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# Studio Sound

THE INTERNATIONAL PROFESSIONAL AUDIO MAGAZINE  
FOR RECORDING, POSTPRODUCTION & BROADCAST



## EXCLUSIVES

Spirit Digital 328  
TL Audio PA-5001; PA-5050  
Yamaha 01V DSP Factory  
Creamware TDAT16; A-16  
TM-D8000 automation  
AKG WMS 300 PT  
Summit TMX-420  
Mytek DDD-603  
Tascam MMR-8  
Pearl CC 22

## THE SIMPSONS

Postproduction blah, blah, blah



The  
**CHRIS  
KIMSEY**  
Interview

NAGAÑO PREPARES FOR OLYMPIC SNOW  
HAMBURG AND TOKYO STUDIOS  
THE CONTROVERSY OF 24-96  
FORCES RADIO WORLDWIDE



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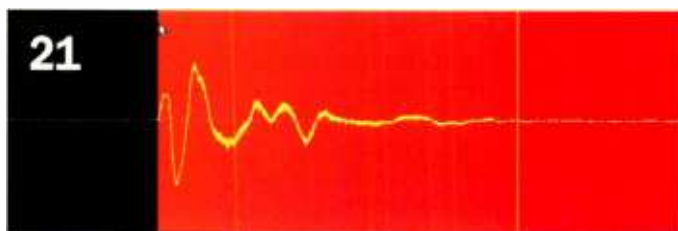
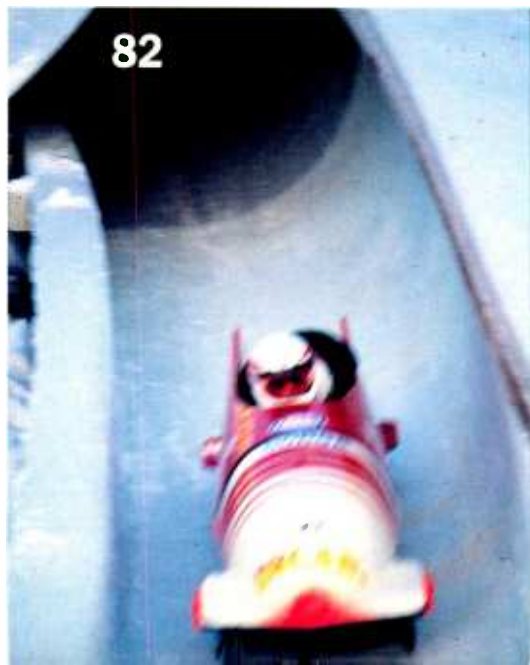
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[www.prostudio.com/studiesound](http://www.prostudio.com/studiesound)



## Smaller, smarter, cheaper

WE WERE ALWAYS promised that digital would make things smaller, smarter and cheaper. then why are we so surprised when it finally begins to happen? Why also is this arrival interpreted as a threat rather than as an opportunity?

The key word is of course 'smarter' because the new affordable stuff is smarter than what it replaces and it is only judged affordable by comparing the degree of control it offers with what preceded it. The manufacturer can make it affordable by building greater volumes of smaller units and it stands to reason that if a manufacturer has the technology already, slapping a digital desk onto a computer card will be less of a big deal than it would be for those that don't.

We must, however, retain an element of realism and perspective about these kinds of admittedly significant advances otherwise there is a danger of being blinkered into a vision of the business as spiralling downwards to oblivion and the adoption of vanilla as the only flavour of choice. The technology will get cheaper and smarter but its impact is on a sliding scale. A facility near the top of the heap has less to gain in absolute real terms than someone sitting in a bedroom with only a guitar and the family hi-fi to be creative with.

As with all major historical events, the magnitude of the effect of the revolution depends greatly on your own circumstances. Note how the high end can indulge in discussions on the relative merits of analogue and digital for sonic reasons and how it was never really an issue in the low end's dive towards digital.

Affordable digital mixing and hard disk recording on your dad's PC is almost damagingly mind-blowing for someone working on a 4-track cassette portastudio but it will be of only passing interest to someone who has earned the money back many times over on a top flight digital desk and hard disk editor.

Smaller, smarter and cheaper technology does offer new business opportunities but only for those that are actually in business. Purchasing ability alone is not a qualification.

**Zenon Schoepe, executive editor**

## From start to finish

IN THE BEGINNING of audio everything was new. Everyone began on the same level playing field without the luxury of anyone else's lessons to guide them. The tools were those of common sense, intelligence and an aptitude to deal with sound. That was then...

Now we're able to look back over several generations of technologies, learn the lessons they offer and, in principle at least, evolve better systems and practices to realise our aims. It ought to be easier than it was in the beginning, but somehow it ain't. Alongside useful experiences, the mix has acquired the technical and financial complications of other more mundane form of business, we've granted certain people a special status that allows their preferences to impact on our own and we've poisoned our once beautiful subjectivity with a million cues as to what we should and shouldn't hear. Suddenly, the single goal we seek to serve with a recording and the fat catalogue of equipment available to help us have devolved into an ocean of possibilities so deep we're often out of our depth. And yet we still want more. And we want it for less.

Presently we're busy feeding ever more, and ever more conflicting demands back into the system that designs and dispenses our tools. Even to pursue this discussion is to invite new depths of complexity into the loop and to add the complication of the discussion to the original picture. But this is an exciting time - many of the latest developments bring with them the opportunity to improve our working methods and develop completely new ones. Still others offer us the possibility to bring new levels of fidelity to our work. And all invite a greater understanding of sound, and the creatures that hear it. Surely it would take a Luddite to turn their back on all this.

Ultimately, we need to keep in mind the essentials of our goals and the means that best serve them. Only then can we hope to properly assess not only what's new, but what we already have and are frequently in danger of overlooking. It's not enough to know that a Yamaha has broken new ground in digital mixing technology with its DSP Farm or that Rupert Neve has put his name to a new EQ. It's not enough to know that John Astley used a Genex GX8000 running at 24 bits and 96kHz to restore the BBC's Led Zeppelin recordings. Nor is it enough to know that the UK AES is hosting a conference on mic and speaker design or that Sennheiser has founded a scholarship scheme at the Liverpool Institute for the Performing Arts. Although any of these may help you.

So if you've got to march, march at your own pace. And if you've got to fight, pick it.

**Tim Goodyer, editor**

# Studio Sound

**Incorporating Broadcast Engineering**

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Tel: (616) 695 4750. Fax: (616) 695 0470.



**JAPAN:** Shinagawa's Imagica studios has completed the commissioning of its new AMS Neve Logic 2 digital console. Part of a new postproduction room christened No.5 MA in the Tokyo-based facility, the console will serve high-definition and surround production work. Imagica. Tel: +61 3 3583 1681

## Winter NAMM

**US:** Moving from its traditional location in Anaheim, this year's Winter NAMM Show opened with the boast that it was the first exhibition to fill the LA Convention Centre. And having filled three main halls and numerous peripheral rooms and 'villages', it was no problem to draw the crowds.

From its beginnings as an MI event, the Show has steadily made itself more relevant to pro-audio visitors through the attendance of many of the professional players and through many crossover manufacturers, some of whom are not to be seen at AES Conventions. One of the main draws this year was the

escalating budget digital desk war, with challenges to Yamaha's dominance coming from Spirit's 328 and Ramsa's DA7. Yamaha, meanwhile had expanded its activities through the introduction of its DSP Factory. Plenty of other developments were also in evidence (see this month's New Product News) including new ADAT variants, Roland's VS-1680, Presonus' preamps, Audio Technica and TAD mics, wireless systems from Sennheiser and AKG, and outboard from dbx and Drawmer.

Glamour too was in good supply with guitars and drums bringing in beautiful people, and advances in silicone technology bringing in keyboard players, engineers and blondes.

## Playing the field

**Net:** Following its international professional debut in *Studio Sound*, Res Rocket took its DRGN virtual studio into the television studio for a live on-air jam session.

Broadcast at the end of January on the BBC science series *Tomorrow's World*, the event involved a jam between remotely located musicians conducted via MIDI over the Internet. One of the performers was pictured performing in front of London's Big Ben and another in front of San Francisco's Golden Gate bridge.

The program is available free from Res Rocket's Web site at [www.resrocket.com](http://www.resrocket.com)

**UK:** Trilled by the announcement of its investment in a pair of AMS Neve Prolog consoles, London's new China Blue Post Production has now opened for business. Both studios are equipped with Genelec monitoring and intend to serve sound design, music composition, voice-over, track laying and mixing for film, video, TV, broadcast and commercial work. Established by David Hamilton-Smith (below), China Blue has already secured work for Channel 4, film trailers for *Lethal Weapon IV*, and a Swiss television opera production. The facility owes its name to the fact that it occupies the original site of the Wedgewood pottery showroom. China Blue Post Production. Tel: +44 171 437 5999



**France:** Stretching her legs in her recent appointment over the Manor Mobiles, Siobhan Palne visited the Mildem 98 convention with one of her charges. The venture — a first for the group and sponsored by Emtech Magnetics — pulled plenty of punters to look over the shoulder of senior engineer Will Shapland. The Manor Mobiles. Tel: 181 756 0660

## The mics formerly known as...

**Denmark:** Putting its B&K heritage further behind it, the DPA tag will now appear on all the former Brüel & Kjær models. The move follows those begun in 1992 when Danish Pro Audio took on distribution of the Series 4000.

further developing it and new lines for DPA. Since then, B&K has poured its efforts into test and measurement equipment. Distribution lines for DPA mics are unaffected. DPA Microphones. Tel: +45 48 14 28 28

## End games

**UK:** If the development of digital technology has enabled greater control over the audio signal chain, it has also placed a strain on its ends.

For while digital offers great scope for exploration, mics and speakers continue to present familiar problems to their designers. Against this background, the forthcoming UK AES Conference, Microphones & Loudspeakers: the Ins and Outs of Audio, seems particularly timely.

Set for 16-17 March at Dean's

Yard, London, the event promises to pull together representatives of many major players in both fields. These include Sennheiser, Shure, Neumann, Schoeps, Sony, Trantec and Audio Technica at the front end, and ATC, JBL, EAW, Goodmans and NXT at the repro end. Chairmen include Sony's Peter Easby, Chop em Out's Bernie Spratt, Crystal Semiconductors' Steve Harris, Mordaunt Short's Phil Knight and Harris Grant's Neil Grant.

Closing comments will be offered by Tony Faulkner and John Borwick. AES. Tel: +44 1628 663725



▲ **UK:** Starring Nastassja Kinski and Kyle MacLachlan, *One Night Stand* saw Angel Studios' main room catering for a large orchestral session and some serious LA groove work. Recorded by Steve Price on an AMS Neve VR console, analogue 24-track with Dolby SR, and mixed to 1/2-inch with SR and DAT, the score was composed by Mike Figgis. Angel Studios, Tel: +44 171 354 2525

## Dark Rhodes

**UK:** Trevor Jones and Simon Rhodes have been putting Abbey Road through its paces on their recent film scores—including *Gl Jane*, *Lawn Dogs* and the impending *Dark City* whose orchestral score was captured in

Studio 1 and 2 on digital 24 track. The feature was mixed to SDDs in the Penthouse Suite on its Capricorn console with an ATC monitoring system made up of SCM100A Pros for the forward five channels, SCM20SL surrounds and an active subwoofer. Abbey Road, Tel: +44 171 266 7000

▼ **UK:** Following its Broadway success, the musical *Chicago* arrived in London's West End complete with 80 channels' worth of Amek console. A 56-channel Recall served FOH with the assistance of 24 channels from a 501 submixer under the control of Rick Clarke. Centre stage throughout is a 14-piece band supporting the charismatic Ute Lemper and Ruthie Henshall.



Studio Sound February 1998

■ Tokyo's City Hall has taken delivery of the first short-frame Midas XL4 console. A result of Midas' increased activity around the XL4, the 24-channel Tokyo delivery signifies increased interest in the broadcast and theatre applications where limited space is a major consideration.

**EVI Audio, UK. Tel: +44 1562 741515**

■ Belgian VRT Radio, formerly BRTN Radio, has taken delivery of 12 Orban Optimod-FM 2200 digital processors, 10 for final processing of the station's output and two backups. VRT serves the Dutch-speaking Flanders area with six networks delivering a range of programming including music, sport, politics and regional services. Spanish national broadcaster, Radio Nacional de España has taken delivery of 48 Optimod-AM 9200s for installation at its transmitters throughout the country. Programming is similarly diverse and occupies 5 national MW, 10 national SW and several local channels. Madrid-based Spanish post house, Sincronia, has recently installed its second 64-input Soundtracs Virtua digital production console.

**RNE, Spain. Tel: +34 9 1 346 1251**

**VRT Radio, Belgium.**

**Tel: +32 2 741 5061**

**Orban, US. Tel: +1 510 351 3500**

**Soundtracs, UK.**

**Tel: +44 181 388 5000**

■ South America has recently seen an SSL SL4048 G+ console installed in Buenos Aires and an OmniMix installed in Rio. Estudios El Pie's 40-channel 4000-series has already been involved in a number of successful album projects for high-profile recording artists while Estudios Mega's OmniMix has been instrumental in the posting of the Brazilian feature *For All — Springboard to Victory*, which deals with the building of the biggest military base outside the US in 1942. It received four awards at the Gramado Film Festival including Best Soundtrack and Best Film.

**Estudios El Pie, Argentina.**

**Tel: +54 1 545 1222**

**Estudios Mega, Brazil.**

**Tel: +55 21 537 0353**

**SSL, UK. Tel: +44 1865 842300**

■ The Washington State-based Microsoft Interactive Media Group has installed in excess of 24 Hafler amplifiers to accompany KRK monitors. Pro Tools 4.0, and Summit and Focusrite outboard in serving its 12 sound design rooms, audio compression room and CD burn rooms. The Group is responsible for 'product oriented interactive media' for CD-ROM, DVD and MSN applications.

**Hafler, US. Tel: +1 602 967 3565**

■ London-based broadcaster, The London Studios, has ordered a second Calrec T-series console for installation in its Studio 3 sound control room. The 72-input digitally-controlled analogue console will be used for a variety of TV sound work and corporate productions. Elsewhere in the UK, Surrey's Fountain Television has installed a 36-channel Calrec S-series desk in its broadcast studio. It will see action on music and light entertainment programmes.

**Calrec, UK. Tel: +44 1442 842159**

■ Seattle's King TV has purchased an AMS Neve Libra Live digital console as part of a move toward all-digital operation expected to come to fruition late this year. The console will be used for live newscast production.

**AMS Neve, US. Tel: +1 818 753 8789**

■ London 24-hour dance club The Turnmill has installed a 32-input Oram Series 24 console as part of its unorthodox live broadcasting of its music output. The European-wide broadcast is fed to satellite as well as being recorded. Elsewhere in London, the Beat Farm has installed a custom 48-input Series 24 to accompany its massive collection of vintage outboard. More London activity concerns Covent Garden's International Broadcast Facilities which has built a new digital studio based on a 64-input Soundtracs Virtua-Fairlight MF3 combination. The studio will begin operation with a multi-language dubbing of forthcoming feature films.

**Oram, UK. Tel: +44 1474 815300**

**Fairlight, UK. Tel: +44 171 267 3323**

■ The New York-based Effanel remote recording operation has unveiled a new 24-bit capable mobile called L7. Among the outboard provision is a selection of electronic equipment including an M5000, M2000 and Finalizer.

**Effanel, US. Tel: +1 212 807 1100**

**tc electronic, Denmark.**

**Tel: +45 8621 7599**

■ Paris has seen two studios further embracing 24-bit audio in Guillaume Tell and Studio Jackson. Alongside its Sony Oxford console and PCM-9000 optical recorder, Guillaume Tell has installed a PCM-3348HR 24-bit 48-track DASH machine, while Studio Jackson has adopted an identical machine for its all-digital film production suite.

**Guillaume Tell, France.**

**Tel: +33 1 42 04 0505**

**Studio Jackson, France.**

**Tel: +33 1 4948 6313**

**Sony Broadcast, UK.**

**Tel: +44 1256 483796**

■ Italian state broadcaster, RAI, has ordered five Stage Tec Cantus digital consoles with custom broadcast software for installation in studios in Rome and Milan, bringing its commitment to Cantus to 10 consoles.

**Stage Tec, Germany.**

**Tel: +49 951 97225 25**

■ Belfast's Waterfront Concert Hall recently used Tannoy T12 dual-concentric loudspeakers for front of house duties when it stages the musical *Ocean*.

Staged by the New York Merce Cunningham Dance Company, *Ocean* took place in the round with 15 dancers and 112 musicians scattered around the auditorium and used 8 T12s mounted on arms above the stage which were required to move during the performance.

**Tannoy, UK. Tel: +44 1236 420199**

■ Korea's leading postproduction house Blue Cap has moved its operation over to a Soundtracs' Virtua console to provide a digital audio chain and surround sound. The studio handles foreign language dubbing of feature films and television programmes in which it expects the console's automation to play a significant part.

**Soundtracs, UK. Tel: +44 181 388 5000**

■ New York's The Toy Specialists studios has continued an intensive digital shopping spree by adding a Yamaha O2R desk with surround software, Genex GX8000 MO recorder, Pro Tools 24, Sony R-500 DAT machines, and Pacific, Microsonics and Apogee converters. The studio's focus is presently on high-bit digital audio services.

**The Toy Specialists, US.**

**Tel: +1 212 333 2206**

# A Class Apart

SSL's Axiom large format digital production system has been adopted as a benchmark console by many of the world's most prestigious broadcasters and audio designers.

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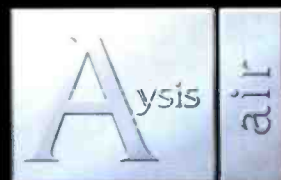




Digital Production System



Axiom Compact Console



Axiom Broadcast Console



Digital Film System



Digital Post-production System

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**3-5**

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Utrecht, The Netherlands.  
**Contact:** Knowledge Industry Publications.  
**Tel:** +1 914 328 9157.  
**Fax:** +1 914 328 2020.  
**Net:** www.kipinet.com

**11-13**

**The Production Show 98**  
Business Design Centre, Islington London N1, UK.  
**Contact:** EMAP Media.  
**Tel:** +44 171 505 8130.  
**Fax:** +44 171 505 8020.

**11-15**

**Musikmesse**  
Frankfurt, Germany.  
**Contact:** Anke Witte.  
**Tel:** +49 69 7575 6596

**16-17**

**AES UK Conference: Microphones and Loudspeakers: the ins and outs of audio**  
Church House, London.  
**Contact:** AES.  
**Tel:** +44 1628 663 725.  
**Fax:** +44 1628 667 002.  
**Email:** AESUK@aol.com

**16-19**

**Technology India 98**  
Bombay Exhibition Centre,

Mumbai (Bombay), India.  
**Contact:** Above & Beyond Exhibitors.  
**Tel:** +91 11 651 0205.  
**Email:** vikas.gulaty@gems.vsnl.net.in

**18-21**

**ITA**  
Ritz Carlton, Laguna Niguel, Dana Point, California.  
**Tel:** +609 279 1700.  
**Fax:** +609 279 1999.

**23-27**

**4th BTV China 98 and 3rd COMTELECOM China 98**  
**Contact:** Business & Industrial Trade Fairs.  
**Tel:** +852 2865 2633.  
**Fax:** +852 2866 1770.

**29-1 April**

**SIB 98**  
**Rimini Trade Fair, Italy**  
**Contact:** Tony Andrew—KMS  
**Tel:** +44 1323 442747.  
**Fax:** +44 1323 840014.  
**Email:** andrewkms@aol.com

**31-2 April**

**World VSAT Communications Congress 3**  
Cavalieri Hilton, Rome, Italy.  
**Contact:** AIC Conferences.  
**Tel:** +44 171 242 1548.  
**Fax:** +44 171 242 1508.

**April**

**14-16**

**PLASA: Light and Sound Shanghai**  
Intex Centre, Shanghai, China.  
**Contact:** P&O Events.  
**Tel:** +44 171 370 8231.  
**Email:** shanghai@eco.co.uk

**May**  
**16-19**

**104th AES Convention**  
RAI Conference Centre  
Amsterdam, The Netherlands.  
**Tel-Fax:** +31 35 541 1892.  
**Email:** 104th-chairman@aes.org.  
**Net:** www.aes.org

**18-20**

**Cable & Satellite 98**  
Earls Court 2, London, UK.  
**Net:** www.cabsat.co.uk

**26-28**

**TV 98**  
Thermal Hotel Helia, Budapest Hungary.  
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# Loved by The King, The Chairman, The Material Girl, some Hot Tuna & everyone aboard the Airplane.

Don't tell Al Schmitt that names aren't important in recording. He has recorded, mixed, and produced some of the greatest names in history - everyone from Elvis to Frank Sinatra, Madonna to Steely Dan, Barbra Streisand to Toto, and Natalie Cole to Jefferson Airplane. His Neumann mics (which he has been using since the mid-1950's) have even helped him win six Grammy Awards for Best Engineer. "I believe they are the best microphones in the industry," he says.

And when you also believe, as Al does, that great sound comes from good microphone technique (and not from constant EQ adjustments) you want to use the very best mics you can get. The natural choice for Al is Neumann. And while he has great affection for all his Neumanns, he has grown particularly fond of his new M149 Tube. "Like the original M49, the M149 Tube never lets me down," he says. "It's an extraordinary microphone - clean and crisp."

Being the award-winning professional and sound perfectionist that he is, Al has chosen to record the voices and instruments of so many of our favourite artists - Tony Bennett, Jackson Browne, Willie Nelson, Quincy Jones, Dr. John, Michael Bolton, and many, many others - through his favourite mics.

After all, nothing else sounds like a Neumann.



## Neumann

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## Monitor monitor

In your article on LA's Royaltone Studios (*Studio Sound*, November 1997) there were considerable inaccuracies regarding the Ocean Way monitor systems originally installed there.

My relationship with Royaltone started while the studio was still under construction and developed with my attempt to correct some major acoustical issues in the control rooms. When we fired up the monitor systems for the first time and made measurements, it was fairly clear that the problems stemmed from a concrete pit below the control room window (which caused numerous acoustical anomalies) and a ceiling splay above the console (with a very hard finish that was not sufficiently angled or high enough to avoid first-order reflections adding and cancelling at the mix position). This same splay stopped two feet short of the monitor wall and allowed an opening to a vast, virtually untreated cavity running the entire width of the control room. Much of the direct LF energy dissipated into this cavity, resulting in a significant lack of low-end punch. There was also an RPG LF diffusion system installed along the rear wall that was utterly ineffective below 125Hz, thus caus-

ing peaks and dips at the mix position in the 30Hz - 80Hz range. I suggested detailed fixes for all these problems and they were implemented. I realigned the monitor systems in both control rooms and achieved excellent results.

Some months later, I began getting reports from various clients I knew that the Royaltone monitor systems didn't sound anything like those at Ocean Way. I discovered that indeed the control rooms had been 're-tuned' by new staff members, with certain Ocean Way monitor components altered or entirely replaced. Obviously, when the Ocean Way name is associated with any of our installations, it's very important that our high standard of performance be truly represented. Once my systems are installed, the studio is free to do what it will, but if they are altered it is no longer accurate to refer to them as Ocean Way installations. My relationship with Royaltone is an amicable one, and they have agreed to no

longer refer to their systems as 'Ocean Way Monitoring'. Those interested in hearing true Ocean Way installations can visit our studios in Hollywood and Nashville, and other locations such as Skywalker Ranch in San Francisco and Sarm in London.

**Allen Sides, Ocean Way,  
Hollywood, California**

## Surround compression

IN THE CONCLUSION of their interesting paper about stereo and surround sound problems in the December 1997 issue of *Studio Sound*, Philip Newell and Keith Holland wrote: 'Just say no to data compression in audio-only surround'. It seems to me that this appeal is somewhat out of the subject, and so not agreeing with it does not affect my appreciation of the rest of the paper.

While I agree to the general understanding of 'say no to just good-enough technology', I should say that audio quality requires a fair amount of bits per second, but not necessarily of raw linear sampling data.

A given bit rate, will compressed data of a higher sampling rate and wordlength. Plain linear encoding of a less accurate wave measurement, reproduced more accurately the signal is yet unsettled. I would bet that the compressed formula comes closer. The digital signal is necessarily organised, otherwise it is noise. If it is organised, linear coding must be full of redundancy; and more bits in the wordlength means more unused, redundant, bits. If there is redundancy, compression may be efficient. Lossless compression may be implemented even if it means a variable stacking ratio, but

psychoacoustic compression cannot be ruled out. Our brains do not perform accurate measurements, they understand sounds. Psychoacoustic compression is a matter of how acoustic pressure becomes sound. The problem is to set a model of the audio perceptions organisation to the human. Of course, some care has to be taken as this is probably culture dependant with a material, physical and biological base.

Professional acceptance of Dolby and noise-shaping has shown that we need not be deaf to clever use of psychoacoustic research made to lower the cost, as they may be used to improve the result of the existing bit rate as well as diminish the bit rate for a 'good enough' result. In practical terms, would not 3:1 compressed 96kHz 24-bit recordings use the DVD bits better than 16-bit 48kHz? Would not the price of RAM the progress of CD players make this a better goal than just say no to compression?

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**T**HE AMSTERDAM AES Convention will be the setting for the first SSAIRAS—the *Studio Sound* Audio Industry Recognition Awards. Before these can be handed out in May, however, we need to gather the nominations from which the winners will be selected. And quickly. This is where you come in...

In short, anyone can nominate a product for a suitable award category and the resulting selection will be published in *Studio Sound* for postal voting (photocopies of this page are welcomed) and on the *Studio Sound* Web site which will later permit interactive voting. To be eligible, a product should have been released since the Munich AES Convention (held in March 1997) and needs to conform to the description of a particular category. It should be noted that, in the case of outboard equipment, this describes a function rather than a product type—hence a 'voice channel' may legitimately

be entered as a compressor if you feel it excels in this area. Not all the categories work this way, however, but all are explained in the table below for your guidance, and you are encouraged to make nominations in only those categories you feel justified. There is also a special category in which you are invited to nominate equipment, people, initiatives or anything else that falls outside the other 12 categories yet warrants acknowledgement.

The object is not to make a list of all the equipment launched in recent months, nor to identify the best equipment in each area but to identify those items that genuinely warrant recognition as being special in some way. The categories have been derived to encourage entries covering all aspects of professional audio but not all need necessarily be filled—should any remain empty, it will be as valid a judgement on our industry as one in which there are plentiful nominations.



## SSAIRA nominations

<b>1</b>	<b>Large scale console</b>	Analogue or digital, recording or film, has the definitive audio console been built?	
<b>2</b>	<b>Medium to small scale console</b>	The more affordable end of the console market has seen plenty of action and innovation in analogue and digital domains. Has the benchmark been set?	
<b>3</b>	<b>Outboard dynamics</b>	The first of the 'by-function' categories covers any outboard featuring dynamic processing	
<b>4</b>	<b>Outboard preamp</b>	A 'by-function' choice from outboard including microphone preamps	
<b>5</b>	<b>Outboard equaliser</b>	Graphic, shelf or parametric, and any colour you like as long as it functions best	
<b>6</b>	<b>Outboard Reverb</b>	The final 'by function' category addresses reverb processing	
<b>7</b>	<b>Combined outboard device</b>	Some units benefit from the combination of their processes or even their combined shortcomings rather than their excellence	
<b>8</b>	<b>Monitors</b>	Big or small, unbelievably impressive or unbelievably practical, the choice is yours	
<b>9</b>	<b>Microphones</b>	From unprecedently cheap to imitating yesterday's classics, everyone claims to have delivered the definitive mic	
<b>10</b>	<b>Convertors</b>	Made a hot topic by rising digital standards, today's convertors will shape tomorrow's recordings	
<b>11</b>	<b>Audio editor</b>	Ripe for judgement; the boom in audio editors has seen many welcome innovations made in this particularly demanding area	
<b>12</b>	<b>Audio recorder</b>	Your choice can be made anywhere from DAT to hard disk and back to analogue	
<b>13</b>	<b>Special category</b>	This is your opportunity to recognise anything or anyone that has benefited pro-audio. Think carefully and laterally	

Nominations can be made by photocopying or cutting out this page, filling it in and returning it to: SSAIRAs Nominations, Studio Sound, 8 Montague Close, London Bridge, London SE1 9UR UK. Fax: +44 171 401 8036. Alternatively, you can e-mail the category numbers and your nominations to [zschoepe@unmf.com](mailto:zschoepe@unmf.com)

Any discussion may be conducted with Zenon Schoepe or Tim Goodyer on tel: +44 171 620 3636.

# Tascam MMR-8

The Timeline legacy lives on in Tascam's move from linear to nonlinear recording. **Rob James** brings us up to date in digital dubbing

**N**OT CONTENT with dominating the market for low-cost, Hi-8-based, digital 8-track, tape recorders, Tascam has introduced the MMR-8, 8-track hard-disk recorder. This machine is aimed fairly and squarely at the digital dubber market. I should say at the outset that this is not a Tascam designed or manufactured machine. Designed and built by Timeline it was first mooted several years ago as a partner for the Studioframe (Waveframe) DAW, which was a Timeline product. A long time and many dramas later, it has come to be marketed and sold as a Tascam. Although the appearance is superficially similar to other Tascam products closer inspection reveals its true origins.

MMR-8 is constructed in the traditional 3U-high, 19-inch, rackmount box; although installers would be well advised to use rails because this is not lightweight. The rear panel carries a forest of connectors, some rather unusual. In addition to D-25s for analogue I-O (pin compatible with DA-88) there is a further D-25 for AES-EBU that is definitely not compatible with the physically identical DA-88 TDIF connector. However, a DA-88 analogue cable can be used with XLR gender changers to break out the AES-EBU interface. Any AES-EBU input (stereo) can be routed through a built-in rate converter. Two 37-pin D-connectors cater for the parallel interfacing of track arming and machine control with appropriate tally lamp drives. Parallel interfacing is considered an essential by many film users as is biphasic synchronisation. The five enigmatically labelled BOB sockets (biphase Operations Board) take RJ12 plugs. These are used for four biphase inputs and one output. The active biphase input is menu selected. BNCs cover wordclock and video sync I-O and VTC in. LTC I-O is on 1/2-inch balanced jacks. Editor and transport 9-pin connections are Ds as are two dedicated sockets for Timeline Lynx synchronisers and two further dedicated sockets for MMR bus connections. Nine-pin and 25-pin D-connectors are provided for factory diagnostics. The remaining connectors are the usual MIDI In/Out and Thru, a socket for external SCSI devices, IEC mains in and unswitched out and a 3.5mm stereo jack that provides analogue mixed mono out on the tip only. With two cooling fans and whirring hard drives the MMR-8 is a noisy beast intended to be mounted in a machine room.

It comes with detachable rackmount ears, an MMR bus sync cable for synchronising a second machine, a 9-pin serial cable, and a small toolkit with screwdriver and 'tweaker' for adjusting analogue I-O levels. Metering levels are menu selectable between -15dBFS and -24dBFS for the 0vu point in 1dB steps. The meter scale is expandable to 1/2dB per step for field calibration of the analogue inputs. A 1kHz oscillator is menu selectable and appears on all channel outputs to facili-

tate alignment of the output converters.

The front panel, for the most part, follows a similar format to the Tascam DA-88 DA-98, and so on, with vertical meters, track status LEDs and associated arm and select keys with indicator LEDs. Transport controls are large, positive, internally illuminated buttons, and, hurrah! there is a REVERSE SYNC PLAY button. The centrally located back-lit LCD is a rather measly 40-character job in two lines that necessitates a lot of scrolling to view information in the menus. Time display is in either time and frames with optional subframes, or 35mm feet (units of 16 frames) and frames. To the right of this is a matrix of 32 LEDs which display configuration status. Below the LCD is a group of numeric keys plus CLEAR, CAPTURE, and LOCATE, LOCAL, LOOP, RECALL, STORES. The yellow SHIFT key accesses the secondary functions of all keys with supplementary yellow panel legends.

First gripe: the yellow legends are almost invisible in anything other than bright lighting. Since most of these shift functions will be used less often than the primary functions it is all the more important for the legends to be easily read.

The jog wheel is a large chunky affair with gearing well chosen for locating sync points and editing, at least for my taste. If you don't like it there isn't a choice. Above the wheel are JOG, SHUTTLE, TRIM, cursor and SETUP keys. On the right of the front panel is a 3 1/2-inch diskette drive for software updates, a 2-character alpha display that indicates the assigned machine number and a Kensington removable drive bay.

Something that will be appreciated by many a harassed operator is the neat operation of the headphone monitoring. This follows the input monitor selection and individual tracks can be selected allowing a quick check of what is on given track or tracks, input or inputs.

At the heart of the MMR-8 is a Pentium PC motherboard, in this case an Asustek with a standard Symbios Logic SCSI adaptor card, proprietary PCI and ISA cards for analogue and digital I-O, processing, user-interface biphase and synchroniser. The unit contains a fully integrated Lynx 2 synchroniser, A-D and D-A converters, these are 20-bit and have an independent power supply. They are housed in a separate cage to minimise noise break through.

There is one glaring omission, where is the video display adaptor? I think this is quite astonishing in a PC-based machine. This means there is no scrolling track display, which in turn means labour and time intensive written cue sheets for film work.

Initial power up takes what feels like a dog's age. Unlike booting a desktop PC there isn't really much to look at to distract you from the time it's taking. I checked and the review machine consistently took almost a minute from switch on to being able to do

anything useful. In the environment MMR-8 is designed for this should not be a problem. In a dubbing theatre things get turned on in the morning and off at night, if then. It would be more of a problem if it was necessary to power down to change drives. Fortunately the Kensington removable chassis in conjunction with the machine software allows 'hot swapping'. The drives can be mounted and demounted in Mac fashion.

Tascam includes a list of recommended hard drives. It also endorses the Nikon Beluga LIMDOW optical drive; although it suggests record performance may be limited to 6 tracks at 16-bit resolution or 1 tracks at 24 bits. Similarly, Jaz may be used with the caveat that record performance may well be more limited than hard disks. They recommend the use of LIMDOW MO drives for backup as they consider Jaz or Syjet media less robust. Tape streamers are not currently supported.

The MMR-8 can read Studioframe or Waveframe sound files as well as Sound Designer II, AIFC and .WAV files all in 16-bit or 24-bit resolution. Waveframe projects, OMF Compositions and Pro Tools Session files may be loaded. Recording is currently limited to Waveframe format, again in 16-bit or 24-bit resolution at 44.1kHz or 48kHz sampling rates. Only Waveframe projects can be deleted from disk. Where a project contains more than 8 tracks, by default the first 8 will be loaded with the project. Loaded tracks can be moved to different tracks or replaced with others from the same or another project.

Rudimentary cut-and-paste editing is performed using the shifted functions of the front panel controls. CUT, COPY, CLEAR and PASTE are used in conjunction with the track select keys and IN/OUT register. The crossfade time is globally fixed by a menu setting from 0 to 100ms. It all works, but, in the absence of a track display, it feels a bit tortuous. To be fair, this is not intended to be an editing machine and the provision of some editing functionality may well get you out of trouble which would otherwise require the project to be moved back to a tracklaying workstation. There are 10 levels of undo-redo. Of a total of 21 time-code registers, ten allow time-code values to be stored for later recall, other special-purpose registers are automatically filled when tracks are loaded. It is also possible to display the remaining free time on the record disk which







currently has to be the one with the lowest SCSI address.

Three possible record modes exist. Nondestructive which as the name implies keeps all takes on consecutive punch ins over the same area as new audio segments. These individual segments can only be usefully accessed on a workstation. Auto Clean-up mode is a destructive record mode. It otherwise performs as for Nondestructive with all editing functions available. The third possibility, Tape Mode, is, perhaps, the most interesting for use as a dubber. This is also destructive, but far less processor intensive than Auto Clean-up. Each track is viewed as a continuous recording and new recordings directly overwrite existing material. There are some restrictions. A start time must be set in menu 230. The 'length of tape' is limited by the capacity of the hard drive and also by the Waveframe file format used that allows a maximum of 1Gb per file (track). Thus with a 9Gb drive the maximum length of reel is a generous three hours. However, you cannot scatter recordings anywhere within a 24-hour window as is possible with the other modes so you need to choose a start time compatible with incoming time code if any or use an offset. In biphasic operation this is irrelevant. Editing cannot be performed in Tape Mode but a project created in this mode can be easily converted to either of the other two for editing. It is also possible to convert an existing project recorded in either of the other modes to Tape Mode by copying it. This function can be found under the MMR backup menu.

In Nondestructive record I got around ten consecutive punch-in and outs before it gave up the ghost with a 'media too slow' error. Eventually it sorts itself out after much disk activity and a prod on the CLR key. In destructive or Auto Clean-up record, the same trick can cause a crash. In Tape Mode the MMR-8 appears bullet proof for all practical purposes.

As previously noted, the operational requirements for a 'digital dubber' present a major challenge to manufacturers. Not least in reclamation of disk space. A recorder used in a conventional dubbing theatre needs to be destructive since, with multiple attempts to get a section of the mix right, the disk would quickly fill up with redundant data. A considerable amount of 'housekeeping' normally has to take place when dropping into or out of record. Equally, take a normal operational sequence of events in a dubbing theatre, recording on all eight tracks. A mistake is made but recording continues to the end of the scene. Rewind is selected, (without going through stop) the machine(s) are spooled back to a few feet before the mistake, play selected, mixing console output is compared with the existing recording to match levels, (PEC-Direct switching) a punch into record is performed, the mistake fixed and a punch out completes the exercise. With high-speed film machines the whole operation can be accomplished in, perhaps, 5s and you can punch into and out of record in a second or so as many times as you might wish in quick succession. To some extent the speed at which this can be accomplished in a digital dubber is dependant on disk bandwidth but, with fast drives, principally depends on the time required to do the housekeeping.

In Nondestructive and Auto Clean-up, the MMR8 manages to play audio from rewind in around half a second, but there are limitations on how quickly you can go back into record and how many punch-in, punch-outs can be performed in quick succession. Tape Mode does far better for this application.

Other dubbing operations such as track slipping are easily and accurately achieved.

The MMR-8 is massively connectable and configurable. It should be possible to integrate the machine into any film or video tape environment. Most of this is handled operationally by the setup menus. With the number of permutations on offer it is prudent of the manufacturer to provide ten user menus for alternative setups. The machine will boot with the last used settings. If all else fails there is a non-volatile factory default.

Whether the particular application requires MTC, LTC, ATTC, biphasic, 9-pin (Sony P-2 protocol), or Lynx machine synchronisation these options are all standard. In most instances the machine will function as master or slave.

A plethora of time-code rates are catered for. If you require weird and wonderful pull-ups or pull-downs the chances are you will find them here. The parallel interfaces are pretty comprehensive, the only obvious missing item is pre-read outputs. Digital synchronisation can be from the AES-EBU interface, wordclock, video or internal clock. External sample rates from 32kHz to 51kHz are accepted.

As many as 100 machines can be connected together using the MMR Sync Bus in up to four sync groups. Surely 800 tracks must be enough for even the most power crazed Hollywood director? There will be a remote available from Tascam capable of controlling from 1 to 100 machines or a Timeline KCU controller can be used.

So Tascam has a pretty credible and creditable digital dubber. Every operator will have their own wish list for future enhancements, but the MMR-8 should keep it fairly short. Now all that's really needed is a DAW to go with it. What a shame Timeline no longer has Waveframe and Studioframe, but, perhaps, the MMR-8 will spawn a full blown workstation. I look forward to it. ■

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# Yamaha 01V/DSP Factory

The inside track on Yamaha's direction, developments, and desks with the prospect of an 02R and 16-track recorder or card. **Zenon Schoepe** reports from Japan

**F**LUSHED with the clear and unchallengeable success of its 02R and 03D digital desks, Yamaha is aligning itself with its newly adopted three-word mission statement of "Open, transparent and speedy" to reflect the company's willingness to respond to new directions and directives, the approachability of its technology and the rate at which it intends to respond. They're the sort of typically Japanese sentiments that seem strange to a Westerner, yet they come from a company that is probably more West-

ern in outlook than many would think, and is almost progressive in comparison to the country's other major players.

A chat with a division head reveals that the old rock'n'rollers, now in their 40s, who came to the company and worked under a strict traditional Japanese managerial structure are becoming managers themselves. They in turn are encouraging enthusiasm in the young they lead and what could be described as a more 'liberal' attitude to the generation of ideas and the whole business of making things happen.

Given the breadth of Yamaha's AI-based activities—which, lest we forget, take in pianos, brass, drums and guitars alongside its more obvious keyboard and pro-audio interests—it amounts to a tremendous reserve of talent matched to the sort of big company clout that can make things happen.

Often overlooked is the company's disk drive technology, including its high-speed CD recorders, and, of course, the in-house LSI manufacturing capability that has continually allowed Yamaha to break spectacularly into new market territory. The ideal example is the 02R which rival manufacturers have admitted they could not build themselves for the price at which Yamaha sells them. However, if there has been a blind spot then it has been in the accumulation of strategic market intelligence. Indeed, it is now clear that the 02R was launched with some trepidation by Yamaha despite the confident presentations as the company felt vulnerable and seemingly sure that big-gun competition was threatening just around the corner. This led to the adoption of the desk's unbelievably difficult to match low price. And all this despite the fact that it has taken the opposition the best part of two years to ship a reply. Yamaha clearly had no gauge on just how far ahead of the game it was in this technology.

The recent NAMM show witnessed a clandestine, not-for-all-eyes appearance of the latest derivative of the 02R. Dubbed the 01V this is not a development of the original 01 Programmable Mixer, which uses an altogether older generation of technology, so much as a further stripping off of the 02R. It looks like an 01, but internally it is, perhaps, closest to an 03D. The major omission is that of onboard automation which is reduced to snapshots only with supplementary control afforded by MIDI automation.

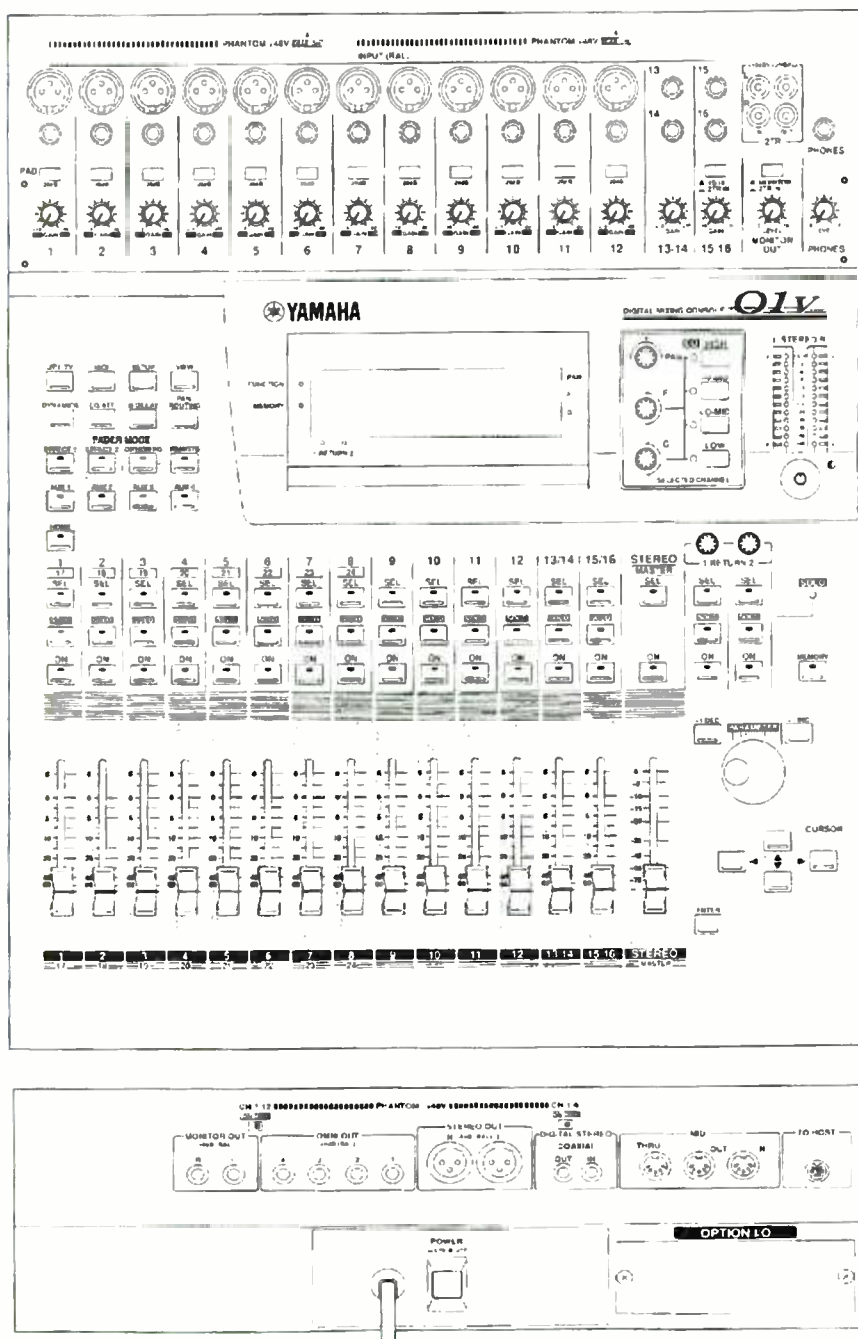
The desk surface is further streamlined with even less channel hard control and more screen, cursor, dial dependence.

Even so, it's a handsome package and certainly less brash looking than the 03D. It will ship in June for under \$2,200 US.

For that you're looking at 24 inputs including 8 digital inputs, 15 60mm motor faders, and 14 outputs, 4 configurable analogue outputs plus a co-axial digital I-O as standard and an optional I-O board for connecting digitally to TDF, ADAT and AES-EBU.

Inputs have balanced XLRs and phantom power and pads on the first 12 channels and balanced jacks on Inputs 1-16. You can strap two desks together via digital stereo I-Os and enjoy, 3 fader and mute groups, 99 snapshots, stereo pairing, 4-band EQ from the 02R with 40 preset and 40 user presets, and 2 multieffects built in and 12 preset and 57 user patches. Dynamics are again from the 02R and you get 40 preset and 40 user programs all governed by a 320 x 80 dot display.

The more you look at this desk the more obvious its appeal. The MIDI project user will



First look at the 01V top and rear panel; no so much an upgraded 01 as a stripped 03D



GA live-monitor desks; 12 buses with group-aux splitting

clearly be wooed, but the little board does a good impersonation of a sidecar expander with the digital benefits of total snapshot control for beer money.

**W**HILE THE 01V will be a crowd puller, the really significant development will be the availability in June of what pretty much amounts to an 02R and 16-track hard-disk recording on a card for under \$1000 US. Called the DSP Factory Yamaha will be making 32-bit DSP-based mixing and processing for the PC with Mac support to follow. First off is the DS2416 digital mixing card and the AX44 audio expansion unit (\$300 US). The card offers 02R level 24-inputs, 16-bus operation with two multieffects units derived from the ProR3 and Rev500. Through its PCI bus the DS2416 gives 8 tracks of simultaneous recording and 16 tracks of playback and also has a pair of 20-bit analogue inputs and outputs, 24-bit capable co-axial stereo I-O, and Yamaha claims it will add analogue and digital audio expansion through peripheral products.

An additional 4 ins and outs can be added with the AX44 board and two of these can be strapped to the DS2416 and fit in the drive bays of PC towers.

Control of the mixer is by third-party software with Yamaha announcing at NAMM that ten major players are involved.

Yamaha has delved in to computer-hosted processing before, most recently with hard-disk recorders (CBX-D5), but the DSP Factory is likely to be far more serious. It is very competitively priced, well spec'ed and looks like it will be well supported. Perhaps more significantly Yamaha has for the first time located its processing remotely from any screen control or hardware remote that may be devised to operate it. Perhaps this gives an insight to yet another avenue of exploration for the company should it choose to go to a bigger digital desk which I'm sure it will eventually.

Rumours from Interbee that Yamaha had combined 8-tracks and MiniDisc were confirmed with the arrival of the MD8 which has realised the extra tracks by doubling the MD Data drive speed. Features include 8-track simultaneous recording and playback, plus 4-track, 2-track, monoaural MD Data record and playback and 2-track and monoaural standard MD record and play modes. You can ping-pong digitally from 8 tracks to one or more, auto punch in and out with 99 takes, song edit, and play with a jog-shuttle dial. The recorder is stuck on to an 8-channel analogue mixer with 3-band EQ, 2 auxes, pans and faders.

News on the GA32-12 and GA24-12 (£2,499 UK) sound reinforcement consoles also previewed at Interbee is that they sport



MD8—8 tracks on MD at double speed

12-buses for up to ten monitor mixes while a Group-Aux Diversity feature permits four buses to be configured as auxes or groups depending on the application.

Both models have 4 stereo returns, stereo tape input and record output and a talkback circuit. Two matrix outputs can create independent mixes consisting of mix buses 1 through 4 and the stereo bus.

Addressing small PA installations the EMX2000 powered console combines a mixer with digital reverb and echo, a 7-band graphic and 2-channels of 200W amplification. There are 8 mono inputs with mic-line switching, phantom, channel insert, 3-band EQ, 2 monitor sends and an effects send. Outputs take in Stereo 1 and 2, Mono, Effect, and Monitor 1 and 2 and you get 16 reverb and effects programs to choose from and the graphic equaliser sits across the main stereo outputs.

Through its digital desk technology Yamaha has now illustrated what will probably represent the lowest price point for its mixing. You don't have to be particularly clever to work out that if the company wants to grow its market share, which it undoubtedly does, then the next assault will be substantially higher up the price tree. From past form, the effect is likely to make a lot of manufacturers sit up. ■



DSP Factory: scaring the hell out of everyone who understands

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# Creamware TDAT 16; A-16

The original challenge laid down to dedicated DAWs by TripleDAT has been raised by new functionality. **Rob James** boots it up

**A**S NOTED in the original TripleDAT 2 review (*Studio Sound*, April 1997): 'There is more than one way to approach the challenge of designing an affordable digital audio workstation.' The original TripleDAT did all the processing and recording using a Pentium PC—the only additional hardware being a proprietary interface card for audio I/O and MIDI. Performance was, and still is, governed by the speed of the processor and storage system.

A year on, and the software has been refined and significant additions have appeared in the shape of a new interface card, the TDAT 16, and a stand-alone converter, the A-16. The new interface gives 16 simultaneous channels of digital I/O and relies on ADAT optical connections. For those people with ADATs or mixers such as the Yamaha 02R and 03D this is a cost-effective solution, both in hardware terms and, the not inconsiderable, cost of decent quality audio cables. If the particular application requires analogue I/O then the new A-16 converter will fit the bill. This offers 16 analogue inputs and outputs and connects to the TDAT 16 via 16 ADAT optical-fibre leads.

TDAT 16 requires Windows 95. The board itself is a PCI type and installation is plug-and-play. The driver for this is installed in the customary Windows 95 fashion, a great improvement over the original. There is a further daughter-board that does not require a PC slot and is connected to the TDAT 16 card with a ribbon cable. It does use a PC case card space but this should not be a problem unless your machine is filled to the gunwales with extra hardware. The main card has 4 optical connection sockets and a stereo 1/4-inch jack that provides analogue output of a monitor mix. There is onboard DSP that gives the card mixing, routing and sample-rate conversion capabilities in hardware. The daughter sync board has two BNC connectors for wordclock and a 9-pin D-connector for ADAT sync. The optical connectors may also be used to connect to suitably equipped DAT or CD machines in optical SPDIF format.

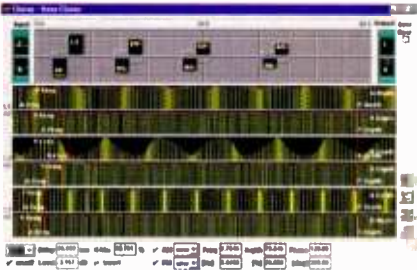
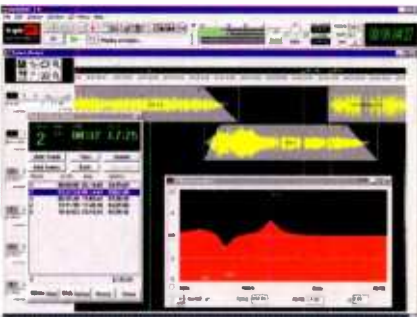
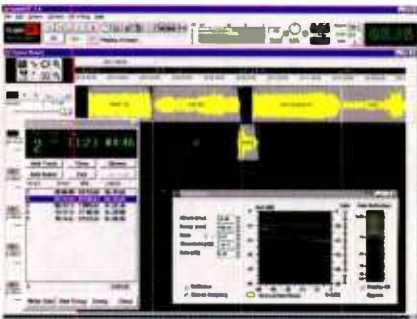
The TripleDAT software installs without drama or fuss. There is copy protection, but

this takes the same form as the original version—a software 'key' number that is checked against unique codes in the firmware on the card(s). The beauty of this is you only have to do it once. New versions of software have all been free apart from chargeable plug-ins and may be downloaded from Creamware's web site. When installing an update, existing key numbers are retained so you don't need to fiddle about.

The new card does not have MIDI, so, if this is a requirement, a separate MIDI card or a TripleBOARD will be needed.

The A-16 converter will no doubt find applications as a stand-alone unit as well as in conjunction with TDAT 16. A shallow 1U-high 19-inch rackmount box it contains 16 channels of A-D and D-A. The converters are 18-bit sigma-delta, 128x oversampling. Despite the use of an external power-supply brick the unit has a small and rather noisy fan for cooling. Digital I/O is in the form of 16 ADAT optical sockets, analogue I/O is all on 1/4-inch balanced jacks. Small slider switches on the rear panel adjust the input sensitivity between +10dBu and -20dBu for 0dBFS on a per-input basis. The outputs are switchable on block from +10dBu to -20dBu at 0dBFS. If the I/O is used unbalanced the input figures are reduced by 20dBu and output by 8dBu. A pair of BNCs cover wordclock I/O and a co-axial low voltage connector for power completes the socketery. The front panel is pretty sparse with 8 red clip LEDs set at -1.08dBFS. LED 1 shows clipping on channels 1&2 and so on. Two pushbuttons with indicator LEDs allow the sync source to be selected between optical, wordclock (BNC) or internal, and, if internal is used, 44.1kHz or 48kHz sampling rate selection. If the unit is slaved to an external clock it will sync at anything between 38kHz and 50kHz. If invalid data is detected the outputs are muted.

All the plug-in options for the original TripleBOARD work with the new hardware and many of the algorithms have been enhanced. The TDAT Windows driver application comes with its own setup options, mixer and meters and point-to-point patching for connecting logical inputs and outputs to physical ones. As the manual points out, all this is largely superfluous when used with TripleDAT software and is provided for users wishing to employ the card as a multimedia device with third-party software. When using TripleDAT software all relevant settings are made within TripleDAT. Indeed, the manual correctly warns against changing settings here when using TripleDAT. I found this was the quickest way to crash it. The application appears as an icon in the system tray (taskbar) and changes colour to red if errors are detected. This is the one useful part of the application for TripleDAT users. Some reported errors are insignificant or irrelevant—for example, when an input reports no sync simply because nothing is >>>>>



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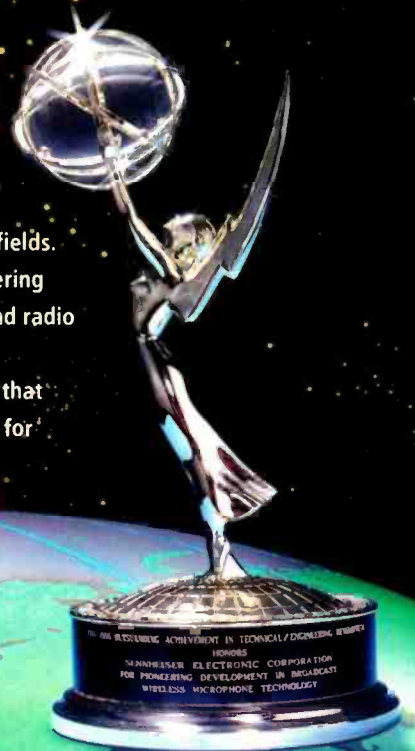
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# Tascam TM-D8000 Automation



Picking up from the in-depth review of the long-awaited TM-D8000 digital console last month, **Zenon Schoepe** investigates the software package that automates and drives this desk



**R**EQUIRING A MINIMUM Macintosh configuration of a PowerPC 7100, the TM-D8000 automation software also needs 12Mb of RAM and if the computer's system software takes up more than 4Mb of RAM then this figure could rise to above 24Mb. For the record, the system will not run on any Powerbook or 68000 series Mac and you need system 7.5.1 or higher. Additionally, it is recommended that you run this with at least a 17-inch monitor for the 256-colour operation. Connection between the computer and the desk is down to a single serial multipin cable. You plug in, power up, and all of a sudden the TM-D8000 takes on a completely different complexion.

The digital desk's software is the latest in a line of automation breakthroughs for Tascam which did marvellous things with the first truly affordable VCA-automated M3700 (how soon we forget) and also had much lower profile moving fader success with a system for its top end M700 analogue board. The crux of the TM-D8000 automation is that it's not a complicated concept or implementation.

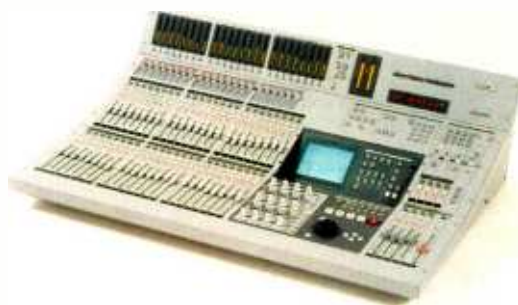
On-screen activity centres around a tool bar that contains dedicated pressable icons and pull-down short menus for a variety of functions. This tool bar is not particularly elaborate or extensive, you only get what you need, and, of course, you can use the dedicated pushbuttons in the automation panel of the desk to physically activate Read, Write, Update and Manual modes, all select, null, and separate fader and cut write enables. Indeed there is little on the screen that cannot be found within the desk's LCD menus.

Communication is fully bidirectional

## Above: faders and cuts

between the computer and the desk—if you're really sick then you can pick up a pot with a mouse if you want—and once I had squiggled some code up the desk connector at a high enough level and told it what frame rate I was talking about, the on-desk time-code display and the on-screen computer display chugged along quite happily as one. It will also run to the code from a Tascam MDM or from its own internal generator.

The expanded desk representations on-screen are called custom views and represent selected sections of the signal strips, just the faders and cuts, full EQ or auxes for only 24 strips, and so on, and while you can create your own, the templates provided cover most



eventualities. You run the automation pretty much like any VCA-style system I have seen with the proviso, of course, that you get the knobs and switches thrown in too. You decide what desk controllers you want to work with from faders, cuts, EQ, aux and pan and do your stuff with them.

As a brief aside, the desk's LCD implies it can automate the dynamics and mix inserts,

but I couldn't find this in the automation software. Perhaps it will be added. Another curio to join the two spare fader panels on the desk surface that do nothing apart from making the numbers up.

In practice you don't really have to bother with the computer screen all that much because the majority of automation function control can be found on the LCD in the desk which remains operational in the usual way. The functions can be activated using the desk cursors and ENTER button. The Write, Read, Update and Manual modes are standard automation issue with no surprises or curious interpretations which means that any VCA automation knowledge you have will transplant.

The clever mode touches will be recognisable to some, perhaps under different names from different systems, so I'll describe them so you can draw your own analogies. Auto punch-in and auto punch-out flip a fader from read into write and from write into read respectively when the null point is crossed. SoftTouch is impressive in that faders are thrown from read into write or update, depending on which is selected, as soon as they are moved, and what's more they will revert to read if left for a length of time specified in the preferences menu. These are good ways of having the faders effectively 'live' while listening back so you can grab a level should the fancy take you. Autotakeover assists updates in a single direction as the system will drop out of the mode once the original fader position is matched. Plus you get the option to update until the end for setting a continuous offset and the safety net of auto disable which throws the faders into >>>>>

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**Faders and auxes**

read as soon as the code is stopped.

There are a host of backup possibilities, automatically, as soon as code is stopped to a specified depth of passes, or manually. Thankfully you can abort a pass, and undo, and redo a pass for the purposes of comparison provided you haven't set the auto backup in a manner that will interfere with this. Basically if the mix is getting a little tricky it is best to switch over to manual backup for a while.

The easiest way to automate the EQ, aux sends and switches is to call up the relevant signal path module on the console LCD, put the thing into Write and tweak with the desk's marvellous bank of rotary controls. If you get it wrong, then the simplest thing is to try it again or split the sections out into separate passes. It's a treat.

Editing provides horizontally scrolling bar graphic representation of fader moves which can be redrawn, smoothed and tucked. They're accompanied by thin broken lines depicting cuts and small triangles for snapshots. You can cut and paste faders and cuts. But it is the Cue List that is used for the manipulation of other parameters.

Faced with an interminable scrolling list of my own doodling, with the exception of nudging the occasional switch throw, I find the whole prospect daunting. However, if you're not like minded and appreciate the ability to create fader moves, cuts, parameter changes, switch events, snapshots, or MIDI events into a list then it is all here. Personally, I think it defeats the object of having a desk like the TM-D8000 to play with in the first place: although MIDI event firing is, perhaps, its most useful application. There is a time-code capturing GPI event list menu on the desk. Mixes can be merged within the Cue List.

Something I discovered in the manual, but never tried, is that the Mac's printer port can be connected to a MIDI interface, and this is said to allow MIDI recording into the program. You can then name signal paths on-screen, rearrange their order and preset personal pref-

erence default presets for different operators.

While you need the computer for the automation, what I like about the system is that you don't need to be constantly mousing the screen to run the automation. The desk is quite independent of the computer in general mixing which serves mostly as a source of more information. It hung up on me twice. Once was certainly my fault; but I couldn't work out what I'd done to cause the second crash; although it didn't do it again. Operation is relatively simple and a far cry from some of the elaborate and turgid bolt-on VCA automation packages that at one time looked like they would be *de rigueur* for the mass of analogue desks that crowded the world. Of course, the truth is that the automation packages that you will now find on analogue desks like the Soundtracs Jade and Amek's SuperTrue generation are refined and slick bits of programming and the system for the TM-D8000 is of this ilk; although I would say possibly even clearer.

The big question is what the addition of the automation package does to the console as a whole. The obvious answer is that it takes the stand-alone snapshot capable TM-D8000 and renders it a fully dynamically automated desk. However, in order to enjoy this position—the desk comes complete with the automation software—you will need a substantial computer to run it and the chances are that most will be unlikely to just have one of these monsters lying around. Consequently, the cost of such a beast and the 17-inch monitor minimum which is recommended for visualising events has to be taken into account and added to the rather competitive desk-only price.

However, if you take this step you are unlikely to be disappointed. The desk has an excellent feel with a high level of functionality built in, while the automation system is clear and powerful and absolute automation beginners should be able to grasp the operational principles fairly quickly.

The biggest drawback remains that the faders do not move and there can be no getting away from this fact. You resort instead to the time-honoured principles of using on-screen fader related markers to give positional information and the achievement of the inevitable null. However, VCA-style systems are not all bad and it's a mixing process that can quickly become natural. It's just that absolute fader positions are rarely represented physically on the desk faders, but then you do have the great boon of update.

This degree of control extends to all the other channel strip parameters, and I would

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say that this has not been made as complicated as it would have been easy to do. Keeping it simple is always the best solution.

What I think I'm trying to say is that the combination of an attractive and ergonomic desk

with the extended control afforded by separate computer-based automation amounts to a far more grown-up package than the other products you might be considering if you're in the market for a TM-D8000. You get the TDIF interfaces as standard, surround capability, powerful automation, and something nice and big to sit behind, but don't forget the price of the computer and monitor. It's still a very strong package and I'm very impressed. ■



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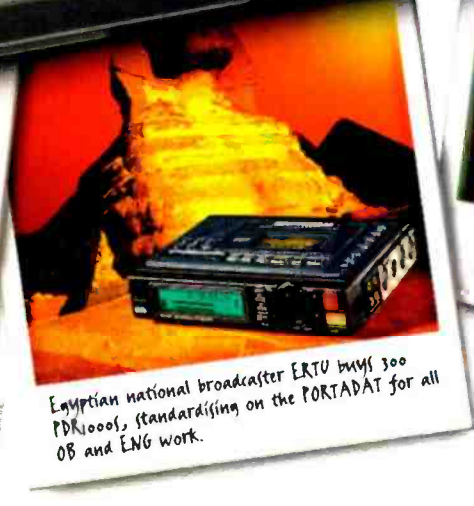
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# Spirit Digital 328

The stakes are hotting up in the war for an affordable digital desk with the announcement of a new British contender. **Zenon Schoepe** gets the exclusive insight into the first Spirit digital desk

IT HAS BEEN RUMOURED for some time that Spirit was close to its first digital sojourn and NAMM saw the first showing of its 328 digital desk priced at under £3,000 for a 32:8:2 configuration. What you get for this is a console that is big enough in size and presented in a manner that is distinctly different from all other existing attempts. While the stated intention of creating a digital desk that feels analogue may be a little unrealistic for the price, Spirit has nevertheless managed to make the 328 feel accessible by using cleverly demarcated areas on the control surface and a surprising number of oval, or should I say BSS Opal-style illuminated function switches. The 16 main faders are motorised Alps units that work in conjunction with rotary controls to yield a surprising amount of hard control.

It is a 32-input, 8-bus digital desk configured as an 'in-line' with 16 mic-line inputs, 16 tape returns on digital (two lots of TDIF and ADAT optical I-O are included as standard), plus an 8:2 submix and another stereo input for a maximum of 42 inputs at mix-down. However, the desk has been designed to be cascaded to another via a connection that sends busing, logic, and everything else for 32-track digital recording, straight out of the box. One serves as master, the other as slave in such a configuration; although the two Lexicon effects processors that are built into the board can be separated out for independent operation. The processors are said to be based on the Reflex units with some extras such as more dual effects, a maximum of 10 parameters in the reverbs and 128 different presets. Additionally, you'll find two stereo assignable dynamics processors units that can be strapped across any input or output with the compressor, limiter, gate and ducker algorithms said to be based, albeit loosely, on dbx technology.

Parameter editing and configuration setups and options are performed from a rather small SPX90-sized LCD and this is also used to display numerical read-outs of such things as EQ values.

Spirit is at pains to point out that it has not produced a screen with faders, but a real console control surface with everything accessible from it with a couple of button presses maximum. First impressions would suggest that it's not wrong.

**A**LL THE TWEAKING centres around a horizontally aligned E (for encoder) strip that offers 16 encoders surrounded by LED circles for positional information and some buttons. Dedicated buttons assign functions to the strip. Press the channel button and it becomes the channel strip of a selected channel with encoders for the 3-band fully parametric EQ with frequency limited LF, MF and HF bands, 4 external aux sends, 2 sends to the internal Lexicon effects and a

pan. Select the AUX 1 switch and the encoders become the AUX 1 sends for each channel. The same applies for pans while a LEVEL switch provides level control for the upper 16 tape returns. Another switch marked MASTERS assigns the faders to the 8 groups, 4 aux and 2 Lexicon masters. Metering follows the upper bank, lower bank and master switching. Stereo returns have access to a full channel strip's worth of EQ and auxes. Routing is taken care of by a small panel that sends the selected signal path to the groups, the main stereo, a direct out, and engages EQ in and phase reverse.

Matters are helped still further by a Query mode for the interrogation and visualisation of signal paths that serves as a fast way of seeing what is routed to what. An interesting touch.

EQ changes can be undone and redone for A-Bing in addition to bypassing the EQ section altogether and the desk will also be able to copy settings from one channel to others and channels can be paired for stereo.

At the analogue input end the desk uses established Ultramic+ preamps while conversion is 24-bit A-D and D-A at 44.1kHz. Everything after the analogue

gain section is automatable via snapshot or dynamically via MIDI to a sequencer with third parties developing pages for the 328. It will store 100 snapshots which can be fired against MIDI clock, MTC or SMPTE.

There's an AES-EBU and SPDIF I-O that can be assigned to any aux, group or as a mix insert and an additional ADAT optical output can also be configured to run out the aux sends digitally.

You get machine control with locates and it will read and write MTC and all SMPTE frame rates with machine control handling 'standard' transports like Tascam, ADAT and Fostex MDMs and the promise of a few analogue machines as well.

Optional 8-channel phono analogue I-O interfaces will connect directly to the TDIF sockets and other optional interfaces include paired 8-channel AES-EBUs and additional analogue mic preamps.

Spirit says it will ship the desk within 90 days of NAMM and the console I saw was certainly not far off completion.

An important thing to note is that the desk as it stands has no multichannel capability although this is being considered. Spirit believes its duty, in the first instance, is to its traditional user-base that is steeped in music recording, and I think this is right. However, the desk is 'easily' software upgradable so it clearly will be developed further. That's good.

In terms of nuts and bolts, the product has been Spirit-driven, but has used technology that is available within Harman. It seems to be something of a joint effort and the core proprietary T-Mix chip has had



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input from Soundcraft and Studer while the concept, interface and analogue bits are Graham Blythe. The T-Mix chip is said to allow scalability to a larger console than the 328 and would certainly be able to produce a digital equivalent to any analogue desk in the Spirit range. As first efforts go, Spirit seems to have hit the interface and price objectives pretty well. Best of all the desk feels and looks distinctly different from what is already available and, of course, I'm talking about the 0-series Yamahas here.

The E Strip is a stroke of genius and gives substantially more hard control than its immediate price competitor. Remember also that the TDIF and ADAT I-Os are standard, but you'll pay more for extra analogue, AES-EBU and mic inputs.

The launch of the 328 is good for the cause of digital desks in general as there should soon be a choice of affordable boards. A reassuring development. Good news for all. ■



# Soho

Digital Mixing Console



Harman International Industries Ltd

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- Multi-channel FX Rack (Reverb, Delay, Chorus, Flanging, 6/12 Band EQ, Mastering Compressor)
- 19 inch Pod – a rack unit option to house DAW controllers or outboard FX devices

Soho is the latest addition to Amek's range of fully specified digital mixing consoles. Developed specifically for audio post production applications, Soho is designed to be integrated with any existing or favoured Digital Audio Workstation. The sleek and ergonomic design and highly impressive specification makes it ideal for companies who require a cost-effective digital console, while maintaining the quality, professional image and functionality of their post production operation.

## Roland 16-track

Roland's VS-1680 24-bit 16-track system combines recording, mixing, editing and effects processing based on the same technology that produced the VS-880. The device offers 16-track playback, 8-track simultaneous recording, a 26-channel fully-automated digital mixer, 256 virtual tracks, nondestructive editing, optional CD recording capability, and two optional multi-effects boards offering four independent stereo effects processors. Operation is helped by a 320 x 240 dot LCD, 20-bit D-A and A-D converters and a 2.1Gb internal hard drive.

Roland has also introduced the VS-840 workstation that combines 8 tracks of digital audio recording, digital mixing, editing, 64 virtual tracks, built-in effects and removable Zip disks.

**Roland, US. Tel: +1 213.685.5141.**

## Lower cost ADAT Type IIs

Alesis has supplemented its still unreleased M20 ADAT Type II MDM, revealed at the European AES last year, with lower cost Type II variants the XT20 and LX20 and the PCR PCI card. The card offers ADAT optical I-Os and sync interfaces for sample-rate-accurate bidirectional transfer from an ADAT machine to a computer system for editing or synchronised recording and playback. The software package includes graphics-based cut and paste editing, effects processing, dynamics, equalisation and pitch correction.



**Alesis XT20**



**Alesis LX20**

Based on the M20, the XT20 and LX20 Type II stand-alone machines offer stripped down levels of functionality for less money with the LX20 at US\$2,249 being described as the cheapest ADAT machine ever.

Both machines have 20-bit A-D and D-A converters, but the XT20's have a wider dynamic range and lower harmonic distortion than those on the LX20. The XT20's chassis is die-cast solid aluminium with an isolated housing for the power supply while the LX20's is conventionally steel-cased. LX20 analogue connectors are -10dB unbalanced phonos while the XT20 additionally sports a 56-pin balanced interface. Editing on the LX20 is limited compared to the XT20 and comparable to the original ADAT with five locates and no selectable peak hold-clear controls.

The new machine announcement coincides with the release of the Studio 24 8-track affordable console with 8 mono and four stereo inputs and two stereo >>>>

# Pearl CC 22 microphone

A Swedish mic manufacturer with plenty to offer the mic connoisseur, Pearl's light is discovered under a bushel by **Dave Foister**

**L**A Y MONEY that most of you reading this have never used a Pearl studio microphone. The company has been making good, high-spec, rugged microphones with their own distinctive features for a long long time, but for some reason they have never entered the general stream of consciousness of our industry. The Swedish firm's Nordic associations with a tradition of engineering excellence should surely count for something, as indeed should any experience with the microphones themselves, but despite all this Pearl's marketing department must be tearing their hair out at the industry's apparent blindness to their virtues.

Yet, if any of the recognised majors had based their entire top-end range around something as distinctive as Pearl's central design feature everybody would know about it. Nobody else outside Sweden, that I am aware of, uses any microphone diaphragm shape other than circular: Pearl, along with compatriot Milab, has for years been using a unique rectangular capsule design whose results speak for themselves to anyone who has tried one.

The guiding principle behind the idea is the assumption that a rectangular membrane must reduce the occurrence of resonances within it, or at least resonances that coincide and reinforce each other. The proportion of length to width in the diaphragm avoids harmonically-related resonances in the two dimensions, further smoothing the response beyond the conventional audio band. Flatness in the frequency response well into the extremes of HF is therefore a standard selling point of Pearl condenser microphones, and this is taken to new heights with the recently-introduced CC 22.

This is a small, discreet, yet unconventional, side-firing model sharing many distinctive Pearl features with a new performance to size ratio. In most respects it is very similar to the existing CC 30N, although given general awareness of Pearl's range that won't mean much to many people. It is so small as to be little bigger than some end-fire models, and, consequently, it's a good thing that the capsule is so clearly visible through the grille otherwise I can envisage a few people trying to sing into it 90° off axis. In fact, I can't recall ever seeing a smaller side-fire microphone, giving the CC 22 a distinct edge in situations where space makes the usual big bodies a problem. The very-visible capsule is quite a talking point, with its shiny gold perforated front plate presenting such an unexpected shape, and this is shown off to particularly good effect by a red LED at its base. For reasons best known to Pearl this is on the back face of the capsule; the additional attention it would have drawn had it been on the front is, perhaps, just what Pearl should be seeking. Its function, then, is

primarily to show the presence of phantom power, not to impress the client.

The front carries only the maker's name and model number, and this is engraved sideways on so as to make it that bit more difficult for the musician to read it and remember it. Even this is completely hidden when the microphone is slipped into its simple rubber shockmount, which is secure and droop-free. The engraving is nicely executed in gold to match the capsule, and is complemented by a gold-plated ring where the head meets the body, lending a certain elegance to the overall appearance.

The fact that there is room for all this on such a small body is brought about by the complete absence of control switches on the microphone. The polar pattern is cardioid, and there is neither pad nor LF filter: this is a 'take me as you find me' design with the headroom to justify the simplicity. The individual test printout shows a commendably flat frequency response, and good sensitivity, and noise figures matching the published specs closely.

The paper performance is borne out by use of the microphone. The CC 22 has a particularly smooth sound, with surprising warmth in its mid range complemented by an extended, but not over-forward top end. If you didn't know it was full of surface-mount components, and if it wasn't so small, you might think you were listening to a quiet valve microphone, so even and musical is the delivery. Noise levels are very low, and the low end of the spectrum is every bit as complete and real as the high. The only other comparable Pearl model on paper is the big stereo DS 60, whose applications are clearly very different. This should



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find a home in virtually any situation; its sound is just what is required of a really good all-rounder, both neutral and sympathetic, and would make it equally comfortable with vocals, brass and strings. Coupled with its ability to get into places other comparable-sounding microphones can't reach this makes it very attractive indeed.

It would be interesting to know just what it would take to get microphones this good the recognition they deserve, although I can't help feeling Pearl is hiding its light under a bushel. The CC 22 does little different from other more well-known models, but it does it just as well and is just as worthy of our attention. ■

# Summit Audio TMX-420

Valves and transparency combine in a line mixer of some distinction.

**George Shilling** explores a 4:2 for 32:8 money

**T**HE TMX-420 comes accommodated within the familiar silver-coloured Summit 2U rack housing. It is built like the proverbial brick outhouse, and weighs a stonking 23lbs. Large black and red knobs and industrial strength toggle switches adorn the front panel. There is no denying that the TMX is aesthetically pleasing. However, it has no microphone preamps, no EQ, and just one Send output. Despite the TMX's undeniable charm, why on earth would anyone buy a 4:2 line mixer at the price of a 32 channel 8-bus desk?

When I first received the review model, it did not work. Unfortunately its replacement was only slightly better, with DC showing on the meters. By the third delivery, the problem had been found to lie with the power supply.

Apparently it is difficult for Summit to simulate the British 240V 50Hz supply in California, but the problem is now rectified. I am sure all customer units PSUs will be suitably

+4dBu balanced. There are two DB-15 connectors for linking Send and buses (a cable is supplied). A massive protruding heat sink is set adjacent to the IEC mains socket and fuse-holder-voltage selector. Unfortunately, the heavyweight nature of the internals means that as well as top and side vents and the aforementioned heat sink, the inclusion of a cooling fan is deemed necessary. It is placed to the side of the box and is noisy, especially if the TMX-420 is not mounted in a rack.

Inside the unit, a huge, weighty transformer dominates. Considering the meagre features of this unit, there are a huge number of components on the circuit boards, that are unusually thick. Each section of the mixer is modular, interconnected by ribbon cables. This enables separate testing during manufacture, and individual selection of valves during construction.

Each channel employs a Chinese-made 12AX7A/ECC83 tube, and each of the three outputs a 6922/6DJ8/ECC88 hanging down from overhead circuit boards attached to the Output panels. On mine, the upside-down valves were not seated properly. They had probably come loose during transit as their boards are only held rigidly at the opposite end to the valve sockets.

In use, the first thing I noticed is that there is nothing particularly *valve* about the sound. It is extremely transparent, and details are kept fully intact. It is claimed that due to the nature of the circuitry, the jack inputs sound different from the XLRs. I found that any differences were fairly subtle, but I thought I detected a slight presence lift and greater dynamics with the jack inputs compared to the XLRs which were slightly smoother. Either way, the clarity is exceptional.

There is no doubting the specialist nature of this mixer. It is aimed at two markets: primarily for recording small ensembles such as jazz, classical or *a capella*, where the choice of pre-amp is left with the user. If recording using a purist four-mic setup, perhaps to a high sample-rate digital stereo recorder, this would be the appropriate mixing device. Alternatively, by chaining a number of units together, a multitracking setup is a viable, if expensive, prospect. Up to four units can be linked, giving 16 inputs. The combination of +4dBu and -10dBu outputs is useful, but there are cheaper ways of achieving level matching.

The modular nature of the TMX enables future expansion, and Summit is currently exploring Digital I-O possibilities. This unit certainly does its job well, and is difficult to fault. However, this is big money for something that does so little. While purists may love the TMX-420, I suspect that it may not feature in many best-seller lists. ■



modified before sale. Hopefully, a UK mains lead will be included: mine was of the completely useless American variety.

The left side of the front panel accommodates controls for the four input channels. Each channel has a large black level knob; two smaller red knobs control panning and send level. None of the pots are damped, which makes accidents likely, and small adjustments difficult, particularly with the smaller knobs. There are small toggles for phase change (180°), On/Off (slightly misleadingly labelled In/Out; I initially—wrongly—thought that this defeated the pan pot, which has no centre detente), and Send Pre/Out/Post. In the middle, the two busses A and B each have an illuminated vu meter, overload LED, and passive Level trim knob. There is a Send overload LED, a huge Master Level knob (great for fades), and three large toggles for Send Link, Stand-Alone/Link, and Power On/Off. The link switches enable an important feature: the ability to chain a number of units together. A small illuminating button enables the unit as Master in a linked situation.

The rear-panel features input sockets of the combined Male XLR/Jack variety that have not proved entirely reliable in my experience. However, this solution was doubtless preferred to having dual input sockets for reasons of sonic purity. Outputs have separate XLRs and Jack sockets, and some clue is given to the design philosophy of the unit: the bus outputs and Send outputs are on bolt-on panels. Jack connections are -10dBu unbalanced; XLRs are

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## NEW TECHNOLOGIES

<<<< groups, and the Q20 effects processor that replaces the existing Q2 as the company's top-end device. It has 300 presets with 20-bit converters and ADAT optical and SPDIF digital I-Os.

**Alesis, US. Tel: +1 800 525 3747.**  
**Net: www.alesis.com**

### Sony effects

Sony's DPSV55 effects processor is based on the DPSV77 with which it shares the DSP rate, processing chip and 2-bit converters, but is geared more towards surround applications. A total of 45 effects types can run on the unit's four processor channels which operate in 4-channel surround, dual true stereo or quad mono modes.

**Sony, US. Tel: +1 408 955 5456.**

### Valve mic with digital output

Claimed to offer a completely different approach to valve mic design, each side of the CAD VX2 capsule has its own independent valve head amp and output including separate high quality custom output transformers. Polar pattern switching is performed at the output of the mic rather than at the capsule which has a diameter of 1 1/4-inches, is aged, gold sputtered and made of 3-micron thick polymer. An optional 24-bus digital output module is available with 32-96kHz sampling rates.

**CAD, US. Tel: +1 440 593 1111.**

### Ramsa DA7

The recent NAMM gathering saw the first public unveiling of the Ramsa DA7 following a clandestine appearance at the New York AES. Features include moving faders, touch-sensitive pots in the super strip area,



24-bit A-D and D-A, surround sound capability, built-in snapshots and optional dynamic automation via external computer. The board comes standard with 32 inputs, six aux returns, and is 8-bus; although digital interface cards are optional.

**Panasonic US. Tel: +1 800 777 1146.**

### Drawmer MX50

Latest in Drawmer's affordable MX series of processors is the MX50 dual de-esser with a variable frequency control ranging from 800Hz to 8kHz. Full or split band de-essing is possible, the former reducing the >>>>

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# TL Audio PA-5001 and PA-5050

Expanding the latest outboard line from TL Audio come a mic preamp and compressor. **Dave Foister** tinkles the Ivories

**W**ERE RUNNING OUT of colours. With Focusrite having got to all the primaries first, the rest are left with more exotic shades: TL Audio has given us Crimson and Indigo, plus RAF blue for the Classic range, and now brings us the Ivory processors, presumably not to be associated with endangered species.

TL Audio could be thought to have covered all the bases with the existing ranges, surprising us time after time with a new twist on valve circuitry at affordable prices. They already represent among the best value available for such equipment, and yet the com-

pany has managed to bring the Ivories in at a lower price still, with few apparent compromises. The two boxes, here, have contrasting appeals yet share certain common features, most notably the distinctive ivory front panel and the use of valves. TL Audio features valves in all its ranges except the Crimsons, and here as elsewhere they are integral to the units' operation, not bolted on for the sake of the sound.

The PA-5001 contains 4 identical and very simple microphone preamplifiers. No frills here, just the basic facilities and the emphasis on the sound. Each channel has input and

## Small Wonder



The miraculous DPA 4060 Miniature Microphone tops the bill in wireless systems for theatre and television. Not only does the 4060 offer outstanding audio performance under difficult conditions, it is also extremely robust in operation. Unique connection adapters ensure compatibility with a wide variety of VHF and UHF systems. A range of sensitivities encompass the vast majority of applications where high quality audio, near invisibility and lightness is required. Developed from many years of professional audio experience, the 4060 is just one of the high quality products from the renowned 4000 series - available now from DPA Microphones.

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**Series 4000  
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## NEW TECHNOLOGIES

<<<<< total signal level in response to signals in the selected frequency band, the latter only reducing the selected frequencies leaving the lower end intact. An AIR switch allows frequencies above the sibilant band to be retained during de-essing and the signal is available simultaneously at -10dBu and +4dBu levels.

**Drawer, UK. Tel: +44 1924 378669.**  
**Transamerica, US. Tel: +1 805 241 4443.**

### Canadian digi 8

The Bertsch DPR-8 is an 8-in, 8-out hard-disk recorder with built-in dynamics processing. Its 8 compressors, 8 gates, and 8 duckers use look-ahead rms envelope detection while two assignable side-chain inputs permit de-essing.

A digital mixer and headphones amp are included and DPR-8s can be synced together to create larger systems. A-D and D-A converters are 18-bit, the standard removable drive is an EIDE 1.5Gb and options include an SMPTE interface, TDIF interface and 3.1Gb internal drive. The machine has a selection of editing processes and is compatible with all Vestax HDR Series machines.

**Bertsch, Canada. Tel: +1 250 992 9296.**

### Sonic Acid

Sonic Foundry has unveiled the Acid digital audio loop sequencer for Windows 95 and NT which specialises in loop arranging and permits real-time pitch and tempo adjustments on multiple loops simultaneously. Loops can be previewed in real time before being opened and the program automatically matches the tempo and pitch of a loop. Tempo changes are made on a BPM slider while multiple time stretching algorithms allow users to choose the setting best suited to the material.

**Sonic Foundry, US.**  
**Tel: +1 608 256 3133.**

### New monitors

The CES show saw the launch of an active version of ATC's SCM20T monitor, the SCM20SL TA. The speaker is intended for critical listening and costs £3,750 (UK). Aimed at cinema installations, Stage Accompany's SL-series bass cabinets are compact (at 230mm deep). The SL15 and SL30 feature single and double 15-inch drivers respectively, with side reflex ports.

**ATC, UK. Tel: +44 1285 760561.**  
**Stage Accompany, The Netherlands.**  
**Tel: +31 229 28 29 20.**

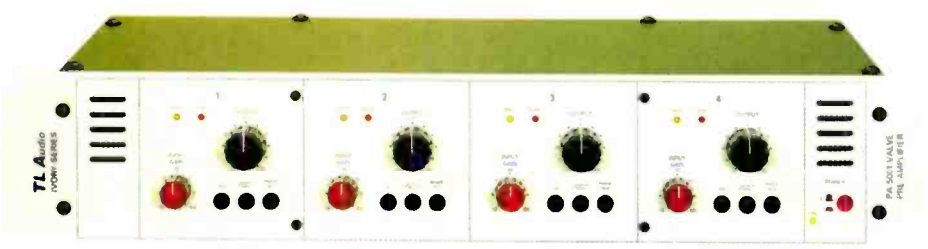
### Opcode Fusion: Vinyl

A new DSP plug-in from Californian software experts, Opcode, is intended to bring the character of vinyl recordings to your recordings. Terming the property 'grit', Opcode presents it in 78, 45, and 33 1/3 varieties and offers control over record surface and condition in its Fusion: Vinyl program.

**Opcode Systems, US.**  
**Tel: +1 415 856 3333.**

>>>>>





PA-5001



PA-5050

output level controls plus switches for phantom power, 90Hz high-pass filter and phase reverse—and that's it. A red LED lights to show clipping (monitored at two stages in the signal path) and a yellow one glows with variable brightness to show the drive level to the valve stage. This follows the solid-state initial gain stage so that the input level control effectively determines the amount to which the valve will make its character apparent. This can be driven quite hard before undesirable distortion results, so that the output control is then needed to deliver appropriate levels to the following equipment.

The real point of the preamps though is not overdriven valve sound, but clean quiet pre-amplification. The degree to which this is achieved is quite remarkable at the price. When I first started using the units I had no idea how inexpensive they were, and was astonished to find out the price. These are excellent preamps, suitable anywhere that little extra something is needed, and represent extraordinary value for money.

The 5050 takes one of these preamps and

adds a valve compressor to create a simple direct-to-tape chain. The preamp sacrifices its phase reverse, but adds a rear panel line input and the familiar TL front-panel instrument jack. It retains the hybrid solid-state valve topology, and used alone shares the characteristic style of sound—clean, quiet and open. This feeds directly into the compressor, a simple, but flexible stage with, again, the bare minimum of controls and the sound quality foremost.

The central gain element is again a valve, and control of its behaviour is taken care of by a minimalist complement of two knobs and two switches. Threshold and Ratio are continuously variable with good useful ranges, but Attack and Release times are on Fast-Slow push-buttons. The actual times have a programme-dependent element in them and also interact a little, which on the one hand forces you back on your ears as to what they are doing (no bad thing in my book) and on

the other makes them far more versatile and forgiving than first impressions might suggest. For example, particularly fast transients will shorten the time values accordingly, and the Fast release setting is extended when Slow attack is selected, so the compressor will handle virtually anything with an unexpected amount of control as to how processed the end result sounds. I was particularly impressed by its ability to deal with predominantly low frequency sounds without complaint, usually the Achilles' heel of a simple compressor. The whole thing is followed by a GAIN MAKE-UP control.

The compressor can be hard-wire bypassed, and an LED shows when it's active; this and the POWER ON LED are the only two lights on the front panel apart from the two meters. These are identical horizontal bar graph displays, one showing gain reduction and the other output level. Usefully, the gain reduction meter works even when the compressor is bypassed, allowing a rough adjustment to be set up 'off-line' if required. The output meter appears after a big rotary output fader with a nominal unity gain setting in the middle.

Both rear-panel inputs are balanced, but curiously the unit's main output is unbalanced on a 2-pole jack. This doesn't seem to make any practical difference in a typical studio setup, but it does let the image down a bit - I had to fish out an adaptor just to patch it in. It smacks of corner-cutting, but there are worse corners to cut to squeeze a product into a price bracket. It's the only hint on the whole box that this is anything other than a full-price contender: in all

other respects it does the business, with a great sound and a surprisingly flexible control surface. The two units together suggest that the Ivory range will be yet another TL Audio winner, delivering far more than we've a right to expect at the price. ■

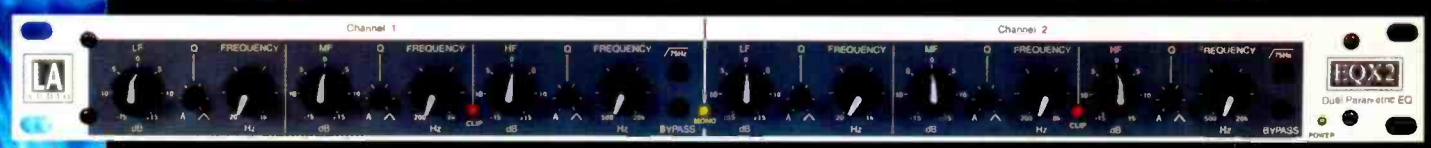
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# EQX2 Dual 3 Band Parametric EQ



**"Sound quality and clarity is excellent for a budget unit, and at this price who could resist having two units for stereo 8-band operation?"**  
Studio Sound magazine

**"In general use the EQX2 provided excellent sound colouration with very little noise, giving an accurate response to even the best reviewers' attempts to fool the device."**  
Audio Media magazine

**"The Q settings are powerful, going from a narrow notch of twelfth-octave to three octaves."**  
Studio Sound magazine



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**MILLENNIUM SERIES**

# Sonic Foundry Acoustic Modeler

Sonic Foundry's Sound Forge manuals made tantalising mention of an intriguing new plug-in. **Rob James** unveils the Acoustic Modeler

**T**HE IDEA is deceptively simple: record an impulse response in an acoustic environment, or record the impulse response of a device such as a microphone, loudspeaker or tape machine and from this generate a model that can be used to process existing sound files giving them the character of the environment or device. Now call it the Acoustic Modeler.

Like all the Sonic Foundry products I have used, Acoustic Modeler installs without problems. Along with all the other Version 1.0a and later plug-ins it is a DirectX applet, and in

copy of the original sound file with processing applied while retaining a copy of the original in case the result is not as required.

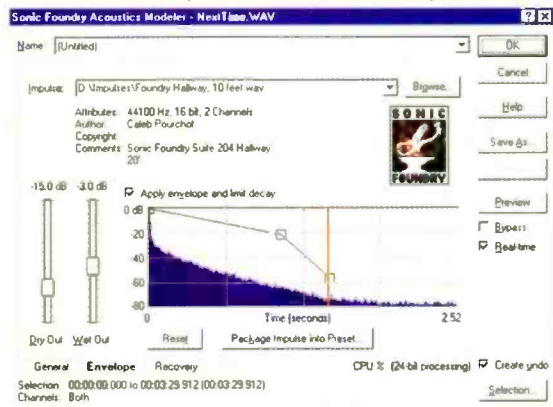
Because of the complexity of this type of processing, Sonic Foundry has provided a means of lowering the quality of the real time audition to allow this to work on more modest machines. As ever with this type of application, the faster the processor and the more memory the better. Two sliders control the wet and dry mix balance. The volume envelope of the signature can be shortened or modified graphically using the mouse to drag boxes. The processed sound can be delayed with respect to the original, and there is a STEREO WIDTH control. There is also EQ in the shape of low-pass and high-pass shelving filters.

The real fun starts when recording your own impulse responses. To do this an impulse source and a means of recording the result are required. Obviously, the source should be as free from coloration as possible, as should the recording chain, otherwise the response will be a combination of the desired environment and the unwanted character of the replay-record chains. This 'problem' can be used to advantage to record the impulse response of microphones or hardware. It is worth noting nonlinear effects such as distortion boxes or flangers will not reproduce accurately; although the effects may be interesting.

Two test tones with timing spikes at the start and end are provided on the CD; although it is possible to use a hand clap, a clapperboard or similar; but the character of the impulse will affect the resulting response. Once impulse recordings have been made they must be processed and converted into an impulse response. Acoustic Modeler provides a number of options for doing this, depending on whether the supplied test tones are used; although some manual editing of the recording will still be required. The resultant acoustic signature can then be saved for future use.

Applications are many. For film, if it is known on location some dialogue will need replacement, impulse responses could be recorded at suitable distances from the mic and later used to help match ADR to sync. If this seems a lot of trouble consider the amount of time spent attempting to match using conventional tools. Similarly, if you have a favourite mic or location it can be modelled and used to process other recordings.

This is a very clever piece of software. The problem with innovations is they extend your aspirations. Next on my wish list; a means of getting a signature from an existing non-impulsive recording and full real-time processing. Meanwhile, in the real world, Acoustic Modeler provides a different perspective on an old set of problems at a very affordable cost. Best of all, it's fun. ■



theory can be used with any audio software conforming to the DirectX protocols. In practice, because some software writers do not stick to the rules, there may be problems with applications other than Sound Forge. Apart from the plug-in itself Sonic Foundry includes a good number of acoustic signatures, or impulse responses, on the CD.

Before getting into the business of generating your own signatures, it is worth auditioning the supplied ones. I was more than impressed. After years of constructing complex acoustic environments using all manner of tricks in addition to the usual battery of reverbs the Acoustic Modeler environments sound, well, real. With only the barest minimum of tweaking it is possible to produce highly impressive results. There are also examples of the kind of effects that can be generated by using non-natural sources for the impulse sample. This can produce some very odd effects and is worthy of time and attention.

It is possible to attach a thumbnail picture of the environment to the signature file that will be displayed when the relevant file is highlighted in the Load menu—a useful feature especially for those who think Mac users have all the fun. Like most activities in Sound Forge, acoustic modelling is a non-real-time process. The actual *modus operandi* is to choose a signature file; audition a section of the file to be processed with processing applied in real time; make adjustments until satisfied; then crunch the file. This makes a

**Contact:**  
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 Williamson Street, Madison,  
 Wisconsin 53703, US.  
**Tel: +1 608 256 3133.**  
**Net: www.sonifoundry.com**  
**UK: SCV Electronics.**  
**Tel: +44 171 923 7447.**

## NEW TECHNOLOGIES

### Neumann M149 power

Bringing vintage-style power to a vintage-style mic is the function of Neumann's N 149 V power supply. Shipping immediately, the N 149 V is available as an optional alternative to the N 149 power supply packaged with the mic.

**Georg Neumann, Germany.**  
**Tel: +49 30 41 77 240.**

### KRK V8

Also new at NAMM was KRK Systems' V8 close-field monitor. A shielded, active design using a 1-inch silk tweeter and 8-inch kevlar woofer crossed over at 1.6kHz, the V8 has a response of 49Hz–22kHz and 130W power handling to give 108dB spl for \$1,249 (US).

**KRK, US. Tel: +1 516 249 1399.**

### Avalon

Advance news from the American Avalon Design outboard camp includes two compressors scheduled for the May AES Convention in Amsterdam. The AD2074 optical mastering compressor will offer a partner for the AD2077 EQ in mastering suites while the VT747 dual-channel vacuum tube compressor will add its weight to the company's mid-priced VT range.

**ASAP Europe, UK.**  
**Tel: +44 171 231 9661.**

### dbx lines

Three dbx units made their debut in Los Angeles: the 1086 mic preamp and dynamics processor; the DDP digital gate, OverEasy compressor, PeakStopPlus limiter, de-esser; and the first in the Silver series, the 586 valve preamp. The 1086 is a single-



dbx 586



dbx DDP

channel unit using the proprietary V2 VCA chip and featuring optional Type IV digital output from the dbx flagship Blue series. US price is \$749.95.

The 1U-high DPP 'combines all of dbx' classic gating, compression, limiting, de-essing and more' in stereo channel format with 50 user and 50 factory memories and employs a large back-lit display to assist programming. I-O is analogue via 1/4-inch jack and XLR, and digital via AES-EBU and SPDIF at 44.1kHz and 48kHz and Type IV output as standard. Price \$599 (US).

The new dual-channel 12AU7 valve-equipped Silver range opens with the 586 at a cent under \$2,000. The preamp features custom meters, 3-band EQ, Type IV conversion and AES-EBU-SPDIF digital outputs.

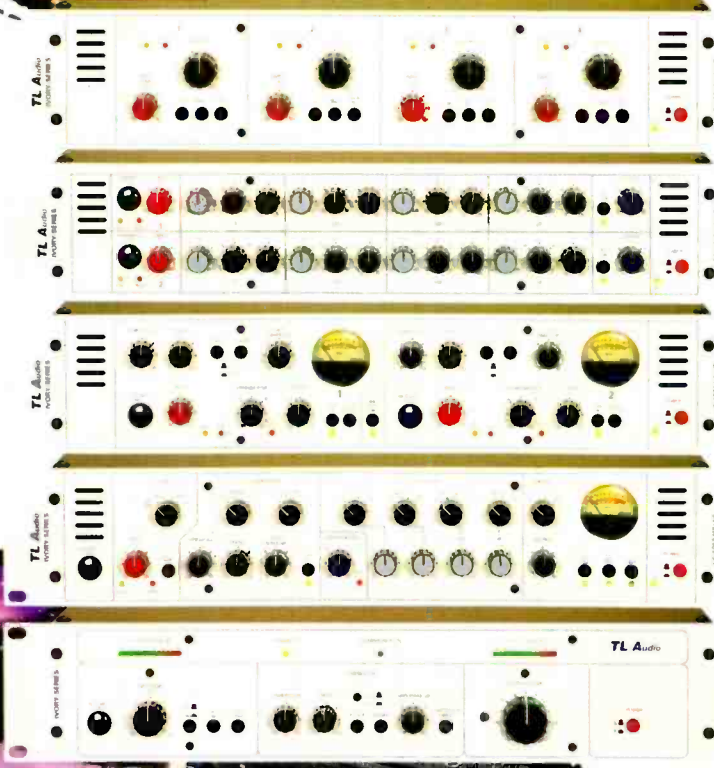
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*Chris Porter (Producer - Take That) - "I bought one of the first EQ-1s and I've enjoyed using it immensely. It gives a unique quality to the vocals in particular - Take That's 'Back For Good' is a typical example of the EQ-1 adding depth and presence to a vocal track."*

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*Chris Fogel (Engineer - Alan Morissette) - "I was amazed at what the C-1 did for the track. The bottom end was warm and solid and the high end was clear and open."*



*Andy Jackson - Pink Floyd (Sound engineer) - "All the lead vocals on the 'Division Bell' album mix were run through the EQ-1 and the new EQ-2 is probably the best all-round EQ I've ever used."*

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# Mytek DDD-603

Correctly setting digital levels continues to frustrate and elude engineers. **Dave Foister** looks at a meter that aims to help

**Y**OU'D HAVE THOUGHT that one advantage digital would bring us was an end to MCM—metering confusion misery. It seems that we will always be plagued by misunderstandings over metering standards, but digital ought to be different, much more absolute: maximum level is maximum level regardless of medium or tape type, and meters can be driven from numbers which should make everything more consistent.

But of course nothing could be that simple. We have disagreement about how digital and analogue levels should relate; confusion about what constitutes an overload; and the same conflicting preferences as to how actual musical signals should be shown. Yet it's more important than ever to have an absolute reference, as digital is only worthwhile if its dynamic range is properly exploited and even a brief overload gives such very un-analogue distortion.

The situation is eased by the availability of a small selection of specialist out-board digital meters, one of the latest of which is the Mytek DDD-603. This apparently simple unit combines a comprehensive set of basic metering functions with some more detailed tools for examining the parts of a signal rarely shown anywhere else. How many of these you get depends on the software, which is offered in Basic or Full Mastering versions: we'll be looking at the full set here.

The 603 is available in horizontal and vertical versions, differing only in the front panel print. There are XLRs on the back for input and loop through: the input will accept either AES-EBU or SPDIF and presents a sufficiently high impedance to allow it to be placed in line anywhere in a signal path. If it is the last item in a chain it should have its loop-through connector properly terminated, just like a video signal.

Two long LED ladders for left and right dominate the front panel, with clearly-printed scales for the two basic modes of operation. Not surprisingly, these offer straightforward peak display or vu ballistics, the latter having a floating single peak indicator above it. Both modes have peak hold options, retaining the peak display either for a second or until manually reset. The LEDs are mostly green, with a couple of yellow ones near the top and a red for Over. Above these are single-digit counters to show how

many overs have been recorded since they were last reset, displaying 'E' when more than nine have been counted.

Of course, one of the main differences of opinion where digital levels are concerned has always been the definition of an Over. A very few meters acknowledge this by allowing the definition to be adjusted by the user, and the Mytek follows this trend. The difficulty is in how many successive samples can be allowed to take the maximum value before it is assumed that the waveform has been clipped. Many devices, notably the Sony 1630, take it that three successive maxima constitute an Over, and this is the default mode for the Mytek; but DIP switches on the back allow the limits to be set at 1, 2 or 4. Another mode allows the counters at the top to show how many successive maxima occurred in the last Over, automatically resetting itself when another one comes along. Yet another mode allows the Over LEDs to show the occurrence of 0dB peaks while the counters continue to show actual Overs.

A third small meter in the centre shows inter-channel phase in normal operating mode, with in and out of phase appearing either side of a central line. Its other function is as the basis of a high-precision calibration mode for checking the translation between analogue and digital levels. Here the 0vu reference is set by a screwdriver-operated rotary switch, and although this has no relevance at all to how digital signals are normally displayed it will show how incoming steady tones relate to the reference by using a special calibration mode. Here the resolution of the meters is dramatically increased, each segment corresponding to a 0.2dB increment from the chosen reference level, and so the deviation from nominal 0vu required to produce the expected digital level can be easily seen. The fact that this shows up discrepancies between what your average DAT machine says it's doing and what it's actually doing should come as no surprise, and after all if that were not the case meters such as this would be unnecessary.

For mastering, troubleshooting and other critical applications further DIP switch options allow the meter scales to favour either the top or bottom part of the scale. One gives 0.1dB resolution within the top dB, while the other devotes more than half the scale to the area between -60 and -90, which should be enough to horrify most people.

Although the DDD-603 covers so much ground its presentation is simple and friendly. If it were properly rack-mounted the DIP switches would be inaccessible, perhaps the only trade-off between versatility and ease of use, but that's a small criticism of a system which surely shows everything you ever wanted to know (and more) about your digital signal levels in a well-designed affordable package. ■



**Contact:**  
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**1023, New York,**  
**NY 10276, US.**  
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**Net: www.mytekdigital.com**

## NEW TECHNOLOGIES

### Nicral codec

New from comms specialist Nicral is the Nica-X codec. Presented as an evolution of the Nica128 apt-X100 and offers a competitive option for ISDN2 and studio-to-transmitter and studio-to-studio use giving 15kHz mono audio at 128kbit/s. The Nica-X also has an optional switching module that monitors audio on the main feed and switches to an ISDN reserve should the main feed fail. An MPEG LayerII/G.722 option is planned for later this year.

**Nicral, UK. Tel: +44 1672 515727.**

### Audio Technica mics

The new cost-effective 30-series mics from Audio Technica debuts with the AT3535 medium-diameter diaphragm, and AT3527 and 28 small-diameter electret condenser models. All feature 30Hz-20kHz response,



20dB padding to accommodate 156dB, 158dB and 157dB spls, and 124dB (123dB for the 3528) dynamic ranges.

The top-line 40-series has been expanded with the 4054 and 4055 vocal true condenser models, giving essentially identical performance with the option of a rolled LF response on the 4054.

**Audio Technica, US. Tel: +1 330 686 2600.**  
**Audio Technica, UK. Tel: +44 113 277 1441.**

### Alphaton splitter

The MPV-43 is a new 4-way audio splitter from German Alphaton. Housed in a 1U-high rack and offering three outputs per channel, the MPV-43 will be available early this year at a cost of DM1,290 (exc. VAT). The 12 channel MPV-123, meanwhile, has received 'MkII' status and a price cut (DM3,350 exc. VAT), and comes with options on output configurations.

**Scheck Audio, Germany.**  
**Tel: +49 62 05 35 22.**

### Crown amps

The CE 1000 and CE 2000 amplifiers give 275W and 400W into 8Ω respectively, but are capable of running at 2Ω (delivering 560W and 975W) for professional applications. Both are fan cooled, will run in bridge mode and have front panel controls. Prices are \$700 and \$1,000 (US).

**Crown, US. Tel: +1 219 294 8066. >>>>**

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Dave Foister - Studio Sound

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# Korg AM8000R

Despite a career in effects processing, Korg has gone against the flow with this multi-effects. **Zenon Schoepe** wonders why

AS THE PARTNER to Korg's DL8000R digital delay processor (*Studio Sound* November 97, p32), the AM8000R shares many visual and operational similarities but predictable concentrates on the business of generating ambience-related effects. We are confronted by a front panel that differs from a distance only in the colour of the top to the WARP knob which is assigned to real-time adjustment of selected algorithm parameters. In fact, the AM8000R also suffers like the original unit from the implementation of a rather unnecessarily laborious and intensive editing process that displays, via a largish LED display, one parameter at a time for adjustment. As with the DL8000R, my objection to this rather archaic method of interaction is not that you can only adjust one parameter at a time as this is frequently the practice with multi-effects units, but that you can only see one value at once. From my experience, the ability to view multiple values is a critical part of the information gathering process.

Let's start by saying that like the original unit the results are excellent, indeed this multi-effects unit is even more spectacular and impressive than the delay line and there's a



strong argument for going to the trouble of getting the hang of it. Alarmingly the manual offers paltry advice on the structure of this device and had I not already worked out the curious thinking behind 'the method' on the DL8000R then much of the potential could have been missed as this is without doubt a very capable and interactive box of tricks.

Of 256 memory locations, the first 127 are user programmable and are accessed from the front panel VALUE knob. That bit is simple and the presets are good enough and weird enough in places to grab the attention, but go further and your attention will be tested. Editing and the Utilities menu is accessed from a FUNCTION knob that first scrolls sequentially through the available editing parameters and then on to the Utilities with Edit and Utility indicators lighting on the display to give you a clue as to which you're in. Effectively there are three processor 'modules' called FX1, FX2 and Delay-Reverb. These have their own 'active' indicators and these 'modules' are switched in on three dedicated pushbuttons. Strangely the status of these modules can not be saved as a preset, you have to engage or disable the sections manually. It's not that much of a pain as for all intents and purposes you leave all three on all the time and if you want to defeat a block then you attempt it from the editing process. The buttons are, however, handy when editing as they allow the modules to be auditioned

individually. FX1 and FX2 modules, while identical, concern themselves with around 30 algorithms including chorus, flanging, modulation delays, phasers, pitch shifters, rotor simulators, filters, and full dynamics. Each of the types average out at around 10 parameters.

The Delay-Reverb module can draw from 11 types mostly made up of delays with room, hall and plate algorithms. Remember that you get one line at a time to contend with and you'll realise that the flow chart of the editable parameters for the AM8000R could probably cover the surface of a large split console.

Not that there is much that is dull here. The reverbs are great in character and even though you only have Predelay, Reverb Time, high and low Damping, Density and Diffusion to play with they can range from skinny and sparse to fat and expansive while the FX modules are notable for superb retro-style phase and flanges that come up from your boots, fabulous horn and rotary simulations that are convincing, and outrageous modulation and pitch effects that would be at home in a late series Eventide. The whole lot can be mixed together intelligently at the end of the chain.

Connectors are on unbalanced jacks, 2 in and 2 out, and the unit is powered by an external supply thankfully with plenty of lead either side of the wart. There is also a Footswitch jack socket to mimic the action of the front panel switch plus three controller inputs for real-time tweaking assigned within the editing procedure and you can do the same via MIDI.

It's all here, you see, but it's all a matter of getting to it. I tolerated the operating system on the DL8000R because delay tap setting is laborious and involved at the best of times on most units and Korg's interpretation was bearable. However, present reverb, which is easily accessible on a number of units, and more general multi-effects in this manner and you are just asking to be shot down. This is a great-sounding unit marred by a terrible editing system that just does not stand up to pro-

longed use even after familiarity has set in and matured into contempt. I find it incredible that a box like this makes it to market in this day age when clear precedents have already been set by other manufacturers and even by Korg in effects units of years gone by. The presets alone may be good enough to entice some users, but those that will develop the knack to quickly edit a nearly there preset during a mix or while an artist is waiting for a particular foldback effect will be few and will certainly be better men than me.

In summary, a great sound, enormous potential, outstanding levels of preset interaction and great value for money are all hamstrung by an outstanding level of inaccessibility. What a shame. ■

#### Contact:

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Tel: +1 516 333 9100,  
Fax: +1 516 333 9108.  
**UK:** Korg,  
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Fax: +44 1908 857 199

## NEW TECHNOLOGIES

### Sennheiser's Evolution

Launched at the American NAMM show, the Evolution series mics are aimed primarily at the Live and MI markets. The range consists of 10 models spanning vocal and instrumental applications, with prices all sub-£100 (UK) and represents a 'ground up' investment for Sennheiser.

**Sennheiser, Germany. Tel: +49 5130 6000.**

### Sony DAT

The latest low-cost professional Sony DAT machine is the PCM-R300 which offers 32kHz, 44.1kHz and 48kHz sample rates, analogue and (optical and coaxial) digital I-O, and Super Bit Mapping. The PCM-R300 comes with an infra-red remote and no SCMS at a UK price of £680 exc. VAT.

**HHB, UK. Tel: +44 181 962 5055.**

### Foundry plug-ins

NAMM saw the introduction of Soft Encode, a plug-in for Dolby Digital AC3 encoding. This is a stand-alone, running under Win95 and NT comes in both 5.1-channel (\$1995) and 2-channel (\$695) versions. XFX 2 is a suite of plug-in processors for Sound Forge 4.0 including a gate, graphic EQ, parametric EQ, parabolic EQ, graphic dynamics, multiband dynamics

**Sonic Foundry, US. Tel: +1 608 256 3133.**

### Symetrix 565E

LA's NAMM show saw the introduction of Symetrix' 565E dual compressor-limiter-expander. The unit integrates rms compression, downward expansion, and peak limiting in a 1U-high box. The 565E uses proprietary Dynamics Squared circuitry to reduce mid-band distortion and claims a dynamic range of 115dB with max gain reduction of 40dB.

**Symetrix, US. Tel: +1 425 787 3222.**

### Green 6

Focustrite has released the latest in its Green series, the Green 6 quad compressor-limiter. The unit boasts class-A VCA circuitry, stereo linking, vu and gain reduction meters, con-



trol over threshold, compression ratio, makeup gain, switchable attack and release and threshold limiting.

**Focustrite, UK. Tel: +44 1494 462246.**

### Mini stagebox

Deltron has launched a low cost mini stagebox that will accept 40 universal XLR connectors front or rear mount. Of simple mild steel construction it can be supplied as a plain box or prewired assembly painted matt black.

**Deltron, UK. Tel: +44 181 965 4222.**

### Klotz cable

Polywire is a new multipair studio cable available in 4-pair to 40-pair formats and promising 'outstanding flexibility'. >>>>

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# SPL Loudness Maximizer

SPL's digital dynamics box makes a complex job of an simple principle but then makes it easy to operate. **Dave Foister** enjoys the ride

**A**VOIDING THE OBVIOUS has long been one of SPL's traits. From time to time this has resulted in equipment that is virtually unfathomable, but at least as often it means a box like no other with something genuine to offer. Originally as analogue as a grandfather clock, the latest SPL processors go to the other extreme: operation is entirely digital.

The Loudness Maximizer is a companion to the Spectralizer reviewed recently, (*Studio Sound*, Month ??? 97) with which it appears to share its case and front-panel design, and probably shares its DSP board. For these are both good examples of the new breed of digital processor that sets out to do one job as thoroughly and simply as an old analogue box without overwhelming us with menus, inconvenient controls, and a forest of parameters. While the Spectralizer's role is the subjective enhancement of a signal by fair means or foul, the Loudness Maximizer is nothing more or



less than a dynamics processor for getting the absolute maximum level out of a signal.

This dedicated function means that, although the operational building blocks inside are familiar, many of the expected controls have been stripped away and those that are left bear little resemblance to the usual complement. General-purpose dynamics control is not the name of this game: this is a box you stick your whole signal through to make it louder. SPL's aim is to exploit up to 99.9% of the available headroom while guaranteeing no clipping, and to increase the subjective loudness of even a normalised sound file without changing its essential character. Beyond this, it offers creative use of audible changes in the sound as it coaxes even more loudness from the source.

The Loudness Maximizer is operated very simply by means of three rotary encoders, with parameter values displayed on a small LCD screen. Since each encoder is dedicated to one function, it follows that there are only three adjustable parameters on the unit, none of these is necessarily obvious. The strange labels have a point, however, and once the idea is mastered the approach works very well indeed.

The first control sets the desired gain of the unit. Clearly, this tells the processor how much gain you'd like to be adding, and rather than have you guessing there are several meters to help follow what's going on. Of most use here is a Possible Gain meter, that continuously monitors the input and shows

how much additional gain it thinks can be achieved. Given a read-out from a suitably loud section, the DESIRED GAIN control can be set to match this value, and another meter shows what percentage of the intention has been achieved. If this falls too low it suggests that the unit is working too hard and risks affecting the character of the sound.

So far the gain has been increased within the available ceiling: but the way in which the unit achieves this is still very much under user control. There are two gain control stages, one being a straightforward limiter and the other a kneeless compressor, and the balance between the contribution of the two elements is adjustable as is the behaviour of the limiter. The SOFT-HARD control works specifically on the limiter, and varies its action between caution at the Soft end and punch at the other. Soft limiting will not give any invalid samples, while harder settings risk occasional audible distortion depending on the material. But the biggest

difference comes with the MORE DENSITY control.

This encoder simply sets the balance between compressor control and limiter control: as its value is increased

more of the work is done by the compressor. Given a suitable limiter hardness setting, low values are more likely to give transparent results: but if a definite compression effect is required then high values will do the job. This inevitably tends to reduce the overall level, so the DESIRED GAIN can be used to bring it back up within the constraints shown by the meters.

All this is actually much simpler than it perhaps sounds. Although the controls interact quite noticeably, their action coupled with the six meters (two each for input and output levels plus the two already discussed) makes it intuitive and quick to get the desired result. It's also surprising how versatile the processing is and how many different effects can be achieved with it: at one extreme it is clean and subtle enough to be used on the most demanding of sources without making its presence felt, while at the other it can add huge amounts of apparent level and punch without fear of overload. Even when you think it's done all it can, the limiter has a BOOST button (SPL calls it the CLIENT button) to add 2dB regardless of the consequences.

In many areas subjective loudness is everything, to the extent that it can take precedence over more subtle sonic considerations to the despair of the originating engineer. What's needed is a dedicated processor that can give as much loudness as you could reasonably want without screwing everything else up, and this offering from SPL is exactly that. ■

#### Company

**SPL**, Hauptstrasse 59A,  
D-41372 Niederkruchten,  
Germany.  
**Tel:** +49 2163 8761.  
**Fax:** +49 2163 83028.  
**UK:** beyerdynamic,  
**Tel:** +44 1444 258258.  
**Fax:** +44 1444 258444.

## NEW TECHNOLOGIES

<<<<< The cable offers individually coloured and numbered pair jackets, and has additional outer foil shielding. Lengths available range from 1m up to 1,500m. **Klotz, Germany. Tel: +49 89 4610 000.**

### Acoustic modules

IAS-A1/A2 and IAS-D1 are acoustic modules for the low-priced acoustic optimisation of smaller studios. The modules are accompanied by general installation instructions free of charge. An alternative to on-the-spot consultation is the measurement CD which can be used for simple measurement of reverberation time in the rooms that can then be evaluated by the acoustic engineers of IAS.

The modules are extremely flat in design and serve to provide absorption of resonances and the optimisation of reverberation time. The A1 is a low-mid frequency absorber, the A2 a broadband absorber for reverberation time correction while the D1 is a diffuser for mixing the generated sound energy.

**IAS, Germany. Tel: +49 2241 62918.**

### Arboretum effects

New Hyperprism Windows processing software from Arboretum represents a first in PC-based systems and offers 25 processes including pitch shifting, ring modulation, filtering and delay effects as well as a selection of conventional delay, pan and reverb processes and custom effects such as Quasi Stereo and Sonic Decimation. The program is compatible with Microsoft Direct-X and Active Movie applications such as Sound Forge and Cakewalk pro.

**Unity Audio, UK. Tel: +44 1920 822890.**

### Tannoy announcement

Two new-at-NAMM loudspeaker models from Tannoy are the System 600A active and the Reveal close-field designs. The System



600A is a 6 1/2-inch dual-concentric featuring a pair of 75W bi-amps, a 44Hz-20kHz response and capable of delivering 117dB spl. Reveal is a shielded low-cost 2-way (1-inch, 6 1/2-inch) passive close-field monitor giving 65Hz-20kHz into 8Ω and 90dB at 1m. **Tannoy, UK. Tel: +44 1236 420199.**

### 4-channel DI

The Radial JD4 is a 4-channel rackmounted direct box that uses Jensen audio transformers and Mogami cable and was designed with input from the live and >>>>>

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# AKG WMS 300 PT

Faced with an impossible mission, AKG has introduced a radio-microphone system. **Neil Hillman** field tests the WMS 300 PT

IT WAS BARELY MORNING when James fired the engine into life and left the Chelsea mews house of Arabella. Was it really just 12 hours. 10 flights and 57 couplings since he had rescued the hapless but haltingly beautiful heiress to the Garibaldi chain of indigenous-native, direct-from-the-factory, rain-forest art-houses so favoured in London, from the ruthless hands of a Middle-Eastern despot hell-bent on domination of the occasional furniture market and thus applying a paralysing tourniquet to good taste and the right-minded nations of the northern hemisphere? It was.

That night the free world had slept easily, but there been no respite

from the dim but nonetheless insatiable Arabella for James, and he had been summoned for an early meeting with Z. That could only mean that somewhere a simmering pot was about to boil over.

The dawn of a blood-red sun against a gun-metal sky greeted James as he pointed the nose of the 1991 J-registered 1.6 Citroen BX across Tower Bridge and reflected on how budget constraints and covert transport had become uneasy bed-fellows in the newer, leaner and fitter firm. Some things, however, never change and Miss Spendapennie was ready to dispense his favourite coffee (black with sugar but not stirred) even at this unearthly hour 'Hello James, good trip? The old man said to go straight in, by the way T is in with him too, so expect some fun from the toys-are-mainly US department.'

She never changed, which given the hour gave James the distinct impression that she probably slept fully clothed. Both Z and T looked ready to pounce as James entered, but it was Z who spoke first: 'I'll come straight to the point, we have been contacted by a friend of Her Majesty's Government that there is trouble within the VHF radio-microphone spectrum and this is playing havoc with the European speciality acts performing in Soho at the Beaucoup de Pussie Club and we suspect the involvement of SPERM the Systematic Performance Elimination of Radio Microphones. At any rate, something smells fishy there. It would appear that the UHF option must be considered with all haste if London is not to be brought to a standstill by taxis gridlocking themselves from rogue transmissions emanating from around Wardour Street.'

T picked up his cue without missing a beat: 'Pay attention because this might just save

your life one day. Inside this metal case which houses the AKG PT 300 bodypack transmitter is a radio device that operates in the high-band UHF range between 798MHz and 955MHz and lets you select one of 16 carrier frequencies within the channel bandwidth. Notice the audio input is a lockable mini-jack that accepts dynamic microphones, condenser microphones for 5V power supply, electric guitar and bass and portable keyboard. Due to the nature of your assignment you have been furnished with an AKG CK97-C lapel microphone that is neither small nor beautiful, indeed it is large and black, and would present some difficulty to conceal, but given that its theatre of war will probably be in a, well, theatre this is what you are given.'

The coffee had started to work on James. But first he asked a question: 'So are we talking more about conferences, public address and am-dram than location drama recording?'

'Indeed we are' continued T, 'but it comes from a range that has been extensively rock-'n-roll road-tested over the past 18 months or so, with a leading London audio-hire company and passed the ultimate "will the close proximity of metal affect its performance" test as the main microphones on the prodigiously pierced Prodigy tour—and consider these specifications: the transmitter has an RF radiation power of 6mW, an audio bandwidth of 70Hz–20kHz, THD of less than 0.8%, and a signal-to-noise ratio greater than 100dBA. The power consumption of less than 150mA from three 1.5V AA batteries gives a battery life of up to 12 hours.'

T paused handing James the transmitter.

'It feels very heavy, T, and while the 1/2-wave antenna looks robust enough the three operating switches for mic-mute-line input, power and Sensitivity are annoyingly fiddly and the CHANNEL SELECTION pot does not inspire much confidence either: although the battery compartment lock should be fitted as standard to the bow-doors of all roll-on/roll-off ferries. Tell me about the receiver.'

T shot a 'give me patience' look at Z before resuming with, 'the mains powered receiver works on true diversity, with image rejection of typically 60dB and an audio bandwidth to match the transmitter. The audio outputs are either on a balanced XLR, adjustable from -30 to +6dBm or on an unbalanced 1/4-inch jack adjustable from -36dBm to 0dBm.'

Z interrupted: 'couple this with a cost of around £900 Sterling, not including the microphone, and you can see why we feel that our modest budget can stretch to help this club in the spirit of *entente cordial*. That and the fact that several cabinet ministers are leaning on us.'

What could James say but 'Splendid?' ■

#### Contacts

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**Fax:** +43 1866 54205.  
**UK:** Arbiter Pro Audio.  
**Tel:** +44 181 207 5050.  
**Fax:** 181 207 4572.

## NEW TECHNOLOGIES

«««« recording studio communities. It uses the circuitry from Cabletek's JD1 DI which is claimed to be flat to 80kHz, has a phase response that is said to be 'spot on' and is said to be virtually impossible to overload.

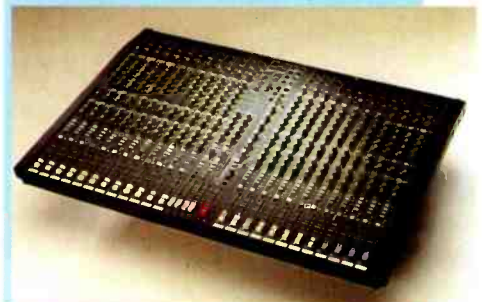
Entirely passive, input and through connectors have been paired on the front and back of the unit and supersonic filters on each channel reduce the noise from keyboards and computers. A phase reverse switch is included along with a stereo sum switch that takes a stereo output from a keyboard and sums it to mono plus a ground lift and 15dB pad.

The Radial Convertible is a 50-channel audio snake that is set up in metric rows of 10. The last 10 channels are paralleled with male output connectors allowing the snake to be used in a 40 x 10 or 24 x 8 configuration. The device is also equipped with a Ground Test Circuit which self tests the 50 channels for abnormal ground hum.

**Cabletek, Canada. Tel: +1 604 9421001.**

### Studiomaster Trilogy

Targeting budget multitrack and live applications, Studiomaster's Trilogy 326 is a 24-channel, 4-bus desk offering 20 mono



mic-line and 4 mono-mic/stereo-line channels. Channel features include 3-band EQ, 6 aux sends, peak and signal present LEDs and the PSU is external.

**Studiomaster, UK. Tel: +44 1582 570370.**

### SuperMini and monitor

Martech's SuperMiniconsole is targeted at Flying Faders users and adds 32 channels with automated faders, EQ, aux sends, 8 buses, panning, direct outs, inserts, solo, mute and dual inputs. As an option, the events control facilities of Flying Faders may be used to automate the input select, EQ and insert functions.

The news coincides with the release of the Martech Recorder Monitor System a multi-input monitor matrix that provides programmable headphones, loudspeaker and vu meter monitoring of recorder inputs, sync outputs and repro outputs of multiple 8-channel audio sources. The listening paths provide LCR placement of each track, separate volume and mute controls for headphones and speaker and single track solo. The metering path, consisting of 8 meter buses with auxiliary balanced output drivers on each bus, permits metering of one machine at a time or the summed outputs of several machines-stems.

**Martinsound, US. Tel: +1 626 281 3555.**

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# Chris Kimsey

## The politics of production

In case you were in any doubt, political acumen can be as important as production skills when dealing with today's record company execs.

**Richard Buskin** shares frustrations with Chris Kimsey

**M**ANY OF US feel inclined to gripe about the way the recording industry operates these days. But perhaps few have as good a reason as Chris Kimsey. A veteran of more than 30 years in the business, the in-demand producer-engineer has seen things change dramatically from the days when the producer arranged, the engineer took care of all aspects pertaining to the sound and that was basically that. Recently he has been

involved with a spate of projects that fulfilled all expectations in the studio, only for the end products to be seriously hampered—or totally destroyed—by misguided record company interference.

'The industry's becoming very rude and very short-lived in terms of its approach,' Kimsey asserts, 'it's almost like the vogue now. The record companies aren't thinking about music; they're thinking about look, next year's sales, how much they can pour in the pot. On the one hand they want to do an album for nothing—their dream is to pick up a production, press it up, release it and it sells a million copies—and on the other they go nuts and lose the plot completely, inviting some top producer to work on an album when really the band should still be with the people who helped them make the first album. That's the secret of the whole thing.'

'They hire the best accountants and the best lawyers to do the deals, and they hire the

quick-and-easy, cheapest A&R scouts to find the bands. There aren't many people left who can understand and nurture raw talent. Bands are signed to a label, given one shot, and if they don't have a hit they're dropped.'

'For much of my career I've worked with older artists, but lately it's turned a corner for me where I'm being asked to produce a lot of younger bands. That's because people say they're difficult, but they're not difficult at all. It's just that they're not being listened to and they're not being understood.'

Indeed, not many producers who have been around the business as long as Chris Kimsey has managed to remain quite so contemporary in terms of the artists who they're asked to work with. Starting off at the age of 16 in 1967, Kimsey laboured for four years as a tea boy/tape op at Olympic Sound Studios in South London. Although he just missed out on some sessions with Jimi Hendrix, he was on hand to assist producer Glyn

Johns on projects with the likes of Led Zepelin, Delaney & Bonnie, the Eagles and Leon Russell. Then, after replacing an engineer during the recording of an album by French singer Johnny Halliday, Kimsey went on to work with Halliday sidemen Billy Preston and Spooky Tooth. This in turn paved the way for engineering assignments with Ten Years After, Bad Company and Peter Frampton, including the engineering and mixing of the latter's *Frampton Comes Alive!* in 1976 and the same artist's two subsequent albums.

However, it was through his work with The Rolling Stones that Kimsey really made a name for himself in the music business. He first met the band while assisting Glyn Johns on *Sticky Fingers* in 1971. Then, in 1978, Kimsey received a call from Stones pianist Ian Stewart, asking him to sit behind the board for the *Some Girls* project in Paris. Kimsey's (and the Stones') success with that album led to him also being asked to engineer 1980's *Emotional Rescue* album, before then going on to co-produce both *Tattoo You* (1981) and *Undercover* (1983) with the band.

'The Stones really did take a long time to make a record back then,' Kimsey recalls. 'Those four albums I worked on each took a year or longer to do, so all in all I was working with them for about five years. You see, they didn't get together like a normal group, writing and rehearsing all the time. They actually got together in the studio when they were paying for studio time, and that's a very costly way to do things.'

In addition to the difficulties inherent in working with the Stones, Kimsey also had good reason to feel less than pleased with the group's choice of locale. 'Working in Paris was a little bit of a problem because of the social scene there,' he says. 'None of the guys would turn up until they'd had a really good dinner, and so that meant we often didn't get started until around one or two o'clock in the morning. In the beginning, I used to turn up all eager at about nine in the evening, and then I'd be sitting and waiting for four or five hours. Eventually, however, I learned my lesson: I'd wait until someone phoned me and said, "One of them's here", before I'd go down to the studio.'

Nevertheless, Kimsey emerged from the whole experience with few regrets, a far greater knowledge about working in the studio and considerably more importance attached to his name. In 1989, he again got the call to work with the Stones when they were getting ready to record *Steel Wheels*, and he agreed to do so on the basis that, this time around, there would be a lot more discipline both in and out of the studio. The band complied. The songs were composed and routinized in Barbados prior to Kimsey joining the group for the recordings at Olympic, and that way everyone was able to sleep at a more conventional hour.

'It doesn't matter how the Stones approach things, when the recording sessions actually get underway it's tremendous fun. Mick, Keith and the rest of the guys always give 100%, and they basically have a good time. I've learned a great deal working with them; about feel for the music, about knowing when and when not to play, and about performing. When Mick does a vocal he gives everything,

Even when he's in the studio he's dancing all over the place, just like when he's on stage. It's an amazing experience.'

And then there's the man who Keith Richards has repeatedly asserted is The Rolling Stones' drummer Charlie Watts, he of the laidback attitude and couldn't-care-less appearance, who is always on the money for the band both in the studio and in concert.

**G**IVEN HIS interest in jazz, Charlie's style of drumming is quite different to that of other drummers I've worked with,' says Kimsey. 'He hits the drums relatively lightly and prefers to play the bass drum with the front skin on because of its touch. As a result it isn't always easy to obtain a big sound from his kit in the studio, and so what I learned to do was put the bass and snare drums through a PA and pick that sound up in the room. That way the other guys, who often don't like wearing headphones, could

still hear Charlie over the guitars.'

Nevertheless, while Richards' and Ron Wood's bedraggled, cigarette-drooping-out-of-mouth look has been as well rehearsed as Jagger's prancing stage movements, it appears that Charlie Watts' somnambulist demeanour is the real thing. Chris Kimsey was working with Anderson, Wakeman, Bruford & Howe while the Stones were rehearsing the *Steel Wheels* material in Barbados. Phoning there in order to get an update on how things were progressing, Kimsey found himself talking to Charlie, and at one point the conversation went something like this:

Watts: 'I hear you've been working with Bill Bruford. What gear does he use?' 'Oh, he's got a Simmons kit, a fully programmed computer, a... Mmm, yeah, well I've also bought some new equipment.' 'Oh, really? What did you get?' 'A snare head and a new pair of sticks...'

'When we were working on *Emotional Rescue*,' Kimsey elaborates, 'I sat down at >>>>

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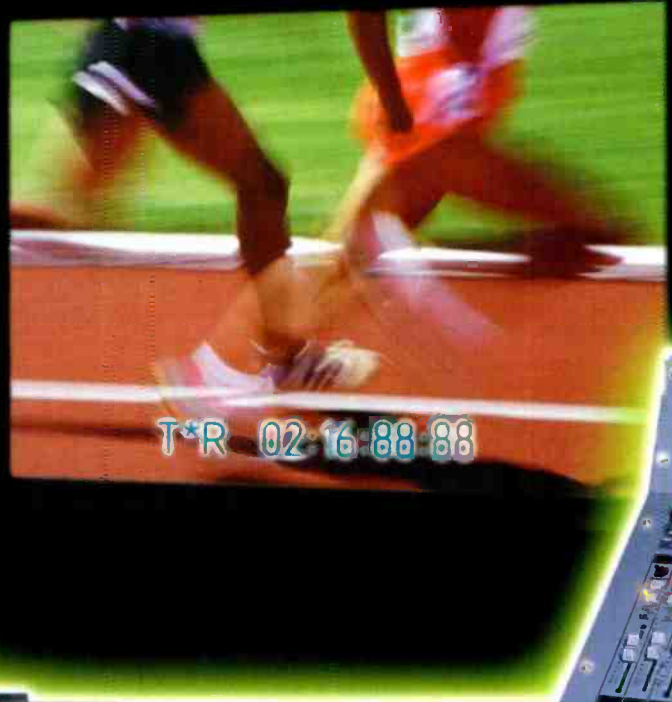
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- Optional rack-mount ears with handles.

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<<<<< Charlie's drum kit, and, as I looked at the skin, I noticed all of this confetti that had trapped itself in the rim. I said, "What's all this confetti, Charlie?" and he replied, "Oh, that's from the Hyde Park gig". That was the concert that the band had performed just after Brian Jones died, meaning that the drum had never been cleaned since 1969."

In recent years, in addition to producing a symphonic album of Stones material, Chris Kimsey has worked with veterans such as Johnny Halliday and The Gypsy Kings, and young acts including Soul Asylum, Comfort and Ash.

Comfort is this 24-year-old genius who I worked with in the summer of 1996, Kimsey explains. "His music is sort of Beatlesque-Cat Stevens-Marc Bolan. It's impossible to tie him down, but his voice range is quite unique—he's got a great falsetto—and his songwriting ability is amazing. Anyway, he had a history of being difficult to work with, but that was because the A&R people at the record company [RCA] had put him in with producers who didn't know how to work with such an exciting young artist. Technically his ideas are sound; his ability to soundscape images are so far advanced and interesting, yet the people who they hooked him up were more concerned with "You have to stand two feet from the Neumann U-47 and don't spit". Of course, things became awkward, because this guy actually had more of a clue than the people he was working with. He also writes and plays practically everything himself, even though he uses a drummer, keyboardist and bass player.

**T**OGETHER with [engineer] Chris Potter, we went to Spain to make the album. It was at this beautiful studio called El Cortijo, set way back in the hills—a wonderful place: beautiful big, big villas with fantastic facilities, but unfortunately it appears that they put all of their money into the building of the place and then pretty much ran out when it came to the studio. They begged and borrowed desks—I know that they had the U2 Neve in there for a while—and so we took a lot of outboard gear with us. Now, both Chris Potter and I wanted Chris to mix the album, but two-thirds of the way through the record company said, "We want Clearmountain to mix it". Well, that really, really pissed Potter off no end and left me in a real spot. After all, I was the one who had to fire Potter. The record company had based this decision on a whim. It had nothing to do with the quality of Potter's work, otherwise they would have stuck with him. It was just a case of, "Well, we should maybe get an American name to sell the album over there".

That kind of thing is all nonsense, of course, but as it happens this actually served to regenerate the relationship between Bob [Clearmountain] and I. He'd mixed the *Tattoo You* album as well as "Miss You" from *Some Girls*, and I'd bumped into him on numerous occasions since...

At this point Kimsey temporarily breaks off from the Comfort story to recount how, at a relatively early stage in his own career, he was upset when Rolling Stones Records asked Clearmountain to remix "Miss You" for its release as a single. Back then this kind >>>>>



Kimsey's relationship with the Rolling Stones began with 1971's *Sticky Fingers*—and runs on

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of practice wasn't yet the norm, but, as things turned out, it was possibly the best thing that could have happened.

A few months after the song had been released I was working in LA. Kimsey recalls, 'I was driving down the Pacific Coast Highway in a hire car which had a great stereo system and 'Miss You' came on the radio. Well, the difference between my mix and Bob's mix was that he had edited out the saxophone solo, making the track considerably shorter. So, I'm going down PCH, the song's pumping away, and I'm thinking, "My God, this sounds amazing; Bob really is a genius". And then the saxophone solo came on—I nearly spun off the road. I thought, "Oh my God, I can't even recognise my own mix!".

That taught me two things: One is to not get so precious about it all, and the second one is that if it's on the tape and it's in the groove then it will always be there.

I'M NOT saying that Bob's no good. Quite the opposite. He's a wonderful mixer, and just about the only one who I really feel comfortable with and know will get something as good as I would attempt to get, or even better. He's a real song man and he knows how to immediately get to the core of a recording without too much effect. He's the only person I know who can use the SSL desk without it sounding like an SSL desk, if you know what I mean. With a lot of engineers, as soon as they've got the SSL they EQ too much. They start EQ'ing for the sake of EQ'ing; they don't balance. Bob's great, however, because he puts everything up—not just the drums—and he listens to the song. That's what he's primarily interested in, not the drum sound or the bass sound or the guitar sound.

For all of this, however, Kimsey is a man of the old school who dislikes the whole notion of mixing being separate from producing.

'I think it's a very dangerous thing,' he asserts. 'I mean, look what's recently happened to me with the Soul Asylum album: The record company wanted Michael Barbiera to mix it. Four months into the project I was pretty exhausted, and I said, "Well, if that's who you want...". I'd rather have done it with Clearmountain, but Bob wasn't available for several weeks and it was the usual case of "Oh no, we've got to get it done immediately". So, Barbiera started to mix it, and I suddenly realised that he was doing so in a totally different way from how I'd originally heard the production. I'd purposely recorded everything in mono—I wanted the album's sound to have a very strong impact, and if you do everything in stereo you get a very thin balance in the end. However, Barbiera couldn't understand it at all. He wanted to know where was the guitar on the right to match the one on the left, and I said, "There is no left and right. Just put it in the middle". In the end everything ended up having Harmonizer and effects in order to make it all stereo, and it really sounded overcooked. Early on I did try to drastically change one mix to the way I wanted to hear it, and he couldn't really deal with that; it was either going to be his way or not at all, so I just stepped back and let him get on with it. At the end of the day the record company liked half of the mixes but felt that the others could be better, and that to me is an incredi-

ble waste of money.'

The result: in mid-January Kimsey flew to Los Angeles to take care of some of the mixes with Bob Clearmountain. This brings us neatly back to the Comfort story, for LA is where the team of Chris 'n' Bob also mixed said artist's album very quickly after Chris Potter had been edged out of the picture by RCA.

'Bob was absolutely superb,' reaffirms Kimsey. 'I don't think Chris [Potter] could have done a better job, and in fact it's one of my favourite albums of all time. I play it constantly. Still, at this point, between myself, Bob and the other two producers who had previously been used, not to mention Bob Ludwig who did the mastering, the record company must have spent about \$3,400,000. However, about two months after it had been finished I got a phone call from Comfort saying, "You won't believe what's happened. I've been dropped". I was freaked out, but the bottom line was that RCA had literally been told by the accountants in Business Management that they had to drop any peripheral stuff that they'd been trying to expose, because they had to spend the money on established artists who could hopefully sell records. I then heard that the same thing had happened to Chris Neal after he'd produced someone for RCA. As it happens, in Comfort's case the company actually gave the album and the copyright back to him, so he owns all of these songs again, which is wonderful, even though they're keeping an override on the record point-wise. Well, Comfort already had a Top-5 record in Japan, so with the money from the sales and the publishing he started his own little label, before he then found out that to promote your own single costs a fortune.

Recently he almost got signed to Mercury, but then the word went around that he was 'awkward' to work with and the manager there, Alan Powell, got cold feet. That really upset me, so I wrote a letter to him explaining that, over the years, I've worked with a lot of difficult artists: Mick and Keith and a slew of others who I proceeded to name. However, are they really difficult? No, they're artists. They're passionate about their music and what they do. I worked with Comfort for three months and he was great; the people who worked with him previously were probably intimidated and wanted to put him down, because, even if he doesn't make it as an artist, he really is one of the most talented songwriters around. As yet I've had no reply from Alan Powell either to my letter or to my phone calls, and that whole episode got me very frustrated with record companies, period.

Despite that, working with Comfort was a wonderful experience. It enlightened my attitude towards recording because of the way in which he dispenses with the rules. I mean, in a weird way he's a great engineer himself, and that sort of took me back to my days at Olympic. For instance, when we started recording I told Chris Potter that I wanted to record the drums on three tracks. He looked at me as if I was mad. He said, "What do you mean, three tracks?". I said, "I want to put the bass drum on one track, the snare on another and all of the other drums on the third track". He said, "Well, can't we have six tracks?", and I said, "No, we're going to have three tracks



and that's it". You see, I'd decided that the whole technology thing of splitting up tracks and everything had become too much involved with making music. I'd prefer to make decisions and start shaping the sound from day one, as opposed to not knowing where you're going. Of course, people do make records in that way and I'm not knocking that, but from my own creative perspective I was really getting fed up. When I put up a song I want to hear it the same every time, not different every time.

You know, Tamla Motown was all one sound, and I'm trying more and more to get back into that, but it's hard to find. The middle-aged, middle-of-the-road artists have been spoiled so much by multitracking that they're frightened to do that. The younger kids, on the other hand—such as a band of 15-year-olds that I've been working with called Serum—have got no knowledge of, or respect for, the technology at all. All they know is that they want to sing and play, and that is the main thing. It's like night and day. Recording has become far too technical in one way. It's getting better in the States right now, but usually over there an engineer will immediately put up a +14 for the vocal, and I will always question, "Why have you put that up?". The usual answer is because it's the easiest mic to work with—distortion-wise it won't give him any problems—but he's not thinking of the singer. He's thinking of himself and getting something on tape, which in one way I suppose is fair enough. It's just that there's such a choice of equipment now, and it's foolish to think that if you sing into this new Neumann microphone or the really expensive Sony microphone you're going to sound better. The quicker I can dispel that in an artist's mind, the better. Forget about all of the instrumentation and technical stuff or fixing things with effects: it's down to your performance and what you're going to do.

**B**Y CHRIS Kimsey's own admission, the experience of working with a young artist as adventurous and as talented as Comfort—not to mention that of collaborating with Bob Clearmountain—rekindled his own innovative instincts with regard to sound. These were then given freedom of expression on an album project with The Gypsy Kings, a group that Kimsey describes as 'quite unique' while drawing parallels with the Stones. 'It was all about performance,' he explains. 'About seven or eight of them would sit down and perform a song, and, in my best pidgin French, I would say, "That's really good, that's really fantastic. Let's take a break and we'll do it one more time". And when we did it one more time it was a completely different song with completely different players. They'd all swap around. All of the other brothers would arrive and they'd have some other song on the boil. So, it was like a boy scout thing; you'd grab whatever you could.'

The end result, in the producer's words, was 'a very ethnic, earthy album', that was released on Nonsuch Records in America and Sony in the UK and Europe. However, it hit the stores amid a dispute with the pressing plant. The reason? Kimsey wouldn't sanction the CDs being pressed at quadruple speed after he'd heard a test that he considered to be >>>>

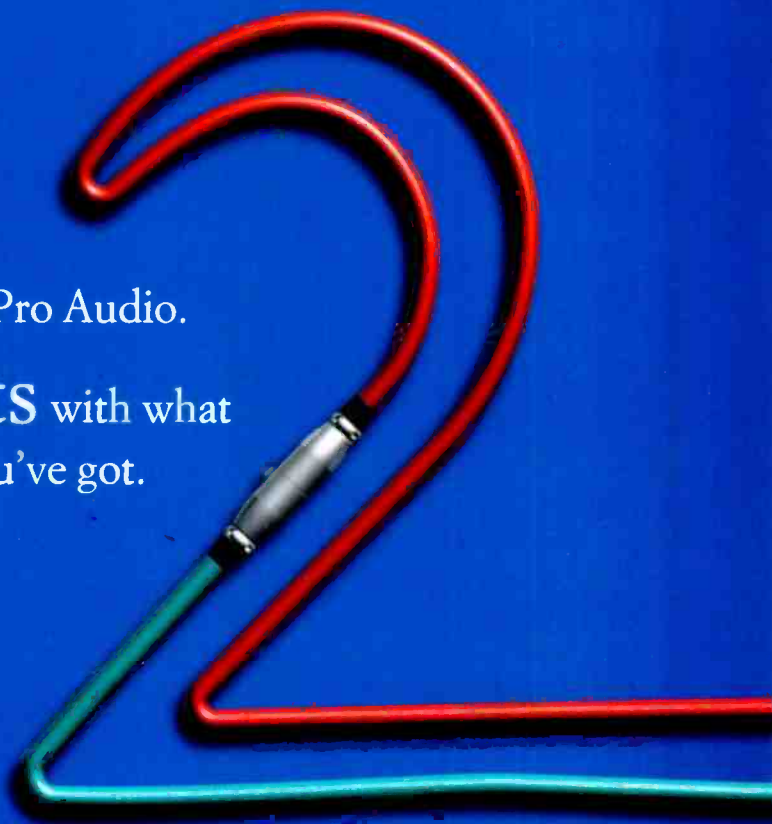


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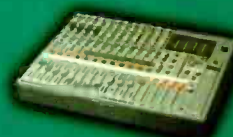
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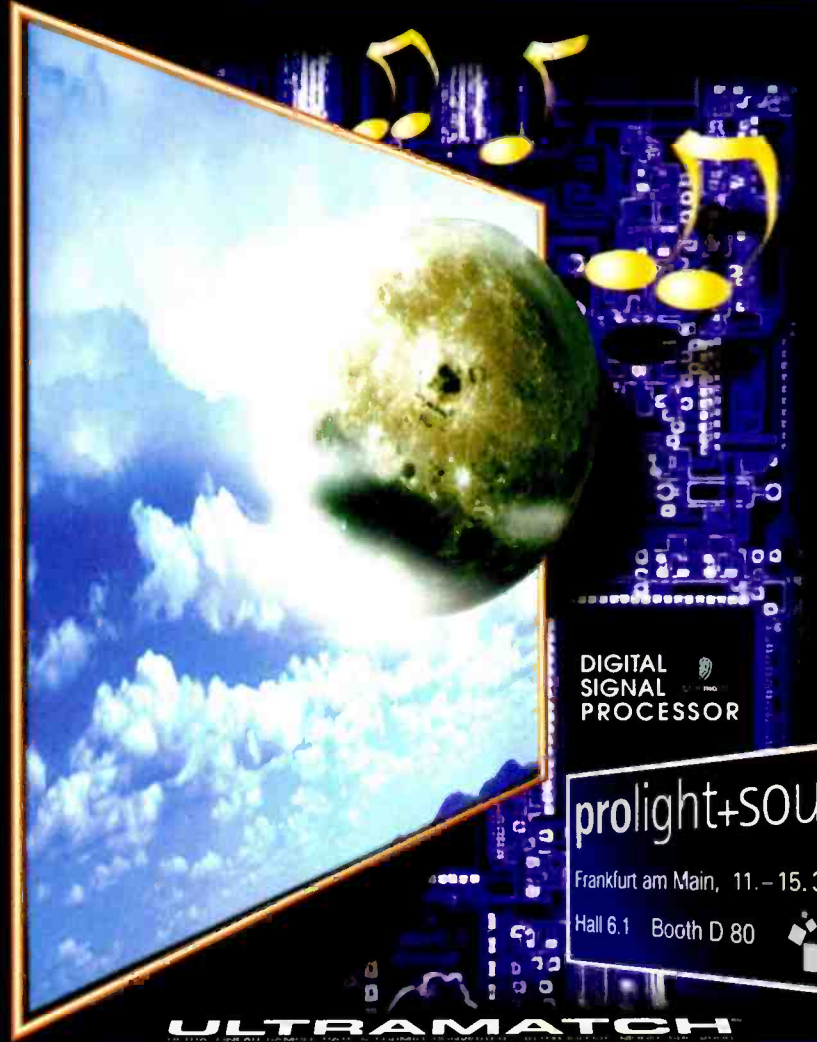


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«««« awful. He insisted that the pressings be made at normal speed, and this in turn led to problems with the release date.

The same marketing team was being used for Oasis, Kimsey points out, and basically the whole thing got stifled. This was because I'd insisted that it be pressed technically correct, and that they plugged all of their time and money into Oasis. So it just got screwed, and it was like five months of my life—a wonderful time—thrown out of the window. I can't afford to keep making albums which are dropped, left unreleased or not even sold properly. All of this really, really annoys me—you know, you go into a project wholeheartedly, and first of all they knock you down budget-wise: they want you to use the cheapest studio, the cheapest format, whatever. Well, on some grounds you agree to that and you sort of cheap out some places, but then, when it's all done, they start to come out with lines like, "We'll have Bob Clearmountain mix it".

"Wait a minute, that's going to cost you another \$50,000, and all of a sudden you're asking, "Why didn't you take the time and thought before you started the project?" That's becoming more and more prevalent with everything that I do.

So far I've taken an attitude of telling the record companies, "Okay, if you think that's the right thing then you go for it". Of course, that's not helping me, because in terms of money I don't get paid until the record's recouped my cost of production. However, I'm not thinking of that. I just want to make the best record and hope that it sells, but then the record company people make such terrible errors of judgement. The reasons for that are either political—who they're friendly with at the moment in terms of producers, engineers and managers—or due to the fact that they've got absolutely no real thought or consideration at all for the music or the artist. Well, I've now got to the point where I just can't stand it anymore, because deep down I know that I could run away and mix an album or do anything with an album, and if I came back and called myself Bob Clearmountain or whoever they wouldn't know the difference. It's so frustrating."

**C**ONSEQUENTLY, Kimsey is currently planning to set up a sort of label-cum-recording school in conjunction with two very high-profile English engineers and mixers (whom he won't yet name) as well as a young manager.

"I've come across some really good talent that hasn't been signed to any labels," he says. "We successful producers, engineers and a manager would all A&R each other, do a free project each for the label every year, and get the talent that we've signed to write, work and play with each other rather than form separate camps. The artists that we'd sign would be very diverse: not all grunge, not all hip hop, not all reggae, but just great singers and great songwriters and great music coming together within this in-house, family-type setup... It might be a bit of a dream, but right now I really feel that it's something I've got to do, because I'm just getting so fed up with the way that record companies think they know how to direct the talent." ■



Ash—part of Kimsey's roster of younger artists

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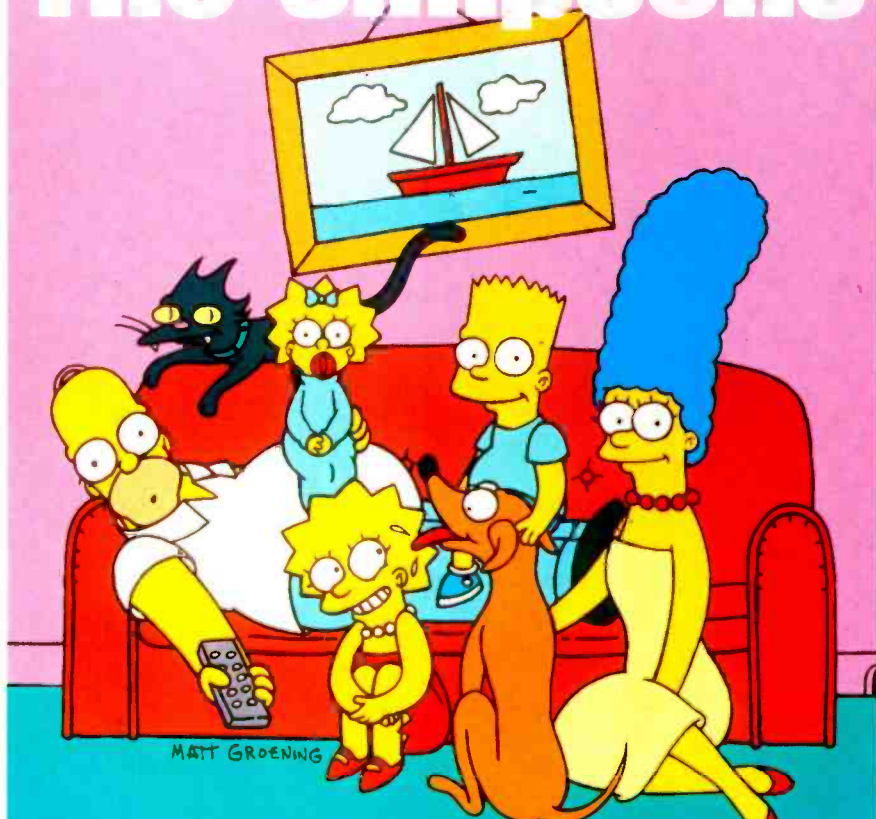
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# Sounding out The Simpsons



If *The Simpsons* is any indication, modern animation is ready to recognise the value of a soundtrack where 'live' motion pictures often are not. **Richard Buskin** enters the strange world of the cartoon

**A**MERICA'S FAVOURITE animated family is now enjoying its eighth season on the Fox Network. In this time, Homer, Marge, Bart and siblings have given Occidental animation a new facet—delivering satire and social comment through the familiar medium of cartoon. Keeping company with the likes of *Doug* and *Rugrats*, *The Simpsons* also takes particular pride in the construction of its soundtrack, for which Rusty Smith is the rerecording, dialogue and music mixer (in addition to *Chicago Hope* and 'whatever the heck else walks in through the door' at Sony Pictures' Stage 7). Bill Freesh, an effects mixer at Stage 7, works on the sound effects, backgrounds and Foley for the aforementioned shows. Bobby Mackston takes care of the editorial work while overseeing the entire sound process. Travis Powers, who works mainly from home, creates and edits *The Simpsons'* sound effects. Chris Ledesma is the music editor.

In a nutshell: *The Simpsons'* dialogue is recorded at Twentieth Century Fox, in what is known as its 'Basement' facility, using eight U87 mics that are summed together and run

to time-coded Sony 7030 2-track DAT. (Up to the end of last season the console being used was an old Quad 8—This has now been replaced with an SSL.) Each show, from the first story conference to the broadcast, spends about nine months in production, six of those elapsing between the recording and the screening of the first colour pictures—the bulk of the animation is done in Korea, where labour comes cheaper.

'This is the show that needs 16 months a year,' asserts Chris Ledesma. 'We are always in some phase of making the show, and twice a year we have a two-month overlap. In February, when they start up, we are coming to the end of the post season, and then we overlap again in late-summer early-fall as production is winding down and we're just starting to gear up.'

Still, the recording of the dialogue only takes a few hours. First there's a read-through in the morning, followed by taping sessions in the afternoon. The DATs pertaining to the different scenes are then loaded into a DAW and assembled, and the select takes are chosen ('and re-chosen and re-chosen,' according to

Bobby Mackston). At this point about 70% of the dialogue that will end up in the finished show is already in the can.

Following the first series of edits the DAT is transferred to a 'mag final' (35mm magnetic stripe) and sent to the animation people. Later, when the pencil test has been completed, it is viewed with the audio and decisions are made concerning additions and deletions with regard to the action and the jokes. The result of all these revisions is the 'post animatic final', the last version of the show before it actually goes into postproduction.

Once the animation has been completed, the original audio recordings are toyed with in order to match the new picture. Replacements or rewrites require additional ADR, prior to spotting taking place for the music and the sound effects. For his part, Travis Powers will receive a version of the show as early as possible so that he can set about creating the effects, and he will be continually modifying these up to and including the final dubbing process.

*The Simpsons*, after all, is different from most other cartoons. Lampooning life and human behaviour, the show is written for an adult audience and, as such, it doesn't fall back on slapstick and 'bam-splat' Hanna-Barbera-type sound effects to support the storyline. Just as the music underscores emotion rather than comedy, so the sound effects need to be real, and this can be quite demanding when considering some of the unconventional situations and locations in which the characters find themselves.

'I've saved every sound that I've ever created,' says Powers, who has been with *The Simpsons* ever since it debuted on *The Tracey Ullman Show*. 'That means that after the first three or four years I had a substantial library, and so I was no longer going out and getting all of the basic stuff that pertains to each show. Gags recur, and that's why the consistency is good: when a gag does recur we're not building it from the beginning. We just go back to that exact sound.'

Powers starts his work on each episode by watching every frame of the time-coded colour animation and making notes, before then going out and about with his Sennheiser 415 shotgun mic and Sony portable DAT recorder. 'I'll go out into the field and record footsteps in numerous ways and proper locations, before cutting them up into individual footsteps and playing them back off of a MIDI guitar through a Synclavier,' he says. 'That's standard stuff, but then there are the sounds that really relate to a specific show. Instead of overplaying things we often just underplay them and make them sound true to life. That makes the situations even funnier—like if Homer gets hit in the head it'll sound exactly like that, because the pain comes from the realness of it.'

'When I'm recording indoors I'll even let some of the room get into it, because I'm going for a grainy old mag-style sound rather than pristine studio material. The real small sound of a bathroom, a kitchen or a living room is what I'm after, and so, whenever I'm doing prop work, I'll try to do so in an actual room.'

Powers gets between five to seven days to work on each episode, and this occurs right at the show's deadline. 'The day after I finish it, it's gone,' he says. 'Usually we finish it on a



Tuesday, when I show up with my Synclavier and the whole library, and it airs on Sunday. Often, however, due to last-minute changes, we're later than that and it's just satellited up.'

Meanwhile, the edited dialogue is mixed by Rusty Smith over the course of a couple of days. 'There's a 15-hour budget to mix the show and most of the time we get it done in around that time,' he says. 'On the other hand, if it's a very complex show with lots of sound effects it will take a little longer.'

It takes about six hours to dub the sound for a 22-minute episode—it usually takes around four hours for a regular cartoon—and we go from 1.00 in the afternoon until 7.00 in the evening. Starting at 1.00 in the afternoon gives Travis just a little more time to get everything ready and delivered to the stage—he's basically a one-man operation and he's got a lot of effects editing to do.'

'Often, when Travis gets the tapes, pencil-testing is still going on,' says Bill Freesh. 'So, we'll go ahead and dub the show, and we'll come up with a list of whatever we need additional pieces for. During the second day of dubbing Travis brings his Synclavier to the stage, and within a couple of hours we'll be doing playback for the associate producers. Then, later on in the afternoon, we do playback for the rest of the group, and Travis will be able to add in anything on the spot. He brings all of his library on disk and we'll just add things as we go, as we need them.'

The interesting part of dubbing *The Simpsons* is on the second day,' confirms Rusty Smith. 'That's because the executive producer and director will be there and they'll listen to what we've done. Anything that we've done prior to that is based on the notes given during spotting, and it's all fairly obvious stuff. You know, getting things in the right place at the right level and making them work as well as possible. Now, however, when they come and look at it, you see why the show's successful. That's because these guys look at the timing of these things, they look at the gags and see how they're working, they see what the sound is doing to help or hurt these gags, and their notes are based on just turning something up or down. Comedy is based on timing, and the techniques that these guys have learned themselves or from others really come into their own. I've seen it happen over and over again.'

'We'll be working on a section and it won't strike us as being all that funny,' adds Bill Freesh. 'Nevertheless, the next day these guys will come in, take a look at it and say, "This isn't quite right. What we need is this". They've known all along what they needed; they gave spotting notes, editors put it together and we mixed it, but they'll look at it and make two tiny little suggestions and it'll make it hilarious. The whole idea of this show is to make people laugh, and these guys know how to utilise sound to do that. It's a ball to watch the comedy get punched up in the show with the stuff that they put in front of you.'

*The Simpsons* is mixed in surround at Sony on a sound stage measuring about 22ft x 45ft and housing a Harrison MPC console. 'We create matrixed 2-channel Dolby and TV encoders, and we have a number of mix stems,' says Rusty Smith. 'I use one LT-RT

stem with dialogue for imaging, and then we have two mono dialogue stems in order to provide enough separation to slip things around, because all of the stuff is married together and the source material is on 24-track. We also have four effects stems including the music stem, and so everything except for the mono dialogue stems comprises LT-RT matrixed 2-channel stems. In terms of processing, all that I use is dbx 160X compression. I don't de-ess it or do anything else, because it's pretty much handed to me in good shape.'

'The layout that we receive from Bobby [Mackston] and Travis is pretty formulaic. Bobby will deliver the dialogue split up on a character-by-character basis.'

'It's delivered to me in mono,' interjects Mackston. 'It's like a radio script, in segments, and I divide the characters up and put them on separate tracks. The actors do multiple voices; one does 15 voices, another does 20...'

'So all of the characters are split out onto separate faders,' continues Smith, 'and they also bring in a walla group that shoots specific background crowd noises.'

For the uninitiated, a 'walla' group comprises those actors who make assorted mumbling sounds for background effect, as in 'walla, walla, walla,' or, as British crowd-scene extras often prefer to say, 'rhubarb, rhubarb.'

Back to Rusty Smith: 'The dialogue is on 2-inch 24-track tape with SR noise reduction—I wouldn't have it any other way—and then the music shows up on an 8-track DA-88, custom-scored every week. It's recorded 3-track—left, centre and right—and the centre track is usually a mono split of whatever it is that they want to keep as separate as possible. There'll also be music source material in there, including bands such as Aerosmith or Smashing Pumpkins, and in fact I have to say that one of the best things of working on the show and mixing the dialogue is that you get to mix in the voices of people who you never thought you'd get your hands on.'

'U2. Sting...' adds Bobby Mackston by way of example

'And I've had all of The Beatles on faders, with the exception of John Lennon unfortunately,' says Smith. 'So, that's one of the fun aspects to working on *The Simpsons*—you never know who's going to show up on a fader.'

'These guys all come in and record their parts for scale,' says Mackston. 'They're invited to do the show and they want to do the show...'

'Their kids and their grandkids want them to do it,' adds Smith

'Most of the time they'll do it at Fox, or sometimes we'll have to go to where they are,' continues Mackston. 'With Paul McCartney, for instance, they just went over to his house in England. The musical part of the show can be very involved. It's not just stuff that they think about during post. A lot of times they'll already have things written into the script that will require Alf [Clausen] to come up with the music ahead of >>>>>

**The Simpsons**  
sound-effects man.  
Travis Powers

**The Simpsons**  
sound team. L-R:  
Bill Freesh; Rusty  
Smith; Bobby Mackston  
and Chris Ledesma

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He was also impressed by the expanse and depth of the stereo image they create. Elliot says, "I don't know how they do it, only that they seem to do it better than anyone else. Very, very clear. Everything is distinctly audible and natural. It's pretty amazing how they open up a mix."

So should you go out and buy a pair of Exposés today just because Elliot Scheiner uses them exclusively? No, but you owe it to your next project to run down to the nearest KRK dealer and get a demo for many of the same reasons.

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After over a decade of commercially successful and critically acclaimed work, changing an important part of your formula wouldn't seem rational. Unless you had very good reason. And Elliot's reasoning may be familiar to you. "Although I trusted the monitors I had been using on every project, including six Grammy nominated albums, I didn't particularly like their sound. I was always looking for something I could trust but smoother- easier to listen to and especially louder.

Then he listened to his work on a pair of Exposé E8s. Now he's using them exclusively on his current projects, the next releases from Steely Dan, Fleetwood Mac, Peter Gabriel and Toto. "The moment I heard the first sounds come out I knew these were right." What he means is the exceptional accuracy and ultra-low distortion Exposé offers to track and mix with confidence. With the smoothness and musicality that would otherwise make long sessions difficult.



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<<<< time. There will be big production numbers with people in the cast singing; a musical version of Planet of the Apes, you name it.

There are two ways in which we handle the music," explains Chris Ledesma. "There are those shows that have songs sung by the cast or guest stars, and then we also have our week-to-week scoring sessions. The score's written by Alf Clausen and we record between 30 and 35 original pieces of music for the show every week. These range in length from a second and a half up to a minute and a half or more, and they cover practically every style of music possible. We've done reggae, we've done organ at the baseball stadium, we've done country & western, we've done military... We've been talking about it lately and have wondered if there is a style that we haven't covered.



Rusty Smith

The songs are written way in advance of when you hear them on the air, and they're sometimes hopefully written a month or so before we even record the cast vocals. This then gives Alf a chance to work with whoever the songwriter is—because they each take turns writing the lyrics—and they work out all of the metric details, and so on, to make sure that it's going to work well as a song.

Once it's nailed down we'll also set aside time at one of our regular scoring sessions for a current show in order to prerecord this music. It's usually done with a trio—keyboard, bass and drums and we bring in professional studio singers who will sing the various roles. Then we take the prerecord, mix it down and send it out on cassette to the cast, while, if time is pressured—which it usually is—we also send a version off to animation so that they can animate the sequence including lip-synch for the voices to later be replaced by the cast.

Chris Ledesma next coaches said cast with regard to a new song. As only one among them actually reads music the rest just listen to the song repeatedly until they learn it, at which point Ledesma helps out with phrasing and pitch.

I conduct those sessions and then I take the tracks back to my editing room, where I replace the studio voices with the cast voices. I finesse and edit their performance a little bit to get it absolutely right, and off we go with that. Then, six months later, when we're finally ready to post it, we get rid of the little trio and replace it with the big orchestra. That's the basic way in which a song is done.

The score, meanwhile, is done week in, week out. Doing the underscore, we take a look at the show less than two weeks before it goes on the air. As a matter of fact, we looked at a show last Friday—which is six days ago—which will score tomorrow [Friday], mix on the dubbing stage this coming Monday and Tuesday, and air on the following Sunday. So, there you go. That's >>>>

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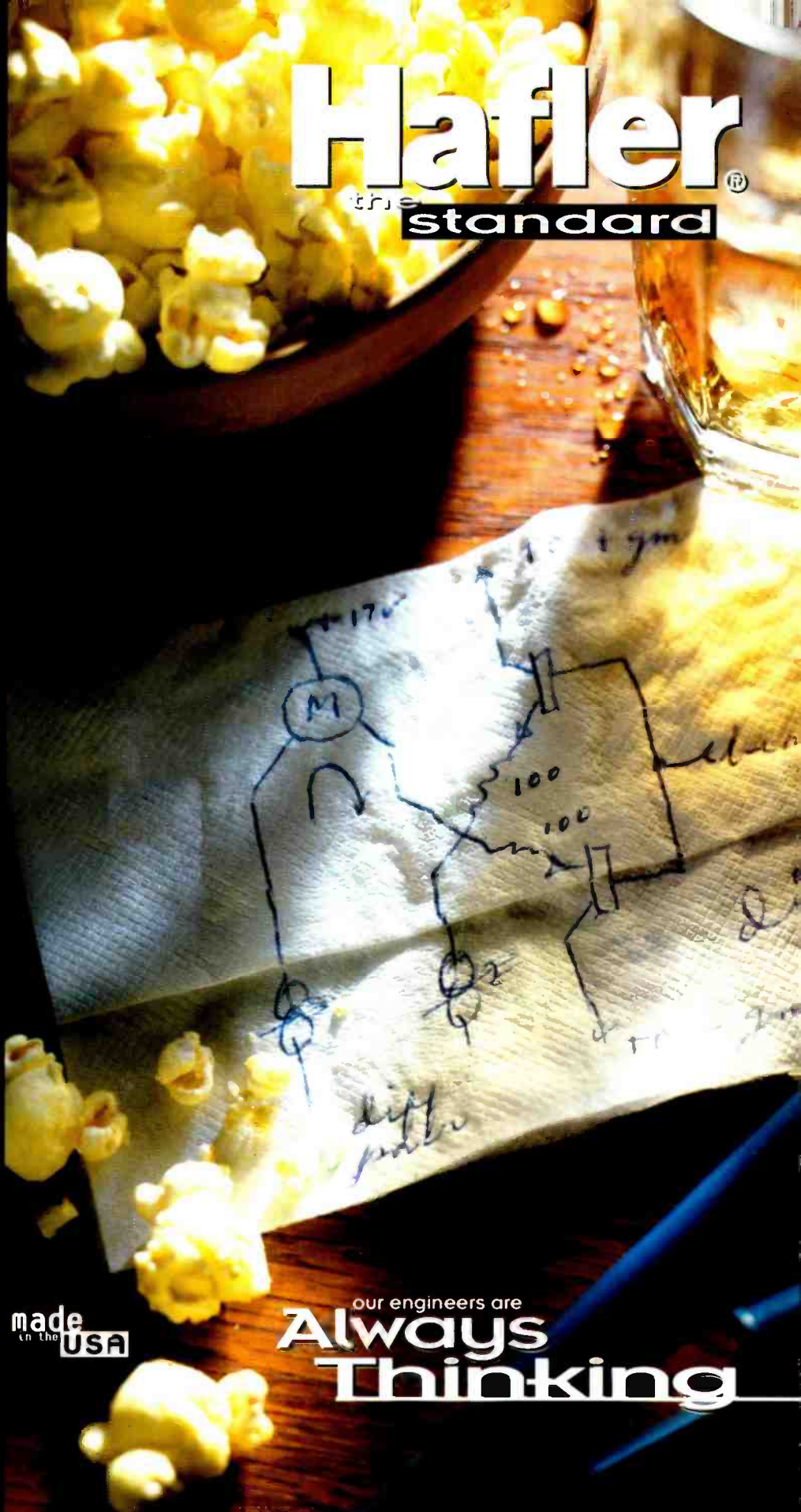


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## The Fox angle

SINCE JANUARY 1998, Twentieth Century Fox has been taking care of the music recording for *The Simpsons* at its own brand new scoring stage. In the past, a number of different LA facilities have been used, and, according to Fox scoring engineer, John Rotundi, some of them may still be used in the future when feature film work fills the in-house schedule.

'For us, *The Simpsons* is pretty much a smaller orchestral setup,' he explains. 'They have a lot of options as to where they can go whereas the bigger orchestras don't, and also there's an invoicing difference between television and feature projects. You see, the TV date takes up one to two sessions—it's a one-day affair—while a feature may take anywhere from two to four weeks. Preferably we'd like to accommodate all of the Fox productions, but the TV material is subservient to the features and so it's likely to get bumped when the schedule demands this.'

Still, when scoring for *The Simpsons* does take place at Fox, Rick Riccio works alongside John Rotundi and handles the mix. Everything is recorded to 3-channel LCR stereo simultaneously using the DA-88 and 4-track Studer A80 Mk.IV with Dolby SR (time code going to Track 4). There's also a 2-track 15ips 1/4-inch for the composer, as well as DATs that are run during the takes. Only the master takes are retained. Meanwhile, for the songs, there's a 24-track Studer A820 running at 30ips.

With an SSL 9000 at the heart of the proceedings, few outboard effects are used beyond a couple of Lexicon 480Ls. The one modification to the console is a split of the LCR buses at every 24 inputs, effectively making it a 4-man dubbing board.

'We can select either discreet section buses or a global monitor bus,' says Rotundi. 'In fact, we can select which sections we're listening to through the film monitor section... In between all of the split LCR buses and the monitors is a routing matrix, and this enables us to monitor any configuration of mixdown buses and route them to the monitors independently. It also does a stereo folddown which we feed to the DATs and to the composer's 1/4-inch.'

'The SSL is awesome,' asserts Rotundi. 'It's been flawless in terms of its operation—no hums, buzzes, clicks, pops or burps—and so we've been very pleased with it.'

<<<<< the amount of time that we have to spot, write, orchestrate, record and mix 30 to 35 music cues. Plus, there are also weeks when we have to throw in a song that we did six months before.'

Not that the music and the effects are the only elements to undergo short-notice revisions. The dialogue may well be accorded this treatment as well.

'A topical joke that was thrown in six months ago may no longer be relevant,' says Bobby Mackston, 'and something that is now hot news may be added instead. *The Simpsons* is like a runaway train. You know, you're just trying to drop things on as it's going, and eventually it'll get too far ahead of you and it's gone.' ■

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# Tokyo story

STUDIO SOUND

The upsetting of the Japanese economy has impacted on the Tokyo recording sector, yet the first signs of rejuvenation are appearing. **Zenon Schoepe** reports on one of the capital's oldest complexes and two new ventures

**W**HAT YOU must remind yourself, when visiting the Tokyo recording community, is that the country is having a hard time of it financially. While they might not look like they are hurting on the outside, the Japanese have been marked by the fall from an economic grace that once looked like it would never end. Talk to them about it and the words 'bubble' and 'bursting' are most frequently used when describing the economic blip that woke up so many. The Japanese are now even more cautious as a result, but if one thing is certain it is that the nation will bounce back stronger and more adaptable than ever.

The Tokyo recording community has not been without victims, but it can now boast a couple of brand new openings—no news in the crowded market of ten years ago, but significant as signs of recovery today.

Ask whether it is a good time to be in the recording business and you'll be told that it is certainly a good time to be a client, and an international client in particular, as Tokyo now compares competitively on price due to currency fluctuation against London, and the East and West coasts of America. According to Eiji Uchinuma, president of the Japanese Association of Professional Recording Studios (JAPRS), the total amount of work available has remained largely constant, but then hourly rates have also remained constant or decreased in the face of client pressure. Ultimately, the food chain starts with the record buyer.

'One of the problems is the type of record buyer that is being addressed,' he says. 'The students that would like to buy records have a limited amount of money in their pockets, and they can't buy CDs and a cellular phone

at the same time. The CD shops are targeting the under twenties, yet it is older people with more disposable income that are in the position to buy music—and they are not really being reached. This market will grow with the Internet if it provides a system where music can be simply downloaded at home without having to go to the CD stores.'

Another issue is that much older people who would prefer to listen to traditional Japanese folk music are hardly being catered for in comparison to the number of new recordings of J-Pop and modern music. Again, Uchinuma sees promise in the Internet.

'There are two major problems that exist with downloading music over the Internet,' he explains. 'The first is, of course, the matter of copyright and who is to manage the system, the second is a specifically Japanese problem.

The CD manufacturers and the retailers are together a formidable force in the Japanese industry and Internet downloading will severely damage both.'

Uchinuma heads a studios' association based heavily, at least in its inception, upon the UK's APRS and there remain strong analogies between the two in their membership makeup and manufacturer-supplier affiliation. Studio membership stands at around 80 and Uchinuma sees his role as an integrator between the management of these facilities. JAPRS is linked to the AES exhibition in Tokyo as its local event, and studios qualify for membership by satisfying minimum-entry requirements, such as a minimum of 24-track capability, and impressing high-ranking JAPRS members with their level of professionalism.

Project studios can also qualify as Uchinuma explains. 'The main problem is the scale of the project studio. Members pay a fee of \$2000 US a year, and for that they >>>>>



From the top:  
Victor Studios 401;  
control room 401;  
gallery studio 302;  
studio 401





«««« gets regular information about JAPRS activities and the opportunity to attend seminars and tours.'

JAPRS is concerned by the question of industry qualifications, is intent on raising operator standards and is in the process of stating its position on the matter. No specific engineering qualification system exists in the country, but Uchinuma is not convinced that this is necessarily a solution as he doesn't believe the attainment of a standard is as important as the encouragement of excellence.

**J**APRS' all-encompassing industry-unifying stance is a little tainted by the fact that for historical reasons there are a number of major record company studios that are not members, Sony-CBS, Toshiba-EMI and JVC to name three. The reason for the absence of some of the big players is that they have their own studio group (the record company society established 40 years ago), but Uchinuma says the two organisations talk freely and regularly and JAPRS is open-minded enough to allow engineers from these studios to attend JAPRS training sessions.

The biggest issue facing Japanese studios in Uchinuma's opinion is the economy. 'Following the surge of the 1980s, everybody wanted to build studios and when we compared the amount of recording work against the number of studios there were too many studios,' he explains. 'At this moment, studios that have the advantage of good staff, location and equipment are very strong, those that don't, have financial problems because they don't get the quality recording work. The high end and the low end are moving further and further apart, and the low end will probably fall away because we still have too many studios.'

Uchinuma estimates that there are, perhaps, 200 studios worth counting in Japan and believes that some 20% are excess to requirement. He agrees that the Japanese recording market is a strange one in that its studios have an astounding level of sophistication and technical equipment, but output productions for a target market that is limited, in the most part, to national consumption. He attributes the inability to export to the language problem and the fact that much of the music is modified and copied European-style music, and suffers from a distinct lack of originality; although he says it's getting better. In this respect hope can be found in the search for new folk music composers.

However, there is more export potential developing than would be immediately apparent with China and Korea show- >>>>



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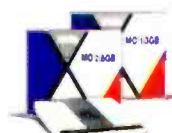
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ing particular promise. While the language barrier still exists, it is lower than that between Japanese and English, for example, and political changes are opening up new possibilities in the region with Japan standing head and shoulders above any other country in the region as a centre of recording excellence.

'Nobody really knows when the Chinese market will explode,' he cautions, 'but we do know that it will.'

Despite a number of previous visits, I have consistently managed to miss out on one of Tokyo's oldest and most revered recording complexes even though I've known that Victor Studios, as the back yard of acoustic designer Sam Toyashima who works for the parent JVC company, would bound to be worth a visit. The complex sports Toyashima's handiwork throughout but then so do most of the rooms in Japan that apportion importance to getting in a name to do the job properly or, indeed, a good number of high-profile facilities the world over.

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The collaboration between the designer, engineers and studio users at Victor is said to be unique and it probably does represent one of the most organic interactions of the various forces. It has seen continued development arising from suggestions over many years and it's clearly Toyashima's playground and test bed.

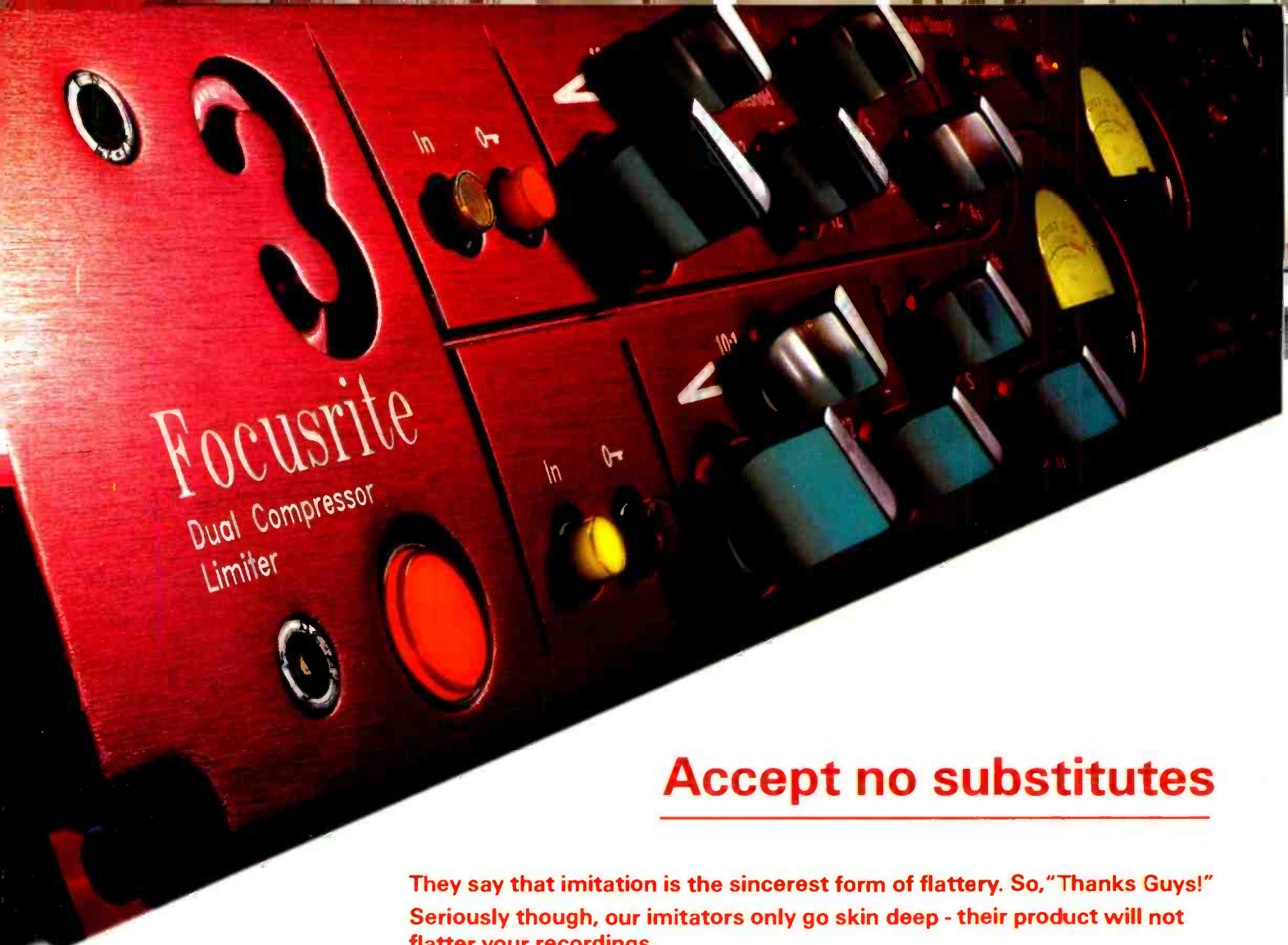
For chief recording engineer at the studio Hideo Takada, recording is more than a representation of an event, it is the capture of a spark of brilliance for posterity and in his opinion anything that can add to the magnitude of the moment is a good thing. To him good acoustic space is vital and it's an attitude that permeates the whole complex which is full of new, newer and newish rooms in a large building that dates back 30 years. The interior got a serious going over some ten years ago; although the process of refurbishment continues gradually. Originally the building was built as a studio with five rooms for in-house productions, it has since grown to seven. Half the facility's business comes in from outside, bucking the rather popular trend in Japan for large flashy complexes that are beyond limits unless you are signed to the record label or have a working connection with the studio.

The studios are brimming with individuality with the only true consistency being that they all have Genelec 1035 monitoring. Eight years ago the control rooms of Tokyo were overseen by the duck-bill-like horns of TAD Kinoshita monitors. Today, increasingly, you are faced with the muscled torso of Genelec's DCW: their flagship monitor. Japan-

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# Force majeure

Whether used for morale boosting, disinformation, dissemination or simple entertainment, the importance established by forces radio during wartime has sustained it through peacetime.

**Kevin Hilton** tunes in

**A**LONE AND LONELY in an unfamiliar place, a link with home is reassuring and comforting. This can come in the form of a letter or a telephone call, but these are not a constant presence. Which is why many people find global radio to be a suitable prop when they are not in direct touch with their loved ones. Two of the most famous global radio stations are Voice of America and the BBC World Service. While both offer comprehensive news and speech programming—and a catholic music policy in the case of the World Service—they do not imitate the radio stations that many travellers would listen to back home. This is where forces radio comes into its own.

There are probably two images of forces radio. One is of Sunday afternoons over the roast dinner listening to messages from the UK being passed on to soldiers, sailors and air force staff in far-flung locations. The other is of Robin Williams dressed in army fatigues bellowing 'Gooooooooooooo Mornnnnnnnnnng Vietnaaaaaam!' into a Shure 55SH microphone. The

first of these sums up the British Forces Broadcasting Service (BFBS), the second describes—for non-Americans at least—the American Forces Network (AFN). Both provide 24-hour sequenced music and speech programming to their respective armed services in a number of locations around the world and both rely on modern technology to do so.

Historically, BFBS was part of the MoD but is now a division of the SSSC Group, a registered charity that has a commercial remit, including a 5-year contract with the Ministry of Defence to provide radio and television programming to UK forces abroad. (Its other divisions include Visua, a corporate video production operation, and TLI, which has satellite uplinking and systems design departments.)

BFBS's roots go back to the North African desert of November 1943. Services were set up in Europe as allied forces advanced towards Germany. Stations were later established in Africa and the Middle and Far East as WWII came to an end, but information, education and entertainment was still required for the troops stationed there.

BFBS Radio currently runs two channels: BFBS 1 is the FM contemporary pop station, with some concessions to specialist tastes; on AM, BFBS2 carries a more eclectic mixture of music and speech, sourcing material from BBC Radio 4 and BBC International as well as its own resources. The centre of the network, known as BFBS UK, is located at SSSC's headquarters in the Buckinghamshire countryside, serving seven stations in eight time-zones around the world. These locally based stations broadcast to service personnel and their families; as they broadcast on open frequencies, locals and expats in each country are free to listen, but BFBS

does not acknowledge that they do so.

BFBS UK directs programming policy, providing playlists and a large proportion of the programmes, which are distributed via a satellite network, uplinked from TLI's dish farm at Chalfont Grove. From here programmes are sent to stations in Brunei, Cyprus, Gibraltar, Germany, the former Yugoslavia (as there is no permanent station this is a relay service), Northern Ireland (via a restricted service licence station based at a barracks), the Falkland Islands and Belize.

The number and location of BFBS stations around the world has changed over the years, reflecting both the political climate and the reach of the British military. This can be seen from the presence of stations in Aden and Benghazi through the 1950s to the temporary station that broadcast during the Gulf War and the recently closed service in Hong Kong.

In addition to the land-based stations, BFBS supplies programming on cassette to Royal Navy ships at sea. While this service remains firmly tape-based, distribution to the main centres has progressed from 7-inch open reel to VHS cassettes and now to hard-disk server technology. In September 1997 BFBS Radio closed its London studios and relocated to Chalfont Grove. The decision to move from the capital was based on several factors, including the upcoming lease of the old building and the overall slimming down of the service. This last point fitted in with the management deciding that the next logical step should involve automation.

Of the many radio automation systems on the market, BFBS opted for the Dalet Digital Media Systems, which is also being used by another multichannel service, Swiss Radio International. Dalet runs in conjunction with >>>>

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«««« the ubiquitous Selector music programming software, which is used to create the daily playlist. 'The brief was to progress with digital audio and have the ability to replace the existing automation system at Bridge House,' comments TLI senior project engineer Hunter Adair, who oversaw the installation. 'With the Dalet system we now have approximately 500 hours of recording time, with the ability to hold the playlist database, promos and jingles, while also being able to cycle programmes on a weekly basis and incorporate the Navy dubbing onto cassette.'

BFBS's new home, with its £1m installation, was officially opened on 21st September 1997. The Dalet system runs on a Compaq PC network, with the Serial Storage Architecture mainframe. This can accommodate up to 8000 audio data tracks; over 5000 records had been loaded into the server ready for going on air.

Peter McDonagh, a director of BFBS, comments: 'In order to stay ahead of technology and provide the best possible service to the Forces, we have invested in the best state-of-the-art equipment. BFBS Television has long been made and broadcast from Chalfont Grove and we had already been transmitting BFBS Radio from here via our TLI satellite earth station. It therefore made sense that, for economies of scale, we move the radio station here.'

There is a total of 25 Dalet workstations around the complex, including one in each of the three main studios, a talk studio, three voice booths and the record library. Another 12 units are set aside to cover 12 different time zones; although two of these are designated as automatic record machines for the output. 'Before, we only had one computer and people's brains had to do the rest,' explains Adair. 'Now it's easier to schedule because we can route four outputs to each time zone, meaning that there could be four discrete programmes for one region.'

Adair acknowledges that this could be seen as over specifying, but it gives flexibility. Dalet is currently mainly used for live on-air assist, automatic playlist scheduling (taking information from Selector) and overnight sustaining services for the network. There is also the ability for programmes to be assembled in less than real time, known as manufactured programming. For example, a presenter could prepare a 2-hour show in 20 minutes by recording all the links separately. They would later be inserted between the programmed music tracks and jingles at the designated time.

At the moment overnight services for the overseas stations begin at between 6 o'clock and 8 o'clock in the evening and run through to breakfast. During the day there is the 2-hour Connect UK magazine programme, which most stations take, and the BFBS Gold service. Direct satellite links are made from TLI's dish farm in the grounds of Chalfont Grove, with news bulletins relayed from Independent Radio News in London.

BFBS UK general manager Charles Foster explains that each local station is responsible for its output 'within reason', but that a global schedule is in operation where possible. 'The evening and overnight schedule comes from London,' he says, 'with a further three hours provided by us during the daytime peak hours (BFBS Gold and Connect). The stations orbit around us, but their output is important—they have access to the local airwaves when it really matters, and the jocks have something to talk about because they are based in that community.'

**F**OSTER EXPLAINS that the global schedule is arranged so that a programme broadcast at 7pm fits that time-slot, while certain programmes are transmitted at the same time on all stations, according to their time zones. In this way Mark Page's Saturday morning wackiness hits everyone during their respective Saturday mornings, while John Peel is a fixture of Sunday nights. 'The automation means we can send the right programme out at the same time everywhere,' says Foster. 'We could complicate matters by giving the stations exactly what they wanted at the times they wanted it, but we don't because we work on a strip-style global schedule.'

During late January, BFBS UK was due to start experimenting with manufactured programming, assembling playlist-based shows in less than real time. 'It also allows us to cut out the chat,' says Foster, 'and just let the music play. The local jocks have something to talk about because they are on the spot, but with centrally produced strip programmes, we can concentrate on keeping the presentation slicker.'



One of BFBS's networked programmes is an American-orientated rock show produced at Alligator Studios, an independent production house based in Frankfurt.

This show is recorded onto DAT for shipping to London and features such classics of US rock as the Brothers Doobie and Allman, plus the best contemporary examples of the form. In addition to syndicated programming, Alligator works on advertising spots and 'station tours' with live artists. The studio was founded by American-born DJ Benny Brown, who has the distinction of having not only worked for BFBS but also Radio Luxembourg and the American Forces Network, which, like its British counterpart, has a strong presence in Germany.

**T**HE SO-CALLED GI Joe Network evolved from a cunning plan to ensure that soldiers patrolling the Panama Canal Zone during the late 1930s regularly monitored their radios. To encourage the grunts to keep their sets on, morale-boosting popular music was broadcast. Military radio stations were also based in the wilds of Alaska around this time, but records are sketchy as the US top brass did not officially recognise these services.

Nonetheless, the system developed as America entered WWII, with stations established on Bataan and Corregidor in the Philippines by General MacArthur's command.

This early work led directly to the founding of the Armed Forces Radio Service, which was officially established by the War Department in May 1942 to provide programming, short-wave services and broadcast equipment for US bases overseas. This later evolved into today's parent group, the Armed Forces Radio and Television Service (AFRTS). Since then, through its AFN subsidiary, AFRTS has broadcast to US troops in many trouble spots around the world, including Korea, the Gulf and, of course, Vietnam.

»»»»



# Romance

(but calculated)

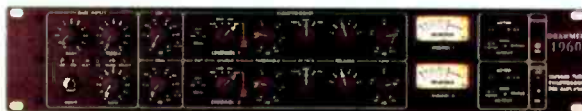


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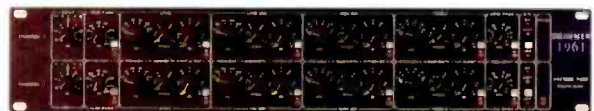


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«««« While the Barry Levinson movie *Good Morning, Vietnam* brought some attention to forces broadcasting, a former AFN DJ sardonically observes that it did not do justice to either AFN or the war itself. (Incidentally, the real Adrian Cronauer, while a pioneer, was not the loon as portrayed by Robin Williams and is now a broadcast lawyer in Los Angeles.) AFRTS sees its mission to 'deliver radio and television programming services that provide 'a touch of home' to Department of Defense personnel and their families serving overseas.' This mission starts at the organisation's headquarters, known as the Broadcasting Centre (AFRTS-BC) at the March Reserve Air Force in Moreno Valley, California, approximately 65 miles east of downtown Los Angeles. AFRTS-BC is the central programming source for military radio and television services abroad, which entertain American service men and women, Department of Defense civilians and their families stationed in over 150 countries.

Programming is designed to reflect the broad range of musical styles and speech output heard on both commercial and public service channels in the US. Sourced from various syndication producers, including Unistar and ABC, with original productions from AFRTS itself, programmes are distributed over a satellite network known as SATNET, which involves a series of satellites, and delivered worldwide using a secure transmission path based on MPEG2 digital compression technology. SATNET utilises both the INTELSAT and INMARSAT birds, with the latter beaming material to navy ships at sea and remote land bases. News and speech pro-

grammes are taken from such major suppliers as ABC, NBC, CBS, Associated Press Radio Network and United Press International Radio Network, with AP and UPI additionally making their wire services available. Some entertainment programmes are also distributed on tape and mailed to AFRTS land-based outlets, while ships receive all output on cassette.

**A** FRTS offers a range of services, from open-over-the-air broadcasts for specific geographical areas, such as Europe and Japan; although the majority of outlets are small, closed-circuit stations for remote and isolated locations that cannot receive conventional transmissions. Services are a mixture of FM and AM, the use of whichever spectrum depending on the individual country. (See full list of AFRTS outlets, below.) With the scale of this operation, where possible services are organised into regions, which operate independently to each other. AFN Europe has its headquarters in Frankfurt, Germany and broadcasts to 325,000 listeners, with affiliate stations in Belgium, Turkey, Italy, Sicily and the Azores, as well as Germany itself.

AFN Europe's chief of radio, Sergeant Kelly Rowe (station staff are a mixture of military personnel, civilians and German nationals), explains that the majority of programming is originated from the US. 'We have nine different satellite services to choose from,' he says. 'Because the majority of these programmes come from commercial syndication services we have to fill in the sequences where the adverts would have been with informa-

tion spots that pertain to our listeners.'

The satellite delivered music services began operating in 1997 and divide into adult rock and roll, adult contemporary, country, pure gold and NPR, which features jazz and classical music. These can be used as stand-alone channels in conjunction with an automation system as a sustaining service or specific segments can be selected and integrated into a single-channel schedule during the day. Other music tastes are catered for by specialist programmes from such as ABC, including urban and R&B shows.

The 5-studio complex in Frankfurt also produces its own local programmes, with a live daily request show at midday and various pre-recorded sequences during the rest of the day. As with BFBS, this logistical task is managed by a computer system, which is programmed to go to certain services at certain times. This automation system is based around a number of components, including the Broadcast Electronics AudioVAULT hard-disk server.

A feature of the schedule are live shows, for example the Unistar Adult Rock programme direct from the US. However, Rowe acknowledges that there is no attempt to implement a seamless schedule in these circumstances. 'That show comes in live on the satellite, but, of course, there is the nine hour time difference so the time-checks do not correspond with the time here.'

Which is probably the only occasion when the notoriously clock-watching military deviates from exact timings. As Robin Williams observed in *Good Morning, Vietnam*: 'Hi, I'm Adrian Cronauer, I'm on again at 1600. Why? Because I have to—it's the army.' Good night, Vietnam. ■

## Forces radio stations and outlets

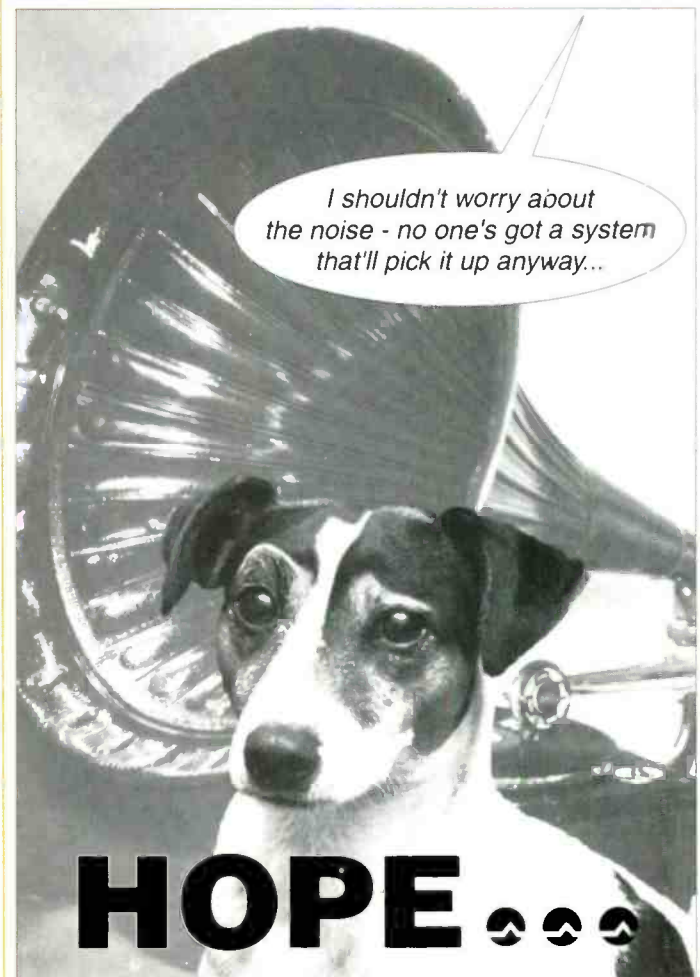
### BFB

Belize Bosnia Brunei  
Cyprus  
Falkland Islands  
Germany Gibraltar  
Northern Ireland

### AFN

Alaska (Adak) (R) (T) Albania  
Algeria American Samoa Angola  
Antarctica Argentina Australia  
Austria  
Bahamas Bahrain Belgium (R) (T)  
Benin Bermuda Bolivia Bosnia-  
Herzegovina (R) (T) Botswana  
Brazil Brunei Bulgaria Burkina  
Burundi  
Cameroon Cape Verde Central  
African Republic Chad Chile  
China Colombia Cote d'Ivoire  
Croatia (R) (T) Cuba (Guantanamo  
Bay) (R) (T) Cyprus Czech Republic  
Denmark Diego Garcia (R) (T)  
Djibouti Dominican Republic  
Ecuador Egypt (Sinai) (R) (T)  
El Salvador Equatorial Guinea  
Ethiopia  
Fiji Finland France  
Gabon Gambia Germany (R) (T)  
Ghana Great Britain Greece  
(Crete) (R) (T) Guatemala Guinea-  
bissau Guinea Guyana  
Haiti (R) (T) Honduras (R) (T)  
Hong Kong Hungary (R) (T)

Iceland (R) India Indonesia Israel  
Italy (R) (T)  
Japan (R) (T) Jordan  
Kenya Kuwait (R)  
Laos Lebanon Lesotho Liberia  
Luxembourg  
Macedonia (R) Madagascar  
Malawi Malaysia Mali Marshall  
Islands (Kwajalein) (R) (T)  
Mauritania Mauritius Micronesia  
Morocco Mozambique  
Nepal Netherlands (R)  
New Zealand Nicaragua Niger  
Nigeria Norway (R)  
Okinawa (R) (T) Oman  
Pakistan Palau Panama (R) (T)  
Papua (New Guinea) Paraguay  
Peru Philippines Poland Portugal  
(Azores) (R) (T) Puerto Rico (R) (T)  
Qatar  
Romania Russia Rwanda  
Saudi Arabia (R) (T) Senegal  
Serbia Seychelles Sierra Leone  
Singapore Somalia South Africa  
(Namibia) South Korea (R) (T)  
Spain (R) Sudan Suriname  
Swaziland Switzerland Syria  
Tahiti Tanzania Thailand Togo  
Trinidad & Tobago Tunisia  
Turkey (R)  
UAE Uganda Ukraine Uruguay  
Vietnam  
Wake Island  
Yemen  
Zaire Zambia Zimbabwe  
(R=radio, T=television)





# Factory tour



Deep in Hamburg's media jungle is a post house with vision and conviction. **Tim Goodyer** drops in and discovers the international appeal of a ship that passed in the night

**W**HEN ANDY WARHOL christened his New York HQ The Factory, and Stock, Aitkin & Waterman established their Hit Factory in London, their agenda's were clear. Both purported to challenge the establishment in their respective fields. In Warhol's case it was the institution of fine art, in SA&W's it was the record companies' hold on the pop charts. Given these precedents, it is hard, then, to reconcile the name and aim of a German post facility called The Audio Factory.

Established some 10 years ago in Hamburg by the Franco-German team of Michel Sturial and Wilbert Hirsch, The Audio Factory's early aspirations were modest but insightful. The pair seized on the power of ISDN to market the city's perceived voice-over talent to the rest of the nation, and, armed with little more than a mic and an APT multiplexer, set up what has become the modern Audio Factory's main post room. Voice Control. Since then, the

facility has expanded to occupy the whole of the floor that earlier had been the living and playing quarters of Sturial, Hirsch and a group of like-minded friends to become one of Hamburg's most significant post players.

Today, Hamburg is what the Audio Factory's studio manager Paul Goodyear describes as 'a very media orientated city'. In it can be found a selection of major German publishing houses and advertising agencies, with weekly rumours that yet another is to relocate to the area. A handful of leading post houses compete for prime pieces of the resultant cake with enough work to support them all. Video facilities thrive here, major music artists include the city on their itineraries and even the local music scene is busy, with project studios in abundance. Perhaps the only struggling area of audio is that of music with many earlier players crossing the divide into post—such as the SSL facility Das Werke—leaving the Capricorn-equipped Chateau du Pape defending the musical high ground. Indeed, The Audio Factory's own history owes something to music recording with Hirsch's established track record as a composer (recently having completed the scores for *Mute Witness* and *An American Werewolf in Paris*) and jingle writer explaining the facility's earlier recording rooms.

There are a lot of young people coming through in advertising agencies at the >>>>

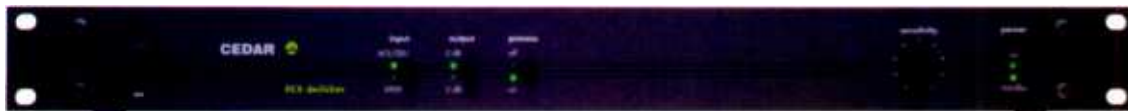


**Top: The entrance to Hamburg's exhibition of the Titanic drama at the Speicherstadt.**

**Centre: The Tascam M3700 remains the centre of the Audio Factory's second studio**

**Left: Paul Goodyear is bringing new life to Hamburg's post community**

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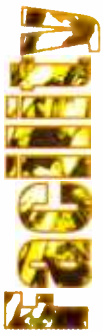
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‘<<<<< moment,’ Goodyear observes. It’s a social climber’s job and it seems that that kind of people have less and less technical know-how. Because of that, they stumble into a lot of difficulties—not knowing what time code is, for example, so there is a need for us to be able to work around their shortcomings as efficiently as possible.’

An expatriate Briton, Goodyear left the UK around 11 years ago and built a reputation for himself through two of the city’s three main postproduction studios, Hastings and Giesing Team. Having begun working with analogue systems and graduating through an Akai DD1000, he first got seriously involved in digital systems when, as head engineer, he was



charged with setting up a second room at Giesling Team.

‘In my living room above the studio I had an AudioFile, the first Pro Disk from Otari and a Fairlight MFX2 all setup together and tried to do the same job on them,’ he recalls. ‘It was a film trailer. From that, I worked out which was the easiest system—which was the Fairlight. Giesling Team now has three or four Fairlights on the strength of that exercise.’ And The Audio Factory has two, one of which replaced a Studer Dyaxis system that was in Voice Control.

Goodyear’s arrival was the result of the Factory’s considerable courting. Initially he was invited in to comment on the facility’s direction ‘I didn’t feel it knew where it was going,’ he

recalls. ‘When I looked at the studios I knew that, for example, working on a Dyaxis and working on a Fairlight are light years apart. So we got a Fairlight in. Also, my German customers in Munich enjoyed my “English attitude” to advertising and want to follow that direction in as much as their customers will allow them. I also like to create a fun feeling in the studio which I felt was missing.’

Solidly established in Munich’s post scene, he felt burnt out, however. ‘They said “we need somebody to carry through the redevelopment of the studios, we need to find out if there’s a future for postproduction at The Audio Factory”. And I said that by the end of the year we’d know if the redevelopment had increased the amount of work we were getting and whether or not we were getting different kinds of work. And whether a Fairlight was over specified for doing voice-overs and jingles or whether people were coming here because they really enjoy the speed and usefulness of our operation.’

‘But the big bait on the hook was to send me out to the last AES show with a blank cheque—the mad fools. I was on the point of buying a desk from a British manufacturer, but went for a second Fairlight instead.’

Goodyear’s record as a rationaliser of situations and equipment is well represented in the activity at The Audio Factory since his arrival. The revamped Voice Control now showcases the first Fairlight, Yamaha 02R desk with surround software, a Doremi hard-disk video player, and two surround monitoring systems (one pro, one domestic). The earlier wall of outboard has largely been replaced by the onboard processing of the Fairlight and 02R with the notable exception of a Studer MicValve and a pair of Tube-Tech compressors to which Goodyear ascribes the room’s ‘sound’.

The two monitoring systems are explained by some of Goodyear’s research: ‘I asked around hi-fi dealers how their sales were going and one was on the point of reorganising his entire shop floor to make a surround presentation area. They were convinced that surround was going like hot cakes so I reckoned that we should be taking advantage of that. As far as I know, not many

of the post facilities have invested in their own proper encoders and decoders, instead they’re doing it in software. But we definitely are licensed and customers should be made aware of the possibilities—so far it seems that most of them don’t have surround systems at home and aren’t really aware of the possibilities.’

A second room is nearing completion and will house the second Fairlight and another Doremi system. At present it is orientated around an old Tascam M3700 console (which recently gave good service on *An American Werewolf in Paris*) which is expected to give way to a further 02R to make it compatible with Voice Control. The final role of the studio will be determined by demand, but it presently serves Hirschi’s composition and recording requirements—as evidenced by the Power Mac running Sample Cell and Logic Audio software.

Combining the two Dyaxis systems is another example of the resourcefulness of Goodyear’s revitalisation of The Audio Factory.

‘We’re not bound to keeping the Fairlight in here,’ he explains. ‘We could swap it with the Dyaxis if we find that Wilbert is doing more jingle work and we can’t get to the Fairlight when we want to. The Dyaxis was sufficient for a lot of customers but I think they’ve realised that the Fairlight is a lot quicker and doesn’t crash as much as the Dyaxis. It is quite crash prone and it takes about 10 minutes to reboot it afterwards, but when it was up and running it is a neat little system—it’s great for putting in fade curves and it’s very intuitive to use... It’s just that I find it a great break to the creative drive when you have to wait for the little clock every time you want to perform an operation. Then you get to a certain point and it has to do virtual mixes and buffer it into RAM before it can play. Today, customers get really bored because they’re used to doing their picture mixes on an Avid system. But for Wilbert, the Dyaxis will be an 8-track system that is perfectly useable and he knows how to use it.’

A third room is dedicated to in-house composer George Kochbek, who provides part of the service that sets The Audio Factory apart from Hamburg’s other post facilities. ‘Wilbert >>>>

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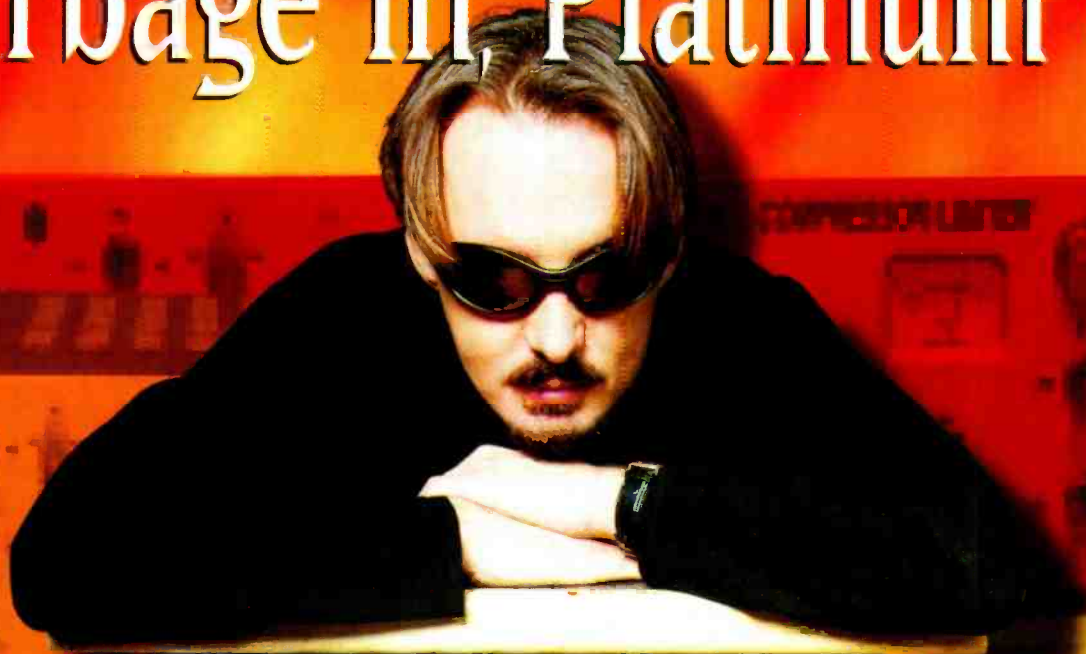
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## Sound design for Titanic Die Ausstellung

**A**RRANGED around a selection of artefacts recovered from the site of the Titanic wreck, Expedition Titanic die Ausstellung opened in April 1996 in Hamburg's Speicherstadt. It was originally intended to run until the end of 1997, but was granted an extension into 1998 due to its popularity. Additionally, it is proposed that the exhibition should tour Europe. The exhibition consists of ten rooms each depicting some aspect of the ship's voyage or the disaster of its sinking. Responsibility for designing and producing the sound for each of these rooms fell to The Audio Factory's Paul Goodyear—who found himself with a meagre two weeks to complete it in .

'I was given the title of each room and what it was trying to convey, and a certain amount of "We'd like it to do this... We'd like to hear this...". Then I spent three weeks with my thoughts 3km under the water trying to create the sounds I heard. A lot of the result is sound-effect based—using effects from a huge library—but then I took a guitar and did all sorts of strange things with it to add a specific sort of feeling.

'The biggest problem was that for the sound reinforcement they were reliant on the goodwill of sponsors and they ended up using Hughes and Kettner boxes, the sort of thing that you'd use for very low-end PA. As a result, I had to beg two of these speakers to mix on just before the opening. I spent about two hours with the TC Finalizer EQ trying to take out the horrible mids that were in these boxes. It was horrible, it sounded nothing like it did in here.

'One room I really enjoyed was the Champagne Room. It's a strangely lit room containing a selection of champagne bottles taken from the sea floor still with their corks in. They wanted all sorts of sub-bass but they had too small a room with a big entrance at each end and no doors, so I said, "sorry but it's not going to work". Then I stumbled

across the idea of using phase differences—it worked great in the studio with all sorts of sound effects 180 degrees out of phase so that when you walk past the speaker the sound pops around behind you. Unfortunately though, the speakers are behind so much canvass for the lighting that the effect only works proportionately well. Nevertheless, the room does have a strange effect on people. But everything I thought would happen, the design of the room stopped.

'The sound management in the venue itself it pretty poor and that put paid to quite a few nice Ideas—one was where I had the opportunity to simulate the sinking of the Titanic. Again the room is very small and it's right next to the Room of Silence. As a result of very poor isolation, my sinking of the Titanic is almost inaudible because if they turn it up any louder, it spills into the Room of Silence where there's no sound at all. It was a real shame because I spent a lot of time doing that and it really didn't work at all.

'When you come into the exhibition there's a "welcome aboard" part where I simulated in two channels the sound of people on the quay cheering and the brass band playing, and "tickets please... move along please" coming from onboard. It's two related mono elements one each on one channel of a CD trying to create the feeling of moving on to the ship.

'One of the interesting rooms is where we recorded voice-over talent from Hamburg reading different writings and experiences of people involved in the sinking. That's quite interesting and puts a human element into the sound. It was interesting getting it sorted out. There are different pictures with different sound coming from each one, and sometimes there's a dialogue situation where one picture talks to another. Time code is read off one track and used to relay switch the audio from the other between the speakers, and place a spotlight on the "speaking" picture. And sometimes there's a hidden loudspeaker

asking questions of that person. There are other elements where we've taken relatively ordinary elements and put them together to create the steam age or whatever.

'Another room is supposed to simulate going down 3000m under the sea so it's a "descending design" where I've used tones going down. I really like that one...

'The idea now is to take it on tour, so it would be good to have the opportunity to go out with it and be consulted about the PA this time.'



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**Above: Still preserved in salt water, Titanic cutlery is part of the 4,000-odd artefacts recovered from the sea bed**

**Left: Voice control: the focus of The Audio Factory**



“<<<<< and George are our two in-house composers and we have three freelance composers working regularly in their own project studios.”

To this end the studio is rich in synth and sample modules but lacks the sophistication necessary for sweetening, which is performed in one the main rooms, as is the work conducted out of house.

“MIDI-based facilities will give master quality

music,” Goodyear confirms. “George would like to replace his system of sub-mixers with his own console, but the balances he delivers are generally very high quality. And it’s not a problem to sweeten them.”

“Our fourth room is in a state of flux. We have the two Dyaxis 4-channel systems that we’ve decided not to sell because they’re worth more as tools than capital and because occasionally we have to pull up a voice-over that’s three years old.”

“There is also another room apart from the main building that I’d like to make a “jam room”,” Goodyear continues. “When we’ve finished reorganising, there will be quite a lot of equipment over. So I’ll have effects boxes to play with without end. It would be modelled on the fact that I’d like to do an album next year to keep my sanity and my hand in on the guitar. So it would be a little music studio but I’d like it to be a sound design lab as well—completely different from everything else here—even maybe going back to an analogue multitrack.”

“I’m interested in real sound design: not just taking existing sound effects and moving them around into collages, but making new sounds. Some people think sound design is simply a matter of effects spotting, but that’s not sound design. If that’s sound design then every post engineer who lays up sound effects is a sound designer, and that’s not true. Where is the point where sound design starts? It comes down to creative rights, if you like. For the Titanic job I used a lot of prerecorded sounds from a library. I admit, but I put them in to achieve the atmospheres that the rooms needed. And I also used musical ele-

ments—I didn’t play the guitar as such. I banged it around and stomped on it and hit it and had effects running... That’s not something off the shelf but where’s the line? My work isn’t protected in the same way a library is. I’m concerned to promote it.”

In addition to the studios, there is a software room in which Manuel Tesselhof has written the software that The Audio Factory’s mentors intend to herald the next stage in its evolution. Two custom search engines—Fogelweider, a sound effects juke box search engine for the likes of the Hollywood Edge library (for which the facility has the German distribution franchise), and FASTER for library music. The aim is to use the search engines to allow access to The Music Factory’s library music and effects libraries.

“It would seem that we’re going to have the support of Deutsche Telekom as far as the server installation and the nuts and bolts of getting on line are concerned,” Goodyear reveals. “I believe we will then be able to offer the KPM and Carlin libraries but there are still negotiations to complete. Obviously then we can use the details of what has been requested, what’s “in”, what’s “out” and what’s missing, with the opportunity to fill any holes should we find them.”

Goodyear is the first to admit that it’s early days for many of the initiatives, but between his track record and an opportunity attractive enough to rekindle his waning enthusiasm in postproduction, it would be a brave move to bet against them. Perhaps most telling is the pragmatism that underlies every decision made:

“I don’t expect to win all the customers simply because I’ve put in a Fairlight,” he admits. “What really counts is our service. That’s the only way we can make ourselves different from other studios—by helping our clients to relax and then sending them on their way, on time with a product that pleases

them. And with a Fairlight, a good operator and a smile, then we can certainly help people on their way.”

And that’s not the attitude you’d expect from the average factory worker... ■

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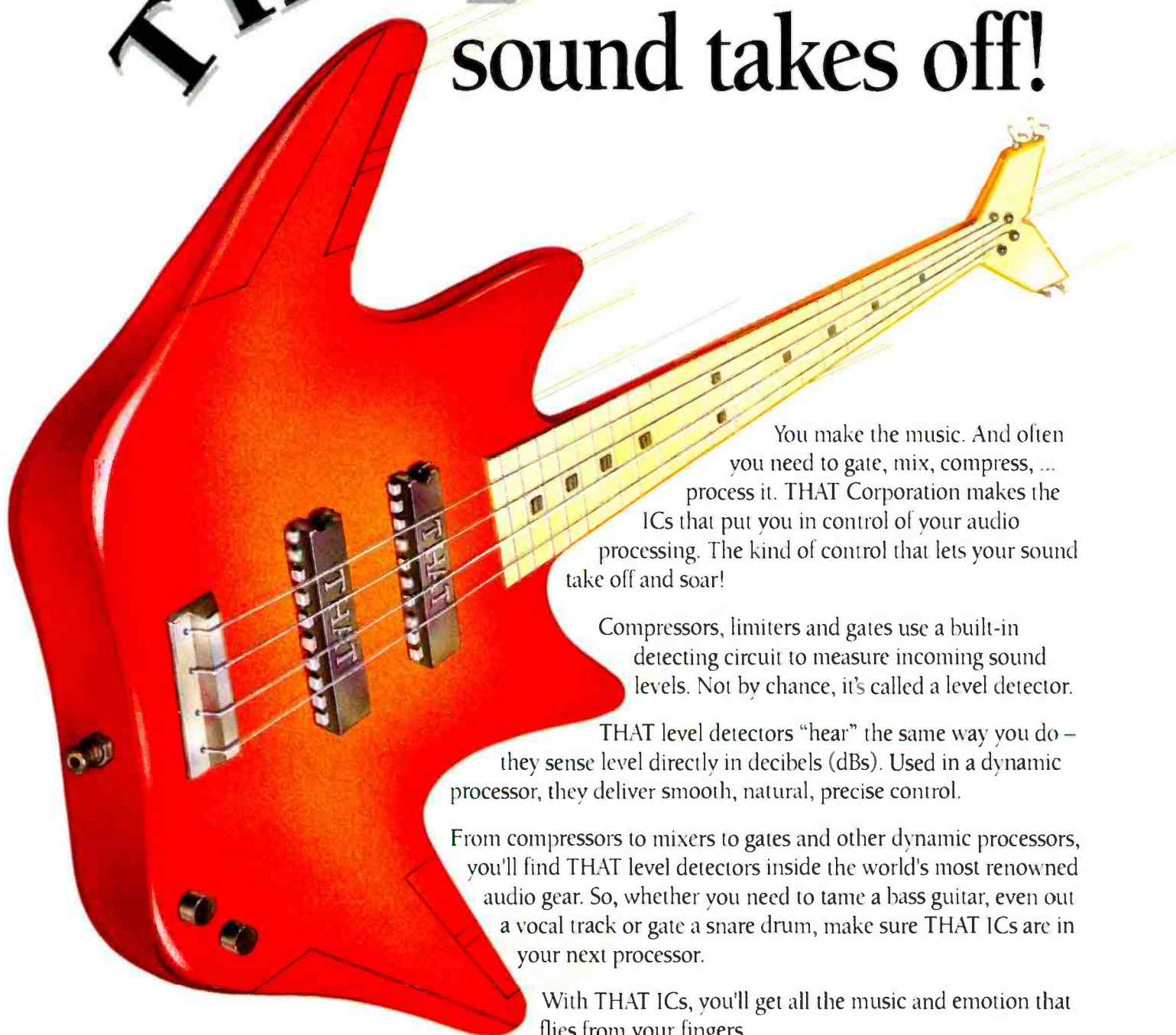
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# Olympic overture



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This year's biggest broadcast event is shaping up in the Japanese Prefecture of Nagano. **Kevin Hilton** catches Olympic fever

**T**HE TOLLING of the Zenkoji temple bell, echoed by temple and church bells on five continents, signalled the official and spiritual opening of the 18th Winter Olympic Games on 7th February. For two weeks, the sporting attention of the world will focus on the remote Japanese city of Nagano, located in the middle of the Japanese archipelago, known as the Nagano Prefecture. Also called the roof of Japan, this is the focal point for nations to compete in such diverse disciplines as skiing, bobsleigh, the bizarre luge and new attractions like curling and ice hockey.

In sharp contrast to previous opening ceremonies, noted for their show biz glitz and eye-popping extravagance, this curtain raiser was intended to be 'simple, solemn and spiritual', underlining the theme of 'Games from the Heart'. Sumo wrestlers stomped into the Minami Sports Park and performed the traditional *dohyo-iri* ring-entering ceremony, throwing salt and stamping around the earthen ring of combat to drive away evil spirits, purifying the stadium for the athletes. This traditional display was seen as an antidote to the trolls and aliens that populated the corresponding event during the last Winter Olympics in Lillehammer, Norway.

The ceremony proceeded with the arrival of the Olympic flag, escorted by horse riders dressed in medieval Japanese hunting costume, and the lighting of the Olympic Flame. The climax came with a rendering 'Ode to Joy', from Beethoven's *Ninth Symphony*, sung by a 2,000-strong choir in Nagano, linked to choruses in five other world locations by satellite connections. The 50,000 spectators in Minami Sports Park were joined by several million viewers through global television coverage.

Television and radio are crucial to the Olympics, whether Winter or Summer. They constitute the biggest broadcast event of any



year, with only the World Cup (due to start in France in July) coming close. Mindful of the importance of media coverage, and taking exchange rate fluctuations into account, the organising committee of these Games (which abbreviates as NAOC) revised its operating budget for this event, increasing it from ¥94.5 billion to ¥103 billion. Part of this increase was due to improvements in information systems and an upgrading of radio and television equipment to be used by international broadcasters. This followed a complete review of both the Atlanta Games and the Pre-Games staged in Nagano during the winter of 1996-7.

Central to the global coverage is the International Broadcast Centre (IBC), which was handed over to the NAOC on 25th August 1997. One of the official suppliers of equipment to this complex is Matsushita Electric, which, with its brands Panasonic, Technics, Quasar and National, is a sponsor of the Nagano Games. The corporation relishes this position, seeing it as another way to wrest such prestigious events away from the grip of arch-rival Sony. Matsushita is supplying a range of equipment, including large-scale video displays for the arenas; sound systems; and various television, video and audio gear.

**T**HE LATEST digital video technology is provided at the IBC, working on the principle that starting with the best possible images would produce clear TV pictures through the transmission chain. Of the many world broadcasters attending the Games, one of the highest profile is America's CBS. Overseeing many of the operational elements of the coverage is co-ordinating director Bob Matina. In addition to directing the prime-time slots, Emmy Award winner Matina is responsible for camera and equipment placement, studio sets and many aspects of the production.

Commenting on the equipment in general, Matina said, 'Television technology is constantly changing. Certainly we're attempting to stay at the forefront of the technology, which is why our entire broadcast centre is digital. It's not necessarily something the viewer will be able to tell, but our pictures will be so much clearer and state of the art.' On the differences between covering these Games and the last event in Lillehammer, he added: 'Japan is an exotic >>>>



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place—it's like being on another planet.

It's culturally different and more challenging, but it's exotic and that shows through in our broadcast. While the cameras and VT machines are usually the technological centre of attention, a massive production such as the Winter Games relies on efficient communications. CBS is using the Telex ADAM (Advanced Digital Audio Matrix) intercom system, which is based on Time Division Multiplex processing. The bulk of the system was assembled in the US and then shipped to Japan during September 1997. It was then installed and connected to the overall communications system at the IBC.

Because of the numerous events that take place during the course of the Games in varying locations around Nagano, the broadcasters rely on mobile units to feed back to the IBC. A number of these are equipped with Telex-RTS gear, while cabins are specially built to act as mini broadcaster centres at other locations. Bob Gilmartin, CBS's director of



engineering, commented, "These systems will be located specifically at super venue sites, which include figure skating and downhill skiing events where some of the peripheral outdoor events will be held." These smaller

distributed matrices were interfaced to the central ADAM system using hybrids. The main matrix was configured as a 288 x 288 router, based on three ADAM frames.

Further technical facilities are provided by two other sponsors. IBM, which has been involved in 17 of the 20 Olympic Games since 1960, is the designated information technology sponsor and is supplying equipment for result input, calculation and distribution; data and e-mail systems for the press corps; management and administration tools; and full Internet access. The company was named as Official Internet Information System Provider in November 1996 and has developed the WWW server for this Games, containing full details of events, countries participating and little nuggets of trivia.

Telephone services are supplied by Japanese telecom organisation kokusai Den-shin Denwa (KDD), which will oversee worldwide satellite coverage, setup and maintenance of international communications and overseas phone connections. Nagano is the latest in a long line of major Japan- >>>>

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based sporting events KDD has been involved with, including the 1964 Tokyo Olympics (the first Games to be broadcast worldwide by satellite), the 1972 Sapporo Winter Olympics and the 1994 Asian Games, held in Hiroshima.

Another major focus for the media during the Games is the Nagano Olympic News Agency (NAONA) Editing Room. This centre acts as the base for Info 98, a computerised information system, the official Olympic Newspaper and Olympic Radio. The latter operates on a temporary FM licence and began broadcasting on 14th January, running up to 22nd February. It is transmitting information of interest and assistance to those attending the Games, including traffic reports and full competition schedules, as well as news bulletins. It is being broadcast to the areas around the event sites and access roads, plus the urban conurbations of Matsumoto and Suwa. Programming, which is primarily in Japanese, but with regular programmes in English and French, can also be heard over the World Wide Web using RealPlayer 5.0.

A first for this Olympic Games is the 24-hour availability of images from the events as video on demand (VoD). NAOC and the City of Nagano have collaborated to offer this service, which will feature pictures from the current Games plus archive footage of past events, made available by the IOC Olympic Museum. This service is open to all members of the 'Olympic Family' through VoD terminals positioned at facilities around the Olympic Area. Through consoles at the Nagano Prefec-



tural Government Office, Nagano City Hall and the NAOC Information Corner at Nagano Station, the general public can also see what all the fuss is about. The terminals are linked by a high-speed, wide-band network using ATM technology.

As each Olympics comes around, there has

been a corresponding development in broadcast technology and Nagano is sure to be the benchmark, pointing the way ahead, not only for future Games, but for broadcasting in general. Sports fan or not, these days of fooling around in the snow will doubtless make an impression on other, less cold areas in the future. ■

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## US: Dear Sir

The theft of a correspondence file from a bank sheds new light on studio business, writes **Dan Daley**

**T**AKEN FROM THE FILES of Hugh Bottom at the loans department of the Fifth American National Republic Trust MegaBank.

Dear Sir, I am in receipt of your application of this instant for a loan for the purpose of establishing a recording studio facility. We at the recently merged Fifth American National Republic Trust MegaBank appreciate your choosing us to consider your small-business loan needs, and all seems relatively in order. But while it's true that recent precipitous declines in interest rates have caused many banking institutions to become astoundingly aggressive in seeking new loan business, and in the process lowering qualification requirements for such to the point where an applicant's genus and species need only be vaguely humanoid for acceptance, our evaluations and appraisals department has suggested that your business plan requires a bit more elaboration. "Makin' music, dude," is nicely concise and we appreciate that, but it's a bit sketchy. Could you elaborate a bit more as to how you're planning on making this studio a profitable venture? That's all we need and the

requested \$150,000—lent at 6% per annum—will be winging its way to you in short order. *Hugh Bottom, Vice President, Small Business Loans*

Dear Sir, thank you for your reply to my last letter seeking clarification on your loan application. For a moment it seemed that the additional information you supplied—specifically that you would be making 'super-cool' music—was less than we had in mind. Also, the reference to how a studio would enhance your social life in regards to women was taken somewhat less than felicitously by the female members of the department. However, a recent copy of Billboard magazine informed us that US record market sales rose a significant 7% in 1997. That, combined with the fact that you had secured independent distribution for your clients' recordings, enables us to approve the loan. Please find enclosed a check for \$150,000 and a monthly payment book. And good luck.

*Hugh Bottom, Vice President, Small Business Loans*

PS The record distributor you mentioned—Carlos y Conchita's Qwikie-Mart—is not listed

in any directory of business services in your area.

Dear Sir, it has been seven months since we last heard from you. We hope the studio is doing better than your payment records would indicate. We have made repeated attempts to contact you by phone, but your mother always tells us that you're not home. As a businessman, I'm sure you read publications such as the Wall Street Journal and are aware that falling interest rates continue to make banking an incredibly competitive business. However, we are quite concerned about this situation and with that of the 17 other similar loans we have made to new recording studios in your area, including some that are located in the very same trailer park as your facility. Please begin making payments in order to avoid foreclosure of the loan and to restore our original faith in you.

*Hugh Bottom, (Assistant) Vice President, Small Business Loans*

Dear Sir, the situation has become quite serious. Upon researching the matter further, we have heard from the three 'commercial' studios in your area that so-called 'garage studios' are proliferating at a very rapid rate. Had we known that your venture was to take place in such a highly crowded economic environment, we would have reconsidered our loan agreement. And upon further research, we have also found that of the original \$150,000 loaned you, approximately \$15,000 was spent to outfit your studio, while the rest was used to purchase a 1998 Mercedes 600SL. I under-

## Europe: Copy that...

Copyright issues are set to frustrate a record industry prioritising self protection over progress writes **Barry Fox**

**F**OR 10 YEARS consumers have been asking when they can get blank CDs, to make compilation recordings of their favourite tracks or dubs from vinyl LPs. PC users have long since found it impossible to back up data onto floppies, and inconvenient to use tape streamers. Now, at last, we have low-cost CD recorders for consumer and computer use.

World sales in 1997 were over 2 million and look likely to touch around 5 million this year. Philips has over 50% of the world market, with drives sold either under Philips' name or other brands. The new management in Eindhoven issued a directive that the company had to start making money on consumer electronics - after losing a bundle on HDTV, MAC-TV, CD-i and DCC. Philips also wants to stop Sony making Mini Disc the de facto disc format for Europe and the US.

The price of blank write-once (WORM) discs has already collapsed, to a very few pounds or dollars, pushing Plasmon out of business and forcing Kodak to cut the workforce at its new plant in Ireland. This is driving the sales of hardware, creating the reverse of the classic situation where manufacturers give away razors to sell blades. Now

they are giving away blades to sell razors.

CD-RWs still cost around £20 or \$20. But Philips gives one RW away free with every recorder, advising users to practice making compilations and so on, on the re-usable disc before using once-only CD-Rs. This gave people a taste for RW, stimulate demand and encourage mass production.

On legality, Philips quotes the Athens Agreement, originally drafted for DAT 10 years ago. Consumer CD recorders use SCMS, the serial copy management system, which stops them making a digital copy of a CD that is itself a digital copy. But, of course, this does nothing to stop people making a series of first-generation digital copies from the same source.

I have tried both the CD recorder and the CD-ROM recorder. The CD deck worked like a dream, with intuitive controls that are a million miles from those on the absurdly clumsy DCC deck. The CD-ROM recorder works well

too, but only after an extraordinary obstacle course of installation. The drive comes with two pieces of software, from Adaptec and Seagate. On my PC they clashed, crashing the system and blocking re-boot. Philips runs a helpline, with helpful helpers—who admitted they had never actually tried using the two pieces of software together.

The public knows that the shop price of a new release CD is now around £15, that costs under 30p to press. I tried to get the record companies and their trade bodies, to give me a 'pie chart' breakdown which shows that the record industry is not, as consumers think, making £14.70 profit.

Helpfully, the IFPI sent me a copy of a published article. But it was gloriously nonsensical, for instance explaining that A&R stands for Research and Development.

Individual record companies refer enquiries like this to their trade bodies, the International Federation of the Phonographic and the British Phonographic Industry. That's why they pay them. The IFPI says it is asked 'all the time' for this kind of information, but has nothing prepared. Helpfully, the IFPI sent me a copy of a published article. But it was gloriously nonsensical, for instance explaining that A&R stands for Research and Development.

The BPI's press officer, Sarah Roberts would say only that the BPI produced a pie chart seven years ago, but it was now out of date so I could not see it. And no, there was nothing more recent. So I drafted my own

stand your reasoning that the automobile is a useful status symbol in attracting new clientele in the entertainment industry, and we realise that there is a new awareness of the need for marketing of recording studios. Nonetheless, we must terminate your loan immediately and ask that you sell all assets and repay the loan balance forthwith, which stands at \$150,000 plus accrued interest. (Which rate has recently been lowered to 4.5% to keep you as a valued customer.)

*Hugh Bottom, Bank Teller, Anonymous Suburban Branch*

Dear Sir, we were not sure what an 'ADAT' is, but now that we have repossessed your 'studio' we have found that used ones don't retain anywhere near their original value, and that is the case with virtually every other piece of so-called 'project studio' equipment that you had purchased. In fact the only thing that has any residual value whatsoever is the Mercedes 600SL, and that, we are given to understand, is now in the possession of Carlos and Conchita, whose Qwikie-Mart business was indeed eventually listed in an appropriate publication—unfortunately, it was the front page of the local paper, which reported it as being the site of a Federal narcotics sting operation. And neither Carlos nor Conchita are anywhere to be found. All the foregoing leaves me little choice but to ask you one thing.

Would you listen to my demo?

*Hugh Bottom, Second Assistant Manager, Janitorial Services.*

pie chart and sent it back to Ms Roberts asking for comment: 'It is inappropriate for the BPI to comment on commercial matters which are the responsibility of its individual members' replied Peter Scaping, director of research and development and general manager, adding that he would 'be grateful' if I would not press members of our staff on these points.

Unless the IFPI and BPI has changed its thinking—and as it won't talk about the subject, it is hard to know what it is thinking, if anything—it remains opposed to home copying and in favour of a levy or tax on blank media. In Europe there is a mish-mash of levy schemes, which vary from country. This creates a grey market, with blank tapes and discs flowing from the untaxed or lower-priced EC states to those which are taxed at higher rates. Only blank CDs for home music recording are taxed. Adaptec's control software lets a PC drive record audio onto data blanks. And if people are being taxed as a punishment for home recording, they will feel entitled to borrow CDs and copy them.

The situation is a mess and will get messier. The only real solution is for the record companies to keep the price of pressed discs down, and stress the immorality of copying borrowed material onto blank CDs. But this needs concerted, considered policy statements and publicity from the IFPI and BPI. If nothing is forthcoming, 1998 could well be the year in which European record companies wonder why they are paying their trade bodies to represent them.

## Different worlds

Technology may be forcing film and television closer together but other forces may keep them apart, writes **Kevin Hilton**

**L**ABELS ARE useful things. They help us find things that we are looking for easily and quickly. That's the plus point. The downside is that they make it far too easy to put things—or indeed people—into pigeon holes. For example, someone recently referred to me as the "television writer", which I initially found flattering and descriptive but later thought was stereotyping and restrictive. "I'm so much more than that!" I thought to myself later, gnawing away at my self-confidence and self-image (well, it was a Tuesday).

Another problem with labels is that the divides they mark can sometimes be eroded, making the label itself redundant. Take for example the worlds of broadcast and film post-production. These were areas that have always been identified as separate disciplines because of the dichotomies that the areas have created between themselves.

Movie people have always been snuffy about television, seeing it as an upstart medium, while TV types viewed the cinema as lumbering and old fashioned.

Now that the cinema has enjoyed a resurgence of popularity and TV companies

Movie people have always been snuffy about television, seeing it as an upstart medium, while TV types viewed the cinema as lumbering and old fashioned

—preparing themselves for the multi-channel future when the demand for product will be tantamount—are increasingly making programmes in the style of film, the divisions are looking less and less obvious, particularly as critics are accusing some low budget features of looking like TV dramas. Channel 4 in the UK has long had a history of co-producing films for theatrical release that are guaranteed a TV screening, underlining the importance of the cinema as a supplier to television. A clear sign that priorities were changing was given in 1993 when the screen adaptation of Roddy Doyle's *The Snapper* was shown as part of the BBC's Screen series before enjoying a successful cinema run.

This has meant that facilities usually associated with broadcast or commercials work are now working on feature films, albeit those of more modest budget than juggernauts like *Starship Troopers* or the new Bond opus *Tomorrow Never Dies*.

Denis Weinrich at North London audio post house Videosonics says of this shift, 'Things had been going towards film anyway and now it is 50% of our business. In our work for TV companies we've gone from doing sit-coms and dramas to films for TV and now features. Key factors in this are language and familiarity. There are enough differences between the terms used in broadcasting and film to cause confusion; those in TV post-production say that TV peo-

ple are coming to them for movie work because the terminology remains the same. Another reason for the convergence is digital technology, which has put broadcast facilities near, if not on, the same level as the traditional film studios.

For a movie facility to turn away from 35mm and mag equipment was tantamount to heresy, as Gerry Humphreys, director of sound at Twickenham Film Studios, acknowledges. Today, although 35mm is there for shooting and archiving, hard disk storage and manipulation are the official currency. 'Even shooting a big feature like *Event Horizon*, the various elements will be on computer,' he says, 'for instance editing on Avid, with the audio on DAR or Akai. There is very little where you could say that particular things are done on video and others on film.' But differences remain. Humphreys is of the opinion that big blockbusters require big rooms to mix in. 'A video dubbing suite is fine if what you're mixing is going to be heard in somebody's living room,' he says. 'but if you're working for the Odeon Leicester Square, you need some air around what you're doing.' Denis Weinrich agrees with this to a degree but adds, 'The Blue Room at Skywalker is not an aircraft hanger but

they still did *Contact* there and *Sound One*, where *Men in Black* was dubbed, is a modest size. But there will always be movies like *Starship Troopers* where nobody would consider mixing in a small room—it's just a question of how many big movies there are a year and how many big rooms are needed. That's why I'm not chasing that market.' In many ways, it is business

itself that is maintaining some of the barriers that technology has partly broken down. Despite the filmic look and impressive cast lists, many TV films and film-style series are still made on a budget that would barely cover the catering tab on a major theatrical release. Many post houses court commercials work in preference to television productions because of these tight budgets. The next natural step is the movies but most audio facilities seem aware of their capabilities and their level, something that will sustain these companies and the more traditional film studio technical departments.

This is probably just as well because the film business is notoriously populated by people in sharp suits with even sharper legal minds. One video effects house MD, who has moved from advertising work to film, confirms this: "If you mess up on a commercials project, then the agency just don't use you again. With movies, the producers say 'I'm gonna sue your ass for \$20 million!'" It is, quite literally, a different world.

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# The telephone

The telephone is the oldest audio system of all, and probably the largest, and as such demands some respect. **John Watkinson** explains how it works

**T**ELEPHONE INVENTOR Alexander Graham Bell was quite a character, and his work deserves, and rewards study. In his career as an inventor he built man-lifting kites, aircraft and hydrofoils, and developed the tetrahedral space frame. He was also involved in teaching the deaf to speak. Bell's wife Mabel had lost all hearing at the age of five from scarlet fever and it was through his work that they met. Bell argued that if a machine could be built that would display speech in some way, deaf people would be able to modify their speech to obtain the same display as the teacher.

A microphone was a fundamental part of the system, and having developed one, Bell went on to create the telephone, allowing speech to travel down telegraph wires. The rest, as they say, is history.

The success of the telephone has led to vast areas of the planet being comprehensively connected with copper wires and this is a valuable infrastructure. As technology has developed, the telephone has become part of a global telecommunications industry. Simple economics suggests that in many cases using the existing telephone cabling is a good way of providing new communications services.

Despite the age of the technology, it's still important to know how a phone works. The original telephone microphone worked as shown in Fig.1. The sound vibrates the diaphragm which changes the compression (hence the resistance) of carbon granules. Such a microphone needs a power source, and this is provided by a 48V battery at the exchange which forms part of a current loop that joins the two subscribers and includes the microphone and the earpiece. The modulated current produces a sound at the earpiece.

In practice, some deliberate crosstalk is introduced into the system so that each subscriber hears some of their own voice in the earpiece. This is called sidetone and it is psychoacoustically necessary to allow the user to judge how loud to speak by providing a feedback mechanism. Without sidetone

many people end up shouting into the microphone because it seems to be inert.

The length of wire in the loop is subject to enormous variation, and with it the loop resistance and losses. A high loop resistance will reduce the loop current and lower the signal. A voltage-dependent resistor in the phone compensates for the line length to try to keep the loop current steady. As the goal of the telephone is to deliver the spoken information, its performance is measured in terms of intelligibility. By audio fidelity standards the telephone is an appalling device: the bandwidth is from about 300Hz to 3.4kHz and there is significant waveform distortion and noise. This, however, does not prevent speech being understood.

The long wires used in telephony are transmission lines with an impedance of about 600Ω at audio frequencies. The line loss is a logarithmic function of distance which led to the development of the decibel to quantify the phenomenon.

There's more to a telephone than just the speech communication; there is the ringing and dialling aspect as well. This is achieved down the same wires as are used by the conversation and, in fact, is a forerunner of the use of phantom power in microphones.

When a telephone is hung up, a switch is made which open-circuits the current loop so that the exchange battery is no longer supplying power. The same hook switch connects the ringer to the lines via a capacitor that blocks the DC power. The telephone is made to ring by an AC signal generated at the exchange. The ringing frequency varies from country to country, but 20Hz is common. This can pass through the DC blocking capacitor. Fig.2 shows that at the exchange, the battery is fitted with inductors that block the ringing current.

The ringer in the telephone forms a tuned circuit that resonates at the ringing frequency. This raises efficiency, which is important where long lines are used. In the original telephone the ringer would be a solenoid operated bell, but in recent

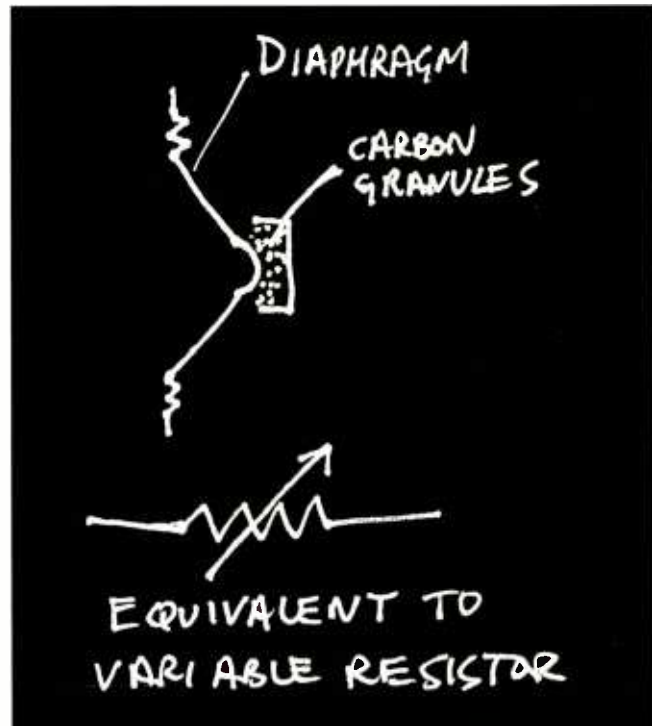


Fig.1: Carbon compression microphone

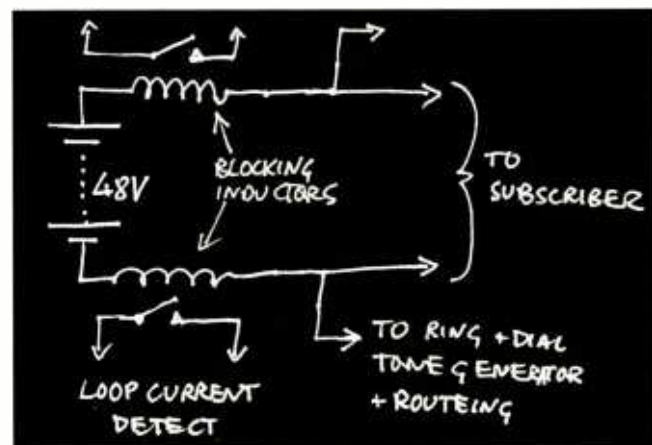


Fig.2: Schematic of the telephone circuitry serving a telephone line

equipment there is an electronic synthesiser and loudspeaker driven by the AC ringing power. Connecting too many telephones to a line may mean that after the ring power is divided there is insufficient to make each one ring reliably. Individual telephones vary in the ring power needed and so have what is called a ring equivalent number (REN) which allows the engineer to calculate whether a particular combination of units will work.

Fig.2 also shows that the ring blocking inductors may be the windings of relays which are in

series with the current loop. When a telephone handset is lifted to make a call, the hook switch completes the current loop and the relays at the exchange will pull in to notify the exchange that a call is about to be made. When the handset is lifted to answer a call, the hook switch also stops the ringer.

For economic reasons, there are much fewer paths through the telephone system than there are subscribers because telephones are not used continuously. Before a call can be made, the exchange has to find a free path and >>>>

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7			X		X		
8			X			X	
9			X				X
*				X	X		
#				X			X

Fig.3: DTMF uses unique tone pairs for each key

assign it to the calling telephone. Traditionally this was done electromechanically with a third, privacy (P), wire. When the exchange sensed that a handset was off-hook, a rotary switch would advance and sample all of the paths until it found one without loop current where it would stop. This was signalled to the calling telephone by sending dial tone.

In a real steam-powered telephone, on receipt of dial tone the caller used a rotary dial to input the number. This was a simple mechanical pulse generator that broke the current loop at each pulse. The exchange relay would drop out each time the loop broke so that the relay contacts replicated the action of the rotary dial contacts. The steam-powered exchange would use the pulses to operate uniselectors and two-motion selectors. Uniselectors were rotary switches that could be advanced one position at a time by a solenoid and a ratchet, while two-motion switches caused sets of 'wipers' to be stepped vertically on one pulse train and horizontally on a second into a bank of contacts. Connecting the pulses from a rotary dial to these selectors would cause them to move to the contact corresponding to the digit dialled.

Of course, the development of electronics revolutionised telephone exchanges. Whilst the loop current, AC ringing and hook switch sensing remained for compatibility, the electromechanical exchange gave way to electronic - first 'crossbar' then 'TXE' - exchanges where the dial pulses were interpreted by digital counters which then drove crosspoint switches to route the call. The communication remained analogue.

The next advance permitted by electronic exchanges was touch tone-dialling, also called DTMF and voice-frequency dialling. Touch-tone dialling is based on seven discrete frequencies shown in Fig.3. The telephone contains tone generators and tuned

filters in the exchange can detect each frequency individually. The numbers 0 through 9 and two non-numerical symbols, \* and #, can be transmitted using 12 unique tone pairs. A tone pair can reliably be detected in about 100ms and this makes dialling much faster than the pulse system.

The frequencies chosen for DTMF are logarithmically spaced so that the filters can have constant bandwidth and response time, but they do not correspond to the conventional musical scale. You might call it the Just Diabolical scale or Bad Temperament. In addition to dialling speed, because the DTMF tones are within the telephone audio bandwidth, they can also be used for signalling during a call.

The first electronic exchanges simply used digital logic to perform the routing function. The next step was to use a fully-digital system where the copper wires from each subscriber terminate in an interface or 'line card' containing A-Ds and D-As. By pro-audio standards the quality is nothing special. The sampling rate of 8kHz retains the traditional analogue bandwidth, and 8-bit quantising is used. This is not linear, but uses logarithmically-sized quantising steps so that the quantising error is greater on larger signals. The result is a 64 kilobit/sec data rate in each direction.

Packets of data can be time division multiplexed into high bit-rate data buses which can carry many calls simultaneously. The routing function becomes simply one of watching the bus until the right packet comes along for the selected destination. 64 kilobit data switching came to be known as IDN (Integrated Digital Network). As a data bus doesn't care whether it carries 64 kilobits of speech or 64 kilobits of something else, when Telcos offer data communications systems based on IDN, you tend to get multiples of 64 kilobits whether you like it or not... ■

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# Spotlight on 24-96

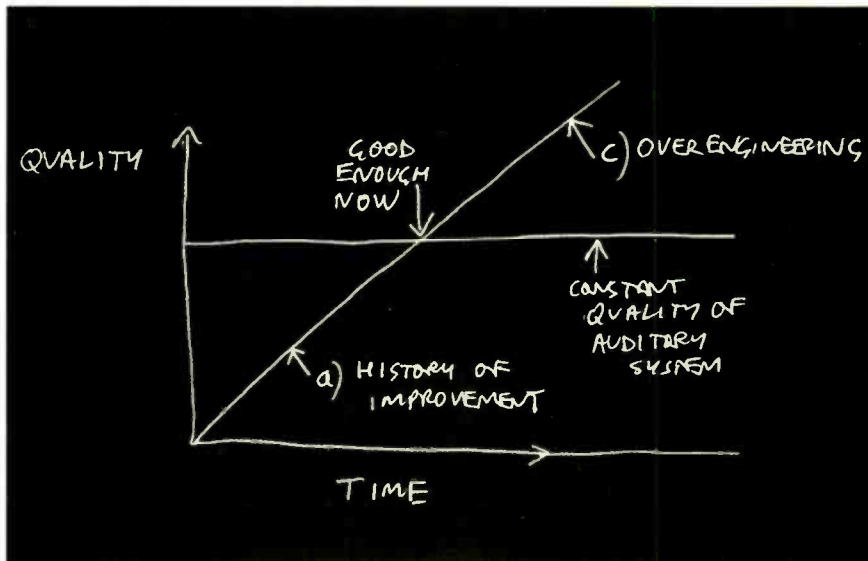
With higher sampling rates and wordlengths for digital audio being proposed, **John Watkinson** gives his opinion on their merits. Is there a psychoacoustic justification or is it pseudoscience?

**A**UDIO ENGINEERING COVERS a wide field. Some people study the sound of bats and dolphins; some use sound to locate submarines or check on an unborn child. Unless you are doing something like that, the remainder of audio—the audio I'm talking about here—is ultimately designed for human consumption. The human auditory system becomes the final quality arbiter. If no listener can tell the difference between the reproduced sound and the original, then it's perfect.

All practical audio systems will be imperfect, but then so is the auditory system. If the audio system is in all respects less imperfect than the auditory system, the defects of the audio system will be undetectable. Once such a condition has been achieved, further improvement of the audio system is fruitless. It costs more, but it doesn't sound any better.

Following that reasoning, it really doesn't matter if an audio system is analogue or digital. Provided the quality criteria are met, they should both sound the same. If they don't, one or both have a problem. I have certainly (but not often) heard very high quality from both analogue and digital systems, but the digital systems are cheaper to run because less maintenance is needed.

In other industries, if a theory is incorrect or misapplied, planes crash, buildings collapse and there follows an inquiry that will identify the problem. In contrast, the audio industry is one of the last places where your money doesn't have to be where your mouth



**Fig.1: Just because audio traditionally adopted a policy of continuous improvement does not mean this should be pursued indefinitely**

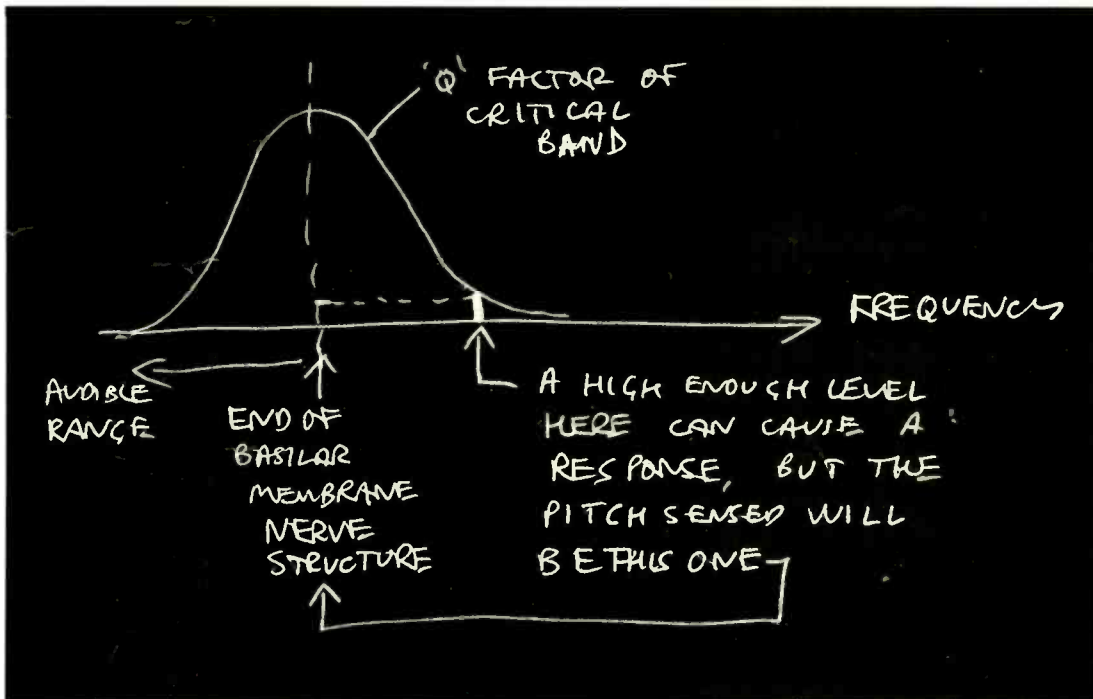
is. The medium is heavily subjective and if a theory is incorrect or misapplied, the resultant disaster may not even be noticed by some, or may even be hailed as a wonderful new effect by others.

No qualifications are needed to join, and this often reflects in the quality of opinions one hears where the laws of physics are temporarily suspended to allow the latest theory to hold water. Learning by copying is learning without understanding. Knowing what to do,

but not why, is just good enough in a stable technology. Unfortunately, it's useless in a changing technology.

One of the tenets of audio in the last 50 years was that it was never good enough and there was a permanent struggle to improve it. So ingrained was this struggle that it turned into a tradition. Fig.1 at point a shows that this has resulted in steady improvement in the quality of equipment. However, when the quality reaches the quality of the auditory system, Fig.1 at point b, then it's time to relax. However, he who knows what to do, but not why, continues the tradition, because that's what he's always done, and adopts path Fig.1 at point c, to produce an over-engineered and overspecified unit that doesn't sound any better. Tradition means not thinking what you're doing.

As an audio system is a chain, logic suggests equal strength in each link. Over-engineering one part of the audio system while another part is obviously deficient is not logical. This has, however, almost become the definition of high-end hi-fi where stupendously >>>>



**Fig.2: The ear can respond to ultrasonic sound (and be damaged by it) but it is unable to judge the pitch**

«««« complex and expensive signal sources and amplifiers are connected by incredibly expensive cables to loudspeakers of stunning mediocrity. This is a land that is orthogonal to reality where pigs really can fly.

We professionals can only laugh at high end hi-fi if we don't make similar mistakes ourselves. Unfortunately, with 24 bits and 96kHz we are in danger of sending up further creatures to join the pigs. Digital audio is a new technology and the audio industry, with it's sitting-by-Nellie approach to imparting skills, by and large still hasn't taken on board the fundamental principles. This makes it vulnerable to pseudoscience. Another issue is that audio is still new to the digital industry and I'd be willing to bet that many DSP designers know less than they should about psychoacoustics and analogue electronics.

**S**AMPLING is well understood and is perfectly described by Shannon's theory. Successful devices based upon Shannon's theory are found in many industries, often in critical applications, and had there been a flaw in the theory we would have known about it by now.

In a PCM system, sampling theory requires that the sampling rate should exceed twice the highest frequency to be reproduced by an amount that depends on the slope of the anti-aliasing filter. Consequently, in trying to establish a suitable sampling rate, we only need to know what audio bandwidth we need to reproduce.

This can only be based on what the ear can

perceive, a subject that has received a fair amount of study. Using sinewaves as a stimulus, the range of human hearing ends at between 15kHz and 22kHz, depending on age and individual variation. As the basilar membrane in the ear is resonant, it has a Q factor that gives rise to the concept of critical bandwidth. The location of the maximum displacement is used to judge the pitch, hence the term 'place theory'.

In any resonant system, there will be a small, but finite response to frequencies well away from resonance. Fig.2 shows that if sufficient SPL is applied, the basilar membrane can respond to ultrasonic frequencies. It cannot, however, determine the pitch, because all frequencies above the end of the audible range are sensed as having the same pitch, and this will depend on the listener. As a result a young person might judge 25kHz to be 19kHz, whereas an older person might judge it to be 16kHz. Because of this variability, there is no useful information at these high frequencies.

According to Heisenberg's uncertainty principle, infinite time and frequency accuracy can never be simultaneously available. The ear is known to use a balance between time and frequency resolution. It has evolved over countless generations, and so it must represent the best survival compromise. Obviously, if people with better hearing had an evolutionary survival advantage, we would be more likely to be their descendants, and we would hear better too. Naturally if you prefer the story of Noah's Ark to Darwin, this entire arti-

cle is the spawn of the devil and should be burnt immediately as heresy.

Hearing has evolved from a means to warn of a threat. The most ancient hearing mechanisms primarily determined the location of a sound source, hence the provision of two ears and the means to measure the difference in time-of-arrival at those ears. The optimum range of frequencies depends upon the size of the creature involved. With an off-centre source, there will be a phase shift between the sounds reaching the two ears that is proportional to the ear spacing. In the human, the spacing between the ears is such that in the treble region phase shifts can exceed a whole cycle and become confusing. In smaller creatures, such as dogs, the spacing between the ears is smaller and the useful frequency range goes up, as it does to great effect in bats. In the case of the dolphin, the head is about the size of a human head, but the medium is water where the speed of sound is nearly five times that in air. This increases all wavelengths by the same factor and so it is advantageous for the dolphin to use what we call ultrasonic sound.

It is claimed by dCS that using 96kHz improves localisation because it fixes transients in time more accurately, but this I consider to be a complete myth and contradicts any amount of research. Studies show that the ear is able to localise best on transient rich sounds, but it uses mostly the low frequency range when it does so. Nerve impulses suffer from jitter of around 100 microseconds and, by averaging, the timing from many nerves a >>>>

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«««« maximum localisation accuracy of 6 microseconds can be achieved. This corresponds to an image displacement of around 35mm at a listening distance of 3m.

With suitably accurate loudspeakers, it is easy to demonstrate localisation of this order from good compact disc recordings. It is equally easy to demonstrate that the localisation does not change in the slightest as the treble control is turned down. As CDs have a sample period of 23 microseconds, some four times the minimum Inter Aural Delay resolution, and one quarter of the ear's nerve jitter, so clearly the sampling rate is not an issue. Incidentally, analogue stereo tape recorders can't equal this performance because the relative timing accuracy between the tracks isn't as good. Consequently, designing a digital system to be as good as analogue isn't much of an achievement.

As well as running out of localisation ability at the top of the frequency range, the ear also runs out of musicality. Above 10kHz over 100 cycles of signal are necessary before the pitch can be judged. As critical bandwidth is octave based, it increases with frequency on a linear scale. Lower harmonics of instruments are more than a critical bandwidth apart and a pleasing sound results. Higher harmonics can be less than a critical band apart and non-musical beating results.

Musical instruments have evolved empirically to avoid inharmonicity, and, consequently, their spectra don't exceed what the ear can perceive. If the human ear really did respond further than the conventionally accepted limits, instruments would have evolved to excite that response. Before anyone worried about digital audio, analogue audio systems would have evolved to reproduce the missing bandwidth. Why are there not in common use microphones, analogue recorders and loudspeakers which respond beyond 20kHz?

In practice, it's nearly impossible to produce a loudspeaker or microphone that responds much above 20kHz. While the on-axis response might be managed, the directivity characteristic would be so narrow as to be effectively useless.

So you have decided to invest in 24-96 technology. Assuming realisable anti-aliasing and reconstruction filters, a bandwidth of about 40kHz is available. Let's look at how to provide a reference sampling-rate clock for the A-D converter. The jitter

specification of the clock should be such that, in the worst case, the noise due to jitter should be of the same order as the quantising-dither noise floor. Consequently, noise due to clock jitter needs to be such that it would never change the level by more than one quantising interval.

A full amplitude sine wave at 40kHz is traversing a cool 2.13 million million quantising intervals a second as it passes through its own centre line. The clock jitter has to be less than the reciprocal of this, which is about 0.47 picoseconds (where 1 picosecond is one million millionth of a second). The sample period is just over 10 microseconds, so the clock period needs to be accurate to one part in 450 million. This is like measuring the distance from the Earth to the Sun within 300m.

Frankly I don't see how this can be done at all, let alone economically. Thermal noise in the clock circuitry will prevent such accuracy being attained. Are we going to immerse our 24-bit converters in cryogenically cooled containers? I don't think so. In practice you will get the data rate of 24-bit 96kHz, but the information content will be rather less. Should make it easy to compress.

And what of the enthusiasts who say they can hear the difference between 24-bit/96kHz and the traditional stuff? Well, unless they are comparing like with like using state of the art mics and speakers, and the tests are triple blind and statistically significant, then it's all hearsay.

Even if a difference can be heard, there are perfectly plausible reasons which do not involve ultrasonic hearing. Most power amplifiers become nonlinear above 20kHz when they run out of loop gain. Doubling the input bandwidth will cause intermodulation distortion products which can easily heterodyne into the audio band. Alternatively, all the audible difference might indicate is that the 48kHz converters are not well engineered. Noise shaping converters use recursion and are not inherently phase linear. The digital decimation filters may not be phase linear either. Doubling the sampling rate may just improve the phase linearity within the audio band.

Do we really need to double the sampling rate as an alternative to rigorous adherence to known psychoacoustic requirements? Until I see some concrete evidence, or a theory which holds water, I remain, yours sceptically, John Watkinson FAES ■

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# Ripe for disaster

The power of a computer should not be overestimated—either in terms of what it will do or what it will not. **Simon Croft** gets bitten by the Apple

IT'S AMAZING to think that a mainstream desk-top computer is now powerful enough to host what is commonly called a DAW but could almost be termed 'a studio in a box'. Multitrack digital recording, nonlinear editing, effects processing and automated mixing can all be yours, in one integrated environment. The biggest bonus is cost, since, for the price of an 8-track tape recorder, you can buy a computer powerful enough to turn its hand to practically any type of audio processing. Okay, you will need more than software to get a serious system up and running, but even with dedicated DSP cards and interfaces, the cost benefits are enormous.

I would like to sound a word of caution, however. A mainstream computer manufacturer does not operate in the same way as a professional audio equipment and a computer dealer is in no way geared up to provide the same level of support as most pro-audio dealers. Sadly, most users won't appreciate the difference until something goes wrong with their system. At which point they may find that they have to fend for themselves. Computer companies don't give a damn about your session, your deadline or the cost of your time, as I myself have discovered in dealing with Apple Computer. For more than six months I have been dogged by problems related to unstable operating systems released by Apple.

Back in June of last year, I wrote to Apple Customer Relations noting, 'Having wasted the best part of a working week in the last fortnight I want Apple to be aware that I can no longer afford to act as its unpaid beta tester for operating systems 7.n (n being a technical symbol meaning no invoice-able activity arising)'.

I added, 'I thought it prudent to buy OS7.6. Little did I realise that even as the disk was on its way to me, the US version of 7.6.1 had appeared on the Apple Web site, complete with a list of fixes that would make a shareware geek blush.'

Did they write to apologise? No. Did they refund the money I had spent on a useless OS? (Listen, not being able to print is a fairly serious drawback for a writer.)

No. They never even wrote to me, although someone phoned me to say my letter would be passed onto someone else.

After that, I seriously considered changing platform. I even bought a PC and discovered, 'Hey Windows 95 ain't so bad'. But I also lay out a fair number of magazine pages and the computer you need for that is either a Mac, a Mac or a Mac. Likewise, I don't really want to see a five-year investment in software kissed goodbye.

**For more than six months  
I have been dogged  
by problems related to  
unstable operating systems**

OS8 was launched to considerable critical acclaim towards the end of last year. End of my problem right? Wrong, start of my next nightmare: I loaded OS8 onto my old 7100. God it ran slow. (I mean slower than the Troggs Tape when someone says, 'So what are we going to do then?') But having read so many reports that OS8 was the cure for all

known diseases, I went and bought a shiny new G3 233MHz clock Power Mac. Is it fast? Yes! Is it stable? Er... No, it certainly isn't. In fact, it crashed yesterday. If you own a G3, or are thinking of buying one, read this carefully.

My machine came up with an Error +1 (whatever that is) and refused to boot. The Apple guy on the help line told me that aspects of the G3 were unstable and told me to do a clean install. Now that might fix the immediate situation but it won't make the system any more stable.

So I called Apple's Assistance Centre to find out what they were going to do about this problem, where a recalcitrant and evasive young man told me there was no problem with the G3, adding, 'it's not like it was an xyz or a PowerBook Whatsit'. (Forgive me if I forget the names of all the other models I had clearly been fortunate not to buy.)

Under pressure from me to do a little more than justify, he added that there would be an OS8.1 soon. In fact, the American version was already available on the Web site if I cared to download it. I declined but I did ask, if there was no problem, what was 8.1 supposed to fix?

At that point he expressed the opinion that any OS was bound to have a few problems, with stuff like disk addressing. No he didn't know when the UK version would be available and no he couldn't even guarantee that I would get it free of charge unless I downloaded it from Apple's Web site. He added, 'Anyway, we don't make the operating system, that's Claris'.

Claris—as any fool knows—is a wholly owned subsidiary of Apple. This is the kind of double-speak you expect from used-car dealers. The little oik even refused to give me a contact name for anyone else within Apple to whom I could appeal. Fortunately, I already know one: this morning I wrote to Steve Jobs, CEO of Apple. I'll let you know how I get on. Meanwhile, please remember this: a studio in a box is a fine thing but if that box collapses you better have everything backed up—and a fair bit of time to spare. ■

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# Richard Dodd



Photo: Peyton Hoge Studio: Vital Recordings

## on **BASF** tape

“**For music** recording I believe that analog sounds better. I prefer **BASF SM 900** maxima because it represents the best balance of virtues available in an analog tape. **SM 900** has a good tone to it and the sound sticks to it better than other tapes I’ve used. It’s that simple.”

Grammy® winning producer/engineer Richard Dodd’s credits include work with **Tom Petty, George Harrison, Bob Dylan, The Travelling Wilburys, Francis Dunnery, and Edwin McCain.**



SM 900 maxima is a high-output analog tape designed specifically for multi-track recording and mastering, with extra wide dynamic range, low noise and low print through.

**EMTEC** Magnetics

For more information contact BASF plc ☎ 0191-9088340, or visit EMTEC’s web site at <http://www.emtec-magnetics.com>

