then we would have had to bring the 10% with us which would have meant we would have had to do some sort of production rehearsal," explained Ken. "Our management said they would rather spend the money on air freight and having it all ready to go rather

than rehearsals."

The monitor system used a 40 channel Ramsa WR-S840 console plus a Yamaha DMP7 and a Yamaha M206 for sub mixes.

"We're using Vega wireless UHF mics some of which have been custom built with Shure Beta 87 capsules," said Ken. "We really liked the Beta 87 microphones but we also liked the Vega wireless system so we put them together. The Beta 87 gives us a lot of gain before feedback (*being supercardioid -ed*) because Barry tends to sing quietly and further off the mic than some people would. We've got a completely EAW monitor rig with KF850T side

BBM

fills, two per side, SB850 sub on each side and fourteen SM200i wedge monitors. Monitor amplifiers were Crest 8001, 7001, 4001 and Yamaha PC2500. The six piece band are covered with Sony MDRV600 headphones so that they can hear both the music and the show plus they also have boom mics so they can all talk to each other during the show. It's quite a



Engineer Ken Newman at the Yamaha FOH console

unique situation because some bands have the 'in ear' monitors, and some bands have speaker monitors but this is like another step beyond. As a result there are less speaker monitors to make noise for out front, so I have quite a bit of isolation out front."

The show has a lot of different styles to the songs and Ken admits each night is a challenge to try make the show sound like what he knows Barry wants.

"The most important thing is to make sure we can hear absolutely everything that he says or sings during the show," said Ken. "I like the diversity because it's not just a 'straight ahead, turn it on and the band mixes itself' rock show. Each song is a whole new challenge with a new set of parameters. There are a lot of quick changes between songs to try make it sound the way I know it's supposed to sound."

For the first time live, Barry Manilow was trying out the Radiostation wireless earphones.

"If we had done it in America we would have saved freight," said Dave Lawler, monitor engineer. "We would have got rid of a 1000 pounds of stuff at five bucks a pound. The main thing is that when you have earphones in your ear, you can hear in stereo and so wherever Barry moves, he

hears the same thing. With monitors, as he moves from zone to zone, no matter how much you track him things change because he's closer to the house PA or side fill etc. That won't happen anymore as this system is totally consistent and there's no feedback as there's no speaker. They have a really stiff limiter on the input so if there's an error somewhere, there's only a certain amount of volume that can go in. He's hearing his reverb in stereo and he likes a lot of reverb on his microphone. I have digital mixers with presets for every song that recall through MIDI so now that those are there I could start panning stuff around and basically I could recreate whatever mix he wants. It does block out the sound of the house PA so he hears just that m.x. If he wants to hear the audience, I have a shotgun mic down at the front that I can mix in for certain parts where he wants to hear the audience reaction. When we tour this August, I'm going to put all the singers on them and there won't be any wedges left. They'll be side fills for the dance numbers to give some thump and there's one part where an audience member comes up to sing with him. We can't really

(continued over)

CLS crew on the meal break. Concert crew are fed well these days, courtesy of The Promcter!



Barry Manilow (cont)

give her a \$10,000 set of stereo ear monitors for one song."

(Apparently this number can cause odd situations to arise like the time one lady was so excited she piddled on the stage and another time when an elder lady lost her top teeth whilst singing the duet with Barry. Unphased, she picked them up, put them in her pocket and continued!)

Dave also works with kd Lang using the Radiostation ear monitors and he insists it makes the performers sing better.

"They tend to sing more from the diaphragm, instead of the throat, so they can do more shows each week," he said. "Barbara Streisand has fitted out her entire orchestra with them although it's a wired version they're using."

The best part of the night has to be when Barry made his grand entrance upstage and, while the audience were still in raptures of delight, burst into song. Or so he thought he had. Unfortunately someone had forgotten to switch on the microphone through the FOH, although it was pumping through the monitors! Enter one grubby roadie to switch mics, and cue one embarrassed sound guy. Also the sight of Barry persistently sticking his finger in his ear during the show was a bit disconcerting.

Technician: Butch "Sarge" McKarge.

System Engineer: Greg Rosman from Jands.

LIGHTING

Jack Albeck III, Barry Manilow's lighting designer, describes himself as a Pan spot operator/moving light designer - something he has been doing for eighteen years. In the USA, Jack works with the Klages Group where he specialises in television specials like The Grammy Awards, The Toni Awards and The Presidential Inauguration Show. Jack has been with Barry Manilow since 1980 sometimes acting as stage manager as well.

"I work pretty exclusively with Barry now," said Jack. "We've been working non-stop for the past three years. This tour started in sum-

mer 1992 and we've done the USA, UK and southeast Asia. We must do about a couple of hundred shows every year."

For the Australian tour, Jack had hired a Pan Command system from CLS although he had bought some Faderbeams with him as they were not available here. He also bought a Compaq computer which is part of the PCS system, again not available in Australia, and some blacklights.

I asked Jack what advantages there were to using the computer.

"It's a trackball that I can operate onstage so it has all the different focus areas that stay permanent in my disks for show programming," he replied. "All I do is go up onstage and I move around each position where I want the lights focused. It'll call up only the lamps used to focus, it knows from memory what lamps are used in different songs and it's quite time saving."

Mostly the rig is par cans, 147, with 47 Colourfaders plus eight 9-lights and six XL rangers to light the cyc. Added to that are 18 PC Spots, nine Faderbeams and six Lekos. The 9-lights are used on the ground to light the cyc as well as five par cans for 'fingers' on the back.

"In the design of this I wanted to get a lot of theatre elements in the show," said Jack. "I added the drapery to give us some varied looks. One factor in the entire rig is that it's a versatile rig, one where I can get at anywhere I go. We can get the travel tracks in wherever we go. I just go from country to country and pick up a Pan Command system. All the lamps are on the downstage side of all the trusses, the upstage side has got all the travel tracks. This gives us a simple thing without having to double hang trusses and I also have the ability to light behind the drapery to do reveals. I have things overhung on the upstage side so I can do nice reveals through a scrim. When we put the system up, we put the lights on the same time the carpenters go through and hang all the drapes so it works as one package. When the rig goes up it's intact and once they've

built the set underneath, I'm ready to focus."

The drapes included a show curtain, a custom painted scrim, which Jack could light through with front light. The name 'Manilow' is hidden in the curtain and is revealed with the blacklights. Another painted scrim was upstage which could be front lit to show painted specks, and there was also a white scrim which went behind the painted scrim which, when front lit, was softened. There was a painted drop depicting a 'city view' which had lightening bolts painted to the side. When lit from behind, the windows in the city lit up and front lighting created different moods with a range of colours. Upstage there was also a star drop, a cyc and then a black scrim downstage of the cyc.

A set wall was placed downstage of the band and another upstage of the band. Rope light was used in the walls, 12 channels downstage and six channels upstage

"I designed the show so I run it all by myself," said Jack. "That way there's only one person to blame! I use the Commander board for the spots and beams and the Expander runs all the Colourfaders, colourchangers, XL rangers and all the dimming. It's all one touch and no programming, so to speak. It's pretty convenient."

In the Philippines, where Barry Manilow has never even released a record, the show sold out one stadium show (55,000) and 75% of the tickets the next night.

"The people were singing louder than our PA was going," said Jack. "It was amazing. The electricians were a nightmare though. The dimming system they use there and the cables is all zip cord. They had a problem with the dimming and it blew out one of my electronic components in the board. So I'd go to bring up a front apron wash and the cyc would start flashing and the 9-lights in the house would come on. We'd never know what would come on next! It was really exciting and every day something different would come on. They found the problem on the last show of the Asian tour." •

AIBA GROUP

Incorporating MGA Bates Insurance Brokers

(02) 957 3211

Musos • Retailers • Wholesalers • Studios • Tours • Trucks & Cars • Sound & Lighting • Events
Service Technicians • Home & Contents • Anything You Value • If you can't afford to lose it, Insure It!

Contact Ken Killen, Ian Stack or Michelle Silsby

Level 11, 118 Alfred Street Milsons Point NSW 2061 Mail to PO Box 1809 North Sydney NSW 2059

Ph: (02) 923 1066 or (02) 957 3211 Fax: (02) 929 4584

Winners of the 1991 & 1992 Australian Music Industry Awards
"BEST INSURANCE BROKER"

Winners of the 1993 National Insurance Brokers Association

"INSURANCE BROKER OF THE YEAR"

Write in Reader Service number: 165



EQ Section

A warm, pristine, musical, British sounding EQ because it *is* British. The four band EQ (with in-out switch!), features fixed point shelving high and low frequencies with centre points of 12 khz and 70 Hz respectively. The peak/dip upper mid band sweep is continuously variable from 500 Hz to 15 khz, lower mid band from 35 Hz to 1.5 khz. All bands feature 14 db boost and cut at 18db per Octave.

Input Section

All inputs feature professional standard connectors: TRS balanced line inputs, and individual 48 v phantom power switch (avoid embarrassing pops and fully power your hottest power hungry mic'ophones). Our mic/line switch works as a 20 db pad on the XLR connector allowing you to plug into balanced XLR line level inputs when you need to.



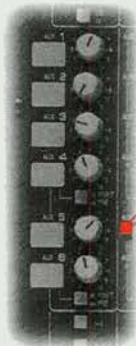
Output Section

All four discrete subgroup outputs, Left Right and Main outputs feature balanced XLR connectors and TRS insert points for simple interfacing of your finest signal processors.



Stereo Inputs

Stereo inputs featuring more EQ than most consoles have on their *mono* inputs. With two sets of inputs per channel and an A/B switch, you have the flexibility to select between 4 stereo sources (keyboards, CD etc.). For multitrack recording, used in conjunction with the 4 AUX/tape returns, you can bring in 8 tracks of tape while still tracking all of the other 10 inputs and getting a full function studio monitor feeds as well!



Auxiliary Section

6 discrete auxiliary sends selectable pre-fader/EQ (for monitor or studio headphone sends) or post fader (for effects sends). Routing and flexibility not found on mixers costing hundreds, even thousands more!

AUX Reverse Routing

Full function stage monitor console, **it's that simple!** Routing switches via our unique source reverse switch allows the console to be converted from a recording/Front-of-House sound reinforcement board to an expandable 18:6 stage monitor console with a fully selectable engineer's cue mix.

Tools, not toys.

Normal Price ~~\$4,243~~ RRP,INC.TAX

Slashed to \$2,999 RRP,INC.TAX

but only to the end of June, or as long as stocks last. So Hurry!!!

Faders

As is the standard on all professional mixers of its class, the GL2 boasts full throw 100 mm Alps™ faders for thousands of hours of smooth, seamless operation.

Master Section

Four discrete subgroups, left and right outputs, and the AUX reverse section allow the GL2 to adapt in ways impossible on other compact mixers.

Under the Hood

Careful attention to detail, as in individual circuit boards for each channel, fastidious component selection, and the best of British engineering all combine to establish the highest standard of performance... performance that is daily tested and confirmed anew.

The GL2 is the worlds first multi-function mixer perfectly suited for Front-of-House Monitor, and Multitrack recording. ■ The ultimate in flexibility, this compact rackmount unit reveals a world of new opportunity - the ability to adapt. ■ In basic format, the GL2 is a 16 by 4 by 2 by 1 system for quality Front-of-House mixing, but at the touch of a button it's instantly configured as a 16 by 6 plus 1 Stage Monitor mixer. Another button and you're set up for a digital Multitrack recording. No fuss - no compromise - no limitations for the future. Our unique SYS-Link™ system gives the GL2 the means to grow as you do. Designed and built by engineers that have been bringing you audio tools with the superb specifications and quality you expect from Allen & Heath. ■ Audition the latest tool for the working professional at your nearest Allen & Heath dealer or call us for more information.



Contact Studio Connections (03) 723 4300 for more information regarding your local Allen & Heath retailer.

Allen & Heath is distributed in Australia by: Studio Connections, 34A Main St., Croydon VIC 3136. Mailing: PO Box 1153, Croydon.

Ph: (03) 723 4300 Fax: (03) 723 4306 Mobile: 018 321 910 or 018 318 646.

Write in Reader Service number: 160



Bangarra Dance Theatre

One of the few Dance companies to employ an audio engineer! The crew talk about their shows, gear, and life...

Bangarra Dance Theatre Australia embraces the cultures of the Indigenous people of Australia. Under the Artistic Direction of Stephen Page, Bangarra Dance Theatre has spearheaded the development of a new style of Australian dance, drawing boldly from the essence and spirituality of Australia's traditional dance styles and combining them with the very best of contemporary dance and music. The production of 'Ninni' is essentially a family story with particular emphasis on the female point of view.

The Bangarra Dance Theatre are unusual in that they actually employ their own Audio Designer, John Locke, as well as a full time Musical Director, David Page. David Page joined them as resident composer/performer in 1991 and recently Bangarra installed their own sound studio for David to work in.

John Locke works as a freelance sound engineer for Bangarra and has been with them since 1989.

"I saw an ad in the CES for an aboriginal, bus driving, sound engineer," he told me. "I had two of the qualifications and got the job. When I wasn't working for them I was working on commercial musicals like '42nd Street' and the most recent 'Joseph'. The rig we have here is fairly simple due to budget. We're basically using the Enmore gear here including the Yamaha PM1200 mixing desk which doesn't

have all the EQ's and aux's but is fine for what we're doing. We're running the show off DAT, we alternate tracks which is something I recently saw done off CD but we thought it would be quicker and cheaper done with DAT. We guessed a DAT wouldn't let us down in the middle of the show although a certain Sony product (the 2300 Sony) did so we're using an old Yamaha DTR2 and another old machine the Tascam DA30. They're both one of the oldest professional DAT machines available and I think they've not been beaten for the price. Bangarra bought the Sony's a while ago but they have bad air correction and they just don't have the tight cueing of a Revox B77 or A77. Also you can't edit it on sight, you have to rush back to hard disk or wherever you've got the source material to rearrange it."

The speaker boxes are generic three way composite bins either side of front of house and they belong to the Enmore. Foldback wedges are EMR815 onstage and to smarten it up a bit, John dropped in two UPA's as a set of vocal/program cluster.

"If we had had more radio mics I would have gone for a split system but we've only got the one radio," said John. "The UPA's are great, the best you can get, and they just bring the whole thing into line a bit more. We're using a Vega radio mic which I think are great. I've used Sony and Senheisser before which are

\$15,000-\$18,000 per person and these Vega's are \$3,000. If you're running them off rabbit ears, this is a 200Mag diversity system, the RF is always 100%. It's amazing, although distribution systems are another problem, and running off the rabbit ears that mic is virtually noise free. Coda Audio recently did a show for NIDA with a composite system of Sony, Senheisser and Vega mics and everything but the six Vega's was noisy."

The show is quite simple to run and John insists if he was hit by a bus someone else could do it with cues from stage management. Having said that John can't resist tweaking and refining. The usual 'main tweaking thing' is the EQ because dance tapes are supplied and often of suspect quality.

"Even from 24 track studios I've had things that are fairly hard to EQ live," he said. "Also a lot of producers mix the music to tape which is not what you want for a dance tape. You want everything at a reasonable level so you're basically pushing the noise floor down and it should be regarded as another part of the recording chain and this mix live is the final mix. If you're mixing to CD, fade outs are on the CD etc but here you want the background effects flat to the boards the whole time and you can fade it out when you feel like it. A lot of people don't see that and you end up getting these pretty wild tapes. The Sydney Dance

Company have never had a sound person and it's amazing that such a small company as Bangarra have someone like me on the payroll. Other companies give lighting the priority and end up with a third generation cassette of negligible quality at god knows what speed. The dancers have probably rehearsed to the wrong speed and it all gets a bit crazy."

The studio design and installation was sold to Bangarra by Coda Audio who John works with in his other personality - sales person!

"I find it works well because people believe you a little more if they know you use the equipment too," said John. "The studio has a Soundtracs Midi 16 desk and the rig is fairly basic. It's basically a glorified home studio. There's a Studer Revox eight track analogue machine and there's nothing wrong with a bit of Lenny Kravitz analogue style warmth. There's also the compression you can get from recording to analogue tape which you don't get to DAT. We've got Tannoy NFM8 monitors with dual concentric eight inch drivers which are really nice and sweet sounding. We've put an SPX990 and an ARX EQ60 across the monitors and there's a Drawmer LXP20 compressor/expander. The mics are AKG with CK1 capsules on a 451 pre amp, a Beyer M88, and about three or four of each Shure Beta 57's and Beta 58 mics. The headphones are Beyer DT200's."

"David has an Emax sequencer he runs cue based from Macintosh and he strikes one track of the eight track. The midi desk also has a midi controller switcher on board which can follow time code and punch in and out effects. It's a split channel (channel path/monitor path) desk so you can get 32 inputs on mix down. Basically we'll be releasing stuff from there and it'll negate the need for them to spend vast amounts of money at small studios. It's set up by the rehearsal areas which'll be handy."

For security reasons the location of the studio is not generally given out.

Lighting designer Jo Mercurio has worked extensively in both dance theatre and film. His recent credits include Still Moves Dance Laboratory, Field Works Performance Group and the films 'Dingo' and 'Blackfellas'.

"I tried rock'n'roll once but I realised the money was all spent doing the gig and there was no sleep," he laughed. "My upbringing has been small dance theatre shows usually in alternative spaces rather than venues. Last year, with Bangarra, I did 'Preying Mantis Dreaming'. The artistic director Stephen and I have a good working relationship and I become involved in

more areas than just lighting. We started working through ideas for this during the last show, we wanted the first part to be between reality and a dream and the second part was inspired by raves. We had both been to outdoor rave parties in Finland and that's where we got the idea for the second act. It was tricky to get a nightclub look but still be in a theatre so I went a bit overboard with the nightclub effect."

Jo particularly enjoys working in the Enmore Theatre although he knows they will never fill the 2,000 capacity. The capacity is reduced to 560 by masking off areas.

"The crew here are great but it does have it's technical problems," he said. "There's not enough wing space and so all the side light is too close. I'd rather it was another metre and a half out so I could get more spread. As a designer it's a major problem for me working with an aboriginal dance company who have variations of depth of skin tone against black sets, black backdrops and very often black costumes. It's something I stamp my little footsie about but I didn't get heard. The black backdrop just swallows up the light so I've got three 5Ks coming from behind. I think I've got a total of about 23,000 watts of backlight just to put some dimension in as everything is being swallowed by the dense blacks. Little by



Crew - (top to bottom:) Chris Vliades, Jo Mercurio, John Mackovich, and John Locke.

little they are beginning to understand that you can't have black people in black costumes on a black set because it gets dissolved into almost two dimensions."

Jo was using the standard house rig at The Enmore consisting of about 98 lamps, a mixture of 1K Zoom Profiles for the side light and 2k Zoom Profiles out front plus a myriad of Patt 743 fresnels. Jo had also hired four Goldenscan 2's from Chameleon, which he was running off a Jands Event 24 desk, as well as the three 5k Fresnels for backlight.

"I had some interesting problems with the Goldenscans but I must say Chameleon came down immediately and took care of them," said Jo. "With that kind of technology you can get strange problems. The crew here know me and they know my style, the way I like things to go and in what order. I've got Chris Szarka on lighting control and Chris Vliades for the scanners. John Mackovich is the mechanist and Peter Zoz does the flies."

Although Jo is now busy with Wog-a-rama, he can't resist looking in on this show and finding something to twiddle with. He admits it gets a bit ridiculous and even to the point where it's just 'wanking' particularly as the audience probably will not notice the 'fine tuning'.

•Catriona Forcer

Cruel Sea in Sydney

After sweeping the Aria Awards, The Cruel Sea embarked on one of Australia's shortest tours ever consisting of two gigs, one in Melbourne and one at Selinas in Sydney. The soundcheck, lasting an hour and a half, was one of the longest and most thorough I had ever encountered.

"It's really a rehearsal as the band haven't played together for some time," said Matt Croxby who is both Production Manager and Sound Engineer for the band. The two Australian shows were warm up performances for the band before they left for a two month tour of Europe supporting Nick Cave & The Bad Seeds. Two years ago a similar tour with the two bands partied its way through Europe. Venues will be theatre type buildings holding between 2,000 - 4,000 punters.

Matt has been involved in mixing live sound for about eight years starting with The Johnnies. Originally he was their tour manager/driver but after numerous sound engineers had been and gone, Matt took over the sound mixing.

"I'd been watching how it happened over a couple of years and thought I'd give it a go," said Matt. "I mixed Ratcat for a couple of years and I've been doing The Cruel Sea for around two or three years. I also tour manage a few international bands - like Dinosaur Junior - when they come through."

With the distinct possibility of The Cruel Sea breaking into the major league, I asked Matt how that would effect his current position with the band.

"I've thought a lot about that," he replied. "There's a bit of a dilemma because being both the production manager and the sound engineer is becoming a bit of a big job now. I think I'll have to toss in the towel on one but I'm not sure which yet although sound is the more favourite of the two. I don't think the band will ever drop any of their Australian crew. With this Nick Cave tour, it doesn't warrant The Cruel Sea taking their own crew as they are only the support band but they're taking all their crew. It's because we all get on so well and we're a team."

Matt admits to not being particularly fussy about his sound gear and he doesn't know much about the different choices available. *(I admire anyone who is honest. These days its better to admit what you know, rather than trying to fluff your way through. Many a great live sound engineer is less than fully acquainted with the mechanics of the system. Try Elton John's engineer, for example! -Editor)*

"I guess there's a bit of a standard you get when you hire PA's these days," he said. "We

always deal with a couple of different companies and the gear always arrives in working order. I use a Roland Digital Delay on just one setting between 100-120 milliseconds on Tex's vocal and any old reverb is fine. I really like the room echo on the Rev 5's or Rev 7's, I run a lot of that over the overheads. Over the drumkit it gives you a 'roomy kind of wash'. I don't really have to put any kind of effects on the guitar although I may put a bit of reverb on them just to liven it up because on the stage basically all the sounds have their own effects and the acoustics go through racks."

The sound equipment was supplied by the Troy Balance Corporation and Greg Harris was there to check all was well. The sound system was installed ready for the two weekend shows by American band Primus and had been 'borrowed' by The Cruel Sea for that nights show.

The Meyer PA system consisted of six MSL3's PA boxes a side plus six 650's sub boxes. They were all Meyer processed with Yamaha 2600 amplifiers which are quite new. Front of house control was a Yamaha PM3000/40 console with ten channels of Drawmer gates and four channels of DBX 160X compressors. Added to that was the Roland Delay 3000, a Digitech DHP55, a Rev 5 from Yamaha, a Yamaha SPX990 and a SPX1000. For drive there was Klark Teknik third octave graphics and Yamaha EQ for the bottom end - as well as DBX160's for the system compressors.

"I actually love this room at Selinas," said Greg. "We know how to set the sound up in here. If you know how to set the speaker boxes up the correct way here then you're able to produce the good sound. For this type of system it's good to have the MSLs on stage and the subs off stage in line with the PA but underneath the rails."

It was evident during the soundcheck that there was a problem with the desk which I asked Greg to explain.

"It's a funny thing because the guitarist was running all of his guitars and the DI through his amplification and the guitar DI, which we didn't have to have on, kept still coming through," he said. "When you turn it up it should be up but we had it down and we were still getting it. So basically it's just he was running it through everything and then it was also coming through these guitars because they were also mic-ed up. Eventually we found out this was separate but it was just a phan-



Matt Croxby and Greg Harris at the Cruel Sea gig.

tom thing as well. You should always phantom a DI but in this case we didn't because it's coming through his other amps."

Mics were Beta 58s, SM 57s on guitars and '302s for the toms.

The monitor desk was a Yamaha 32/10, the wedges were Troy's famous 'Lord Nelson' creations with JBL components. Amplifiers again were all Yamaha 2600s and 2200s.

Having just won \$200 on the card machines, lighting designer Damien Oxley was far too busy to be interviewed.

•Catriona Forcer.

Rip Off alert!

Harbourside Pack 'em in!

By Catriona Forcer, Paying Customer.

Blatant rip-off prize of the month goes to the Harbourside Brasserie who recently staged several shows featuring the comedian Jack Dee. Being my favourite comedian, I quickly booked myself five tickets for the Saturday night performance. I chose the 'light supper ticket deal', ensuring us seats as I knew that standing areas in the venue were particularly bad. When booking the seats, I was told the show starts at 9pm and then I was asked what time I would like to make the dinner reservation. I replied 8pm.

The first of our group arrived at the venue at 7.30pm to find large queues and many disparaged customers. They were told to join the 'dinner queue' and finally we were all seated at 8.15pm. One of our party was due to arrive late so we decided to order only to be told we could not until our friend arrived because the staff get confused!

When our friend arrived at 8.30pm she
(continued next page)

Rip Off alert!

(continued)

was made to queue although we had informed the staff that she was with us. Our dinner order was taken at 8.45pm and arrived in the middle of Jack Dee's set at 9.45pm. A long time to wait for a plate of pasta with a tin of tomatoes chucked on top of it. Jack Dee, who was very good, finished at 10.15pm and we were ready to have a few drinks and relax (it had been impossible to get a waitress' attention during the show to order drinks). But no, in true money grabbing form the Harbourside had decided to squeeze in a late show as Jack Dee had proved so popular. This extra performance had not been scheduled at the time we booked our tickets.

The bar was closed and we were informed that we had to vacate the premises by 10.30pm so that a second batch of punters could be herded in. We were told we could return later to enjoy the band we had expected to stay to see but if everybody had done that it would have been a pretty crowded place.

I complained to the manager who had no comment. Probably because he was too busy ejecting displeased customers.

BEEN TREATED BADLY LATELY?

Drop us a Fax or write us a letter. please DO NOT ring us about it, because we get a LOT of phone calls and we always say: "put it in writing" and a lot of the time the caller NEVER DOES!

FAX: (02) 876-5715, or write: PO Box 439, Epping NSW 2121, Australia.

HIRE BIZBUZ

Around The Country

With Caroline Grafton

• **NOVA SOUND** have been on the road with the amazing 'Chocolate Starfish'. Crew included FOH Engineer-Steve Cambridge; FB Engineer-Colin Spencer; Lighting Engineer-Kirk Vagner; Audio Rigger-Bob Welsh; Lighting Rigger-Matt Arthur; Stage-Mark Pinotta and Tour Manager-Lindsay Kennedy. The rig consisted of - FOH Console-Nova B6-24-8; FB Console-Nova M12-24; FOH Speakers : 6 x BP215 Subs and 4 x N6.4 Mid/Hi on FO, and foldback 8 x SLP Wedges, 2 x NM.2 Sidefills and 2 x H115 Drumfills on stage. The tour covered South Australia, NSW, Victoria and the QLD Gold Coast. Call Peter McCarthy on (03) 555 4766.

• **SLATS** are clearing years of accumulated rental equipment including some hefty flying frames, truss, disco gear, cases, drivers, followspots, risers and other staging items. SLATS has promoted or produced over 100 dance parties since 1980 and has a clean cut corporate image these days - hence the clean up. There's also 11 ACT double W cabs (unloaded of course) FREE for the taking. (Great! I lugged these suckers around the place every night for years. They make BIG bass, take 2 x 15" JBL 2226 or beefy other 15" woofers, and weigh 130kg loaded! Size: 5' wide, 3' high, 3' deep. - Ed). Call Mark Taylor (02) 660 6666 or Fax: (02) 660 7968 or leave your name and fax with Mark's paging service on (02) 963 5360.

• **SHOWCRAFT** HIT A CENTURY in sales of their Colourset Scrollers to East Coast

Hire Companies

CHAMELEON TOURING SYSTEMS Sydney NSW, have recently taken delivery of another 20 Colourset colour changers. "These will be going straight out the door as part of 44 scrollers for 'Westside Story' in Melbourne" said Tony Davies. This delivery takes the Chameleon complement of Coloursets to 100, making them Showcraft's largest Australian customer. "What with shows such as 'Hot Shoe Shuffle', 'Westside Story', and 'Elvis the Musical' on, I hardly get to see the scrollers at all." Call Tony Davies on (02) 5171111.

Jands Production Services Sydney NSW, undoubtedly the largest stockists of colour changers in Australia, have taken delivery of their first Australian made scrollers. Twelve Colourset scrollers to suit 8 way DWE lamps are currently touring the country with John Farnham. Showcraft also provided Jands with a custom interface to enable the Coloursets to be controlled by another company's controller, for seamless integration with existing scrollers. Call (02)317 5200.

• **JANDS** Production Services has added a third MIDAS XL-3 48CMMB console. Vendors Mark IV Audio Australia say they would like to thank Peter Ratcliffe and Jands for their support and interest in choosing Midas.

• **INVESTMENT** allowance on capital equipment over \$3000 closes on June 30th. You need to order your gear and effect your

(more>)

CREST CONSOLES

THE POWER OF INTELLIGENCE



Crest Century GT

At last, a console that combines what you **WANT** with what you **NEED**.

How do we know? Because we asked...

Features Include:-

- 4 x Programmable Scene Mutes
- 2 x Matrix Sends
- 4 or 8 Bus Configuration
- 8 x Auxiliary Sends
- Optional Matrix & Stereo Modules
- 4 Band Sweepable Equalisation
- Practically Indestructible Power Supply
- Truly Modular

PRODUCTION AUDIO SERVICES PTY. LTD.

ACN 006 149 499

MELBOURNE : 5 Feathertop Ave., Lower Templestowe, Vic. 3107 Ph: (03) 852 0900 Fax: (03) 852 0422
SYDNEY : Suite 407, 220 Pacific Hwy., Crows Nest, NSW 2065 Ph: (02) 954 5100 Fax: (02) 954 4927

Write in Reader Service number: 122

STAGING RENTALS

Extensive Range of
Rental Drapes
Risers & Flats, Scenic Art
Delivery & Installation
(02) 519-6300
Fax (02) 519-6489

BURKINSHAW CONSULTANTS

"For all your staging needs,
Hire, Sales and Production"

12 Budgerie Place, Hoppers Crossing, 3030 Victoria, Australia
Tel: (03) 748 6864 Fax: (03) 748 8193
Phone Phil: 018 386 481

Colin Baldwin

Lighting Design

Lighting and Stage Design for
Concerts and Special Events

Phone (02) 878-1799 Fax (02) 805-1003 A/H (02) 653-2038

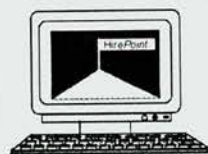
The Big Box Builder is Back

For speaker enclosures and custom cases,
Call Ian Stewart.

Phone: (02) 798-6539, Fax: (02) 798-6571

Ramtek Industries Pty. Ltd.

34 Bartlett Street, Summer Hill, NSW 2130



Hire Point Software

Features :-

- Plots bookings Prints hire contracts, quotes, estimates, confirmations Equip' usage statistics
- Calc's prices & taxes handles Sub hires
- Reports include :- Sales analysis, reorders, shortages, maint' costs, deliveries & returns Optional modules :- Debtors, Creditors & General ledger

**Properly analyze your inventory
before investing more !**

Phone Now : (02) 876 2745

NEXT ISSUE: August.

(Deadline July 15)

(continued)

lease now, and take delivery by June 30 1995 - that's next year. The 10% tax deduction makes it worthwhile to give effect to a deal NOW for deferred delivery, although you'll pay the lease co a fee for this, we presume.

• **BUSINESS** Topics for Hire Firms are scheduled as ENTECH Workshops, to be run during the ENTECH '94 Trade Show, October 6 through 8 at Sydney Exhibition Centre. Topics include:

- Tax & the Contractor, hire & withholding tax issues,
- Legal Liability in the Production/Hire biz,
- Workplace and Theatre safety, laws.

The organisers (that's us here at Connex) wish to thank Dale Kennedy from Mackay and Simon Jenkins at the SOH for putting these topics forward). Workshops at ENTECH cost \$10 each, the entry to the show is free. Enquire direct to ENTECH on (02) 876-1411.

• **FERNANDEZ** MUSIC CENTRE Cairns Qld. have had a diversified month proving that things do happen in Northern Qld.

On the Rock circuit they supplied a rig in the Playpen night club for Adelaide band Radio Ga Ga. In the tourist industry they supplied Tjapukai Aboriginal Theatre with a small system for performances of dancing and storytelling. On the corporate front - Broadley Ford used a system to launch one of their new cars and also supplied a system to the Red Dome Gold Mine so some distinguished Japanese guests could talk to the masses.

The Police Youth Club used them for their Blue Light Disco's - 1100 screaming teenagers (when Doug left they calmed down a bit!!) Just! And we should mention the Fern Gully Open Day at the Kuranda Amphitheatre which featured many "fine feral acts". One of the main highlights of the week-end was the fine focus of pinspots on this mirror ball motor. Where was the mirror ball?? Ask Doug!! Not to mention the "mushroom casualty that hassled Mark all day, over our roll of gaff that he was convinced he had to have to repair his paper plate. He actually nicked it (the gaff) and was incarcerated by Mark until he reluctantly handed it back". Call Mark or Doug on (070) 51 8519.

• **BLACKSHEEP PRODUCTIONS** Sydney NSW has been very busy with the move to new premises; now at Ground Floor, 22-36 Mountain Street, Ultimo. Fax (02) 212-7018. In the middle of this, they were asked to provide technical production for the Warner Bros. school holidays shows in 13 Westfield Shoppingtowns. The crew of 15 used Bose 802's for F.O.H. and foldback, Soundcraft Spirit desks, and our new Vega radio mic system (18 used in total) for 6 days and 156 shows all up!

HIRE BIZBUZ

The launch of the new \$1.2 million Buggati for Rick Damelian required some spectacular lighting and sound systems. To light the many expensive looking vehicles in the car yard, they provided 4 x Golden Scan 2's and 2 x Tiger Scans on the roof of the main building; and theatrical lighting, large lengths of tech lite, etc. for the actual launch of the car.

The torrential rain that ensued during the evening really enhanced those Clay Paky effects! Anyway, the crew asked for a test drive (top speed of the car is 420 km/h), but for some reason they wouldn't take the Tiger Scans as collateral!

The video side of Blacksheep's 'personality' has also been hectic, with multi-camera O.B.'s for the Australian Army Band as they marched through George St. and were given "Freedom of the City"; and at Kinselas for Roland Corp's new product launch with the likes of Virgil Donati. (Why wasn't Connections invited to this, Mr. Roland?)

For the United Travel Agents Group national conference, this year held in Melbourne, they were asked to provide complete video coverage of the weekend, with a 'highlights' video to be produced and shown during the final gala dinner. The weekend provided numerous amusing moments - such as a street march of seemingly thousands of travel agents down Collins Street (complete with town crier, bagpipe band and the very tram-wary camera crew), a night of debauchery at the Metro nightclub (money was taken to destroy footage from this night), some very bemused Regent Hotel staff learning the tricks of the trade in our hotel room edit suite, and the chartered Qantas flights, where our cameras captured the pilots singing the weekend's theme song (they should've perhaps stuck to flying the plane).

The highlight of the weekend was the gala dinner, for which *Blacksheep Productions* provided complete room theming, lighting, sound and video production for over 800 people. Many thanks to the AV guys at the Grant Hyatt and the staff at Qantas Holidays, incidentally.

Blacksheep were also contracted to produce a promotional video for the Australian Gay and Lesbian Travel Association (AGLTA) - the purpose of which was to promote Sydney, and win us a major international conference in 1996. Word just in - we won! (of course thanks to the video of course!?), and for their next trick, they have been asked to try and win it for Tassie. Call (02) 212 7222.

• CARNARVON GOES DIGITAL

Attracting teenagers to a disco on a regular basis is a difficult task, especially in a country town. Carnarvon is 900 kilometres north-west of Perth (or about 10 hours drive). When the local Police Blue Light disco got together and

(continued over)

SPECIAL OFFER TO CONNECTIONS READERS



PAR 56 CANS
\$56.00
INC. TAX EACH.

PAR 64 CANS
\$64.00
INC. TAX EACH



8" MIRROR BALL + ROTATOR

\$45.00 INC. TAX EACH

12" MIRROR BALL + ROTATOR

\$60.00 INC. TAX EACH

16" MIRROR BALL + ROTATOR

\$89.00 INC. TAX EACH

20WATT MINI STROBE
\$49.00
INC. TAX EACH



PAR 36 PINSPOT
\$24.00
INC. TAX EACH

CALL YOUR NEAREST INFINITY DEALER NOW

QLD

Creative Lighting & Sound

Ph: (07) 252 5686

Fax: (07) 252 4778

SA

Osmond Electronics

Ph: (08) 410 1111

Fax: (08) 410 3322

NSW

Black Express Light & Sound

Ph: (02) 559 4363

Fax: (02) 558 4923

WA

Kosmic Electronics

Ph: (09) 242 3844

Fax: (09) 444 1144

VIC

Australian Disco Service

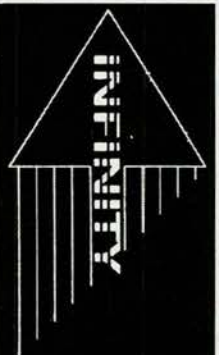
Ph: (03) 484 1178

Fax: (03) 484 2624

WHILE STOCKS LAST

PRICES EXCLUDE LAMPS

OFFER ENDS 30 JULY 94



(continued)

started teenage discos in the 'wool shed', providing effective lighting was the main problem.

Sick of hiring tired old disco equipment trucked up from Perth every month, the local Shire made a grant, under \$9,000 available, to purchase lighting equipment. Andy Gingell, President of the Blue Light Disco Association in the area, called for recommendations from various Perth lighting companies.

The general brief was to fill a large area with light, make it interesting, easy to install and dismantle as the area is used by other members of the community during the day and most evenings. Even more importantly, the equipment had to be easy to operate by volunteer staff.

Patrick Cahill, from Theatrecrafts, came up with a proposal different from others. He elected not to use moving lights which would fill an area of that size, but would have in all probability doubled or tripled the budget. Lower-end disco effects are only a few hundred watts and would have been swallowed up in the area.

Patrick suggested using a 575 watt HMI Tas syncro digital as a centre piece. This amazing light is like no other and could be loosely described as being equivalent to 8 "waggly" mirror type effects, 8 fan rays and moon flowers topped off with a simulated laser. The system has 50 combinations of movements, called "games", controlled by a sophisticated inbuilt sound to light processor. The system can be keyed externally by the optional remote control which also increases "game" capacity.

The surrounding wall areas and perimeter have been flooded by Par 56 cans controlled by a Zero 88 automated disco chaser. This too has a sophisticated micro processor which analyses the music beat and frequencies and uses its intelligence to customise the chase patterns, not only the tempo, but also the intensity of the music. As well as controlling the Cans it chases 4 disco strobes which are set up on the overhead lighting bars.

Because of the distance involved and budget constraints, it was decided to test and set up the equipment in Perth. It was then packed in boxes, with full instructions for unpacking and assembly of the equipment on site. The equipment was installed by the local "sparkie", with help from members of the local Blue Light Disco staff.

When ordering the equipment, Andy Gingell thought he was taking a risk, ordering such equipment sight unseen and so different from other recommendations he had received. After the success of the first night, his fears were allayed. He has told Theatrecrafts he was really pleased with the equipment. The teenagers were overawed by its effects. "In fact, it took a while for the kids to start dancing as they were so fascinated by its movements and

varied "game" plays."

The ease of installation and operation of this equipment means that remote country areas can access lighting effects at affordable prices which give some city discos a run for their money.

• HOODOO GURUS GET 'BIG BOTTOM'!!

The Hoodoo Gurus, currently on the last few weeks of their latest Australia wide tour, are using a large Revolver PA with the Aphex C2 Aural Exciter with Big Bottom™

"The Revolver 2 x 15 bass cabinet is currently the best around, and with six units a side and the Big Bottom, the result on my kick drum is just lovely mate", said long-time (veteran??) Gurus sound engineer Peter 'Tex' Ward. "Being a stereo unit, I can use one side for my kick drum and the other side for Dave's (Faulkner) vocal. I'm happy I bought the unit."

Gary Maddocks, System Engineer for the tour said, "I've often thought that these aural exciters were a bit like the Emperor's new clothes, but this one seems to do the job."

• SCREAMING JETS PACK OUT

Like the Hoodoos, the Screaming Jets have been touring the country using a Revolver PA and drawing huge crowds. "The configuration I'm using of 4 Revolver subs, 3 Martin mids and 3 JBL horns per side really pumps, even in the larger venues on this run", quoted the Jets sound engineer, Dave Henderson.

The Accountant and Tour Manager for the band, Aaron Chugg, sees things a bit differently. "Sure it sounds good, but the bottom line for me is that the system is affordable, light, compact and fits well into the truck which helps keep all my crew happy. Plus, with a Revolver system, I get a level of back-up service that I don't get with other companies."

• **ENTERLITE** in Adelaide have added a 24 x 20' fibre optic curtain to hire stock. It's got a 3 head system with up to 24 mixer colour combinations. Call (08) 270-2637.

• **BYTECRAFT HIRE** have hired a bunch of the new ICON moving lights into the Metro Nightclub in Melbourne.

• **NAT TM1200** is the all singing, all dancing new Coemar moving light, and Total Concept Productions in Sydney have added a system and a ShowCAD control system to their rental stock. The system is available after a major production in June. More on this later.

SEND your NEWS to Caroline by the 15th of July for the August issue. Fax: (02) 876-5715, or send to PO Box 439, Epping NSW 2121.

Locals Do Singapore

By Catriona Forcer

The National Trades Union Congress May Day Rally & Show entitled 'A River in Time' was recently staged at Singapore's Indoor Stadium. The patriotic production told the story of Singapore. Initially it was planned to only employ local technical staff but this proved unfeasible and western companies and personnel became involved.

Kevin Davidson was the sound designer as well as the production manager and he suggested the inclusion of laser lighting designer Geoffrey Rose and laser dancer Tracy Bourke (see November '93 Connections).

"It took quite a bit of persuading but once they had seen the video of what we do, they really wanted us," said Geoffrey. "I suppose there are similarities with traditional Asian theatre with the colour, spectacle and magic of the performance. The story was fairly moral - almost propaganda really."

The show had a cast of 100 people, the music was recorded in Shanghai by the Shanghai Philharmonic Orchestra and the voices were recorded by the cast of Les Mis for the actors to mime to. The dancers were provided by the Singapore Dance Company. The show was televised by the Singapore Broadcasting Corporation the following night who deployed CCD (Charged Couple Devices) cameras ensuring the recording of the show remained virtually unchanged.

Local sound company Audio Visual Land installed an Apogee system which was apparently very good. Jands supplied the lighting including 36 VL2's and VL1's, 25 VL5's and some banks of par cans. Reliable sources inform us that Peter Rooney was seen mucking in with the bump out.

Total Concept Productions supplied Geoffrey with a Colourshot laser and an Argon laser running two Aquarius systems. Phil Greaves travelled with the lasers and a problem he encountered was the high temperature of the water available but that was nothing Phil couldn't overcome.

"They had quite a healthy laser budget but it was cheaper to fly three people plus the lasers from Australia than to hire them locally," Geoffrey told me. "I think it was about half the price! It was interesting to note the difference in the working process between our two cultures."

The large stage had a back projection screen with two Pani projectors supplied by Bytecraft. This was used to set scenes as well as display cultural images. Either side of the main stage there were two smaller stages for a Gamlin orchestra and a conventional orchestra. Copious amounts of fireworks and pyrotechnics were used although this didn't cause problems with the President's sniffer dogs as apparently the firework people work with the bomb squad!

RICH MUSIC ROLLS RICH

By Julius Grafton

At presstime the final chapter in a turbulent year occurred at the Sydney recording facility known as Rich Music Studios. This is what the official release says, and after it is over I'll give you my point of view:

"On Friday, 20th May 1994, Rich Music Studios underwent a major change of management when the facility was put into Receivership by one of the owners who was not a director of the company.

Commenting on the move, the owners said they were not happy with the way the company was managed and the direction it was taking. After much consultation, receivership was considered the most effective means of resolving the situation without adversely affecting the day to day running of the business.

Greg Simmons has been appointed as the new studio manager, replacing Paul Rich. According to Simmons, "There's a lot of work to do following the departure of the previous management. However, the new-found enthusiasm of the staff and their willingness to chip in and help out is extremely encouraging. I'm very excited about the recently completed Studio B, which is a true studio of the '90s. We can now offer an excellent and affordable record-

ing service that's ideally located, right in the centre of the city."

Studio B features: automated 48 channel DDA DMR12 recording console; four Alesis ADATs with BRC for a total of 32 tracks of smoothly integrated digital recording; accurate ATC monitors; Lexicon, Yamaha and Alesis outboard; Neumann, AKG, Shure, Sennheiser and Beyer Dynamic microphones. All housed in a large and spacious control room with two adjoining recording areas.

For further details contact Rich Music Studios on (02) 264 7734, or fax (02) 267 7651."

WHAT I THINK REALLY HAPPENED:

The company that bought Rich Music Studios out of receivership last December was called Dealfilm Pty Ltd. It was made up of a trio of brothers with good intentions, the Saminaden brothers. They formed an alliance of kinds with Paul Rich, and the place was re-capitalised. Trading continued, the Audio Education Centre school continued.

The Saminaden brothers bought into the place in good faith, and soon became disillusioned with Paul Rich. They rolled him.

Paul Rich is a mesmerising salesman. He



Paul Rich

weaves a web and convinces people to invest money in his schemes.

Since our expose appeared in the February issue, dozens of people have called us in relation to Paul Rich and his business affairs. It is not a pretty story. We have the material on hand, but many of the people concerned are either too ashamed or involved in legal actions, so they won't come forward.

And yes, it is our contributing writer Greg Simmons now at Rich, and that's why I'm writing this.

Simmo knows what he is doing, so good luck to him. He'll keep writing. -Julius Grafton.

Review: Yamaha SPX 990 Effector PAGE 42



WORKBENCH

With Howard Jones

ANOTHER DAY ON THE BENCH ...

A Sony PCM-7050 DAT recorder turned up on the bench this month, with the fault description saying that a feedback loop had occurred between the DAT and the mixing console. The DAT's meters had been seen to peak and now the analogue inputs didn't work anymore! This top-of-the-range machine has a very elegant internal layout, with excellent service documentation, so it didn't take long to get the covers off and start tracking the missing input signals.

Tracing from the rear panel connectors, the analogue inputs are passed to the ADA-18 circuit board. This board contains both the A-D and D-A circuitry, and since the DAT's digital inputs still worked correctly, it was obvious that the problem would lie somewhere here.

The input signals are processed through some level conditioning circuitry before travelling to the front panel record level pots and back. After that, they go through

some buffer amps and into the A-D converter. This chip handles both left and right channels, producing a multiplexed serial digital output to feed to the rest of the machine. This is a good point at which to check what is going on, because on this chip you can pick up both analogue signals, the digital output signal, and all the various clocks driving the converter.

In this case there was no output from the ADC at all, despite all other signals being present and correct. Somehow, when the feed-

back loop occurred, this chip had been blown. It seems that the various op-amps preceding the converter had handled the overload OK, but in turn had overdriven the ADC - the op amps would undoubtedly have swung to their full rail voltages, and poured it into the converter for as long as the feedback remained.

So, this turned out to be a straightforward repair but not a cheap one, because the replacement A-D converter cost over \$100. Since it is all too easy to

(continues on page 40)

HOW TO RELEASE YOUR RECORDING - Page 44

The Revolution Continues

If you thought deep bass response, warmth and a pristine high end came only in big packages from big names for big bucks...

"We've got a little surprise for you:"

Introducing the new EQUITEK E-100 from CAD

- proprietary internal shock mount & integral swivel mount
- servoed head amplifier
- internal power supply with ten times the power available from phantom power alone
- transformerless balanced output
- phenomenal sound
- RRP \$995



The Evolution Continues...

CAD's commitment to excellence is reflected in the all new version of the original Equitek multi-pattern condenser studio microphone: the E-200



- now with Burr Brown op amps
- automatic battery shut off
- proprietary dual internal shock mount
- uniquely flexible and affordable
- RRP \$1695



Distributed by..

AUSTRALIAN AUDIO SUPPLIES
 Distributors of Professional Audio Equipment
 256 VICTORIA RD. GLADESVILLE, NSW 2111
 TEL: (02) 879 6124 FAX: (02) 817 1049

WORKBENCH with Howard Jones

(continued)

switch a DAT (or other recorder) to input monitor mode and accidentally set up a feedback loop, it is as well to be aware of the potentially expensive consequences.

• This month also brought in a DAT recorder of a very different kind - a TCD-D10 Pro 2 portable. I rang the owner to get the story - he said that the front panel was displaying 'ERROR 51' and wouldn't play any tapes. How long has it been doing this? - 'It just started this morning!'. Hmm, anything else? - 'Oh, it was dropped this morning, but I don't think that's got anything to do with it'. (At this point your humble technician starts to develop certain dim suspicions).

Sure enough, the right hand side panel of the machine, carrying the input, output and headphone connectors, was subtly deformed, looking as though it had been pushed in slightly. And yes, loading a tape immediately brought up the error message. One advantage the Pro 2 offers over its predecessors is the displaying of these error codes when something goes wrong, so that you at least have some idea of the general area where the fault is occurring - the previous models would simply unload the tape and sit there giving you no idea of why it had failed.

Looking in the service manual showed that Error Code 51 meant "Capstan speed ramp too slow", so it meant that I was looking for a capstan related problem. Dismantling the machine revealed the cause almost immediately. When the DAT had been dropped, the side panel had flexed inwards and one of the XLR connectors had crushed the 8 pin connector leading from the main PCB to the capstan motor assembly. Most of the pins in this connector had been forced out of their housing and so were effectively open circuit. The response of the machine to the loss of these connections was pretty impressive - the tape would load, and then wind wildly in reverse until shutting down with the error message. Apart from replacing the damaged connector, it was necessary to do a little panel beating on the bent side panel to get it back into alignment with the chassis. After that, it was the usual grease and oil change and another wounded soldier was ready to return to battle. •

Howard runs Studio Solutions, (in Sydney town) who/which sell, fix and install things. You can call on his considerable expertise by dialling 02 906-4363.

STUDIO, DIGITAL RECORDING WORKSHOPS

The recording industry will be well catered for at EN-TECH '94, the trade show scheduled for October 6 - 8 at Sydney Exhibition Centre. Organised by Connections Publishing, ENTECH offers free entrance to anyone in the trade after a short & simple registration process.

In addition to exhibits from most major suppliers, a series of 'info-mational' 50 minute workshops will be offered at \$10 each.

Studio & Recording topics on offer include:

- A & R panel, 'home recording, our attitude',
- Producers & Engineers

- panel,
- Stereo digital formats,
- Video & the Project studio,
- Recording Mastering,
- Hi8 or VHS 8 track?
- Music production versatility,
- Audio Storage - trends,
- MIDI Sequencing in the studio environment,
- Musical direction for film and video
- and others.

A Hard Disc supersession will also be held, costing \$15, and running 1.5 hours.

Details in this magazine, or call ENTECH direct on (02) 876-1411 or fax (02) 876-5715.

Splices

VENDORS SAY:

AUDIO KINETICS, the machine control and synchro people, have new software for the ES.Lock 1.11 system - enabling full 5 machine control from a single serial port. Serial*Share opens up new avenues of control for a host of systems, including the AMS/Neve Capricorn and the SSL ScreenSound/Scenaria. *Call Syncrotech Systems 02 417-5088.*

A GUARANTEE! This one is different ... AVD in Sydney say the HOF Dynamic Master will increase your uncompressed program's apparent loudness at identical PEAK levels by 6 to 10db, or you get your money back! It is a stereo dynamic processor, combining peak & RMS limiter, compressor, leveller and expander in

one package. There are three units (only) reduced to \$2,100 from \$2,895. *Call AVD in Sydney on (02) 716-0211.*

FAIRLIGHT AT SMPTE
The new 'MINI', a smaller, portable low cost version of the MFX Digital Audio Workstation, will be launched at the SMPTE trade show in Sydney during July. The arrival of the MINI, priced at under \$40k, means pro users who can't afford the real thing MFX-3 can now use almost-the-real-thing. The MINI gives you 4 - 8 tracks. *Call Fairlight (02) 975-1230.*

...and a TOWER sold to:
Rowland Productions are Melbourne's first post facility to install Fairlight's new MFX 'Tower' - the new floor standing model of the fave MFX-2 Digital Audio Workstation. They do soundtracks, for film and video. *Call them on (03) 699-8399.*

GENELEC ON A ROLL
The Aussie distributor, Studio Connections, have found homes for Genelec monitors with a variety of esteemed establishments on the eastern seaboard. The mother ship in Finland have had a major factory extension opened by the minister for trade and industry - Seppo Kaariainen. *Call Studio Connections: (03) 723-4300.*

DDA FORUM MUTES
You can now option a mute module on the FORUM, which is an 8 group console. The COMPOSER variant has 24 tape returns. *Call Syncrotech Systems 02 417-5088.*

ABC AOK for AVD etc
...which is a fractured headline that means AVD, short for Audio Visual Designs, the Sydney pro recording outlet, have been the first outside contractor to work within the refurbishment of audio. Studio 22 was refitted for new season of Live & Sweaty. AVD prepped

the job, configured the cables, and connected and tested the lines to the SSL. A big task. *(02) 716-0211.*

BILLY STICKS IT UP!
Billy Woodman (head of ATC) is not afraid to tell it like he thinks it should be, so he blasted other speaker makers in his paper to a conference there. He said, in short, that the UK lead the way until the industry switched to following the yanks. 'The aims of the forefathers of the industry have been forgotten'. Meanwhile Sony Music have a new pair of ATC's largest monitors - the SCM-300, with 2 x 15" woofers, plus mids and highs. It's active 3 way, driven by 4 amps - 2 Jands SR-3000's, a JBL MPA 1100 and an AM 1K2. *AR Audio Engineering is Billy's (ATC's) local outlet/stronghold. Call (02) 299-3666.*

LEXICON OPUS 'GOER
A 16 track OPUS is now installed at George Patt's in Sydney, the third such system in Australia.

ALL DIGITAL. ALL AT ONCE.



SETS

COMPARE

LEAVE EDIT

OUTPUT HEADROOM (dB)

24 18 12 6 4 3 2 CLIP

-24 -20 -12 -8 -6 -4 -2

GAIN REDUCTION (dB)

6 0 1

Symetrix

Parametric EQ

Compression • Limiting

Automatic Gain Control

Dynamic Noise Reduction

Downward Expansion

Echo • Doubling • Modulation

Auto Panning

De-essing

DC Removal

Analog In & Out

Stereo Digital In & Out (AES/EBU & SP/DIF)

MIDI Control of Every Parameter

Glitch-free, Instantaneous Program Change

AUDIO TELEX

SYDNEY 149 Beaconsfield St. Auburn,
NSW 2144. Tel: (02) 647 1411 Fax: (02) 648 3698
MELBOURNE 4/26-30 Howleys Rd. Notting Hill,
VIC 3168. Tel: (03) 562 8566 Fax: (03) 562 8781
BRISBANE 42 Commercial Rd. Fortitude Valley, QLD 4006. Tel: (07) 852 1312 Fax: (07) 252 1237
PERTH Unit 7 64-66 Kent St. Cannington, WA 6107. Tel: (09) 356 2761 Fax: (09) 356 2762
ADELAIDE Electronic Concepts 76 George St. Thebarton, SA 5031. Tel: (08) 234 9444 Fax: (08) 234 9441
HOBART K W McCulloch 54A Albert Rd. Moonah, TAS 7009. Tel: (002) 28 6373 Fax: (002) 78 1063

MASTERING With Paul Bryant

MASTERING : MORE CHOICES, MORE PROBLEMS

Recently, Discronics held a seminar in Sydney for mastering studio personnel. The purpose of the seminar was to explain Discronics capabilities following the installation of new pre-mastering/mastering equipment, and to seek input regarding mastering formats supplied to Discronics.

Up until now, CDs were glass-mastered from U-matic tapes, so if you supplied any other format (e.g. DAT), your master was transferred to U-matic before the CD was mastered. Although digital to digital transfers are pretty reliable, a lot of engineers get very nervous about anyone copying their masterpiece and as a rule, the less something is copied, the better.

FIRST, THE GOOD NEWS

As from May 1st, Discronics can glass-master direct from U-matic, CD, DAT, and Exabyte 8mm cartridge, provided that the master has been prepared correctly. To assist clients, Discronics have prepared a handbook fully outlining the requirements for the preparation of masters. In addition, each format is fully error-checked to ensure an accurate transfer to the glass-master.

After a detailed explanation of the processes involved and the various technical requirements for each format, the meeting was turned over to a round table discussion of mastering formats. All the major Sydney mastering studios were represented, as well as some enthusiastic independents, and some very interesting information emerged.

THE BAD NEWS - NEGATIVE FEEDBACK

DAT : Apparently very few people are succeeding in preparing a CD master on DAT tape. A well maintained PRO. DAT machine can come very close to the traditional U-matic 1630, but in too many cases there are severe problems such as glitching, mutes, over levels, very low levels, wrong sampling frequencies and machine to machine compatibility problems.

There are many causes of these problems, for example, the majority of DAT machines in Australia are domestic derived "el-cheapo" models (one motor, two heads).

Another cause of difficulties is people attempting to compile a digital master on their DAT machine without using some form of digital editor. This is unreliable at best and can produce a substandard, faulty, master tape.

One proposal from the meeting was that consumer compatible formats such as DAT and CDR should be sealed in their cases by the mastering studio with unremovable seals - 'SEALED FOR YOUR PROTECTION'? The major mastering studios feel that the problems involved with mastering to DAT outweigh the cost advantages.

CD : Manufactured CDs (CDA) consistently exceed "Red Book" standards and can be used

for direct glass-master cutting. Recordable CDs (CDR) can also be used and although they are not as good as manufactured discs, due to lower RF levels, MOST still meet Red Book standards. But, SOME DON'T. Some CDR recorders are producing better discs than others, and the discs themselves also vary in quality, e.g. at present, the longer 74 minute discs are causing problems. If you want to use CDR as a master, insist on an error check. The error rate performance of CDs is much more repeatable than DAT tapes, which vary from machine to machine. Be wary of playing your master before your CDs are manufactured.

EXABYTE : Exabyte tapes are an alternative for mastering studios using computer based workstations. They offer cost advantages, good error performance, convenient storage, and cannot be played (and damaged) by customers. So far, no-one in Australia, outside of Discronics, is using this system but stay tuned.

U-MATIC : As a system, the venerable old 1630 U-matic still has plenty of life left. U-matic mastering systems have the most detailed error analysis currently available and the tapes themselves are reasonably priced, although not as cheap as DATs. The problem with U-matics is that these systems are so expensive to buy and maintain that hardly anyone outside of the major record companies owns one. However, mastering in a studio owned by a large record company has the advantage that the staff have to know what they are doing - unlike some backyard operators. In Australia, U-matic is likely to remain the industry standard for some time.

MASTERDISC : Everyone is impressed with Sony's new professional magneto-optical disc recorder but so far only Sony Music has bought one. Despite the dazzling features MSdisc has one perceived flaw, the media for the system, MO discs, cost 5 to 6 times more than U-matic tapes. The general consensus is that the customer, the good old Aussie battler, will not pay the increased cost.

MINIDISC AND DCC : These are not regarded as professional formats for CD. Anyone mixing to these formats faces a transfer to a professional format before mastering.

THE NOVICE'S GUIDE TO CD MASTERING:

1. YOU GET WHAT YOU PAY FOR.
 2. INSIST ON A DIGITAL EDITOR.
 3. WHATEVER FORMAT YOU USE, INSIST ON AN ERROR CHECK.
 4. INSIST ON A TIMECODED, FRAME ACCURATE TRACKLIST/ACCESS SHEET.
 5. DON'T PLAY YOUR MASTER, ASK FOR A COPY.
 6. DEAL WITH EXPERIENCED SPECIALISTS.
- Don't be conned by recording studios claiming "digital mastering" if it only means a DAT.

Review:

Yamaha SPX 990 Effector

In last month's FeedBack column (pg 20/May '94) Keith Matthews writes that he wants to get "the commercial sound" from a project studio. Well Keith...., and other people, this month's studio product would quite coincidentally be a good start to fulfilling your requirements.

The Yamaha SPX-990 is in the multi-effect genre, however, because it employs a three teired arrangement for building programs and the choice of processing allows for multi dynamic control and full parametric equalising it therefore could be considered as a digital audio processor. Aiding your search for the commercial sound would also be the fact that this effect processor has a choice of balanced +4 dB inputs and outputs.

Reference is made here to this feature because one of our tips to help people like Mr Matthews is to run as much high level gear as possible. Without needlessly turning this review into a lengthy argument about level matching we can say, in short, that equipment that operates successfully at the +4 dB gain standard (?) does seem to help achieve that much punchier "commercial" result of which you enquire about.

Whilst this particular Yamaha unit retails for almost two thousand dollars, and consequently may seem a little out of reach for those who own "project studios", by applying a bit of techno-imagination to what we are about to tell of this unit it would seem that the SPX-990 could be a worthy all round investment, and also it may circumvent having to buy other items to help get that "commercial sound".

(Note to ED: By the way, please stop telling the readers we run as a "project studio", Blind Lemon Pie is definitely a professional mastering and editing studio.)

As far as getting around the front panel the SPX-990 is true Yamaha simplicity, with only two distinct sets of six buttons and a Data Wheel to contend with, the learning curve is short. The remaining front panel controls consist of a power switch and a dual concentric level control for setting the independent left and right inputs. The six larger buttons to the right of the display are for getting around the software areas, activating Bypass (with large LED for showing the status), storing user pro-

grams and skimming menu pages. Underneath the large-ish, "sick canary" coloured, 48 character display are six slimline buttons which are set out as three pairs of up/down "soft" keys. Not a bad idea what they've done here. Editing basically goes as follows:- go to an effect and hit Edit, each page in the menu has three parameters listed above the pairs of up/down keys consequently hitting these keys means you're instantly adjusting the parameter in the desired direction. Setting movement now only needs a turn of the Data Entry dial.

Construction of a program is divided into tiers where the sound can be first pre-processed, then secondly have an effect added, then finally further processing can take place. There is a selection for parametric equalising, and a setting called Harmonic Driver which, say Yamaha, "increases the harmonic overtone over a certain frequency and creates a clear sound." This is good, we like a clear sound!

Actually this Harmonic Driver is more commonly known as an enhancer or exciter. The parameter adjustment here is very straight forward, just pick a frequency and a drive amount, although this patch does tend to generate quite a bit of noise when driven hard. No worries though, you can enhance things by using this patch in the pre-processor and then select an equaliser to get rid of the noise in the post-processing section. Finally, the pre-processing section offers a distortion option which operates as a combination of overdrive, equaliser, compressor and noise gate.

Distortion is available in five types and this section is where the SPX-990 picks up more credibility as an all round unit because of the versatility it offers in the pre-amp stakes. We found that by utilising

the fact that each distortion setting has adjustable drive, tone and level and can be "mixed in" with the compressor that there was a plethora of amplifier type sounds achievable for not just guitars but also keyboards and basses. Add to this the possibility of following these settings with another round of EQ, Compressor or Harmonic Driver processing at the post effect stage and you can begin to see why this box is worth the price tag. Consider also here that so far all we've described is the pre effect and post effect patches and we haven't even turned the effects stage on in the software.

Turning effects on and off within a program is also something which the Yamaha specifically caters for within its software. In previous multi-effects processors we've reviewed, in order to isolate and use equalisers and gates etc on their own it is often necessary to program in delays that have 0.1 mS or reverbs with no output level as a means of supposedly doing away with these parts of an algorithm. When editing within the SPX-990 it is possible to actually defeat certain pre, post or effects blocks altogether thus avoiding the need to unnecessarily over-process your sounds.

When getting to meat of the effects we find that yet again the choice is from "The International Almanac Of Necessary Effects For Design Engineers". Yamaha break their own description down into eight basic groups called Reverb effects, Early Reflection effects, Delay/Echo effects, Modulation effects, Pitch Change effects, Panning effects, Complex effects and the Freeze effect.

Pitch Change programs are also pretty much typical of the competition with the ability to create up to three harmonies in sync with the original sound.

Those of you who mix while using sequencers may be keen on the Panning section and also the external Midi controller access.

One thing the SPX-990 has for sure is a commercial sound. This isn't to say that we think it is a top of the line studio processor but it does do A LOT of things one would want to do both as a musician or an engineer in a recording situation. There are also two memory cards available for storing up to 100 effects at a time. This Yamaha unit seems to be one of the most balanced combination of features and feature quality we've seen in this price range. **RRP: \$1998.00.** •Blind Lemon Pie.



RØDE-NT2

STUDIO CONDENSOR MICROPHONE



AS USED AND RECOMMENDED BY:

2SM

2WS

2NUR

COAST ROCK FM

ALBERT STUDIOS

SING SING STUDIOS

DAMIEN GERARD STUDIOS

REALLY, REALLY BIG PRODUCTIONS

AAD MEDIA

ROYAL BLIND SOCIETY

TROY HORSE STUDIOS

MEGAPHON STUDIOS

AVAILABLE FROM

LEADING STUDIO SUPPLY COMPANIES

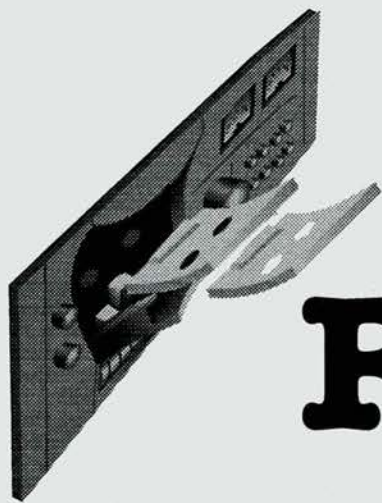
RØDE IS DESIGNED & REGISTERED IN AUSTRALIA

BY FREEDMAN

283 VICTORIA ROAD RYDALMERE 2116

PHONE 02-638-6666

Write in Reader Service number: 106



Greg Simmons reveals every little step after you've laid down that recording. Now you can go and

Release your

It's 4:00am and you've just finished four weeks of intensive recording. The sessions went well, the mixes are great and you're holding a precious tape of your first independent album. The rest looks easy — send the tape to a CD manufacturer and ask for 500 discs. Piece of cake, right?

Wrong! Whether you're making cassettes, CDs or vinyl records, there's a lot more to the process than sitting in a recording studio. In fact, recording is one of eight different stages involved in getting your music to the market. The stages are: budgeting and planning, recording and mixing, audio mastering, artwork, manufacturing, printing, packaging, and finally, distribution and follow up. Each of these stages should be properly considered before commencing any recording project destined for sale or promotion.

The following is a guide to the eight stages in the order you should be considering them, and includes lots of useful information and handy tips to help you along the way. Be sure to consider each stage in isolation *and* in context with the whole process. It's a big job. If you're still interested, read on...

Stage 1: Budgeting and planning

The first thing to do is determine what format you want to use — CD, cassette or vinyl — and how many copies you'll need. Here's some examples: If you're doing an album for independent release through record shops, a run of 300 to 500 CDs is ideal. If you're doing dance music to be distributed to DJs, then a run of 50 vinyl records could fit the bill. A run of 100 or more cassettes is ideal to give away for promotional purposes or to sell at gigs.

You can get quotes and estimates for stages three to eight by making some quick phone calls to the companies listed at the end of this article. Stage two, recording and mixing, is the one that can easily blow the budget if you're paying for studio time. You need enough time to do your recording justice, but you must also have enough money to cover stages three to eight or you'll never get your recording released. It's no good having a brilliant recording if no-one will ever hear it!

There are two points to clarify when pricing. Firstly, does the price include sales tax? Most companies quote ex-tax prices, which are only relevant if

you've got a sales tax exemption number. Sales tax is usually charged at a rate of 21%, which makes a significant difference to the cost of a large release.

The second point to clarify is the method of payment. Does the company accept cheques or credit cards? Do they require a deposit? Most companies in the manufacturing stages will require a deposit before they start the job, with the balance payable on completion. The rule in this industry is 'no pay, no play', meaning you won't get the goods until you've paid in full.

Establish a budget for the project. You may want to register a business name, open a cheque account in that name, and deposit the budget into it. This provides an easy way to keep an eye on the expenses and is especially worthwhile if the project is being funded by a number of band members. Registering a business name should cost no more than \$100, including name searches, etc.

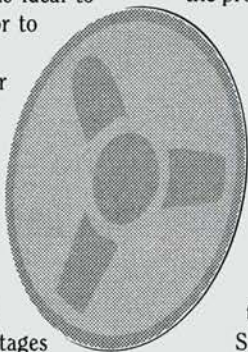
Familiarise yourself with the financial and material requirements of the following stages, and make sure you understand how each stage fits into the overall project. A little careful planning can save a lot of unnecessary delays and inconvenience, particularly when it comes to cash flow. Make sure you've got enough money to cover each stage as you need, *including* any up-front deposits.

Each stage in the process may involve a different group of people from a different company, with their own deadlines and ways of doing things. That means more chances for delays, so don't go announcing any album release dates until you know when you'll have the product in your hands!

Stage 2: Recording and mixing

This stage takes place in a recording studio, obviously. Make sure you inform the studio engineer of the final destination for the recording. Is it destined for cassette, vinyl or CD? Each of these formats has its own physical and sonic characteristics which may influence the way the engineer processes the sounds, especially during mixdown.

Strictly speaking, preparing the mixes for transfer to a particular format is the job an audio mastering engineer (see 'Stage Three: Audio Mastering'). However, if the studio engineer is aware of the format's limitations they can avoid creating headaches for the audio mastering engineer. The mastering engineer can then concentrate on enhancing



MIXING AND MASTERING FOR THE FORMAT

Each of the major music formats has its own physical and sonic characteristics, some of which are detailed below.

- **Cassette** has a relatively small dynamic range, particularly when mass produced. To ensure the best results from the cassette format, the recording engineer and/or the audio mastering engineer might use compression to restrict the dynamic range of the finished mixes.

A recording engineer could apply it during the recording and mixing processes, while an audio mastering engineer would only be able to apply it to the finished mixes.

- The stereo channels of a **vinyl record** are cut into a single groove. As a result, vinyl does not appreciate huge level differences or phase shifts between the left and right channels.

When mixing for vinyl, it's a good idea to keep the powerful low frequency sounds (bass drum, bass guitar, etc.) panned towards the centre of the stereo image. Otherwise, the audio mastering engineer may have to pan the left and right channels towards the centre, collapsing the stereo image.

> see box on opposite page!

own recording

your recordings, rather than correcting them. You're paying for these services by the hour, so don't create more work for someone else to do! For examples of the characteristics of each format, see 'Mixing and mastering for the format'.

If you intend to put your mixes through the audio mastering stage, take advantage of the facilities available to the audio mastering engineer. The following tips are worth considering: Don't spend hours in the recording studio trying to get a perfect fade out at the end of each song. Record your mixes straight through and let the audio mastering engineer fade them. Other things that are better left to the mastering engineer include putting excitation and stereo image enhancement across the whole mix, editing, and precise compilation of DAT master tapes. It's worthwhile talking to an audio mastering engineer before starting your mixes.

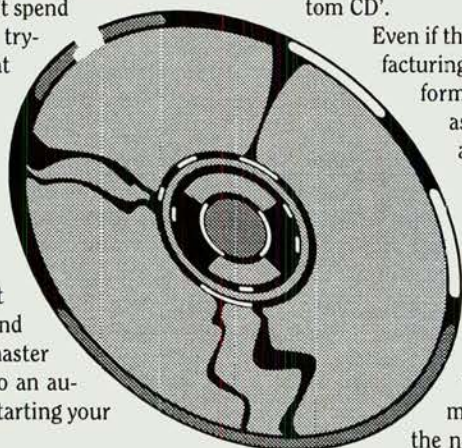
The final points to consider about recording and mixing involve the stereo format that your material is being mixed onto. The most common formats are DAT (Digital Audio Tape) and 1/4 inch open reel tape, although some studios mix onto other formats such as 1/2 inch open reel tape, Hi-Fi Video, or Sony PCM.

Which format should you use? Whether you like digital audio or not, DAT has become the universal format for mixing onto and is accepted by most audio mastering facilities and manufacturers. When mixing to DAT, make sure you use the right sampling frequency. The choices are either 44.1 kHz or 48 kHz. Compact disc uses 44.1 kHz, although 48 kHz offers superior audio performance and is preferable for most mixdown applications.

Don't fall into the trap of thinking that you must use a sampling frequency of 44.1 kHz if your recording is destined for CD. This is only relevant if you intend to do a direct digital transfer from DAT to CD.

The best way to find the right sampling frequency is to ring the company involved in the next stage of the process: audio mastering or manufacturing. Tell them what format your recording is destined for — cassette, CD or vinyl record — and they'll tell you what sampling rate to use.

If you can't provide your mixes on DAT, find out what other formats are acceptable. Most audio mastering and manufacturing companies can accept the good old analogue 1/4 inch and/or 1/2 inch two track open reel formats, which were industry standards for many years. Note that many manufacturers now also accept, and in some cases prefer, a custom made CD as a format. For more info, see 'The Ubiquitous Custom CD'.



Even if the audio mastering or manufacturing company cannot accept the format you're mixing onto (such as Hi-Fi Video), most will be able to play your tape if you lend them the equipment it was mixed onto. If all else fails, you can always hire a DAT recorder for mixing or dubbing.

In summary, make sure you leave the studio with your mixes on a format that can be accepted by the next company in the process — audio mastering or manufacturing.

Stage 3: Audio mastering

What is audio mastering? How much does it cost? Do I need it? These are common questions asked by anyone considering a release on cassette, CD or vinyl. We'll discuss them one at a time.

What is audio mastering? Essentially, audio mastering is the process of preparing the mixes from the studio to make them sound acceptable in the real world. Typical mastering techniques include equalisation to balance the frequency spectrum, and level matching to balance the average volume for each track.

Audio mastering may also involve compression to control dynamic range, de-essing to control sibilance, and phase correction to correct undesirable phase differences between left and right channels. A mix can also be enhanced, for example, creating a wider stereo image or 'bringing out' a slightly lost guitar riff.

Audio mastering also involves preparing the recording to provide the best sound quality from the chosen format — cassette, CD or vinyl record. For more details, see 'Mixing and mastering for the format'.

(continued from Mixing and Mastering for the format)

Compact disc has a very low noise floor. Tape hiss and other such noises that are lost on vinyl and cassette are often easily heard on CD. When recording and mixing for CD, the engineer must strive to keep background noise significantly low throughout the recording. The audio mastering engineer may be able to remove noise with analogue noise eliminators, or with sophisticated digital editing systems. These processes don't always work successfully, and they take additional time.



(continued over)

Sound Engineer is a fully programmable digitally controlled analog mixer. All functions can be operated from an external device generating MIDI signals. The innovative technology used in the construction of Sound Engineer guarantees the lowest possible level of audio noise disturbance. Signals are never converted, offering an exciting variety of unprecedented performance features (setup changes without interrupting signal, storage of configurations and mixages, etc.). Sound Engineer is the revolutionary link between the world of conventional audio systems and the swiftly expanding world of digital technology.

SOUND ENGINEER MIDI CONTROLLED AUDIO MIXER

No other mixer in the world,



compares!

SOUND ENGINEER
FULLY PROGRAMMABLE
MIDI CONTROLLABLE
GRAPHICS SOFTWARE SYSTEM

Sound Devices
Ph: (02) 283 2077
Fax: (02) 683 6394

Release your own recording

(continued from previous page)

The final stage of audio mastering is to compile all the tracks onto a single tape called a 'stereo master', which is then ready to be used for manufacturing cassettes, CDs or vinyl. The tape format for the stereo master depends on the format the recording will be released on and where you do the mastering. This is discussed later in this stage.

Audio mastering usually takes place in a 'mastering studio' or 'mastering suite'. In some cases, the mastering studio is actually the control room or mixing room of a recording studio.

How much does audio mastering cost? As with studio time, audio mastering is usually charged on an hourly basis and costs upwards of \$30 per hour.

Do you need audio mastering? Have you ever wondered why your mixes from the studio often need bass and treble adjustments when played on the home stereo, yet most CDs don't? That's because commercially released CDs have been through the audio mastering stage.

If your recording is destined for sale, you should definitely allocate some of the budget to audio mastering. The audio mastering process can make a huge difference to the quality of your release. Don't fall into the trap of thinking your mixes from the studio sound 'good enough' - audio mastering will usually make them sound better. However, if your recording is a demo to be released in small quantities for promotional purposes, you probably won't be able to justify the cost of audio mastering.

The audio mastering engineer will need to know what format the recordings will be released on, what format you want the mastered recordings on, what order you want the tracks in, and how much time you can afford.

Of these, the format for the mastered recordings is the one we'll discuss here. In all cases, the audio mastering engineer can provide you with the mastered recordings on DAT. However, they may be able to provide you with something more suited to the manufacturing process — particularly if the audio mastering is being done by the same company that is doing the manufacturing.

For manufacturing large quantities of CDs (e.g. 100 or more), a '1630 digital master' is ideal. This is a large video tape format that stores all the digital audio information necessary for mass CD manufacture. '1630' is the model number of a Sony machine that prepares digital audio information for direct transfer to CD. Alternatively, many CD manufacturers can also accept a DAT master (sampled at 44.1 kHz) or an existing CD as a master.

For manufacturing small quantities of CDs (e.g. one to 20), a DAT master sampled at 44.1 kHz, with a 'start ID' at the beginning of

each track, is the preferred format.

For manufacturing cassettes or vinyl, a DAT master sampled at 48 kHz offers the best possible quality from the DAT format. If you prefer the sound of analogue recordings, 1/4 inch or 1/2 inch two track analogue tape is also acceptable.

Important note! Unlike CD, the cassette and vinyl formats have two sides. Don't forget to get your songs compiled on the master tape in two separate sets, one for side A and one for side B. If possible, try to arrange the order of the tracks so that both sides are approximately the same length.

Important note! Unlike CD, the cassette and vinyl formats have two sides. Don't forget to get your songs compiled on the master tape in two separate sets, one for side A and one for side B.

In summary, make sure you leave the audio mastering studio with your stereo master tape in the right format for manufacturing.

For more info about mastering, refer to Paul Bryant's column in each issue of Connections.

Stage 4: Artwork

You've got your stereo master tape, you know which tracks will be on the release, and you know what order they'll appear in. Now is the time to consider artwork, especially if your getting a large run of cassettes, CDs or vinyl records for commercial release. When manufactured in large quantities, each of these formats has information printed directly on the surface or stuck on with a label. Most manufacturers also take care of additional printing requirements, such as the booklet for a CD, the insert for a cassette, or the cover for a vinyl record. Obviously, you'll need to have your artwork ready before going to the manufacturing stage.

For cassette, you'll need artwork for printing on each side of the cassette shell and for the cassette insert (the folded card that goes inside the case). For CD, you'll need artwork for printing on the disc surface, the booklet, and the back slick (the folded paper that fits into the back of the plastic case). For vinyl, you'll need artwork for the labels on each side of the record, and for the sleeve.

Do you want full colour, spot colour, or black and white artwork? Full colour is always the most expensive, black and white is cheapest. Spot colour is where you have two or three different colours and is usually only slightly more expensive than black and white.

There are three levels of artwork you can supply. The first is 'raw material', where you provide any photos, graphics and text, and the manufacturer's artist will do the design and layout for you. The second level is where you provide the manufacturer with 'camera ready' artwork. This is usually prepared by a graphic artist, pasted up on boards and ready to 'go to camera'. The third level is where you supply the manufacturer with 'film separations', a se-

ries of film transparencies that have been colour separated.

Of the three methods, raw material is usually the most expensive since you're paying for the services of the manufacturer's artist. Providing film separations is the cheapest, since the manufacturer doesn't have to do anything.

Don't fall into the trap of trying to provide film separations just because they're cheaper. You'll still have to pay someone to make those separations (you can't do it yourself unless you work in a print shop), and it may be cheaper or more convenient to let the manufacturer do it for you. Always compare the costs of doing it yourself against what the manufacturer is charging.

Don't mess around when it comes to artwork. If there's something you don't understand, talk to a printer, an artist or the manufacturer. If you're doing your own design and artwork, make sure you've got all the correct dimensions. There's nothing worse than seeing a CD with a poorly trimmed booklet that keeps falling out!

If you're providing film, make sure you provide it in the right format: right reading or wrong reading, positive or negative, emulsion up or emulsion down, and with the correct line screen. You'll probably also need to provide a colour proof. Explaining these terms is beyond the scope of this story, but be sure to check them out.

If you're doing a small run, say 20 CDs, then all of the above information about artwork may be irrelevant. Most manufacturers can provide you with simple stick-on labels to put onto CDs or cassettes, while for vinyl you can get 'white label pressings', which means the record has a blank white label on each side.

If you're doing small quantities and time isn't a problem, it will probably be cheaper to do your own artwork. You can create impressive artwork with a graphics program, a laser printer, some coloured markers, a colour photocopier and a bit of resourcefulness. Grab a stapler, a glue stick and a pair of scissors and get going.

If your recording is for promotional purposes don't forget to include your contact details in the artwork (e.g. phone number, name and postal address). Design your artwork so that this information is printed on the cassette shell, the surface of the CD, or on the label of



the vinyl record.

Stage 5: Manufacturing

This is the stage where the cassettes, CDs or vinyl records are actually made. There are a number of different manufacturing techniques depending on the format and the number of copies you're releasing.

Cassettes are 'duplicated', meaning they are made as analogue copies from a master tape. This results in a slight loss of sound quality known as a 'generation loss'. There are two types of cassette duplication: real-time and high speed. Real-time duplication offers higher sound quality but is more expensive. High speed duplication is cost-effective for large quantities. For more info, see 'Real-Time Cassette Duplication' and 'High Speed Cassette Duplication'.

CDs are 'replicated', meaning they are digital replicas of the original recording with theoretically no loss of sound quality. (The process of making a digital copy is also referred to as 'cloning'.) There are two types of CD replication: custom replication and mass replication.

(continued over the page)

THUNDERBOX BASS THAT WON'T BLOW THE BACKSIDE OUT OF YOUR SPEAKERS



APHEX BIG BOTTOM™ delivers a massive bass sound with virtually no increase in peak output. You need no extra amplification, no extra speaker protection, no overload distortion. Just a very big bottom end, dynamically processed and optimized to enhance the perception of a deeper meaningful bass. Welcome to the all new **APHEX AURAL EXCITER TYPE C²** with **BIG BOTTOM™**. A quieter, more musical and easier to use excitement revolution for high AND low frequencies. Contact EAST COAST AUDIO now for the name of your nearest APHEX stockist.

Contact **EAST COAST AUDIO** now for the name of your nearest APHEX stockist.
Phone (03) 428 9797 or 018 381 481 or Fax (03) 427 9898.

Broadcast Technology Pty Ltd. A.C.N. 005 689 752. wcr4946.



Write in Reader Service number: 135

Release your own recording

(continued from prev. page)

Custom replication is ideal for quantities from one to 20 discs, while mass replication is suited to quantities of 100 or more discs. (For more information, see 'Custom CD Replication' and 'Mass CD Replication').

Unlike cassettes and CDs, there's only one option for making vinyl and that's called 'pressing'. There are a small number of vinyl record manufacturers in Australia, and they offer minimum quantities of around 100 records. For more info, see 'Pressing Vinyl'.

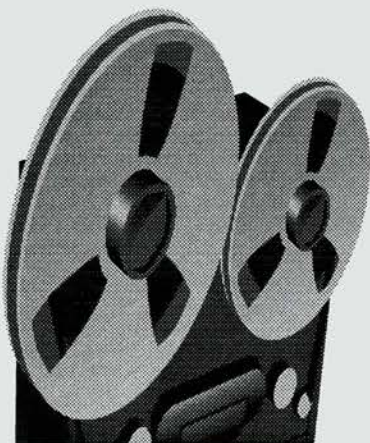
The final point to consider with manufacturing is how long it takes for the cassettes, discs or records to be made. This is called 'turnaround' and varies from 24 hours up to four weeks. If you're planning a commercial release, be sure to allow for turnaround times.

Stage 6: Printing

This is the stage where the artwork is printed onto the paper, and usually includes any trimming, perforating and folding.

As with manufacturing, there are numerous options for printing. If you're on a tight budget or doing a small release, you might decide not to have any printing and let the music speak for itself. That's a nice thought, but the reality is that people will see your recording before they hear it. First impressions are important in this business, especially if your recording is for promotional purposes. Give your recording its best chance...

If you're making a large number of cassettes, CDs or vinyl records, you'll certainly need printing. Most cassette, CD and vinyl record manufacturers also provide printing, and it's worth considering this service. You could choose to use an independent printer, but make sure you've got all the correct dimensions and other details. The manufacturer's printers will be aware of these details.



Stage 7: Packaging

Before being released, cassettes, CDs and vinyl records are put into packages which hold everything together. This package, whether it's a plastic case or a cardboard sleeve, will add to the total cost of the release.

For cassette, the standard package is the cassette case, the cassette, and the cassette insert.

For CD, the standard package is the jewel case, the CD, the back slick, and the booklet. There are two types of jewel case: standard and slim-line. The standard jewel case is the type that most CD albums are packaged in. Slim-line jewel cases are used for CD singles and EPs. Alternatively, you could release in a cardboard sleeve, which is popular for CD singles and independent releases.

Vinyl records are packaged in a cardboard 'sleeve' or 'jacket'. But you know that already.

The final stage of packaging is putting all the bits and pieces together into a package. Most manufacturers provide packaging, but if you want to save money you could consider packaging the release yourself. All you'll need is a

large empty table, basic organisational skills, a few friends with good manual dexterity, and heaps of time! Cassettes and vinyl records are easy to package. CD jewel cases are fragile things during the packaging stage, especially when fitting the back slick.

Stage 8: Distribution and follow up

How are you going to get your material to the appropriate market? Do you need to market it via retail stores? Direct mail? Sell it at gigs?

If your release is for promotional purposes, you'll want to use direct mail. Grab yourself a copy of one of the many industry directories currently available and start addressing envelopes. (But please don't send it to Connections. We don't review music tracks! -Ed)

If your release is for commercial release and you're doing it independently, you should consider using a

HIGH SPEED CASSETTE DUPLICATION

High speed cassette duplication copies the information from the master to the cassette at speeds from eight to 32 times faster than normal. It's very cost-effective for large quantities of cassettes, but it doesn't offer the same sound quality as real-time duplication. As a rule, the faster the duplication the lower the sound quality. The pre-recorded cassettes for sale in record shops are all made this way.

For high speed duplication, the manufacturer creates a 'loop bin master' from which the cassettes are copied from. Artwork for high speed duplicating can be printed directly onto the cas-



sette shell, or via printed labels that are glued to the cassette shell during the manufacturing process.

When ordering cassette duplication of any sort, you'll need to specify whether you want printing on the cassette shells, printing of the cassette insert, supply of cassette cases, and packaging.

Prices for a run of 100 cassettes can vary from \$2.00 to \$3.00 per cassette, depending on what you want in the package — cassette mastering, cassettes, labels, cassette cases and cassette inserts and printing. Prices generally increase with duration of the cassette.

ABOUT THAT WORD 'MASTER'

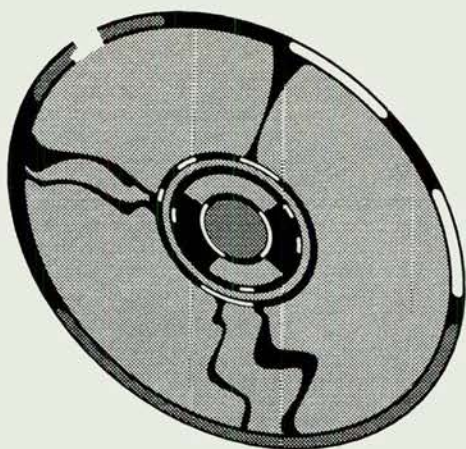
It's worthwhile discussing the uses of the word 'master'. It's used many times in the processes of making cassettes, CDs or vinyl records. For example, the DAT tape that most people leave a recording or audio mastering studio with is often referred to as the 'stereo master tape'. Mass production of CDs requires the use of a '1630 master' and a 'glass master'. Cassette duplicating companies use terms such as 'cassette masters', 'running masters', 'duplicating masters' and 'loop bin masters'.

In most cases, 'master' means a version of the original recording that all copies will be produced from. 'Mastering' is the process of preparing a master recording. 'Audio mastering' is explained in the main text of this story. The terms 'CD mastering', 'cassette mastering' and 'vinyl mastering' refer to the process of making a master recording for CD, cassette or vinyl records.

REAL-TIME CASSETTE DUPLICATION

Real-time cassette duplication copies the audio from the master tape to the cassette at the normal cassette playing speed. It produces a good quality cassette copy, but is time consuming and expensive when compared to high speed duplicating. It's best used for small runs of cassettes, typically from one to fifty. For real-time duplication, the manufacturer takes your stereo master tape and creates a 'duplication master' or 'cassette master', from which the individual cassettes are copied from. Artwork for real-time duplication typically consists of typed or laser-printed adhesive labels that are manually stuck onto the sides of the cassettes.

Prices for a run of 50 cassettes vary from \$3.00 to \$6.00 per cassette, depending on the length of the cassettes and whether you want inserts printed. For these runs, it is cheaper to make the inserts yourself, using a colour photocopier.



CUSTOM CD REPLICATION

Custom replication is used for quantities from one up to approximately 20 CDs. Your recording is digitally transferred from a stereo master tape (DAT sampled at 44.1 kHz) into a CD recorder which uses a laser beam to burn the digital audio onto specially designed blank discs. Custom replicated discs come in standard plastic CD cases (known as 'jewel' cases) and usually don't have any printing on the surface. Some manufacturers provide adhesive labels which may be typed or laser printed then placed on the disc.

There are only a handful of companies offering this service in Australia, and their prices vary from \$66 to over \$200 for one disc. Most manufacturers use a sliding scale, so prices decrease with quantity and increase with duration.

MASS CD REPLICATION

Mass replication is used for large scale CD manufacturing, typically in quantities of 500 discs or more. Note that some companies are able to manufacture quantities as low as 100 discs. In the typical manufacturing process, your stereo master tape is used to create a '1630 master', which includes all the digital subcoding for the CD format. Many audio mastering studios can create a 1630 master, which may save you money. The 1630 master is used to make a 'glass master', from which a set of 'stampers' are ultimately manufactured. The stampers are used for injection-moulding the discs from molten polycarbonate. The manufacturing process is very similar to the manufacture of vinyl records. Any printing on the surface of the disc is done during the manufacturing process.

There are many different options and stages in CD mass replication. Most major CD manufacturers break their prices down into individual stages, which makes it very confusing for the novice who's not sure what they want or need. The breakdown includes costs for the discs themselves, printing on the disc, printing the booklet and back slick, jewel cases, and packaging and assembly.

Two costs that confuse many people are for manufacturing the glass master and the 1630 master. Do you need a glass master? If this is the first time you've had a CD made, you'll certainly need a glass master. The only time you don't need a glass master is when you've sold out of CDs from a previous release, and you want to make more copies of the same disc. In that case, you should be able to use the original glass master.

Do you need to pay for a 1630 master?

(continued over page)

distribution company such as Mushroom Distribution Services (MDS) or Shock. These companies will distribute your release through the appropriate record stores and take care of the administration for you. Of course, they charge you for this service, and there's no guarantee they'll be interested in your recording at all. Grab a directory and start dialling.

Follow up! Once your recording is out there, don't just leave it to fend for itself. You must do the follow up. If you've put your product in a shop, keep in touch with the owner and see how it sells. If you've mailed out to record companies, call them up to see if they've got your recording and what they think of it.

Start paving?

So there you have it, a rough guide to a complicated process. Hopefully, you'll find the information contained in this article helpful and you'll avoid repeating the mistakes that other people make on a daily basis.

If you're thinking of releasing cassettes, CDs or vinyl records, then you've obviously got something you want the world to hear. Once you get it out there, be sure to follow it up and promote it appropriately. Don't wait for the world to beat a path to your door, get out there and start paving!

- Greg Simmons

Thanks to Paul Bryant (All Music Manufacturing), Chris Littlehales (Disctronics), Clive Lipman (Audio Cassette Duplicating Company), and Dave Wickert (DW Productions) for their help in compiling this article.

LA Audio 4C

- 4 Compressor's
- 4 Limiter's
- 4 De-esser's
- 4 Variable filters
- Any combination
- Multi channel
- Split band
- Fully balanced
- Less than \$1295



LA Audio 4X4

- 2 Compressors
- 2 Gates
- 2 Assignable dual filters
- 2 De-essers
- Any combination
- Multi channel
- Less than \$1039



Southbank Trading

PO Box 6068
St Kilda Road VIC 3004
TEL (03) 699 7809
FAX (03) 696 5691

Write in Reader Service number: 121

DENON

The 'Rolls Royce' of cassette tape
now do DAT
Major stockist
Buy at Trade prices

Type I DX 46, 60, 90
Type II HD8 60, 74, 90, 100
RDAT 20, 60, 90 and 120

DENON®

R-60DT

60 minutes / 30m

DAT
Digital Audio Tape

DIGITAL REALITY FROM THE FIRST NAME IN DIGITAL SOUND

AMPEX

	Single	10 Plus
456 1/4" (7' reel)	\$15.00	\$14.00
456 1/4" (10 1/2' reel)	\$39.00	\$36.00
456 1/2"	\$69.00	\$61.50
456 1"	\$119.00	\$104.00
489 ADAT Sleeve	\$24.00	\$22.00
489 ADAT Library	\$27.00	\$25.00
Also 457, 499 etc		

Mail Order
Credit Card

**JONATHAN PAGE
AUDIO WORKSHOPS**

5 Myrtle St, Crows Nest, NSW 2065

Fax (02) 957 3213 Telephone (02) 957 5309

Release your own recording

Mass CD Replication

(Continued from box, prev. page)

That depends on what you provide the CD manufacturer with. If you provide them with a DAT tape, they'll need to create a 1630 master. You may already have a 1630 master as a result of the audio mastering stage, in which case you won't have to pay for another one. Also note that many CD manufacturers can now manufacture CDs using a custom replicated CD as the master. See 'The Ubiquitous Custom CD' for more info.

Costs for mass replication can be as low as \$1500 for 500 discs (\$3.00 per disc), which includes discs, printing on the discs, and jewel cases. Printing of booklets can increase costs significantly.

PRESSING VINYL

Pressing vinyl is a relatively straightforward process. The manufacturer takes your stereo master tape and, after additional processing, uses it to control the cutting head on a disc cutting lathe, producing a disc called a 'master lacquer'. The lacquer is electroplated and ultimately used to create 'stampers' which press the vinyl discs from blobs of hot vinyl plastic, both sides at once. The labels are mounted on the disc during the manufacturing process.

Prices for pressing 100 black vinyl records (12 inch) vary around \$1500, and include jackets, labels with printing, mastering, lacquers and test pressings. Prices per vinyl record decrease with quantity.

THE UBIQUITOUS CUSTOM CD

It's only been in recent years that custom CD replication, in quantities from one to 20 discs, has become a reality. The potential for this format, and the possibilities it offers, are worth discussing here.

Most people are aware of the advantages that CD has over magnetic tape formats such as DAT and cassette. DAT offers the same sound quality, but is unreliable, prone to errors, and you need a DAT player to listen to it. Cassette decks are widespread, but the cassette format doesn't offer the same quality as DAT or CD, and the numerous combinations of Dolby noise reduction and tape formulations can be confusing. DAT and cassette both use magnetic tape, which is prone to deterioration and can be accidentally erased.

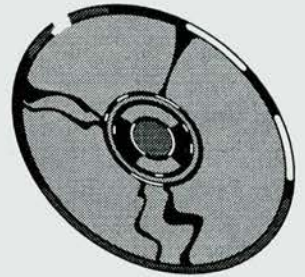
A custom CD has none of these problems. CD players are widespread, so you can play them anywhere. A custom CD will sound the same from any CD player, anywhere in the world. There's no Dolby or EQ switches to fiddle with and no problems with dirty or worn tape heads.

For a release of any kind, a custom CD is a worthwhile step in the process. If you're doing a small run of cassettes and you've had your DAT master transferred to CD, why not do the cassettes yourself? All you'll need is a CD player, a reasonable cassette deck, and a bunch of blank cassettes.

Perhaps you're thinking of making a large run of CDs but aren't sure what they will sound like. You've probably left the studio with a DAT master and some cassette dubs which you can play at home. You won't

be able to play the DAT master (how many people do you know with a DAT recorder?), and the cassette dubs won't give an accurate indication of the quality of your recording. Take your DAT master to a custom CD manufacturer and you can have one or two discs made which you can use as 'test pressings'.

The custom CD is also rapidly becoming accepted as a preferred format for mass replication of CDs, so your custom CD test pressing can be used as a master for mass replication. (For more info, refer to Paul Bryant's column in this issue, on Page 42.)



CONTACTS AND SERVICES

The following companies provide manufacturing, mastering or other services useful in the manufacturer of cassettes, CDs or vinyl records. (Information taken from Phil Tripp's **Australasian Music Industry Directory**.)

301 Mastering Services: (02) 217 7701
CD mastering, digital and analogue dubbing.

All Music Manufacturing:
(02) 557 1169. CD mastering and replication, digital editing, cassette duplication and record manufacturing.

Atlantis Recording: (03) 682 8464
Real time cassette duplication.

Audio Cassette Duplicating Company:
(02) 748 6055 Cassette & CD replic.

Audio Tech Duplication: (02) 319 0514
Cassette duplication, CD replication.

Australian Compact Disc Manufacturers: (08) 346 2333 CD replication.

Broadmusic: (02) 938 3440
Mastering, compiling, custom CD and cassette duplication.

CD Bureau: (02) 310 4291
Custom CD replication.

CD Duplicating Centre: (03) 532 8710
Custom CD replication.

CD Makers: (02) 482 2258
Custom CD replication.

Cosmo International Disc:
(02) 457 9032 CD replication.

CRE Manufacturing: (02) 905 7352
CD, cassette, vinyl manufacturing.

Dave Norman Communications:
(02) 686 1215. CD replication.

Dex Audio: (03) 372 2266
Cassette duplication, CD replication, digital CD mastering.

Disctronics: (02) 281 6533
CD replication.

EMI Manufacturing: (02) 748 3144
CD replication, cassette duplication

Festival Records: (02) 660 4022
Mastering, compiling, cassette duplication, CD replication.

Grevillea Records: (07) 262 8422
Cassette duplication.

Hi-Tech Media Corporation:
(02) 550 3188 Cassette duplication, editing and compiling.

Loopy Green: 015 241 222
CD mastering, editing and compiling.

Pro-Copy: (09) 382 2712. Real-time cassette duplication, CD replication.

Regency Recordings: (03) 587 1956
Cassette duplication.

Sony Music Australia: (02) 839 0389
CD replication, cassette duplication.

Southern Star Duplitek: (02) 519 2677
Cassette duplication.

Sundown Records: (07) 285 2008
Vinyl record pressing.

Sunkyoung Australia: (02) 669 2344
CD replication, cassette duplication.

Studio 52: (03) 417 7707
CD replication, cassette duplication.



STUDIO OUTBOARD RENTALS

PRICE LIST
JUNE
1994



TROY BALANCE CORPORATION PTY LTD

(ACN 006 290 948)

9 UNION STREET
SOUTH MELBOURNE VIC 3205
PH: (03) 699 3844
FAX: (03) 696 1125

UNIT 3/80 WENTWORTH PARK ROAD
GLEBE NSW 2037
PH: (02) 552 4266
FAX: (02) 552 4279

WE SHIP AUSTRALIA WIDE





STUDIO OUTLET

DIGITAL DELAY'S / REVERB'S / EFFECTS PROCESSORS

		Per Day	Per Week
AMS DMX 1580s	Digital Stereo Delay/Harmoniser/Sampler 3.2/3.2 & 9.6/6.4 Second Units	120	480
AMS RMX 16	Digital Reverb (Version 3.2 Software)	100	400
APHEX TYPE "B"	Aural Exciter	20	80
APHEX TYPE "C"	Aural Exciter	20	80
BBE 802	Sonic Processor	20	80
DBX 100 "Boom Box"	Sub Harmonic Synthesiser "The Original"	20	80
DIGITECH DHP 55	DHP 55 Digital 5 Part Harmoniser	45	180
DIGITECH TSR 24	"True Stereo" Digital Reverb/Multi Effects	30	120
EVENTIDE H949	Harmoniser with De Glitch	40	160
KORG SDD 3000	Digital Delay	20	80
LEXICON 480L	Digital Effects Processor (Version 4.0 Software)	140	560
LEXICON 224XL	Digital Reverb (Version 8.2 Software)	110	440
LEXICON PCM 70	Digital Multi Effects (Version 3.0 Software)	50	200
LEXICON PCM 60	Digital Reverb	25	100
ORBAN 516EC	De-Esser	20	80
ROLAND DEP5	Digital Effects Processor	20	80
ROLAND SDE 3000	Digital Delay Processor	20	80
ROLAND SRV 3000	Digital Reverb Processor	20	80
ROLAND SRE 555	Tape Chorus Echo Unit	20	80
YAMAHA SPX 1000	Digital Multi Effects	35	140
YAMAHA SPX 990	Stereo Multi Effects Processor 2 in 2 out	30	120
YAMAHA SPX 900	Digital Multi Effects Processor	25	100
YAMAHA SPX 90II	Digital Multi Effects Processor	25	100
YAMAHA REV 5	Digital Reverb Processor	35	140
YAMAHA REV 7	Digital Reverb Processor	25	100
YAMAHA D 1030	Digital Delay 1 in 3 out	30	120
YAMAHA D 1500	Digital Delay	25	100

COMPRESSOR / LIMITERS / DE-ESSER'S

APHEX Studio Dominator	Stereo "Multiband" Peak Limiter	30	120
BSS DPR 402	Stereo Compressor/Limiter/De-Esser	40	160
DBX 902	De-Esser Module	30	120
DBX 160	2 Channel Mono Compressor/Limiter	25	100
DBX 160XT	Mono Compressor/Limiter	20	80
DBX 166	2 Channel Compressor/Limiter/Gate	25	100
DBX 903	Compressor/Limiter Module	20	80
JBL/UREI 7110	Mono Compressor/Limiter	25	100
ORBAN 516EC	De-Esser	20	80
SUMMIT TLA 100A	Tube Levelling Amplifier, Mono	40	160
TELETRONIX LA 2A	Classic Tube Limiter, Mono	40	160
UREI LA 3A	Levelling Amplifier, 2 Channel Unit	30	120
UREI LA 4A	Compressor/Limiter, 2 Channel Unit	30	120
UREI 1176LN	Peak Limiter, Mono	25	100
UREI 1178	Stereo Peak Limiter	30	120

NOISE GATES

DRAWMER DS 201	Stereo/Dual Mono, Noise Gate inc. Ducking	25	100
DBX 904	Noise Gate Modules	20	80
ARX SIX GATE	6 Channel Noise Gate	25	100
JBL M644EX	4 Channel Noise Gate	20	80

STUDIO MONITORS / AMPLIFIERS

JBL 4208	2 Way 8" Near Field Monitors	35	140
YAMAHA NS 10M	2 Way Studio Monitors	30	120
YAMAHA NS 40M	3 Way Studio Monitors	40	160
YAMAHA PC-2602	Stereo Amplifier 260 Watts / 8 Ohms	25	100
YAMAHA P-2700	Stereo Amplifier 350 Watts / 8 Ohms	25	100

RECORDERS DIGITAL / ANALOG

TASCAM DA-30	DAT Recorder, Digital I/O (AES/EBU)	50	200
YAMAHA DTR-2	DAT Recorder, Digital I/O (AES/EBU)	50	200
REVOX B77	2 Track 1/4" Reel to Reel	40	160

Melbourne PH: (03) 699 3844 Fax: (03) 696 1125

EQUALISERS		Per Day - Per Week	
DBX 905	Parametric Equaliser Module	20	80
KLARK TEKNIK DN 360	Dual Channel 30 Band Graphic Equaliser	30	120
GML "Massenberg" 8400	Stereo 5 Band Parametric Equaliser	75	300
MEYER CP 10	Stereo 5 Band Parametric Equaliser	60	240
PULTEC EQP 1A	Valve Program Equaliser	45	180
PULTEC EQP 1A3	Program Equaliser	40	160
SUMMIT EQP 200	2 Channel "Tube" Program Equaliser	50	200
YAMAHA Q 1027	27 Band Graphic Equaliser	25	100
YAMAHA Q 2031A	Dual Channel 31 Band Graphic Equaliser	25	100

MICROPHONES			
AKG C-12 "Classic"	Tube Microphone, Variable Pattern's	50	200
AKG C 414EB	4 Pattern Condenser	40	160
AKG C 451	CK-1 Cardioid Condenser with -10db Pad	25	100
BEYER M88	Dynamic	15	60
BEYER MCE 6	Miniature Condenser	10	40
C DUCER	Contact Microphone Strips	10	40
COUNTRYMAN	Isomax II Mini Condenser	20	80
CROWN PZM	Pressure Zone Microphone	20	80
ELECTROVOICE RE 20	Dynamic	20	80
ELECTROVOICE N/D 308	Dynamic	10	40
ELECTROVOICE N/D 408	Dynamic	10	40
ELECTROVOICE MS 1000	Radio Mic. Hand Held Diversity 200Mhz	40	120
ELECTROVOICE MS 1000	Radio Lapel Belt Pack Diversity 200Mhz	40	120
NEUMANN TLM 170	Multi Pattern Condenser	40	160
NEUMANN U89	Multi Pattern Condenser	40	160
NEUMANN U47	Condenser, Fet	40	160
NEUMANN KM 84	Condenser	25	100
NEUMANN KM84S	Vocal Condenser	25	100
SENNHEISER MD 421	Dynamic	10	40
SENNHEISER MD 441	Dynamic	10	40
SENNHEISER 816	Shotgun Condenser	25	100
SHURE BETA 58	Dynamic	15	60
SHURE SM 58	Dynamic	10	40
SHURE SM 57	Dynamic	10	40
SHURE SM 91A	Condenser Surfacemount Unidirectional	20	80
SHURE SM 98	Miniature Cardioid Condenser	20	80
SHURE L4/58	Radio Mic. Hand Held Diversity 200Mhz	60	180
SHURE L4/WL93	Radio Lapel Belt Pack Diversity 200Mhz	60	180
SHURE L4/WCM 16	"Countryman Headset" Radio Mic. System	60	180
ACTIVE DI'S	Direct Input Boxes	10	40
ARX D1-6	6 Channel Active Rackmount DI Pack	25	100
48 VOLT	2 Channel Phantom Power Supplies	5	20

MICROPHONE PRE AMPS			
GML "Massenberg" 8300	2 Channel Transformerless Mic. Pre Amp	40	160
NEVE 33421 "CLASSIC"	8 Channel Microphone Pre Amp, 48 Volt	120	480
YAMAHA MLA 7	8 Channel Mic/Line Pre Amp	30	120

MISCELLANEOUS			
ROLAND SBX 80	Sync Box SMPTE/Midi	30	120
INNOVONICS 500	Spectrum Analyser	40	160
TRANSFORMERS	240 Volt to 110 Volt Step Down Transformers	15	60

MIXING CONSOLES			
YAMAHA PM 4000	56 Channel, 48 Mono, 4 Stereo, VCA, 8 Groups, 12 Aux	800	POA
YAMAHA PM 3000	40 Channel, VCA, 8 Groups, 8 Aux	600	POA
YAMAHA PM 2000	32 Channel, 8 Sub Groups, 6 Aux	200	600
YAMAHA PM 2000	Monitor Console 32 Channel into 14 Sends	250	750
YAMAHA PM 1800A	40 Channel, 8 Sub Groups, Mute System, 6 Aux	300	900
YAMAHA MC 3210M	Monitor Console 32 Channels into 10 Sends	125	375
SOUNDCRAFT	"Spirit Live 4" 28 Channel, 4 Groups, 5 Aux	60	180
YAMAHA M 1516	16 Channel, 4 Sub Groups, 4 Aux	100	300
YAMAHA M 916	16 Channel, 2 Sub Groups, 4 Aux	50	150
YAMAHA M 406	6 Channel Stereo Rack Mount	30	90



MELBOURNE PH: (03) 699 3844 FAX: (03) 696 1125
SYDNEY PH: (02) 552 4266 FAX: (02) 552 4279

WE ARE CONTINUALLY UPDATING OUR HIRE SCHEDULE.
IF THERE ARE ANY NEW ITEMS THAT DO NOT APPEAR
ON OUR PRICE LIST, DO NOT HESITATE TO CONTACT US.

ALL FREIGHT COSTS ARE AT THE HIRERS EXPENSE.

TERMS AND CONDITIONS OF HIRE

1 OFFER

The hirer by his signature agrees to hire the goods, accessories or equipment ("the goods") described herein from Troy Balance Corporation Pty. Ltd. or its permitted assigns ("the owner") for the hire period and to pay the total hire fee payable and observe the conditions terms and covenants contained in the Agreement to hire hereof.

2 RENTAL PERIOD

The hire period shall commence from the date of acceptance of the hirer until the goods are returned or repossessed by the owner. The owner may terminate the hire after receiving proper confirmation of the theft or destruction of the goods. The hirer shall return the goods to the owner on the date due back specified on the agreement hereof or on such earlier date as the owner may require under clause 7 hereof.

3 ACCEPTANCE

The owner may accept this offer by delivering the goods to the hirer.

4 TOTAL HIRE FEE PAYABLE

The total hire fee payable shall be the aggregate of:-

- (I) the hire charge for the use of the goods calculated in accordance with the relevant writings and figures set forth on the front hereof under "HIRE FEE PAYABLE".
- (II) a sum equal to the value of the goods, accessories and equipment lost or stolen during the rental period.
- (III) the owners expenses both legal and incidental.
- (IV) accumulated interest on all amounts due but unpaid.

The total hire fee payable shall be due to owner from the hirer either on demand by the owner or at the end of the hire period whichever is sooner.

The hirer will on demand pay to the owner interest on a daily basis calculated at the rate of 15% per annum on all amounts due but unpaid.

5 HIRERS RESPONSIBILITY FOR LOSS OR DAMAGE TO GOODS

(I) the hirer covenants with the owner that the goods will at the end of the hire period or upon the date of repossession be in good condition free from all damage or defects of any kind whatsoever except for ordinary wear and tear.

(II) the hirer agrees to pay the owner for the owners loss expenses and costs in respect of all such damage and defects which amount shall be recoverable from the hirer on a liquidated demand.

(III) the hirer shall accept full and total responsibility for goods on all risk remain with the hirer. The owner acknowledges that no unit or item of goods hired are covered by insurance whilst on hire and the hirer covenants to insure goods in the name of the hirer and the owner jointly whilst on hire.

6 HIRERS OTHER OBLIGATIONS

That the hirer shall:-

(I) not allow or permit the goods on hire to be used by any person-

(a) other than himself or members of his family

(b) members of his band, incorporated company, unincorporated association or acknowledged servants, agents or employees PROVIDED ALWAYS that the owner has received notice from the hirer of the names of persons inclusive of the list above mentioned and the location where the goods are to be used.

(II) pay to the owner for the owners use such deposit on account of total hire fee payable or otherwise as the owner may require and shall cause any cheque for such deposit to be met immediately on presentation.

(III) not allow the goods to be repaired nor allow or create any lien over the goods nor part with possession of the goods.

(IV) take reasonable care of the goods and not abuse or misuse them in any way whatsoever.

7 POSSESSION

The owner may repossess the goods and the hirer shall on being so required by the owner forthwith return the goods to the owner if:-

(I) the hirer is in breach of any term or condition hereof or has made any misrepresentation to the owner, or

(II) the goods are damaged in any way.

8 LEGAL PROCEEDINGS

In any legal proceedings between the owner and the hirer a certificate signed by a director of the owner shall be evidence of the truth of the facts stated herein including:-

(a) hire period.

(b) the facts constituting any breach by the hirer, and

(c) the cost to the owner of making good damage or loss.

That the hirer and owner acknowledge this agreement shall be binding upon the parties subject always to the laws from time to time in force in the State of Victoria.

Studio News

with Greg Simmons

It's that time of the month again... • **Died Pretty** have been in and out of **Damien Gerards** for the last couple of weeks rehearsing and laying down tracks in preparation for their new album. **Mike Wood** has been in the engineer's chair in Studio B mixing down some of the tracks. **Once Upon A Time** have completed mixing their album and the end result is a combination of unusual sounds and effects interjected throughout some damn fine songs. Although **Once Upon A Time** are generally renowned for their methods of distorting and twisting noises, engineer **Marshall Cullen** couldn't resist bringing in a few extra gadgets, such as the Lexicon 480L, Pultech Equalisers and the amazing new Francin Stein. Local band **Ashtray Boy**, who have recently secured a record deal with American label **Cargo**, will be starting work on their new album in Studio A with **Russ Pilling** engineering. Russ has also been busy in Studio A with regulars at DG's **Big Electric Cat**, who have just secured a three album recording deal with Los Angeles based record company **Cleopatra Records**. **Russ Pilling** has also been busy mixing three songs by **Cluster** which will appear on their upcoming joint CD release with **Big Electric Trash** and **Mr Blond**. **Tim Powells** is producing yet another debut CD, this time for new Sydney band **Watchdog**. Young **Dave Trump** is making a name for himself as an engineer doing numerous demo's and live to dat recordings. **End of an era?**

• Also in the DG camp, **Foghorn Records** inform us that Melbourne legends **Blue Ruin** have decided to call it a day and will be performing their

(continues)

ARTIST	PRODUCER	ENGINEER/S	NOTES
New South Wales			
A# Sharp Studio Jeff Cripps (02) 553 8136			
Bobby & the Hawks	Jeff Cripps	Jeff Cripps	Album
Heartworm	Jeff Cripps	Jeff Cripps	C.D.
Balmain Peoples Choir	Jeff Cripps	Jeff Cripps	Album
John N.G.	Jeff Cripps	Jeff Cripps	Christian C.D.
Airmotion Studios Kristen Wolek (02) 550 3863 24 Track			
Transylvaniacs	Transylvaniacs	Shane Fahey	Album
Kirsty McCallum	Kirsty	Guy Dickerson	Album
All Music Manufacturing Geoff Sturre (02) 557 1169 2 Mastering Suites			
Vicki Hansen	Vicki Hansen	Paul Bryant	C.D. Master
Home Rule	Robert Long	Paul Bryant	C.D. Master
Vartan	Shane O'Farrell	Paul Bryant	C.D. Master
King of Swing	Geoff Sturre	Paul Bryant	C.D. Master
Tomie & The Boys	Tom Higginson	Paul Bryant	C.D. Master
Maroochy Barambah	Ade Kukoyi	Paul Bryant	C.D. Master
Bush Traks Recording Studio Ruth & Dave (066) 89 1290 24 Track			
The Bourkenbacks	Band/D.Highet	Dave Highet	Album
Kym Pitman & Ibis	K. Pitman/D.Highet	Dave Highet	Album
Chris Fisher	C.Fisher/D.Highet	Dave Highet	Album
Col Phillips	C. Fisher	Dave Highet	Demos
David Birch	D.Birch/D.Highet	Dave Highet	Album
Gary Dennis	G.Dennis/D.Highet	Dave Highet	Demos
Charing Cross Studios Dave Sykes (02) 387 8362 24 Track A'log			
Skunkhour	Paul McKersher	Jamie Carter	Tracking
Tracy Coster	Rod Coe	Colin Simpkins	Tracking
Loose Goose	Paul Tonkin	Keith Cooper	Tracking
The Awakening	Tim Powell	Keith Cooper	Tracking & Mixing
Electric Hippies	Electric Hippies	Martin White	Live Recording
Opium	Andy Cichon	Keith Cooper	Tracking & Mixing
Damien Gerard Studios Contact Marshall (02) 660-8776 16/32 Track			
Mental As Anything	Band & Martin	Mike Woods	Album Tracking
Died Pretty	Brett Myers	Russ Pilling	Demos
Awakening	Tim Powell	Tim Powell	E.P.
Cluster	Brent Williams	Russ Pilling	C.D. Mixdown
Norma Murphy	Dave Steel	Russ Pilling	Vocal Tracking
Big Electric Cat	Band	Russ Pilling	Album
Electric Avenue Studios (Mullens St) Philip Punch (02) 810 4848 24 Track/2" A'log			
Arizona Productions	Rob Searles/Peter Kaldor	Phil Punch	Advertising Jingles
Phlegm	Band	Adam Chapman	C.D.
Sweet Atmosphere	Band	Phil Punch	C.D.
Electric Avenue Studios (Trafalgar St) Formerly Trafalgar Studios Phil Punch (02) 660 0385 24 Track/2" A'log			
John Williamson	John Williamson	Steve Newton	Album
Ed Kuepper	Ed Kuepper/Phil Punch	Phil Punch	Album
Enrec Studios Ed Matzenik (046) 361 376 32 Track			
The Garter Snakes	Mick Liber	Steve Newton	Album
Enterprise Graeme Storer 02 564 3225 8 Track/MIDI			
Various Schools			Mac/Atari Consulting & Setups
Wait & See	Wes/G. Storer	Graeme Storer	Demos/PreProduction & Programming
Enterprise Songwriter's Group		G. Storer et al	Publishing Demos
Festival Studio Mark Thomas (02) 660 3927 24/32 Track			
Nitecris	Band/Mark T./Liberty	Mark Thomas	Tracking E.P.
Lovecraft	Band/Mark T.	Mark Thomas	Tracking E.P.
Baby Sugarlout	Charlie Drayton	David Price/Mark T.	Tracking E.P. & Mix
48V Studio Clare Britton (02) 211 6663 48 Track, 24 Digital/24 A'log			
Caligula	Rob Taylor	Rob Taylor	12" Remixes
The Whitlams	Rob Taylor	Rob Taylor	Album
Nitocris	Mark Thomas	Mark Thomas	EP Mix
Tribe of New	Craig Beck	Craig Beck	E.P. Recording
Chalk	Robbie Rowlands	Robbie Rowlands	Mix
Hullabaloo Glenn Heaton 02 684 2039 24 Track			
Heaton/McGarvey	Heaton/McGarvey	Heaton/McGarvey	T.V. Soundtrack
New World T.V.	Heaton/McGarvey	Glenn Heaton	Translation of World Cup
Amway Aust.	Heaton/McGarvey	Geoff McGarvey	Translations
Disney Live	Heaton/McGarvey	Glenn Heaton	Live Show Soundtracks
Scapegoat	Heaton/McGarvey	Glenn Heaton	Demos
Tightrope	Heaton/McGarvey	Glenn Heaton	Demos
JMF Sound Studio Fran Esther, (02) 790 4097, 24 Track			
Happy Hunting Ground	Band	Ralph Esther	Demo
Leanne Imber	Howard Bronson	Paul Grey	Demo
Tony Martin	Tony Martin	Ralph Esther	C.D. Tracks
Main Street Studio Rob Specogna 042 834 515 16 Track			
Robertson Bros.	Jeff Robertson	M.Nicholas/R.Specogna	C.D. Singles
Advent Music	David Morse	R.Specogna	C.D. Album
Aust. Music Collection	Greg Grant	R. Specogna	C.D. Album

YOUR MUSIC IS SAFE WITH US



BASF

EX-TRACK

(continued)

final gig at **The Club** in Melbourne on the 25th of June. **Blue Ruin** frontman **Ian 'Quincy' McLean** will be pursuing a solo career. **Quincy** has been writing recently with **Stratos Pavris**, member of Melbourne band **Thick Shake**. With his debut album mastered and awaiting release, **Drue Tyson Hoile** is busy setting up performance dates to showcase material from the album. **Drue** will be performing acoustically with guitarist **Mike Caens** and **Abby Dobson** doing vocals. **Damien Gerard's** are currently offering a special album lock-out deal which includes all facilities required to produce a professional quality product from just \$500 per day. For the lowdown give **Marshall Cullen** a call on (02) 660 8776.

• **Paul 'Yak' Sherritt**, well known drummer for **Diesel** and **Barnsey** has moved from Sydney to Melbourne and is now engineering for **St Andrews Recording Studio**. At present **Yak** is familiarising himself with the studio by doing a few demos. For more info give **Mark McCormack** a call at **St Andrews** on (03) 583 2341.

• It must be Christmas at **Bonsai Studio** in WA. They've currently purchased an Ensoniq TS-10 keyboard and Digitech TSR-24 multi-effects unit. It's also **Georgina Goss'** birthday on the 30th of May. To wish Georgina a happy birthday or to find out more about **Bonsai Studio** give them a call on (09) 563 7887. • **Remedy Stone** is the latest release from **Studio 52's** independent label **Empire Records**. Under the guidance of producer/engineer **Trevor Carter**, the album has been described as an incredibly strong debut album with a 70's influence. For more info give **Paul Higgins** a call at **Studio 52** on (03) 417 7707.

ARTIST	PRODUCER	ENGINEER/S	NOTES
Main Street Studio (NSW, continued).			
Cheer	Band	M. Nicholas	Demo.
Lira	Band	M. Nicholas	Demo.
Megaphon Studios Guy Dickerson (02) 516 3917 24 Track			
Blair Greenburg	Blair	Shane Fahey	Album
Colin Buchanan	Colin	Tim Ryan	Album
Paradise Studios Bill Field (02) 357 1599 48 Track A'log			
Ron Barry	Rob Barry	Mark Roberts	Album
Gina Jeffries	Garth Porter	Ted Howard	Album
Guy Redmayne	Alex Wong	Alex Wong	Tracks
Powerhouse Studio Contact Craig Beck (02) 318 1220 32 Input Desk 24 Track A'log			
Meryl Leppard	L.Berger & D.Henderson	Henderson/Beck	C.D.
'Black Steel God'	C.Beck/Band	C. Beck	
'Increase The Peace'	Band	J. Darwish	Demos
Stone Age	Band	J. Hresc	C.D.
The Scrub Hornets	Dave Steel	R. Pilling	C.D.
Andrew Sullivan	Andrew Sullivan	J. Hresc	C.D.
R&R Recordings Contact Robert Zimola (02) 624 4484 16 Track			
Just Adds Up	Greg Toeza	Robert Zimola	Corporate
Hyatt Kingsgate	Jason Beavan	R. Zimola	Corporate
CJJM	CJJM	R.Zimola/I.Henry	Album
Steve Clark	Steve Clark	R.Zimola/S.Clark	E.P.
Rich Music Studios P/L Contact Jason Nairney (02) 264 7734 32 Dig./A'log			
Painters & Dockers	The Band	Alan Thorne	Single
Tiny Tim	Martin Sharp	Tom Kazaz	Album
Larry Jenkins	Larry Jenkins	Fraser Stuart	Album
The Morrills	Paul Morrill	Mathew Lovell	Album
Wallace Simpson Musical	John Gordon	Randall Waller	Album
Diana Mrkurich	Mrkurich/Stuart	Fraser Stuart	Album
RockingHorse Studio Allan Devandra/Kim Reid ((066)884131			
Cruel Sea	Band	Paul McKercher	Demos
Marcus McBaine	Greg Courtney/Marcus	Greg Courtney	Album
Hottentot Party	Band & Ramesh	Ramesh Sathiah	Album
SAE Studios Jason de Wilde (02) 211 3711 24 Track A'log/16 Track Dig.			
George Murray	John Murtagh	John Murtagh	Album
Robert Sarz dof	Robert Sarz dof	Steve Fieldhouse	Demo
Ainslie Masterton	Ainslie Masterton	Steve Fieldhouse	Demo
Vestna	Oscar Gaoner	Oscar Gaoner	Demo
Robi C.	T.Misner/M.Kennedy		Album
Not Guilty	Paco/Shawn Kelly	Paco	2 Song E.P.
Sony Music Studios Contact Ross Ahern (02) 332-0320 24 Track A'log-Dig/Dig. Pro-Tools/Editing.			
Oliver	Wayne Connolly	Wayne Connolly	C.D.
The Mighty Reapers	Dave Brewer	Mark Roberts	Album
Culture Shock	Simon Tonx	Pee Wee Ferris	C.D.
CDB	The Rock Melons	David Hemmings	Tracking
Jim Kelly	Jim Kelly	Ross Ahearne	Mixing
Sound Level Pty Ltd. Joe Breen (02) 552 3200 Live to DAT 24 Track ADAT Available			
Panacea	John Bee	John Bee	Demos live to DAT
David Barracubush	John Bee	John Bee	Demos live to DAT
Three Wheel Drive	Fulvio Colaiacolo	Fulvio/John Soane	24 Track Digital E.P.
Dr. Raju	Fulvio Colaiacolo	Fulvio/John Soane	Demos.Multi track digital
Baby Sugarlourd	Fulvio/Will	Fulvio/John Soane	Demos live to DAT
Big Electric Cat	Paul Sadler	John Soane	Demos live to DAT
Studio Arts Productions Ed Lee (042) 849 128 Independent Recording Facility 16 Track			
Free Dog	Ed Lee/Free Dog	Ed Lee	C.D. E.P.
Cante Libre	Cante Libre	Ed Lee	C.D. Album
Zambian Goat Herders	Ed lee/Band	Ed Lee	C.D. Album
Hobo Jungle	Hobo Jungle	Ed Lee	Demo/Album
Jaw Box	Jaw Box	Ed Lee	Demo
Nabilone (THC)	Nabilone(THC)	Ed Lee	Demo
The Vault Studio Contact Michael Tame (02) 953 0332 2' 24 Track			
Dan Mullins	Mark Moffatt	Mark Moffatt	Single
Midnight Oil	Midnight Oil	Brent Clark	E.P.
Charlotte Grace	Mark Ovenden	Brendan Morley	Single
'Rough Diamonds'	Wayne/Mark Moffatt	Wayne/Mark	Soundtrack
Trackdown P/L Contact Jeff Watson (02) 550 6890 24 Track/16 Track A-DAT/Pro Tools			
Robertson Brothers	Geoff Robertson	Murray Nicholas	Album Track
Ghost Writers	Rob Hirst	David Pascoe	Album Tracks
Colin Buchanan		Tim Ryan	Album Tracks
Playschool	ABC	Simon Leadley	Album
Tracking Station Studios Contact Martin Cass (02) 281 8899 24 Track A'log			
Wayne Law	Martin Cass	Martin Cass	Album Tracks
Far Gone Beauties		Martin Cass	Album
Le Club Nerd		Steve Pomfrett	Corporate Video Soundtrack
Martin Reeve	Martin Reeve	Steve Pomfrett	Album Tracks
Pirates of Penzance Show	Jamie Rigg/Rob Kitney	S.Pomfrett/M.Cass	Soundtrack
Clint Beattie	Martin Cass	Steve Pomfrett	Single

YOUR MUSIC IS SAFE WITH US



BASF

EX-TRACK

(continued)

• This studio has more sequels than any Rocky film but big changes have gone underway at **Rich Music Studios**. The studio is under new management after the departure of **Paul Rich**. To buy the book or to hire the video of the Life and Times Of Rich Music give the guys a call on (02) 264 7734.

(Editors note: see the first Studio page for the latest update on this. A disclaimer, and we know it, 'Simmo' (Greg Simmons) who writes this column is the new studio manager at Rich. I'll keep him honest. -Ed)

• **What does Madonna, U2, Paul McCartney and Bon Jovi all have in common?** Besides being rich and famous they have all been clients at **Metropolis Audio** in the past twelve months. Pretty impressive huh? Not to mention that **Metropolis** also recorded some of the award winning records at this years **Aria's**. **Ern Rose**, Managing Director of **Metropolis**, would also like to announce two significant new staff: **David Warner** has been appointed **Music Production Manager** and will be responsible for activities associated with Studios One, Two and Three along with the mobile outside broadcast/recording unit. **David** has worked with live to air broadcasts, concert recordings and studio engineering. He was also the producer of the national radio programme **Take 40 Australia** for **MCM Networking**. **Paul Kosky** will take on the role of **Senior Producer/Engineer**. Some of **Paul's** credits include major acts such as **Crowded House, Tim Finn, Weddings Party Anything, Kate Ceberano and Things of Stone and Wood**. Welcome aboard! Give the guys a call at **Metropolis Audio** in South Melbourne on (03) 696 2111.

THE END UNTIL AUGUST!

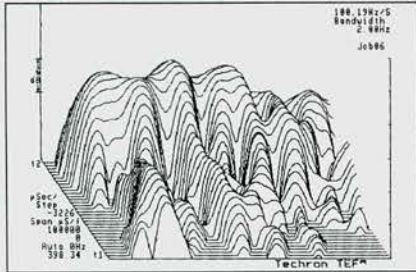
ARTIST	PRODUCER	ENGINEER/S	NOTES
Troy Horse Studio	Michael Lewis (02) 557 3129 24 Track		
Laughing Zebras	Keith Salvat	Colin Wright	Animation Soundtrack
Bloodloop Beautiful	Tubs Vidler	John Rafferty	E.P.
Scream World	Band	Colin Wright	E.P.
Pollyanna	Band	Liberty Kerr	E.P.
Wildcat	Rene Vetterli	Big Bruce Waite	E.P.
Big Rod Levis	Pubes Plater	Colin Wright	Concept Album
Wirra Willa Studios	Contact Will Rout (02)605 1203 24 Track/8 Track Hard Disk		
Sanctuary	Mal Baxter	Dion Wilton	Promotional Tape
The Voodoo	The Band	Will Rout/Ian Cooper	CD Mini Album
Wild Guess	The Band	Will Rout/Ian Cooper	Demo Tape
Spirit	The Band	Ian Cooper	Demo C.D.
Northern Territory			
Caama Music Studios	Richard Micallef 089 527 744. 24 Track		
Blek Bala Mujic	Peter Miller	Stan Satour/Chris Christie	Album
Dead Heart	Ron Thorpe	Stan Satour/Chris Christie	Album
Queensland			
Grevillea Recording Studios	Malcolm Jacobson (07) 262-8422 24 Track A'log/8 Track Dig./8 Track H.D.		
Nick Coetzee	Nick/Murray Lalor	Malcolm Jacobson	Album
Shilan	Janus Skalski	Malcolm Jacobson	C.D. Mastering
Timetrax	Garry McDonald & Laurie Stone		Bruce Jacobson
U.S. T.V. Series			
Suite 16 Audio Productions	Murray (07) 369 8733		
Toyota - Working Deals	Garry Smith	Julian Lynch	Final T.V.C.
Pirates of Penzance	Simon Gallaher	Julian Lynch	Songs
Taramalin Sound	Allan Lahey (07) 208 9736 16/32 Track		
Cross the Road	Band	Allan Lahey	Album
Mark Tempany	Mark Tempany	Allan Lahey	Album
Bill McCabe	Bill	Allan Lahey	Demo
The Gray	The Band	Allan Lahey	Pre Prodn.
Stuart Murphy	Stuart	Allan Lahey	Demo.
Vandersound Studios	Eric Vandersande (075) 468866 8 Track A'log/8 Track Hard Disk/MIDI Suite/DAT		
Darcey Moore	Eric Vandersande	Eric Vandersande	Album
Jacob Gillroy	Eric Vandersande	Eric Vandersande	Album
South Australia			
Mixmaster Productions	Mick Wordley (018) 822 986 24 Track 2" Dolby		
Robin Mann	Robin Mann	M. Wordley	Album Mix
Lizard Train	S. Albini	M. Wordley	Album
Undecided	Band/M. Wordley	M. Wordley	E.P.
Sea Horse	Band	M. Turrell	E.P.
Alterior	Band	M. Turrell	E.P.
Victoria			
Allan Eaton Studios	Robin Grey (003) 534 0752 48 Track		
Anthony Warlow	Anthony Warlow	Robin Grey	Album
Paul Grabowski	Paul Grabowski	Robin Grey	Album
Bel Air Sound	Danny Olesh (03) 563 7887 24 Track Dig. Mastering		
Mind Melt	D. Olesh	D. Olesh	Demos
Brad Walker	B. Walker/D. Olesh	Danny Olesh	Demos
Homeland	Simon Segal	Simon Segal	Demos
Amnesia	Amnesia	Danny Olesh	E.P.
Segal/Keys/Anderson	S. Segal	G. Keys	Single
Ted Egan	Ted Egan	D. Olesh	E.P.
Gotham Audio	Tom Kehoe (03) 879 9400 48 Track Dig.		
LAV	Mr. Shimizo Shinji Yasushi Konisi/Aaron Humphries	Vocal O/Dubbs &	Album Mix
Richard Pleasance	Richard Pleasance	Doug Roberts/Aaron Humphries	Album Mixing
Stickyback Monkey	Tony Cohen	Tony Cohen/Aaron Humphries	Mixing
Sister Moon Ensemble	Brenda Ferry	Brenda Ferry/Melitta Jagic/A.Humphries	Mixing
Nick Barker	Richard Pleasance	Doug Roberts/A.Humphries	Album Recording
Def FX	Nick Launay	Nick Launay/A.Humphries	Mixing
Hot House Audio	Contact Cruss (03) 525 3703 24 Track		
Hub	Lawrence Maddy	Mal Dennis	E.P.
Stratos	Band	Paul "Woody" Anneron	Album Tracks
Mr. Universe	Jedd Starr	Paul "Woody" Anneron	E.P.
Black Seed	Band	Cruss	Demo
Bengal Tigers	Band	Paul "Woody" Anneron	Album
Star World	Jedd Starr	Paul "Woody" Anneron	Album
Metropolis Audio	Contact Ern Rose (03) 696 2111		
Darryl Braithwaite	Doug Roberts	D. Roberts/T. Johnston	Project
Black Sorrows	Joe Camilleri	Julian McBrowne	Album
Working Class Ringers	Tony Cohen	Tony Cohen	Album
"Speed"	John Clifford-White	Scott Hemming	Film Score
Chocolate Starfish	Brian Canham	Ross Cockle/D.Roberts	Outside Broadcast

YOUR MUSIC IS SAFE WITH US



BASF

Studio Acoustics



• Advanced analysis,
design and trouble
shooting.

4 - 6 Star Avenue, Croydon Park S.A. 5008
Ph (08) 346 4199



48 TRACK

ANCIENT FUTURE TECHNOLOGY

24 digital + 24 analog

Tascam Studer

AMEK HENDRIX CONSOLE

Engineers: Rob Taylor,
David Menderson, Simon Sheridan.

Ph: (02) 211 6663 Fax: (02) 211 6664

AUDIO SCHOOLS UPDATE: ISP MERGES WITH ABC.

(Written by Greg Simmons)

The Audio Education Centre (AEC), the sound engineering school run from Rich Music Studios, is merging with the Institute of Sound Production (ISP). This news follows the appointment of Greg Simmons as studio manager for Rich Music Studios.

Simmons had established the Institute of Sound Production earlier this year. Commenting on the merge, he said: "We will be combining the benefits of the Institute of Sound Production's industry consultation with the established administration and courses of the Audio Education Centre. Current ISP students will get hands-on experience with some very impressive studio equipment, while AEC students gain the benefit of the ISP's research."

Returning to Rich Music Studios and the AEC is an interesting twist for Simmons, who worked as head lecturer for the AEC from October 1989 to June 1993. During this time he designed the syllabus for the AEC's Certificate level course (in conjunction with current AEC course co-ordinator Glenn Ferguson), and wrote and illustrated the course notes.

For further details contact Rich Music Studios on (02) 264 7734 or fax (02) 267 7651.

ARTIST PRODUCER ENGINEER/S NOTES

Newmarket Studio Contact Anne (03) 329 2877 24 Track			
Yarra Yarra Jazz Band	Band	Robert B. Dillon	Album
The Giants	Wilson/Desiere	John A. Ruberto	C.D. Mastering
Deborah de Graaf	Michael Aitkinson	Robert B. Dillon	Album
All In The Family	Paul Stewart	John A. Ruberto	C.D. Mastering
Museum of Victoria	Kirrian Ferguson	John A. Ruberto	Soundtrack for exhibition
Alex Burns & Nick Charles	Alex & Nick	Daniel Desiere	Album
001 Recording Studios Contact George Siew Ooi (03) 348 1300 24 Track/Midi Suite			
Fizzleheads	Fizzleheads	M Robinson	Album
Rob Clarkson	R. Clarkson	L. Maddy	Album
Felt	The Band	B. Taylor	Single
Zoran	Zoran	D. Aristo	Album
Victory Girls	The Band	C. Craig	Single
Tlot Tlot	Tlot Tlot	L. Maddy	Single
Platinum Aust. P/L Contact Jim Mountford/Susan Minchin (03) 827 7483 48 Trk. SSL/24 Trk.			
Christine Anu	David Bridie	Mark Forrester	Album
The Sharp	Peter Farnan	Rick Will/Kalju Tonuma	Album
Things of Stone & Wood	James Black	Chris Corr	Album
Guilt Factor	Michael Letho	Michael Letho	E.P.
Cleva Cleva	Ean Sugerman	Phil Pommeroy	E.P.
Chill Filter		Mark Forrester	E.P.
Sing Sing Studio Contact Kaj Dahlstrom (03) 428 4622 24 Track Dig./24 Track A'log-Dolby SR			
Black Sorrows	Joe Camilleri	Phil Butson	Album
Main & Groovin' Orchestra	Cameron Rayne	Trevor Reading	Album
Earthmen	Chris Thompson	Chris Thompson	Album
This Digital Ocean	Phil Pomeroy	Phil Pomeroy	Album Mix
Colour Bomb	Colour Bomb	Kaj Dahlstrom	Rhythm Tracks
The Jetty	The Jetty	David Davis	Album Mix
St. Andrews Recording Studio Mark McCormack (03) 583 2341 or Paul 018 102519 16 Track			
Frustrator	Band	Mark McCormack	Demos
The Skam	Band	Mark McCormack	Demos
Despised	Band	Mark McCormack	Album
Sing Sing Studio Phil or Kaj Dahlstrom (03) 428 4622 48 Track, Sony Digital & Studer Analogue			
Moovin' Groovin' Orchestra	Cameron Payne	Trevor Reading	Album
Be Brave	Band/Chris Thompson	Chris Thompson	E.P.
This Digital Ocean	Band/Phil Pommeroy	Phil Pommeroy	Album
Colour Bomb	Band/Kaj Dahlstrom	Kaj Dahlstrom	Album
Womnal	Band	David Davis	Album
The Jetty	Band	Phil Butson	Mix
Studio 52 Paul Higgins (03) 417 7707, 32 Tracks & Studio 2 ADAT 8 Track			
Tim Nielle & Mick O'Connor	Mick O'Connor	Trevor Carter	Album C.D.
Damian Manassa	Peter Cupples	Trevor Carter	E.P. C.D.
Remedy Stone	Trevor Carter	Trevor Carter	Album & Single
Daryl Edwards	Daryl Edwards	Trevor Carter	Modern String Piece
Way of Sorrows	The Band	Trevor Carter	Mixdown - Album
Eye	Andrew & James Wright	Andrew Wright	Track for Nu-Music #9
Western Australia			
Bonsai Recording Studio Tom Thorpe (09) 349 6029 24 Track			
Paul Johns	Tom Thorpe	Tom Thorpe	Demo
Andrew Breen	Tom Thorpe	Tom Thorpe	Demo
Matt Williams & Rick Lovett	Tom Thorpe	Tom Thorpe	Demo
Criminal Force	Tom Thorpe	Tom Thorpe	Re-Mix
PMFM Morning Crew	Tom Thorpe	Tom Thorpe	Jingles
Keith McDonald	Tom Thorpe	Tom Thorpe	Demo
Planet Sound Studios Contact John Villani & Denise Preston (09) 382 2211 48/32/24 Track			
Rob Roose	J. Villani	John Villani	Album
Gino Celeberti	Gino/John Villani	John Villani	Album
Clive Rogers	Clive Rogers	Les Williams	Album
Ingrad Moore	Ingrad/Les Williams	Les Williams	Demos
Leslie Hartz	J. Villani	John Villani	Album Tracking
Poons Head Contact Rob Grant (09) 339 4791 48 Track Music Studio			
Sour Puss	Rob Grant	Rob Grant	E.P.
The Electric Ass Band	Rob Grant	Rob Grant	E.P.
Yummy Fur	Danny Farrow/Rob Grant	Rob Grant	Album
Puff'N'Stuff	Chris Dickey	Rob Grant/Chris Dickey	Album
Hum	Rob Grant/Hum	Rob Grant	Mastering
Danny Farrow	Rob Grant/Danny Farrow	Rob Grant	Album
Tropo Sound Mick Connolly (09) 92 2394/018 938 724. 24 Track Digital Master			
Lyn Hazelton	Alan Pigram	Rotten	Demo Album

YOUR MUSIC IS SAFE WITH US



BASF

HOW TO LIST YOUR STUDIO:

1. Deadline is ALWAYS the 15th of the month before publication. We reserve to right to select suitable material. No cost!
2. Mail or Fax the information to us, you do not need a specific form, but you do need to follow the format of the guide, which is obvi-

- ous - have a look.
3. We must limit listings to six or less separate artists.
4. Please note your studio NAME, phone number, state and your contact details so we may check anything odd.

5. If we have any doubts we will contact you around the 20th of the month. It's FREE!
6. Questions? Verification? Call Elaine on (02) 876-3530 (BH).

Send to: Connections, BASF Guide, PO Box 439, Epping 2121, or Fax: (02) 876-5715.

Brian Canham - Producer

A gentle interrogation (very gentle) regarding the sounds and the feels on the new Chocolate Starfish recording - by Barrie Bardoe

Brian Canham is one of those people who is an absolute pleasure to interview because he doesn't take himself too seriously, is talkative, and has a wicked sense of humour. Having achieved worldwide success as guitarist, vocalist, songwriter and producer with his band Pseudo Echo, Brian now finds himself fulfilling his ambition to be a producer and a writer of jingles for television. Having worked on material for the likes of Telecom, BP, and Heinz, he has recently made a return to the seedy world of rock and roll by handling the production duties for the much loved (*by who? -Ed*) Chocolate Starfish.

"It was ironic, and also nostalgic", explains Brian. "Chocolate Starfish were signed to EMI which was the same label that Pseudo Echo were signed to ...and when we got the go-ahead to do the album, it was to be recorded at Studio 301 which was where we recorded our first album. I hadn't been there for about five or six years and it had been about ten years since we recorded our album, and it was a bit of a timewarp. I expected it to be all new people, but when I got there, the first person I saw was a guy who had been an assistant engineer when we did our album...and he was still there!"

In recent times Brian has spent a lot of his energies on writing and recording music to accompany thirty seconds of television screen time. Working with a band again was something he enjoyed immensely. "When I first heard them they did sound a little dated...a little Aussie eighties rock, which you'd expect because they'd written some of the material then. And that's good because you want something that you can work with, so you don't just walk into the studio and say, 'that's good, let's do it!' It's good if there is something that I can contribute. But at the same time, there has to be a reason to change something."

For me the term 'producer' is rather vague. There are producers who are hands-on sound engineers who simply record the band's music as well as possible. Then there are producers who virtually co-write the band's material. I asked Brian what his definition of a producer might entail. "I think the term 'producer' covers a very wide range of tasks, because you're really responsible for seeing that the whole product is completed, and really in a way you're responsible for the whole mental attitude of a band...it's like you're a counsellor and you

have to take into account everyone's goals in the band not just focus in on the 'star'. You have to talk to everyone.....I've been in the position where a producer singles out me because I am the songwriter, and it doesn't work for the rest of the band...."

The first thing Brian did was work on the arrangements with the band. He's very big on structure and feels that the various stages of a song must lead into each other. Hence a lot of work was done before the tape even rolled. Once this had been done, a couple of drumkits were set up so sounds could be switched with the minimum of interruption. The bass and guitar were set up in a fairly conventional manner and the keyboard was in the control room. The basic tracks were laid down pretty much live and where possible first takes were used. Apparently a lot of the finished album is in fact first takes. "There's something about a first take", states Brian. "Sometimes Darren (the band's drummer), would run through a song and then ask if we wanted to try for a take, and we would've recorded it. He'd kind of ask me if we should do it again, and I'd say, "no, that's fine. Leave it!"

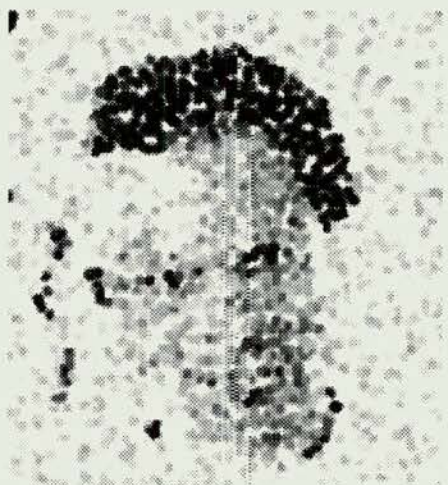
Brian's role encompassed everything from making sure the band had a good sound, to good song arrangements, to a hands-on role for the mixdown. As I mentioned, he had the invaluable assistance of Doug Brady as engineer, a man he is full of praise for. With the benefit of hindsight, it seems obvious to have Brian produce the album, but how did it actually come about? "I'm not 100% sure", admits Brian, "but I did know the two guys who had been in Roxus; Darren and John, the rhythm section, and I kind of vaguely knew Adam, although I didn't recognise him at first without his hair!"

Brian's home set-up reflects his philosophy that it's not about spending on equipmentit's about results. He also believes that as a matter of principle you shouldn't spend unnecessarily. Hence his set-up is "really basic" and is based around an AKAI 12 track, which he considers "reliable" despite what he has heard to the contrary. He does point out however that he doesn't have a lot of tape use since most of his music is put together on a computer first. His sound source is Atari Cuebase and an Atari computer. He's got a couple of sync. boxes and uses an M1 as his control



keyboard. It's used to "death" but he doubts that he'll ever replace it because 'there's something about the layout and the weight of the keys' that he likes and has grown attached to. He's got an EPS 16 plus sampler, and although there are newer, more efficient models available now, he's used to this one, believing the end result is just as good. He's also got a Quadverb, and a Boss micro compressor/noisegate, and that is pretty much it. For the work he does this gives him a perfectly satisfactory finished product. His philosophy could either be described as minimalist, down to earth, or simply no bullshit. He's certainly wary of gear for the sake of gear, and happily admits he probably wouldn't know what to do with it anyway. He's also quick to emphasise the benefits of minimising the amount of wiring in a set-up.....hence simplicity.

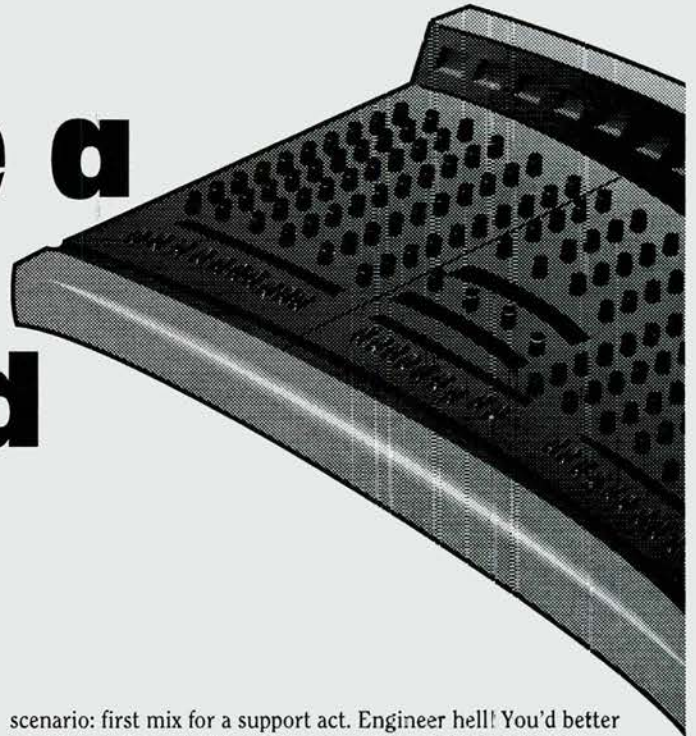
With the responsibility of a new family, Brian's days as an axe hero (!) look to be over. But his enthusiasm for music seems to be undiminished.....he's just exploring new avenues. Who knows what his next project might be, but one thing's certain - Brian Canham knows more than a little about making the hits. •



BUYERS GUIDE FEATURE

Live Mixing Consoles!

How to be a BETTER Live Sound Engineer!



The Ten Point Plan. *By Julius Grafton*

1. Soundchecks.

Whatever the act, if you've never mixed them before a soundcheck is mandatory. This is usually the first time they've met you in a professional capacity, so take over. This is your environment, not a rehearsal. If they've got some rehearsing to do, they can do it after you're finished with them.

Set a schedule. Before any performer enters the building be sure you've done a line check on every source microphone or input from the stage. Don't be caught fluffing about trying to establish why the sequencer isn't appearing on channels 12 and 13 at FOH.

Call in the drummer half an hour before the rest of the band. It's 100% essential to establish difficult acoustic originating sounds at soundcheck, and to see how loud they may be pushed before setting off the 'trip point' at which the room acoustics give up and collapse—and things start to feed back.

Volume isn't the name of the game, but if the room fills you may need more gain than is apparent at sound check. Also, you need to see what the PA system is capable of.

Get each musician to play a few bars, crank up their channel and set a working EQ and gain structure. Be firm with them, talk to them through a desk microphone. Use broad sweeping gestures to stop them if they carry on.

Beware the wandering wireless guitarist. They are worst when the band is playing together for you, they sneak around the back of the auditorium and never think they're loud enough in the mix.

You should get the band to play two numbers. Because you've dealt with each instrument in sequence beforehand you are now mixing the band levels. They will be tardy, un-enthusiastic, and sing like alley cats on heat. It won't sound great. Tell them that.

2. No Soundcheck!

Happens, especially for support acts. Worst mixing

scenario: first mix for a support act. Engineer hell! You'd better start the first song with vocals only, and quickly build a mix through the first song. Use the main act drum EQ's as a basic starting point.

Your vocals and other instruments need to be EQ flat (no cut, no boost, controls centred at 12 o'clock) at the start, if you've no time at all, switch OUT the EQ then hit it on once you've had time to set it flat. Flat is no EQ, flat is often better!

3. Flying in 'your console!'

Nothing is more hilarious than famous bands engineers insisting on airfreighting 'their' desk half way around the world. This is not because they can't get a PM 4000 or TAC 9000 here, rather they are just too slack to reset every knob for their act! So 40kg of console is flown in!

Don't ever be so bumptious that you tell an act you must have 'your desk' to mix them. Some of the greatest sound engineers alive regularly fly down to Australia, hop onto a standard console, set a sound and execute a great mix.

4. Using 'your effects'.

You'll probably want to use your own patches and presets, so if you've got an essential pair of effectors rack them in a compact flight case and carry them with you as baggage. Carry your own patch cables. Forget about the whole effects rack, unless it's a long tour and the act can really afford to fly the 100kg everywhere.

A good sound engineer can set someone else's precise gates, limiters and effectors in a short time.

5. Record your settings.

Get a cassette notebook type recorder with inbuilt mic. Talk each channel setting into it after soundcheck or after the show. When next faced with a console not set for your act, put on your headphones and play the tape back as you set each channel.

BUYERS GUIDE FEATURE

Live Mixing Consoles!

If touring with the same console, mark the settings with a white china pencil on the console. It cleans off with a firm rub, but will survive support act engineers slobbering all over the console.

6. New consoles.

First find the gain structure, using a tape input source or pink noise, find optimum channel gain, then subgroup gain, then main output gain. If you're really pressed for time, use less subgroups or even route direct to the left-right master outputs, bypassing the groups all together. Likewise, don't use the VCA masters until you're happy with the sub groups and gain chain.

Very early on, find the mute switches for the channels, subgroups, and main outputs. Some consoles light these when on, others when off. Clearly establish in your mind, or even write a little code on the scribble strip. Many a great engineer has muted a channel, group or the whole desk at the wrong time, even whilst show is in motion!

Learn quickly and be aware of the mute groups too, use these only once happy with them.

7. Keep it simple.

The array of effects may tempt, but often the greatest mixes are the simplest. Mic placement sometimes gives better sound than any EQ changes you might make, too many noise gates and too much limiting can constipate a mix.

8. Deal with the humans.

The act, management, record producer, play director, hangers-on, fans, audience and venue management will all, at some point in your career, give you a hard time. Be receptive to their message, and tell them you'll give their ideas and suggestions some consideration.

Walk the venue early in the set to check the mix elsewhere. You'll be surprised how differently the sound propagates through the room. The overall volume is difficult to determine. Keep it as low as possible.

The act need firm control over volume too, the soundcheck levels have crept up considerably once the show starts. Musicians who play too loud need to be told to turn down. You must tell them, nobody else will. Don't pass on messages second hand, do it yourself.

9. You don't need to be a musician to mix.

Most recording engineers seem to be musicians. Not so many

live engineers are musicians. Those that tend to favour their chosen instrument/discipline in the mix. Drummers make shocking live sound engineers in my opinion!

10. Check the details.

If you rely on others to supply your act with a sound system, you need to be fastidious with details. Prepare a rider that details fair requirements. Don't specify very particular equipment types, rather categorise your console choices, ie: PM 1800, Soundcraft 800B, Soundtracs MX, etc. Be ready for anything!

Follow through every new production hire beforehand, better you know what's in store for you in advance! Don't rely on artist management to do anything for you, even check your flights yourself! CompuServe have access to Eassy Sabre, which lets you check almost every flight to anywhere.

The bottom line to better mixing is, be diplomatic, be firm, be organised, and be professional!



On-Stage foldback mixing is also a very good tonic for jaded FOH engineers. Get a reality break as eight or nine vain band members all ask for conflicting things in their mixes - and throw things at you!

GRAFTONS <i>Dynalite</i>  THE RIGHT PRODUCTS	LIGHTS	GRAFTONS Sydney's largest AM Rental Department <small>Established 1970</small> THE RIGHT CHOICE	SOUND	GRAFTONS <i>Seasoned Professionals understanding your Professional needs!</i> THE RIGHT ANGLE	SALES	GRAFTONS  Phone 698 7777 Fax 698 9999 THE RIGHT NUMBER	HIRE
--	---------------	--	--------------	---	--------------	---	-------------

BUYERS GUIDE FEATURE

Live Mixing Consoles!

The Mixers, The Market. The Year in Review.

The live mixing console market has come a long way since 1984, when you needed to pay over \$15,000 to get anything with sweep EQ and eight subgroups. Things got worse until the '90's, when mass production and cheaper componentry fuelled what is today an infinitely more affordable selection.

Today the market is oversupplied with no fewer than 25 manufacturers offering product in our annual Live Mixers Buyers Guide, and many more available on the world market.

In the past twelve months the two most significant developments affecting our local market come from established industry leader Soundcraft and newish American upstart, Mackie. Soundcraft have managed to blitz the market with more mixing consoles at more price points on offer than any other manufacturer, while Mackie have entered the Australian market at very low price points compared to elsewhere in the world.

Firstly Soundcraft. In 1990 the firm couldn't field a mixer with sweep EQ and 4 busses for much less than \$20,000. Now they offer six separate ranges, comprising 13 mixers, priced from \$1,295 to \$10,995 - and that's a 32-4-2 model! Their range then runs through professional consoles for theatre, stage monitor, and concert FOH, although the flagship Europa hasn't taken off due to size and the perplexing decision to fit a noise gate rather than a limiter to every channel!

Mackie have shaken the market with an innovative range of small to medium sized consoles at extremely low prices. Combined with incredibly good brochures and marketing, the range has sold up a storm. Locally the Mackie importer is new to national distribution, and perceived as not adding enough margin, thus the very low local prices. This has caused much gnashing of teeth amongst competitors, who've pointed out local Mackie prices really are not rela-

tive to other markets, and that the team at Australian Audio Supplies must know things about distribution that the rest of the industry doesn't!

Having set a style, others jump in, and Korean manufacturer Inkel are quite content to clone the Mackie1604, and indeed build a version for US distributor Samson. Strokes for folks!

Versatility and a new importer has given Allen & Heath a healthy return to the Australian market, with the ability to switch a GL-2 or GL-3 console from FOH to six send monitor console. These are designed from a fresh perspective, rather than being 'me too' clones, and for the money worthy contenders in the low cost area, ranging \$3000 - \$10,000.

The BIG end

AMEK via the Langley brand have a live answer to their acclaimed automated BIG console, called RECALL, but at this time we have no knowledge of this being released on the local market. The importer is very quiet about this.

DDA released the QII locally during the year, a fully featured modular live concert console for \$37,000. This has some neat features, including on board ClearComm interface, and a switchable direct auxiliary send from each input. This defeats the need for zillions of auxiliary sends, because in many cases an outboard effect is only processing a single channel, so a whole aux buss is wasted.

Yamaha are doing very well with the PM 4000 finding replacement business where many now 10 year old PM 3000's are due for retirement. Two years ago the top end market was poised for a three way tussle between the PM 4000, Europa, and the Midas XL-3. In fact the Midas has been the spoiler for Yamaha, with a respectable number of XL-3's finding homes around the country. Large Ramsa consoles are popular for concert foldback.

-Julius Grafton.

WHO'S WHO - MIXER DISTRIBUTORS

Allen & Heath: Studio Connections 03 723-4300
ART: Dynamic Music 02 939-1299
Ashly: Production Audio Services 03 852-0900
Biamp: Production Audio Services 03 852-0900
Crest: Production Audio Services 03 852-0900
DDA: Syncrotech Systems Design 02 417-5088
DOD: CMI 03 315-2244
EV: Mark IV Audio Aust. 02 648-3455
General Music: Production Audio Services 03 852-0900
Inkel: Magna Systems 02 417-1111
Mackie: Australian Audio Supplies 02 879-6124
Midas: Mark IV Audio Aust. 02 648-3455
Mitec: Australian Monitor 02 816-3544
Panoramic: (SoudTech) Bridge System Corp. 03 380-9133
Peavey: Australis 02 938-3466
Phonic: CMC 02 905-2511
Ramsa: Ramsaudio Australia 02 477-7377
Rane: Jands 02 516-3622
Ross: CMI 03 315-2244
Shure: Jands 02 516-3622
Soundcraft: Jands 02 516-3622
SoundTech: Bridge System Corp. 03 380-9133
Soundtracs: Amber Technology 02 975-1368
TAC: ATT Audio Controls 03 379-1511
Yamaha: Yamaha Australia 03 699-2388

**There are others, of course, and omission from this list doesn't mean they are not worthy. What it means is that at deadline, with 1001 details to attend, we simply forgot who they were for a minute. Every distributor is welcome in our buyers guide, and should keep up to speed with what is next. It's up to distributors to promote their products to you - the reader.*

BUYERS GUIDES

Connections Buyers Guides bring you the latest, up to date products with prices EVERY issue! Now a **whole year** of BUYERS GUIDES ensures you get **more value from every issue!**

February:

Wireless Mics,
Studio Monitors,
Scrollers,
Colour changers,
PC Spots.
March: Sequencers,
Sound Modules,
Test Gear,
Flood Lights,
Colour Medium.
April: EQ's,
Crossovers,
Limiters,
Signal Processors,
Backline amps,

May: Effectors,
Effects Lighting

June/July:
Live Mixing Consoles,
Profile Spotlights

August:
Studio Mixing Consoles,
MIDI devices,
Moving Lights.

September:
Microphones,
DAW,
Lighting Control

Oct:
Amplifiers,
Samplers,
Dimmers

November:

PA speakers,
boxes & components,
Fresnel spots
December/January:
Recorders,
Powered Mixers,
Follow Spots,
Fog Machines,
Studio Luminaires.

Distributors: DEADLINE is the **15th** of the month before publication. call **Caroline Grafton, (02)876-3530.**

Product Name	# ch.	# sub groups	# aux sends	# EQ per ch.	# sweep EQ's per ch.	Fader length	Outputs Balanced?	Matrix	Price retail	Ex stock? Yes/No
MACKIE MICRO 1202	12	-	2	2	-	Rotary	Yes, 6.5mm	-	\$1,049	Yes
MACKIE LM-3204	16m/32s	4	4	3	-	40mm	Yes, 6.5mm	-	\$2,695	Yes
MACKIE CR 1604 ✓	16	4	7	3	-	40mm	Yes, 6.5mm	-	\$2,995	Yes
ART Phantom 1608	8 + 8	4	8	4	-	100mm	XLR, 6.5mm	-	\$3,250	Yes
ART Phantom 2408	16 + 8	4	8	4	-	100mm	XLR, 6.5mm	-	\$3,795	Yes
ART Phantom 3208	24 + 8	4	8	4	-	100mm	XLR, 6.5mm	-	\$3,995	Yes
ROSS RCS-802	8	-	3	3	-	60mm	XLR, 6.5mm	-	\$ 979	Yes
ROSS RCS-1202	12	-	3	3	-	60mm	XLR, 6.5mm	-	\$1,269	Yes
ROSS RCS-1602	16	-	3	3	-	60mm	XLR, 6.5mm	-	\$1,689	Yes
ROSS RCS-2402	24	-	3	3	-	60mm	XLR, 6.5mm	-	\$2,369	Yes
ROSS Minimix	16	-	4	2	-	60mm	No, 6.5mm	-	\$1,679	Yes
ROSS RCS-1402 ✓	14	-	3	3	-	Rotary	Yes, 6.5mm	-	\$ 929	July
DOD DM-822XL or rack	8	-	3	3	-	60mm	Yes, 6.5mm	-	\$1,179	Yes
DOD DM-1222XL or rack	12	-	3	3	-	60mm	Yes, 6.5mm	-	\$1,549	Yes
DOD DM-1642	16	2	6	3	-	60mm	Yes XLR	-	\$2,799	Yes
Soundcraft Spirit Folio 10	10	-	2	3	1	60mm	Yes, 6.5mm	-	\$1,295	Yes
Soundcraft Spirit Folio 12	12	-	2	3	1	60mm	Yes, 6.5mm	-	\$1,595	Yes
Soundcraft Spirit Folio 12 rack	12	-	2	3	1	60mm	Yes, 6.5mm	-	\$1,595	Yes
Soundcraft Spirit Folio S1 Rack	18	-	2	3	1	60mm	Yes, 6.5mm	-	\$1,795	Yes
Soundcraft Spirit Folio RacPac	14	4	6+	3	1	60mm	Yes 6.5mm	-	\$2,995	Yes
Soundcraft Spirit Folio 4	20	4	6	3	1	60mm	Yes 6.5mm	-	\$3,995	Yes
Soundcraft Spirit Live 8 (& rack)	8	3	4	3	2	100mm	Yes, XLR	-	\$2,695	Yes
Soundcraft Spirit Live 16	16	3	4	3	2	100mm	Yes, XLR	-	\$4,495	Yes
Soundcraft Spirit Live Extender	8	3	4	3	2	100mm	-	-	\$2,495	Yes
Soundcraft Spirit Live Four, 14 ✓	14	4	5	3	2	100mm	Yes, XLR	-	\$4,495	Yes
Soundcraft Spirit Live Four Extender	8	4	5	3	2	100mm	-	-	\$2,495	Yes
Yamaha AM602	6	-	2	2	-	65mm	-	-	\$599	Yes
Yamaha AM802	10	-	3	2	-	65mm	-	-	\$899	Yes
Yamaha MV802 rack	8	-	2	-	-	Rotary	Yes	-	\$995	No
Yamaha MV1602 rack	16	-	4	3	-	65mm	Yes	-	\$2,395	Yes
Yamaha MV1000	6m4s	-	-	-	-	65mm	Yes	-	\$3,895	Yes
Yamaha MC-03 Series	8 & 12	-	3	3	1	100mm	Yes, XLR	-	\$1895/\$2495	Yes
Yamaha MC-03 Series	16 \$ 24	-	3	3	1	100mm	Yes, XLR	-	\$2995/\$3695	Yes
Yamaha MR-42 Series	8, 12 & 16	4	3	3	1	100mm	Yes	-	\$2495/\$2895/\$3295	Yes
E.V. BK842	8	-	3	3	1	100mm	Yes, XLR	-	\$2,776	Yes
E.V. BK1242	12	-	3	3	1	100mm	Yes, XLR	-	\$3,395	Yes
E.V. BK1642	16	-	3	3	1	100mm	Yes, XLR	-	\$4,378	Yes
E.V. BK2442 ✓	24	-	3	3	1	100mm	Yes, XLR	-	\$4,837	Yes

INKEL PA

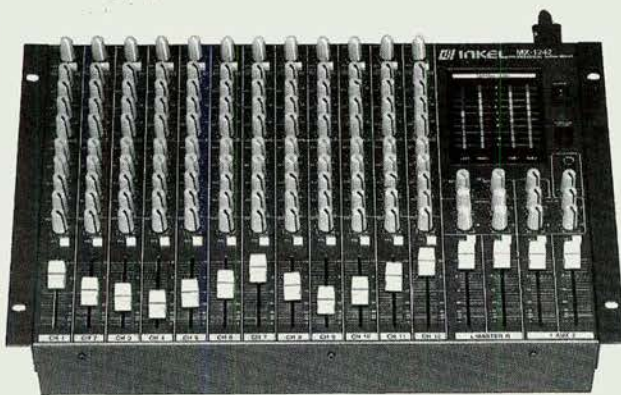
Koreas No. 1
Pro Audio Manufacturer
for more than a decade.

MIX-1242

The PROFESSIONAL
AUDIO MIXER

Features include:

- 12 channel inputs
- 4 channel outputs
- 4 band tone controls
- PFL on each input
- Effect send / return
- Output monitoring
- Gain control and peak indicator
- Phantom Power (DC - +48)



MAGNA SYSTEMS distribute a wide range of INKEL Contracting and PA Audio Products.



For more information on the INKEL range of products, contact your nearest INKEL dealer or phone:

MAGNA
SYSTEMS AND
ENGINEERING

Australia:
Magna Systems & Engineering
A trading division of Silklore P/L. ACN 004 004 997
7 Gibbes Street, Chatswood, NSW 2067.
Phone: (02) 417 1111 Fax: (02) 417 2394

New Zealand:
Magna Techtronics (NZ) Ltd.
Level 4, 210 Khyber Pass,
Newmarket, Auckland.
Phone: (09) 307 3901 Fax: (09) 307 3832

Product Name	# ch.	# sub groups	# aux sends	# EQ per ch.	# sweep EQ's per ch.	Fader length	Outputs Balanced?	Matrix	Price retail	Ex stock? Yes/No
Soundtracs Solo Rack ✓	12	-	6	4	2	100mm	Yes,XLR	-	\$4,595	Yes
Peavey Unity 1000 8/12	8/12	-	2	3	-	60mm	No	-	\$1195/\$1595	Yes
Peavey Unity 2000 12/16	12/16	-	4	3	-	60mm	No	-	\$1895/\$2395	Yes
Peavey Unity 1000 - 8R Rack	8	-	2	3	-	60mm	No	-	\$1,195	Yes
Peavey Versamix Rack	16	-	6	3	-	45mm	Yes,6.5mm	Yes	\$2,395	Yes
Peavey Line Mix 8 Rack	8	-	2	-	-	Rotary	No	-	\$695	Yes
Peavey MIII-12	12/16	-	6	3	1	100mm	12-No/16-XLR	-	\$3395/\$3995	Yes
Peavey MDIII-12/16	12/16	-	6	3	1	100mm	Yes,XLR	-	\$3595/\$4295	Yes
Peavey SRC 16000	16	4	6	3	1	100mm	Yes,XLR	-	\$4,495	Yes
Peavey MD 111 - 12	12	-	6	3	1	100mm	No	-	\$3,195	Yes
Peavey MD 111B - 12	12	-	6	3	1	100mm	Yes	-	\$3,395	Yes
Peavey MD 111 - 16	16	-	6	3	1	100mm	No	-	\$3,795	Yes
Peavey MD 111B - 16	16	-	6	3	1	100mm	Yes	-	\$3,995	Yes
Peavey SRC 1600 ✓	16	4	6	3	1	100mm	Yes	-	\$4,795	Yes
Peavey Unity 1000 - 8	8	-	2	3	-	60mm	No	-	\$1,129	Yes
Soundtech ST122	12	2	3	3	1	60mm	Yes,XLR	-	\$1,799	Yes
Soundtech ST162	16	2	3	3	1	60mm	Yes,XLR	-	\$2,099	Yes
Panoramic S416 ✓	16	4	5	3	2	100mm	Yes,XLR	-	\$4,999	Yes
Inkel MX 1400	10	4	2	2	-	75mm	Yes,XLR	-	\$1,400	Yes
Inkel MX 1242	12	-	4	4	-	65mm	Yes,XLR	-	\$1,200	Yes
Inkel MX 1410	14	4	2	3	1	75mm	Yes,XLR	-	\$2,100	Yes
Inkel MX 1810	18	4	2	3	1	75mm	Yes,XLR	-	\$2,500	Yes
Ramsa WR-S4412 ✓	12	4	4 inc direct	3	1	100mm	Yes,XLR	-	\$4,390	Yes
Phonic PMC 802B	8	-	3	3	-	70mm	Yes,XLR	-	\$ 950	Yes
Phonic PMC 1202B	12	-	3	3	-	70mm	Yes,XLR	-	\$1,250	Yes
Phonic PMC 1602B	16	-	3	3	-	70mm	Yes,XLR	-	\$1,550	Yes
Phonic PMC 2402B	24	-	3	3	-	70mm	Yes,XLR	-	\$2,095	Yes
Phonic M1642	16	4	6	3	1	70mm	Yes,XLR	-	\$3,395	Yes
Phonic M2442	24	4	6	3	1	70mm	Yes,XLR	-	\$3,995	Yes
Phonic PMX 1600A	16	-	3	3	1	70mm	Yes,XLR	-	\$2,095	Yes
Ashly Audio LM308 Rack	8	-	-	-	-	Rotary	Yes,XLR	-	\$1,295	Yes
Ashly Audio MM106 Rack	6	-	-	-	-	Rotary	Yes,XLR	-	\$1,530	Yes
Ashly Audio MM508 Rack	8	-	2	3	1	Rotary	Yes,XLR	-	\$3,595	Yes
Blamp Cascade 8/332r	8	-	3	3	-	Rotary	Yes,XLR	-	\$3,230	Yes
Blamp Cascade 12342c ✓	12	-	4	3	-	100mm	Yes,XLR	-	\$4,850	Indent
Blamp Rackmax II 12	12	-	4	3	-	100mm	Yes,XLR	-	\$4,455	Indent
General Music Minisound 8	8	-	-	2	-	60mm	Yes,XLR	-	\$1,725	Yes
General Music Soundcase 1 & 16	12/16	-	2	3	-	70mm	Yes,XLR	-	\$3,450/\$3,895	Yes
Samson 2242	22	4	6	4	-	60mm	Yes,XLR	-	\$2,999	Yes
Samson 1640	16	4	3	3	-	60mm	Yes,XLR	-	\$1,995	Yes
Samson 1502 Rack	15	2	2	3	1	Rotary	Yes,XLR	-	\$1,195	Yes
Shure M267	4	-	-	-	-	Rotary	Yes,XLR	-	\$1,595	Yes
Shure FP410 Auto. Mixer	4	-	-	-	-	Rotary	Yes,XLR	-	\$4,735	Yes
Rane CM-86	8	-	2	2	-	Rotary	Yes,XLR	-	\$4,545	Yes
Rane SM-82	18	-	1	-	-	Rotary	Yes,6.5	-	\$1,895	Yes
Allen & Heath GS3GX	8	-	4	2+3	2	100mm	-	-	\$4,195	Yes
Allen & Heath GL2 ✓	14	4	6	4	2	100mm	Yes, XLR	-	\$2,999	Yes
Miltec Studio Server Series	8/16	-	4	4	2	60mm	Yes,XLR	-	\$3000/\$4500	Yes
Miltec Road Series	8/16	-	2	4	-	80mm	Yes,XLR	-	\$1885/\$2780	Yes
Miltec Stage Server Monitor ✓	16	FB	8	4	2	80/100mm	Yes,XLR	-	\$4,480	Yes

✓: Range continues; above \$5000

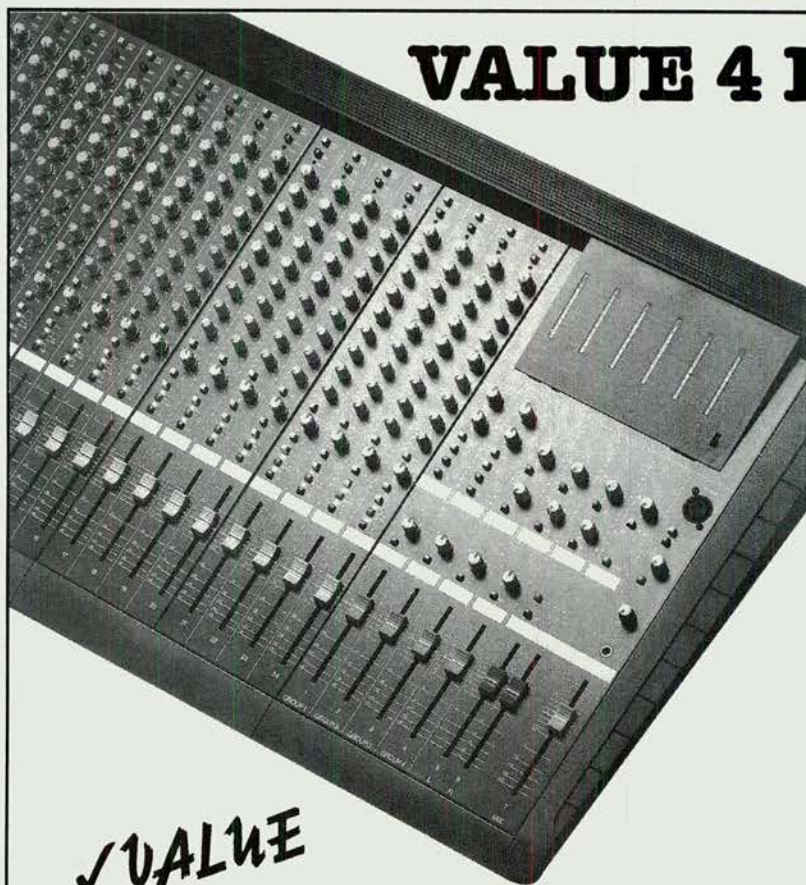
Live Sound Mixing Consoles **OVER \$5000**

Miltec Stage Server Monitor	24	Monitor desk	8	4	2	60/100mm	Yes,XLR	-	\$6,600	Yes
Miltec Studio Server 24x24	24	-	4	4	2	60mm	Yes,XLR	-	\$6,600	Yes
Miltec Performer 16	16	4+2+2	5	4	2	100mm	Yes,XLR	Option	\$5,200	Yes
Miltec Performer 24	24	4+2+2	5	4	2	100mm	Yes,XLR	Option	\$6,100	Yes
Miltec Performer 32	32	4+2+2	5	4	2	100mm	Yes,XLR	Option	\$9,000	Yes
Miltec Performer expander	8	Expander	5	4	2	100mm	Bus	(Expander)	\$3,000	Yes
Miltec EVENT 24	24	8+2+2	8	4	2	100mm	Yes,XLR	Option	\$17,000	Yes
Miltec EVENT 32	32	8+2+2	8	4	2	100mm	Yes,XLR	Option	\$20,000	Yes
Miltec EVENT 40	40	8+2+2	8	4	2	100mm	Yes,XLR	Option	\$25,000	Yes
Miltec EVENT 48	48	8+2+2	8	4	2	100mm	Yes,XLR	Option	\$28,000	Yes
Peavey SRC 2400	24	4	6	3	1	100mm	Yes,XLR	-	\$6,695	Yes
Peavey Mark VIII 24	24	8	8	5	4	100mm	Yes,XLR	-	\$26,995	Indent
Peavey Mark VIII 36	36	8	8	5	4	100mm	Yes,XLR	-	\$31,995	Indent
Ramsa WR-S4416	16	4	4 & direct out	3	1	100mm	Yes,XLR	-	\$5,590	Yes
Ramsa WR-S4424	24	4	4 & direct out	3	1	100mm	Yes,XLR	-	\$7,590	Yes
Ramsa WR-S840	40 - 52	8	8	4	4	100mm	Yes,XLR	8 x 8 POA	-	No
E.V. interface	16 - 32	4	6	4	2	100mm	Yes,XLR	4 x 4 option	from \$14,000	Yes
Soundtracs Solo Live 16	16	4	6	4	2	100mm	Yes,XLR	-	\$6,595	Yes
Soundtracs Solo Live 24	16	4	6	4	2	100mm	Yes,XLR	-	\$8,695	Yes
Soundtracs Solo Live 32	16	4	6	4	2	100mm	Yes,XLR	-	\$11,695	Yes
Soundtracs Solo Monitor 24	24	10 sends	-	4	2	60mm	Yes,XLR	Monitors	\$11,995	Yes
Soundtracs Solo Monitor 32	32	10 sends	-	4	2	60mm	Yes,XLR	Monitors	\$15,595	Yes
Soundtracs Solo 8 live	24 - 32	8	6	4	2	100mm	Yes,XLR	-	\$18 - \$21,000	Yes
Soundtracs Megas Mix 16	16	4	6	4	2	100mm	Yes,XLR	-	\$13,695	Indent
Soundtracs Megas Mix 24	24	4	6	4	2	100mm	Yes,XLR	-	\$17,295	Indent
Soundtracs Megas Mix 32	32	4	6	4	2	100mm	Yes,XLR	-	\$20,895	Indent
Soundtracs Megas Monitor	24 - 32 - 40	10	-	5	2	80mm	Yes,XLR	Monitors	\$27 - \$37,000	Indent
Soundtracs Sequel II	24-48	8	8	4	4	100mm	Yes,XLR	11x8 option	\$45 - \$77,000	Indent
Soundtracs Megas II Stage	24-48	8	6	4	2	100mm	Yes,XLR	11x8 option	\$29 - \$46,000	Indent
Yamaha DM-P9 Series	8/16	2x2	4	-	2	Rotary	Yes,XLR	-	\$5895/\$7895	Yes
Yamaha MC-04 II Series	12/16	4	4	4	2	100mm	Yes,XLR	Dual 6 x 1	\$6499/\$7995	Yes
Yamaha MC-04 II Series	24&32	4	4	4	2	100mm	Yes,XLR	Dual 6 x 1	\$10495/\$12995	Yes
Yamaha MC-10M Series/Monitor	24/32	10	2	4	2	100mm	Yes,XLR	-	\$13995/\$16995	Yes
Yamaha PM-1200 Series	16/24/32	4	4	3	1	100mm	Yes,XLR	-	\$12995/15995/19995	By Req.
Yamaha M-2000 Series	16/24	8	6	4	2	100mm	Yes,XLR	13x4submix	\$21995/\$27995	By Req.
Yamaha M-2000 Series	32/40	8	6	4	2	100mm	Yes,XLR	13x4submix	\$33995/\$39995	By Req.
Yamaha PM-1800A Series	16/24	8	6	4	2	100mm	Yes,XLR	8	\$30,000/\$36,000	By Req.
Yamaha PM-1800A Series	32/40	8	6	4	2	100mm	Yes,XLR	8	\$42,000/\$48,000	By Req.
Yamaha PM-2800M Series	32/40	10	4	4	4	100mm	Yes,XLR	4x8	\$58000/\$66000	By Req.
Yamaha PM-4000 FOH	24/32	8VCA	12	4	4	100mm	Yes,XLR	8	\$105K/\$120K	By Req.
Yamaha PM 4000 FOH	40/48+4stero	8VCA	12	4	4	100mm	Yes,XLR	8	\$135K/\$150K	By Req.
Yamaha PM-4000M Monitor	44 - 52	8VCA	12	4	4	100mm	Yes,XLR	16	\$175K/\$190K	By Req.

Product Name	# ch.	# sub groups	# aux sends	# EQ per ch.	# sweep EQ's per ch.	Fader length	Outputs Balanced?	Matrix	Price retail	Ex stock? Yes/No
TAC Bullet	10-30	4-8	6	4	2	100mm	Yes,XLR	-	\$11-\$26,000	Yes
TAC B2	8-28	4	6	4	2	100mm	Yes,XLR	-	\$11-\$24,000	Yes
TAC SR 6000	24-40	8	16	4	4	100mm	Yes,XLR	10 x 8	\$64-\$79,000	No
TAC SR 6500 Monitor	32-40	8	-	4	4	100mm	Yes,XLR	18x1	\$77-\$85,000	No
Midas XL3	24 to 40	8	16	4	2	120mm	Yes,XLR	18x2	\$POA	Indent
Midas XL88 Matrix Mixer	8	-	-	-	-	P&G	Yes,XLR	8x8	\$5,952	Indent
Panoramic S424/S432	24/32	4	5	3	2	100mm	Yes,XLR	-	\$6499/\$7699	Yes
Panoramic S824/S832	24/32	8	5	3	2	100mm	Yes,XLR	-	\$7299/\$8299	Yes
Panoramic T816/824/832	16/24/32	8	5	3	2	100mm	XLR+6.5	-	\$5999-\$11199	Yes
Panoramic TJO24 Series	24/32/40	24	10	4	2	100mm	Yes,XLR	-	\$28999/\$35999/\$37999	July
Soundcraft Spirit Live 24	24	3	4	3	2	100mm	Yes,XLR	-	\$6,995	Yes
Soundcraft Spirit Live Four Series	20/28/36	4	5	3	2	100mm	Yes,XLR	-	\$5995/\$7995/\$10995	Yes
Soundcraft SM16 Monitor Desk	24/32/40/48	FE	16+2+wedge	4	4	100mm	Yes,XLR	-	\$68K-\$88,000	Indent
Soundcraft Delta SR Series	8/16/24/32	4	4	3	2	100mm	Yes,XLR	4 x 4	\$8K-\$20,000	Indent
Soundcraft Delta DLX	8/16/24/32	4	6	4	2	100mm	Yes,XLR	-	\$11K-\$30,000	Indent
Soundcraft Delta Theatre	8/16/24/32	4	6+direct	4	2	100mm	Yes,XLR	6x4	\$11K-\$30,000	Indent
Soundcraft Delta Monitor	24/32/40	FE	10+2+wedge	4	2	100mm	Yes,XLR	-	\$32K-\$47,000	Indent
Soundcraft Venue II	24/32/40/44	8	6 & direct	4	2	100mm	Yes,XLR	10x8	\$22K-\$44,000	Indent
Soundcraft Venue Theatre	24/32/40/44	8	6+direct	4	2	100mm	Yes,XLR	10x8	\$34K-\$55,000	Indent
Soundcraft Vienna	24/32/40	8+8xVCA	8+direct	4	4	100mm	Yes,XLR	13 x 8	\$60K-\$95,000	Indent
Soundcraft SM24	24/32/40/48	8xVCA	24+2+wedge	4	4	100mm	Yes,XLR	-	\$78K-\$98,000	Indent
Soundcraft Europa	24/32/40	8+8xVCA	12+direct	4	4	100mm	Yes,XLR	13 x 8	\$96K-\$139,000	Indent
Blamp Cascade 16/342C	16	-	4	3	-	100mm	Yes,XLR	-	\$5,390	Indent
Blamp Rackmaxil-16	16	-	4	3	-	100mm	Yes,XLR	-	\$5,195	Indent
Blamp Newport Series	16/24	4	4	3	-	100mm	Yes,XLR	-	\$6,995/\$8,640	Indent
Blamp Columbia	24-40	8	8	4	2	100mm	Yes,XLR	-	\$19K-\$28,000	Indent
Crest Gamble 56EX	56	8	8	4	4	100mm	Yes,XLR	8x8	POA	Indent
Crest Gamble 48EX Monitor	48	FB	8	4	4	100mm	Yes,XLR	16x16	POA	Indent
Crest Century SP	16-52	4 or 8	4 or 8	4	-	100mm	Yes,XLR	-	\$13K-\$42,000	Indent
Crest Century TC	16-52	4 or 8	4 or 8	4	2	100mm	Yes,XLR	-	\$16K-\$49,000	Indent
Crest Century GT	16-52	4 or 8	4 or 8	4	4	100mm	Yes,XLR	2x2	\$19K-\$56,000	Variable
Crest Century LM Monitor	20-52	FB	8	4	4	100mm	Yes,XLR	-	\$30K-\$69,000	Indent
Mackie 8 bus	16/24/32	8	6	4	2	100mm	Yes,XLR	2 x 8	\$8-\$12,000	No
Ross RCS-2482	28	4	8	4	2	100mm	Yes,XLR	-	\$5,299	No Oct. 94
Allen & Heath GS3V Series	16/24	8	4	2+3	2	100mm	Yes,XLR	-	\$15280/\$18995	Yes
Allen & Heath S3V-8X Expander	8	-	4	2+3	2	100mm	Yes,XLR	-	\$5,927	Yes
Allen & Heath GS3 Series	16/24	8	4	2+3	2	100mm	Yes,XLR	-	\$9060/\$13150	Yes
Allen & Heath GL3 Series	16/24	4	6	4	2	100mm	Yes,XLR	-	\$7833/\$10207	Yes
Allen & Heath GL3x4 Expander	8	-	6	4	2	100mm	Yes,XLR	-	\$3,470	Yes
Allen & Heath Saber Plus	24/32/40/48	8	6	4	2	100mm	Yes,XLR	10x8	\$37,000	Yes

NOTES: Prices retail inc. tax, as advised. All features & details advised by Aust. importers. E & OE. Other types available, not all importers responded. Compiled May 24th 1994. Prices will vary.

VALUE 4 BUSS MIXERS



✓ **VALUE**
PHONIC

- ✓ Sweep EQ
- ✓ Four Subgroups
- ✓ Two Stereo returns
- ✓ Seven balanced XLR outputs including groups
- ✓ Independant mono output
- ✓ Dual alternate output switchable from every channel
- ✓ Insert points everywhere
- ✓ Alps long-throw faders
- ✓ Six auxilliary sends
- ✓ **LOW NOISE**

M-1642 \$3,395

M-2442 \$3,995

retail incl. tax at 15/2/1994 (Subject to change)

From C.M.C. Call (02) 905-2511, Fax (02) 905-0189

Write in Reader Service number: 149

Daniel Cole heard trade talk that a persistent teacher from Belmore Boys High School (in Sydney) has something unique going on. He caught the bus out there, (the Connections ute broke down) and discovered

The State School Where PA is an Elective!

When I visited Belmore Boys' High I was reminded of my first encounter with....amplification and the phenomenon of the band. Put simply, we didn't care what gear we had as long as it emitted sound, and as loud as possible; finesse was still only a brand of hair shampoo.

All OUR school had was a bass amp, a guitar amp and a range of horrid guitars; we sang and played through the bass amp, put the bass through the guitar amp; we had no PA; we were (we thought) producing *high-art*, unique and special versions of songs such as 'Proud Mary' and 'Get Back' A decent PA and an understanding of how it works would have really helped.

At Belmore Boys' High that's exactly what does happen. Not only does the school own a wide range of equipment, but the learning-of-how has been built into the school curriculum. Students learn the rudiments of sound and light production, from theories of sound, to putting these skills to practical use through setting up PA equipment at dance parties and outdoor gigs, running an internal radio show, recording live music to post production. There's a lot going on.

How can this be, and *why*? were the first questions I put to Alan Smith, teacher and co-ordinator of the program. "I started teaching here in 1979 so it has been

going since then, but it's taken a long time to get to this point, and only now are people starting to acknowledge that it is an important program".

"We provide the course as an elective option for years Nine and Ten students". The syllabus was jointly designed by Alan, Cathy Gray (ex-Sonics) and Howard Page (ex-Jands) and in Alan's words "combines the theory and practice with hands on opportunities".

Interested in what theory he does teach, I asked Alan a hairy question: "The dB principle?"

"It's a tricky and complex area but I do touch on this - you have to remember that these are years 9 and 10 students, and that sort of

theory is pretty advanced - it's really scary for kids."

This is true, Oh so true, now, let's see if I remember add three times the level if the overall level seems louder than the original level of the first level....if the logarithmic deflection of thefirst.....umm.

"I focus more on what things do, power ratings, basic principles - why it does what it does, why it doesn't -these things are critical."

The course which Alan administers doesn't seem to sit in the abyss of 'yet-another-audio-engineering-course'. What is unique and indeed a credit to Alan Smith and the school, is that Belmore High co-ordinates an annual State-wide schools' band competition called YOUTHROCK. The skills and equipment learnt during the year are put to use in the facilitation of this event.

"Every year we stage YOUTHROCK; it's produced entirely by the students except for the actual production mixing where we hire an industry professional to come in. In the past we've hired people such as Phil Meltzer, Peter Waite, Gary Hall. "The event has support from local municipal shops, community groups and has interest from the industry - last year the judges included Rod Willis (Icehouse manager), Lindy Morrisson, Michael Smith (Drum Media), Brent Eccles."

Looking through the school's equipment list I was staggered at the amount of gear they had - and guess what - it's fully roadcased! I asked Alan how the school could afford such an inventory.

"Apart from basic sponsor help - which has only started to come



Alan Smith (the tall one) with some of his charges. The school has an impressive arsenal of equipment, well chosen for the task!

ROCK'ARD

**FINALLY! THE PAINT
THE ENTERTAINMENT INDUSTRY NEEDS,
IS HERE!**

- Water based
- Various textures achievable
- Touch dry in 30 minutes
- One coat only required

ALL ENQUIRIES WELCOME

Phone: (02) 550-3828
Toll Free: 008 804-994
Fax: (02) 550-6919

recently - we've had to buy the equipment ourselves, and remember, since 1979 we've been acquiring, selling, etc. But fundamentally, through providing production for municipal and school events, we've been able to slowly build up capital. Our production costs are minimal as the students set the systems up - they're not paid - so it's really the cost of transport and basic running costs that we have to bear. But we need more money, support....."

With a course like this, aren't you just building up the glamour side of the industry - what about the hours, equipment failure - basically - *the horror of it all?*

"First of all, I don't encourage my students to go out and buy PA systems and operate them - as far as I'm concerned, that's a waste of money - leave that to Jands. All I'm providing is a basic understanding of the industry, a skills-base to draw on so when they leave here they can decide where they, or if they, want to work in the industry. We have an arrangement with The PA People - who have been very helpful - to let some students work on some of their

productions, to get a taste of what it's like. I think the students' realise that it's not glamorous".

"Companies do ring up and ask if there's any good kids coming through- so people know us".

Belmore Boys' High has recently been awarded a Centre for Excellence in Audio Engineering and with it this year both Alan and the school hope to attract both corporate sponsorship and funding from the Performing Arts Unit of the Department of Education which has, so far, been remiss.

This sort of course should be differentiated from the plethora of audio engineering courses currently running: for starters, it's included within school fees for students - so it's not costing hundreds to attend, they don't guarantee work outside the course nor do they present a glamorous lifestyle. What is gained however is practical experience in set-ups and problems associated with this. To finish - the last word from Alan :

"We need more money! We've had basic support from some firms but we need more!"

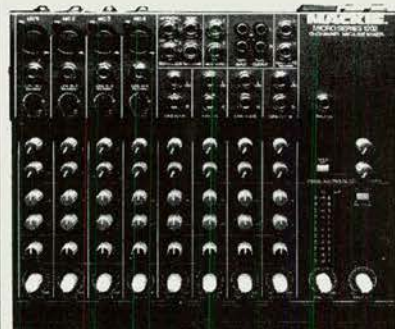
* Call Alan Smith to sponsor them- it's worthy (02) 758-2800.



MACKIE DESIGNS PRESENTS THE WORLD'S ONLY COMPLETE COMPACT MIXING SYSTEM

UNIQUE FEATURES, EXPANDABILITY, ULTRA QUIET OPERATION, AND LOADS OF HEADROOM MAKE US THE PRO MUSICIANS CHOICE.

MS1202



No pro audio tool kit should be without an MS1202.

And with the legendary headroom, freedom from noise and sound quality that have made it's bigger brother, the CR-1604, so successful..all in about 1/10 of a square meter of studio space!

Need more information?
Call or fax us today for a
FREE 24 page 'In Your Face' journal
and/or 'Application Guide'

CR-1604



The CR-1604 isn't the only rack-mount 16-channel mixer around. But it IS the only one used by world tours

such as Michael Jackson, Genesis and Bruce Springsteen. Check it out & the unique accessories including OTTC-1604 automation

8-BUS SERIES



YES, YES, YES! Now, for the first time you can get the features and sound quality that distinguish far more expensive consoles.. ..for a fraction of the price. Yes, the MACKIE 8-Bus Series have arrived!

Beware of MACKIE 'Copies & Clones' - Demand the ORIGINAL!!

MACKIE.

AUSTRALIAN AUDIO SUPPLIES - 256 VICTORIA ROAD - GLADESVILLE - NSW 2111
PH (02) 879 6124 - MOBILE 018 432 910 - FAX (02) 817 1049

The BASF Forums.

Junket? Not. It's About Communicating!

What is a **Forum**? Well there are in fact many purposes for this word but in this context it means 'a meeting to discuss topics of public concern'.

BASF Tape Forum is an international organisation with a total of 1700 members worldwide and cross pollination of knowledge within the group is encouraged, the buzz words are 'information exchange'. BASF technicians travel the world constantly, discussing various aspects (pro and con) of current and future technology.

1994 saw BASF Magnetics (Australia) host a series of Tape Forums during May in both the Hunter Valley in NSW and Sanctuary Cove in Queensland which attracted representation from various aspects of the multimedia industry. The Tape Forums gave the audio/video, recording and duplication industry the opportunity to access and assess the latest technological developments both locally and overseas in an open and friendly environment, under the guiding hands of guest presenters from Europe and the USA.

Topics discussed included the life and consistency of various green and non-green chemicals used in manufacturing and how these effect the environment as well as environmental impact on long term storage, meaning tape stretch etc. Other topics included market share and direction, an update on Digital Compact Cassette (DCC) and MiniDisc (MD), the future of the analog cassette, developments in spoken word duplication and the information Super Highway.

Hans-Jorg Musch the Regional Manager for South East Asia, based in Mannheim, Germany with BASF Magnetics GMBH, discussed the logistics involved in manufac-

turing, the utilisation of the three European plants, component supply and product demand. Statistics showed sales of the blank music cassette in Australia had declined by over 32% from 1988 to 1992 but total pre-recorded cassette production had increased over the same period indicated an astounding growth of 95% for non music or spoken word duplication in Australia.

Wolfgang Martiny, Chief Applications and Quality Control Engineer, BASF Magnetics, Willstatt Germany told the duplicators not to lower the quality standards for this spoken word market because the dynamics of voice was in fact more critical than music and this required using premium tape for duplication.

Terry O'Kelly, National Sales Director Professional Audio Video, BASF Magnetics, Bedford MA told an attentive forum audience in Queensland that the "Information Super Highway" was in fact only just 'a highway' and it wouldn't happen this century. *(We think it's a catch phrase for the linking by fibre optic cable of residences and businesses. The "Superinformation" part will be where applications get smart enough to zap information in both directions rather faster than currently possible! - Ed)*

Terry cited the extremely high start up costs and uneconomic payback periods incurred by major telephone companies in the U.S. as a major stumbling block for this technology. He also said that historically the consumer decided the fate of technology and that it would be difficult for the consumer who still can't program a VCR to take on board the technologies being touted as the Super Highway. "It will happen", Terry said, but maybe not until the turn of the century.

BASF didn't pretend to have all the answers but what did strike me is that they were there to listen to the professional users, the people that have the ability to define the requirements of the recording and duplication industry and that concept can only be beneficial to both manufacturer and user.

-Caroline Grafton.



Caroline went to the Forum BASF held in the Hunter Valley. The firm chartered a DC-3 'gooney bird' which seats 24. The classic twin-engined piston veteran warbird motored at a leisurely pace up the coast at 5,000', the captain enjoying himself immensely (below). Caroline reports the day was very productive, allowing professionals to network away from their workplace. "I got great value from attending, thank you BASF", she says.



Wolfgang Martiny and Hans-Jorg Musch (BASF)



VOTE NOW!

EntTech Awards'94

Deadline extended to July 31st!

PHONE (02) 876-3530 IF YOU NEED ONE VOTING FORM.



Ph: 018 830 393
Fax: +61 8 370 6496
PO Box 87
Kent Town
SA 5071
A.C.N. 008 188 056

ENTERLITE AUST PTY LTD
Direct Importers and Distributors within Australia for:

DHA

Moving Effects & Gobo Rotators, Animation Units, Glass Fibre Optics, Fibre Optic Light Sources 1mm to 6mm Glass Optics.

ALTMAN STAGE LIGHTING

Appointed Importer Since 1985. Lekos, Profiles, Low Volt Batts. Most accessories & spares stocked. Airlifting product regularly.

HOWARD EATON

Low Voltage Batts, Phantom Candle Modules, Lighting Accessories, ACL Batts, Candles Battery Operated.

ESKA FIBRE OPTICS

Polymethyl Methacrylate Fibres - Custom made bundles up to 350 fibres. State of the Art fibre technology with experience in MAJOR West End Theatre Productions, from concept through to fabrication & installation. Glass or 9 Colour Dichroic wheels 0.75 mm to 1.5mm.

ENTERLITE

Fibre Optic Curtains Glass/Polymer, Fibre Optic Stage Floors Flats/Sets.
Fibre Optic Curtain Rental, Custom Brass GOBOS Sourcing Gobos Worldwide.

Follow the Leader.



1200W Tungsten Selecon Chorus
Short Throw 9-16°
1000 Lux @ 17 metres



2000/2500W Tungsten Performer Quartz
Short Throw 8-14°
1000 Lux @ 23 metres



MSR 1200 Selecon Performer
Short Throw 10-15°
1000 Lux @ 39 metres



Xenon "Strong" Super Trouper
1000W-3000W
Medium Throw
1600W 6-15°
1000 Lux @ 82 metres



HTI 400 "Strong" Roadie
Medium Throw 3.5-9°
Built in colourchanger
1000 Lux @ 53 metres



MSR 1200 Selecon Performers
Medium Throw 5.5-9°
1000 Lux @ 57 metres

	CANDELAS @ 1m	LAMP	LIFE'S Hr's	1000 Lux @
STRONG				
Super Trouper	12,517,372 Cd	Xenon	1800	110 metres
Medium Trouper	7,297,648 Cd	Xenon	1800	82 metres
Roadie	3,046,550 Cd	HTI 400	250	53 metres
SELECON				
MSR 1200	3,335,175 Cd	MSR 1200	1000	57 metres
MSR1200 Short	1,512,900 Cd	MSR 1200	1000	39 metres
Quartz	520,200 Cd	CP 91	400	23 metres
Chorus	310,000 Cd	T 29	400	17 metres

For more info on Strongs range contact your Selecon Dealer.

NSW Herkes Ph: 0-2-319 3133 MacSound Ph: 0-6-778 4090 Theatricks Ph: 018-963 993

VIC LSC. Ph: 0-3-561 5255 Three Arts Ph: 0-3-618 0397

QLAND East Coast Lighting Ph: 0-7-252 9583 SA Osmonds Ph: 0-8-410 1111 GUVV Ph: 0-8-363 0454

ACT Topstage Ph: 0-6-280 5710 WA Kosmic Ph: 0-9-242 3844 Stagecraft Ph: 0-9-227 9000

TAS KW McCulloch (Hobart) Ph: 002-286373 KW McCulloch (Launceston) Ph: 003-431 034 NT Top Ends Sounds Ph: 0-89-81 7744

SELECON

Tel: 64-9-360 1718, Fax: 64-9-360 1719



LIGHTNING

MONTHLY

NEW

THEATRELIGHT CONSOLE

The major New Zealand firm expect to announce a new lighting console -the Cuemaster- at EN-TECH '94. Information we have gleaned indicates the console has some innovative features, including an optional DMX-LINK module which acts as a softpatch/master facility for more than one console. Two versions will be available, a 48 channel console, and 120 channels. More info soon!

ABSTRACT MOVING LIGHT

The Abstract PRO 212 is a fully DMX controllable moving light type creature, with either a 250 halogen lamp or a 200 MSD discharge lamp. It's got 12 dichroic colours, 12 gobo's, dimming and strobing. It can be driven by your DMX desk or Abstracts new Masterstroke controller. The PRO212 costs \$1599. Call (075) 290-688.

ABSTRACT also say the FutureScan is now available with full DMX controlling ability.

*See EVENTS this issue for details of an ABSTRACT national product release tour.

JEM SHOW FOGGER- \$599

Leading UK smoke firm JEM have built a new smoke machine just for the Aussie distributors Show Technology. The Showfogger has a 750w heater, safety trips, and remote control. Call Show Technology, 1-800-646-666.

BUDGET UK SCROLLER

Lighting Technology in the UK say the LightPaint Lite is a stripped down version of their LightPaint. "No frills", they say, meaning no fan and no speed control. They say the creature will not overheat, but avoid heavy saturated blues. And, presumably, avoid Australian club and pub gigs too! Call them on 44-81-965-6800.

ROBOCOLOUR II

Martin say the ROBOCOLOUR II will challenge the Par Can - and we can see why. At \$599 this fixture will colour change on demand, allowing a much easier setup where lots of lights or lights with separate colour scrollers are no longer required! The light output comes from a 250w halogen lamp, which wouldn't come near that of a 1000w par can, but should certainly come near to that of an older 650w fresnel.

You can control the RoboColour II from a Martin controller or via DMX with an interface.

Call Show Technology for more, 1-800-646-666.

MARTIN 3032 CONTROLLER

Martin have combined the muscle of a 486PC with their new software, and come up with the 3032 controller. It's a graphical interface for control of up to 128 Martin products, which comes with a card to enable the interface to the fixtures. Cost: \$3,600.

\$150 PHOTOMETRIC ANALYSIS

Continuing a trend whereby the firm could be seen as pre-eminent in software, Coemar DeSisti Australia offer LightShop 2.0. This program is said to give you photometric analysis data from hundreds of manufacturer's products. You can discover data relating to inturment trim height, floor distance and gel colour! Beam dia, lux at the subject and even which fixture can do the job are all calculated. Sounds cool to us. It runs on any Windows 386 or greater. Call (03) 467-8666.

SOFTPLAY - MIDI or DMX S/Ware

.... and Coemar Desisti (Aust) have Softplay, either a 24ch MIDI output system, or later in the year a 96 channel DMX system. Call (03) 467-8666.

Bits

• **MORE GOLDEN SCANS-** Channel 7 Melbourne have added more Golden Scan 3's for Man O Man and Jimeon. Supplied by Active Lighting through Lightmoves Professional Entertainment Services.

• **CANBERRA for SELECON** Parliament House have boosted vision in the committee rooms by using Selecon 2000w 10" fresnels. The fixtures aren't pointed at the action, rather the light is bounced off the upper walls. A nice softlight results.

• **ICON LAUNCH LAUDED** Theatre, TV and Touring lighting types in Sydney and Melbourne attended debut functions in May of the new LSD ICON moving light system recently acquired by Bytecraft. Connex has discovered good impressions were created. Icon is said to give the brightest beam of any moving head luminaire, has 7 static and 7 rotating gobos with varying speed & direction, and has optical features galore. Details-Bytecraft (03) 587-2555, (02) 646-5999, (07) 846-3777.

• **CUSTOM FIBRE OPTICS** A fibre optic creation for West Side Story was recently supplied by SA firm Enterlite. The system was unique in that it comprised 16 stage floor panels, designed to tour. Call (08) 270-2637.

• **SCROLLERS EXPORTED** Showcraft of Sydney have shipped more Colourset scrollers to Japan, where Theatre Engineering will use 8 way units on the Peter Gabriel tour.

• **MORE MINI ULTRA SCAN** Entertainment Warehouse in Melbourne have added more, giving them another complete TAS Mini Ultra Scan moving light system. TAS is an offshoot of Coemar, the Italian firm.

• **RICHIE MICKAN for CDA** Moving to CDA in Melbourne from BSS in Adelaide is Richie Mickan, who is said to be the most qualified person in regards to ShowCAD, a Coemar DeSisti Australia product. A new bod in Melbourne, so call him and take him our for a pot. (03) 467-8666.

• **ADELAIDE CPA go 1.2k** Selecon 1200's zoomspots were the tool chosen by the Adelaide Centre for the Performing Arts recently. They also purchased 1200w 7" fresnels too, from local dealer GUVT (SA).

• **SHOW TECHNOLOGY—** WYONG Leagues has had a huge refit done by Newcastle firm Custom Audio. Included are 16 RoboScan Pro 218's and 8 Robocolour MSD200's.

• Queensland firm Entertainment Lighting Supplies have added 4 Clay Paky Golden Scan 3's, taking their total to 8.

• 200 punters ventured to the SkyPak Lighting & Sound trade nights in association with Show Technology, held at the Roxy in Brisbane last month.

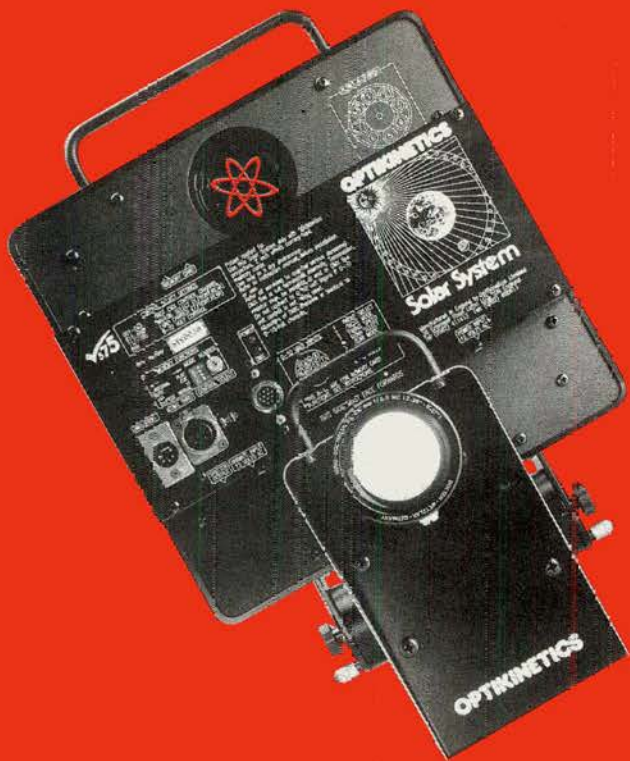
• Total Concept Productions installed four Miniscan 300's in Bankstown Town Hall.

• Black Express Light & Sound in Sydney have added 10 Roboscan Pro 218's for long term hire to the Abyss nightclub.

• Sydney rental co Lots Of Watts are first to add the Clay Paky Shadow Followspot to hire.

• Perth hire co Soundworks have bought a swag of Martin products, including Roboscan 805's and PRO 218's for their showroom and hire stock.

• DM Marketing in Melbourne supplied Bruce Ker of Disco Image with Martin gear recently.



In the design of

OPTIKINETICS

lighting equipment, the bridge between sound and vision is strengthened by the highest quality, innovation and reliability.

The **Solar 575 Effects Projector** and **Solar System**

go hand in hand to produce multiple visual effects that are continually stunning audiences worldwide.

SOLAR 575 PROJECTOR

- High powered effects projection using 575MSR lamp
- Computer precision optics
- Sound animation
- Uses 3" or 6" rotating effects **or**

SOLAR SYSTEM

- 16 interchangeable 2" effects giving inescapable visuals
- DMX or 0-10v control
- On-board memory card allows stand alone operation

Available from:

LIGHT MOVES
TECHNOLOGIES

631 Parramatta Road, Leichhardt 2040
Phone: (02) 560 0000 Country 008 807 805 Fax: (02) 568 2333

OPTIKINETICS

Write in Reader Service number: 163

RED DEVIL

POPULAR

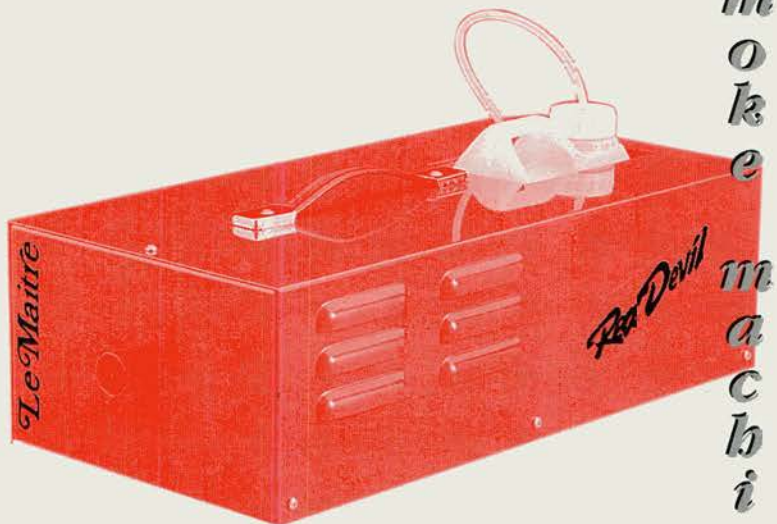
The Red Devil is a product of the Genesis Technology and is part of the Le Maître 'POPULAR' range of smoke machines. The Red Devil is ideal for mobile discos, small discotheques or any venue that needs a powerful reliable machine. Although the Red Devil is very competitively priced Le Maître has kept a high standard of components throughout the machine.

Features:

- Genesis heat exchanger - Fully modular and easily serviced with every single part being replaceable
- All new electronic sensing with unique 'Fail Safe' device
- 5 year guarantee
- Variable smoke output from Remote Control Unit as standard via simple jack socket
- Continuous Smoke Output available
- Quiet operation with thick, clean non-toxic smoke

Technical specification

Length : 430mm	Power consumption : 4.5 Amps
Height : 130 mm	Shell : All steel
Width : 210 mm	Finish : Powder coated red
Weight : 9kg (boxed)	Jack socket remote



S
m
o
k
e

m
a
c
h
i
n
e
s

Le Maître

Distributed in Australia by:
LIGHTMOVES TECHNOLOGIES Pty Ltd
631 Parramatta Rd Leichhardt NSW 2040
Phone (02) 560-0000 Fax: (02) 568-2333

Write in 152 on Reader Service Card for more info



SELECON - The NZ Lighting Manufacturer

There are 47 volcanos around Auckland, one of them on Rangitoto island last blew just 250 years ago. Today this island is one of many in the Hauraki Gulf, and standing on crushed volcanic rock pathways beneath the forest canopy you can look over the bay to the city. Over the hill is Grey Lynn, that's where you find Selecon.

It's been a long road for Selecon, the New Zealand based makers of theatrical luminaires, I remember Managing Director Jeremy Collins traipsing around Australia in the late 1970's trying to overcome a perception that his firms product couldn't push light downhill with a tail wind. The falacy soon proved just that, with Selecon gaining general market acceptance in the 1980's and becoming market leaders in the 1990's.

Born from the punative tarrif protectionism of the dark old days, and fuelled with cheap energy and aluminium, the firm today is world competitive, exporting the majority of production to Asia, Australia, and Europe - where exciting gains have been made. "We grew 17% last year on the strength of Eu-

rope", says Jeremy. The domestic economy in NZ has got going again recently too, which helps.

In fact New Zealand today is something of a surprise, downtown Auckland is actually quite cosmopolitan compared to last time I called in, and boasts things we don't have in Australia - one of which is a monster huge store called Mega Mags. Then the other great thing that impacts as soon as you arrive in the islands some rightly call the most beautiful place on earth, are the Polynesian influences. But I digress.

Selecon Direct is a new direct marketing program in New Zealand. It illustrates that small niche markets cannot carry inefficiencies, in this case New Zealand doesn't have enough volume for lighting dealers to sit between selecon and the end user. This is not an unusual approach, other lighting manufacturers sell direct in other markets, offering dealers a token discount. "Dealers need to add value", says Jeremy, "but we certainly have no plans to sell direct into Australia".

Dealers have been the backbone of Selecon's success in Australia,



but whereas they seem to have settled into territorial areas in the past, they need to expand their turf, warns Jeremy. "We've never granted sales territories". The firm is very good at marketing, and I gain the impression they see dealers in places other than Australia running successful marketing campaigns and selling creatively via toll free phone numbers and seminars. Dealers need to add value. That is an echo, echo, echo. One heard increasingly in niche industries where full margins for distributors and dealers alike stifle sales.

Communication and support are vital when dealing with non English speaking export markets, so Selecon are investing heavily in some 3D graphics that will be used to illustrate a forthcoming new range. The results are impressive, and move towards totally illustrating the benefits and performance of the new fixtures, so that the written (English) word is secondary in selling the thing.

I visited Selecon at a good time to see the strengths of the place, because the new range - to be

launched at ENTECH '94 - is almost in production. Andrew Nichol, a partner in the firm, was in the optical lab with a test jig. He was working those eternal combinations of lens, optical train, lamp and reflector vs. beam spread, output and consistency. An optical modelling program devised by a physicist - Dr. Storey - who is Selecon's consultant in optical development, plots the 'what-if's' of lamp placement and design, giving light output at any place inside and outside the 'train'.

With the ability to test and manipulate any lamp/lens/reflector combination, and accurately determine the result, the firm have in recent years turned their attention to style and function of their products.

Utilising aluminium extrusions is a major advantage for manufacturers. The extrusion die, once made, allows you to order your extrusion by the metre, and in Selecon's case, as little as 500kg at a time! There are literally dozens of different extrusions used by the firm, the most impressive for the performer followspot range. In





fact, the aluminium extrusion people in NZ say it is the most sophisticated extrusion yet managed by them.

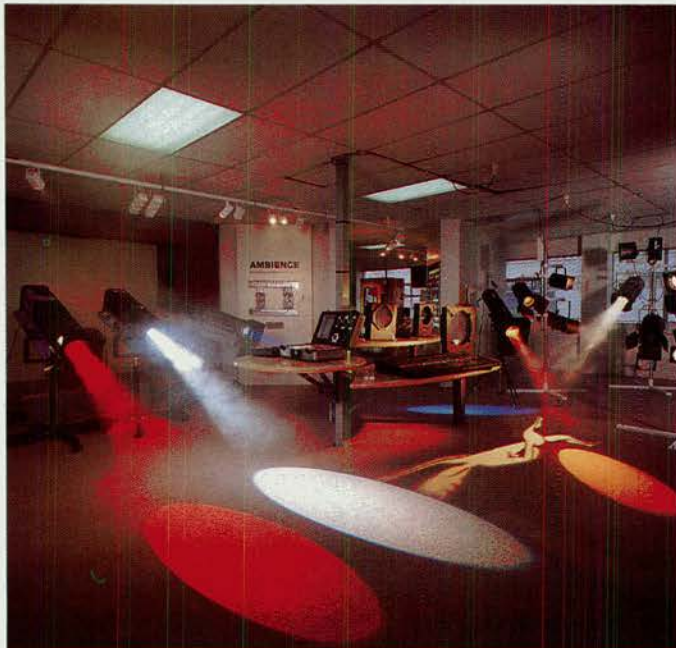
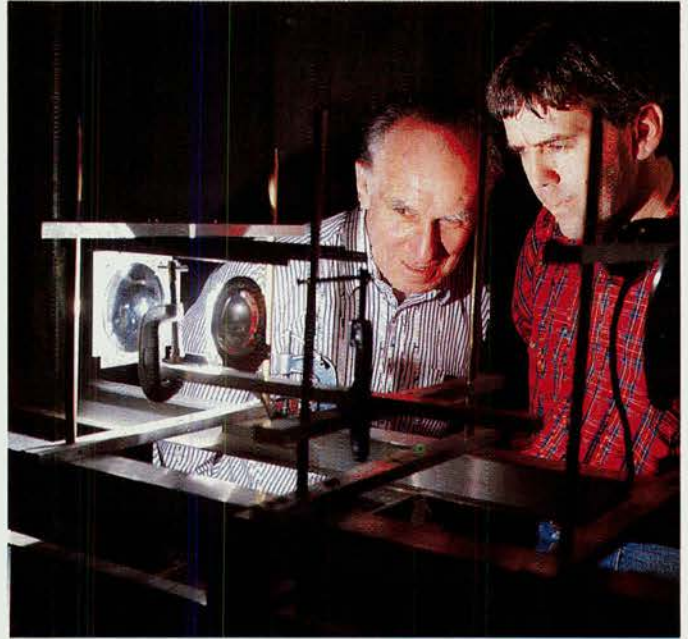
Selecon also have gotten around a major bogie for any small manufacturer - sheet metal work. This is notoriously difficult to get on time, and to get right, with every hole, slot and fold in the right place. Because selecon deal in far greater volume relative to someone who makes - say - amplifiers, they seem to have good continuity from several vendors.

The amazing thing about touring the selecon plant is the stock warehouse. Not. There isn't one! Production Manager Brian Champion presides over a very slick 'just in time' system. Material is delivered as required, products are built and shipped to order. Runs are reasonably short. Dealers would or may complain about this, but Selecon has traditionally worked this way. Larger Aussie dealers like Herkes in Sydney try to hold floor stock, and in fact its part of their obligation as a Selecon dealer. The firm doesn't appoint dealers very often these days, and at least one dealer once sold his dealership partly due to the implied value of the Selecon agency.

There is some stock over at the consumables sales area, Rainbow colour scrollers, which Selecon distribute in the region, and some Rosco products, for which Selecon are the New Zealand agents. Add in lamps, Gobo's, dimmer racks by Dynalite, and Jands lighting desks, and you've got a pretty impressive 'direct' retail stock and showroom for the New Zealand market.

A modest hire department also serves to draw in direct business, and gives the firm some direct customer feedback, which also comes via travelling sales guru Simon Garrett, who handles Australia, and newly appointed Graham Eales, whose turf is Asia. Jeremy handles sales to Europe, and as I visited he was preparing for a three week trip away, less appealing these days due to his two small children and wife at home, who as any business traveller can tell you, are sorely missed while you travel.

The next wave of Selecon product will cement the firms reputation in the theatrical market, and truly worry the competition in Europe. The challenge for Selecon is matching supply and demand, something I feel they worry about at night - but so do all manufac-



turers. It's rather better to build to a slew of back orders than to contemplate a warehouse stuffed with stock! In Selecon's favour is the ability to run extra shifts without too heavy a labour penalty, because workplace reform is a reality in New Zealand.

Selecon is a hive of activity. Foreign exchange rates are plotted hourly, international shipments are planned and despatched, equipment is hired, sold and specified into the local market, sold to Australian dealers in Australia, dollars, built, assembled, checked

and packed all to a master plan, devised from years of experience. It's efficient, lean, but not mean. Hats off! •

- Selecon are at 26 Putiki Street, Grey Lynn, Auckland. Call 64-9 360-1718, Fax 64-9 360-1719.

Julius Grafion travelled to New Zealand on ENTECH '94 business recently and wrote this profile whilst there. Photographs supplied courtesy of Selecon.

Buyers Guide

Profile Spotlights

Product Name	Watts	Lamp type	Beam Angle/s°	Typical Throw:m	Weight	Length mm	Width mm	Height	Frame Size	Price EX TAX	In stock?
Prolite PR5-ZPM	500/650	T25/T27	16 - 27	6 - 12	6.5	635*	228	282	155	\$348	Yes
Prolite PR6-ZPM	500/650	T25/T27	16 - 27	6 - 12	7.8	655*	228	282	155	\$393	Yes
Prolite PR5-ZPW	500/650	T25/T27	26 - 40	4 - 10	5.6	515	228	282	155	\$348	Yes
Prolite PR6-ZPW	500/650	T25/T27	26 - 40	4 - 10	6.8	535	228	282	155	\$393	Yes
Prolite PR10 - ZPM	1000/1200	T19/T29	16 - 28	8 - 20	7.8	730	253	360	183	\$553	Yes
Prolite PR12 - ZPM	1000/1200	T19/T29	16 - 28	8 - 20	11.8	730	253	360	183	\$609	Yes
Prolite PR10 -ZPW	1000/1200	T19/T29	26 - 40	6 - 16	7.3	630	253	360	183	\$553	Yes
Prolite PR12 -ZPW	1000/1200	T19/T29	26 - 40	6 - 16	10.6	630	252	360	183	\$609	Yes
Prolite PR22 -ZPM	2000/2500	CP72/94	16 - 28	20 - 40	12.5	830	252	360	183	\$725	Yes
Prolite PR22- ZPW	2000/2500	CP72/94	26 - 40	12 - 25	11.6	730	253	360	183	\$725	Yes
Teatro Comma 16/28	650	T27	16-28	5-13	4.6	560	365	150	103x145	\$440	Yes
Teatro Comma 22/35	650	T27	22-35	3-9	4.4	500	365	150	130x145	\$440	Yes
Teatro Comma 37/48	650	T27	30-45	3-9	4.7	420	365	150	103x145	\$500	Yes
Teatro Comma 26	650	T27	28	3-9	4.5	420	365	150	130x145	\$400	Yes
Teatro Tratto-2 15/28	1000/1200	T19/T29	15-28	6-20	12.7	835	285	210	165	\$1020	Yes
Teatro Tratto-2 22/40	1000/1200	T19/T29	22-40	4-16	11.9	740	285	210	165	\$1020	Yes
Teatro Tratto 2C 9/18	1000/1200	T19/T29	9-18	6-28	12.6	860	285	245	165	\$1350	Indent
Teatro Tratto 2C 19/42	1000/1200	T19/T29	19-42	4-16	11.7	740	285	245	165	\$1350	Indent
Teatro Tipo 15/28	1000	T19	15-28	6-18	12.2	830	354	226	165	\$910	Yes
Teatro Tipo 22/40	1000	T19	22-40	4-12	11.3	738	354	226	165	\$930	Yes
Teatro Acuto 9/15	2000	CP72/CP79	9-15	10-40	24.8	1142	365	290	245	\$1860	Demo
Teatro Acuto 12/22	2000	CP72/CP79	12-22	10-25	22.8	1010	365	290	245	\$1750	Demo
Teatro Acuto 19/32	2000	CP72/CP79	19-32	5-18	20.8	776	365	290	245	\$1730	Demo

Introducing the new CCT 650watt Followspot that thinks it's a 1K..



The Minuette 6>10 degree variable Pursuit Follow Spot is the ideal unit for small venues, schools, and clubs and is packed with features such as built in Iris and blackout with the lever beneath the unit for ease of operation, and four beam shaping shutters. The side and rear operators handles can be user adapted to left or right handed operation and the Pursuit has Quadrant friction balancing for steady operation.

The CCT Minuette Pursuit Follow Spot is the smallest and for its size the most efficient Follow Spot available. The 150mm front lens coupled with condenser optics ensures 216,000 peak Candelas at 6°. In practical terms that's a good spot of light at 1/4 kilometre.

That's fantasticthat's CCT for you!

See the CCT range of lights at your dealer now

for further information contact
 ROSCO AUSTRALIA PTY LTD
 P.O.BOX 873, ARTARMON, NSW 2064
 PH: (02) 906 6262 FAX: (02) 906 3430

Write in Reader Service number: 138

HECTIK

Melbourne's Most Affordable Lighting Company!

We hire everything you'll ever need in lighting, from the basic smoke machine to the latest moving light technology.

TOURING SYSTEMS A SPECIALITY

AGENTS FOR LSC  EQUIPMENT

Call Tony:

Telephone: (03) 827 9036

Mobile: 018 378 047

Repairs & Installation of all Lighting Equipment, and Manufacture of COMPUTERLIGHT Patching Systems & Electronics by SJT Electronics

24 Wilson Street
 South Yarra 3141
 Victoria, Australia

JAMES REYNE • PAUL NORTON • LORNE (NYE) • CHARLIE PRIDE

• THE SHARP • TOYOTA • KODAK •

ELECTRIK

Product Name	Watts	Lamp type	Beam Angle/s°	Typical Throw:m	Weight	Length mm	Width mm	Height	Frame Size	Price EX TAX	In stock?
Selecon ZS1200N	1000/1200	T19/T29	8°-16°	8-20	14	1030	270	214	185	\$935	YES
Selecon ZS1200M	1000/1200	T19/T29	18°-34°	8-16	12	745	270	214	185	\$825	YES
Selecon ZS1200W	1000/1200	T19/T29	24°-40°	7-14	12	745	270	214	185	\$825	YES
Selecon Arena 8/16	2000	CP72	8°-16°	10-30	19	950	350	290	306x275	\$1620	YES
Selecon Arena 16/32	2500	CP91/92	16°-32°	8-25	15		350	290	245	\$1480	YES
Selecon Arena 16/32	2000	CP72	16°-32°	8-20	15		350	290	245	\$1350	YES
Selecon Arena 22/40	2500	CP91/92	22°-40°	7-25	15	800	350	290	245	\$1480	YES
Selecon Arena 22/40	2000	CP72	22°-40°	7-20	15	800	350	290	245	\$1350	YES
Selecon Arena 8/16	2500	CP91/92	8°-16°	10-35	19	950	350	290	306x275	\$1740	YES
Selecon Acclaim Zoom	650	T27	18°-34°	6-12	3.9	500	190	170	125	\$432	YES
Selecon Acclaim Zoom Wide	650	T27	24°-44°	4-10	3.9	500	190	170	125	\$432	YES
Accent Profile Intergral	50/75	MR16	28°-45°	2-5	2.2	297	83	73	60	\$330	YES
Selecon Accent Profile	20-75	MR16	28°-45°	2-5	0.95	243	83	73	60	\$280	YES
Coemar Accento 16/30	500/650	T25/T27	16°-30°	3 - 9	4.4	500	365	380	130 x 145	\$525	Yes
Coemar Accento 20/35	500/650	T25/T27	20°-35°	5 - 13	4.6	560	365	380	130 x 145	\$525	Yes
Coemar Centro	300/500	M38/M40	25°	3 - 12	3.5	390	195	260	85x90	\$586	Yes
Coemar Centro HQI (& ballast)	150	HQI-150	25°	3 - 16	3.5 & 3.6	390	195	260	85x90	\$687	No
TAS Profile 15/28	650/1000	T21/T19	15°-28°	6-17	11.2	830	355	408	165	\$785	Yes
TAS Profile 22/40	650/1000	T21/T19	22°-40°	4-11	10.5	740	355	408	165	\$795	Yes
Strand Quartet 22/40	500/650	T18/T26	22°-40°	4-10	4.8	474	243	288	150	\$342	YES
Strand Quartet 25	500/650	T18/T26	25°	4-10	4.4	424	243	288	150	\$269	YES
Strand Prelude 16/30	650	T26	16°-30°	4-16	6.5	525	230	270/340	150	\$442	YES
Strand Prelude 28/40	650	T26	28°-40°	4-16	6.3	435	230	270/340	150	\$442	YES
Strand Cantata 11/26	1000/1200	T19/T29	11°-26°	5-25	12.8	812	300	420	185	\$784	YES
Strand Cantata 18/32	1000/1200	T19/T29	18°-32°	5-25	12	672	300	420	185	\$784	YES
Strand Cantata 26/44	1000/1200	T19/T29	26°-44°	5-20	11	582	300	420	185	\$784	YES
Strand Alto 8/16	2000/2500	CP91/CP92	8°-16°	15-35	17	1045	360	460	245	\$1648	Indent
Strand Alto 14/32	2000/2500	CP91/CP92	14°-32°	10-25	17	995	360	460	245	\$1648	Indent
Strand Alto 20/38	2000/2500	CP91/CP92	20°-38°	7.5-20	16	805	360	460	245	\$1648	Indent
Strand Leko 15	1000	CP77	15°	15-20	6	680	300	340	190	\$445	Indent
Strand Leko 20	1000	CP77	20°	14-18	5.8	565	300	340	190	\$445	Indent
Strand Leko 30	1000	CP77	30°	12-14	5.6	535	300	340	190	\$445	Indent
Strand Leko 40	1000	CP77	40°	10-12	5.6	475	300	340	190	\$445	Indent
Strand Leko 50	1000	CP77	50°	8-10	5.4	435	300	340	190	\$445	Indent
Strand Optique 8/17	1000/1200	T19/T29	8°-17°	5-20	12.6	755	240	300	185	\$864	Indent
Strand Optique 15/42	1000/1200	T19/T29	15°-42°	5-20	12.6	648	240	300	185	\$905	Indent
Altman Leko 6 x 9	1000	CP77	37	10	9	457	325	406	185	\$416	YES
Altman Leko 6 x 12	1000	CP77	26	12	9	410	325	406	185	\$416	YES
Altman Leko 6 x 16	1000	CP77	19	14	9	558	325	406	185	\$416	YES
Altman Leko 6 x 22	1000	CP77	11	16	9	762	325	406	185	\$416	YES
Axial1KL-6	1000	CP77	To order	7-18	12	558	431	482	190	\$594	YES
1KL20402	1000	CP77	N/A	N/A	12	660	431	190	190	\$777	Yes

NOTES: ASK if price includes LAMP, Mains Plug, Safety chain: Some do, some don't.

Distributors: PROLITE- Prolite Manufacturing P/L. STRAND-Bytecraft. SELECON-Selecon NZ. COEMAR-Coemar DeSisti Aust.

TEATRO-Lightmoves Technologies. ALTMAN-Enterlite Aust.P/L



21 QUEENS AVE, HAWTHORN 3122

03 819 6912

HIRE DESIGN & PRODUCTION FOR CONCERTS, PRODUCT LAUNCHES, DANCE PARTIES & SPECIAL EVENTS.

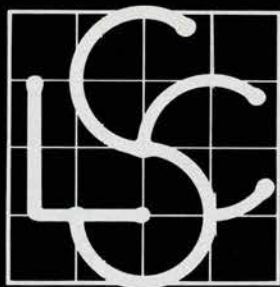
Latest Equipment Available Includes :

M.A. SCANCOMMANDER

GOLDENSCAN & TRACKSPOT MOVING LIGHTS

THEATRELIGHT & JANDS DESKS

DYNALITE PRODUCTION SERIES MULTIPATCH SYSTEMS.



AXIOM



The Rules have been changed

*The most technically advanced,
user - friendly control system in its class.*

- Proportional Soft Patching
- On-line Help at the Touch of a Button
- LTP Control
- Chaining of Chases & Stacks
- 80 Character LCD Display, Edit Wheel & Function Buttons
- Features once only available on major consoles are now affordable!

Detailed Specifications

- Available in 12, 24 and 36 channel models

Channels - Normal Mode	12	24	36
Channels - Wide Mode	24	48	72
Scene Memories - 12 pages	144	288	432
Total Memories	1022	1022	1022
Scene Masters	12	24	36
Chases - 99 steps per chase	12	24	36
Stacks - 99 Cues per stack	12	24	36
Sound-to-Light setups	12	24	36

- Proportional softpatching - 4 patches - multiple dimmers per channel allowed
- Crossfade or snap steps on individual chases
- Stack cues can be linked with face times
- Chases and stacks may be chained
- Channel selection for Highest-Takes-Precedence or Last-Takes-Precedence (for colour changes and moving fixture control)
- Timing Fader with View/ Ride facility
- 20 character by 4 line LCD with edit wheel and six function buttons ensuring easy operation
- Help button with readout on LCD
- 3 preset masters - A, B and Grab

- 2 effects playback masters
- Grand Master with DBO button
- Add/Kill master with mode button
- Isolated DMX512/1990 output signal
- MIDI In/Thru/Out
- RS232 serial port
- Universal power supply - 80-240V 50/60Hz
- Attractive slim case

Options

- 3 1/2" PC compatible floppy disk backup unit
- Analog outputs
- Gooseneck desk lamp

Specifications are subject to change without notice.

L.S.C. Electronics Pty. Ltd. Melbourne, Australia
Ph: +61 3 561 5255 Fax: +61 3 561 5277

*Contact us for your
nearest Agent*

L.S.C. America Inc. Tennessee, USA
Ph: (615) 922 2234 Fax: (615) 922 5414



Peter Kemp

Pro Audio Light & Music China 94

A repeat of the 93 show in Beijing, though this year organised by another company (*in fact the company responsible for the Singapore show, forthcoming in July*). This years show took up more space than last year with an increase of around 20%. This year the show was heavily patronised by the Italian manufacturers with a trade mission organised jointly by APIAD and The Italian Trade Commission. Italian companies that took part in the trade mission: Bestlight, CP&P, Coef, Fal, Lampo, La Novalight, LED, SG M, Space Cannon and Spotlight. Other Italian manufacturers choose to support their local distributors stands rather than exhibit in their own right, as did a number of other International manufacturers. In addition to the Italian pavilion the UK also organised a group of manufacturers including: AC lighting, Arri, Lighting Technology, Light Processor, Celestion, Citrons and Carslbro.

Compared to last year there was an increase in locally produced product with the additional area purely catering for this. Famous for copying the Chinese excelled themselves this year with a number of copies of the Martin range of moving lights. This is certainly not surprising as last year I viewed a Golden Scan copy, however in copying the Martin product they have perfectly duplicated the product using the Martin product name and number and in fact on some products it even says "made in Denmark"!

Because of the predominance of the copies and their exact duplication I am sure Martin will not leave this matter to rest. Hopefully something can be done in this regard as it is in all manufacturers interest to cull such blatant activity. Other interesting Chinese tricks were the use of Coemar Microscan catalogue photographs for a similar Chinese product, and the best yet - a Chinese manufacturer of theatre control equipment who's catalogue

(continued over)

USITT/PLASA DMX512 Usage Project

I have recently joined the USITT/PLASA DMX512 USAGE PROJECT in order to keep up to date with what is happening re DMX512.

The project is a joint association between USITT and PLASA with USITT responsible for North America and the Pacific Rim (including Australia, New Zealand and the Far East) whilst PLASA will be responsible for Europe (including Scandinavia and countries outside the European Community) and the Middle East. Initial information sent out to participants includes: DMX512 - A guide for users and installers written by Adam Bennette, and it is good to see that Adam Bennette has listed people who assisted which includes Gary Pritchard from LSC. (DMX512 compatible enhancements proposal 19 Jan. 1989 revised 17 April 1990 written by B Rodriguez.) One change to DMX512 needed to ease use of multiple start codes by Goddard Design (the manufacturers of the Lil'dmxter).

One of the task of the project is the registration of DMX start codes. In the DMX 521/1990 specification, the normal NULL START code is defined as a properly framed NULL character following a reset, however provision is made in the specification for up to 255 additional start codes, but these are not allocated in the specification for any particular purpose. The START CODE also referred to as Mode byte, Type code, header byte or Packet header is used to indicate that the following information is of a particular type ie: for dimmer level data this byte is value zero, indicating the following bytes are dimmer levels. The other 255 different possible start codes are not defined, although some have been reserved, and are sometimes used by various manufacturers to send additional information unique to their product. Future enhancements to the DMX specification will use alternate start codes, for instance error checking and talkback or to send data other than levels. The coordinating and registration of start codes is a major task being taken on by

the project, thus eventually a strict formulated procedure for registration and hence recording of start codes is being implemented. And this information will be available for users of DMX equipment and will be published in a booklet known as the USITT/PLASA DMX512/1990 Code list. Updates will be published in Lighting & Sound International magazine and the USITT publication as they become known.

The articles included as initial information (mentioned previously) make extremely interesting reading for those interested in DMX512 and in particular the publication DMX512 A guide for users and installers should become mandatory reading for all users of DMX512. I am sure that a joint operation such as this project will certainly help to provide coordi-

nation and unity throughout the world and hence finally all the industry will benefit from the efforts of this project. It is planned that at all major international exhibition that the interested parties will meet to transfer information and discuss other matters relating to the usage of DMX512. Should you wish to become involved in the project then you can contact either USITT or PLASA associations. As further information on tasks the project is addressing becomes available I will keep you informed via my column.

Well it has been said many times that we need better communication protocol then DMX 512, however perhaps this project will eliminate the need for a new protocol and encourage further use of DMX512. •

Peter Kemp heads Coemar (Aust)

LET THERE BE ICON

POWER BEYOND IMAGINATION

BYTECRAFT
Pty Ltd ACN 008 348 054
Victoria: (03) 687 2555
NSW: (02) 646 599
Qld.: (07)846 3777

Icon has arrived. A performance lighting concept so powerful, so creative and so flexible, its only limit is your imagination. A unique, integrated system, developed to give the world's finest lighting designers the ultimate in control; a system so advanced, its capabilities are still evolving, yet so easy to operate, it will astound you; a system that even includes the option of programming from a Macintosh.

Let Icon take your imagination into a new dimension.

Icon has arrived. Step out of the darkness, into the light.

CHINA TRADE SHOW

(Continued)

talked of a recent trip to the USA to visit Colourtran and also their meeting with President Clinton. This was fine however they included a photo of their owner meeting with Clinton, the only problem the photo was of somebody other than Clinton!

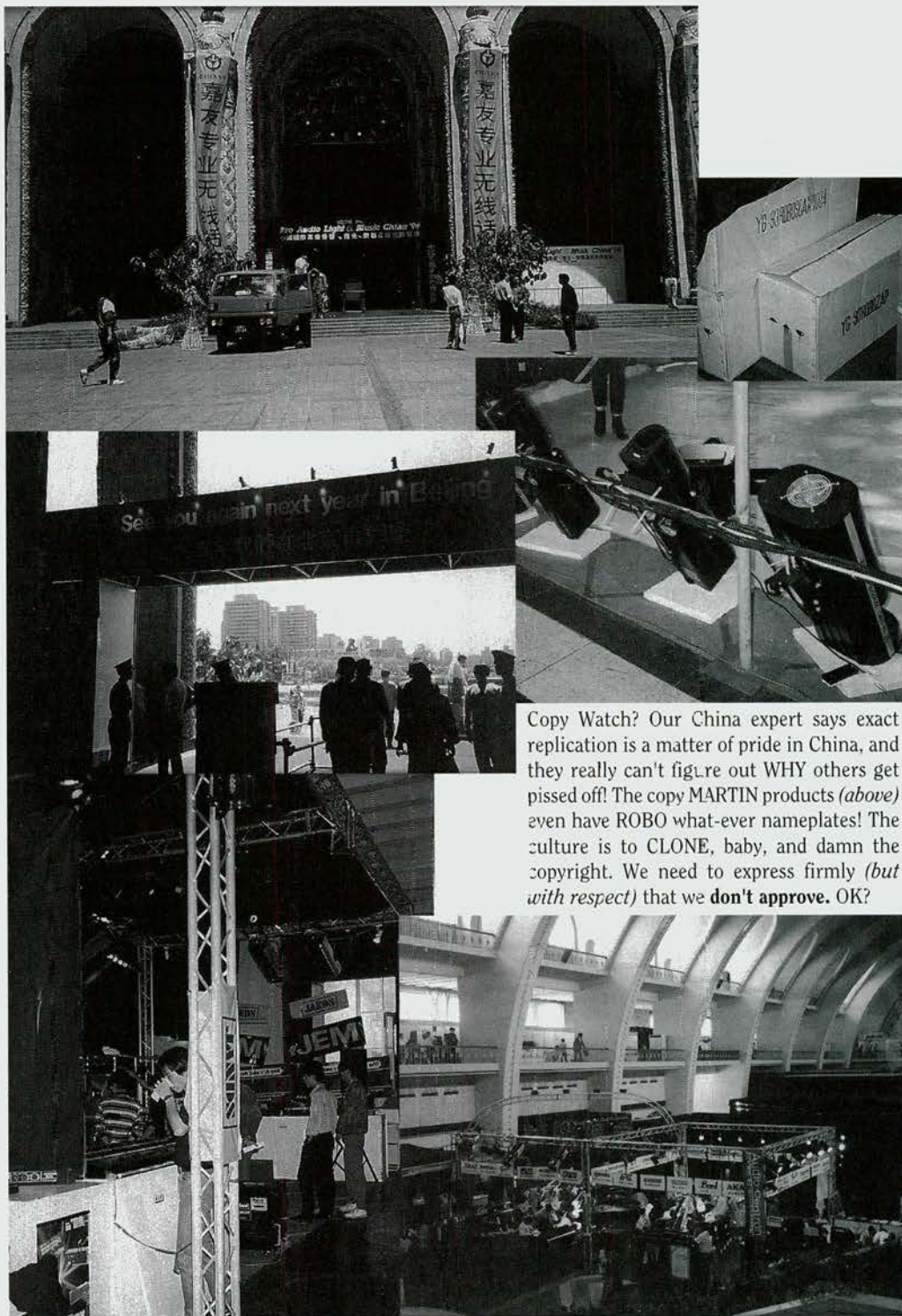
It was good to see a number of Australian products represented with ARX prominent on Pacific Audio Supplies stand and Jands lighting and audio products on ACE, with Doctor Light Mike Tanner supporting the product. Connections Entech '94 trade show took a full page colour advertisement in the shows exhibition guide, hopefully this will result in some patronage from this part of the world for Entech '94.

The show was well attended over the first 2-3 days however the last couple of days were down on attendance (surely 3 days is sufficient even in China). Many of the recent new products were shown including: Clay Paky Superscan Zoom, Coemar NAT TM1200 & NAT PC1000, High End Cyberlite and Status Cue console, though I actually never saw the Status Cue actually operating for some reason!

Once again anybody offering colour literature was bombarded and after inquiring with some locals I found out that Beijing has some 83 Universities and a lot of the people attend the show to collect material for their University projects. Interesting enough their is another show only 5 days later in China, however this is for the Broadcast industry, information re another show just like Pro Audio Light & Music was also mentioned in Shanghai in August. The next Pro Audio Light & Music show is May 6-9, 1995.

-By Peter Kemp.

Beijing Pictorial



Copy Watch? Our China expert says exact replication is a matter of pride in China, and they really can't figure out WHY others get pissed off! The copy MARTIN products (above) even have ROBO what-ever nameplates! The culture is to CLONE, baby, and damn the copyright. We need to express firmly (but with respect) that we **don't approve**. OK?

Lots Of Watts

Everything in Sound & Lighting: Hire, Sales, Installations and Service

Lots Of Watts Pty Ltd (ACN 055008314)

47 Brodie Street Rydalmere NSW 2116 Call (02) 638-0302, Fax (02) 638-0331

**SUBSCRIBE and
SAVE UP TO
40% - ... and get
your very own
copy - FAST!**

Connections

I'll take *12 months (10 issues) for \$29.50 and save 25%. (Australia only)

AUTOMATIC RENEWAL: Charge my creditcard below to renew in 12 mths.

I want to save even more: 24 months: 20 issues **SAVE 40%**! Pay only \$47.40!

Cheque/draft attached Postal Order **INVOICE** the company below.

Bankcard Visa Mastercard ▼

Card Number:

Expiry Date:

Cardholders Name:

Signature:

INTERNATIONAL SUBSCRIBERS:

See Publishers Panel for international rates.

Above rates AUSTRALIA ONLY.

**IF CREDITCARD, PUT IN ENVELOPE TO
PROTECT DETAILS. Address to: CONNECTIONS,
FREEPOST 9, EPPING NSW 2121 AUST.**

Name

Company/Organisation

No. & Street

Suburb

City

Postcode

State

**PHONE (02) 876-3530 for
instant telephone subscription**

Pay only \$2.37 for this magazine!

**A Connections
Subscription costs up to
40% LESS than the cover
price - and you get your
own copy FASTER!**

**This Subscription
could be TAX
DEDUCTIBLE!**

No stamp
required.
Postage Paid
if mailed in
Australia

Connections Publishing Pty Ltd,
SUBSCRIPTIONS DEPT,
Reply Paid Permit # 9,
EPPING N.S.W. 2121

SAVE up to 40% by using this
freepost card to **SUBSCRIBE!**



MULTIMEDIA

VIDEO & A V WORLD

* VISION, VIDEO, COMPUTERS & THE BIZ. (Is that enough?) A Bi-Monthly Feature

NEW MELBOURNE LIVE VIDEO CO

Videoflex are a new firm offering multi camera event broadcast and recording for the 'small to medium budget'. **Christian McGowan** is the contact, the firm have a neat OB facility that comes racked up in portable racks on wheels, and includes up to six cameras. They can provide large screen projection too.

• Contact: Phone (03) 696-7288.

MUSIC VIDEO'S 'AT COST!'

A Sydney firm which to date has produced TV commercials, corporate videos and current affairs material, have gotten a strong desire to do 'something different'. **Philip Roberts**, director of Filmbid, says "what happens when you get three technically minded and creative people who are pissed off with only producing TV commercials is a strong desire to do productions that are innovative, mind-blowing and different!" (*Yo, we know what you mean, Philip, we here at Connections would dearly like to branch out into something different too, perhaps producing TV commercials?*)

Anyway, Filmbid say they might make your video cheap, because they want a portfolio. New art director **Jason Webb** is a (dreaded) music, while **Alana Boniface** will keep the project on the rails in her capacity as Prod. Co-Ordinator. Call her on (047) 35-2836 if you are ready to VID!

MINIDISC M.O. DRIVE COMING!!!!

SONY say prototypes are with hardware firms now, anyone who stores data (don't we all) cannot wait until the \$15 Mini Disc is geared up to take 120MB+ from your PC or Mac. We here use clunky Syquest cartridges, which cost us about \$1.70 per m/b to buy. An MD will cost 12c per meg, and be a most indestructible!

NEW SALES ENGINEER AT AMBER

Ian Ingleton is the new AVID expert at Amber Technology. Ian spent fourteen years at the somewhat turbulent Apocalypse, so has the goods. He's also a qualified electrical engineer. Call Amber Broadcast on (02) 975-1211.

ON THE SET



Home & Away

Catriona Forcer & Caroline Grafton report on How It's Done!

LIGHTS, CAMERA, ROLL TAPE MOBILE PHONES, TWO WAY RADIOS, HEAPS OF REFLECTIVE POLYSTYRENE, AND TWO HOURS LATER WE HAVE A CUT CHECK, A SIGH OF RELIEF AND 17 SECONDS OF USEABLE FOOTAGE IN THE CAN.

Channel 7's hit soapie 'Home & Away' is screened all over the world acting as a flagship for Australian television. With five twenty minute programs (deducting commercial breaks) screened every week, the technical crew have to be precise having little time for rehearsal. Episodes are filmed six-eight weeks ahead of air time.

Connections magazine was invited to both a studio and a location shoot to see just how the program is produced. Our guide was lighting director Paul Wootton who we met on location. Paul worked for several years on A Country Practice transferring to Home & Away when the series came to an end and was relocated to Victoria.

The shoot was in and around a hotel in Windsor notorious as a biker hangout. The bikers in this episode were locally hired guys who were required to act in a few scenes much to the amusement of their mates who offered

helpful advice like 'don't scratch your goolies when you come out of the door' or 'slip it to her', but in less defined pronunciation. There was also a female biker used in the scenes who fell victim to many unprintable comments. With the addition of Thursday late night shoppers, it was an interesting crowd of spectators that gathered around the hotel.

The front facade, internal bars and the back car-park of the hotel were to be used for filming. The crew began the set up at about 2.30pm ready for the first shoot at 6pm. The four scenes, totalling only a few minutes of screen time, took until midnight to shoot. Fortunately for the crew there were two generator trucks available, so they didn't have to keep striking down everything from one spot to the other. The trucks each house a 45 KVA generator and other trucks included a grip truck, a truck for the dolly as well as mobile dressing rooms and catering van. The generators supply ample power for this kind of location shoot although on a night shoot like this one Paul does have to bear in mind that there is a limit to the amount of lights that can be run as well as keeping a constant eye on fuel consumption.

(please turn the page)

Generally a full tank of fuel in the generator will run power for days and it's the lighting crew responsibility to check on the consumption. The power that night was almost being used to it's limit with Paul using one 4Kw HMI, three 2.5Kw HMI's, two 2K's inside the hotel, four 800 watt plus a 1250 Kw HMI.

"We've got one guy setting up over there (in the rear car park) whilst two of us are over here (the front facade) and it just saves so much time because the schedule is so tight," explained Paul. "Time is the essence of the whole thing".

Paul explained the complexities of lighting on location and how to trick the camera. "Outside, just for general filming, it's all HMI lights. The camera is then balanced to tungsten light for night shooting. Cameraman John Abbott adjusted the F-3 Hitachi camera to recognise tungsten as white light and then I have a reference point. So then, any light I have spilling outside from within the building will be white light and any light outside will be blue. If it's too blue, I can put an orange filter on it to make it not so blue. That's just where I start. With tungsten you can just add or subtract which ever colour you feel it needs." If the director and crew feel they can get away with one camera on a shoot it is always the alternative opted for.

Paul was assisted by Rob Miller and William Hebden on this particular night, although normally there are only two lighting crew. On night shoots a third guy is generally needed as the crew need to work fast. Rob is actually a freelancer contracted to Channel 7 as they have so much work on at the moment and no spare guys. "Your assistants are really important in and out of the studio, as you have so many things going through your head anyway, you always welcome their input. It's not a case of whatever I say has to happen."

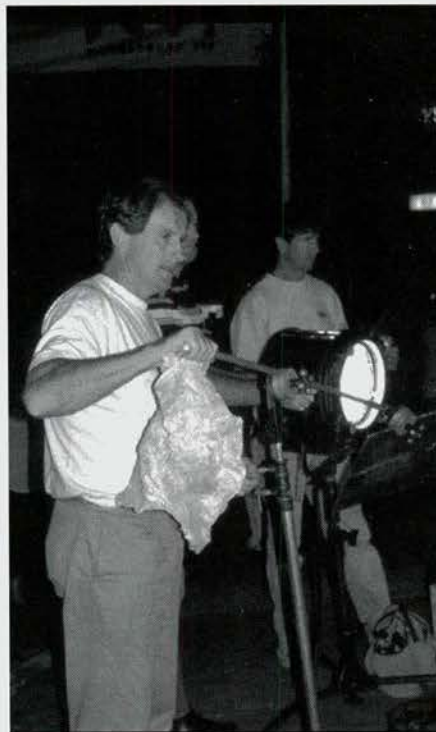
It is important that the directors know what they want before they arrive at the location shoot rather than rely on editing later. This is something that is possible for them to do after years of experience in the field. If a scene has to go to too many takes, the actors tend to become too staid and the freshness is lost. "A lot of the end result depends on how the director wants to direct it," said Paul. "I've worked with tonight's director Chris Martin Jones for years and we know each other quite well. What camera angles he wants, what shots he wants to take, etc. I must admit I like outdoor shoots because there's only one camera and so you're only lighting from one angle, whereas in the studio you have to light for three cameras and there are two booms. It's a bit of a compromise as there's myself doing the lighting, booms, directors everyone trying to achieve their little thing. We all have to work together and fortunately we're a harmonious crew here at Channel 7. We get the job done with the minimal amount of fuss".

Paul never looks at jobs as being difficult preferring to see them as a challenge. Watching him in action it was obvious that he really

had to think quickly whilst on the job and make snap decisions. Paul always seemed to be dashing around adjusting lighting fixtures here and there. "At night time you really have to be on top of the situation," he said. "This isn't so bad as we're basically shooting in the one direction, quite close up, but other times we may have to take in large areas. The light on top of the truck is a 4Kw HMI watts and that's the biggest light we have. One night I had a large night shoot to do so I wanted to hire a 12Kw HMI but our generator couldn't run it. So by the time you hired another generator and an operator to run it, plus a tower to get it in the air, it would have ended up costing \$1500. I didn't even ask for it as I knew it was too expensive for just one shot."

After years on the job, Paul never finds it boring or mundane. "Anyone can get a light and get enough exposure for the camera," said Paul. "That's not what we're trying to achieve. We try to achieve lighting that people won't notice. Last night we were filming a guy at the bar who was meant to be a heavy bikie so I lit him a little bit differently to try make him look evil with shading on one side of his face. I always try get away with the minimal amount of lighting possible, you need just enough so it's not noticeable."

During the evening Paul worked closely with Robert Clyne (Technical Director) who actually did the colour balance for the reference point. Robert uses a precision monitor which they both refer to during the shoot to adjust any colour they wish. If Paul puts a blue gel on a light he immediately has to tell Rob before he starts fiddling with the exposure to correct the blue gel. "You'd start chasing each other's tails and get nowhere so you have to liaise with each other all the time," said Paul. "We



Paul Wootten, lighting director, on location in Windsor, NSW.



know each other well so we usually know what's going on."

The audio director Tony Murragh said that they preferred to use booms rather than radio mics as the radio mics take too much time to set up. They even admitted that sometimes they pretend there are no radio mics available in order to avoid using them. With a fair portion of the outdoor locations set at Palm Beach, it is tricky to hide the radio mics on the actors whilst they are in their swimwear. When radio mics are used in these scenes they are usually placed in the hair and the favoured units are Sony 900 meg units as they attract very little interference. Credit must be given to the boom operator, Phil Jones, who must have incredibly strong arms as he stands for hours on end with a windsocked Sennheiser 416 dangling from the end of a three metre boom arm, suspended one to two metres over the heads of the actors out of camera shot. Recording on location is generally one track but if there is more than one location in a scene a two track of course is utilised. This situation could evolve in say a wide shot or two people in close up with someone in the distance addressing them, which would need to be at a lower level for authenticity. Various elements try the patience of many location recordists. Passing traffic, vocal on-lookers and wind all act against the operator. But, the biggest problem is keeping audio levels from both studio and location comparable, and careful monitoring is the only answer. Although the basis for any soundtrack is the original recording, much of the final take is the product of post-production treatment.

After the location beta cam and studio 1" tapes are combined onto a master work print is established by the editorial team. The audio track is lifted via tape or floppy disc and basically picked to pieces. Voice-overs are added, special effects such as gun shots, door slams or thunder are introduced and the original soundtrack can be softened or redefined to a

crisper tonality. The final product can then be re-introduced to the visual footage being locked to the original picture frame by a method called time-code.

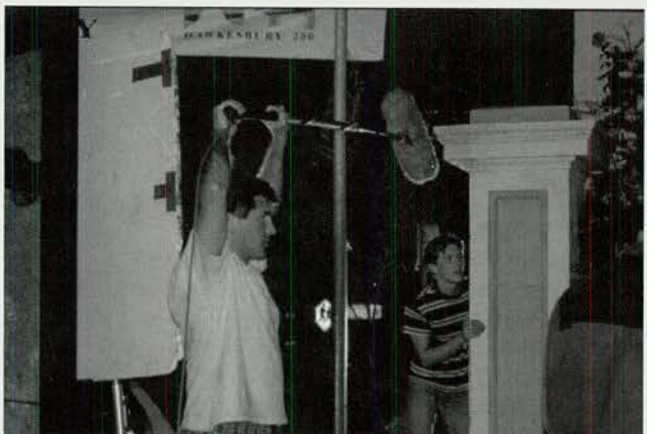
A typical studio week involves prepping the sets on the Monday followed by four days of recording and the days are long often starting at 5am and finishing at 7pm. Paul will give a floor plan to the night riggers to set up and then he will arrive with his assistant at 4.30am to focus the lights. The night riggers work four hour shifts and are actually freelance riggers. These riggers are very experienced as the next days shooting relies on their work. Also it is imperative that the stage hands put the sets in the right places too. In Studio E, where Home & Away is based, they have electrical batons and ten can be linked together at any one time. "The batons in here are smaller but we can basically get a light where we want one," said Paul. "In the other studios we have outriggers on scaffolding and you can't always get a light where you want it. Although the Galaxy board is capable of running 384 channels, we have 344 actual outlets. After we've lined the lights up, I group certain sets into memories. This particular type of board is more than adequate for what we're doing here, it lets me know where everything is happening. It's important to keep the light levels up because if you drop too low the lights look too orange and the cameraman has trouble finding focus. But if everything was running at 100% you can't do anything more. At the moment every memory on this board comes in at 70% giving us an extra 30% of power to utilise if necessary."

Although it's fairly easy to bring a light up onto someone Paul has to also consider two booms and three cameras so you can't use the lights as a followspot and follow people around the set. Paul has to constantly look at all camera views as quite often he has to ride a light level between shots. Shadows from the boom can often cause problems too. Meanwhile Robert Clyne is out in the OB van, which acts as the control room, colouring the cameras and setting the exposures.

Studio E is a baffling maze of different sets and often the actors get lost trying to find their way around. Paul said that 'Esme' in A Country Practice was always wandering around trying to get out! The lights Paul utilises the most in the studio are 5K's although he never rigs more than twelve to allow for a couple of spares. The



Robert Clyne (Tech. Director), Phil Jones with the boom (below)



HORWOOD AUSTRALIA

A.C.N. 058 825 951

Pty Ltd

EXCLUSIVE DISTRIBUTORS FOR:



- * Stereo and specialist amplifiers
- * Audio distribution amplifiers
- * equalisers

Canon

- * V-100 wide dispersion loudspeaker for a wide spread of listening positions.



- * Commercial range of gooseneck, conference and touch to talk microphones
- * Hand held microphones



- * Digital audio signal processors
- * One third and one sixth octave equalisers, spectrum analysers



- * Hotel guestroom control systems
- * Hotel energy saving key tag systems



- * Commercial & professional sound loudspeakers
- * Outdoor/Indoor and environment resistant loudspeakers and compression drivers
- * Loudspeaker baffles & enclosures
- * Custom install loudspeakers, attenuators and communication system accessories
- * cabinets
- * Microphone and equipment stands



- * RS Series electronically controlled array loudspeaker systems
- * VBS Series subwoofer systems
- * M4/PC Horn systems & bass horns

ALSO STOCKISTS OF:



- * "Tool Box" range: active and passive DI's, balancing box, phantom power supply, phase checker and cable tester
- * Stereo mic/line conference mixer



- * Full range AC3/AXR3 connectors



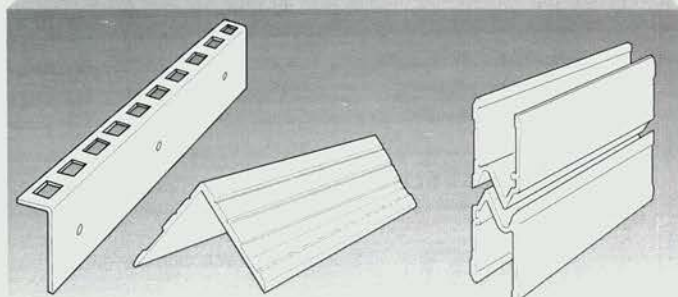
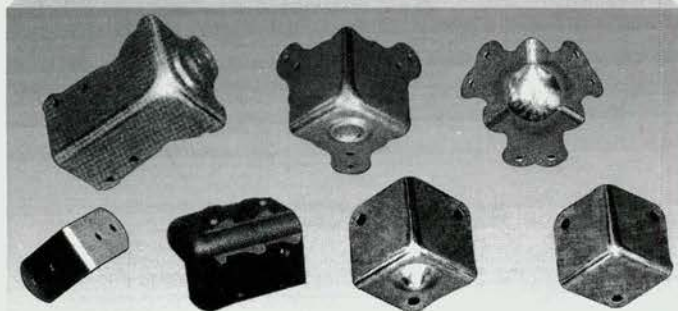
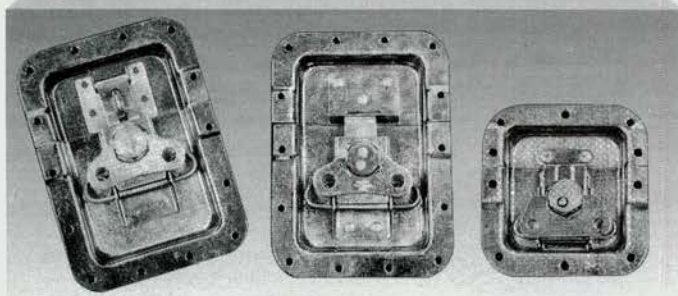
- * Full range of wall and ceiling mount brackets



- * Stereo compressor/limiter/gate

Horwood Australia Pty Ltd,
Suite 4, 251-253 Canterbury Rd,
Canterbury, NSW 2193.
Tel: (02) 718 8054 Fax: (02) 718 8461

Finally a
RELIABLE™
 source of
HARDWARE



Please Ring (02) 516 3622 For a Brochure

ACN 001 187 837

JANDS

JANDS ELECTRONICS PTY LTD

578 Princes Hwy., St. Peters, NSW 2044.
 Phone: (02) 516 3622, Fax: (02) 517 1045

Home & Away (continued)

other studios at Channel 7 have a fairly strict lamp count but in Studio E there are always plenty to use. Other lighting stock vary from 500 watt to 10,000 watt and include 2.5Kw and 5Kw Soft lights which are used frequently.

You may have noticed that very few characters on the show wear glasses and this is because they play havoc with the cameras as lights reflect off them too much. "In A Country Practice we were constantly battling with Esme's glasses," laughed Paul. "Motorbike helmets are also a problem". Variations in skin tone can also require a lot of attention. One of the most frustrating things for the lighting department is that after spending time getting the lighting just right for the final scene, the director will sometimes use one of the earlier takes because the acting was better than the lighting.

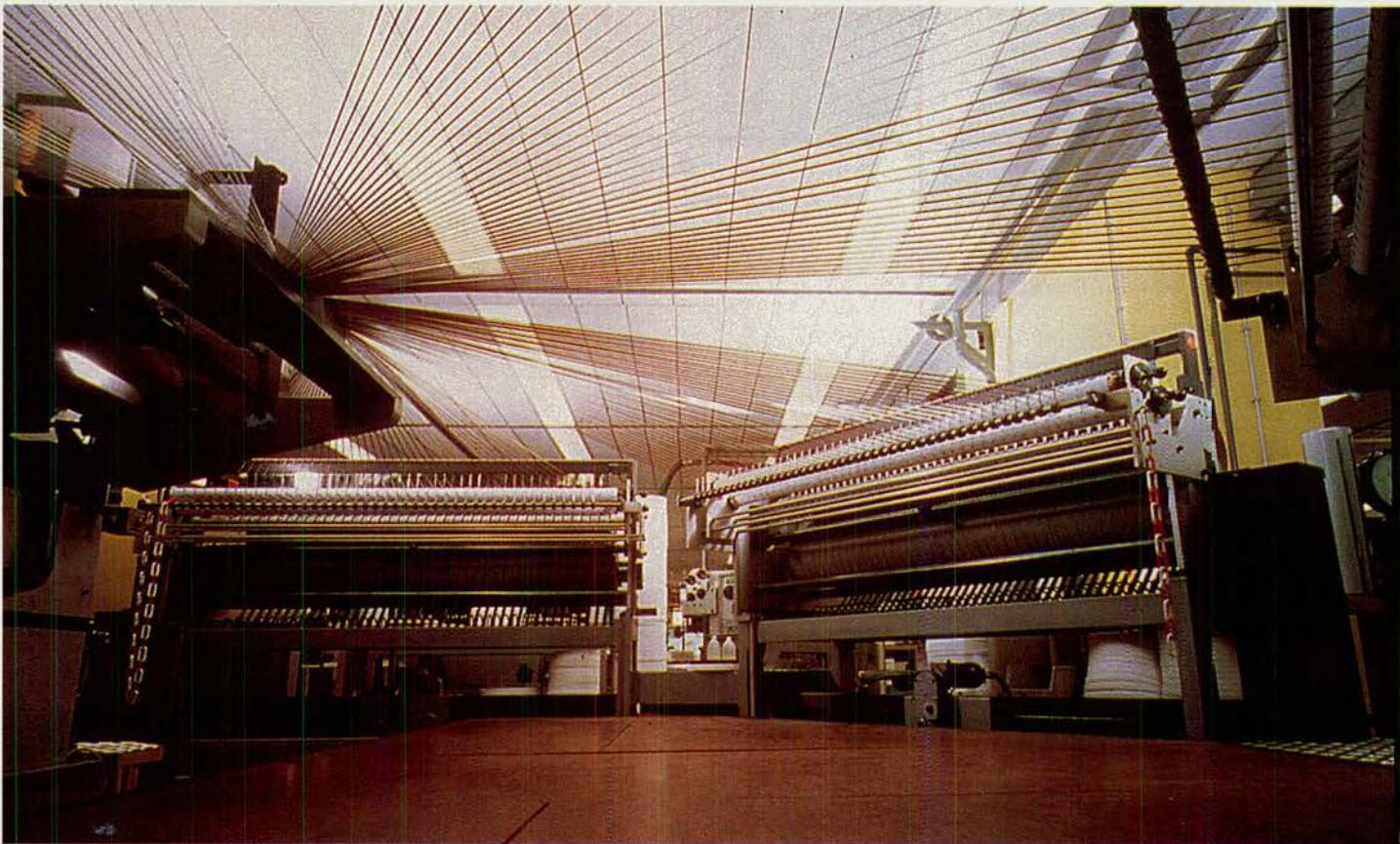
As with location shooting, Paul still has to be ready to compromise at the last moment in the studio but usually he knows more accurately where the actors are going to be on the set. Generally a couple of rehearsals are done before the final shoot and Paul is constantly running out of the control booth to the studio floor to adjust the lighting. Fortunately the rig that he had designed covered all the necessary areas and he could always find a light source where required. Again, time is of the essence and on the day we visited the studio shooting was already half an hour behind schedule by 10.30am. "All this afternoon we'll be pushing it," said Paul. "All this stuff may look good on paper but sometimes it just doesn't work out that way". I started at 4.30am today and I'll be rostered off at 6.30pm but the only reason they let me go at 6.30pm is so that they can get me back in at 4.30am tomorrow! We have to have a ten hour break but if that wasn't compulsory they'd have me here until it's finished. One of the other lighting directors on the show, who is on his off week, will come over at about 4pm ready to take over when I leave." The problem with this kind of scheduling is that the guy who comes in to relieve Paul is thrown right into the midst of things and can often find it difficult to pick up where Paul left off.

The mechanical maintenance department at Channel 7 are responsible for keeping the equipment working properly and generally fixing gear. It is a complete electrical workshop which the audio and lighting departments keep busy. This department is also in control of moding gear to its optimum capacity. The studios at Channel 7, particularly A and E, are constantly in use and so maintenance is a high priority. Plus the electricians are responsible for complete installations around the building. "When equipment is faulty we take it straight out of service, tag it is defective and give it to them," said Paul. "Years ago I used to work for Grundys, back in the days of Young Doctors, and when things broke then you fixed it yourself. In television though there are no airs and graces, it's always hands on and we all do our bit".

Paul tells us "we all enjoy our work here, it's good fun, and I manage to squeeze in a social life as we basically get every weekend off". On a normal week a Channel 7 crew member works about 55 hours with studio days usually stretching to 12 hours and outdoors 10 to 15 hours a day. After two long outdoor days, this nights shoot was relatively short with four sets shot during the evening. When Paul worked on A Country Practice there were only two lighting directors and so Paul would find himself doing a week on location, a week in studio then another on location etc. On Home & Away it's a week on location followed by a week in the studio and then a week off to prepare for the next one. "It's not exactly a week off as you often end up back in the studio doing night rigs for one of the other guys," said Paul. "There are also other things to do around the station and on Thursdays we have a meeting to survey future plots. But it is a few days break from directly dealing with the show. On A Country Practice you were going all the time and you got a bit tired at times." Paul is one of three lighting directors on Home & Away, the other LD's are Peter Loney and Jeff Greenwood. so the three week roster is appropriate.

Bob Fletcher, Senior Lighting Supervisor with Channel 7, believes the ten hour break rule is a good one. "But with this new enterprise bargaining system they are trying to bring in, these boys will only be getting six or seven hours breaks," he said. "There'll be no control and they won't be getting any extra money either. At the moment if they don't get their ten hour break they get an extra eight hours pay for the next day." •

AUDIO - VIDEO DUPLICATION



BASF
DEMAND IT.

Contact: (03) 212 1575 or
Call Free: 1800 805 691

BASF Forum people snapped

Elsewhere in this issue we talk about a series of Forums held by BASF. Pictured below is **John Benfield** (BASF) and **Anna Cooper**, from Regency Recordings. Pictured at right is well known Sydney based technical publicity and marketing guru **Karl Seglins**.



Ron Purvis (left, below), **Bruce Brown**, and **Allan Black**.



Kevin Bradley (above left), and **Mark Thomas** (from Festival)
Neville Lambley (left), **Mike Accort** and **John Spence** (below), all from the Australian Broadcasting Commission.



SKYPAK & Show Technology Get Together in Brisbane

The Roxy Nightclub was the place chosen in Brisbane for a tradeshow hosted by local firm Skypak Lighting. Pictured at the shindig is **Mick James** (right), well known Gold Coast electronics identity.



At right are two guys, one of whom is **Brad Johnson**, from Air Electronics. We think that's him on the right. The other guy is happily holding a Martin brochure.



Below are (from left) **Brian Story**, **Tony Quaife** and **Craig Fussell** from Skypak, **Emmanuel Ziino** from Show Technology, and **Harry Godley**.



This is **Phillip Jenkins** from Crestron Australia (above, left) and **Fred Bargitzi**, Manager of Systems Engineering, from Crestron USA. They are pictured at the conclusion of a series of seminars, held around Australia to update dealers on Crestron's remote control system applications. More on this soon in Connex!

OLAF DIEGEL (right) is the hunky general manager at Theatre Light in New Zealand. He is a multi-linguist, who also plays keyboards.





Hilary Evans (Sontec, left) shakes hands with Brian Chilcot from Bose. Showcase Producer's people look on.



Consultants Philip Smith and Emil Holleck get the explain-o from Hilary (top).

AV operator Ian Ralph (left) with that Hilary again.

Three amigos. Well, you decide! Below please observe Des Willaims (BOSE) on the left, Hilary Evans, and Brian Chilcot (BOSE) on the right. What was the song called, guys?



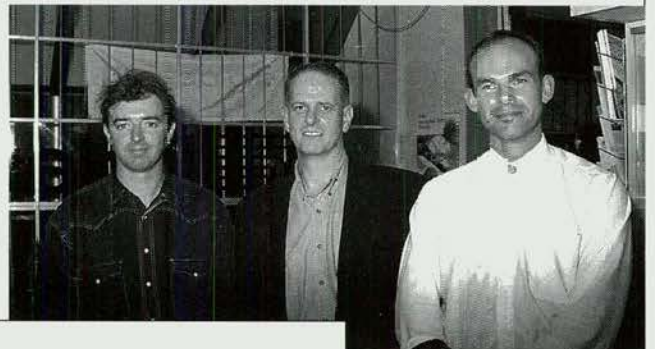
SONTEC(VIC) & BOSE Seminar

Held recently in a new 30 seat theatre/showroom at Sontec's Murrumbidgee office, the 2 day event targeted pro users and consultants. Working Panaray and Crown IQ Systems were put through their paces, and the firm reports numerous budgets have already been supplied, and various new projects are underway incorporating the technologies displayed.

This is the *best possible way* to attract new business, if handled right, we say here at Connex. (But you have to deliver value and interest to the prospective visitors.)

Music Link team out in force for Opcode

A launch function held recently at Sound Devices in Sydney saw a strong contingent from distributors, Music Link. Pictured below are **Tony McDowell** (left), **Mike Daws** and **Adam Karolewski** (right). At the bottom of the page on the right side is **David Patmore**, doubtless all smiles because Keith Eorman from Opcode has done a convincing job with his Vision 2.0 promo!



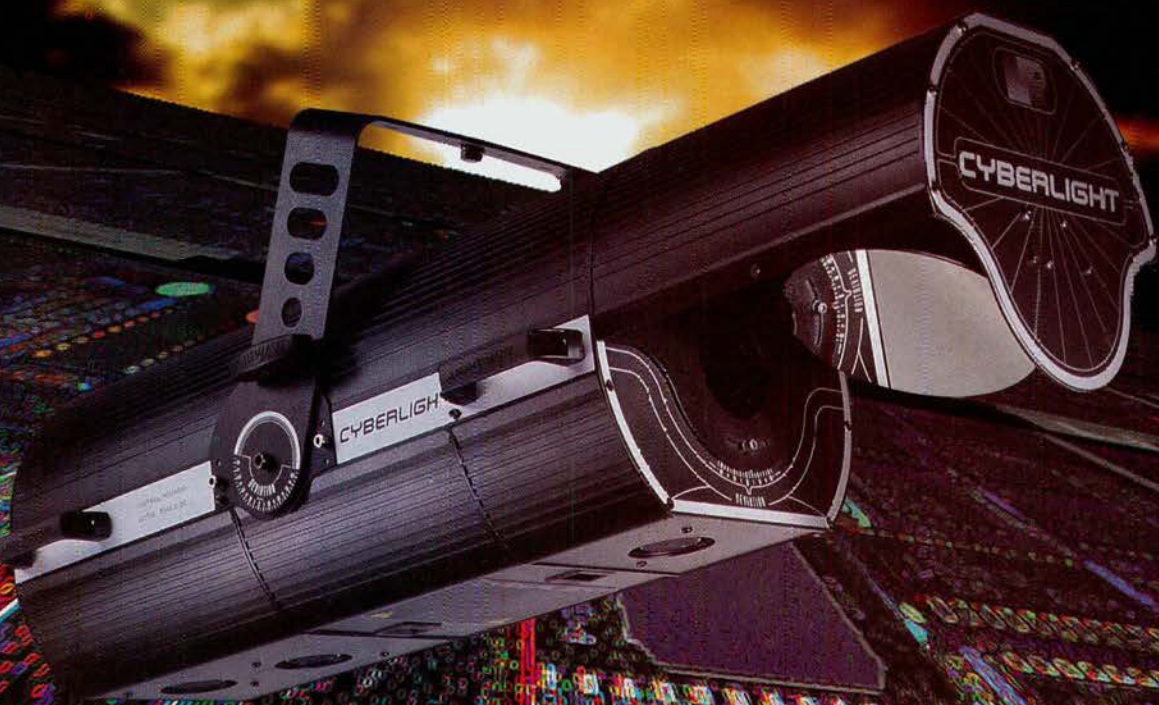
Big Bob Fletcher

Pictured left is **Bob Fletcher**, the Senior Lighting Supervisor with Channel 7.

We visited the network HQ for our major story on Home & Away, (page 75) and found Bob to be an all round nice guy, despite the need for some shortening. We noticed door jambs around the network all carried the scars of Big Bob, who occasionally forgets to duck. Seriously though, we were impressed with the 'fatherly' and protective nature Big Bob exhibited towards his crew, who clearly benefit from his leadership.



The Ultimate Power Tool.



Introducing **CYBERLIGHT** from Lightwave Research,
The most powerful, most versatile, lighting tool available.

If your lighting application demands the ultimate in Intelligent lighting, Lightwave Research has the Power Tool for the job. Cyberlight has been designed from the ground up as the most complete and powerful Intelligent lighting system available. Cyberlight has color mixing, fixed colors and upward, downward, and centered color correction for a rainbow of color possibilities. Rotating and fixed gobos with gobo mixing, lightning-fast shuttering, remote focus, variable frost and zoom provide a limitless variety of stunning looks. This power tool is also the most *Intelligent* light available, with a high speed



Cyberlight is designed for the lighting professional with a rugged, roadworthy design, circuit breaker protection and easy access for service and carrying handles.

bidirectional data exchange that performs self diagnostics and transmits a wealth of operating information including elapsed operating time, lamp voltage, and lamp current. Under the control of our Status Cue console, Cyberlight is unsurpassed in its ability to deliver power and subtlety quickly and efficiently. This allows you to concentrate on the creativity of your project, utilizing the myriad of live control options available. Not only is Cyberlight the utmost expression of lighting technology, but is affordable as well, and designed to stay that way.



Engineered
and
Manufactured
in the USA

GUVT

82 Arthur Street
Fortitude Valley QLD 4006
Phone (07) 358-5022
Fax (07) 353-4969
Toll Free 008 773-187

"The
Science of
Lighting"



GREATER UNION VILLAGE TECHNOLOGY

WRITE IN READER SERVICE NUMBER 110

(very) Random Comment with Duncan Fry

THE FIRST GIG I EVER MIXED

The first gig I ever mixed was a night I'll never forget. It was at a pub in some town on Victoria's South West coast. I remember the gig but not the town. Must be old age catching up with me or the fact that the gig was so ratshit that I've mentally blocked out where it all happened. Originally, the plan was that all I had to do was drive the truck down there, load in, hang around, load out and then drive back at the end of the night. The band was supplying their own guy to do the mixing. What you would probably call a delivery and babysitting gig. But, as I was rapidly to learn, things rarely went to plan at the grass roots level of the PA business.

For a start, we ended up with a lop-sided system, with only half the bottom end on one side. I'd had a fair amount of experience loading, but I had been lumbered with an assistant we'll just call John, who was doing his first (and last) loading gig. Just as we were tipping one of the bass bins out of the truck into our hands, he suddenly decided to scratch his nose! Crash, the box hit the concrete with a sickening thud while he stood there watching it with a finger up his nose! "Oops - was I supposed to hold that?" he asked.

When we plugged it in to check it out, there was a deafening silence from the box. In fact, the only sound you could hear was my heavy breathing, trying to stop myself from strangling the stupid bastard on the spot!

Anyway, somehow we got it all set up. I plugged everything together, made sure that it all worked, and then waited for the band and their Front of House guy to arrive. His name was Charlie, although everybody knew him as Chuck Chunder, his stage name from earlier days when he played in a band himself. Well, the band arrived and set their stage gear up, but ten minutes before showtime, there was no sign of the elusive Chuck Chunder. The minutes ticked away, and the crowd was becoming noisy and restless. Then one of the band came over to me and said that Chuck had just phoned to say his car had broken down miles away, so could I mix? Shit, talk about being dropped in the deep end!

I quickly checked out the mixing console, got the echo working and some noise coming out of the monitors, and that was it as far as soundchecks went. With a crash of cymbals, the band appeared and launched into their first song. They were called 'The Nicest People', and if that conjures up in your minds the

image of a neatly dressed band doing covers, well you couldn't be further from the truth. There were no cover songs, only originals, played to a fast reggae/ska music beat. And if the relatively conservative country crowd found it a little hard to come to grips with the music, then they were totally devastated by Ken, the lead singer.

For a start he was totally bald except for a long pigtail. That was OK, they'd seen people with no hair before. He was also totally naked,



except for a feather boa and a World War 2 gas mask tied around his family jewels, and he cavorted around the stage like a monkey on speed! Before the show I had been chatting with him in the band room, and he had seemed to be quite a serious sort of person, totally unlike the popular concept of a rock musician. He was into some Eastern religion, and I was a little bit apprehensive as to how such an unassuming guy was going to handle being the frontman for a band.

I needn't have worried. Once onstage, he was a totally different person. It was like Dr Jekyll and Mr Hyde. He leaped across the stage, jumped over the other musicians, even climbed on their backs and wiggled his World War 2 souvenir at the crowd, all the while singing in a throaty roar.

When the guitarist knelt down to perform simulated fellatio on Ken's gas mask during one of the songs, the audience was horrified!

And who did they complain to? That's right, me! Like every audience at every gig around the world, they somehow assumed that since I was the person mixing, I had a telepathic link to the band, and could get them to do any-

thing just by willing it. So, I got my first lesson in keeping a pub crowd happy." They're fuckin' horrible". "Tell 'em to play something good or get off". "What a bunch of poofs"! I shrugged my shoulders. "Look mate, I'm only mixing. Talk to the band, not me"

Well I was nearly right. I was trying to mix. But to tell the truth I was at my wits end as to how to keep everything under control. It was like the musical equivalent of riding the mechanical bull, stuck on 10!

I just couldn't keep the levels from running away from me. Things would be alternately too loud or soft, but by the time I'd moved the appropriate fader, the situation would change. And so it went on through the night, jumping around all over the place pushing things up and down. I despaired of ever getting things together - the sound was all over the place.

At the end of the night I felt relieved that it was over, and also a bit cheated. Whatever happened to the other guys that I'd watched mixing, just sitting back looking cool and casually adjusting a level here and there? If this was mixing, then it was hard work!

Of course, the minute the last note was played and the band disappeared off stage, who should arrive but Chuck Chunder, having fixed his car and all set to mix a couple more brackets.

He seemed unable to grasp the fact that the band had started and finished without him. I said he was quite welcome to help us load it all back into the truck if it would make him feel like he had contributed something to the evening, but oddly enough he wasn't so keen on the idea!

Still, the band was happy. And surprisingly enough, so was the audience. Once they had warmed up and got nicely plastered, they ended up singing and dancing along with the band, and complained bitterly when the final song was over.

A philosopher might say that it was a case of music transcending all barriers. Me, I just think that it's very rare for a band to be so bad that it can't keep a roomful of drunks happy! •

Duncan is a director of ARX, the Melbourne based exporters of audio products. He has also written a very good book on Live Mixing and Sound. Call (03) 555-7859 for more info on the book, or to bag him out in person!

Classifieds

THE ONLY NATIONAL CLASSIFIED ... CALL (02) 876-3530, or FAX (02) 876-5715 BY THE 25TH OF THE MONTH

Sales Co-Ordinator

The P.A. People is a leading supplier of professional audio products. We require a competent and experienced person to join our Brisbane office in the newly created position of Sales Co-Ordinator. Responsibilities will include all aspects of sales support; telephone sales, sales and supplier administration, goods movement, customer support, etc.

We seek a person with solid organisational skills who has an orientation towards personal customer service and a methodical approach to organisation of daily routine. A good command of language, both oral and written is required as is a pleasant and helpful telephone manner. Some background or experience with sales, preferably within the audio industry is desirable as is technical aptitude and willingness to learn quickly on the job.

A good team work attitude is necessary - a willingness to combine mundane with advanced tasks. Applicants should be computer literate (PC/DOS/Windows).

Applications (in writing only, including resume) should be posted to Attention: Sales Manager, The P.A. People, Unit 1, 84 Newmarket Road, Windsor, Qld. 4030.

Lighting and Audio Technician Required

Black Express Light and Sound have been Designing and Installing Professional Audio and Lighting Systems since 1986, and now, due to an increase in new contracts, they require a further Lighting and Audio Technician.

The company's area of work are mainly:-

- Disco Sound and Lighting
- Laser Systems
- Background and Foreground Music Systems
- Public Address

The person required is a FULLY QUALIFIED ELECTRONIC TECHNICIAN with at least 5 years experience in installation and maintenance of professional sound and lighting systems.

Other necessary qualifications are Reliability, Punctuality, Honesty and a genuine desire to work hard. These qualities, together with good communication skills would be desirable.

The job is 'hands on', where duties are both installation and service of systems as well as some design work. 100% commitment is needed and the same will be given in return.

Remuneration package negotiable.

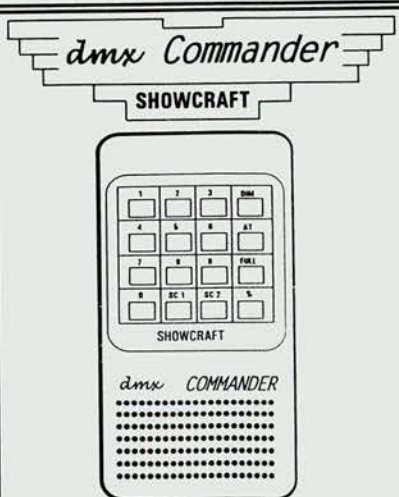
Send CV./Resume to: Con Andrews

Black Express Light and Sound

275 Homer Street Earlwood NSW 2206.

PART TIME ADMINISTRATION

Studio Solutions requires a part-time administrative assistant. Age & Working hours are open. Computer skills desirable - But! a good telephone manner, flexibility, initiative and drivers license are essential. Wages are negotiable. Phone Howard Jones on (02) 906 4363.



RIGGERS CONTROL

Plugs straight into the dimmers and you get full lighting control right there on stage!

BACKUP CONTROLLER

You won't be left in the dark if the main desk goes down.

DMX TESTER

A quick checker for technicians and hire companies.

All for only \$395!

Available from
Lightmoves, Sydney 560 0000
Lightmoves, Melbourne 819 4566
Coemar Desisti, Melbourne 467 8666
East Coast, Brisbane 252 9583
TheatreCrafts, Perth 227 7015
Showcraft, Sydney 698 3009

Proudly Made in Australia by SHOWCRAFT

WESTERN AUSTRALIA'S BEST PRICES on:

Jands Events - DMX Dimmers
Golden Scan III's - LSC Precept
Coemar Moving Lights
GEM, Rosco & TAS -
Smoke Machines

Colourset Scrollers
THEATRE CRAFTS

The New Force in W.A. Lighting
For New & Second Hand
Call (09) 227 7015

WORK WANTED

Lighting guy for hire. Pyros, dance parties, corporate functions, bands. Any size lighting rig or production can be arranged. Reasonable rates - Call Stephen (02) 380 6820

voltage remote control. Wait for it! Stolen last month from Fremantle Prison!!! Contact TheatreCrafts, Perth (09) 227 7015

STOLEN

1 x TAS mini smoke, fitted with low

WANTED

1" JBL "Tea Strainer" horns - 2305 or similar. 015 151 487

FOR SALE COURT ACOUSTIC SYSTEM

P.A. Speaker Boxes JBL Loaded

2 x SHB 400 (1 x 2426, 1 x 2206, 2 x 2402)
2 x DHB 600 (2 x 2426, 2 x 2206)
6 x DLB 1200 (2 x 2226)

This is an exceptionally efficient, compact touring system, used & preferred by many Artists & Engineers.

Price on Application
Contact Richard ☎ (075) 753 667

Topstage PRODUCTIONS

LIGHTING & SOUND FOR ENTERTAINMENT

SALE

INSTINCT 60	\$ 3,900
INSTINCT 48 with Roadcase	\$ 3,500
ESP 36	\$ 1,800
Stagemaster 24	\$ 300

JANDS Protech 24 x 5k	\$ 1,500
JANDS Roadpak Analogue ex cond	\$ 1,250

2 Colourtran Follow Spots need work	\$600pr.
2 Patt 765 Follow Spots	\$2,500pr.

LIGHTSHOW 24 Can	\$ 4,990
LSC 12ch dim & desk, multipin, trees & truss + roadcases	\$18,000
BIAMP 40ch. mixing console	\$ 500
JANDS JM10-8 8ch. mixer	\$ 800
EV61PM 6ch. powered mixer	\$ 5,500

**TOO MUCH TO MENTION
CALL FOR DETAILS**

**PH (06) 280 5710
FAX (06) 280 7545**

FOR SALE

A1 Lst voca wedges that are light and cheap and work. Components are a single 1 1/2" full range speaker in black carpeted cabinets new \$300 each. Audition them at your next gig! For \$12/night! Grafton Sound (02) 698 7777

Acoustic Technologies M25C \$800, M75C \$800. Sydney Concert Light & Sound (02) 550 3828 (0C8) 804 994

Alesis EQ234 1u Stereo 3C Band

EQ \$300. Grafton Sound (02) 698 7777

ALTEC 290 100W Driver on 900 Mantaray \$300/pr. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

ALTEC 817-811 12" \$200 Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

AM1200s power amp, 2 months old \$2800 o.n.o. Peavey MDIII 1E channel mixer, 6aux, sencs, 3banc EQ sweep mids, 2 months o/c \$2800 o.n.o. (02) 713 7532

ART DRJ Stereo Reverb \$700. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

ASI Disco Mixer with Sampler 8SEC/4 Sec. \$450. Cheap disco mixers. Phonic, Citronic \$120 each. Grafton Sound (02) 698 7777

Aus. Mon. F-600's \$2500 a pair. Grafton Sound (02) 698 7777

Australian Monitor AM 1000's Ex rental. Bargain \$1500 each. Grafton Sound (02) 698 7777

Australian Monitor B400 Loudspeakers 2 x 15" and horn. As new \$2500. Grafton Sound (02) 698 7777

Bargain boxes! \$1 second hand XLR connectors. \$2 cable oddments. \$5 bargain bits. Come and have a fossick. Grafton Sound (02) 698 7777

Budget Disco Console with turntables & mixer. \$300. Grafton Sound (02) 698 7777

Cans Cans Cans Cans- Cheap !!! Call for Details. Sydney Concert

Light & Sound (02) 550 3828 (008) 804 994

CCT Minulette 650W Profile \$250 ea. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Cheap Cassette Decks Ex-rental TEAC, Sherwood \$30 to \$150. Grafton Sound (02) 698 7777

Claire Bros Phase 700 Series 2 \$900 - Rack of 4 \$4000. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Cobra Bins Good Cond. only \$2500/pr. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Cobra Subs 2x 15" EVs Only \$1600/pr. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Colour Scrollers 12 x Rainbow Scrollers Complete \$10,000. (09) 227 7015 TheatreCrafts

Crown Amps Geodyne-2 \$1700. Cairns Tropic's P.A. Hire & Sound 070 510 104.

D-1500 \$750. Cairns Tropic's P.A. Hire & Sound 070 510 104.

DBX 160X \$650. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

DBX 166 Stereo Compressor \$800. Grafton Sound (02) 698 7777

DBX 463 Noise Gates over easy. \$250 the pair. Grafton Sound (02) 698 7777

Denon Cassette W/Ears \$100. Cairns Tropic's P.A. Hire & Sound 070 510 104

Desks: Soundcraft 24 Spirit \$4000 & Yamaha 1202 \$1400. Cairns Tropic's P.A. Hire & Sound 070 510 104.

DI 100 Public Address Amp 100 Watt. \$200. Grafton Sound (02) 698 7777

Digi Tech Reverb RSD6300 \$200. Grafton Sound (02) 698 7777

Disco Consoles Cheap!! Empty \$100. Grafton Sound (02) 698 7777

Dynamite Compressor Limiter Gate by Valley People \$1000. Grafton Sound (02) 698 7777

Dynamix 24/8/2 Fully Serviced (2 Sweep Mid, 4 Aux) \$4000. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Effects: Yamaha SPX90 \$600, SPX900 \$1000, SPX990 In Stock. R1000 \$300, REV 5 \$1200, REV 1 \$2500, D1500 \$700, SPX901 1 \$700, REV7 \$700. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Elec X/D ARX-912 \$650. Cairns Tropic's P.A. Hire & Sound 070 510 104.

Electrovoice AP2600 Mint \$850. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

EQ Peavey 215 \$700. Cairns Tropic's P.A. Hire & Sound 070 510 104.

Etone 8" Loudspeakers new Recons, Unclaimed Repair \$40. Grafton Sound (02) 698 7777

Etone 2122 copies double 12" & Piezo speaker boxes, carpeted. \$500 the pair. Grafton Sound (02) 698 7777

PATRICK CAHILL & ASSOCIATES

THEATRE CRAFTS

Sound & Lighting
for entertainment

Hire • Sales • Service

System Design & Installation

Lighting-Dimmers-Effects-Drapes-Smoke Machines
Colour Filters-Moving Lights-Strobes-TV Lighting

Strand • Prolite • Startec • LSC • Rosco • Kupo
Quartz Colour • Jands • Coemar-TAS • Bytecraft

Phone: (09) 227-7015

Fax: (09) 328-2787

Mobile: 018 917 235

468 Newcastle St., Perth, W.A. 6000.

PA

MATTHEWS AUDIO CO.

ELECTRICAL & ELECTRONIC
Design • Installation • Service
Licence No. 32064C

BLACKTOWN & PENRITH

- REPAIRS & DESIGN
- CONTRACTING
- INSTALLATIONS
- COMMUNITY RADIO
- SCHOOLS A SPECIALTY

Paul Matthews

56 Magnolia Street
St Marys NSW 2760

Phone: (02) 623 2860

Fax: (02) 623 9999

Hey

Good Looking,
After a Good
Time?

Indulge your aural/visual fantasies with us!

Our gorgeous staff are standing by, eager to please, including:

Jim: Mature, Silver-Haired, will take you to monitor heaven!

John: Let this cheeky operator light up your night!

Jimmy: This rambunctious rogue will leave you begging for more!

Michael: The boss and not afraid to show it! Dare you not submit to his demands?

THE PUBLIC ADDRESS CO.

(02) **799 7219**

- Open till late
- Reasonable rates
- Discreet rear entrance load ins.
- All major credit cards refused

HOT ICE
PRODUCTION SERVICES

PROFESSIONAL SOUND REINFORCEMENT and LIGHTING SERVICE

System A
6,500W F.O.H 3,000W F.B. 6 SEND
System B
3,500W F.O.H 3,000W F.B. 6 SEND

Ph: Mark Langfield
(02) 608 1104
015 216 985

ADELAIDE BASED PRODUCTION

- JBL Modular Systems up to 16,000 Watts
- Composite Systems: R4 & Mongoose up to 4,000 Watts
- Perreux & Australian Monitor Amps
- All Active Monitors, up to 7,000 Watts and 8 Sends available
- 32 Channels FOH
- 4 FX and Insert Racks
- Crew, Rigging & Lights Available.

Contact: Tim Marshman
12 Ruthven Avenue, Magill, SA 5072.
Phone/Fax: (08) 331-2891
Pager: 018 080 # 840 924
Mobile: 018 080 894

LISTEN

TO THIS AMAZING LETTER WE RECEIVED AT ELECTRIC SUNSHINE RECENTLY !!!!

"My band was in a rut, we were going no-where fast. It was so bad that we would not talk to each other or look at each other on stage. Our bass player played with his back to the audience, our keyboard player would blindfold himself, our harp player would get drunk and our flute player would cry on stage. it got real bad! We used to pray for the gig to end. Then!!! We hired ELECTRIC SUNSHINE LIGHTS. Everything changed. We stopped playing at funerals and started getting gigs at NAME VENUES. FANS started to come to gigs and began to TEAR OFF OUR CLOTHES on stage. Our flute player got pregnant, our bass player had to go to the clinic, we got our name in the papers next to pictures of the police, we caused riots at venues".

THANKYOU 'ELECTRIC SUNSHINE'.

MCP MUSCAPRO

**SOUND & LIGHTING
FOR ENTERTAINERS
IN THE COUNTRY**

- ◆ TOURING PRODUCTION
- ◆ DRIVEWAY HIRE
- ◆ SALES ◆ INSTALLATIONS

PRODUCTION AVAILABLE:

12,000 watt horn-loaded P.A.
JBL/Martin components.
32/8/2 Venue Desk. 8 send,
6000 watt FB. 48 channel lighting.
Pro crew & transport.

SALES AGENTS FOR:

Jands, Soundcraft, Shure, JBL, Rane, Urei,
SCV, LA Audio, Klark Teknik, Nakamichi,
Denon, AKG, Microtech-Greifell, Clear-Com,
Neutrik, Burndy, Alcatel, Mogami, Lycian,
ATC, Selecon, Omnimount, Martin, Apogee,
Artist Systems,
MarkIV - Dynacord, EV, Vega, Altec Lansing,
Gauss, Midas.

UNIT 3, 5-7 HINKLER ST (PO BOX 930)
TAMWORTH, NSW 2340

Ph: (067) 622452
A/H: (067) 671148
Fax: (067) 622453
Mobile: 018 659458

TRY US FOR LOW PRICES!
Phone for a quote.

Elone Wedges 12" & Piezo. \$550

pair. Grafton Sound (02) 698 7777

EV15L and Piezo Horn speaker cabinets. Great for D.J. Grafton Sound (02) 698 7777

EV 61PM 6CH Powered Mixers 200 Watt \$1100. Grafton Sound (02) 698 7777

EV121 \$300 Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

EV Entertainer 100M Mixer/Amp \$1500. Grafton Sound (02) 698 7777

EV X150A 1000W 15" \$450 each Sydney Concert Light & Sound (02)

550 3828 (008) 804 994

EV15L Loudspeaker \$250. Grafton Sound (02) 698 7777

Flying System. Consists of 8 Jands JBL loaded AP30 Cabinets with active crossovers and flying gear, would substitute for Turbo TMS3 System. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Follow Spot new \$1000. TheatreCrafts (09) 227 7015

For Sale: 3 x ADAT's BRC, Cables & Stock. \$22,000. Ph: 015 255 194

H/H M900 \$1000. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Home studio - Dynamix D3000 24/8/2 console, TSR-8 plus extras, \$6,500. Ph. (02) 417 4161.

Ianiro Quartz colour 800W Redheads with barndoors, 4 Of Excellent Condition. \$375 ea. CC'S LIGHT & SOUND. Ring for free catalogue. 008 803 064

Ibanez SDR1000 True Stereo Reverb MULTIFX \$700. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Jands 100 Amp. This is a museum piece. \$100. Grafton Sound (02) 698 7777

Jands Aurora 48/24 Lighting Desk. Could someone please take it off our hands? \$1000 negotiable. Phone John, Zenith Theatre (02) 411 7088.

Jands Event 24 Ch. \$4000 o.n.o. (09) 227 7015 TheatreCrafts

Jands JM10 24/4/2 Alps Faders 4 Aux 4 Way EQ \$2700. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Jands JM6-2020/2/1 3 Aux 4 Way EQ \$600. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Jands JM9 Same Features as 400B 32/4/2 \$5000. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Jands S920 \$1200, S720 \$900, M600 \$700, J1000 \$850. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Jands/JBL, Modular 3 way system, consisting of 8 x Jet Bins with 18" JBL Speakers, 8 x Modular Mid Bins with 12" JBL Speakers, 8 x JBL 2445 2" Compression Drivers on JBL Biradial Horns, 2 x Clair Bros. Power Amp Racks with 4 x Clair Bros Phane Linear 700 Series II - Fully balanced inputs in each. This is the real thing, ready to tour!!! The Lot. Only \$25,000. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

JBL 2226 Loudspeaker 15" \$350. Grafton Sound (02) 698 7777

JBL 2226 S/H \$450. New - Call for a great deal! Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

JBL D110 \$200 Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

JBL E140's \$350 each Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

JBL K110 \$200 Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

JBL, AD80 Subs 2 x JBL 2240 18" in each \$5250 the pair. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Mark Teknik DN27A Graphics \$1000 ea. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Lexicon Super Prime Time Dual Digital Delay \$1500, PCM60 Reverb \$600. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

LSC Precept 24. 24 Channel lighting console. Analogue output. Excellent condition. \$1500. CC'S LIGHT & SOUND. Ring for free catalogue. 008 803 064

Macrotec-1200 \$1850. Cairns Tropic's P.A. Hire & Sound 070 510 104.

Master Stereo Limiter SCP made in Spain \$900 New. Grafton Sound (02) 698 7777

Mic's SM-58 \$160. SM-57 \$150. Cairns Tropic's P.A. Hire & Sound 070 510 104.

Microphone Boom stands, new, with clip. \$65. Grafton Sound (02) 698 7777

Macrotec-601 \$1300. Cairns Tropic's P.A. Hire & Sound 070 510 104.

Mitec Performer 16 16 Ch Mixer with 5 aux. \$2800. Grafton Sound (02) 698 7777

Moving Lights Syncro Digital. The ultimate FX \$5800 (09) 227 7015 TheatreCrafts

STAGE, PA & LIGHTING HIRE

or

Hire Package The Whole Lot

Suitable for Audiences up to 15,000 people.

6m x 7m Mobile Covered Stage
Large Outdoor Concert Rig
Up to 25,000 watts FOH
JBL Loaded Concords
Powered by Australian Monitor
Soundcraft Console
Precept & Event Lighting Consoles
80 Cans Available
Mini Scans
Follow Spots
Package Deals - Delivered, Setup & Operated by Professional Crews.

ROANWATT AUDIO

Ph: (049) 435 853

Fax: (049) 421 048

FERNANDEZ musicentre

CAIRNS

NORTH QUEENSLAND

Concert P. A. Systems.
Multi-Pin Lighting
(up to 100 cans available)
Professional Experienced
Operators And Crew.
Instrument Hire.
Qualified
Service Technician

Soundcraft Desks, Jands
Amplifiers, JBL & Peavey
Speakers, Yamaha FX'S.
Transportation.

PLEASE PHONE:
MARK WILLIAMS

ON (070) 518519
OR FAX (070) 512979

CENTRESTATE SOUND & LIGHTING

TOURING PRODUCTION,
TRANSPORT, DRIVEWAY HIRE
& RETAIL SALES

PA'S from 200 to 20,000 watts
DESKS Soudtrax, Soundcraft,
Hill & Yamaha

SPEAKERS Australian Monitor -
QMX15, QMX12, F600,
SLAM BOXES, Delay &
Flying Systems Available

AMPS AM1600, 1K2
FB 10 Sends available Soudtrax &
Soundcraft desks, Wedges,
Drumfill, Sidefill

LIGHTING Event 48 Plus Desk,
80 Cans available, FX, Fog,
Profile & Follow Spots,
Miniscan Moving Lights,
Trees, Trussing, Blocks
AVAILABLE DAILY WEEKLY
ANYWHERE

Call Alan Brown in Orange NSW

(063) 62-0587

Wild Gravity

● SALES ● HIRE ● INSTALLATION

10.000 WATT

DELTA MAX 1152

IN NORTH QUEENSLAND

WITH 32 CHANNELS FOH

AND 24 CHANNEL 400B F/B

80 PAR CANS MULTI-PINNED

96 DIGITAL CHANNELS

SELECON PROFILES & CYCS

CLS TRUSSING, CHAIN BLOCKS

REHEARSAL ROOM

8 TRACK DIGITAL STUDIO

PHONE NOEL ANTHONY

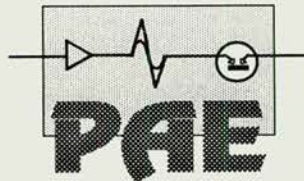
(077) 21 3540

OR FAX

(077) 21 1375

TOWNSVILLE

106 Boundary St. Townsville Qld. 4810



**Professional
Audio
Electronics**

CRAIG MARSHALL
Electronics
Technician/Engineer

SPECIALISING IN:
THE SERVICE & REPAIRS OF ALL TYPE'S OF PRO AUDIO
EQUIPMENT, MIXING DESK'S, EQ'S, X-OVER'S, DIGITAL FX
UNIT'S, SOLID STATE & VALVE AMP'S, TAPE, C.D. & DAT
RECORDER'S, DIGITAL AUDIO & STUDIO ELECTRONICS,
DBX, SOUNDCRAFT, MIDAS, NEVE, SONY, BSS,
AKG, KLARK-TECHNIK, YAMAHA, ALESIS, OTARI,
AKAI, JANDS, CARVER, CROWN, SHURE,
PHASE-LINEAR, BEYER, MARSHALL & FENDER.
APPOINTED VICTORIAN WARRANTY SERVICE
AGENT FOR: BOSE - AMCRON - CROWN
PH(03)645 1236 FX(03)578 0765
549 NORTH ROAD, ORMOND, VIC.3204

Multicore 20/4 33Mt W/Split \$600. Analyser & Pinknoise Gen. ASA-10B \$250. Cairns Tropic's P.A. Hire & Sound 070 510 104.

Nessel H/Load (8) 15" sub 400W 70"70"50cm W/Wheel & Con XLR/EP-4 \$650ea. Cairns Tropic's P.A. Hire & Sound 070 510 104.

Neumann KM-84 Cardioid studio condenser microphone. 2 Of very good condition. \$700 ea. CC'S LIGHT & SOUND. Ring for free catalogue. 008 803 064

New bar cases. \$650. New packing cases \$570. New 19" equipment sleeves from \$60. Grafton Lighting & Sound (02) 698 7777

Original JBL Concert Wedges Flares Crossovers and Boxes \$200 the pair. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Overeem 8338 Mono Amplifier 100 Watts \$200. Grafton Sound (02) 698 7777

Overeem Pre-Amp 2 in 1 Out Mixer with Bass & Treble. \$50. Grafton Sound (02) 698 7777

PAS 15" Loudspeakers 250 watts \$200. Grafton Sound (02) 698 7777

PAS Crossover Set AT 100 Cycles \$150. Grafton Sound (02) 698 7777

PB-2 (2) \$1700. Cairns Tropic's P.A. Hire & Sound 070 510 104.

Peavy CS800X Mint \$1200. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Phasechecker SCV \$300. Cairns Tropic's P.A. Hire & Sound 070 510 104.

R/C 5R/U Steel Racks (3 Only) & Back Panel fitted with ARX-912 X/O Crown Amps 1 * MA-2400 1 * PB-2 \$5500ea. Cairns Tropic's P.A. Hire & Sound 070 510 104.

Roland SRV2000 \$700. DSP5 MULTIFX \$700. SEQ331 \$350. Bass PreAmp \$150. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

SCV 31 \$1250. Cairns Tropic's P.A. Hire & Sound 070 510 104.

Sennheiser ME 80 Shotgun Mics Perfect for Theatre. Grafton Sound (02) 698 7777

Sleeves, Sleeves, Sleeves 3u,4u,5u Ex Rental. \$40-\$80 Out They Go! Grafton Sound (02) 698 7777

Smoke Machines new and second hand. TheatreCrafts (09) 227 7015

Soundcraft 400B 24/4/2 Mint \$6000. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Soundcraft 800B 24/8/2 8 Discrete Aux Para Mid EQ on Groups. Mint Condition \$12,750. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Soundcraft Spirit 16 in case. \$2800. Grafton Sound (02) 698 7777

Soundcraft Spirit live 24 channel mixer with 4 aux. sends, 3 way EQ with 2 sweeps. Excellent condition. \$3750. CC'S LIGHT & SOUND. Ring for free

catalogue. 008 803 064

Soundtracs 16/4/2 3 Aux Sweep Mid \$1000. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Soundtracs CMX32-12 recording console Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Speaker Cabinets carpeted. Single 12" & Piezo loaded. \$400. Grafton Sound (02) 698 7777

Speakers: JBL 2445's Mint \$750 each. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Speakers Turbosound - 24" Sub 6" V/C. \$3500pr. Cairns Tropic's P.A. Hire & Sound 070 510 104.

Stocktake clean out!!!! Come and buy it so we don't have to count it. No serious offer refused. Grafton Sound (02) 698 7777

TAC Scorpion 40-12 foldback desk immac. cond. \$22,000 Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Tascam M-216 16/4/2 2 Aux 3 Way EQ Mid Sweep Mint \$2000. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Theatrelight Showmaster 36 with Demux and Spare CPU \$2600. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Theatro 1200W Followspot with Colour Changer & Stand \$1200. Sydney Concert Light & Sound (02) 550 3828

(008) 804 994

Urei 1178 Stereo Compressor \$1800. 539 EQ Mint \$450 ea. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Valley People Rack 2 x Keepex II 1 2 X Gainbrain II and PSU in Mint Condition \$2200. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Wedges Nessel (8) 15" +H (Peavey 22-A) 1500C/S/X/O 300W \$750. Cairns Tropic's P.A. Hire & Sound 070 510 104. FX Digitec-128 \$350. Yamaha SPX-90 \$600. Cairns Tropic's P.A. Hire & Sound 070 510 104.

White 4400 (The Best) \$3000 the pair. 4660 \$900. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Yamaha 916 16/4/4 \$3000. Sydney Concert Light & Sound (02) 550 3828 (008) 804 994

Yamaha EMX-300 12 Channel powered Mixer 250W x 250W. Excellent Condition. \$2700. CC'S LIGHT & SOUND. Ring for free catalogue. 008 803 064

Yamaha PM 1800 40ch mixer \$20,000 Sydney Concert Light & Sound (02) 550 3828 (008) 804 994.

Zomax 1" compression driver with Lo-Pass filter and horn. \$400 the pair. Grafton Sound (02) 698 7777

Zomax 15" Speakers 250 watt as new. \$250. Grafton Sound (02) 698 7777

STUDIO SOLUTIONS

THE PRO AUDIO & VIDEO SPECIALISTS

- Repairs
- Maintenance
- Sales
- Installations



Call
Howard Jones

Suite 105, 511 Pacific Highway,
CROWS NEST NSW.

Phone (02) 906-4363 Fax (02) 439-6444



**damien
gerard**
SOUND STUDIOS

Professional Recording & Rehearsal

2ND HAND SELLOUT

STUDIO/LIVE
SPEAKERS
PROCESSORS
CONSOLES
MICS
AMPS etc.

Call Marshall for details.

For information & bookings

Call (02) 660 8776

Fax: (02) 692 9915

64-80 Wattle Street

Ultimo NSW 2007

ADVANCED
LIGHTING
EQUIPMENT
Sydney Australia



Specializing in metal equipment and
engineering services for
entertainment, exhibition and
general industry.

• design • manufacture • sales • service • hire • installation

trussing systems-alloy & steel - lighting bars - telescopic push-up & winch-up stands - hooks & clamps - portable stage risers - customized mic. stands - custom brackets, frames & adaptors - set construction - video trolleys - TV brackets - drum kit repairs, modifications & rejuvenations - rigging accessories - transportation frames, dollies & cases - general engineering - architectural metalwork - site welding - lighting sales - installations - design and total project management.....

24 Shirlow St, Marrickville NSW 2204 Ph: (02) 557 4141 Fax: (02) 557 4135

Phil Allison Electronics Technician

- ★ Personal service from Sydney's most experienced tech in all makes of PA and Stage Amplification.
- ★ From Amcron to Zpe and everything in between (Even Jands!!) expertly repaired and restored to 1st class operation.
- ★ Tube Amps, desks and FX units also welcome. All types of mics, including Radio Mics a specialty.
- ★ Quick turnaround on most jobs (2 to 3 days).
- ★ Business located in Ashfield area.

Phone (02) 799 8242
(6 DAYS)

MUSIC MI NEWS & UPDATE

Short Bits

AMA selling Melbourne Trade Show as regional, pre x-mas promotion

Music trade body, the Australian Music association, have announced the Melbourne Music Expo for October 22 through 24. The show will be held at the Melbourne Sports and Entertainment Centre. Music aptitude tests, lessons, demo's and 'technology inservices' will be activities focusing on the educational aspects of the expo. Floor space is on sale now, with stands starting at \$1,250. Call (03) 534-0144.

ON THE STREET (NSW) weekly - in liquidation

Prentice Parbury Barilla have been appointed liquidators of On The Street (NSW) Pty Ltd, the firm controlled by Noel Crabbe that publishes the long established street rock weekly of the same name. The firm had attempted to muscle in on Phil Tripp's *Australasian Music Industry Directory* (AMID) with a like-titled *Australasian Music Business Index* (AMBI). AMBI was finally published nine months late earlier this year, and received very little industry support. OTS also published ICON, another free weekly aimed at the dance party/club market.

The demise of On The Street ends one of the longest battles in Australian music publishing, which started when editorial staff lead by Margaret Cott, walked out of OTS in the late 1980's, to start a new rival weekly, Drum Media.

The resultant war of attrition saw advertising rates in the two titles fall to all time lows. Drum Media took an early lead in credibility stakes, and size, which eventually has seen it prevail. • -JG

Nobody saw this one coming ... or did they? Christie Elietzer details history:

BRASH CRASH - the CHRONOLOGY

HISTORY OF BRASHS

1862 - Marcus Brash sets up a store in Melbourne's Collins Street to sell organs and pianos.

1927 - Australia embraces the wireless in a big way and Brashs starts to sell radio.

1950s - Expands further into musical equipment.

1958 - Listed on Stock Exchange.

1963 - Acquires Suttons group.

1964 - Moves into Sydney market.

1976 - Buys out chief rival, Allans. By this stage, Brashs dominates the music retail market.

1982 - Brashs opens its 30th store.

1987 - Geoff Brash becomes executive chairman. Under Managing Director Peter Bennell, the company starts to widen its net, moving into consumer electronics. This spending spree is debt-fuelled but Brashs is confident the expansion will be lucrative.

1988 - Buys Douglas Hi-Fi and Palings. Expands nationally at rapid rate (opening at a rate of one store every ten days), paying high rent in prime locations. Within four years, it will end up with 300 stores nationally and staff of 3,400.

1990 - Continues expansion into radio (Tasradio independent radio chain) and book retail (Angus & Robertson, Bookworld). This would be later pinpointed as the beginning of Brashs' financial problems. In November, buys 19 HMV stores in New Zealand. Brashs shares are worth about \$6 and it has a market share of 24% (compared to approximately 10% of Chandlers and 1.5% of the Virgin Megastores).

1992 - The recession starts to bite hard and Brashs' financial problems begin. The Australian consumer electronics industry, on which Brashs relies for 46% of its

sales, shrinks 15.5% to \$1.35 billion. Drops of between 3% to 8% in recorded music, books and musical products means a loss of \$70 million in annual sales.

In December, Brashs sells off New Zealand record stores citing a sharp dip in record sales in that country. Share price drops to \$3.90 and there are rumours of a takeover. Geoff Brash, grandson of company founder, steps down as Chairman to concentrate on private interests, particularly the Brash Foundation, which helps young people learn music and reading. He reportedly retains a direct stake of about 6% and is replaced by Mel Ward.

1993 - Announces big cut to interim dividend. Shares drop to \$2.70. To offset shrinking consumer electronics market, Brashs moves sideways. Firmly believing the home office market is about to explode in a big way, it first goes into home computers, mobile telephones and other home office equipment. Then it moves into whitegoods.

In hindsight, retail analysts comments that (a) the capabilities of Brashs' counter staff is stretched, and (b) consumers start to get confused about just what Brashs is about.

In August, goes into partnership with David Syme & Co (The Melbourne Age) to distribute *Juke* magazine in what is touted as an ambitious first in the distribution of rock magazines in this country; partnership dissolves in December with the axing of the 18-year old magazine.

In October, one of the main shareholders, Greenchip Investments, puts in \$2 million on the

condition that Brashs will overcome its financial problems.

In November, Peter Bennell leaves and is believed to have 1.8% shares in the company. Adrian Kloeden (ex-paper manufacturer Amcor) becomes Managing Director and begins aggressive restructuring. He carves into working capital to shed \$18 million of debts and launches a \$12 million-a-year program of cost reduction.

December - Brashs sheds its book venture for \$34 million.

1994 - In January, announces a \$20 million operating cashflow deficit. In February, seeks buyer for its music publishing section. In March, announces a \$28.2 million loss for the second half of 1993. Rumours circulate that the instruments section could be up for sale. Main investors, Brierley Investments, inject an additional 8% and lift their stake to 12.5%. Garry Cameron joins as financial controller from the Victorian Treasury Corp. and puts forward a plan to inject new funds.

May 2 - Kloeden summoned to a meeting without notice with contingent of four banks, which gives him 24 hours to find fresh equity or race repayment of its \$61 million loans. As the company cannot guarantee loan repayments, Brashs voluntarily brings in administrator David Beatty of Arthur Andersen. Doing this gives it greater power and flexibility to salvage the business. If Brashs had allowed the banks to appoint a receiver, he could have triggered default clauses in leases and supply agreements, effectively bringing the company to its knees.

The Brashs musical instruments and print music division incorporates 10 outlets, including specialist stores trading as Allans, Caldwells and Palings.

Anything could happen now. •

Reviewed:

**PEAVEY BASSIST
DIGITECH VOCALISER**

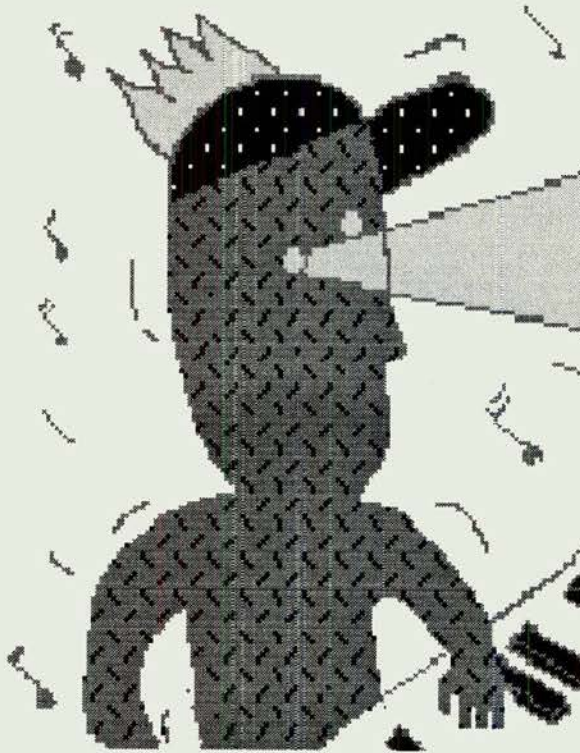
Getting That Vision Thing

By Hugh Jampton*

A soggy Tuesday night in Sydney did nothing to dampen the enthusiasm of Opcode's Keith Borman when introducing his company's latest

musical treats to a small but enthusiastic audience. He started with a background on his company, telling of its growth from foundation by CEO David Oppenheim at around the time of Macintosh computer's birth and coinciding with the standardisation of the MIDI protocol to now employing some 65 people. He went on to tell us that Opcode Systems created the first MIDI interface, sequencer and editor/librarian software for the Mac and that Oppenheim was one of the instigators of the standard MIDI file - which of course is as vital to computer musicians as the standard ASCII file is to word processing people. All of which has served to establish Opcode Systems as an innovator in the electronic music industry.

From out of all this has grown a great involvement in high class music production for the recording and film music industries, with big names like Madonna, Billy Joel and Herbie Hancock being quoted as just a few of those using Mac computers and Opcode software in both live and studio situations. After seeing Keith's demos of Vision 2.0 and Stud-



Vision Pro I'm not at all surprised that such industry leaders are committed users. The new release versions of these programs are "creme de la creme" in music and sound production and Keith's "world tour" to show them off is just that. He's already toured the USA from coast to coast, been right through

Europe, Scandinavia and Britain, is shortly to visit Malaysia, Japan and Korea, and is covering Australia and New Zealand before heading off to Canada and Mexico. Opcode has built solid dealerships in most of those countries and sells software to its multi national customers in Japanese, French, Portuguese, Dutch, German, Italian, and Spanish as well as in plain English.

A major breakthrough for all musicians is the Opcode MIDI system (OMI) by means of which different sequencers and

software can communicate together. This elegant system is designed to simplify the increasingly complex MIDI setups and integrate them to provide complete communication between OMS-compatible products. Opcode's extensive range of music products have OMS compliance built in and agreements are currently being negotiated with other manufacturers and developers to run with the system too. Already, folks like Digidesign (Pro Tools, Sound Designer 2.6 etc), Lexicon (Metro and Deck), PG Music (Band in a Box, The Pianist etc) and many others are already shipping OMS compliant product.

Borman's presentation was justifiably enthusiastic and, in putting the new version (2.0) of Vision through its paces in what turned out to be a pretty heavy session, this clever software never faltered or played up in any way. He said that users of existing versions have communicated their "wish lists" and Opcode have been able to

implement most of the requested functions with the major new enhancement being Track Overview. Here you may graphically view the information in your tracks in a completely global situation, with a subsection known as "Phrases" actually letting you see the music the way you hear it. Thus if a musical phrase starts "near the end of a bar" and stops "just after the start of another bar" it's displayed as a block which can be copied or moved for repeats of that particular phrase. It may also be "option dragged" to another track to produce an instant orchestration, as this copy of the phrase automatically takes on the MIDI instrument setting of the new track.

Much use is made of colour too, and each track may be allocated a specific colour so that all data relevant to that track shows up in the nominated colour, in whatever area of the program you're working. This is great as multiple tracks can sometimes become a little confusing and having everything highlighted in different colours helps a great deal in identifying track data.

Other new features include: Quantize on the fly; Smear - Keith likened this to a "humanize" feature which puts in random small errors to give a less mechanical feel - saying that there are various degrees of smear akin to a "one or two beer drummer"; Groove quantize, a function to let you impart a specific feel such as Hip Hop or Rap to your tracks (there are many other options and groove disks are also available); and of course Notation is another big inclusion from the user request list. Whilst not a fully fledged notation package (like Opcode's "Musicshop" at \$299 for instance) it does offer a perfectly acceptable printout

(turn the page for more)

Smear - Keith likened this to a "humanize" feature which puts in random small errors to give a less mechanical feel - saying that there are various degrees of smear akin to a "one or two beer drummer"!

THAT VISION THING

from any Mac compatible printer of parts and leadlines - even complete scores - and a range of notation editing functions is built in.

The demonstration of Vision 2.0 that we saw (and heard) had Keith recording a funky 8-bar bass line then adding drums and percussion to it, overlaying many other tracks like chords, horns, piano and guitar etc in quite a short time. He quantized the whole sequence in different ways in a startling demo of how different the same basic thing can sound, then showed how easy it is to pick out a specific part of just one track to quantize just that and leave the rest as originally recorded. Giving the percussion a Hip Hop feel whilst leaving the rest "straight" was just one of his impressive musical tricks.

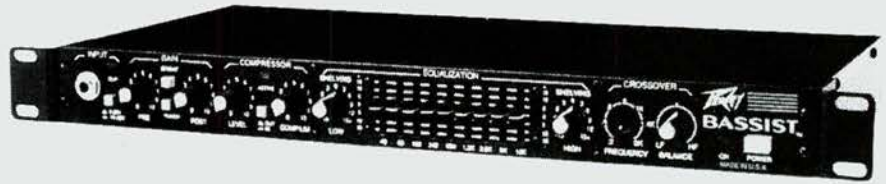
Vision 2.0 runs on any entry level Mac running System 7 and will play through the Audio Media sound card, Roland's Sound Canvas or other sound module. It carries a recommended retail price of \$850, which includes Opcode's universal librarian software - Galaxy. This lets you store synthesiser patches which Vision will then automatically display by name. Galaxy supports more than 150 of the most popular MIDI instruments and replaces expensive RAM cards by self storing the parameters of your created sounds. Patches may be stored in custom banks and quickly located by entering a keyword. At last, instrument patches can be called up by name and there's no longer any need to remember complicated numbers!

(continued over)

100% AUTHENTIC REVIEW. No advertising deals, no payola, no lunches. Connections paid Bruce Waite & Dave Macken at Blind Lemon Pie Studio to write this straight! **So YOU can rely on it.**

END USER REVIEW

PEAVEY BASSIST PREAMP



While staring blankly at the Peavey "Bassist" rack mount pre-amp and trying to think of what to write about it, we realised that it's hard to come up with any commonplace electro-musical invention that this company hasn't offered to the market place. O.K! We know through our own experience that a lot of readers and their friends are probably prone to saying things like "Peavey.....Yeh it's all right, at least it's cheap!" (One of the kinder negative quotes we can offer.); but don't be fooled by this unfortunate and jaded approach. Peavey are a mega huge corporation who successfully make everything from guitars, basses, keyboards, samplers and mic stands through to large recording and live production equipment.

Now sure they've made the occasional "lemon" along the way but this pre-amp is living proof that Peavey can deliver all the features and quality you need without making your wallet look like it suffered the same fate as Alan Bond's brain. The "Bassist" retails for a mere \$895.00 and if you can use every feature it has all at once then you could possibly qualify as a gadget wanker (GW)!! To be a GW you'd need to employ a twin DI, actively crossed, triple footswitched, full ranged, twin effect looped, compressed, twin gain bass rig with eleven stage equalising.

Let's start at the front of the gain chain shall we? The "Bassist" begins with a single input socket (front panel only) combined with a clip light and a 0dBV/-10dBv pad switch thus ensuring adaptability with both passive and active bass guitars. This "Input" section, as it is labelled, is followed by the "Gain" stage of the unit. At this point there is a pair of rotary pots for adjusting "pre" and "post" levels as well as two buttons known as "Bright" and "Punch". The brightness gives

your sound a subtle addition in the attack area while the punchiness really has been researched well and adds a good round bottom end to the sound of a bass guitar without getting muddy.

Next Peavey have the "Compressor" stage which has its own In/Out switch tied to a bright, easy to see green LED so you know it's on or off even from very far away. This gain reduction circuit is adjusted very simply on a one dial, less or more, basis at the same time as equipping the user with a second control for matching the level of the compressed sound to that of an uncompressed signal. The manufacturer has got this bass compression circuit sussed out quite well, it works effectively without being too obvious and best of all it doesn't hamper your playing.

Covering a fair portion of the front panel is the "Equalization" section. (For Christ's sake when will Americans learn to spell; there's no Z in the word equalise!) Building tones on this pre-amp is a breeze because you get a Low and a High rotary control for adjusting basic bass and treble balance as well as a 9 band graphic equaliser stretching from 40Hz to 10kHz. All of these filters yield a range of 15dB's of boost or cut thus enabling lots of very different sounds to be achieved. Completing the front panel controls is the "Crossover" section of the preamp that lets the user adjust a two band crossover point anywhere from 200Hz to 2kHz. This frequency point is set using a screwdriver (or thumb nail) while a normal rotary dial adjusts the "balance" between your low and high output sockets.

On the back panel the "Bassist" has five output sockets, three of which cater for your amplifier setup. These are jack sockets giv-

ing out either a full range signal or a High and Low signal depending on whether or not you use the crossover for bi-amping. The other two output sockets are a three pin canon or a jack socket which are for the P.A. and which defeat the need for a separate D.I. unit.

As is becoming standard on most instrument amplifiers these days, Peavey have included effect loop facilities in this model. This is a set up whereby you can place your favourite effectors within the gain path by using rear panel sockets which "break into" the circuit. Here again the "Bassist" has the goods because there are four jack sockets enabling two loops for placing various effects either before or after the equaliser. (The Pre Eq "send" socket could even be used to take a split to a tuner if you prefer.)

Finally there are four sockets associated with footswitch control of the "Bassist". First off the rank here is a seven pin DIN socket for connecting to a special Peavey multi footswitch which controls all of the units switchable functions. (Optional extra we presume) The other three footswitch sockets duplicate these functions on an individual basis using jacks therefore allowing the user to switch only those functions needed and also, unlike some manufacturers, this means you don't have to buy the "special expensive footswitch". These footswitchable functions being: #1-remote selection of the compressor! #2-remote bypass of the Pre-Eq fx loop! #3-remote bypass of the Post-Eq fx loop!

As far as audio quality is concerned....well, how else can we say this.... it sounds good!! The Peavey "Bassist" is a well thought out design and it seems it would be at home either in smoky night clubs or in the special carpeted recording spaces of this world. •

HAVE YOU GOT WHAT IT TAKES TO UNLEASH IT?



We do. Introducing *The Guitarist*,™ Shure's new affordable wireless system that will unleash the best sound your guitar can deliver. We designed it from the inside out

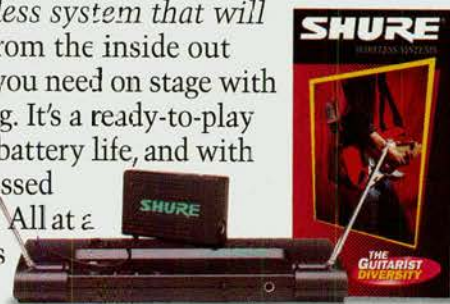
THE GUITARIST™

especially for guitars. So you get the freedom you need on stage with sound that's every bit as good as your wired rig. It's a ready-to-play system that works with any guitar cable. You get a full 18 hours of battery life, and with Shure's exclusive MARCAD® intelligent circuitry, you get unsurpassed freedom from dropout. Plus you get the legendary reliability of Shure. All at a price that will actually leave cash in your pocket. So get what it takes to really cut loose.

Jands Electronics Pty Ltd.

578 Princes Highway, St. Peters, N.S.W. 2044, Australia.

Phone: (02) 516 3622, Fax: (02) 517 1045



SHURE WIRELESS SYSTEMS

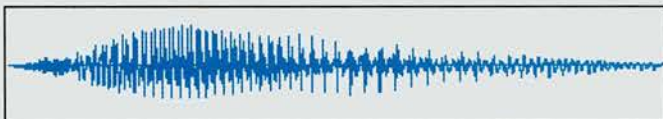
Write in Reader Service number: 118



The Vision Thing (continued)

Sound Vision Pro adds wave sound functions to Vision's musical features and lets you build up to 16 wave tracks on top of your MIDI music tracks. The beauty of all this is that both types of track can be edited, tweaked and quantized simultaneously (or separately if you wish).

Keith Borman's surprisingly good keyboard and vocal skills had him building a very passable vocal track, complete with highly original instrumental backing, which wouldn't have gone astray at the disco. This was done by first layering the backing track instruments as per Vision above, then singing directly into a studio mike to be recorded straight to the Mac's hard disk along with the backing instruments. Whilst the instruments showed up as data and blocks, the voice tracks showed up as oscilloscope wave forms.



Colours can be track assigned just as in Vision, and it seemed to me to be of even greater help when dealing with wave forms. Keith copied the original vocal to several blank tracks, then gave each copy a different reverb or other treatment. It was intriguing to see individual tracks being edited simply by "drawing" mouse lines in the edit window positioned below the track being worked on. Soloing

the track immediately highlights the volume peaks and troughs and bringing up the latter is as easy as drawing a line upwards at that spot. Lowering the peaks is similar, except that you draw in the opposite direction. Other functions achieve the same effect by menu commands but I liked the simple, visual way that this one worked.

In fact I liked the way that the whole thing worked, feeling that both programs provide ideal

working environments for musicians and post production studios. As Studio Vision Pro sells here for \$1695 it's certainly not expensive compared to the huge investment required just five years ago to equip a studio with similar functions. It runs on Power PC, Quadra or Centris machines, addressing Audio Media card, Pro Tools or Digi Design modules. A PC Windows version is promised for later in the year.

Details from Music Link (03) 429-9299.

**Hugh Jampton is a session musician who once toured with Gary Glitter. The editor was the FOH sound engineer at the time, he and Hugh had some outrageously memorable times together. A trouper!*



New

YAMAHA TG300 MIDI SOUND MODULE

Yamaha's TG300 Tone Generator is a new MIDI sound module offering 456 high quality instrument voices, 9 drum kits, and professional quality reverb and effects in a compact desktop unit. Employing Yamaha's AWM2 2nd generation Advanced Wave Memory with digital filters and 16-bit CD quality sound, the TG300 is an ideal high performance sound source for MIDI sequencing and live performance applications and recording.

The TG300 has 192 waveforms stored in 6MB of 16-bit ROM which are arranged into 456 preset voices of electric and acoustic instruments, synthesiser textures, percussion instruments and sound effects. Comprehensive editing facilities are provided on the front panel, equipped with a large, easy-to-read LCD display, for editing and setup of custom waveforms, voices and effects. 128 memory locations are provided for storage of custom voices.

The TG300 may be operated in 'single' mode, for live performance in conjunction

with a MIDI keyboard or synthesiser, or in 'multi' mode for MIDI sequencing. The multi mode enables the TG300 to play up to 16 instruments simultaneously with a total of 32-note polyphony and voice allocation.

A Yamaha custom DSP section provides professional quality effects like reverb, chorus, flanger, EQ, rotary speaker and Aural Exciter to add spaciousness, stereo depth and sparkle to sounds in either single or multi modes. Up to four effects may operate simultaneously, each with independent mix, send and pan controls.

This new module boasts the next generation of General MIDI conformity, featuring both GM level A and GM level B compatibility. It is the addition of

GM level B that sets the TG300 apart from previous General MIDI sound modules, which provides full compatibility with hundreds of 3rd-party GM, GS and GS Extended format MIDI song files.

TG300 provides a direct connection port for Apple Macintosh and PC-AT compatible computers, eliminating the requirement for external MIDI interfaces. A Windows driver will be available shortly. *\$1595 retail.*



Martin ATTACK



MOVING LIGHT SPECIAL!

4 x Roboscan 8055

- Powerful EFR Halogen lamp • Up to 36 colour & gobo combinations
- Stand alone & activated random animation • Adjustable focus • 180° pan 90° tilt
- Programmable via any Martin Controller • Weighs only 8 kg • Quick eating snuffer

PLUS 2308 Controller!

- The most powerful controller in its class • Can control a total of any 8 Martin fixtures
- A massive 611 scene memory capacity • Audio input or internal triggering
- Stores up to 10 different show of up to 255 sequences
- Joystick for easy programming

NOT \$8995 ONLY \$4995!
Including lamps & tax

* Only available from authorised
Martin dealers

CALL YOUR AUTHORISED MARTIN DEALER NOW!

NSW \$ ACT

BLACK EXPRESS LIGHT & SOUND - Phone 02 559 4363 • CENTRESTATE SOUND - Phone 063 620 587
CUSTOM AUDIO - Phone 049 294 996 • NIGHT SHIFT ENTERTAINMENT SERVICES - Phone 02 744 7777
NOISEBOX ENTERTAINMENT SERVICES - Phone 02 890 1709 • TOPSTAGE PRODUCTIONS - Phone 06 280 5710

VIC

DISCO WORLD - Phone 03 735 0588
LIGHTMOVES PROFESSIONAL ENTERTAINMENT SERVICES - PHONE 03 819 4566

QLD

ARI ELECTRONICS - Phone 07 854 1122 • LASER LIGHT & SOUND PRODUCTIONS - Phone 07 236 2333
MICK JAMES ELECTRONICS - Phone 075 720 133 • SKYPAK LIGHTING & SOUND - Phone 07 852 2757

WA

SOUNDWORKS PRODUCTIONS - Phone 09 271 5611 • STAGECRAFT - Phone 09 227 9000

DIGITECH VHM 5 Vocal Harmony Processor

At last we get to lay hands on the much mumbled about VHM 5, it's not that they're in short supply or anything, it's just one of those things you always remember to forget. Forever being sidetracked when in music shops has become an occupational hazard of our work and subsequently whenever we endeavour to hunt down a particular piece of equipment it is more than likely going to end up as the one thing that we don't get around to looking at. This happened so many times with the VHM 5 we became convinced the only way not to forget was to write the model number on our foreheads backwards, we surely wouldn't forget and nobody would ever let us forget. So after scrubbing the ink from our skin we got down to business.

The Digitech VHM 5 Vocal Harmony Processor or Vocalist, as it is commonly known around the traps, is available as both rack mount and table top model, we chose to look at the table top model for it's direct and simplistic approach. It's a device that uses the source signal in order to process harmonies. To clear this up quickly what the VHM 5 does is sample the incoming signal at 31.25kHz then uses these samples to reconstruct the desired harmony intervals that are relative to a selected scale or chord. By designing the VHM 5 with an "intelligence" factor it can therefore create these harmonies by inputting simple key and scale information.

Upon first glance the VHM 5 is much smaller than you'd imagine instantly calming any worries as to where it could or would be placed in either studio or live applications. The layout is so quick and easy it almost embarrasses other harmonisers that are quite often confusing to get around.

A handy hint for first time use of the Vocalist is to read the "Understanding" sections for both scalic and chordal harmonies. A basic understanding of scales is more than enough knowledge for the user to have in order to achieve results but, it will help you to be aware of how realistic the VHM 5 is regarding it's capabilities of delivering good results. As these sections will show, to the Vocalist a Scale is one of six traditional types which are Chromatic, Major, Minor, Wholetone, Diminished and Blues. Chords are recognised as one of eight specific types major, major 7, minor, minor 7, dominant 7, minor 7b5, diminished

and augmented. By using the in built synth to tune the incoming signal against (a master tuner is also onboard), you may chose the appropriate key or chord root to which one of these Scale or Chord types will be applied.

For instance, after having settled on a key in the Diatonic (scalic) programs you are free to roam through the differently arranged harmonies that are displayed with a program number, both in the LCD screen and the larger



LED panel, as well as the intervals of the harmonies to be generated. An example of one arrangement would read as follows, Diatonic 3-1-5, where 3 represents a 3rd in the octave below the input signal, 1 represents the input signal and 5 represents a 5th in the octave above the input signal. In the case of the Chord settings the harmonies to be generated are shown as a number of voices "above" and "below" the input signal, or note sung.

In having so many straightforward factory programs the Vocalist provides a work interface that is easily accessible particularly if using the "get it close then edit" approach rather than expecting the unit to cater to everybody's own individual and characteristic voice whilst fishing for just the right thing. Just the right thing is likely to be found faster by editing the current program. Program editing is brisk with only small amounts of data entry required in each of the menus that are travelled through using a four way directional cursor and following the on screen arrows. The edit menus provide functions such as harmony mute, detune, harmony volume, vibrato, pitch randomize and portamento.

Editing the programs to suit your needs certainly leads to a more natural sound from the VHM 5 as adjustment of the "ess" sensitivity and harmony gate functions in the utility menus will give the unit a better chance of

correctly handling the input signal. In editing the harmony the user is free to completely redefine the arrangement of notes that the Vocalist will output, in turn, making way for the use of a more artistic or learned approach.

The inclusion of Vocoder programs, where the incoming voice can be played across a keyboard in various modes, was a nice touch, also welcome amongst the list of programs are pitch correctors, either auto, where the note sung is shifted to the closest note in the scale, or manual, where the pitch is shifted in accordance with notes played on the keyboard. There were no obvious troubles for the VHM 5 to pitch shift correctly with clarity though as is expected, and this true for all pitch shifting and harmonising devices, trying to shift an excessive amount is rather unrealistic.

Full Midi implementation will satisfy those using the Vocalist in studio environments as connection to an external keyboard can also give access to changing programs, variations and keys as well as advantageous use of continuous controllers such as being able to assign a modulation wheel to control vibrato depth in the harmony. Those likely to use the Vocalist in a performance situation are also catered for as a Song mode is present that enables the unit to step through programmed key and variation changes via a footswitch. In this mode up to 32 steps may be recalled in each of the programs, which should keep the soloists very happy.

In conclusion the Digitech VHM 5 is a well thought out harmoniser that is capable of delivering surprisingly good harmonies when used properly, it is comprehensive without bogging down and so user friendly that it almost welcomes novices to come up with things far beyond a basic understanding. If the Vocalist were to be designed as a quagmire of parameters and intricacies the audio boffins would praise it's processing power and lack of extraneous noise, where in reality, it is happy to work simply and effectively without demanding constant attention while still retaining it's sound qualities. All in all a great harmoniser disguised behind one of the easiest operating systems around.

• \$1995. RRP. Distributed by CMI, call (03) 315-2244.

New Contractor Series

purpose built quality range of low cost amplifiers designed specifically for commercial audio installations. The C600, C800 and C1200 offer superior audio performance with high power in a compact 2U chassis, full circuit protection, 100 volt line option and legendary reliability endorsed with a full five year warranty.



LANDMARK Studio Monitors

Designed for ultra critical near and midfield monitoring applications. **LANDMARK** is the result of thousands of man hours of research, development and intensive studio trials. **LANDMARK** demonstrates true clarity, definition and solid imaging. Call A.R. Audio Engineering for a demonstration. Telephone: (02) 299-3666



Australian Monitor Pty Ltd.

53 College Street, Gladesville N.S.W. 2111 Telephone: +61 (02) 816-3544

Facsimile: +61 (02) 817-4303

New Zealand Distribution:- IMPACT AUDIO, Timaru Telephone: 03 688-1191

Facsimile: 03 688-1193

Write in Reader Service number: 107

EnTech

Entertainment Technology Trade Show
Darling Harbour Sydney, October 6 - 8, 1994

TRADE SHOW: FREE TRADE ENTRY AFTER REGISTRATION*

Sydney Exhibition Centre is the place to be, 10am - 6pm daily, October 6 - 8, 1994.

*Students: please refer to our visitors guide brochure or Show Guide for conditions of entry.

Workshops and Seminars: LOW COST

ON THE HOUR, A\$10 EACH*

- Our Workshops are of **50 minutes** duration, and are held in a meeting room just metres from the Trade Show exhibits. (Free entry to exhibits).
- You can **PRE BOOK** any workshop. Use the form below, or phone 61-2 876-1411.

- You can book Workshops AT ENTECH '94 **subject to** availability. You can buy a workshop ticket any time prior to your workshop from the registration counter.
- Buy a **DELEGATE PACKAGE** offering unlimited access all days for \$145. (Subject to space, reservations rec).

TIMETABLE: LOOK FOR THE ENTECH '94 SHOW GUIDE

- All WORKSHOPS will be **fully detailed** in the ENTECH '94 SHOW GUIDE.
 - The Show Guide is available with the bumper **SEPTEMBER** edition of Connections Magazine.
- DISCOUNT Flights & Hotels:- call us!**

STUDIO, MUSIC PRODUCTION

- W 01** A & R people tell: The view re the home studio.
- W 02** Is your Recording ready for Mastering?
- W 03** Audio Storage: Hard disc, MO or tape? Trends.
- W 04** Future Console Design Directions.
- W 05** Producers and Engineers: The Panel discussion!
- W 06** Hi 8 or VHS? Which format will prevail? Trends.
- W 07** Stereo Digital Formats. MD, CD-R, DCC & DAT.
- W 08** **HARD DISC SUPER SESSION!**
1.5 Hour Workshop, Latest Systems, Interconnecting 8 track Digital with Hard Disc! \$15.
- W 11** Musical Direction for Theatre/Film/Video.
- W 12** MIDI primer: Basic explanation, demo, latest.
- W 13** Beyond The Project Studio: Music Production Versatility.
- W 14** Video And The Project Studio: Welcome To MultiMedia!
- W 15** MIDI Sequencing in the Studio environment.

LASERS, PYRO, TOURS, VISION

- W 41** Lasers and Image Projection
- W 42** Pyrotechnics: What you can and can't do
- W 43** Getting the tour on the road: Panel
- W 44** Video projection: What's next?

PRO AUDIO, SYSTEMS INTEGRATION

- W 16** The Microphone, the Orchestra, & the Choir.
- W 17** In Ear Monitors: The Forum.
- W 18** Lone Wolf Media Link: The new control protocol debated
- W 19** Remote Control: Systems Integration Tools.
- W 20** Wireless directions: The future.
- W 21** Power: Electricity, generators, and PA's.
- W 22** Loudspeaker Technology for the 90's. Trends.

BUSINESS, ISSUES, CAREERS, SAFETY

- W 31** Tax and the Contractor, withholding tax; hire tax.
- W 32** Legal Liability in the Production/Hire industry.
- W 33** Performance royalties, Are you liable? How much?
- W 34** Safety in theatre and the performance space: Laws.
- W 35** Youth Career Forum: Case Studies, How They Got There

LIGHTING

- W 50** DMX update; primer — and also a basic description!
- W 51** Controlling moving lights from a standard desk.
- W 52** Dimmerless lighting - future, or fad?
- W 53** Lamp Technology and developments.
- W 54** Meet the Lighting Designers: Panel.
- W 55** LX Software is your friend. Packages compared.
- W 56** Architectural Dimming: Trends, Design, Futures.

* OTHER WORKSHOPS MAY BE SCHEDULED. Compiled by Connections Magazine writers after liaison with over 100 industry professionals. *W08 \$15.

WORKSHOP & DELEGATES BOOKING FORM

.....
 First Name: Last Name:

 Company/Organisation:

 Address

 Post Code/Zip:

 Country:

 Telephone: Fax:

Please book me into the following **WORKSHOPS** @ A\$10* each:

W 01	W 11	W 15	W 31	W 41	W 50
W 02	W 12	W 16	W 32	W 42	W 51
W 03	W 13	W 17	W 33	W 43	W 52
W 04	W 14	W 18	W 34	W 44	W 53
W 05		W 19	W 35		W 54
W 06		W 20			W 55
W 07		W 21			W 56
W 08 \$15*		W 22			

< circle your selection/s >

A\$

Times/days confirmed in Show Guide. Refunded if unsuitable up to Sept. 1

DELEGATE: Book me in. I can visit **ANY WORKSHOP** at **ANY TIME** provided space available. Cost: \$145 each. Please reserve a space at all Workshops circled (above). I may reserve others or change later!

TOTAL CHARGED all above: A\$

PAYMENT:

Cheque herein

Visa

MasterCard

Bankcard

CREDIT CARD NUMBER:

EXPIRY DATE:

Cardholders Name:

Signed:



Send this to **ENTECH '94**,
 (Presented & Promoted by Connections)
 PO Box 439, EPPING, NSW 2121 Australia.
 Fax: 02 876-5715. Call: 02 876-1411.

OPERATING MANUALS

- A LITERARY APPRAISAL

by Martin Kaye

In a world where stereotyping is rapidly being outlawed by small minded majorities acting on behalf of small minded minorities, it would seem dangerous (in a socia-suicidal sort-of-way) to speak out about a group of people who for too many years now have been messing with our minds, wasting our time and leaving us drowning in a sea of confusion. I refer of course to the people who write operating manuals. Not all of these beings are of sub-normal intelligence or a malicious nature, however few get it right and this often tends to lend more wear and tear to the user than to the appliance itself.

An example: from Chiayo series 303 operating manual):

"Water and Moisture: *The appliance should not be used near water. For example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.*"

Some manuals appear to have been written with intent to confuse. Ignoring this warning may result in a baldness due to pulling your hair out. You could spend hours searching for diagram 2.11 (which has been mischievously omitted), and weeks pouring through dictionaries on a quest to find the meaning of the word **Kronch** which keeps appearing throughout the manual. *"Make with power lite flashing to do flonction will being much wear and faulty"* is a common phrase among many of these manuals, and they therefore should not be read by anyone with a nervous condition.

You will also note the absence of the comical little man who normally appears smiling on every page. These manuals inspire hatred to your fellow man.

At this point I should stress that there are many manufacturers whose manuals are extremely user friendly, who do not supply us with teasers such as: *"insert part Q - not included - into slot C - wrong size, not illustrated"*, and it should be noted that these are the manufacturers who include batteries with their appliances whenever applicable.

CLASSIC FICTIONAL WORKS OF THE

20TH CENTURY

Sometimes it would appear that the authors of operating manuals are extremely humorous people and you may feel uneasy that somewhere a small group of little people are laughing at you as you attempt to follow their beguilingly benevolent advice and instructions. However, as in the case of the manual included with the Inkel PT-817 Digital Tuner, the author purveys no sense of humour, rather, a fatalistic attitude to the world:

"Connection of the Antenna and the Earthing Cable-

•FM RECEIVING ANTENNA

The electric wave of FM broadcasting is weakening in hills and valleys, around buildings and in iron-reinforced buildings because of its own nature."

Further down the page, the author (possibly now on heavy medication) describes a city scene where *"you can feel the noise"*. The paragraph's relation to its heading is almost indeterminate in order to further confuse the reader...

•INSTALLATION OF THE ANTENNA USING THE COAXIAL CABLE

"You may feel the noise at the crowded downtown, city streets and factory sites as well as around power cables, even in the case of using the antenna exclusively for FM. In these regions, install it through connection with a coaxial cable of 75 ohms."

The same author is seems was hired once again by Inkel to write the manual for their A-12 12 volt car amplifier.

•20W OUTPUT POWER. *"This model is 20 Watts output power Amp for the use of car which can deliver the original sound of DECK or MIC to a long distance."*

•2 CHANNELS MIC. *"It being equipped with two channels MIC, you can use each MIC independently with individual volume."*

•AUTO REVERSE CASSETTE DECK. *"High performance auto reverse cassette deck enables you to use this model more conveniently without reversing tape in person"*.

•VARIOUS USE. *"As this model take very*

strong output power, you can use it for commercial and communicating use as well as for the use of listening to music".

The A-12 also includes spare prepositions in every manual.....

•BOOSTING OUTPUT SIGNAL (OPTION). *"You can boost output signal connecting output transformer with terminal fitted back chassis with....."* Sounds easy enough?

ADDITIONAL ADVICE FROM THE MANUAL LABORERS:

•MAINTENANCE AND MANAGEMENT OF CASSETTE TAPE. *"a) Keep the tape tight before inserting it into the check by rolling the tape with a pencil of something as in a below picture. b) Moistured fingers should not touch the tape. c) Put the cassette tape in the case lest it may be stained with dust. The dust on the tape or other alien substance damage the playback head or debase the sound quality."*









The first of these tips is of great interest to those in possession of "A PENCIL OF SOMETHING" although I have omitted "A BELOW PICTURE"!

The second piece of advice prompt the question "Have my fingers been moistured lately?. Find your own way to do this - it could be fun.

What about the Arista WMS371? The opening paragraph is an advance warning that only "professionals" should read on... *"The ARISTA FM MICROPHONE COUPLER (Wireless system) WMS 371 is a high grade Microphone and Receiver for professionals. There's designed incorporating crystal control system, noise cancelling system and squelch system which novelty designed receiver is very small size so you can carrying to convenient."*

If by now I haven't made my point, Arista hopefully have. Say No to drugs! •

N.B. The author of this article wishes to point out that he has no opinion on the equipment and manufacturers named herein. This is purely an appraisal of operating manuals only and the above excerpts are only a few examples of the many moronic manuals available.

				<p>Talking Speaker Boxes ? Carpet, Corners, Grilles, Handles, Wheels, Dishes, Flying Gear and more... You name it, we've got it. Call now for a free Catalogue...</p> <p>PENN FABRICATION 43-45 Johnston St. Port Melbourne, Vic. 3207 Ph:(03)646-7222 Fax:(03)646-8222</p>
				

Write in Reader Service number: 142

ADVERTISERS INDEX

Active Lighting	71
AIBA (MGA Bates)	30
Amber Technology	19
AR Audio	3
ARX	24, 25
Ashton Admor	16
Audio & Recording Aust.	15
Audio Telex	41
Aust. Audio Supplies	40, 63
Australian Monitor	95
AWA	20
BASF	79
Bose Australia Inc.	26, 27
Bytecraft	73
CMC	61
Coemar De Sisti Aust.	99
Concert Lighting Systems	21
dmc	22
East Coast Audio	17, 47
Enterlite	65
ESA	13
Freedman Electronics	43
Grafton Sound & Lighting	60
GUVT (Highend Systems)	82
Hectik Elektrik	70
Horwood Australia P/L	77
Jands Electronics	2, 14, 78, 91
Lightmoves Technologies	67
Lots of Watts	74
LSC Electronics	72
Magna Systems	59
Multicontact	18
Noisebox Entertainment	46
Penn Fabrication Aust.	97
Production Audio Services	35
Rockard Paint	62
Rosco/CCT	70
School of Audio Engineering	11
Selecon NZ	65
Show Technology	93, 100
Sony Music Aust. Ltd.	9
Southbank Trading	49
Studio Connections	31
Studio Supplies	49
Syntec International	10
Universal Lighting & Audio	7, 37

THE PA PAGE

Make Your Own Crossover!

Almost anyone can make a passive crossover in much the same way as anyone can bake a cake. If you can follow a proven recipe closely using the right ingredients, then you can be confident of success. It's always amazed me that people will pay \$80 for a little fibreglass board with only a coil and capacitor or two, or \$200 for designer versions of same with a bunch of resistors added.

Am I going too fast for the beginners? I'm sorry, let's go back to the start. A crossover is something that separates a total or "full range" sound into factors that best suit the transducers (speakers and horns) trying to reproduce it. For example a two-way crossover might separate low frequencies that feed, say a 12 or 15 inch speaker from the high frequencies feeding an accompanying horn. An "active" crossover does this with the line level signal before your amplifiers. This means that separate amplifiers are then needed for driving speakers and horns. A "passive" crossover does this with the signal coming from an amplifier and is usually located within the speaker cabinet itself.

I often read blurbs (sales brochures) in which manufacturers imply their passive systems are superior to active ones. Let not the novice be fooled. Active is superior. It just costs more. Apart from the crossover itself, there is the relatively major expense of extra amplifiers.

Passive systems are simpler and most owner operators are content to settle for passive foldback speakers. But be aware of the compromises involved. Passive crossover components can absorb up to a third of the wattage being fed into the cabinet. This is certainly the case in many custom designed units in which components are not only draining off at band limits, but also equalising the response of the transducers. In "full on" conditions as is so often the case in the pub rock scene, when your foldback amps start clipping, everything distorts. In an active system, your lows amplifier can be getting pushed into clipping but the speaker system can still appear clean, with horns running relatively conservatively. Clipping is always bad news. It's just that you are more likely to get away

with it in an active system. Often the answer to clipping is using a larger amplifier, but this makes life riskier for your horn diaphragms. Even using the globe system detailed in my previous article, it can be impractical to limit a 900 watt per channel dispensing burst of feedback into a 30 watt horn diaphragm. Transformers may be needed. By using the secondary windings on certain multitap transformers you can maximise safety while minimising attenuation.

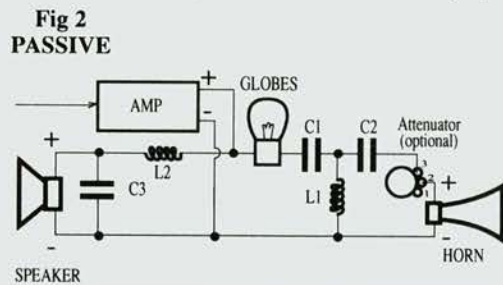
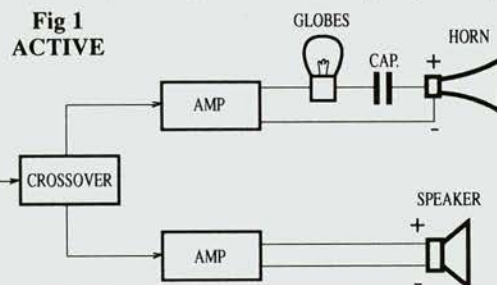
If you do choose to go active, either front of house or foldback, don't leave your horns totally unprotected. Apart from globes you should have a capacitor in line to prevent any low frequencies which may be accidentally fed in. Even switch on thumps can severely fatigue diaphragms if left unfiltered. Largish non-polar mains rated capacitors between 15 and 20 microfarads are pretty well industry standard for these applications. Avoid smaller polarised electrolytics. Nasty things.

Now where was I? Oh yeah, some passive crossover recipes. Refer to figure 2. For an 8 ohm horn and 8 ohm speaker to cross at 1500 hertz (making a total 8 ohm system) C1 is 8.2uf (microfarads), C2 is 13.2uf, L1 is 4.2mH (milihenries). If using a speaker with bigger all output over 2K (Etone 805, JBL 2225) don't bother with L2 or C3. If using a speaker with a bit of output over 2K (801, 2220, EVDLX) then L2 should be 1.5 to 2 mH (not so critical) and don't bother with C3. If using an instrument type speaker with bulk output over 2K (E140, EV15L) L2 should be 1.2 mH and C3 should be 12uf. If your horn alleges itself to be 16 ohms, check it with a multimeter. (If you run a P.A. and don't have one, buy one.) If it really is 16 ohms-ish, halve C1 and C2 and double L1. Stick all components neatly onto a thin piece of ply using a silicone sealant. Use only "neutral cure" types. Acid based ones can eat into components. Fibreglass component boards look neat and are easier to work with on large production runs, but do nothing to affect the way things actually work. The wire used on your coils should be at least 16-18BS Standard. Any thinner will have too high a resistance. Run connecting wires to a tag strip and install. Good luck!

Michael Orland, The Public Address Company.

READER SERVICE CARD:

You can obtain information on Products and Services in this magazine where a reader Service Number is indicated. Just fill out the FREEPOST Reader Service Card elsewhere in the magazine, and send it to us. Pos: FREE!



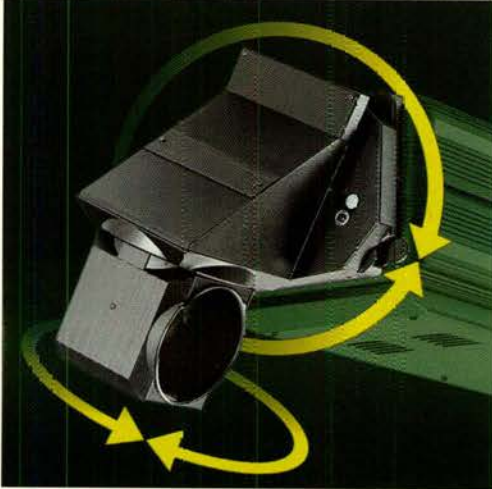
NEXT ISSUE:

August.
(Deadline July 15)



new advanced technology/total movement

nat tm2500

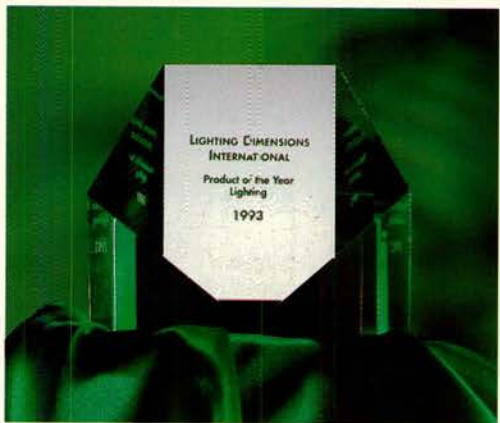


- 16 bit positioning system for absolute accuracy
- total movement - 360° in both axis; multi rotation modes with speeds available from 0.23 to 52 revolutions per m.
- ultra smooth software tracking eliminates the need for primitive speed channels
- totally smooth dimmer for complete intensity control with no optical degradation at any point
- variable speed strobing shutter with position control for accurate image wipe/reveal possibilities and blackout
- slick iris with built-in variable speed pulse facilities
- ultra high speed zoom for precise image sizing and effect explosion creation
- focus separately programmable at all sizes
- programmable frost usable at all settings from sharp to totally diffused (fade to white) with variable speed frost flash facilities
- two gobo wheels give a total of 36 image combinations with additional +/- 3° positions for quick, accurate moiré effect creation; all gobo's and effects are rotatable in both directions at independent variable speeds and are positionable to give accurate, repeatable image line up facilities; rolling gobo effects are available in either direction or in combination to give new contra-rolling effect
- additional effects wheel with 3 optically optimised image multiplying prisms (3, 4 & 6 facet) and seamless quad and bicolor for internal colour rotation
- colour wheel featuring unique seam-less quad, tri and bi colour possibilities together with variable speed rotocolour; full cyan, magenta, yellow colour mixing
- all systems can be used in combination
- function channel for remote lamp operation and power up/down
- all functions available from standard DMX 512 control via 3 or 5 pin carnon connectors
- Back panel LCD display for menu driven digital address setting, DMX reception indication and analysis, operation mode options, lamp and unit life display and unit test facilities
- power factor corrected as standard
- discrete elegant styling with user adjustable handles for easy rigging
- ultra powerful HTI 2500 W/SE lamp
- optimised optical systems give a light output that is at least double that of any other currently available articulate projector

The real revolution in light.

NAT was conceived as a complete range of machines. Built without compromises, they not only out perform the competition in all respects, but also represent absolutely, the state of the lighting art. Once again coemar leads the way...

The flagship of the range is the acclaimed NAT TM2500, which on it's first major showing at the LDI exhibition in Orlando, won the prestigious "Best New Product in 1993" award.



cda pty ltd
36 a clements avenue
bundoora victoria
ph (03) 4678666
fax (03) 4678667

coemar nat

Write in Reader Service number: 103

SUPER SCAN ZOOM not just an intelligent projector: a Maestro of light!



Remotely controlled zoom • electronic focusing

• primary colours mixing • 2 colour temperature correction filters • wheel for special colour-effects • two adjacent or concentric colour beams • U.V. filter for Wood's light simulation • four-colour beams • 4 variable speed bi-directionally rotating gobos • indexable gobo positioning • 4 fixed gobos and 16 static pattern combinations • all interchangeable M-size gobos • 2 different prisms with bi-directional adjustable speed rotation • independent and combinable gobo and prism rotations • infinite variety of dynamic pattern combinations • 2 Frost filters with different diffusion degree • very high speed iris • linear mechanical dimmer 0-100% • 1-7 flash/s strobe effect • HMI 1200 discharge lamp and enhanced light output • control inputs: digital DMX 512 and RS 232 (PMX), analog 0-10V.

Distributor for Australia:

SHOW TECHNOLOGY AUSTRALIA PTY LTD
13 - 15 Bridge Street - RYDALMERE NSW 2116
Phone 2.898 1111 - Fax 2.898 1222

Head Office:

CLAY PAKY SPA - Via Giovanni Pascoli, 1
24066 PEDRENGO (Bergamo) Italy
Tel. 39 - (0) 35.663965 - Fax 39 - (0) 35.665976



PROFESSIONAL SHOW LIGHTING

Write in Reader Service number: 159