

AUGUST 1996 \$5.75 £3.00

Studio Sound

THE INTERNATIONAL TECHNICAL MAGAZINE FOR
PRO AUDIO, POSTPRODUCTION & BROADCAST



MONITORS

Close-field market roundup

SEX PISTOLS

The new live album

LIVING IT UP IN HYDE PARK

JBLs stacked to the sky

EXCLUSIVES

Oram BEQ Series 24 console

Avalon 2055 parametric EQ

QSound stereo expander

Earthworks Omnis

The John Pellowe Interview





**FOR FLEXIBLE
UHF PERFORMANCE,
THREE HEADS ARE
BETTER THAN ONE.**

The new WMS 300 from AKG is a 16 channel switchable and highly flexible UHF radio microphone system that delivers spectacular price benefits.

Providing ten different configurations in one affordable system, no other UHF radio mic system can match its flexibility.

There's a choice of handheld or beltpack transmitters and capsules for vocal, instrumental or lavalier systems. Three interchangeable dynamic and condenser heads are available to suit any type of vocalist or speaker – allowing the microphone to be matched perfectly to every show.

It's switchable to 16 spot frequencies within a UHF TV channel, with the ability to run up to eight systems simultaneously without intermodulation.

A total system solution that includes antenna splitters and boosters and a receiver that can be run on either AC or DC voltage.

Other exceptional features include up to 12 hours' battery life from three AA cells (7 hours with rechargeables), a compact 1/2 true diversity receiver unit and, of course, AKG's precision audio quality, rugged durability and backup as standard.

Based on the well-proven WMS 900 system (ours include Peter Gabriel, Rod Stewart, Wet Wet Wet and 1996's Simply Red dates), the WMS 300 delivers a total solution at an exceptional price.

WMS 300 UHF RADIO MICROPHONE SYSTEM

TO HEAR HOW ACOUSTIC PERFECTION IS NOW WITHIN YOUR REACH, LISTEN TO US ON 0181 236 7240



WMS 300 FEATURES

- SR 300 RECEIVER: Switchable to 16 UHF frequencies for multichannel capability • Half 19" rack width • True diversity operation • Removable antennas.
- PT 300 HANDHELD TRANSMITTER: Interchangeable microphone heads • Highly efficient helix antenna for wide range • Extremely rugged construction • Special capsule suspension minimising handling noise.
- PT 300 BODY-PACK: Accepts dynamic and condenser microphones • Mic, mute or line selector for guitar, sax or lavalier options • Locking microphone input • Exceptional operating time.

WMS 300

FROM **£869.00** WITH
 — HARMAN ASSURANCE —
 — PREMIUM QUALITY —
 — FULL TECHNICAL SUPPORT —
 — RELIABLE SERVICE —

H A Harman International Company

Harman Audio, Harman International Industries Limited,
 Unit 2, Borehamwood Industrial Park, Rowley Lane, Borehamwood, Herts WD6 5PZ, England
 Tel: +44 181-207 5050 Fax: +44 181-207 4572

contents

AUGUST 1996

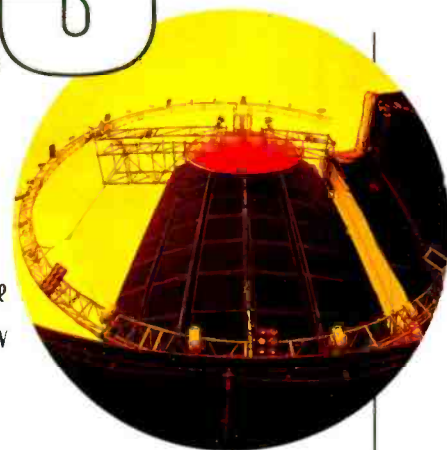
5 Editorial Tim Goodyer attempts to break the language barrier

NEWS

6 Soundings Latest news includes the refit of London's Britrow, the destruction of Venice's Gran Teatro La Fenice, and Singapore's Pro Audio & Light show

11 International Columns Europe, USA, Far East
—world news and comment from Barry Fox, Dan Daley and Patrick Cullen

83 World Events Your best guide to the world of exhibitions is exclusive to **Studio Sound**. Check your diary against our comprehensive calendar



Rock music's answer to *Jurassic Park*—the recent live music extravaganza in London's Hyde Park
Turn to page 62

FEATURES

40 db One studios/Facility
Deep in the industrial heartland of Northern Italy lies a studio with a twist

50 Sex Pistols live/Recording
The album was advertised before it was recorded, so it had to be good

56 The Wind in the Willows/Post
A dramatic rework of a classic challenges Sound Designer André Jacquemin

62 Hyde Park/Live sound
The technicalities of showcasing the world's biggest surviving dinosaurs

71 Studio monitors/Recording-mixing
A comprehensive vox pop survey of studio monitors and an intelligent insight into this volatile and controversial market

COMMENT

9 John Watkinson
The enduring tension between philosophy and technology

48 Broadcast
If you'd been inclined to regard the arrival of ISDN as a Western issue, Far Eastern facilities would have you think again

69 Rocket Science
The potential of Internet broadcasting is hiding in the shadow of the problems that must be solved before it can take off

90 Open Mic
The Hidley-Munro studio-design debate steps up another gear as veteran consultant Philip Newell joins the fray

REVIEW SECTION

35 NEW TECHNOLOGIES

The latest round of equipment for audio, post and broadcast



16 Oram Sonics BEQ 24
On his return to console design, John Oram is seeking to shake up the market

23 Tascam MD-810R
An MD-based DAW directed at broadcast and beyond

27 Avalon AD2055
Pro practicality meets hi-fi purism in this American EQ

29 Earthworks Omnis
Budget American mics with pro performance and style

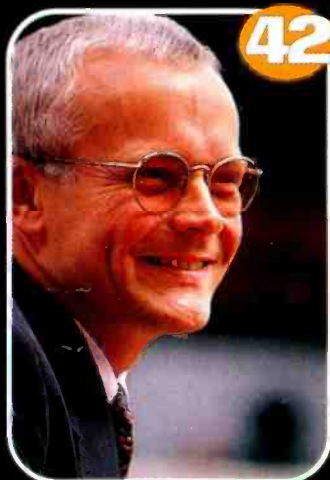
31 QSound QX/TDM
QSound spatial processing comes online with TDM

33 JBL Smaart
Effective and affordable—a new audio analyser from JBL

START PAGE 16



Cover pics: John Pellowe by Jimmy Carreras; Hyde Park by Pete Cronin



42

PELLOWE INTERVIEW

John Pellowe discusses the trials and tribulations of producing *The Three Tenors* live at Wembley exclusively with **Studio Sound**

Rugged Switchcraft® Jack Panels



Switchcraft's new TTP96 Series Jack Panel (shown in photo) is built to last. It features corrosion resistant nickel-plated jacks, a steel frame for superior jack life and an aluminum, black anodized face and cable support bar. Switching arrangements available in full normal, half normal and open circuit. Fanned solder terminals make solder connections simple, and an offset ground terminal makes common ground buss connection easy.

Request NPB #448 for the TTP96 Series. Call +44 (0) 1705 661579 for product pricing and delivery.

Need a quality connection for a compact application?

We've got just your size!



Switchcraft's patented tini Q-G® connectors offer the same quality as our industry-standard full size Q-Gs, but are ideal for compact applications. Tini Q-Gs are used in wireless and lavalier microphones or wherever reliable compact connections are required.

- Choose 3 to 6 pins/contacts.
- Silver-plating is standard, gold-plating optional.
- Available as cord plug, PC and panel mount.
- Large opening in cord plug strain relief accepts cable up to .170 inch diameter.
- Black inserts.



Raytheon Electronics

Switchcraft®

Switchcraft, Inc.
c/o Raytheon Marine Europe
Anchorage Park
Portsmouth PO3 5TD
United Kingdom
Tel: +44 (0) 1705 661579
FAX: +44 (0) 1705 694642

<http://www.raytheon.com/re/swc.html>
Switchcraft® - Consistently Excellent Since 1946SM.

Choose The Look You Like



The D series of Q-G® connectors offers a choice of satin, pebbled, or black metal finish for panel or chassis-mounting. Choose from 3 to 7 contacts or pins with silver or gold plating. Shown above, left to right: D3F (pebbled), D3FS (satin), D3M (pebbled) and D3MS (satin). For black finish order D3MB or D3FB.

Request Switchcraft's AVP-3 catalog for more information. Call +44 (0) 1705 661579 for product pricing and delivery.

Patch Cords In 6 Colors



Switchcraft® audio patch cords feature 3-conductor .173" diameter telephone-type (TT) plugs and are available in a variety of colors and styles. Choose black, red, yellow, green or blue as braided or overmolded; gray is available as overmolded only.

Request Switchcraft's Molded Cable Assembly and Patch Cord Guide for details. Call +44 (0) 1705 661579 for product pricing and delivery.

Durable Q-G® Audio Connectors



Preferred by audio professionals the world over, Switchcraft Q-G® connectors, such as the A3M, A3MBAU, A3FBAU and A3F (shown left to right), feature unsurpassed durability with a choice of finishes and contact platings. High performance inserts are available in Switchcraft® green or black with gold-plated or silver-plated contacts. A rainbow of colored flex reliefs also available. Solder terminals rotated for easier access and soldering.

Request Switchcraft's AVP-3 catalog for details. Call +44 (0) 1705 661579 for product pricing and delivery.

THIS EDITION'S CONTRIBUTORS



PHILIP NEWELL began his career as a live-sound engineer before moving into studio design and construction. He was heavily involved in Virgin Records' Manor Studio and Mobile before relocating to Portugal from where he has built over 100 studios in 31 countries including Russia.



CAROLINE MOSS served her pro-audio apprenticeship at Soundcraft and Britannia Row, before moving into journalism with stints at Pro-Sound News and Studio magazine. More recently, Caroline has devoted herself to travelling the world and the study of Hindi.



ANDY MUNRO is the brains and the name behind British-based Munro Associates, studio designers, whose work includes the prestigious AIR Lyndhurst complex. Andy is also intimately involved in the design of studio monitors manufactured by DynaudioAcoustics.

Techno Babel

I'm sorry it's been a little confrontational,' said Scritti Politti's Green, rising to leave a conversation we enjoyed together some years ago. 'No, no,' I insisted. 'You had the answers, it was just a matter of getting you to articulate them.'—quite a task with someone who had earlier revealed that whenever he read himself in print, he sounded pretentious.

I can appreciate Green's situation: he's intellectualising about popular music to an audience for whom music is just a soundtrack to its youth. In this context, the music has no intellectual merit and to suggest that 'you can only ever talk around music, you never actually refer to music—in the same way, music itself doesn't have a semantic level' is asking for trouble. His problem is that he couldn't accurately talk about music, nor could he use music to talk about itself. The problem is one of communication. And the problem of communication dogs him still. And me. And you.

I'm not talking about a few disputed definitions, I'm talking about our ability to communicate in an industry where technological advances bring with them corresponding conceptual advances—from analogue to digital, linear to nonlinear, monomedia to multimedia, record shops to on-demand distribution... If we're to deal with these things, we need to understand them, and be able to communicate our ideas and our problems to others. Perhaps it's because it's simple in principle that we so readily overlook its importance.

Some would argue that the key to improved communication is in the technology itself—and with a project such as the new British Library building running years late and millions over budget, it's no great surprise that the value of the printed word is being questioned in favour of some vaguely-defined computer or Internet-based 'soft' alternative. Such suggestions fail to recognise that computers are still generations away from being as convenient and universal as good, old-fashioned paper, let alone developing uncompromised advantages. I suspect we're waiting for SF author Neal Stephenson's vision of nanotechnological 'smart paper' to fundamentally change the status quo.

But to improve on the centuries-old technology of paper is to improve the medium on which the message is delivered. What we really need to do is to improve our ability to deal with the medium that carries the message.

ONE OF THE most absurd campaigns to attract my attention recently is that of a EU group led by Greek singer-cum-MEP Nana Mouskouri, whose intention it is to bring a diversity of languages to the Internet.

Offended by the almost unconditional acceptance of English as the standard Internet 'tongue', Ms Mouskouri argues that to present everything in a variety of languages would increase its appeal and rid the network of its discrimination against non-English speakers. Not that I'm advocating discrimination or in favour of robbing any society of its culture, but doesn't this run contrary to the aims of unification declared by the EU? That—in the context of an already confused and confusing network—it is clearly impractical is not my point. That of easy and accurate communication is.

Now, software that were capable of performing ready translations of material on the Internet would be a different proposition altogether. But I can't help feeling that it would introduce a universe of errors all of its own. Which is where we came in.

Even if we can agree a common language and common terminology, the fact remains that as soon as I start talking you start misunderstanding. The communication channel isn't 100% efficient—it carries errors. And Green is right about music, the strength of feeling that can be contained in a melody cannot be accurately translated into words regardless of the intellectual level of the translation.

So how do we go about dealing with the world of sound that is common to you and me? Chris Carter's *X Files* continue to assure us that 'the truth is out there', while the Zen doctrine would place the truth 'in there' and warn that 'Language has limitations whereas truth has none. To try to apprehend the truth through language is to stray further and further away from it.'



Tim Cooper
editor

Soundin

PALA 96 challenges Hong Kong's supremacy

THIS YEAR'S PALA show took place in Singapore last month. As last year's event afforded great opportunities to manufacturers and distributors to vie for both position and alliance, Pro Audio and Light Asia 96 saw a similar flurry of political activity in lieu of the product-launch frenzy more familiar to Western show attendees. There is no doubt that PALA and the earlier Broadcast Asia events



ITALY: Venice's famous Gran Teatro La Fenice was ravaged by fire earlier this year leaving it incapable of hosting the production of *Don Giovanni* scheduled to take place less than two months later. Trading stone for canvas, and enduring a days of torrential rain, the city's authorities worked with audio and lighting companies to provide an alternative venue for the show. They succeeded and a 3000m², 1,150-seat complex, complete with dressing and store rooms as well as full-flight sound and light facilities now resides in the Tronchetto quarter of the city. Sadly, the 200-year old Teatro is expected to remain unrestored until next century. **TIM GOODYER**

offered the region's first opportunities to see first-hand the latest developments of Western technology and product development. Japan apart, these two shows evidently serve the Asia-Pacific region admirably.

The latterly established position of Singapore as pretender to Hong Kong's 'Gateway to the East' stature was maintained through steady reports of key sales and alliances struck through the medium of the show. Among those prestige 'first showings' to Eastern customers was AMS Neve's Libra console which was reported as attracting significant regional interest. From a Western perspective, PALA saw precious few westerners taking the opportunity to the scrutinise the Eastern market but those who took the time and trouble to attend were in a position to reap the benefits—both strategic and financial. The Asia-Pacific region can certainly be relied upon to offer substantial rewards to the West—given that Westerners are prepared to deal with the East on its own (constantly developing) terms. Certainly the need for assistance and education are great, and offer the West unequalled access to an genuinely affluent and developing market. Next year sees PALA leaving Singapore for the Thai capitol of Bangkok, where it will take place on 3rd–5th July at the International Trade & Exhibition Centre.

TIM GOODYER

PERFORMANCES OF 19th and early 20th Century master pianists preserved on piano rolls were recently brought into the digital age during a recording session at a 19th Century chapel in New Jersey. Over \$0.5m worth of hardware was used for the session, including the world's only surviving 10-foot, concert-style Steinway reproducing piano; three Nagra Digital Recorders equipped with the latest 96kHz software; the newest Schoeps 4-channel surround microphone technology; and the dCS 96kHz A-D and D-A converters.

According to Jerry Bruck of Posthorn Recording and engineer on the project: 'We collected some of the finest piano rolls and digitally



UK: Following the launch of the prototype studio Encyclomedia software at the 100th AES in Copenhagen, the developers have announced a special edition CD-ROM to be released in October. The Special Edition will feature 200 professional studios from around the world and is a preview of the full directory to be published later this year. Studios include London's Townhouse (above), Belgium's Galaxy and Germany's Chateau du Pape. Encyclomedia are available on Tel: +44 181 455 1008, or on the Web: <http://www.encyclomedia.co.uk>. **NICK SMITH**

recorded them. We went all out to get the best possible reproduction that we could.' The rolls will be used for a series of 13 worldwide radio programmes to be broadcast over the BBC, EBU and NHK. The material, spread over 27, one-hour tapes, will also be used for a series of CDs. Legendary performances of Grainger, Horowitz, Rubinstein, Paderewski, Busoni, Cortot, and Prokofiev as well as rare rolls of composers such as Stravinsky, Greig and Ravel performing their own works, are highlights of the recordings.

Bruck says of the session: 'Three Nagra-Ds were employed. The first Nagra was used to pick up the material we were recording in 4-channel surround sound, 24-bit accuracy, and that will ultimately be used for broadcasts and CDs. Anticipating the DVD, we used 96kHz converters and attached them to a pair of Nagra-Ds. They were tied together with time code, and we were able to record 24-bit 96kHz sampling rate in quad sound. We also used the newest Schoeps 4-channel surround mic technology. I don't know how we could have done anything more sophisticated than that. The recordings are amazing.' **NICK SMITH**

MASTERING OVER ISDN has come a step closer to being the norm in mastering circles with Gloria Estefan's album, *Destiny*. Using EDnet's ZeroC system, the finished recording was approved for mastering at Bob Ludwig's Gateway Mastering facility in Portland, Maine by the artist and her producer who were attending the Academy Awards in Los Angeles at the time.

The recording had taken place at Crescent Moon studios in Miami and were sent from Hollywood's ZeroC-equipped Capitol studios via the EDnet ZeroC system to Portland in order for a few last-minute adjustments to be made. ZeroC facilitates uncompressed AES-EBU 16-bit, 44.1kHz audio transmission over primary-rate ISDN line eliminating the delay necessary to send approval copies of the master between the mastering facility and the artist. In this case, conventional mastering procedures would have delayed the release of *Destiny* (on Epic) by several weeks. Other US facilities and producers currently using ZeroC include Phil Ramone, Walter Afanasieff and Sony Music New York. **TIM GOODYER**

THOMAS DOLBY'S New-York-based Headspace operation is to provide music and audio-effects technology for the WebTV Network. RMF (Rich Music Format) technology is a platform-independent standard created to provide intelligent musical interactions in multimedia entertainment and will be licensed to WebTV as the first of a family of Internet partners. Available to both authoring and content developers, RMF allows streaming of high-quality MIDI music integrated with digital audio.

'We realised that when a viewer switches from a TV channel to the Internet, they'll enter a mostly silent environment,' said Steve

UK: Britannia Row, one of the UK's most respected studios, has recently re-opened in a new London location, having moved to Fulham from Islington. The new facility, designed by acoustics consultants Harris Grant Associates, proceeded from drawing board to completed complex in only three months.

The Islington studio's name, which was originally conceived by Pink Floyd in the mid-1970s, was purchased, along with the majority of the equipment, late in 1995 by Kate Koumi (who had managed the original studio for some ten years) and partner and Producer Jamie Lane.

The opportunity to start afresh by moving to a new building, while retaining the reputation, ethos and classic equipment of the original facility, allowed Koumi and Lane the scope for an extensive design rethink. HGA—whose current projects include facility design for Sony Music Studios (US), Olympia (Germany) and Virgin Radio (UK) among others—were responsible for the extensive acoustic and interior designs and were chosen as consultants following personal recommendations from within

Perلمان, President and CEO of WebTV. 'By bringing in Headspace, we can offer a sonic environment as rich and dynamic as television. Furthermore, Headspace's RMF technology will let each viewer have a unique musical and sonic experience, even if they know nothing about music or sound. Headspace understands that WebTV is a truly interactive medium, and that high-quality music and audio need to be employed within that context.'

Headspace can be found on the Web at: www.headspace.com
TIM GOODYER



The control room, in which a refurbished 60-channel Neve Series 51 with moving faders takes pride of place, is complemented by an extensive collection of both classic and leading-edge processing and the first London installation of the Boxer T3 control-room reference monitoring system by HGA's sister company, Coastal Acoustics.

Although eminently suitable for mixing and computer-based musicianship, the facility is destined to be attractive to those looking to make the most of the outstanding live rooms and a large in-house microphone collection.

Since completion, the facility has been solidly booked, with both new and existing Britannia Row clients taking advantage of the comprehensive technical, creative, and recreational facilities. Britannia Row: Tel. +44 171 371 5872. Harris Grant Associates: Tel. +44 1753 631022.
NICK SMITH

Contracts

◆ Poland's largest radio station, Radio dla Ciebie, has added a further two Orban DSE7000 FX DAWs to its complement of five DSE7000s. Boasting around 5m listeners, the station uses the DSE7000s in the editing of news items and subsequent direct broadcast via Enco DAD Pro. Radio dla Ciebie, Poland. Tel: +48 22 645 9363.

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

◆ The Australian Broadcasting Corporation has installed an 80-input Harrison Series 12 console for post and broadcast applications. A further Series 12 has been ordered by Australian post facility Soundfirm whose recent projects include *Babe* and *Rumble In the Bronx*. Harrison by GLW, US. Tel: +1 615 370 9001.

◆ London's Aquarium studio, home of Producer Steve Lipson, has purchased a matched pair of Neumann M149 valve mics, where they will see particular use on drum kits and cymbals.

Georg Neumann, Germany. Tel: +49 30 41 77 2424.

Sennheiser, UK. Tel: +44 1494 551551.

◆ Italy's latest postpro facility, Nautilus srl in Milan, which opened for business last month, has ordered an AMS Neve Logic 3 with 24-output AudioFile for its Blue Studio. Nautilus is expecting the new console to handle postproduction, live video post and CD mastering work. Nautilus, Italy. Tel: +392 469 2029.

AMS Neve, UK. Tel: +1282 457011.

◆ George Duke's LA studio has seen the installation of a 96-fader Euphonix CS2000D console. The desk keeps the company of Pro Tools, Otari RADAR, Mitsubishi X-850 and Genelec, Westlake and Meyer monitoring. Quoting the desk's graphics, processing and sound as reasons for its choice, Duke has already used it on projects involving Natalie Cole and Al Jarreau. More Euphonix action centres on the opening of Burbank's Front Page Recorders tracking and mastering facility which has taken a 96-fader CS2000M with DSC and 56 channels of processing.

A further recent Otari RADAR installation has fallen to Kenny Loggins' home studio in Santa Barbara while the second Status console purchase has been secured by Hollywood's Todd AO West post house, currently working on *Courage Under Fire*.

Front Page Recorders, US. Tel: +1 818 556 5095.

Euphonix, US. Tel: +1 415 855 0400.

Otari, US. Tel: +1 415 341 59000.

◆ French Teletota postpro has taken two 24-track Fairlight MFX3 systems.

Serving the joint state-funded Arte French-German station, Teletota regularly handles dual-language productions and is currently working for Disneyland Paris. More Parisian TV action sees France 3's Marseille facility installing Quested H210 monitors as a result of in-house test which saw all the engineers favouring the British monitors.

Teletota, France. Tel: +33 1 4 764 0535.

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

Quested Monitoring, UK. Tel: +44 181 566 8131.

◆ Taiwan's Family Broadcasting Company has chosen a Dalet system for its radio broadcast operation. Part of the reason for the choice lies in Dalet's networking and part in its compatibility with Windows which Family are running in its Chinese language version.

Dalet Digital Media Systems Asia, Singapore. Tel: +65 252 5627.

◆ Reuters Television has increased its quota of beyerdynamic MCE86 gun, MCE5 lavalier and M58 reporters mics. The commitment to beyer is further demonstrated through the use of DT100 headphones. Reuters are quoted as regarding all the beyer kit as 'reliable in a continually demanding environment'.

beyerdynamic, Germany. Tel: +49 7131 6170.

beyerdynamic, UK. Tel: +44 1444 258258.

◆ Denmark's newest PA rental company has bought seven B&K 4011s, four 4021s, two 4007s and two 4006s. ETP commands 95% of the Danish dance market is now pursuing the European festival season. Danish Pro Audio, Denmark. Tel: +45 48 142828.

◆ Australasian and European branches of the SAE have seen the arrival of various Focusrite Green range units. The SAE claims to be the largest audio and multimedia school in the world and is regarded by Focusrite as an ideal showcase for the new signal processors.

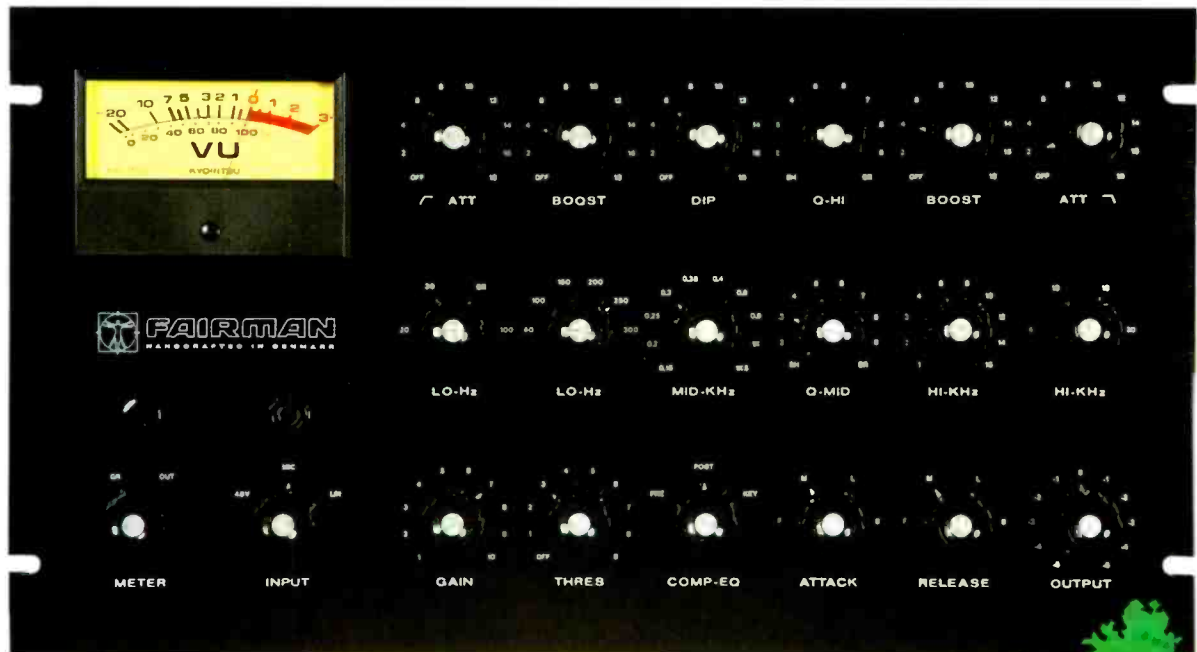
SAE, UK. Tel: +44 171 609 2653.

Focusrite Audio Engineering, UK. Tel: +44 1628 819456.

◆ Radio Kiev's main control room: the victim of a fire in February this year, will be up and running in October with a Stage Tec Nexus system featuring 200 distributed inputs and 300 outputs. Also in Germany, Musikhochschule Weimar has opted for a 64-channel, 32-strip Cantus console with dynamic automation for recording music from large orchestral and chamber works to pop and jazz.

Stage Tec, Germany. Tel: +49 951 972 2525.

BACK TO THE NATURE OF SOUND



T R C

TUBE RECORDING CHANNEL

THE UNIT FOR PROFESSIONALS WHO NEED
DIGITAL PERFORMANCE BUT WANT ANALOG WARMTH

Any recording engineer who knows and loves the qualities of the Pultec equalizer and the Fairchild compressor can easily hear the difference between Analog and Digital sound. The Fairman T.R.C. combines the tube powered filter and compressor features of these treasured units into one high quality recording channel. Digital studio owners may now achieve the warmth of Analog sound while retaining the technically efficient aspects of Digital technology.



FAIRMAN
HANDCRAFTED IN DENMARK

Distributed worldwide by: Carl Johan von Christierson
Musikhuset Aage Jensen, Landemærket 27-29, DK-1119 København K. Denmark.
Tel.: +45 33 14 89 96. Fax. +45 33 33 82 71



Galileo was right!

The problem with being a guru is that you're asked a lot of questions. People think that a guru knows everything; effectively you are not allowed not to know

Increasingly I find myself answering questions philosophically. If the answer is not to hand, then give the questioner the tools to find his own answer. Like any philosopher, the only thing I really know is how much I don't know and how unhappy I am about it. The logical inverse of ignorance being bliss if you will.

Philosophy has good and bad points. The good points are numerous and include: permanent curiosity and wonder, healthy scepticism and a belief in logic. It is also important to be a Cynic in the strict sense. As thinking is free and no-one can stop it the Cynics found happiness without wealth or power. Unfortunately the term has been debased over the years. Today it's a term used by people who can't read the writing on the wall to denigrate those who can. One of the worst consequences of being a philosopher is that one creates a good environment in which fools can display their folly. Traditionally philosophers have been badly treated by those who see power as more important than wisdom.

Philosophy began in Greece as a way of explaining man's surroundings with something a little more logical than superstition; eventually it would become science. Prior to that, everything that happened was attributed to the actions of a plethora of gods. Imagine explaining that the master tape of *The Three Tenors* concert in Wembley has a dropout because the god of magnetic tape is displeased. Clearly the same evolutionary process that gave mankind the ability to build tape recorders derived an understanding of nature which no longer needs superstition to explain what goes on.

In audio we make, or should make, good use of the division between subjective and objective measurement, yet this division is a clear descendent of Plato's division of reality into the sensory world and the world of the idea. When I assert that it is possible to convey audio in the digital domain without loss of information, that is an idea, and a valid one by the way, but when I try to explain what a D-A convertor sounds like, we're

back to sensory territory and my views apply then only to me. Despite the clarity of Plato's division, it is astonishing how many people confuse ideas with feelings. These are the people who put green ink on their CDs after soaking them in liquid nitrogen. Not the sort of thing Diogenes would have done if the Compact Disc had been around in his time. Interestingly enough Plato's Academy was closed by the church at the beginning of the Dark Ages and it was not until the Renaissance that philosophy re-emerged as science. As Groucho Marx might have put it, 'I'm not belonging to a religion that put digital audio back hundreds of years'.

Naturally, if your power base requires your subjects to believe in a specific god then philosophy could be your enemy. The more dogmatic the faith you guard, the less forgiving you will be. Anaxagoras was banished from Athens for saying the sun was not a god but a hot stone. Socrates was forced to take poison because his impeccable logic made too many people look completely stupid. Galileo got a hard time from the Catholic Church for observing that the earth revolves round the sun. You might think all that was a long time ago, but in practice nothing changes. It's only a few years since Ivor Catt was pilloried by the electronics establishment for designing a simple experiment, the results of which could not be predicted by the, then accepted, laws of electromagnetism. And it's only a few years since the Catholic Church officially accepted that Galileo was right. Within that Church the Office of Inquisitor still exists and publication of the Dead Sea Scrolls is still being blocked, presumably because they contain instructions on how to make contraceptives.

IT WAS GALILEO who laid the foundation of modern scientific approach: which consists of performing experiments to see if the results uphold or overturn theories. This was such bad news for believers in the supernatural that he had to go. It was hardly surprising that Darwin caused a furore with his theory of evolution. Yet to this day religious groups in America are trying to have Darwinism banned in schools because snakes and

apples and sin are where it's at and the unicorn really didn't catch Noah's Ark. With this exception the stuff about Eve being a spare rib has largely been replaced by people who believe in gold plated mains plugs, hi-fi wallpaper and special stones that you place on your amplifier to make it sound better. The high priests of religious hi-fi are journalists who use technical words borrowed from science in a ceremonial way which does not have to reflect their accepted meaning.

People are always going to have different theories about things.

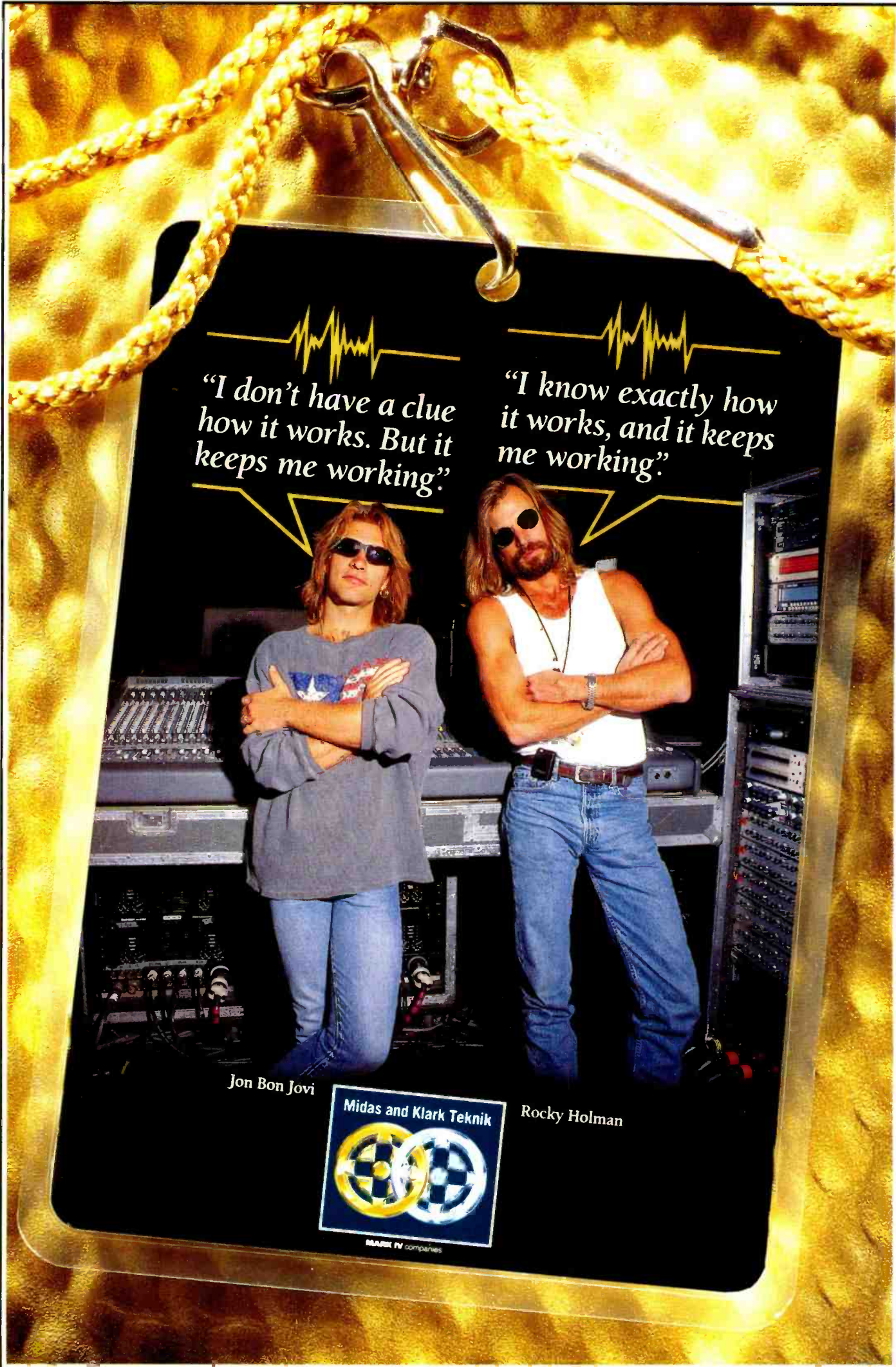
Generally if two theories are not aligned, it could be that neither theory is correct, but that a combination of both is closer to the truth. This is the process of thesis, antithesis and synthesis in

It's only a few years since Ivor Catt was pilloried by the electronics establishment for designing a simple experiment, the results of which could not be predicted by the, then accepted, laws of electromagnetism

Hegelian philosophy which I subscribe to. Of course if it is two religions that hold different beliefs, then one or both will call the other an infidel or a heretic and the solution is to burn somebody or to have a war.

The curiosity of the philosopher leads to a permanent search for the reasons behind things. Consequently when Sony stated what the bit rate of DSD was I immediately asked how they had arrived at that bit rate. If DSD is designed on scientific principles, then the bit rate would be arrived at after careful research and they would be able to answer my question immediately. Unfortunately the explanation is a long time coming. It's not easy being an iconoclast.

John Watkinson



*"I don't have a clue
how it works. But it
keeps me working."*

*"I know exactly how
it works, and it keeps
me working."*

Jon Bon Jovi

Rocky Holman



Stuck in the middle with you



American Studios are living proof that a healthy middle class is something the recording industry needs for a bright future, writes **DAN DALEY**

I should begin by saying that for the past several months, this column's theme and title has reached for some sort of cute pun on a classic song title. This came about from one column in which I did exactly that, based on a momentary inspiration (or last-minute, late-night grope for a grabber headline). At any rate, I thought no more of it than that one time. The editorial powers that be, however, thought it was the perfect compliment to a recently refurbished graphic layout to *Studio Sound*, so they encouraged the use of song titles as headlines for each issue. And as an abstract concept, it seemed like a decent enough idea.

Until, that is, you realised had to cobble together some sort of relationship between a column and a song title each month at deadline, at which point 'reaching' takes on new meanings. I mean, the irony of it was not lost on me: writing a column about the means of making music and racking our brains trying to find a classic song title that might fit that month's topic. Well, to make a potentially long paragraph a little shorter, I met up with editorial honcho Nick Smith in a Kensington bar earlier this summer, and within the space of a several pints of Guinness put to rest the whole song title concept as a good idea that had mutated into a horse that we had beaten sufficiently to death.

So what happens next when I flip open the laptop at 33,000 feet to write? The topic—the resurgence of the middle class to the US recording studio scene—causes Stealer's Wheel's old chestnut *Stuck in the Middle with You* to pop unremittingly into my brain and it will not let go. So I figure I'll give the concept one more free ride (no pun intended there, 1970's fans) before completely honouring the Kensington Agreement to bury it once and for all. But 'stuck' is rather the way the middle of this business used to be. From the late 1960s and through the next two decades the one-room and two-room owner-managed recording studio stood like a kind of 'Leave it to Beaver' of audio, a fixture on the domestic music scene that seemed would go on forever because that's what several generations of musicians, engineers and producers had grown up with. It formed the gravitational core of the nuclear musical family of the 1960s, 1970s and early 1980s, much like Ozzie & Harriet did for our visions of what home life was supposed to be like. Dad worked; Mom made the house; your younger brother was a goofy but basically good kid; you went to school and learned something or other; Dad came home from work and called either you or the dog Skipper. You grew up, formed a band, went to a recording studio, where the owner booked your time, stated your rate, assigned you an engineer and off you went. Nice little package. Well, turned out Dad got laid off at the plant and had little to say to Skipper, man or beast, between draws on a Lucky Strike and pulls on a bottomless Bud bottle; Mom became confused and withdrawn and kept dusting the same spot over and over; little brother got a tattoo, a pierced lip and a police record. And the personal recording revolution—the project studio, the home studio—rendered the nuclear recording family homeless. That scenario is in the midst of slowly but decidedly reversing itself this side of the puddle. Things will never return to the bucolic, well-ordered arrangement of yesteryear. But the notion is returning that there is a substantial need and market for the small to middle-sized recording studio that sees itself as a service-

orientated business rather than a toy box to be opened and closed at the whim of the personal muse. That broad middle class of studios that seemed so endangered a few years ago is, if not actually resurging, then reinventing itself, a facility at a time.

BOB LAWSON'S Blue Jay Recording in the Boston suburb of Carlisle remains true to that historical studio paradigm: a single room, owner-manager operation that aims at music exclusively. Lawson will concede that his approach had become something of an anachronism when many studios were following the business trends of the times, opening their own independent labels and seeking alliances with fashion-forward producers, engineers and fast-food outlets, looking to compete with project studios. But his 16-year-old studio is thriving, he says, perhaps for that very reason, selling to a niche that others have abdicated.

'We've become unique in this town because this is a studio that you come into and simply use to make music; the ownership and management isn't going to become involved in your career other than providing a great place to make your record,' Lawson says. 'There's something to be said for a professional approach to providing a quality recording studio

space and not being the producer on the record. When you're getting involved in other aspects of your clients' careers, the service that you provide as a studio can suffer.' And while he's not ruling out consideration of other options, including starting a label, he's not averse to the appellation 'middle class.' Neither should anyone else in his circumstances be. Lawson puts it elegantly and succinctly when he says that perhaps the industry here is ready, once again, for a level of service that isn't based on some creative relationship between studio and client other than the studio providing a facility, that a relationship predicated on a pure quid pro quo, money-for-time basis is just what the doctor—or producer or engineer or musician—ordered. In a very real sense, when the personal studio is factored in, the studio industry as a whole in the US is still going through a sort of mid-1980s mentality, an ego-based phase of development that's lagging a bit. It's possible that the grim economic times that regular studios have gone through in the past decade have scared off a lot of those who might have skipped the personal studio stage or moved out of it faster from entering the shopkeeper level of the business. But, for one reason or another, it now appears that an evolutionary turn of events is bringing some of them into just that state, and is also providing a greener horizon for those who stuck it out. And, as any economist or politician of a capitalist mind-set will tell you, a healthy middle class is something any industry needs for a bright future. **S**



Stealer's Wheel: it's amazing what a Tarantino movie can do for your career

The 90s restoration



As digital processing systems become more powerful and sophisticated, their use in the 'restoration' of old recordings grows, writes **BARRY FOX**

Old jazz recordings are ideal for reissue. Whereas classical orchestral performances had to be broken into 3-minute segments, which sound clumsy when strung together on a CD, jazz improvisers timed their performances to suit the playing time of a shellac disc.

There was no opportunity for a soloist to drivel on for a dozen choruses, playing scales at breakneck speed.

Even though music copyright can now last for 70 years after the death of the composer in Europe, mechanical copyright on a recording expires after 50 years. This means that no royalties are payable on studio performances recorded prior to 1946. Those were pre-tape days and there will usually be no disc masters available in good condition. Short-cut merchants copy old LPs, which were themselves cut from tapes made from 78s, so the sound is usually very poor. Consequently, the trick is for the record company to find a collector with good quality originals or for a collector to get involved in reissuing.

The quest for an original pressing is well worthwhile because often the studio recording captured much higher fidelity than the playback equipment of the day could reproduce. Modern equipment can retrieve all the recorded quality, but it is blemished by the steady background hiss and bursts of crackle caused by the constituents of shellac and the random clicks and pops caused by damage to the grooves.

Also, all old recordings were made in mono, usually in dead studios. So they sound 'different' to modern ears, accustomed to hearing stereo with ambience. To process or not to process, that is the question? And how much processing to do?

British record company Avid recently started a high-profile publicity campaign for its new reissues. 'At last recordings from the 1930s, 1940s and 1950s can be listened to as they were originally intended,' says Avid, provocatively quoting David Mitson of Sony Music as describing previous techniques as 'frauds... detrimental to the original source mono'. Meanwhile Robert Parker—an Australian broadcaster who has for more than ten years been releasing old jazz on CD, originally through the BBC's own record label, now through New Note—accuses Avid's CDs of having 'lost fine instrumental detail' with vocals taking on a 'goldfish bowl' sound.

All the engineers working on re-issues agree on the need to remove loud transient clicks. Most use CEDAR, the system developed from research done for Britain's National Sound Archive. There is agreement too on the need to check and correct pitch, where the disc was cut at off-78rpm speed. This is quaintly ironic. Europeans routinely distort pitch by running 24fps movies at 25fps; and US radio stations tweak the speed of pop records, especially ballads, by a few percent to make the songs sound brighter and the artists sound younger.

RERELEASE ENGINEERS certainly cannot agree on how much hiss and crackle to remove, whether to add artificial echo, or how best to create an illusion of stereo. Robert Parker leaves some hiss and crackle in the music, arguing that a computer cannot distinguish it from musical harmonics and transients. Parker does, however, add artificial reverberation. He says it makes an old studio recording sound more like a club performance. David Bennett, who engineers Avid's reissues, removes more hiss but adds no echo. He uses

a stereo synthesis system developed by Richard Broadie, a musician and audio engineer from the US. Richard Broadie is opposed to adding echo, too.

Parker synthesises stereo by comb-filtering. The mono sound channel is split into two halves and each half passed through a filter which sucks notches from the sound. The notches of one channel are at frequencies which match the untouched frequencies in the other channel. So all the original musical energy remains, but it is divided between the left and right channels. This mimics the effect on live sound heard in a concert hall, when sound reflects off the walls, cancelling at some frequencies and adding at others.

When comb-filtered sound is reproduced from two loudspeakers, there is an illusion of stereo spread, with high and low-pitched instruments, like tuba and clarinet, appearing at slightly different positions. If the playback amplifier is switched to mono, the combs should mate to reconstitute the original.

Richard Broadie refuses to say how his stereo system works, other than to talk about using algorithms developed over many years of research. But his US patents (numbers 5,056,149 and 5,394,472) give a very full description: the mono signal from the original disc is split into four channels. One is fed through a digital circuit which delays the sound by a few tens of milliseconds. Another channel is fed through a similar delay circuit, but it is also inverted in phase, so that musical peaks and troughs are reversed. The third and fourth channels are left undelayed, but passed through different adjustable volume controls. The four channels are finally combined into two, to give a stereo pair. The left channel is made by adding one delayed and one undelayed signal. The right channel is made by adding the other undelayed signal to the signal which is both delayed and inverted.

The guiding principle, says Broadie, is that the delayed signals are always stronger than the undelayed signals. He claims that this fools the human ear into hearing stereo. People who do not like the effect can simply switch their amplifiers to play in 'mono'. This combines the left and right channels, and because all the added effects are in opposite phase, they cancel out.

Not so, says Parker, arguing that the result is a phase effect which makes voices sound as if they are singing from the inside of a bowl.

I am staying out of the debate. In most cases I am more interested in the music than what modern technology can do to it. Record buyers will have their own preferences, too. As both sides in the dispute are working with much the same public domain material, the obviously sensible step would be for the two record companies to agree a common menu of sample tracks and each issue their own processed version. Record buyers could then use their own ears to decide which approach they prefer and buy accordingly.

But while they are at it, could the record companies please also issue a third CD, with no processing at all except the removal of damage clicks and pops. The human ear and brain do a remarkably good job of filtering out steady-state noise, and extracting image direction clues from the phase relationships that are captured from a simple mono mic.

Who knows, record buyers might find they prefer the unsullied sound of the original. Then the record companies can save themselves a lot of time and mono on electronic processing. Ⓢ

In 1991
 the Alesis ADAT
 changed the way
 you think about recording

Think
 Again

How do you improve on the most successful professional multitrack tape recorder of all time? Listen to your customers. Do some heavy thinking, and...

Make the transport four times faster and put it under constant software control. Incorporate advanced onboard digital editing



with track copy, auto punch, track delay, tape offset, 10-point autolocator, rehearse mode and more. Use the latest oversampling converters for the ultimate in digital audio quality. Design a beautiful vacuum fluorescent display that provides all the critical information. Wrap all this well-thought-out technology in an utterly professional six-pound solid die-cast aluminum chassis. Of course, make it 100% compatible with over 70,000 ADAT's already in use worldwide. Introducing the new, definitely improved ADAT-XT™ 8 Track Digital Audio Recorder. Consider it a think tank for your creativity. See your Alesis dealer. Don't think twice.

4 Times Faster
 Intelligent Transport
 Onboard Digital Editor
 Onboard Autolocator

adat XT

For more information about the ADAT-XT, see your Authorized Alesis Dealer or call 310-841-2272.

© Alesis and ADAT are registered trademarks; ADAT-XT is a trademark of Alesis Corporation.

Alesis Corporation 3630 Holdrege Avenue Los Angeles CA 90016 310-841-2272 alec corp@alesis1.usa.com

ALESIS



Sound Technology plc
 Letchworth Point, Letchworth, Hertfordshire SG6 1ND
 Tel: 01462 480000 Fax: 01462 480800
 http://www.soundtech.co.uk

ISDN calling Asia



ISDN may be a familiar concept to us now, but it has yet to penetrate the Far East as a day-to-day technology writes **PATRICK CULLEN**

Just imagine sitting in an edit suite in Singapore, a TV voice-over session is about to begin, the VTR machines are on standby and the crew are all fired up and ready to go. But the voice-over booth is empty with no performers. No, they haven't missed the flight, nor are they stuck in traffic. They are standing by in a studio suite—10,000 km away in London, scripts and auto-cue all set up and ready to go. The dubbing session ends, tape checks okay, and for everyone it's a simple taxi ride home. The magic of ISDN.

Telecoms suppliers in South-East Asia have also kept ISDN costs and tariffs as low as possible in an effort to encourage take up. In Kuala Lumpur ISDN installation is RM 250, with a monthly rental-charge of RM 140 per BRI (Basic Rate Interface) line. Call charges are approximately 1½ times that of existing analogue phone charges

Over the past few years more and more broadcasters and postproduction houses have been using switched digital telecommunications to get their audio from one place to another. Switched digital services have largely replaced satellite

communications as a more economical method of point-to-point transmission of high-quality audio. For about the cost of a phone call you can send broadcast quality and CD-quality audio to anywhere in the world equipped with ISDN.

ISDN (Integrated Services Digital Network) is a telecommunication network being introduced on a worldwide basis by PTT's and is seen as an eventual replacement for the PSTN (Public Service Telephone Network). Completely digital it offers high-speed communication between users (subscribers) on a dial-up or switched basis. ISDN offers the ability to have dial-up wideband programme circuits, with no equalisation required from remote studios and outside-broadcast locations.

Broadcasters and studios in a country blessed with an ISDN infrastructure have the availability of CD-quality, wideband audio with full duplex (or 2-way working) for STL's and OB's. An ISDN network which is also connected internationally brings opportunities for the programme maker to use venues and locations on a worldwide basis.

ISDN, we must remember, is nothing more than a data transmission path. To use this channel for sending audio you must turn your analogue audio into a digital bitstream. A device that encodes and decodes audio into data is called a codec (short for coder-decoder). A codec is inserted between conventional audio equipment and the terminal equipment for the switched digital network.

There are many different protocols for encoding digital audio. For example, the stereo audio on a CD uses linear 16-bit PCM encoding with a 44.1kHz sample rate, which produces data at a rate of about 1,400kb/s. This is much

more than can be carried by a switched digital network. By using a specialised bit-rate reduction (or 'data compression') algorithm, however, this data can be converted by the codec into a lower bit rate, allowing it to be transmitted over available switched digital channels while retaining fidelity.

apt-X100 is designed to compress a linear PCM signal with no apparent loss of quality. Implemented on a single DSP chip this compression algorithm is suitable for the real-time transmission and storage of high quality audio in mono, stereo, or multichannel configuration. A proprietary algorithm, researched and developed into a low complexity full duplex package apt-X100 operates at sampling frequencies up to 48kHz, with a fixed compression of 4:1.

The apt-X100 predictive approach to compression is recognised throughout the world as a safe and robust process. It is renowned for its extremely short processing delay, immunity to the vagaries of telecommunications networks and most important its ability to maintain audio quality through a number of passes of compression.

A new stable companion is apt-Q which extends the boundaries of data compression even further. Only recently introduced in a joint venture with telecommunications giant, AT&T, this more aggressive psychoacoustic algorithm is being developed on two practical levels aimed at the ISDN user. 15kHz stereo can be delivered on a data channel as low as 56 kbit/s at 18:1 compression or 20kHz stereo on 128 kbit/s with 12:1.

IN ASIA ISDN is still in its infancy. National telecommunication suppliers throughout Asia have embarked on ambitious plans for ISDN coverage. In Malaysia for instance, Telekom Malaysia are hoping to have 8,000 lines installed by the end of the year, with a reduction in ISDN tariffs one way of prompting demand. In Singapore ISDN coverage is complete and a number of recording studios including Sichtung and Speakeasy Digital, are getting hooked on this new way of working.

ISDN in South-East Asia has traditionally been marketed towards large corporations, including banks, who use it for back up to existing leased line facilities and for Local Area Networks (LAN's). Now, with a growing broadcasting and postproduction market in South-East Asia demand is starting to come from broadcasters and post and recording studios. In Kuala Lumpur, Synchrosound is one studio that has ISDN facilities available for its clients, recognising the advantages that such a system brings in term of cost and speed.

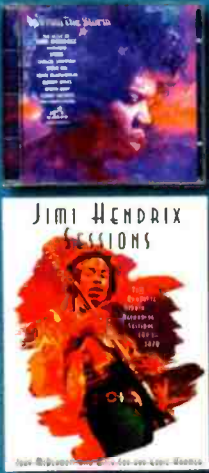
Telecoms suppliers in South-East Asia have also kept ISDN costs and tariffs as low as possible in an effort to encourage take up. In Kuala Lumpur ISDN installation is RM 250, with a monthly rental-charge of RM 140 per BRI (Basic Rate Interface) line. Call charges are approximately 1½ times that of existing analogue phone charges. In Bangkok the installation charge is 3,700 baht, with a monthly fee of 100 baht. Compare this to UK where the cost of installation is £400 sterling.

As the European and American experience has proved ISDN can work for broadcasters and recording and post houses. It offers advantages in terms of cost, efficiency, and ease of use. It is a new method of working that opens up possibilities at all levels of production, whether it be the broadcasting of a symphony orchestra or a voice over for a commercial. Used sensibly it can be used to transmit audio around the globe, or around the corner. ☺

INSTEAD OF BRAGGING ABOUT OUR 8•BUS CONSOLE AGAIN, WE THOUGHT WE'D BRAG ABOUT EDDIE KRAMER BRAGGING ABOUT OUR 8•BUS.

Okay, bragging is too strong a word. But we are very proud when one of the most important rule-breaking producers in recording history has become a Mackie 8•Bus fan.

After all, Eddie Kramer's role in the making of popular music has changed its sound forever¹. His recipe? "Make a record unlike anything that's ever been heard." So, while other engineers in London were churning out England's formula Pop of the Day, Eddie Kramer was across the console from a strangely-dressed young man from Seattle named Jimi Hendrix. Together, they broke practically every sonic and musical rule in sight. The result was an aural legacy of such originality that it still sounds amazing — even revolutionary — a quarter century later.



Sample Eddie's latest work on "In From The Storm."



a brilliant orchestral homage to Hendrix with an astonishing array of some of the best players in the world. Leave it to Eddie to break more rules. (Net surfers should check out the **RCA VICTOR** Web Page @ <http://rcavictor.com>.) For a great read, pick up the *Jimi Hendrix Sessions* book by John McDermott with Billy Cox and Eddie Kramer (Little Brown), and on video, *Adventures In Modern Recording* (available from Mix Bookshelf, 510-653-3307).

Eddie hasn't gotten any more conservative over the years. So it's not surprising that a man with Kramer's receptiveness to change would add a 32•8 to his creative arsenal. A mixing console that costs hundreds of thousands less than those he's worked on for most of his awe-inspiring career. A console he says he likes for its "...sweet EQ...dynamic range, and cleanness."



1. Including Hendrix, Led Zeppelin, Kiss, Buddy Guy, and more recently, his work with other Mackie mixer owners: Sting, David Abbruzzese, Vinnie Colaiuta, Stanley Clarke, Tony Williams, Steve Vai, and Carlos Santana.

2. He hates the location of the 8•Bus' talkback button.
3. According to Eddie, Eric Shenkman (Spin Doctors), Little Red Wagon Mobile Recording Studio, Bootsy Collins and John McEnroe have purchased 8•Bus consoles at his urging.



Eddie wanted to do more than just take advantage of the creative and lifestyle options afforded by the project studio revolution. He also wanted to help DRIVE it. So a year ago, we agreed to lend Eddie a 32•8 in return for his feedback. Since then, we've learned Eddie is not shy about expressing his opinions. Luckily they're mostly good².

And Eddie Kramer recommends Mackie consoles to his associates, too³. In these cynical times (when pop stars accept millions to "endorse" products they admit later to having never



tried), we at Mackie Designs think that's the only kind of "endorsement" worth having.

If you're in the market for a serious but affordable mixer, we hope you'll take a close look at the only 8-bus console Eddie Kramer says is worth having.

MACKIE™

Mackie Designs Inc • Woodinville • WA • USA ☎ 206/487-4333 ♥ 206/485-1152
Internet 🌐 sales@mackie.com

Oram Sonics BEQ SERIES 24

The 'father of British EQ', John Oram, has returned to console design, but now he is putting his own name to the work.

DAVE FOISTER lends a critical ear to a classical design intended to come in at less than a 'classic' price

THE COLOURFUL FIGURE of John Oram has been ever more visible in the industry over recent years. Keen to remind the world of his involvement in the creation of some of the classic British consoles of the 1970s, and proud to pass on the description of him as 'the father of British EQ', he has applied his undeniable expertise to the design and manufacture of a small range of outboard units, the flagship of which is his successful High Definition EQ (*Studio Sound*, March 95). A scaled-down version of the EQ features in the Microphone Work Station (*Studio Sound*, August 95) alongside high quality microphone preamps, and this, too, has received much acclaim, particularly in the States, where retro British EQ designs remain hugely popular.

It was inevitable that in time the wheel would turn full circle and Oram would be designing consoles under his own name. This has now come about, with two basic configurations available and already doing well, again particularly in the US. The smaller of the two is an 8-bus console designed to pitch in above the Mackie market, while the high-console ground is held by the 24-bus system known as the

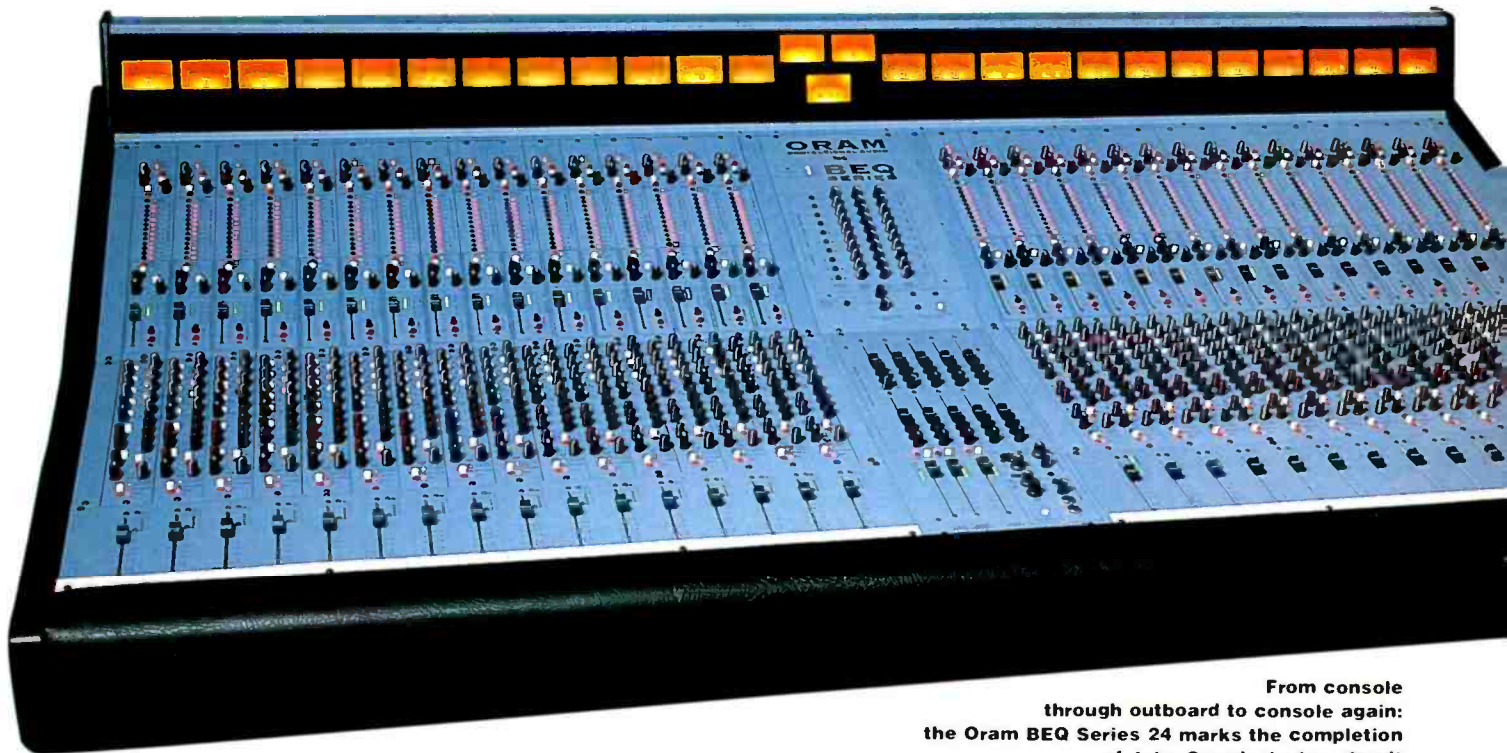
BEQ Series 24.

The Series 24 is, unashamedly, a retro design in terms of its appearance, and also in a way in terms of its all-analogue circuitry and choice of features. This does not mean that it is content to simply reproduce a 'standard' package in a pretty colour with some mystical Oram fairy dust sprinkled on it; instead a hard look has been taken at what such a console really needs and how best to lay it out.

The result dictates, in conjunction with the blatant appeal to lovers of vintage desks, the console's striking appearance. Oram's pale-blue finish is already his trademark, and the console takes this a stage further by adding a matt finish over the several layers of blue paint and the silk screening to create a glare-free surface which is claimed to be stain-proof. The deliberate avoidance of fashionable colours combines with an unusually wide module size to produce a control surface which in every way flies in the face of modern trends by being big, spacious and characterful. The standard knobs are black plastic with red or white pointer lines, but metal knobs in brass or aluminium in two different sizes are available as options,

echoing the big hand-turned knobs on the Oram outboard units. This is indicative of the customising options on the Series 24, which also include special paint finishes, integral racking for outboard equipment, and a willingness to discuss any special requests in terms of facilities and design. This is not a take-it-or-leave-it console where what you see is what you get whether it suits you or not.

Having said that, what you do get as standard offers unusual flexibility that should meet most people's needs even if they haven't thought of them yet. The basic structure is in-line, with 24 buses, direct outputs on all channels, and a choice of frame sizes holding 24, 32 or 40 channels—other sizes are available to special order up to 120 channels. The main channel-path begins with the same microphone preamplifier that forms the front end of the Microphone Work Station. This is a particularly high-quality preamp, good enough to be used as a better outboard alternative to many console-installed preamps, and its inclusion as standard in the Series 24's signal path sets the tone for the quality to which the desk aspires. The separate line input can



From console through outboard to console again: the Oram BEQ Series 24 marks the completion of John Oram's design circuit

unusually (but not uniquely) be used along with the microphone input if required, feeding both signals into the main channel-path with their mix set by the input-gain controls. No pad is fitted to either input, but as the microphone input can handle line levels up to +22dBm this is hardly a problem. Phase reverse applies to both sources, and phantom power is individually switchable. The channel's peak light also appears here, and is placed immediately after the trim controls,

an unusual arrangement normally avoided because of the chance of heavy EQ boosting the signal into distortion. Oram's approach is to show peaks before any processing, but with enough headroom (18dB)

after the peak indication to allow for whatever might follow without the need to readjust. This would not be possible without a very low noise-floor as it potentially wastes several dB of headroom, but the Series 24 prides itself on its noise performance, quoting an EIN of -128dBu, 20Hz-22kHz.

Routing switches are placed below the input stage on the basis that they are generally set-and-forget controls, leaving space nearer the large fader for EQ and Auxes. Before that comes the small fader, which operates either as a submaster or a tape return or can take its signal from the microphone preamp. It has its own simple but very effective 2-band EQ and L-R bus panning, and the usual fader flip facility; its Aux-EQ flip function is a little more flexible than some. It swaps the main channel EQ in the small-fader path and giving the 2-band EQ to the large fader, and splits the Auxes in two, leaving three mono and one stereo per path.

The quicker ones will have worked out that without this sharing between paths the channel has eight sends altogether, two of which are stereo and pannable independently of the channel pan. All are individually switchable between pre and post fader, and further flexibility is provided by a splitting of the auxes

across the desk which may be unique. Being an in-line design, the Series 24 has equal numbers of channels either side of its central master section, and a central aux-master matrix

can treat the two halves separately or combined as required. This means that all the Aux 1s from the left-hand half of the desk can feed one destination while the Aux 1s from the

right-hand side go somewhere else, or the two halves' Aux 1s can be summed to form the same send. This choice of split or combined operation is individually set for each aux, and both routes can be used at the same time. The upshot is that the apparent 10 auxes could theoretically be feeding up to 30 destinations simultaneously. Using the system to these lengths would require a lot of forward planning and it is hard to see a real application for the full setup, but it is not

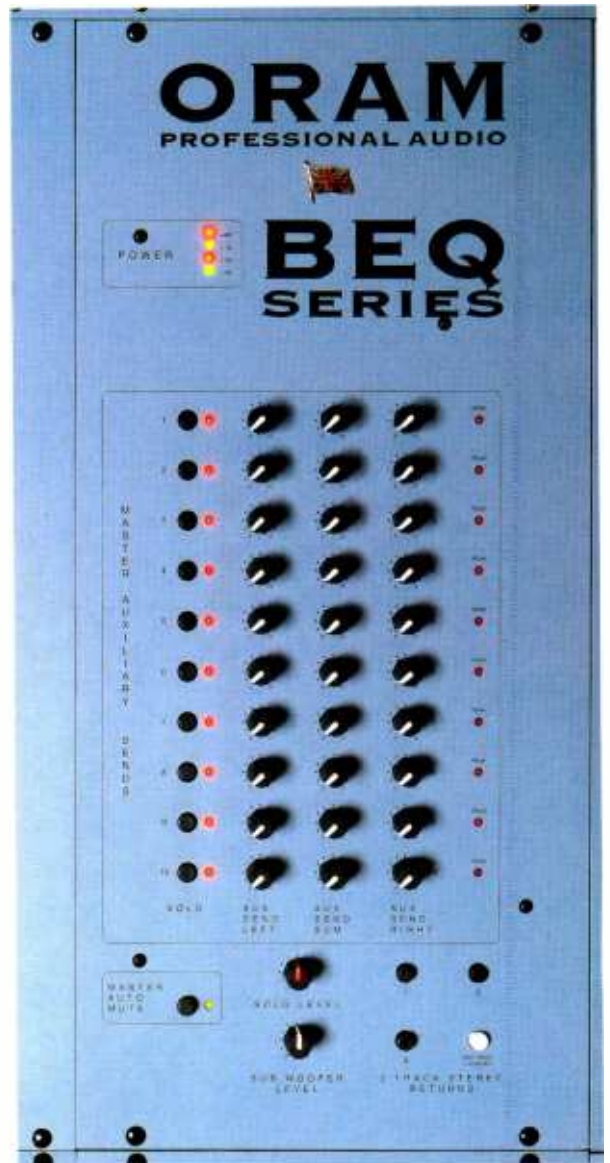
An unexpected luxury is a swept high-pass filter control going as high as 200Hz, and this is complemented by a switched low-pass filter rolling off above 9kHz.

unlikely, for instance, that drums would all be on one side of the desk and strings on the other, in which case the drum channels' aux 1 controls could be treated as completely separate from those on the string channels and be sent to a quite different reverb. It is easy to see several uses like this, making the idea much more useful than it might appear at first sight.

Almost the lowermost section on the channel strip is the main EQ, which again is lifted straight out of the Microphone Work Station. John Oram's reputation stands on his EQ designs, and so firmly does he believe that they constitute his sound that he calls his special approach EQ Magic™. Even the 2-band circuit normally used with the small fader carries this tag, and the sound it produces despite its simplicity justifies its being regarded as something a cut above the average. This is not just a rudimentary borrowed circuit stuck on for the sake of being able to say that both paths have EQ, but a very musical and useful pair of tone controls.

The main EQ is, of course, much more comprehensive, offering four bands with two overlapping swept mids and two switched turnover frequencies for each of the high and low shelving bands. Bandwidth is fixed, but again the relative simplicity of the controls must not be taken to suggest a basic EQ. The quality and musicality of this equaliser is in a league above the typical 4-band swept job stuck on most budget consoles to keep the cost down; it has a smooth sweet sound which can provide subtle enhancement or correction if that's what's needed, but has enough range and power to get aggressive and drastic as well. The only reason you'd need outboard EQ with the Series 24 is if the job needs more detailed control than these six knobs can give—in terms of sound it can compete with the best.

An unexpected luxury is a swept high-pass filter control going as high as 200Hz, and this is complemented by a switched low-pass filter rolling off above 9kHz. This itself is unusual in its implementation as it is not just a simple filter put in after everything else, but a whole series of filters throughout the



Panel detail from the BEQ 24 showing the Master Aux sends

signal path, all switched in together. This is intended to help reduce the effects of RF in a channel more than conventional filters, even in very hostile environments. The two filters are switched in and out along with the main EQ with a single switch.

The pan pot is at the bottom, and alongside it is another surprise. Every channel has a simple gate, designed with typical Oram simplicity and disregard for convention. It only has one control, for the threshold; attack time is very fast indeed, of the order of 80 nanoseconds, and release time depends on how high above threshold the signal reaches. Cut-off when closed is about 90dB. The circuit is ludicrously simple, shunting the signal to ground via two parallel transistors to close the gate, but when it is open it is claimed to have no more distortion than a resistor. The biggest surprise is how effective it is and how easy it is to set it up to achieve the desired result. It's no substitute for a fully-featured outboard gate for more tricky tasks, but there are many jobs it can tackle perfectly happily on its own, making it well worth having under the fingertips like this.

The same gate circuit is used to mute the channel, and allows the provision of a



Master Aux Returns, solo and mute and talkback details

master mute facility where pre-selected channels can be muted from the central section; it also means that each channel has a connector on it for mute automation. The gate itself follows the placement of the large fader, dropping into the tape-monitor path if the faders are flipped. Faders are Alps as standard with P&Gs as an option, and both faders have LED meters alongside them showing signal levels post fader; I'm more used to pre-fader-level indication, but, perhaps, both have their uses. Solo is nondestructive stereo in place.

It can be seen from this that the apparently simple conventional appearance of the Series 24 conceals a surprising degree of flexibility. Each channel effectively has three inputs on mixdown, and although one of these is nominally for microphones and there are only two paths, there are occasions when the mic input, with its huge headroom, could be used to double up BVs into the same channel, for instance. Certainly the EQ provision and the aux flip-split arrangement allows a 24-channel desk to give a more comprehensive 48-input mixing capability than most. The console has already seen live use, with its various sections providing simultaneous multitrack recording, FOH mix and mono feed for live radio transmission.

THE CENTRAL SECTION contains the aux matrixing controls, three stereo tape returns

and ten mono aux returns, each with a pan pot and the same 2-band EQ as on the small faders. Separate left-right bus masters are joined by a dedicated mono output fader, and all three have mute and solo. Monitoring and talkback controls are right under the hand, so much so that the position of the momentary TALK button worries me a little. Talk destinations have to be chosen one at a time and cannot be grouped, but are joined by a dedicated reverse talkback system. The low-

It can be seen from this that the apparently simple conventional appearance of the Series 24 conceals a surprising degree of flexibility

distortion oscillator, complete with pink-noise output, shares the Talkback routing controls. Control-room speaker muting is provided, but no dim function, although the one could be converted to the other if required.

A final surprise is the presence of an output for a subwoofer, derived from a built-in crossover and with its own level control. The crossover frequency is factory set at 150Hz with smallish main monitors in mind, but can be altered to suit the chosen system.

The meter bridge carries a vu meter for each bus, directly above the relevant channel, plus two for the stereo output and a final mono meter. Its presence, and the fact that the channel strip is angled in the middle, make the desk's size quite substantial, and the back panel is therefore more than big enough for separate connectors for everything. Despite the appeal of multis, Oram decided individual XLRs and jacks were more in line with the target market for the Series 24 and

NEW !!! The "quick lock" Speakon®

Nothing is perfect but we are getting close:

- * A new locking device does away with the original cumbersome locking ring and the associated "double locking action".
- * It's fully compatible with present versions and virtually "foolproof".
- * All other features remain unchanged: Robust, field serviceable, multifinger high current touch proof contacts, excellent strain relief, UL and CSA recognized.



We are setting standards



NEUTRIK

CONNECTING THE WORLD

NEUTRIK AG
Liechtenstein
Tel 015/2372424
Fax 075/2325393

NEUTRIK Zürich AG
Switzerland
Tel 01/7340400
Fax 01/7343891

NEUTRIK UK Ltd.
Isle of Wight
Tel 0983/811441
Fax 0983/811439

NEUTRIK USA Inc.
USA
Tel 908/9019488
Fax 908/9019608

NEUTRIK Dept. of SCJ
Japan
Tel 03/54112551
Fax 03/54112527



THE PROFESSIONAL'S AUDIO COLLECTION

Mark IV Professional Audio Group is much more than just a new name. It's the name behind a unique collection of sound reputations. Yours and ours.

To develop those reputations for the future, Mark IV PAG aims to build on the innovative ideas and design talents of DDA, Electro-Voice, Klark Teknik and Midas.

With a single team, listening to you at every step, you'll find your views reflected in an exciting, evolving collection of audio technology.

And when you're on the road, Mark IV PAG's internationally co-ordinated professional back-up service puts fast technical support and rapid advice at your disposal.

Our latest audio technology includes the DDA

Q11 VCA and compact CS3 consoles. Newly enhanced Electro-Voice MT PA systems. Klark Teknik's DN6000 analyser. DN3600 programmable graphic equaliser and remote controller. And from Midas, the acclaimed XL4 and XL200 live performance consoles.

For more details of the professional's audio collection and our international support services, contact Mark IV Pro Audio Group today.

MARK IV. THE NAME BEHIND SOUND REPUTATIONS



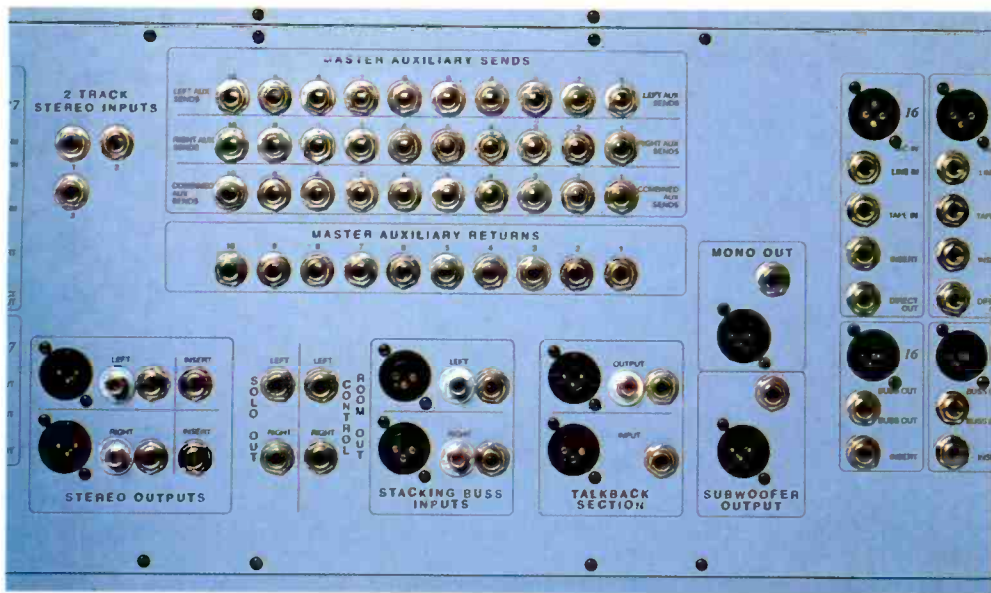
THE MARK IV PROFESSIONAL AUDIO GROUP



MARK IV PRO AUDIO GROUP, KLARK TEKNIK BUILDING, WALTER NASH ROAD, KIDDERMINSTER, WORCESTERSHIRE DY11 7HJ, ENGLAND. TEL: (01562) 741515 FAX: (01562) 745371.
 MARK IV PRO AUDIO GROUP, 448 POST ROAD, BUCHANAN, MI 49107, USA. TEL: (616) 695 4750 FAX: (616) 695 0470. TOLL FREE WITHIN USA: 800 695 1010.

www.americanradiohistory.com

REVIEW




BEQ Series 24, rear-panel detail

It would make for a simpler installation in the kind of studio it is intended for. All ins and outs are electronically balanced, often on TRS jacks, with the exception of the insert points which are unbalanced on the same jacks. All channel paths, sub masters and outputs have inserts, and jumpers on the boards determine whether the channel inserts come before or after the EQ.

The boards themselves are unconventional in making almost exclusive use of surface-mount technology. Oram has been an enthusiastic

advocate of surface mount for some years, in the face of considerable opposition, and believes it has audio advantages brought about by the lower stray capacitance and the opportunity it provides to put more physical distance between mutually hostile circuit blocks, all of which can reduce crosstalk. As an acknowledgement that surface mount components are not readily replaceable by on-site maintenance people, many of the chips have adjacent holes in the board ready to accept the full-size equivalent in the event of failure.

Another reassuring safeguard is the fact that every desk comes with a spare pair of channel modules—the upper and lower halves—and a prepaid FedEx box for sending the old ones back to Oram in for replacement under a guarantee which lasts two years.

The clear philosophy behind the Series 24 is to provide an upgrade path for those studios who have outgrown, or become dissatisfied with, their budget consoles but can't afford the leap to the top-end models. The console provides a good selection of features in a well-laid-out format, but above all offers a quality of signal path comparable with the best. You might expect to find this much functionality on a desk at this price, but not with this much attention to detail and pride in its audio specs and performance. Oram has plans in the pipeline for an automated, recallable console at a very interesting target price; he expects to sell it primarily on its sound, with the automation as an extra, rather than the other way round as is usually the case. He remains a firm believer that the sonic performance of any piece of equipment is its most important factor, an idea often forgotten these days, and the Series 24 amply demonstrates his success in proving what can be done. 

CONTACTS

ORAM PROFESSIONAL AUDIO
 The Old Forge, Hook Green, Meopham,
 Kent DA13 0JE. Tel: +44 1474 815 300.
 Fax: +44 1474 815 400.
 E-mail: 101325.1646@compuserve.com



RICHMOND FILM SERVICES

Tel: +44 (0)181 940 6077 Fax: +44 (0)181 948 8326

THE HIRE COMPANY
 OTHER HIRE COMPANIES HIRE FROM !

NAGRA-D

Only
 £60
 per day



£240 per
 week

**THE BEST NEED NOT BE
 EXPENSIVE !**

EXHIBIT AT THE MEGA EVENT IN INDIA

At Pragati Maidan, New Delhi, India
 December 8 - 11, 1996

BROADCAST
 CABLE & SATELLITE
 INDIA '96



Broadcast Cable &
 Satellite India '96
 Pro-Audio India '96
 Lighting India '96
 TV India '96



COMMUNICATIONS
 INDIA '96

Communications
 India '96
 Networks India '96
 Wireless India '96

For further information, please contact the Organiser :



Exhibitions India

C-390, Defence Colony, New Delhi 110 024, India
 Tel : + 91-11-462 2710, 462 2711, 464 7688
 Fax : + 91-11-463 3506, 464 8692
 E-mail : india.exhibit@access.net.in



The Soundcraft DC2020 (Now available in 3D)

DC2020 SURROUND

Already making a name for itself in the world of post production,

our DC2020 just gained a whole new dimension. Surround Sound.

Thanks to a brilliantly integrated version of the renowned Magtrax™ system, the DC2020 Surround provides fingertip control of up to 24 record/replay channels plus dedicated mix channel monitoring and metering.

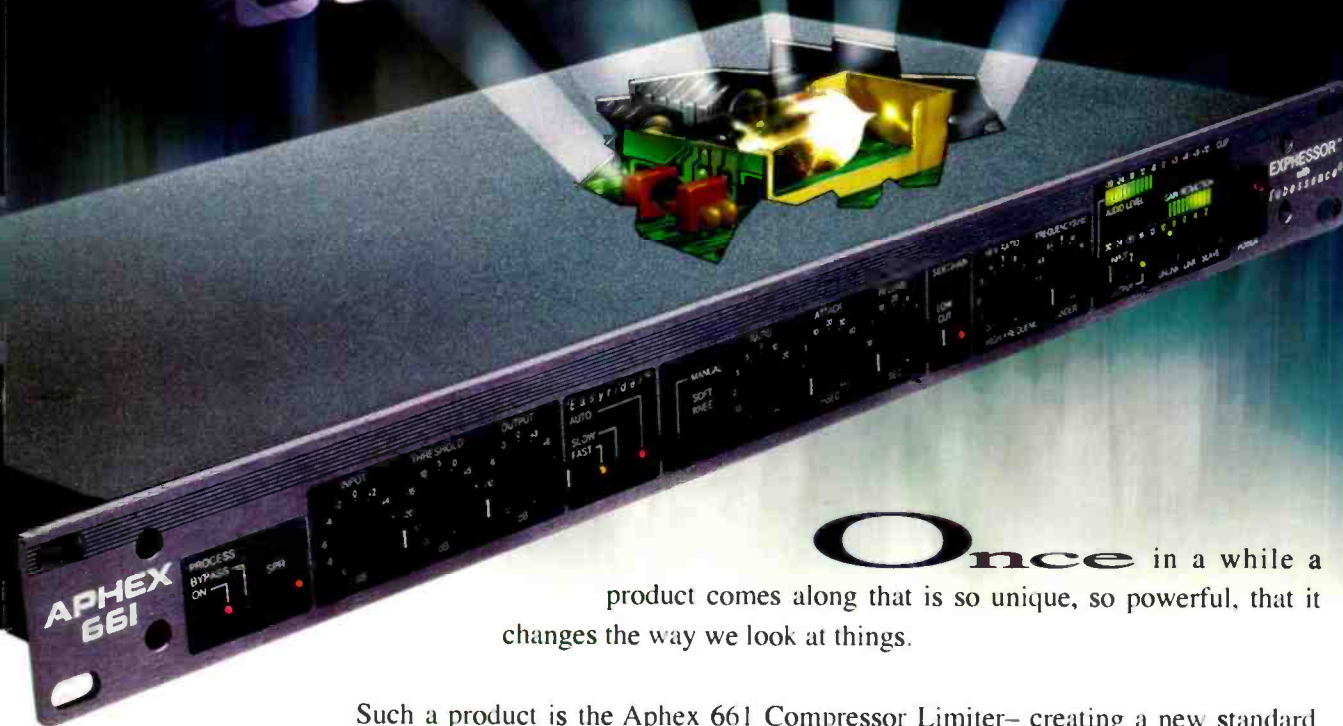


Meanwhile, a compact external rack interface handles all additional audio connections without the need for re-patching.

And all this in addition to the moving fader automation, touchscreen driven machine control, video sync and on-board hard disk storage.

Discover more about the DC2020 and DC2020 Surround by calling +44(0)1707-668143 today.

APHEX TUBE COMPRESSOR



Once in a while a product comes along that is so unique, so powerful, that it changes the way we look at things.

Such a product is the ApheX 661 Compressor Limiter—creating a new standard by combining four ApheX inventions. A skillfully engineered instrument of unprecedented flexibility, ease of use and sonic excellence.

Tubessence[®] - true vacuum tube technology and warmth; High Frequency Expander (HF^x)[™] for automatically retaining the high frequencies lost during compression; Easyrider[®] circuitry for an Auto mode that really works; and the world's best VCA - the ApheX 1001, the fastest, most accurate and transparent available.

The ApheX Model 661 - another revolutionary step toward improving the way the world sounds.

APHEX SYSTEMS

Improving the way the world soundsSM
11068 Randall Street, Sun Valley, CA 91352 • Tel: 818-767-2929, Fax: 818-767-2641

INTERNATIONAL DISTRIBUTORS

Africa

Egypt
Alpha Audio
Tel: (202) 245-6199
Fax: (202) 247-8969

South Africa
That Other Music Store
Tel: (27-11) 403-4105
Fax: (27-11) 403-1234

N. America

Canada
Erikson Pro Audio
Tel: (514) 738-3000
Fax: (514) 737-5069

Mexico
Audioacustica Y Electronica
Tel: (52-5) 669-4879
Fax: (52-5) 543-6037

Asia

China
Prime Connections
Tel: (86-10) 849-8745
Fax: (86-10) 849-8743

Hong Kong
Ace
Tel: (852) 2424-0387
Fax: (852) 2424-0788

India
Swee Lee
Tel: (65) 748-7802
Fax: (65) 748-7036

Indonesia
PT. Multi Audio Perkasa
Tel: (62-21) 629-6009
Fax: (62-21) 629-8453

Israel
R.B.X. International
Tel: (972-3) 629-8251
Fax: (972-3) 629-6452

Japan
Otanitec Corporation
Tel: (81-3) 3332-3211
Fax: (81-3) 3332-3214

Korea
Dai Kyung Electr. Trade
Tel: (82-2) 747-6187
Fax: (82-2) 766-8504

Saudi Arabia
Halwani Audio
Tel: (966-2) 669-1252
Fax: (966-2) 669-1252

Singapore
Auvi Private Ltd.
Tel: (65) 283-2544
Fax: (65) 289-5963

Taiwan
Advancetek
Tel: (886-2) 719-2388
Fax: (886-2) 716-0043

Thailand
Kamol Sukosol Electric Co. Ltd.
Tel: (66-2) 223-0430
Fax: (66-2) 225-3137

S. America

Argentina
AG Electronica S.A.
Tel: (541) 636-1530
Fax: (541) 583-7573

Brazil
Manny's International
Tel: (55-11) 816-04-01
Fax: (55-11) 816-7326

Chile
Audiomusica S. A.
Tel: (56-2) 633-8062
Fax: (56-2) 638-2765

Costa Rica
Inresa De Costa Rica
Tel: (506) 283-5286
Fax: (506) 283-4596

Guatemala
Ingenieria Representaciones
Tel: (502-2) 530-734
Fax: (502-2) 530-956

Panama
Distribuidora Musical S.A.
Tel: (507) 223-0292
Fax: (507) 263-5142

Peru
Pro Show
Tel: (305) 888-9630
Fax: (305) 888-9513

Venezuela
Audio Concepts
Tel: (582) 237-7952
Fax: (582) 237-9480

INTERNATIONAL DISTRIBUTORS

Europe

Austria
AKG Acoustics
Tel: (43-1) 86654-532
Fax: (43-1) 86654-516

Belgium
Trans European Music
Tel: (32-2) 466-5010
Fax: (32-2) 466-3082

Canary Islands
Musicarias SL
Tel: (34) 22-66-1363
Fax: (34) 22-64-3420

Czech Republic
Audiopolis Studio Sysys.
Tel: (42-2) 322-552
Fax: (42-2) 323-069

Denmark
SC Sound
Tel: (45) 43-99-88-77
Fax: (45) 43-99-80-77

Finland
Nores Oy
Tel: (358-0) 52-03-11
Fax: (358-0) 52-32-68

France
Auvi One
Tel: (33-1) 46-82-66-65
Fax: (33-1) 46-82-69-95

Germany
AKG Acoustics GMBH
Tel: (49-89) 87-16-132
Fax: (49-89) 87-16-200

Greece
Omikron S.A.
Tel: (30-1) 33-020-95
Fax: (30-1) 38-367-61

Holland
TM Audio
Tel: (31-30) 241-40-70
Fax: (31-30) 241-00-02

Hungary
ATEC
Tel: (36-27) 342-595
Fax: (36-27) 342-657

Italy
Audio Equipment SRL
Tel: (39) 39-21222-1
Fax: (39) 39-214-0011

Latvija
Audio AE
Tel: (371-2) 296-828
Fax: (371-2) 382-1127

Lebanon
Eltek
Tel: (961-1) 265-048
Fax: (961-1) 883-782

Norway
Audiotron S/A
Tel: (47-22) 35-20-96
Fax: (47-22) 38-41-28

Poland
Europe Sound System
Tel: (48-22) 751-8487
Fax: (48-39) 12-1239

Portugal
Garrett Musica
Tel: (351-1) 356-3674
Fax: (351-1) 357-7983

Russia
MS-Max
Tel: (7-095) 249-8074
Fax: (7-095) 249-8034

Slovenia
MTD
Tel: (386-61) 317-830
Fax: (386-61) 320-670

Spain
Lexon
Tel: (34-3) 203-4804
Fax: (34-3) 280-4029

Sweden
Intersonic-Leab AB
Tel: (46-8) 744-5850
Fax: (46-8) 645-7598

Switzerland
Audio Tech KST AG
Tel: (41-61) 461-0900
Fax: (41-61) 461-0931

United Kingdom
Stirling Audio
Tel: (44-171) 624-6000
Fax: (44-171) 372-6370

Australia

Australia
East Coast Audio/
Broadcast Technology
Tel: (613) 9428-9797
Fax: (613) 9427-9898

New Zealand
Maser Technology Grp.
Tel: (64-4) 385-9895
Fax: (64-4) 385-9892

Tascam MD-801R

With MiniDisc-based recorders making significant inroads into both the broadcast and hard-disk-based recorder-editor markets, Tascam's MD801-R makes a timely entrance. **GEORGE SHILLING** puts it through its paces

DESPITE MANY ATTEMPTS made by manufacturers to lure us away from the compact cassette format, it remains in many homes and strapped to many people's belts. The first serious attempt at a digital replacement for the cassette was DAT, which failed as a consumer format but is now a staple of professional studios. Similarly, MiniDisc seems to be failing as a domestic format only to find a niche with professional broadcasters—mainly as a jingle cart replacement, due to its fast random-access and convenience. Lately, the format has also cropped up in 'digital personal multitrackers'.

With the MD-801R, Tascam has developed the format's broadcast flexibility still further, through a useful stereo-mono recorder-editor with extensive cueing and editing facilities. All this is possible thanks to Tascam's exceptionally fast transport, which claims five times the track search and four times the track start and access speed of normal MiniDisc players. This system goes some way towards bringing the advantages of hard-disk recording (instant access and nondestructive editing) to broadcasters along with the added advantages of convenient storage and a low price tag.

The MD-801R's appearance owes much to the current DA3011 DAT Machine; it's an imposing, black, 3U-high rackmount unit, smartly and clearly laid out, with the

kind of user-friendliness that you would expect of a domestic CD player. A central jog-shuttle wheel is used for data editing and selection, as well as for audio spooling. Transport buttons are large, but I found their shallow click somehow unsatisfying.


Operation is slick and straightforward: just slip a disc (ouch!) in the slot and a motor gently sucks it into the machine's interior. For audio connections the rear panel is fully equipped and clearly labelled with analogue ins and outs on XLRs and phonos; digital is on SPDIF phonos and AES-EBU XLRs at a fixed 44.1kHz sampling frequency. Connections are also available for serial and parallel remote operation (great for multiple-unit use, but

I missed the convenience of an infrared) and a PS/2 PC keyboard socket. Transferring your PC keyboard to the connection on back of the MD-

801R and you have a comprehensive remote-control facility and pad for entering track titles that then appear on the alphanumeric display (which also displays operating system messages). Although the display shows only 10 characters, you can actually give tracks titles of up to 99 characters, which will gently scroll across at a touch of the TITLE button—there's space enough here for copious mix notes. Also, the PC keyboard gives you facilities unavailable from the machine's front panel, such as programming playback sequences, and doing frame-accurate

time searches. It will also generally perform the function of remote control. I found it very useful for directly playing tracks: you simply bang in the numbers and press ENTER.

TURNING ON the MD-801R prompts a friendly 'Welcome to Tascam' in the display, followed by a 'No Disc' announcement. Slot a disc in and the machine checks TOC (Table of Contents) and UTOC (User TOC) to find out exactly what is on the disc. If it's a new one, logically enough; you get 'New Disc!!'; then 'No Title'; before the display settles on 'Blank Disc' on the alphanumeric display, and zeros in the track number and time read-outs. Time is displayed in minutes, seconds and frames, of which there are, unusually, 86 per second. A frame is the smallest increment available for jogging and editing, which means you can be accurate to a little over a millisecond. To compare this to razor-editing tape at 30ips this would mean that you would be accurate to within just under a millimetre—more than adequate for spoken-word material and fine for most musical applications.

Other notable features include glitch-free varispeed of $\pm 9.9\%$; a selection of broadcast-friendly features some of which are useful for other applications—a switch for mono recording (which also doubles available record time); Repeat Play (single track, whole disc or specified segment); flexible counter-display (showing remaining time while the main display shows track time, for example); an End of Message function which flashes a warning towards the end of a track or disc; Auto-

This system goes some way towards bringing the advantages of hard-disk recording to broadcasters

Bringing the sophistication of disk-based technology to modest broadcasters—the Tascam MD-801R



REVIEW

ready which makes the deck park in Ready at the beginning of the next track in Continuous or Repeat Play modes; and the Auto Cue which rolls the machine Ready (paused) at the first frame of audio (not the track start cue point).

Like any DAT machine or CD player, you can locate tracks with NEXT and PREVIOUS buttons. But unlike other machines there are no fast forward or rewind buttons—this is not a problem as the shuttle wheel does all that is necessary. Snatches of audio are emitted during this operation so you know where you are, even in the fastest shuttle (which is as fast as Damon Hill before his engine blew up at Monaco).

There are two separate menu systems accessible by pressing MENU and EDIT. MENU covers all the options not covered by dedicated buttons on the front panel, such as varispeed, copy prohibit and serial remote setup. EDIT, logically enough, covers all editing possibilities. The menu structures are very straightforward: once in edit or menu the jog wheel takes you through the different selections, you choose one by nudging the shuttle ring, and parameters are changed with the jog wheel and set with the shuttle ring. I found this method excellent, and very easy to learn, as each item has a clear description on the display as it comes up.

Jog mode is wonderful: the deck continuously cycles a short piece of audio up to the current point, variable (on a menu setting) from 12 to 32 frames (at 86 frames per second). When you have it at the right place you can store it as an edit-point or locate-point. And the edits are completely seamless, thanks to the unit's in-built buffer

system which holds about 10 seconds of audio, giving the machine plenty of time to skip around the disk for sections of audio. I was soon making edits quicker than I might on a 1/2-inch machine.

All edits are lost if you eject the disc or switch the power off before writing a new UTOC by pressing TOC WRITE. This takes just a few seconds. Plenty of prompts are given to remind you to write a new TOC if you want to keep any edits or changes. Even after a TOC write operation it is possible to recover erased tracks or edit sections with a Restore function. The manual warns that if power is lost during a TOC write then you might find that the disc is unplayable.

Another format limitation is that if you erase a section you don't necessarily get back all that time as blank space. In my limited experience though, you don't lose very much. Remain times displayed always have to be taken with a pinch of salt as any information such as titles and edits in the UTOC eat into the amount of disc space: the manual also warns not to record all the way to the end of a disc.


The manual is comprehensive, but has the look and feel of a rough draft. There are a few examples of poor translation but the machine is essentially intuitive, and operation is quickly learnt empirically, with occasional reference to the manual when necessary.

I quickly got used to the machine's (and the format's) foibles and found it great for editing. It doesn't give you all the possibilities of crossfades and such like that you find on a 'full' hard-disk system, but it is certainly easier to do splices than on a conventional open-reel tape machine. All the

buttons you need most are on the front panel, and those within menus are quickly and easily accessed without lots of hidden menu levels. There is also a useful headphone output on the front.

I would love to have one of these for projects in my home studio, and for quickly making edits in a studio recording situation, perhaps before going to the expense of getting in a Pro Tools system. Many, I'm sure, will find uses for this machine for A-V and postproduction, as well as radio-station jingles, radio-programme edits, and theatre sound FX.

My only reservations might be the longevity of MiniDisc as a format standard (who would want to end up with the digital equivalent of a collection of unplayable 8-track cartridges?), and that, although it is becoming widely accepted in broadcast circles, some users may be put off by the data-compressed audio. This is not the place for that discussion, however.

I certainly found the MD-801R enjoyable to use, and I would say that Tascam have achieved their design aims. 

CONTACT

US: Tascam America Inc, 7733
Telegraph Road, Montebello, California
90640. Tel: +1 213 726 0303.
Fax: +1 213 727 7641.
UK: Tascam UK, 5 Marlin House,
The Croxley Centre, Watford, Herts
WD1 8YA. Tel: +44 1923 819630.
Fax: +44 1923 236290.

• MARK KNOPFLER • SIMPLY RED • INXS • ZZ TOP • EAST 17 • SINEAD O'CONNOR • DEEP FOREST •

JOEMEER

PROFESSIONAL AUDIO

SONY MASTERING
LONDON • NEW YORK

BJG STUDIOS

EMI MASTERING • SYDNEY

THE PILOT • MUNICH


VIDEOSONICS

PEPPERMINT PARK • HANOVER

STUDIO N • COLOGNE

SURREY SOUND

...enough said?



JOEMEER LTD • Tel: (+44) 1923 284545 • Fax: (+44) 1923 285168 • EMAIL: joemeer.co.uk
Swillett House, Chorleywood, Hertfordshire, England WD3 5BB • Distributors sought in some territories.

• PETER GABRIEL • LEFTFIELD • ORBITAL • LISA STANSFIELD

Let us convert you



dCS 950 Digital to Analogue Converter

24 bit capable A/D and D/A converters

Unique dCS 5 bit 64 times oversampling technology

Sampling frequencies up to 96kHz

Nagra D Interface for 24 bit, 96kHz recording and playback

Very low Differential Non Linearity

High stability clocks

Remote operation facility

dCS

Data Conversion Systems Limited

PO Box 250, Cambridge, CB4 4AZ, England
Telephone: +44 (0) 1223 423299
Fax: +44 (0) 1223 423281
Email: dcs950@dcsLtd.co.uk

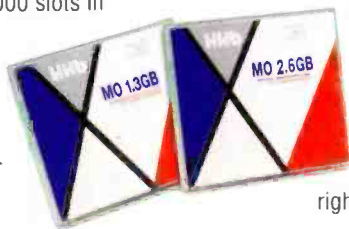
MEET THE REPLACEMENT FOR YOUR 8 TRACK DIGITAL TAPE RECORDER



With all the advantages of a random access recording medium and 'future compatible' recording

resolution of up to 24-bits, the new Genex GX8000 8 track MO recorder is truly the digital multitrack of the future.

And with a list of features that includes familiar tape-like operation, simultaneous recording on all 8 tracks, a jog/shuttle wheel, punch in/out and overlay recording, you'll find that the GX8000 slots in easily where your old 16-bit tape-based recorder used to be. Unlike most tape recorders however, the GX8000 can also be conveniently controlled from the included Windows based software, and can download files quicker than real time for editing on DAWs.



Post production users will be particularly interested to note that the GX8000 can slave to, or provide, a master SMPTE/EBU clock, and that full machine control is supported via the Sony 9-pin protocol. There are also inputs and outputs for LTC, word and video clocks.

Recording resolution is switchable between 8, 16, 20 and 24-bits, equipping your facility for all current digital formats, and those that are just around the corner.

And on the subject of things that are just around the corner, unlike other MO multitracks you may have read about in recent months, the remarkably cost-effective Genex GX8000 is available at HHB right now.

Developed for professional audio use, HHB high performance MO disks are available in 1.3 and 2.6GB sizes.

Exclusive European distributor: HHB Communications Ltd · 73-75 Scrubs Lane, London NW10 6QU, UK
Tel: 0181 962 5000 · Fax: 0181 962 5050 · E-Mail: sales@hbb.co.uk
Visit HHB on line at: <http://www.hbb.co.uk>



The 528E Voice Processor

Ten years ago we introduced the *first* Voice Processor to the professional audio industry.

Been there, done that.

Today, we give you the 528E - an input channel that needs no mixer.

It's the *only* gear you need between your microphone and your recorder.

And it's not just for voices.

Hear for yourself.

Mic Preamp
Direct coupled, discrete front-end, ultra-low noise. Warm, yet transparent. The best mic pre you'll ever hear.

Downward Expander
Smooth and seamless. The "smart gate" that won't chop-off the start or end of notes.

Metering
Three dedicated gain reduction meters for "at-a-glance" monitoring.

Parametric EQ
Three-band, state-variable, sweet-sounding, and fully parametric. You'd pay big bucks for a console with EQ this flexible.



De-Esser
Frequency-variable dynamic sibilance reduction. Essential for that "in your face" vocal sound.

Rear Panel
Jacks provide direct access to individual processing modules. Use patch cords to change module order or use each on a completely separate audio signal.

Compressor
Ultra-smooth, soft-knee dynamics control. Interactive release time circuitry automatically tracks program peaks to eliminate pumping and breathing.



Symetrix

Lynnwood, WA, USA

Phone (206)787-3222/Fax (206) 787-3211
email 102102.1126@compuserve.com



Avalon AD2055

When pro-audio companies start to use a hi-fi vocabulary to describe their equipment, it's usually time to tune out.

DAVE FOISTER discovers the exception to the rule—the American Avalon company and their AD2055 EQ

AVALON IS NOT YET a familiar name in the UK—at least, not when written on a piece of audio equipment. The US company is beginning to get noticed though, initially through interest in its compressor, which is now being followed up with an equaliser, the AD2055.

Audiophile aspirations are becoming more openly expressed in the pro-audio world, a far cry from the days when it was automatically assumed that professional equipment was superior to the consumer's playback system. The Avalon's chief selling-point is the sheer audio quality of its circuit designs, described in the literature in the same kind of terms as those used by the more esoteric hi-fi manufacturers. A glance through the top-panel grille confirms that this is an all-discrete design, with packed motherboards bristling with piggy-back modules, each encrusted with transistors. The smaller boards are mostly identical and are clearly a standard amplifier building block on which the whole design depends. This component density is in stark contrast to much modern equipment, which often contains a few lonely chips in a sea of green PCB. The entire equaliser operates in pure Class-A, which explains the number of heat sinks visible inside and the large one on the rear. This is not a piece of kit to put in a rack immediately below your DAT machine—I've seen cooler valve equipment. Its also quite heavy, despite having an external power supply delivering 40V down a heavy-duty cable.

DC coupling is used throughout, including the output-line drivers, and specially selected components include Avalon-badged capacitors and sealed silver-plated relays for switching. The result of all this attention to detail is a

claimed frequency response from 1Hz–600kHz (sic) within -3dB, an unweighted 20kHz-bandwidth noise figure of -92dB with the EQ in and a headroom of +30dBu. The match between the bypassed response and that with the EQ in, but flat is quoted as within 0.2dB from 10Hz–62kHz.

The styling is classically American (where else could it come from?) with a plain silver-aluminium, front-panel complemented by machined aluminium knobs. All is reassuringly solid and chunky, and the control labels are printed in a subtle but clear charcoal grey with a fineness that looks like engraving. All the switches are illuminated, and twin power indicators suggest that the two channels have independently regulated supplies.

THE 2055 is a twin-channel, 4-band parametric EQ; although strictly only the mid bands are truly parametric. Bass and treble ends have switch-selectable frequencies and can be switched between peak and shelf operation, and the range on offer makes them uncommonly versatile. The LF turnover point can go as low as 25Hz and the HF as high as 25kHz, and although the slope characteristics are not specified they are gentle enough to make the effects of these extreme settings very audible and useful. At the same time the HF setting can come down to 1.5kHz and the LF up to 450Hz, making them both capable of mid-range duties. The range of gain adjustment is also large, with ± 20 dB for the highs and 24dB for the lows.

The two mid-range bands both have a 7-octave range, achieved in both cases with a X10 switch, and, consequently, have a huge overlap. Between them they cover 35Hz–20kHz, stretching the

definition of mid somewhat, but the x10 function keeps them manageable. Up to 16dB of boost and cut is provided on each, together with an infinitely variable bandwidth control giving Qs from 0.3 to 3—not the tightest notch you'll find, but narrow enough for most things, bar tuning out unwanted tones. Matching between channels on all bands seems very precise, allowing reliable stereo use even though this is strictly a 2-channel device with no stereo-friendly features at all.

It's not often I come across a piece of equipment that makes me as dissatisfied with what I've already got as the AD2055 did. However good the figures, EQ stands or falls on its ability to bring the best out of any musical signal, to work with it with precise control, and to do it without introducing any unpleasant by-products of its own, and not many equalisers can truly claim to satisfy all these requirements. The AD2055 is, as can be seen, highly controllable, offering several ways of skinning most cats. The quality of its signal path puts many top-flight pieces of equipment to shame, passing everything transparently and contributing nothing of its own—except the EQ itself, as smooth and musical as any I've heard. Whatever I tried to do with it, from vocal EQ to correcting double-bass bug problems to overall mix sweetening, it seemed that exactly what I wanted was just a few knob turns away and sounding better even than I had imagined. This is without doubt a very fine equaliser indeed, with the little bit of magic that comes, it seems, when designers really apply themselves to producing quality at all costs with the best engineering. A special mastering version is due shortly, which I await with eagerness.

Avalon's AD2055:
'Without doubt a very fine equaliser indeed'



PHOTOGRAPH: JIMMY C

CONTACT

AVALON DESIGN, PO Box 5976, San Clemente, CA 92673, US.
Tel: +1 714 492 2000.
Fax: +1 714 492 4284.

EUROPE: Juke Box Limited.
Tel: +33 1 48 34 33 24.
Fax: +33 1 48 34 33 48.
E-mail: 100625.3125@compuserve.com

UK: ASAP Europe.
Tel: +171 231 9661.
Fax: 0171 231 9111.
E-mail: 101641.2551@compuserve.com



*“The best thing to happen in
Sound Reinforcement
since the invention of the magnet”*

Tony Szabo, Jason Sound, Canada.



OMNIDRIVE™

FDS-388 Loudspeaker Management System

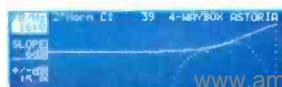
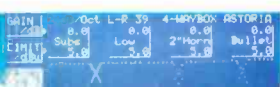
by

BSS Audio



BSS Audio, Linkside House, Summit Road, Potters Bar, Herts., EN6 3JB, England • Tel: +44 (0)1707 660667 • Fax: +44 (0)1707 660755
Harman Pro North America, 8500 Balboa Boulevard, Northridge, CA 91329, USA • Tel: (818) 227 1800 • Fax: (818) 884 2974
WWW: <http://www.bssaudio.co.uk/bss/>

A Harman International Company



Earthworks TC30K AND TC40K

As a welcome counterpoint to the procession of cardioid condensers that forms the staple of new studio microphones, **DAVE FOISTER** rigs a pair of American omnis with some serious performance figures. Do they measure up?



I'VE HEARD some bold claims in my time, but few bolder than Earthworks' declaration that one of its models is 'the most accurate recording microphone available'. Earthworks is a small, relatively new American company set up by David Blackmer, founder of dbx, and its catalogue to date consists entirely of a range of omnidirectional microphones. The similarities between models outnumber the differences; all share a distinctive styling strongly reminiscent of Brüel & Kjær's measurement microphones, and all have impressive specifications, varying mainly in the extent of the frequency response outside the traditional audio range.

Another important common factor is the very small capsule, about half a centimetre across. It is the narrowness of the tube holding the capsule that dictates the shape, so that the practical reasons for the probe-like appearance are the same as in the B&K reference microphones; nevertheless, the effect of the subliminal link with the standard by which all others are measured cannot have been lost on the designers.

Image is clearly important to Earthworks. The microphone boxes are carved from solid pieces of wood, with slots routed out and fitted with felt pads to support the microphone—even the box maker gets a credit. Clips for stand mounting are supplied, but without the thread adaptors for European use, a cheapskate omission too common to many American manufacturers.

Earthworks began with the OM1, which only works into electronically balanced inputs, but features the winning spec that is the Earthworks trademark—a time-

coherent response way beyond 20kHz. The TC30K makes this 30kHz bandwidth available to those with transformer inputs, and the TC40K extends the time-coherent response to 40kHz, with the same lower limit of 9Hz and lower self-noise. Self-noise is a parameter Earthworks is self-conscious about, as on paper it is higher than much of the competition; at the same time, the microphones' sensitivity is relatively high, which goes a long way towards compensating for it. Certainly, I didn't find it to be a problem, and the TC40K is, indeed, marginally quieter, or at least has less top in its noise. All also claim to be able to handle 151dB SPL without pads.

Earthworks has produced a demo CD featuring the OM1; they really shouldn't have, as it sounds like someone's garage recording. It could serve as a demonstration of how not to record a jazz quartet: how to choose the wrong room; the wrong mic placement; the wrong mix; and the comparisons with industry-standard microphones sometimes have the opposite effect to what Earthworks intended. I'm glad I listened to the microphones before the CD, because I realised immediately that the demo doesn't do them justice.


The use of omnis is a neglected art, and I'm as guilty as the next man, being a Blumlein enthusiast. Many omnis aren't truly omnis, and the clarity of image and stereo spread of a well-placed 90° pair of figure-of-eights takes some beating to my ears. Having said that, the flat response and lack of off-axis coloration of a good omni is well known, and its applications both close up and in a spaced pair configuration are

Earthworks' styling is sleek and sophisticated

familiar enough. To be fair, the area of rejection of even the most accurate cardioid is pretty small, and very often its advantages over a similarly specified omni microphone are minimal at best.

EARTHWORKS STAKES its reputation not on the specs of its microphones, but on their sound. The specs are extraordinary, and the sound more than vindicates them. The most immediately striking aspect is a kick in the teeth to those who believe that low frequencies can only be captured by large diaphragms, as the depth of bass in these microphones is phenomenal. Not disproportionate or tweaked in any way, just accurate and full to an extent that would strain many people's credulity in a capsule so small. This is not at the expense of the top end, which comes over as flat and clean in the same way, as indeed it should given the quoted response of the microphones. Earthworks sets much store by time coherence, a quality often lacking in a traditional cardioid design, and reckon that getting this right affects the slam of a kick drum at least as much as the ting of a triangle. Certainly, there is an openness about the sound which makes it hard to argue with Earthworks' claims to accuracy.

My experience with the TC30K and TC40K left me highly impressed. Omni enthusiasts will find these microphones right up there with the best of them, and those less used to omni working should try them anyway to see what they've been missing. There's a smoothness and a realism about a good omni that is rarely achieved by anything else, and the Earthworks models have this in abundance.

The final surprise is the price: the TC40K is well under \$1,000; and the TC30K little more than half that, despite the esoteric image that often borders on the pretentious. As both microphones stand comparison with models costing five times as much, or more, they are a serious bargain. 

CONTACT
EARTHWORKS, PO Box 517,
Wilton, NH 03086, US.
Tel: +1 603 654 6427.
Fax: +1 603 654 6107.
UK: Unity Audio, Upper Wheeler
House, Colliers End, Nr Ware,
Herts SG11 1ET, UK.
Tel: +44 1920 822890.
Fax: +44 1920 822892.

Studiospares

FS27 CODE 543-161

Studiospares

CATALOGUE IS OUT NOW

120 pages, 2500 items
tel 0171 485 4908
fax 0171 485 4168

1996/97





QSound QX/TDM

One of the latest additions to the growing number of software packages for the TDM platform comes from QSound and brings its 3-D sound imaging to a new generation of studios. **DAVE FOISTER** enters the third dimension

THERE ARE MANY areas of specialisation within audio, but few can be as narrowly defined as that which QSound Labs has decided to make its life's work. Two-speaker surround sound, or stereo expansion beyond the loudspeakers, is a very small field, and, curiously, one of the two systems that could be seen as competition for QSound—Desper's Spatializer—is also from a company that does little else. QSound was one of the earliest commercial systems for projecting sound into the room from a conventional stereo playback system, and the accumulated expertise is now available for use on various computer platforms.

The platform to use at the moment, of course, is TDM. QSound already has a TDM version of its QSYS software, which places mono sources into a 3-D soundfield, and now in response to user requests there is QX/TDM, a Pro-Tools compatible version of its stereo-expander system. It is based on QSound's first commercial software plug-in, QXpander for Sound Designer, and its function is significantly different from the 3-D panning of single sources that first brought QSound to prominence.

The idea of the QXpander system is to take an existing stereo source and extend the image beyond the speakers into the room. All QSound's processes are single-ended, needing no decoding by the listener, and are supposed to work on any reasonably well set up stereo system. At the same time, it is made quite clear that the closer the setup is to an ideal geometry the better the result will be, and significantly the diagrams demonstrating the ideal placement show a multimedia computer complete with small local speakers. The multimedia market has been a shot in the arm for this kind of technology, as it consists of an audience effectively strapped into an ideal listening position and demanding maximum impact from the audio on their software.

The most straightforward way to use QX/TDM is to process a final stereo mix, plugged into a Pro Tools master-fader's insert. Aux sends or separate buses can be used in the usual way, giving the possibility of making one or more elements in the mix jump out from an otherwise conventional stereo image.

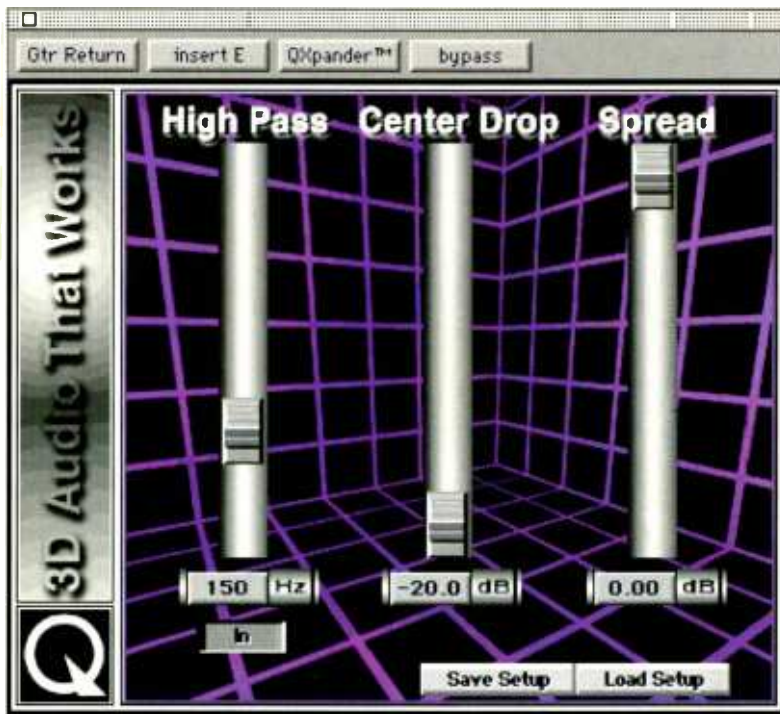
Once the process is installed, setting it up could hardly be simpler. It has three main controls—all large sliders—and a few buttons, the most important of which are the BYPASS switch and the buttons for saving and loading setups for future use.

The main slider simply determines how much stereo expansion the process will add. In many cases this is the only adjustment necessary, and raising its value swings more and more of the image out into the room and beyond the limits of the loudspeakers. As might be imagined, there is a risk that large amounts of this treatment will emphasise the edges at the expense of the central image, which can become less clearly defined, so a control marked Centre Drop allows

the common mono information to bypass the process and emerge unscathed when set at 0dB.


There is further concern that excessive treatment of low frequencies might sometimes cause problems, particularly where mono compatibility is concerned, and an adjustable high-pass filter effectively acts as a crossover, passing frequencies above it to QX while leaving those below it dry.

I CONFESS to approaching this plug-in with trepidation, not generally regarding such processes as more than special effects for occasional use. In the event I was pleasantly surprised and impressed with the way it was able to make almost any source larger than life without noticeably negative side-effects. There was a strong impression of clearly localised sound outside the monitors, and just as important, an increased sense of front-back depth, with even fairly central sounds appearing distinctly forward of the speakers. Mixes that were already wet tended to get wetter, and these in particular needed adjustment of the Centre Drop parameter in order not to lose vocal presence, but otherwise things stayed remarkably solid and focused, with little change to the balance within the mix. I was expecting extreme settings to

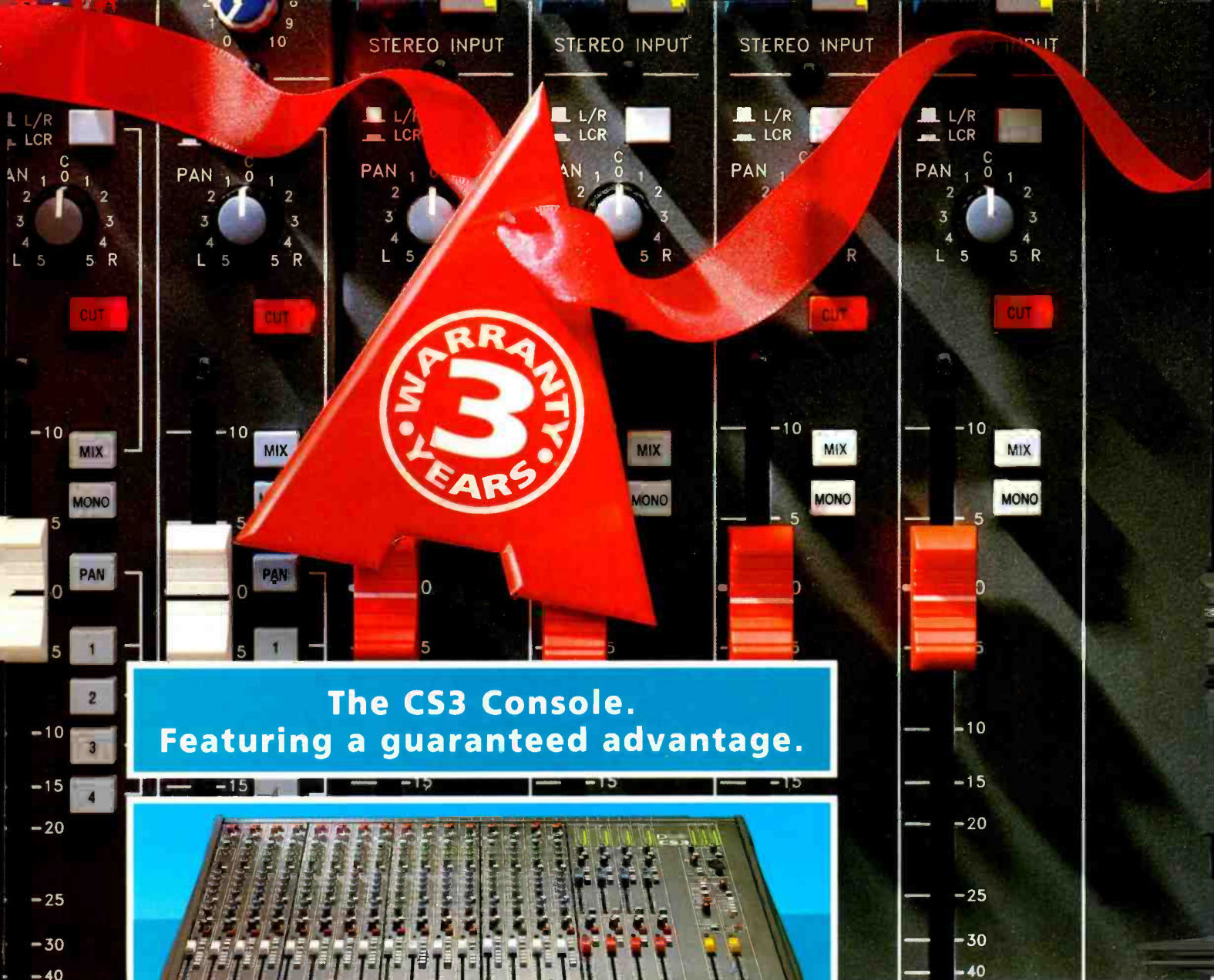


Orientated around just three main controls, QX/TDM combines ease of operation with impressive processing

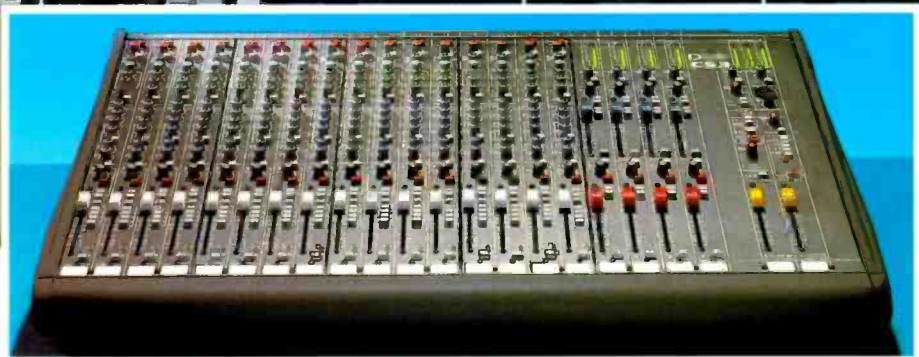
produce nasty phasy effects of the kind that make you feel your eardrums are being sucked out of your head, but nothing of the kind ever manifested itself, even classical orchestral material remaining convincingly stable and clearly laid out. Frequent mono checks confirmed that little was being compromised or that score, the only exceptions being those items that needed a bit more care in the first place

I came to this software expecting to find a gimmick for the computer games market, and instead found a surprisingly musical tool that could be used with impunity to add a little fairy dust to almost anything. Using it routinely would not even be that demanding of processing power as it only needs half a TDM DSP allocation per use, with simultaneous multiple uses with different settings possible as well. The most recent development is an upgrade to PCI compatibility, making it available to yet more users, who are strongly recommended to give it a try. 

CONTACT
Q SOUND LABS INC,
2748 37th Avenue NE, Calgary,
Alberta T1Y 5L3, Canada.
Tel: +1 403 291 2492.
Fax: +1 403 250 1521.



**The CS3 Console.
Featuring a guaranteed advantage.**



When you choose a compact console as versatile as the CS3, it's good to know your investment is assured a safe future.

To match DDA's proven durability, with each console exhaustively tested before delivery, we include a comprehensive Three Year Warranty.

This special guarantee of long-term reliability and back-up service is another unique advantage of the CS3 alongside many more innovations.

The console combines sonic transparency with simple operation – ideal for demanding live installations and concert and theatre applications.

A semi modular layout in 16, 24, 32 and 40 input frames, is configurable to meet your needs precisely.

Heading the facilities are LCR (left/centre/right) panning, flexible discrete group bus assignment,

Solo-in Place system, three band input EQ with fully parametric mid-band, six aux sends, four stereo inputs, four group outputs and stereo master modules and direct outputs for multi track recording.

Because we believe that "less equals more" where audio electronics are concerned, we use "minimal signal path" topology and state-of-the-art chips for accuracy. Precision components and controls, distributed decoupling and gold plated connectors improve noise, RF immunity and crosstalk. An elegant gain structure gives you generous headroom at every stage for better dynamics.

And with our 3-Year Warranty, the CS3 is guaranteed to keep you working with confidence. That's the DDA Advantage.



CS3 Features

- ▶ 40 Input Module Frame available
- ▶ Stereo and Left/Centre/Right Panning Modes
- ▶ Individual Routing to Groups



16, 24, 32, 40 Channels

- ▶ Solo In Place Mode in addition to PFL and AFL
- ▶ Parametric Mid Frequency Equaliser
- ▶ Remote Mute Switch Access
- ▶ 4 Stereo Inputs on each Console





JBL SMART ANALYSIS

Moving away from the accepted heavyweight acoustic measurement and analysis systems, JBL has delivered a concise Windows-based analysis program. Studio Designer **ANDY MUNRO** boots it up and puts it to the test

FOR MANY YEARS now, I have been waiting for someone to produce an audio analyser that runs on my computer with the minimum of fuss and the maximum possible usefulness to a sound engineer and acoustician. SMAART goes a long way towards fulfilling this wish. Complex audio signals are not easy to analyse and it has taken the massive increase in processing power versus cost along with the advent of high-quality onboard sound-sampling hardware to make it possible without the need for dedicated (and therefore expensive) additional hardware. SMAART comes on a single disk, ready to load into a Windows, complete with manual.

Installation is so fast and easy that I was initially suspicious that anything so simple couldn't be up to much—but I was wrong. Having completed the setting-up procedures I sat, manual on lap, and clicked on the Real-Time Module icon. The resulting window looked reassuringly familiar and user-friendly, even to a computerphobe like me.

To understand what this module does require a little theory—the signals digitised by each input channel of the computer sound-card are processed using an FFT algorithm and then displayed as two colour traces on the screen. To do this requires a sampling rate and windowing function which are determined by the compatible rates available with the sound, and SMAART will support 5.512kHz; and 11.05kHz; and 44.1kHz; but not 48kHz. The FFT size is selectable up to 4,096 or 2^{12} , this is enough to give a frequency resolution of up to 1.3Hz with a range of 100Hz, or 10.7Hz with a 22kHz bandwidth.

The typically Windows-style toolbar allows the selection of four frequency ranges plus a zoom feature that allows the available FFT to provide the most detailed information as required. Other toolbar functions allow display modes to start, stop, and compare traces.

In Normal mode the display consists of the two input signals which can be the left and right channels from a system or more analytically, the input and out of a system, either electronic or electroacoustic. A transfer function if generated by the cross-spectral convolution of the two channels to derive a single trace that, in effect, is the frequency response of the system under test. Depending on the nature of the signal used for the test, the accuracy of the transfer function is dependent on the reduction of spectral

leakage and truncation errors, plus the ability to average many samples of the dual signals within a reasonable period, to maintain a quasi-real-time feel to the whole shooting match. Mathematics apart, this section works well, by virtue of its friendly interface.

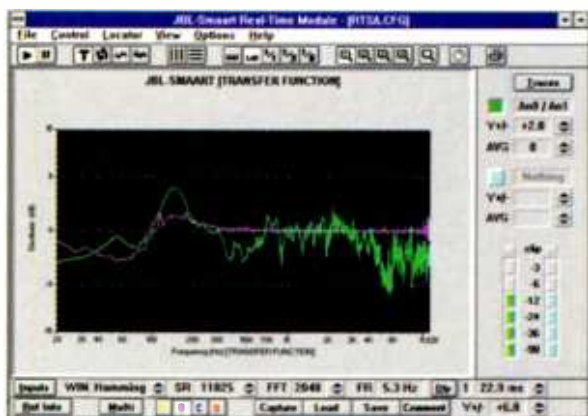
There are practical problems with signal levels and calibration, and any serious professional is going to wonder about the variety of reference levels, absence of weighting curves and standards such as STI, RASTI and %Alcons, but frankly this system is more fun to use than any of the real-time analogue, hardware-specific systems I have been using for 20 years and it does not have to prove its ability against the TEF and MLSSA analysers; they already set standards around the world which cannot be bettered by a package designed specifically for use in PCs with domestic standards of hardware.

APART FROM the level-matching problems of dealing with both microphone and line levels there is no real difficulty in producing meaningful results from a typical set of audio sources.

The dynamic range of the system is as good as a 16-bit convertor can produce and the self-induced noise was at least 100dB below the claimed maximum level of the analyser metering indicators. A direct input from a CD player is capable of overloading the sound card, so some kind of preamp for microphones and a gain control are essential accessories. Calibration could also be a tricky issue when measuring absolute sound levels, but there are many ways to produce a reference tone for this purpose.

A coherence function calculates the number of complex data points which are 'similar' in the transfer function and this gives an indication of the presence of nonlinear-system problems or delayed acoustic energy entering the measurement, this is a useful guide rather than an analytical tool, and it is there, primarily, to tell you something is wrong at a particular frequency.

In order for the two inputs to be phase coincident there is a time-delay correction function that selects a different window to work in and actually computes the relative delay between the two channels, assuming they are both receiving the same signal. SMAART does this by doing a reverse FFT back to the time domain and provided the FFT is set big enough the resulting impulse response clearly



SMAART's transfer function display: sunglasses advised

shows the initial time gap between the sound origin and the arrival at the microphone. A cursor then indicates the time offset to programme into the transfer-function generator. In practice, all this works well, and the screen dialogue boxes, and intuitive feel of the thing makes it painless to use.

It must be said, again, that the data acquisition can be corrupted quite easily in a system like this, and the absence of phase and complex-form data display makes it difficult to know what is actually causing a particular transfer-function effect.

The analyser part of the system offers some useful processing of the derived impulse response that is saved as a standard .WAV file by the Real Time module.

Decay slopes for reverb times and windowed time-domain slices for quasi-anechoic spectra are easy to produce, but the windows are not quite so friendly in this mode and it does help to know what you are doing.

Overall, I have to say, I liked this system very much, and I feel it has a great future with sound engineers working in the field. It is of more limited benefit to serious acoustic consultants who wish to carry out complex analytical operations. It does require a powerful computer. The manual urges this, and with good reason.

One final note: do not use the spectral time-analyser module without dark glasses or, especially, after a night on the town, it may affect you for life. ☹

CONTACT
JBL PROFESSIONAL,
8500 Balboa Boulevard,
Northridge CA 91329, US.
Tel: +1 818 894 8850.
Fax: +1 818 830 7802.

Digital audio workstation

Xtrack

The Essential Tool for Post Production



**Xtrack for Windows:
simple and efficient**



Features

- Real-time virtual editing
- Simultaneous record and playback on the same track
- Time-stretching
- Noise reduction
- Pitch shifting
- Equalization
- Mixing
- Direct CD-Audio access
- Sound library management (local or remote)
- Time code management in Master or Slave mode
- Control via an RS422 Interface
- Video insertion
- Video management on MO or hard disk
- Network operation
- Dedicated keyboard

**See us at IBC
Stand No. 9/216**



Digigram

Parc de Pré Milliet
38330 Montbonnot - France
Tel : (33) 76.52.47.47 - Fax : (33) 76.52.18.44

**Xtrack is user-friendly, flexible
and increases productivity.
Don't take our word for it,
call us for more information.**

New Technologies

DAVE FOISTER trawls the world's technical-news networks for hot news of recording, postproduction and broadcast equipment, and discovers that there is no shortage of activity even during the 'quiet' holiday season



Deltron's active DI box: fine sounding and pretty useful

Deltron DI Box

Deltron, perhaps best known as a manufacturer of connectors, has branched out with the introduction of a DI box. Surprisingly, this is not a simple passive DI, but an active box with enough features to make it stand out from the crowd.

The large black box is plain on most surfaces, with one carrying the connectors and another the controls. Connectors comprise a jack input with loop-through and a balanced XLR input, and, of course, its balanced XLR output. The control face includes an unusually flexible switched gain control, giving enough degrees of attenuation to cope with most input signals. Alongside it are three LEDs showing power, low battery and overload, with switches for power source and ground lift.

The power switch suggests its flexibility, having positions for both internal batteries (2 x PP3) and phantom power. The problem with designing an active DI, particularly with LED indicators, to run from phantom power is the current needed, and after extended fine tuning Deltron has brought the current requirement down from an early 24mA to 8mA, well within BS specs, trebling the battery life in the process. The result is a fine-sounding, clean DI box, with enough drive capability to require the use of console pads even before it becomes internally overloaded, and whose ability to handle such a wide range of input levels makes it a pretty useful tool to have around.

Deltron, UK. Tel: +44 181 965 5000.

Weiss EQ1

Swiss digital specialist Daniel Weiss Engineering has introduced a rackmount digital parametric equaliser, the EQ1. There are seven bands, each covering the whole frequency range, and each with selectable shelving, cut or peaking mode. The 2U-high box carries a knob for each parameter alongside a display screen showing the set curve and parameter values, and the knobs are touch sensitive so that the screen will show the value of the parameter being adjusted. Snapshots can be saved for A-B comparison. Remote control is possible via MIDI, RS422, RS232, and the design is expandable either by hardware module changes or software coefficient sets. This will allow new features to be added such as double sample-rate processing, analogue EQ emulation and linear phase EQ.

Daniel Weiss Engineering, Switzerland. Tel: +41 940 20 06.

Designed with flexibility in mind—Daniel Weiss's EQ1



Millennia HV-3C

Millennia Media has added to its acclaimed range of microphone preamplifiers with the HV-3C, which has an integrated Apogee 20-bit A-D converter with its analogue front end redesigned by Millennia. The two preamps are the established HV-3 high-voltage units with buffered line inputs, and can be used independently of the converters or routed via insert points before or after reaching them. The convertor section incorporates Apogee's UV-22 20-bit to 16-bit encoding system, and can, optionally, record its full 20 bits on two combined tracks of ADAT or DA-88. The multitude of connections include digital inputs for applying UV-22 to an existing 20-bit signal, as well as a range of analogue inputs including 130V B&K microphone inputs. Additional features include a built-in oscillator, a SOFT LIMIT switch, and Apogee's C768 Ultra Low Jitter Clock.

Millennia Media, US. Tel: +1 916 363 1096.

Tascam DA-38

Tascam has produced a second DTRS Hi-8-based, 8-track, digital recorder to join the established DA-88. The DA-38 comes in at a lower price, with additional features for music recording. Prominent among the new functions is an internal digital patchbay that allows any input to be routed to any track, and any track to any output, as well as enabling bounces both within a single machine and across several. The optional MMC-38 interface provides MIDI Machine Control and synchronisation, and the machine is fully compatible with existing DA-88 systems including their remote controllers.

TEAC, UK. Tel: +44 1923 819630.

Nagra-D software upgrade

Hot on the heels of the introduction of the 96kHz recording capability comes new software for the Nagra-D, which includes not only the high-sampling option but also mirror copying and Take Number Erasure. Mirror copy allows an exact duplicate of a Nagra-D tape to be made via the RS422 ports of two machines, complete with all directory



New, sleek and cheap:
the JL Cooper 10²

information and auxiliary data. The process is fully automated as the master machine sets all the parameters of the slave, and the resulting copy has all the skip and search features of the original. The Take Erasure function removes the problems of false starts during a session, and the new software also contains time-code assemble, tape-format number incrementation, write-protect of tapes, and an absolute recording-time counter display. *Nagra, US. Tel: +1 615 726 5191.*

Precision Audiotechnics Pearls

From a company normally known for personal hearing-protection equipment comes a new line of in-ear monitor. Precision Audiotechnics' Pearls claim to be the first in-ear monitors to use subminiature transducers to reduce the profile of

the monitors in the ears without sacrificing hearing protection or sound quality. The monitors are designed for recording artists and audio engineers as well as the familiar stage applications, and use transducers similar to those used in canal-style hearing aids giving a quoted frequency response of 20Hz-16kHz ± 4 dB. Another spin-off from hearing-aid technology is the process for producing the vinyl ear-mould shells, giving optimum sealing for external noise exclusion. A proprietary response smoothing system produces a curve that closely matches the natural frequency response of the open ear, a common technique in headphone design.

*Precision Audiotechnics, US.
Tel: +1 800 711 7317.*

DOD equalisers

DOD has introduced two graphic equaliser models, both 2U and 2-channel, but trading numbers of bands for a slider throw. The SR231Q has two channels of 31-band EQ with 12dB of boost or cut on short-throw sliders, while the SR830Q uses long-throw controls on two channels of $2/3$ -octave, 15-band EQ. Both feature separate, electronically switched, low-cut filters and LED bar-graph metering, with balanced/unbalanced ins and outs on TRS jacks—XLRs

are optional. DOD points to a particularly clean performance, with signal-to-noise better than 90dB, a frequency response within 0.5dB from 20Hz to 20kHz, and typical harmonic distortion of 0.004% (0.003% for the 15-band version). *DOD, US. Tel: +1 801 566 8800.*

Pearl DS 60

Swedish microphone manufacturer Pearl has a new stereo model, the DS 60. It contains two of Pearl's rectangular, dual-membrane, capsules fixed at an angle of 90 degrees, giving four cardioid outputs via a 9-pin connector. These can be mixed and matrixed either on the console or using Pearl's dedicated matrix amplifier, which gives infinitely variable and independent control over the polar patterns of the two capsules. This makes it ideal for both X-Y stereo and MS work, and the amplifier also includes independent 3-position, high-pass filters. *Pearl, Sweden. Tel: +46 42 588 10.*

Prism DSA-1 software upgrade

Prism Sound's DSA-1 hand-held AES-EBU interface analyser now has enhanced software available. Version 2 now provides a signal generator, delivering a wide range of waveforms including special signals for bit error and jitter testing. Prism says this is the only system capable of discriminating between jitter induced by long, or excessively capacitive, cables, and jitter originating from a poor quality AES source. Also new is a passive Watchdog mode, in which the unit monitors chosen aspects of the AES signal over a period of time, and a Channel Test

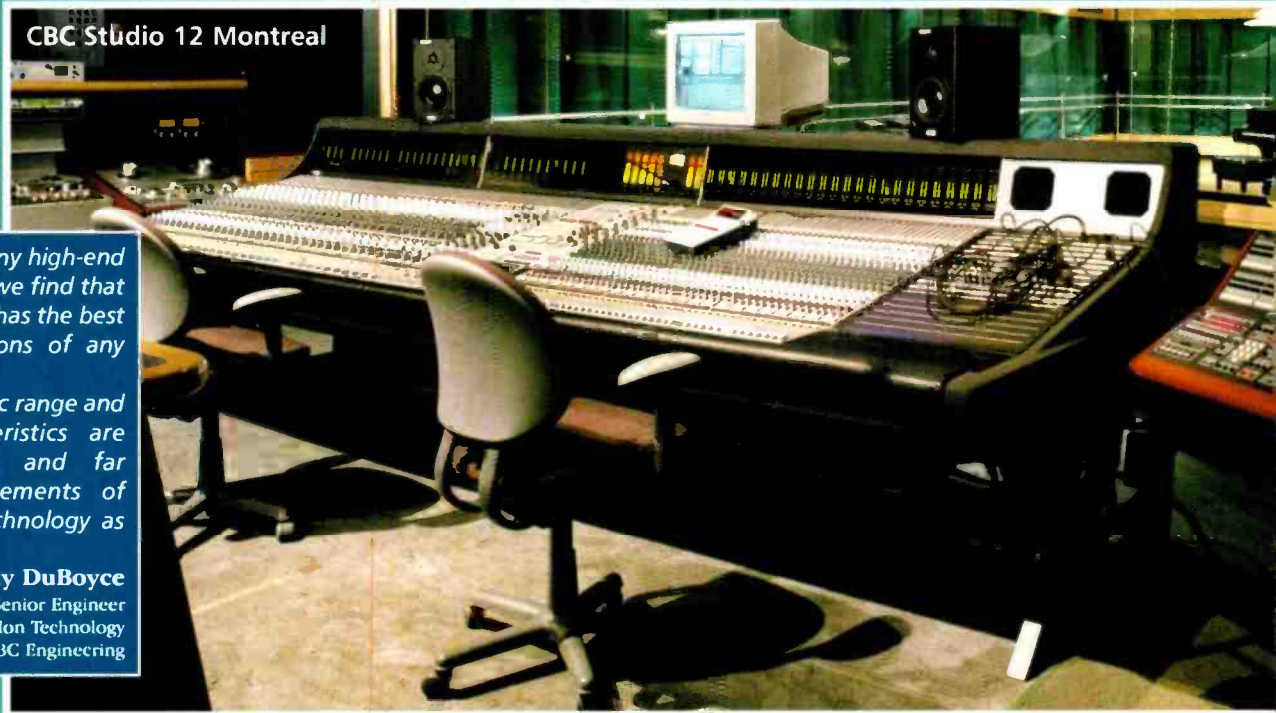


GHIELMETTI

GHIELMETTI Communications AG
 Industriestrasse 6 • CH-4562 Biberist
 Telefon +41 (0)65 321 196
 Telefax +41 (0)65 321 324

See us at
IBC
 Booth no. 9/410

Can you afford to miss the Rupert Neve experience?



CBC Studio 12 Montreal

'CBC has tested many high-end audio consoles and we find that Rupert Neve's 9098 has the best technical specifications of any we have measured.

Noise floor, dynamic range and distortion characteristics are absolutely superb and far exceed the requirements of digital recording technology as it presently exists'.

Tony DuBoyce
Senior Engineer
Production Technology
CBC Engineering

CBC
Canadian Broadcasting Corporation
Société Radio-Canada

&

9098
by Rupert Neve the designer



CBC Studio 1 Vancouver

'The 9098's sonic performance is stunning, being silent, transparent and noiseless and with that unbeatable masterful character which is the hallmark of a traditional Rupert Neve design. This console is a dream to use and is the standard to which all other audio equipment manufacturers should aspire'.

Don Pennington
Technical Director
CBC Radio British Columbia



*The Ultimate
Analogue Console*



AMEK

CALL:

(United Kingdom) (44) 161 834 6747
(United States) (1) 818 508 9788
(Germany) (49) 6721 2636
(Singapore) (65) 251 1629

mode that injects a pseudorandom test pattern and checks that it is received or played back correctly. In both modes, problems are logged against time for inspection, printing or uploading to a PC. Automated test routines can be customised by the user, complete with definable go/no-go indication and memory for storing up to eight sequences at a time. Sequences are created using a Windows application and downloaded from a library when required.
Prism Sound, UK. Tel: +44 1223 424988.

Uptown Automation System One

Uptown Automation have placed all the features of their successful System 990 mix-automation package and incorporated them in a self-contained, moving-fader system that patches into the insert points of any console. The fader units are small enough to sit on top of a console's existing faders, when needed, and its small size

also makes it portable from studio to studio or for touring use. The system is SMPTE-based and uses high-speed communications to maintain sync and system timing regardless of how many faders are moving. All the System 990 features are available, including grouping, MIDI functions, tape-machine control, off-line editing. The special Film and Live Performance packages are also available for System One.

Uptown Automation, US. Tel: +1 616 695 5948.

JL Cooper CS-10²

JL Cooper's familiar CS-10 hardware DAW controller has been upgraded to a new version, the CS-10². The new model is fully compatible with the original, controlling Digidesign, Spectral, Sonic Solutions, SADIe, Soundscape and other workstations, but is sleeker and lower in price. As before, it features tape-style transport controls, eight long-throw assignable faders, a jog/shuttle wheel and six assignable rotary controls. New

Macintosh software, CS-Edit, turns the 10² or its predecessor into a programmable, studio and stage, control station, allowing its various controls to be assigned to different destinations and machines using MIDI, Apple Desktop Bus (ADB) and GPI via a quarter-width rackmount module. Further expansion of the CS-10² is provided by the CS-10x, with eight more faders and switches for controlling larger systems. Up to seven of these can be used with either the CS-10 or the CS-10².

JL Cooper, US. Tel: +1 310 306 4131.

Audio "F" monitors

Dutch manufacturer Audio "F" has introduced a new series of active monitors. The F1 and F2 are designed for professional use, the F2 as a close-field monitor and the larger F1 for OB trucks and broadcast and recording studios. Both use an audiophile version of a 4th order Linkwitz-Riley crossover feeding integral power amps—120W per driver in the F1 and 40 in the F2. Inputs are balanced with adjustable sensitivity, and low frequency-response correction can be made to compensate for the effects of the monitors' position. The close-field model is magnetically screened and comes in a flightcase version.

Audio "F", Netherlands. Tel: +31 21 67 14.

DigiTech Studio 400

DigiTech's new Studio 400 is a versatile multieffects processor with four inputs and four outputs to make flexible use of its capabilities. The unit uses two of DigiTech's proprietary S-DISC II processors to handle up to eight effects simultaneously, in any order, and in any combination. The available effects include several reverbs, delays, choruses, flangers and auto panning, as well as intelligent pitch shifting, rotary speaker simulation, compression, EQ and detune. All parameters are editable, and the 191 factory presets are augmented by 100 user memories. Full MIDI real-time control is supported, and since the unit samples at 44.1kHz at 18 bits there is an optional digital I-O offering AES-EBU and SPDIF access.

DigiTech, US. Tel: +1 801 566 8800.

ARX Phantom Plus

ARX Systems has released the Phantom Plus, a stand-alone, 4-channel, 48V, phantom-power supply. The 1U-high rackmount unit features a highly stable, ultra-low impedance, regulated supply and a passively-buffered grounding system between channels to ensure that there is no grounding interaction or loops. Microphone signals pass through passively, allowing ARX to indulge in specs like a frequency response from DC to daylight—anybody want to check?

ARX, Australia. Tel: +61 3 9555 7859.

ASC DAT-Report

Following the success of the MD-Report package, which added balanced mic inputs and built-in monitoring to the Sony MZ-R3 MiniDisc recorder for reporters' use, ASC has done a similar thing to portable DAT in response to customer requests. The DAT-Report package fits both the Sony TCD-D7 and the newer TCD-D8, and offers balanced XLR microphone input and line output, a small monitor speaker and a longer lasting rechargeable battery, all in a padded case with shoulder strap.

ASC, UK. Tel: +44 1734 811000.

NEWS FROM TUBE-TECH EQ 1A



The new TUBE-TECH EQ 1A is a state of the art full range parametric equalizer. Featuring one channel of low and high cut, low and high shelving and three overlapping bands

AUSTRIA (02) 236 26 123, BELGIUM (089) 41 5278, BRAZIL (011) 604 8339
 DENMARK (43) 99 88 77, FINLAND (90) 592 055, FRANCE (16 87 74 80 90
 GERMANY (089) 609 4947, GREECE (01) 823 8200, HOLLAND (03) 402
 5570, ITALY (051) 766 648, JAPAN (03) 5489 3281, KOREA (02) 741 7386
 NORWAY (55) 951 975, PORTUGAL (1) 353 8331, RUSSIA (095) 956 1826
 SINGAPORE 481 5688, SWEDEN (046) 32 03 70, SWITZERLAND (01) 840
 0144, TAIWAN (886) 2719 2388, UK (1691) 658550, USA (212) 586 5989.

LYDKRAFT

Lydkraft Aps • Ved Damhussoen 38
 DK 2720 Vanlose • DENMARK

INTRODUCING THE LIBRA MUSIC CONSOLE

A NATURAL

The seventh sound wave has arrived. Libra is the new digital console from AMS Neve, with a straight ahead musical bias.



Fully automated and entirely digital, Libra takes the maestro features of its six predecessors and adds phenomenal musical ability, at a midrange price.

Worldclass technology designed and configured by those who write the digital score.

Sounds like you've got to have a demo.



AMS NEVE plc · UK HEAD OFFICE TEL: 44 (0) 1282 457011 FAX: 44 (0) 1282 417282 · GERMANY TEL: 49 (0) 6131 40282 FAX: 49 (0) 6131 42702
USA HOLLYWOOD, CA. TEL: (213) 461 6383 FAX: (213) 461 1620 · NEW YORK, NY TEL: (212) 949 2324 FAX: (212) 450 7339
CANADA RUPERT NEVE INC., TORONTO TEL: (416) 365 3363 FAX: (416) 365 1044 · e-mail: enquiry@ams-neve.com http://www.ams-neve.com



dB One Studios

In the world's recording capitols, a studio's location can make the difference between success and failure. But **CAROLINE MOSS** discovers that in certain parts of the world, it is the facility and the attitude behind it that count rather than tourism figures

LOMBARDY, in the north of Italy, is a region characterised by its lakes and mountains, where for hundreds of years the domes and spires of golden cities have languished in the sunshine. Sadly Dalmine, located just off the A4 autostrade 30km east of Milan and home to db One Studios, is not one of those cities. Instead, the studio is set in the suburbs of a sprawling industrial conurbation, being built into a modern house which looks as if it should be home to a local factory manager and his family. Regardless of this aesthetic handicap, the studio has attracted work from across Europe as well as being linked to several record labels active in Italy's booming dance music scene.

db One has been in its current location for five years, during which time its fortunes have contrasted starkly with its situation. At the beginning of its life it was a purely commercial concern but as time has passed it has found itself being used increasing for in-house productions—the ratio currently stands at a healthy 50-50 split in Studio A with the smaller Studio B being used solely for in-house dance productions. The partnership behind the studio and the labels is that of brothers Bruno and Angel Santori; Bruno is a musician, producer and arranger in addition to being the studio's manager while Angel has been responsible for the development

of the studio's record labels. The brothers used to play in the same band when they were younger. 'He has returned to his first love,' says Bruno fondly, referring to his brother's recent move back into the music industry.

THE PREMISES

housing db One may be a regular suburban Italian house, but the similarity stops at its exterior. All the interior walls were demolished when the studio was being built, and new walls were built to float on rubber isolation between. The studios were designed by Audio Video System, an acoustic design company affiliated to Milan's professional audio distributor Audio Equipment.

Studio A has a versatile 40m³ recording area. The control room boasts a 68-channel Soundcraft 3200 console with a 24-track Saturn analogue multitrack and a 32-track Mitsubishi digital tape machine. The monitors are the largest Genelec models—1035s—and the control room is also equipped with a Pro Tools hard-disk editor, Alesis ADAT and a MIDI suite.

There is a large range of outboard equipment including units from dbx, Eventide, Aphex, bel, AMS, Lexicon, Roland, Apogee filters, Studer DC90 valve preamp, vintage EMT 251 reverberation system and eight channels of Focusrite equalisation



Roby Battini, musician-programmer on many of dB One's in-house production and commercial projects



Although db One is located in an industrial conurbation, the sights and sounds of Italy are not far away

('the most important EQ system in the world,' according to Bruno Santori). There is also a huge array of collectable equipment including a Vox AC30 and keyboards from the likes of Hammond, Steinway and Moog to name just a few. Santori is adamant that, in a country with no studio rental industry to speak of, it is important to provide clients with a good selection of effects, keyboards, microphones and anything else your clients may require. 'We keep a mix of new and old outboard equipment so we can provide two different genres of sound and cater for dance and rock music alike,' he says. 'It's difficult to produce an old sound with new machines and vice versa.'

Studio B, used purely for db One's own productions, has a new 40-channel Soundcraft DC2020 console which was installed in May, together with more Genelec monitoring—1037 monitors with sub woofers, two 1030s and a 1034. In the same spending spree a new effects rack was also ordered and equipped with new Behringer, Lexicon and other effect units. As this studio is mainly used for dance

PHOTOGRAPHS: CHRISTINE RICCI (LEFT) AND CAROLINE MOSS



productions, a huge recording area is not required, so most of the studio is occupied by an extensive MIDI suite. However, there is still plenty of room to record vocals and instruments if required.

BRUNO SANTORI describes his main activities as managing the studios and making pop music for the Italian market. He works with his own, unsigned discoveries and also produces for many of the major labels. One of his major clients is Dublin-based sound engineer John Grims who has worked with the likes of U2, Elvis Costello and Howard Jones, and who now undertakes projects in Italy, bringing them to db One. Another major international client is Jahn Teigen, one of Scandinavia's biggest stars, who has recorded two of his albums at the studio. What was the connection there, then? 'I am trying to remember and I can't,' admits Santori. There follows a drawn out discussion with his brother concerning a restaurant owner friend who, it transpires, recommended db One to the band over a lengthy dinner.


Word of mouth Italian style.

The studio's labels include the Desastre imprint, which specialises in trance, progressive and dream, EXS which is more techno-orientated and Still Frame, which is described as an experimental dance label. Next year Santori is to resurrect two more labels, General Beat and Melody Maker, which specialise in underground house.

The studio was responsible for what the Santoris refer to as 'the first "dream" song in the world to be released,' Roland Brant's 'Nuclear Sun'. Recorded three years ago, this track has just been remixed and rereleased and at the time of writing was holding the No.7 spot in the Italian charts. It has also charted in France and Germany. This testifies to another of Angelo's fortes—to secure Europe-wide licensing deals for this label's product.

When pressed, Bruno Santori doesn't seem altogether sure why international clients should have chosen to come and record at his studio. In all likelihood the explanation is most probably due to the passing of the word on the street, with

reputations being forged by artists, producer and record labels. There can be no doubt that this strangely-located studio has made its name through its successful productions, professionalism and good relationships within the Italian music industry.

'We don't like big towns, so this location is perfect for us, being just a half-hour drive from Milan and the major record labels,' says Santori. Producers, engineers and musicians can be supplied from a large pool of contacts, accommodations deals are in place with several nearby hotels, the local restaurant serves amazing food and, if it really matters to you, those little domed towns dreaming in the sunshine aren't that far away after all. 

CONTACTS

DB ONE STUDIOS, via San Martino 2,
24044 Dalmine (BG), Italy.
Tel: +39 35 561 081.
Fax: +39 35 370360.

Three's company



'It would be more than a full-time job to design and install a sound system to suit each stadium, then fine tune it through equalisation and the placement of the loudspeakers to create a working system'

The overwhelming international success of *The Three Tenors* live tour has done much to bring opera into the hearts and minds of the everyday man on the street. **SUE SILLITOE** talks to John Pellowe the man behind the classical live sound

ASK DECCA SOUND ENGINEER

John Pellowe which of the three tenors he likes most and he's at a loss to know who to choose. For although his primary loyalty is to Luciano Pavarotti—the tenor he has worked with for over 20 years—he has grown equally fond of José Carreras and Plácido Domingo having worked extensively with them during the hugely successful *The Three Tenors* concerts that have become landmark events in the classical world.

The runaway success of the *The Three Tenors* began in 1990 when Pavarotti, Carreras and Domingo were brought together with Conductor Zubin Mehta for the World Cup in Italy. While opera purists closed their eyes in horror at such an overtly commercial venture, the public at large couldn't get enough of them and packed arenas all over the world whenever the tenors deigned to put in an appearance.

And at every single event, somewhere in the background was John Pellowe, working hard behind the scenes to ensure that the concerts lived up to public expectation.

For a man who describes himself as 'a high school failure' and who left school with virtually no qualifications, Pellowe has come a long way.

Since the mid-1970s he has been a Decca engineering stalwart, notching up countless recordings for the classical label as well as handling many of the arena concerts undertaken by Pavarotti—both as a solo artist and as part of *The Three Tenors*.

'At school the only thing I was interested in was drama—particularly lighting and sound engineering,' Pellowe comments. 'I think this fascination with the theatricality of live events is what has spurred me on. I have a strong interest in the whole show business product—not just with the sound, but with the overall effect of the concert. I want the set to look good, the stage to look good—everything. I'm well known for interfering in areas that have nothing to do with me and I probably drive people completely nuts as a result!'

Although Pellowe always knew he wanted a career in the music business, it took him two years after leaving school—and countless rejection letters—before he landed a job with Decca as a tea boy in the location department. He worked his way up through the ranks until he achieved the status of engineer and among those who gave him help and encouragement were Kenneth Wilkinson, who retired in 1980, and James Lock, who introduced him to opera and was responsible for putting him behind the mixer.

'I started with simple things such as

chamber music and then moved on to opera and full orchestras,' he recalls. 'Sometimes recording a symphony orchestra can be easier than recording just voice and piano because you can almost hide behind the various instruments. With a small ensemble everything is so exposed that if something isn't miked properly or the perspectives are not perfect you soon know about it.'

Although in the pop world many engineers aspire to be producers, in the classical field Pellowe sees the two roles as compatible yet quite distinct. He explains: 'At Decca, the producer is responsible for the artistic side of the product while the engineer is responsible for the technical side. Although the engineer has a great deal of autonomy, there is still a huge amount of interaction between us and I'd never do anything a producer didn't like because we work as a team.'

Pellowe believes this teamwork is what makes Decca so special. 'I know people from all around the industry who are quite envious of the relationship we share with our producers,' he says.

Pellowe has a long list of credits to his name, but it is his relationship with opera

don't really give him the opportunity to do that because they tend to be one-off events, they are not always perfect artistically and in any case we don't generally record them.'

Pellowe's concert commitments certainly keep him busy and leave less time than he would like for other more straightforward recording projects.

'I'm doing about 20 concerts a year for Pavarotti. Sometimes we record them for a TV broadcast but the standard concerts are not recorded because we have no license to do that and have no commercial appeal as all the repertoire has been released before in full operas and as compilations of Neapolitan songs.'

With any arena concert, Pellowe says he would be lost without the help of a proper sound designer as each venue is so acoustically complex. 'Every arena and open space we work in has a completely different acoustic and creates different acoustical problems,' he says. 'It would be more than a full-time job to design and install a sound system to suit each stadium, then fine tune it through equalisation and the placement of the loudspeakers to create a working



—and in particular with Pavarotti—that has put him on the map as a sound engineer.

The Pavarotti connection was brought about by James 'Jimmy' Lock who Pellowe worked with on many projects during the 1970s and early 1980s, including a number of Pavarotti recordings.

By 1978, Pavarotti, who is signed to Decca, had begun to undertake arena concerts and after a few initially bad experiences with live sound engineers who didn't understand classical repertoire, he asked Decca to release Lock for the task.

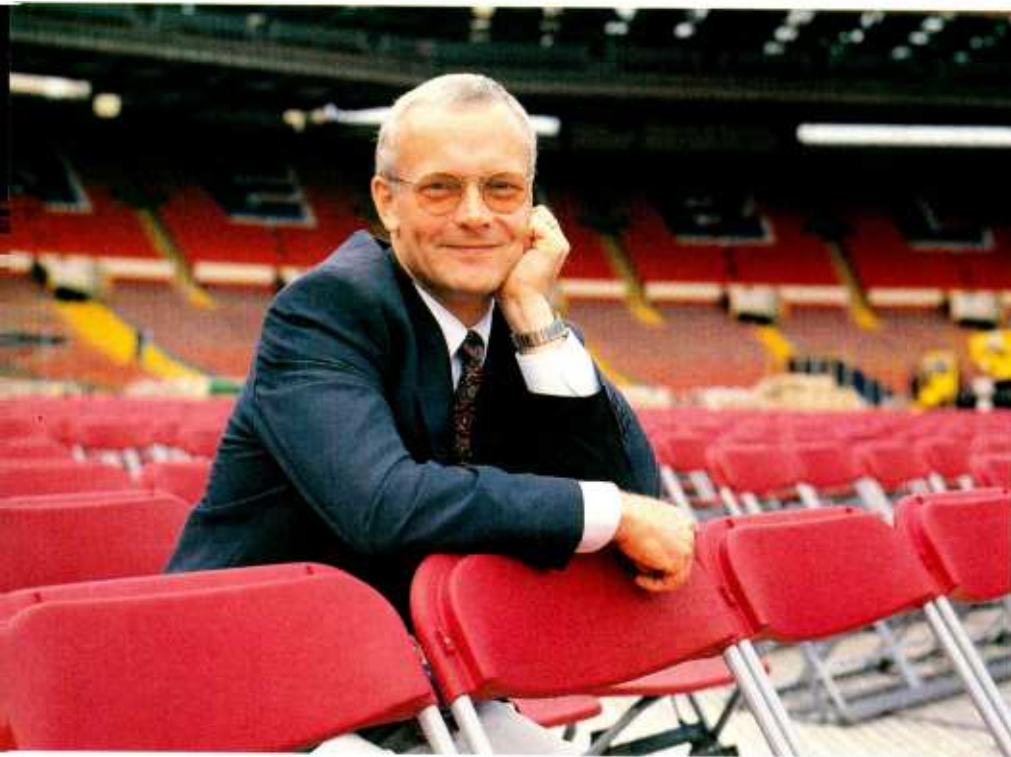
'After a while Jimmy found the arena commitments too much so we joined up as a team. Then I started handling the occasional concert on my own when Jimmy had other projects to look after. He felt I had gained Pavarotti's trust sufficiently to be able to do the job. Now we have reached the stage where Jimmy takes a back seat as far as the concerts are concerned because he wants to concentrate on leaving a professional legacy on tape. The concerts

system—which, in any case, is not a job I would do well.'

As sound engineer and sound director, Pellowe says his responsibility is to devise a realistic miking scenario—something that works, is reliable, gives a sensible resistance to feedback once the system is cranked up, but also gives a sound that is plausible.

'We have to ensure that the orchestra still sounds like an orchestra and to some extent the two things are contradictory,' he says. 'It's very easy in the sound-reinforcement business to use tight cardioid microphones—very directional microphones that give you quite enormous resistance to feedback and a huge amount of gain on the sound system. But very narrow cardioid mikes tend to sound a bit thin. It's not so much of a problem on woodwind, but with strings one

It ain't over 'til the fat laddies sing: Domingo, Carreras and Pavarotti exercise their lungs at Wembley, London on 6th July 1996



The calm before the storm: John Pellowe in reflective mood on the eve of *The Three Tenors* recent London concert

both he and James Lock have spent so long recording orchestras in quality venues using omnidirectional microphones such as Neumann 50s as part of the famous Decca Tree that the sound is permanently stored in their memories. This means they can experiment with alternatives in a live situation and still accurately judge the overall effect of what they are creating.

'We can contrive it and I don't mind admitting that the sound we produce in big arenas is fairly contrived because it relies quite heavily on artificial reverberation and heavy equalisation,' says Pellowe.

For arena concerts Pellowe prefers to use Schoeps cardioid and subcardioid mikes because he trusts them, and has never had one fail at a crucial moment. 'If you're working very fast to set up and produce a concert without sufficient time to do all the pre-concert checks that you might like to do, then you have to know that your mikes are trustworthy. With Schoeps I can make certain assumptions that I couldn't make with any other type of mic.'

In order to make the arena concerts sound as good as possible, Pellowe relies on close miking which is in contrast to the way classical music is normally miked. He explains: 'Classical music is traditionally recorded from a distance. Violins and stringed instruments don't sound right when you get a microphone close up, particularly if you are in a situation where you are mixing rock and roll, and orchestral music as we did recently in Modena when we recorded a charity concert featuring Pavarotti; Elton John; Eric Clapton; Lisa Minelli; Zucchero; the Kelly Family; Joan Osborne and Sheryl Crow.

has a lot of difficulty getting a decent classical string sound using this type of mic.' Pellowe believes years of experience is the key to ensuring arena concerts sound good.

He cites the fact that

'With a concert like that, where you have very loud drum kits on stage, you have to rely on little bug mikes on each of the instruments because that's the only way to get the orchestra across. I'm the first to admit these sound quite ghastly if you listen to them in their natural form, but I use a lot of equalisation.

'With careful EQ I've found that you can remove the artefact in the stringed instrument pickup that makes it sound close. I'm really quite brutal with the EQ. Depending on the instrument, it requires rolling a lot of high end and a lot of mid frequencies—from

'We tend to be a bit conservative because our shows have to be put together so fast that it doesn't give an awful lot of time for trials and experimentation'

1kHz up to 4kHz—on quite a wide cue so that you take away the presence before feeding it to reverb. Quite often I'll have quite a short reverb, but one that is also quite deep and the combination of the two seems to work.'

For equalisation, Pellowe is yet another engineer who has fallen in love with Focusrite. For *The Three Tenors* he uses the dual stereo EQ from the Focusrite Red range, combining it with a TLA 100 valve compressor which is useful in removing sibilance and adding warmth.

'I like the Focusrite Red EQ because it gives us that bit extra. The tenors tend to get fairly close to their microphones, which they have to do in order to hear themselves in their monitors, so I use the Focusrite to take out

the presence and fine tune the sound so that it seems as though they are quite some distance from their mikes.'

Normally Pellowe and his team only have one day to set up a concert—a 4am load-in with the concert scheduled for 8pm is not unusual. 'It's tight,' he admits. 'We are usually putting up four clusters of loudspeakers and setting a stage which is often hampered by the fact that you've got a lighting rig sitting on the stage two hours before the soundcheck.

'We always insist on a soundcheck a couple of hours before a show. The orchestra comes along and quite often we have a stand-in tenor so that the artist can rest his voice. The soundcheck is vital because it gives us a feel for what the arena is doing. It also gives our System Design Engineer—Alexander Yuill-Thornton II (who has done almost every one of the 150 Pavarotti concerts to date)—a chance to hear what's actually happening.'

For sound reinforcement, Pellowe and Thornton prefer to use Meyer loudspeakers in various combinations.

'We are very careful to stay within the same family of loudspeakers, but as Meyers brings out new models we try them, and if they work for us we introduce them slowly. We tend to be a bit conservative because our shows have to be put together so fast that it doesn't give an awful lot of time for trials and experimentation.'

Pellowe does, however, like to experiment with the positioning of microphones and quite deliberately doesn't do the same thing twice unless the results were really fantastic.

'Obviously, when I'm recording I will document where everything went so that if I have to go back and do the same session three weeks later I can match the sound. But with the shows, I move things around all the time and try different positions because I think engineering sound is a constantly changing process.'

Although most of the arena shows Pellowe handles are not recorded, there are notable exceptions—such as *The Three Tenors* concert in Los Angeles in 1994 which was recorded for a number of different formats and has subsequently sold over eight million units.

When a show is destined for posterity, Pellowe has to be aware of quite a few potential pitfalls. He explains: 'In a regular concert you can be close to feedback and no-one knows about it because we always set our systems up in such a way that if it's going to go into feedback it does so very gently. There's a build up in the bass end so that the timpani notes and bass drum will start to roll on a bit longer than you expect. When that happens we know we are getting close to the edge but the public doesn't notice—and if they do they perceive it as reverberation.

'If you are recording a show with the system set up like that you could end up with artefacts on tape that you really don't want so you have to be a bit more careful. When you're recording there is a temptation not to drive a system quite so hard.'

Pellowe says it is vital that the recording engineer trusts whoever is mixing the front-of-house sound, especially as the recording engineer is usually stuck in a mobile well away from the front of the stage. With the 1994 *Three Tenors Concert*, it was James Lock on the front-of-house mixer while Pellowe worked on the live-broadcast mix

MORE PERFORMANCE FOR LESS MONEY



SOUNDS UNBELIEVABLE

But it's true. Based on the already world-beating SV3700, Panasonic's new SV3800 DAT recorder actually delivers superior sound quality and enhanced features ...

... at the new low price of just £1099 excluding VAT!

- 20 bit DACs for wider dynamic range, lower noise and greater linearity – this DAT recorder sounds sensational.
- AES/EBU, coaxial and optical digital I/Os, with selectable digital output formats. Professional or consumer formats – they're all here.
- Selectable 44.1 and 48kHz sampling rates – so you can master at the CD standard.
- Setups easily selectable from the front panel for digital I/O terminals, digital output format, analogue output level, single program play on/off, blank skip on/off for program play and ID-6 status for SCMS.
- Precision engineered for professional use. Beware of "uprated" consumer machines, the SV3800 is a pro machine from the ground up.
- Single Program Play mode – vital in broadcast, post-production and live sound applications.
- Shuttle wheel with dual speed range.
- Skip Search and Program Number search for convenient cueing.
- Adjustable analogue output level.
- 50 function parallel remote control.
- Professional 'Error Rate' and 'Hours In Use' displays.

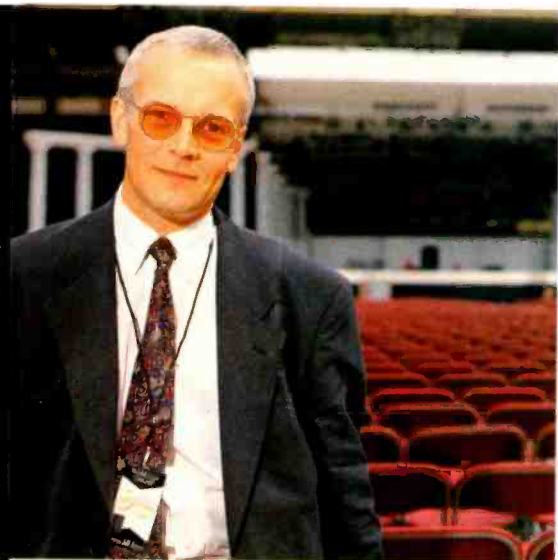
The Panasonic SV3800 represents incredible value in professional DAT. Contact HHB Communications today for details of your nearest HHB DAT Centre.

Panasonic **SV-3800** **DAT**
Digital Audio Tape

Distributed by: HHB Communications Ltd · 73-75 Scrubs Lane, London NW10 6QU, UK
Tel: 0181 962 5000 · Fax: 0181 962 5050 · E-Mail: sales@hnb.co.uk



INTERVIEW



At £1,000 each, these ain't the cheap seats

if someone has a fader in the wrong position because I'll have an absolutely flat tape, and provided it is correctly set in terms of level I can start again with that multitrack tape when I get into the remix room.'

With *The Three Tenors* recordings, Pellowe says 48 tracks of digital is just about enough. Sometimes he lays the audience microphones onto a separate machine—usually a Tascam or Sony PCM800. He says: 'I do this because the audience mikes are a long way from the stage and I can very easily put a time-code offset into the audience microphones to time align them with the stage. If you can time align the audience crowd reaction with the stage you hear a lot less sound system contamination and you end up with a much purer sound.'

For reverberation, Pellowe likes to use Lexicon 480s because they are reliable and give a very natural sound. He says: 'The medium hall setting is very good for classical music and I'm quite happy to use it when I'm recording in the open air.'

For front-of-house mixers, Pellowe tends to stick with Ramsa—again because they are reliable and easy to set up—and because they can be obtained anywhere in the world. He has tried other mixers, but comes back to the tried and tested because it's what he knows. As for the new breed of digital mixers, he says: 'I have reservations about using digital mixers on live shows because when they crash they crash. The tape machines are fine—we used the Sony PCM3348 all the time. But I don't feel comfortable with digital mixer technology yet.'

At any concert—whether it is being recorded

'I have reservations about using digital mixers on live shows because when they crash, they crash. The tape machines are fine—we used the Sony PCM3348 all the time. But I don't feel comfortable with digital mixer technology yet'

or not—Pellowe feels that the buck stops with him. 'There are so many facets to engineering the really big shows and I'm ultimately responsible for the final result, even though I don't do everything myself. On a big show I can have as many as 25 people working with me, but I still take the rap if anything goes wrong so I make sure we run through a preconcert checklist covering everything you can think of, just to be sure.'

This attention to detail is why Pavarotti trusts Pellowe and is happy to have him as part of team. And the trust and affection is reciprocated. 'I will support Luciano for as long as he sings,' he asserts, 'and for as long as he wants me to. This is a deep personal commitment. There are other things in life that may or may not change, but as far as Luciano is concerned, that's how I feel.'

and the recording.

He says: 'I do quite a lot of live broadcasts while at the same time laying sound down to multitrack. One of the rules I have with these shows is that each mic has to go directly to multitrack—one mic to one track. It will go through a split at the front-of-house console and then feed into the mobile where it will go into a preamp on the mixer and then straight to tape before any faders, equalisers, pan pots or any kind of dynamics effects are added. This way, it doesn't matter

Winners in any event

Just part of the eight hundred strong A-T team of multi-discipline performers **at the 1996 Atlanta Olympic Games**

AT4033

AT4041

AT4050

audio-technica.
The Complete Microphone Solution

Technica House, Royal London Industrial Estate, Old Lane, Leeds LS11 8AG
Tel: 0113 277 1441 Fax: 0113 270 4836

www.americanradiohistory.com

Inspired
TASCAM

The chase is on

**Locked-up and running: the Tascam DA-60 MKII
with built-in chase synchronizer
and advanced RS-422 protocol redefines
the performance standard for timecode DAT.**

- built-in chase synchronizer locks to and generates all timecode formats
- locks to external word clock and video sync
- advanced RS-422 implementation provides extensive machine emulation
- improved servo hardware and control software provides extremely fast lock-up times
- 3 second audio buffer provides instant start and auto in/out functions
- use of Data entry wheel allows instant start and auto punch in/out points to be defined with frame accuracy
- 4-head transport provides off-tape monitoring and seamless punch in/out points with digital cross-fade
- Assemble and Insert recording modes
- new high performance A/D and D/A converter circuits provide extended dynamic range, improved signal to noise performance and eliminate zero-cross distortion
- Continuous timecode recording in Assemble mode
- AES/EBU and balanced XLR stereo inputs and outputs
- most affordable professional timecode DAT recorder available

TASCAM 5 Marlin House, The Croxley Centre, Watford, Herts, WD1 8YA.
Call Gill Walker on the **Brochure Hotline 01923 819630**



They think it's all over...

The blossoming broadcast market in the Far East is much written about, but not fully exploited by the manufacturers, writes **KEVIN HILTON**

Sometimes inspiration comes to us and, in the case of writers and broadcasters, we may create a wonderful sentence or phrase, one that sums up the event we are covering in one neat, eloquent and memorable package. This happened to the football commentator Kenneth Wolstenholme in 1966 at the end of that World Cup final between Germany and England. The trouble is that the phrase has now become over-used to the point of agony, so much so that I can't bring myself to reproduce it so you'll know what I'm talking about (I can, it's now the headline—Ed).

In fact, the phrase has become somewhat meaningless because of its over-use. I find the same happens when talking to people about broadcasting business: in the past year or so a lot of manufacturers have been saying that Asia is a burgeoning market for them. On hearing this journalists write it down, go off and publish this observation, very often without fully exploring why business is so good in Asian broadcasting at the moment.

Now this is probably down to the fact that the territories we're talking about are a long way away, or it could just be sloppy thinking. Either way round, there must be a lot happening there because just about everyone I know connected with the industry keeps flying out there (and by there I mean Singapore, Korea, Malaysia, Thailand and Hong Kong, with the growing importance of China looming in the background).

All this activity may suggest that broadcasting in Asia is still in its early stages and so lags behind Europe, the US and Japan but this would be an arrogant and incorrect conclusion. Like Europe, the broadcasting market in Asia can be divided between the programme makers and publishers (particularly the national, state and commercial organisations); independent producers; and the postproduction houses.

The first grouping is normally seen as rather circumspect bodies, who recognise the importance of keeping up with the new trends, but have to weigh up what

they want against the budgets they have been set by the suits. This, of course, is no different whether the chief engineer concerned is sitting in an office in London, Houston or Kuala Lumpur. Alan Campbell, the Sales Manager with responsibility for Asia at DAW-maker DAR, observes: 'Things aren't really that different to how they are here—the main broadcasters are like their Western counterparts. They don't spend like it's going out of fashion, but they do try to keep up with the trends.'

One such trend is satellite, partly because delivery and transmission formats are of great importance in such a large and spread-out region, which includes countries, like China, that are large and spread-out to start with.

CHINESE TELEVISION has seen phenomenal growth over the last 15 years and to continue this progress the various services must now start reaching the remote rural areas of the country, particularly as digital services and Pay TV are becoming realities. As this is a huge and hilly country, satellite will play a major part in delivery, as will single master antenna TV (SMATV) and MMDS (wireless cable).

One of the newest satellite broadcasters is the Kuala-Lumpur-based Measat Broadcast Services, that has recently competed Phase One of its studio installation. This project has involved seven digital consoles for production and postproduction purposes, including a 48-channel AMS Neve Capricorn for live broadcast, four Logic 3s with AudioFile Spectras (two for dubbing and two for ADR) and two Logic 2s, which will operate in the live-sound production department.

A sign of how seriously this region is being taken can be gauged by the number of non-Asian concerns that are setting up here. The Asia Broadcast Centre, Singapore's newest provider of satellite uplink facilities, is a joint venture between Australia's Yarra Films and Group W Network Services of Connecticut, US and is currently operating with a mixture of tape and disk technology, including Odetics cart machines, Sony Digital Betacam and Tektronix's Profile DDR-3. Among clients who have already signed

up with the Centre are The Discovery Channel, Liberty Sports and Sony Entertainment Television.

Such uplink centres aren't short of customers as 40 satellites are currently in orbit above Asia, with 12 more to be launched during this year. Operators include Intelsat, PanAmSat, Measat and Thaicom, while among the services offered are CNN and Rupert Murdoch's Star TV.

While this may sound like usual Western imperialism, pushing into a market to show the locals how it's done (so they would like to think), there are a number of broadcasters and facility houses that are looking to return the compliment.

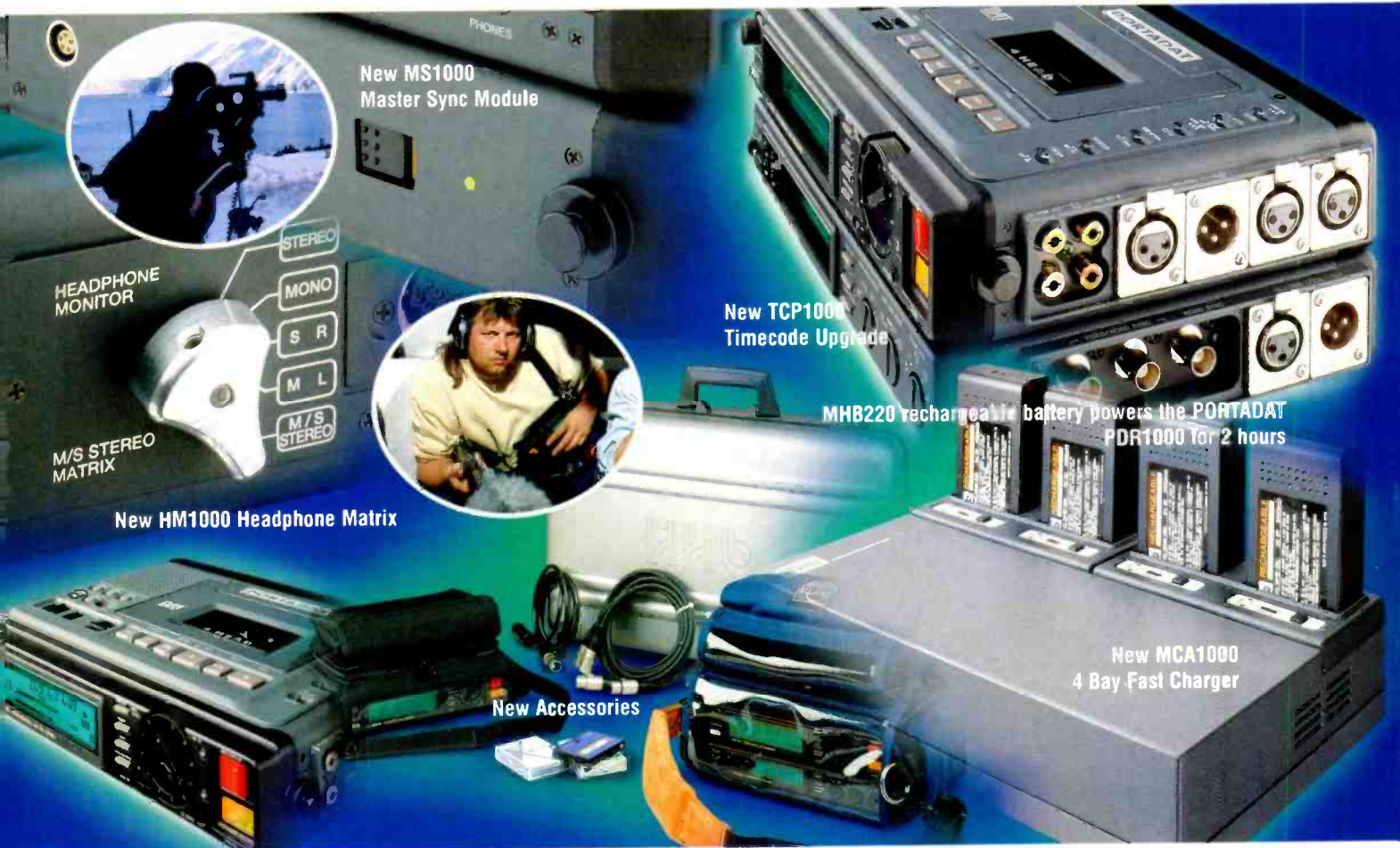
All this activity may suggest that broadcasting in Asia is still in its early stages but this would be an arrogant and incorrect conclusion

The desire to work on a global platform can be seen in Thailand, where Bangkok's Media of Medias Group (MOM) is looking to offer facilities to overseas companies, as well as servicing the country's five terrestrial TV channels. MOM has raised its share of the local market by 40 hours to 100 hours a week and is also supplying programmes to Channel 18, a cable service in Los Angeles.

Like any region, Asia has had its unstable eras, but even countries that have troubled pasts are proving to be healthy markets for broadcast equipment. While countries like South Korea have had their problems, the administrations have worked towards stability, something that more Western countries have yet to achieve. As Alan Campbell at DAR says, it is perhaps easier to trade here than it is with certain Eastern European countries.

PORTADAT

PORTADAT DELIVERS



New MS1000
Master Sync Module

New TCP1000
Timecode Upgrade

MHB220 rechargeable battery powers the PORTADAT
PDR1000 for 2 hours

New MCA1000
4 Bay Fast Charger

New Accessories

No wonder PORTADAT is the industry standard choice of professional sound recordists. While other DAT portables claim to have the features and reliability you need, only the PORTADAT really delivers. And because we listen and respond to the changing needs of our professional customers, the PORTADAT just keeps getting better.

New MS1000 Master Sync Module Makes the PDR1000TC the most accurate timecode DAT recorder in the world, with a maximum drift of 1 frame in 10 hours. Also provides pull up from 29.97DF to 30DF and Aaton camera compatibility via a standard Lemo socket.

New HM1000 Headphone Matrix Switchable for Stereo, Mono Left, Mono Right, Mono Sum and MS (Mid-Side) Stereo modes. Can be fitted to both PDR1000 and PDR1000TC.



HHB Communications Ltd · 73-75 Scrubs Lane, London NW10 6QU. UK
Tel: 0181 962 5000 · Fax: 0181 962 5050 · E-Mail: sales@hhb.co.uk

HHB Communications Inc · 43 Deerfield Road, Portland, Maine 04101 1805, USA
Tel: 207 773 2424 · Fax: 207 773 2422 · E-Mail: 75671.3316@compuserve.com

Visit HHB on line at: <http://www.hhb.co.uk>

New TCP1000 Timecode Upgrade PORTADAT PDR1000 owners can now upgrade to full PDR1000TC timecode specification.

New MCA1000 4 Bay Fast Charger AC/DC powered for fast charging and discharging of 4 MHB220 batteries, providing a total of 8 hours of power for the PDR1000.

New Aluminium Case A new, light weight, hard shell case now complements the standard PORTADAT quick access soft case (supplied) and the optional Portabrace cases.

For the serious choice in professional location sound recording, contact HHB or your nearest PORTADAT dealer today.

HHB DAT Tape – independently proven to be the world's most advanced range of professional DAT tape.

DAT
Digital Audio Tape





It's 20 years since the shock of punk, and the most notorious practitioners of the form, The Sex Pistols, have reformed for a tour and a live album.

KEVIN HILTON takes a look to see how they shape up

THEY COULDN'T QUITE conjure up the same hype and media attention as 20 years ago—£175,000 from three record companies in six months, scandalising an entire nation by saying 'fuck' on Bill Grundy's tea-time TV show and mocking the Queen—but the reformed Sex Pistols were sure going to try.

At a carefully chaotic press conference, broadcast over the Internet, John Lydon, the former Johnny Rotten, sneered that they were only doing it for the money. When they came to play their first UK gig on the reunion tour, the fans, and a bemused recording crew, were confronted by posters advertising the upcoming new single and album of the show, without a single note played or a reel of tape unwrapped.

They wouldn't have had it any other way. Their recorded oeuvre is not massive—one complete album (the defiant classic *Never Mind The Bollocks*); the soundtrack to *The Great Rock & Roll Swindle*; a couple of cobbled import efforts, and a few additional

singles, many of them collector's items—but it was felt that there was enough to tour with.

Virgin Records, the company that eventually made some money out of the snarling, gobbling foursome, decided to record new product, but without the hassle of going into the studio and producing something new. As Lydon observes on the record, they're fat and 40, but the fans are glad that they're back, no matter how bad the advance reviews were.

The reformed Pistols comprise Lydon on vocals and tart comments; Steve Jones on guitar; Paul Cook on drums; and original bass player Glen Matlock, the man who actually said the f-word on the *Today* programme and was later booted out of the band in favour of the doomed Sid Vicious, who couldn't play, but at least looked the part. Armed with the songs from their first album, the Pistols kicked off their world tour at a beer festival in Finland. Nobody, except the press seemed to take much notice, but this didn't daunt Lydon: 'We're the Pistols, nobody likes us and we don't care,' he warbles in between songs.

The gigs continued with more outdoor shows in Munich, Germany, and Finsbury Park, London (fittingly the area where Lydon was brought up), followed by an indoor show at the Paris Zenith. These last three concerts were recorded as the basis for a live album. The aptly titled *Filthy Lucre Live* was released during July to almost universal acclaim, and is a record of the Finsbury Park concert only; the intention is to release an alternative version at a later date featuring recordings from the Zenith show. *Filthy Lucre Live* shares an almost exact track listing (plus a cover version) with the now

reissued *Never Mind The Bollocks*. Like its 1976 equivalent, the new album was produced by Chris Thomas (who, unfortunately, proved unavailable for comment), who has recreated the raw, spare, aggressive sound that spat in the face of the recording buying public 20 years ago. The single, *Pretty Vacant*, preceded it, coming into the record shops only a few weeks after the London show.

BOTH THE FINSBURY PARK and Munich concerts were recorded on digital Sony multitrack to accommodate the length of the performances, which ran to 1 1/4 hours. This running time was achieved despite their relatively small back-catalogue and comprised the whole of *Never Mind The Bollocks*, plus a suitably punked up version of the Boyce-Hart Brill Building semi-classic '(I'm Not Your) Stepping Stone', a hit first time around for another management created band, The Monkees. The German gig was recorded in the Dirks Mobile, but Thomas and the band decided not to use the tapes, mainly due to the show being washed out by bad weather. Explaining the reasoning behind the

The fans, and a bemused recording crew, were confronted by posters advertising the album of the show, without a single note played or a reel of tape unwrapped

More Cash More Chaos



decision, recording and mixing engineer Pete Lewis says: 'We didn't use the Munich recording because the band went on in torrential rain and the audience was covered in mud, so they weren't particularly happy. When we got to London the next day it was brilliant—the weather was good, the crowd was vibed up, and there were lots of other good bands from the same era on the same bill.'

As well as the now standard CD release, *Filthy Lucre Live* has been pressed onto vinyl as a 'throwback' to the 70s, but this intention


didn't stop the show being recorded in the digital domain. 'It's just the convenience of digital,' explains Lewis. 'It would have been great to have recorded it all on analogue, but it's just too risky, what with continual reel changes and so on. And if anything had gone wrong, then we wouldn't have known with analogue, but with digital, it either works or it doesn't.'

The two Sony 3324s were loaded into a Transit van and driven on site, located next to a SSL equipped BBC radio outside broadcast truck, which was relaying the concert live to air on BBC Radio 1FM. 'We recorded in 24-track,' says Lewis, 'running a master recorder five minutes after the main to get a good overlap. This meant that we had 90% of the show for sure, which is a good safety margin.' Stage feeds came into the BBC truck, where Studio Manager Ted de Bono prepared the radio broadcast mix on the SSL, with the desk's mic gain faders providing the level output to the 3324s next door.

'Originally we had booked another mobile to do the gig,' Lewis says. 'We didn't know that the BBC was going to be there as well; they approached us and it turned out to be a good idea to do both at the same time. The recordings were made flat, straight off the mic gain, because sometimes you can get caught up in the technology of things. As long as it sounds good at the time, that's all right.'

As the Pistols are only a three-piece band—plus vocals (we couldn't forget La Rotten)—there were only 19 feeds coming from the stage, which were fleshed out with three stereo pairs to capture audience reaction.

'We put two mounts on the stage to hear the audience,' says Lewis, 'and two more at the mixing position to hear what the engineer was hearing. This gets the ambience and the sound of the rig, so it's a live gig that's about you and 25,000 friends.' The tapes were taken to The Townhouse studio complex in West London, ironically a member of the EMI Group, particularly as the Pistols' paean to the venerable record company sits snugly on the album.

Thomas and Lewis decided to give themselves plenty of choice in their lay-back formats, mixing on 48-track and transferring from there to DAT and 1/2-inch tape, with a backup and comparison version made on 

NEVER MIND THE BOLLOCKS

(HERE'S THE SEX PISTOLS)

has become a punk classic. Leaving aside the clouding issues of the money, the swearing, the choreographed outrage and what happened to the band afterwards, the album is a tight, raw example of a different type of rock and roll, all tied up by Chris Thomas' straightforward production. The album was recorded at Wessex Studios, where the band had been putting down demos, with Bill Price engineering.

Thomas was contacted by the Pistols' Machiavellian manager, Malcolm McLaren, and invited to produce the album proper, which he agreed to do, not so much for the socio-cultural significance, but because he felt he could make a good rock and roll record with them.

'I thought they were fantastic,' he told John Tobler and Stuart Grundy, 'especially on 'Anarchy In The UK', there was the most incredible atmosphere in the studio.* One thing that has dogged the record is the persisting rumour that the Pistols did not play everything on it. In particular, legend has it that it was Chris Spedding, a leading session player of the time, and not Steve Jones who produced the barbed-wire guitar sound that is so identified with the band. Thomas has said of this, 'Despite all the rumours, Chris Spedding didn't play

anything on their records.**

Spedding himself recently said that he was involved with the Pistols by supplying equipment for their rehearsals and by giving early encouragement, but confirms that he didn't play on *Never Mind The Bollocks*. Thomas added that the only substitution came with Sid Vicious, whose bass work was largely played by Steve Jones.** The discussion rumbles on, but engineer Pete Lewis hopes that *Filthy Lucre Live* will dispel any doubts. 'If you listen to this and then to *Never Mind The Bollocks*, you can tell that it's the same guitar player,' he says.

The album itself is more than just a live rehash of the studio original; it delivers the energy hinted at, even though it is 20 years on, and has the additional pleasure of Lydon-Rotten and the boys thrashing through the old Monkees' song '(I'm Not Your) Stepping Stone'. Tongue in cheek? Coming out the other side...





'Ever thought you'd been had?' (again): has 20 years taught anyone anything?

two spare tracks of the master multitrack. The master mix was in turn laid onto DAT and 1/2-inch tape. 'The 1/2-inch sounds very rock & roll,' explains Lewis, 'but we've got both there and sometimes one wins, sometimes the other. We also mixed to two tracks on the 48-track as a backup and a comparison.' As the transfer to DAT was made, the mixes were loaded into a Studio Audio SADIe Portable, which was used for tracking and editing out any pauses between numbers, plus making CDs for the crew and band so that everyone could hear how the project was progressing.

'Everything that Chris [Thomas] does is compiled and mastered in the studio control room,' explains Lewis, 'Sometimes this means that everyone gets so close to something, knowing how it sounds, so it's good to be able to take a CD home and listen to it in a different environment.' The SADIe Portable was fitted with a 4Gbyte removable drive, which gave Lewis enough capacity for tracking the album, even though the release CD contains 15 tracks and runs to 53 minutes and 38 seconds.


Would you buy a cover version album by a band covering its own songs?

'We never really ran

out of space on the 4G drive,' he says, 'on previous projects I've had up to 9G. With the SADIe you don't lose anything: it doesn't go wrong and the audio quality is nothing but excellent.'

When it came to the final transfer for mastering, which was also done at Townhouse, the completed mixes were laid onto 1630.

As rumours have persisted that the Pistols didn't play on *Never Mind The Bollocks*, it is, perhaps, natural to think that *Filthy Lucre Live* would have undergone some cosmetic touches in the mixing suite

Mixing was carried out in Studio 4 at The Townhouse, using the room's SSL 4000 console fitted with E Series EQ and a G Series computer. There were a total of 72 inputs, using only 34 faders. Ever since such one-time classic live albums as Thin Lizzy's *Live and Dangerous* were revealed to be not as live as they would like you to think, artists and producers have either admitted to tinkering with things in the studio or have gone out of their way to emphasise the totally live, unadulterated nature of the recording. As rumours have persisted that the Pistols didn't play on *Never Mind The Bollocks* (rumours that have been consistently refuted), it is, perhaps, natural to think that *Filthy Lucre Live* would have undergone some cosmetic touches in the mixing suite, but Pete Lewis is adamant that there were no overdubs or repairs. 



International Head Office

Grimhøjvej 3, 8220 Brabrand, Denmark
Phone: (+45) 86 26 28 00
Fax: (+45) 86 26 29 28
Email: tc@tcelectronic.com
WWW: http://www.tcelectronic.com

U.S.A. TC Electronic Inc.

Phone: (805) 373 1828

GERMANY: TC Electronic GmbH.

Phone: 05231 92972

ARGENTINA: (01) 774 7222

AUSTRALIA: (02) 9975 121

AUSTRIA: (01) 601 17

BELGIUM: 011 28 1458

CANADA: (805) 373 1828

CHILE: 2 246 2333

CHINA: 02 362 020

CYPRES: 5 36 798

CZECH REPUBLIC: 0455 622 59

FINLAND: 0592 055

FRANCE: (01) 48 63 221

GREECE: (01) 8837 629

HOLLAND: 0302 414 500

HONG KONG: 02 362 020

HUNGARY: 22 328 990

INDIA: (022) 633 545

INDONESIA: 21 829 220

ISLAND: 588-5010

ISRAEL: 03 562 236

ITALY: 51 766 648

JAPAN: (052) 443 553

LEBANON: 961 1 581188

LITHUANIA: 2 296 828

MEXICO: 25 5380 050

NEW ZEALAND: 7 847 3414

NORWAY: 22 710 710

POLAND: (48) 58 510 470

PORTUGAL: (1) 4754 34

RUSSIA: 503 956 182

SINGAPORE: 108. 7489333

SLOVAKIA: 07-214 051

SOUTH AFRICA: (EMS), (11) 482 4470

SPAIN: 335 177 62

SWEDEN: 46 320 370

SWITZERLAND: 56 450 217

TAIWAN: 2 719 238

THAILAND: 2 480 6923

TURKEY: 212 275 58

UK: 0181-800 82



Magic

for your ears

You will love the Wizard M2000. This digital multi-effects processor is specifically designed for the artist within you. Based on the unequaled DARC™ chip, the two independent engines deliver uncompromising effects, meeting the high performance demands of your ears. The clarity, density and feel is beyond anything you have ever experienced before. It will lift your music to the highest quality level.



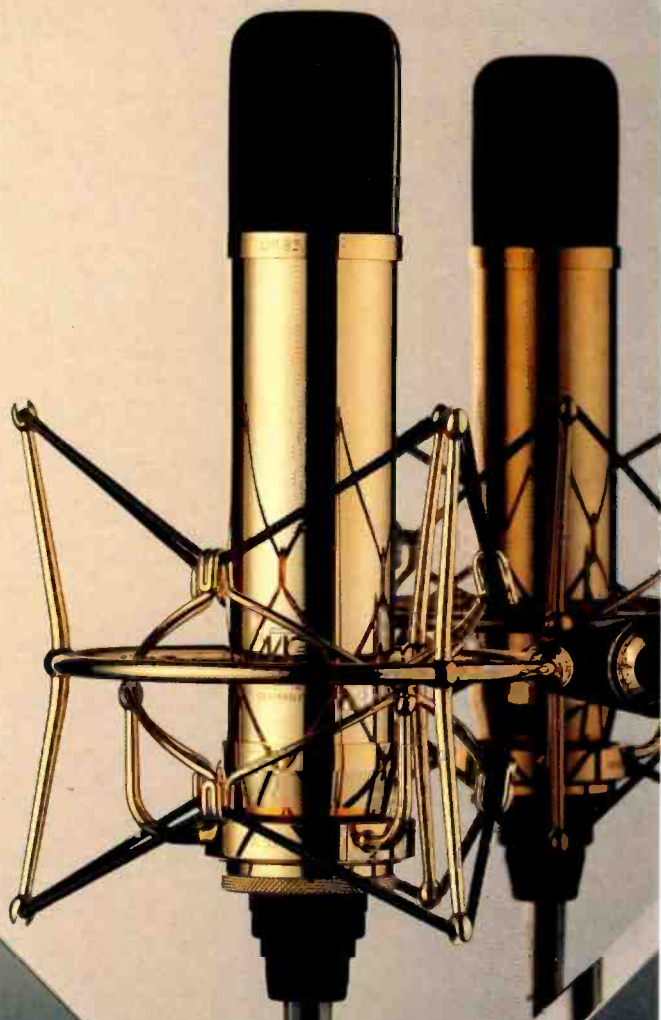
We realise that you are busy creating music. TC's engineers are artists themselves, and have therefore gone to great lengths to make the M2000 intuitive and easy to operate. For example, with the 'Wizard' function you can find the best presets in any given situation; and all parameters are maximum one menu level away - no more searching through multiple menu levels.

M2000 - Combine your artistic skills with science and create magic.

Wizard | M2000
Art + Science = Magic

t.c. electronic

The Golden Voice...



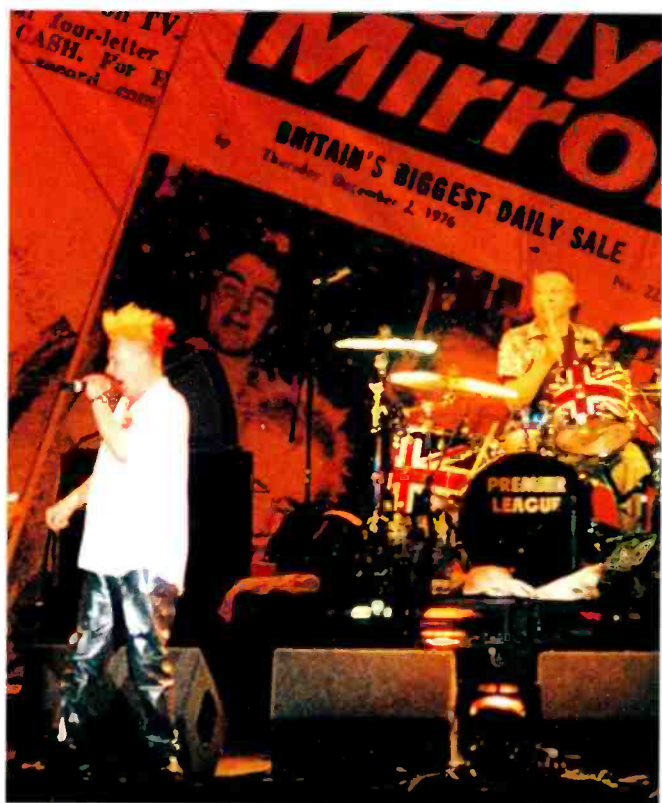
...also available in silver

The Gefell UM92.13 Valve Microphone



Distributed in the UK by:
Stirling Audio Systems Ltd
Kimberley Road
London NW6 7SF
Tel: 0171 624 6000
Fax: 0171 372 6370

e-mail: sales@stirlingaudio.com • Internet: <http://www.stirlingaudio.com>



Fat, forty and back: what would their children think?

There were no actual real mistakes,' he states, 'it's what they played and how they got out of the mistakes that they did make. The basic brief was to make it sound like a gig, so we didn't do that much to it in the studio. We only did a few rides during the mix, mainly on

the vocals, rolling off the bass as well, largely because John sings very close into the mic. We brought in a lot of valve equipment to warm things up, but we only used a Pultec EQ on the bass drum because the quality of the 48-track is perfect!

Perhaps this minimalist approach came about through the undoubted confidence of the reformed Sex Pistols once they got back on stage, and particularly the strutting Lydon, who remarks at one point, 'Well, we're not that fucking bad after all, are we?' **S**

The album has the extra pleasure of Johnny Rotten rehashing the old Monkees song '(I'm not your) Stepping stone'. Tongue in cheek?

John Lydon's vocals and the guitar solos. They're only a three-piece band—realistically how many mistakes are they going to make?

Although the recording was made flat, Lewis says that the minimum interference policy also carried over to EQ on the mix, something that was down to Chris Thomas' style of production. 'Chris has the most amazing set of ears,' comments Lewis, 'and he can make things sound like how he wants them to. In this case it sounds like a live gig. As far as EQ went, we put a little bit of top on



References

* *The Record Producers* by John Tobler & Stuart Grundy, BBC Books (1982)
** 'Where Are They Now?', *Q Magazine*, July 1996.

CONTACT

TOWNHOUSE STUDIOS:
Tel: 00 41 (0)181-932 3200
SEX PISTOLS WEB SITE:
<http://sexpistols.com>

TONY LARKING PROFESSIONAL SALES

THE UK'S LARGEST SUPPLIER OF USED AUDIO EQUIPMENT

ALL PRICES
ARE EX VAT

WORLDWIDE
DELIVERY SERVICE

SUMMER BARGAINS

NEVE

NEVE 24 CHANNEL CLASSIC CONSOLE

Fitted with; 22 4 band
Equalisers (based on
Classic 1081) 6 + 4 sub
groups, patchbay

£14,995



SOUNDTRACS

SOUNDTRACS JADE

Soundtracs Jade 48 -
Dynamics, p/bay,
automation on 64 faders
(96 inputs on faders)

£32,995

Soundtracs Jade 32 channels, p/bay, dynamics,
automation (64 automated inputs on faders)

£25,995



SOUNDTRACS SOLO LOGIC NEW!!

Soundtracs Solo Logic
Consoles NEW with
Automation
32 Channels (72 inputs in
remix) New

£4,495



TRIDENT

TRIDENT SERIES 80

32/24/24 superb
console fitted with
patchbay

Call TL Audio today!

£11,995



SSL

SOLID STATE LOGIC

SSL 4000E 40 frame fitted with 32 channels,
rh patchbay

£29,995

CONSOLES (USED)

SOUNDTRACS

Soundtracs Jade 48 Dynamics, p/bay,
automation on 64 faders (96 inputs
on faders) **£32,995**

Soundtracs Jade 32 channels, p/bay,
dynamics, automation
(64 automated inputs
on faders) **£25,995**

Soundtracs IL3632 p/bay,
automation **£11,995**

Soundtracs Quartz 48 channels, Midi
muting **£14,995**

Soundtracs CM4400 28 channels. 24
monitors, patchbay, vgc **£2,995**

Soundtracs Solo 32 Midi muting,
72 inputs in remix, private use,
vgc **£2,995**

Soundtracs PC Midi 24 **£1,495**

Soundtracs Solo Logic Consoles
with Automation 32 Channels (72
inputs in remix) New **£4,495**

SSL

SSL 4000E 40 frame fitted with 32
channels, rh patchbay **£29,995**

TL Audio

TL Audio 8/2 valve mixer (ex demon-
stration) **£1,995**

TRIDENT

Trident Series 80 32/24/24 with patch-
bay **£11,995**

NEVE

24 channel frame
fitted with 22
4-band Equalisers
(based on Classic 1081),
6+4 sub groups, patchbay, ... **£14,995**

RECORDERS (USED)

OTARI

Otari MX80 MK2 24
track recorder with
remote, private use,
immaculate **£8,995**

REVOX

Revox PR99 MK2 **£595**

STUDER

Studer A80 transport
remote, model
10.403.001.02 new **£195**

TASCAM

Tascam ATR80 24 track, rem/autoloca-
tor, VGC **£8,995**

VARIOUS (USED)

Audio & Design Vocal Stresser
(2 available) **£750ea**

Denon PMA250 pre amp **£75**

Dolby 301 classic 2 channel
units **£295**

Klark Teknik DN27 27 band graphic
equalisers x 2 **£799pr**

Tannoy System 10 Monitor Speakers,
private use **£595**

Wellard powered monitors,
private use **£1,995pr**

CLASSIC EQ (USED)

API API 554 (2 available) **£795pr**

CADAC classic discret
(24 available) **£495ea**

HELIOS classic discrete
with passive EQ circuit
(10 available) **£495ea**

NEVE 4 Band (based on classic 1081
eq) (22 available) **£1,495ea**

NEVE 33135 modules, 3 band eq with
mic amps **£595ea**

NEVE 3 band EQ with mic amps 2
channels in 1U unit with psu
240/110v **£1,595**

NEVE V Rack with 8 x eq + 2 dynamics,
private use **£4,995**

DIAL A FAX

FOR A COMPLETE UP TO DATE EQUIPMENT LIST ON YOUR FAX

Dial 0236 413 733 on your fax
machine & press start when
instructed. Some machines may
need to be switched to polling
mode to use this service. Calls @
39p per
minute cheap rate
and 49p per minute
all other times.



WANTED

NEVE, SSL
STUDER, OTARI

TELEPHONE OR FAX

FOR THE BEST NEW & USED AUDIO EQUIPMENT

TEL: 01462 490600 FAX: 01462 490700



The Wind in the Willows

Terry Jones' latest film production is his interpretation of one of the world's most cherished children's novels, *The Wind in the Willows*.

It was also a gruelling and time-consuming feast of postproduction, as Sound Designer André Jacquemin explains to **NICK SMITH**

LOCATED IN THE HEART of London down a high-walled, sinister, narrow brick alley, behind Tottenham Court Road's famous Astoria music venue, is Sound Designer André Jacquemin's small but incredibly well-appointed postproduction facility. Outside, the echoing footsteps, the conspiratorial whispering of street urchins and the low rumble of machinery make Falconberg Court more fitting for creating the soundtracks to film versions of Charles Dickens' *Bleak House*, *Oliver Twist* or *Hard Times*. But, in fact, this is the home of the sound design of *The Wind in the Willows*, Terry Jones's latest film venture.

If the environment seems a long way away from Kenneth Grahame's picaresque pastoral novel—written only a few miles to the west in the Regency splendour of Phillimore Gardens, Holland Park—the film itself and its soundtrack could not have got any closer to capturing the myth and the magic that has

made *The Wind in the Willows* one of the world's evergreens.

André Jacquemin himself looks and behaves as though he's spent 20-odd years of his life buried somewhere in a Monty Python film: funny that, because that's exactly where he's been, graduating later into Python spin-offs, with postproduction credits that bring tears of laughter to the eyes: *Monty Python's Life of Brian*; *Monty Python and the Holy Grail*; *Monty Python's the Meaning of Life*; *A Fish Called Wanda*; *Personal Services*; *The Time Bandits*; *Brazil*; and so on. In many cases he's not only fulfilled the role of postproduction sound designer, but also composed, produced and engineered (in various permutations) the songs and the incidental music. Indeed, the whole of this article started off with a Pythonesque sense of the absurd as sitting at his 24-channel DDA Interface console with my dictation machine refusing to work and fearing

having to use shorthand, we recorded the interview on his professional equipment. Of course, I was later to find out that there was something wrong with my cassette, so during an embarrassing phone call from the *Studio Sound* office explaining that there was no dialogue on the tape to transcribe, he cheerfully suggested doing the whole thing again the following day. He's like that. I just hoped that the roll of film in my Canon T80 would fare better.

Children of every age will love *The Wind in the Willows*: deft characterisation, brilliant casting, witty costume, delightful visual illusions, and a magical soundtrack with its stunning effects and mellifluous incidental music—it's hard to drag your eyes and ears away from it. But the time came when work had to be done, so we sat back, lit cigarettes, switched on the ill-fated cassette recorder and entered the world of *The Wind in the Willows*, the movie.

THE MOVIE dates back to November 1994 when Terry Jones contacted Jacquemin with a handful of lyrics he wanted demo-ed up as songs. The lyrics appeared to be related to *The Wind in the Willows*, but at the time Jacquemin was not prepared to jump to any conclusions as to what they were actually for, as the multidisciplinary Terry Jones

Left: Toad (Terry Jones), Mole (Steve Coogan) and Rat (Eric Idle) discussing Toad's wayward financial affairs in the superb surroundings of Toad Hall

was just as likely to be making a serious documentary on the subject as he was to be making a children's TV series, as evidenced by his *Rupert the*

Bear Story BBC documentary.

'We went off and did these demos for him which he liked a great deal. The next thing we heard was that Terry was getting some feedback from Disney in America about the demos, and that was when we realised that it was going to be a new Terry Jones film production. It was surprising that something that came from what we thought was a semi-favour to Terry was to be a feature film.'

In the meantime, Jones had drawn a storyboarded script: literally thousands of tiny drawings which, each a work of art in its own right, brought the screenplay to life and provided everyone on the project with a map of where they were going.

Jones asked Jacquemin to be in charge of the overall sound design for the film because in the past he has experienced difficulty in controlling all aspects—a way in which he prefers to work. Because of the scope of *The Wind in the Willows* this was clearly impossible so he needed somebody he could trust, and Jacquemin was the man right from the start: 'I was, in fact, anything to do with post-production. I'd do two or three days on the music, and then the next few days I'd be working on sound. It got to the point where towards the end there was not enough time to get all the orchestration and incidental music done, which would result in us farming that slice of it out. This allowed me more time to concentrate on the postproduction side of things.'

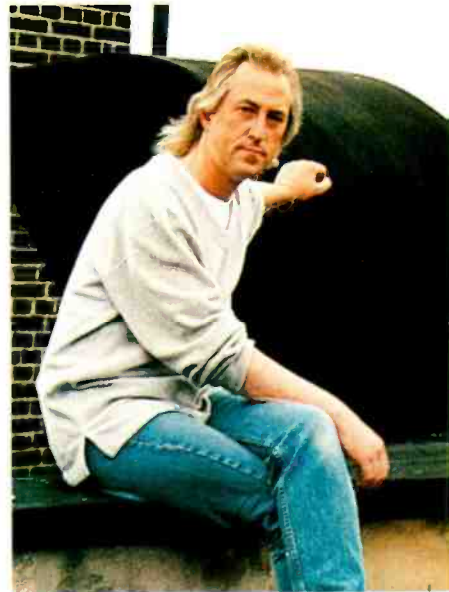
Even then it was one of the most punishing schedules imaginable with Jacquemin barely able to take three days holiday in a seven-month period. This was partly due to the approvals structure of the sound for the film, and partly due to the fact that once everybody had approved the demos they then had to be prepared for playback, which

would inevitably involve serious cutting and pasting. This in turn was due to the fact that when Jacquemin started the demos he had no storyboard to work to. A good example of this apparent chaos delivering up a polished product is the 'Weasel Song', which is a densely choreographed scene with a large number of elements in it. Jacquemin remembers making edits to the song structure itself, even after filming.

'It wasn't like writing a normal song, where you have eight bars of this, and four bars of that, and, perhaps, a bridge before a chorus. We had to make the song fit the picture, so you often get four bars of verse into one bar of bridge, and then into a chorus which would have to be elongated in order to get all the weasels in.' This type of reconstruction happened repeatedly, until everybody was happy that it both looked and sounded good.

Every effect on the film was created by Jacquemin, who actually used very little of the floor-sound, partially because he was able to retain more control over the effects back at base. The dialogue, however, was farmed out to Video Sonics, which meant that Jacquemin could get on with the effects while keeping a close ear on how the dialogue was being treated and integrate it into the soundtrack as it came in.

Jacquemin explains: 'In between I would actually work on my setup which is the Dawn II v4 software—well, hardware really, now that a new board has been put in—and that's an 8-track hard-disk recorder which is very film orientated. It's a really good system for film and I would build up sequences on the hard disk, and then once bank one had filled up I would transfer that down to ADAT, building up that way. So once they were full I could then do my premixes and then pop them back down to hard disk again and anomalise all the eight tracks. Then after that we would move onto the dubbing process at Twickenham Studios with Robert O'Donnahue who's a wealth of experience. If it wasn't for his experience in mixing it for us it would have taken a lot longer, because I was actually doing all the tracklaying at Redwood and then we'd have to mix all the premixes down at Twickenham into Dolby Stereo again.'



PHOTOGRAPH: NICK SMITH

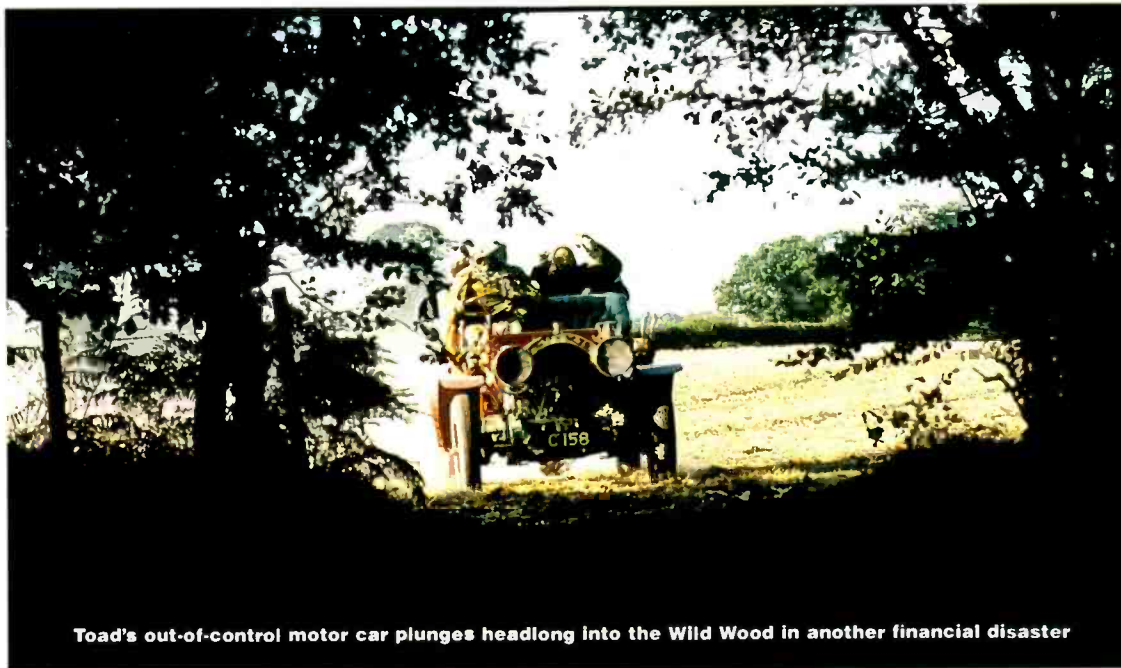
André Jacquemin contemplates the sounds of Dickensian London on the roof of his postproduction suite.

THE EQUIPMENT SETUP at Jacquemin's studio is, depending on your point of view, either one of those fabulously intricate 'impossible' drawings by Escher or the Heath Robinson poster you used to have on your wall at college.

'The Emulators, and my hard disk on the Apple Mac, are linked to Cubase which runs on my Atari,' Jacquemin explains. 'The Ataris are pumped into all my samplers and music equipment, then we come out of the music side of the Emulator MIDI, up to the back end of the Apple. So it's a unique way to work, despite people telling me it never would.'

'It's a real Hollywood way of working because it will call my effects up onto the Apple, load those into the sampler, do my sound manipulations. Once I'm happy with that, I can dump it down to hard disk which runs on the Apple as well. So, yes, it is fairly unusual in the way it's constructed. And of course we used time-coded DATs for all the dialogue, the floor sound, and so on. Thank God for time code!'

One of the greatest achievements of *The Wind in the Willows* soundtrack is the special effects for the set pieces in the story. The film's power to suspend your disbelief relies heavily on you entering the world of the river bank or the Wild Wood. This is achieved as much through the sound as it is through the visuals. But it is deceiving, as some of the most simple-sounding effects were the hardest to achieve, and vice versa. There was a sticky moment where Eric Idle (who plays Rat) and Steve Coogan (who plays mole) come to Badger's



Toad's out-of-control motor car plunges headlong into the Wild Wood in another financial disaster



Mole is confronted by the Thatcherite spiv weasels (lead by Antony Sher) in the Wild Wood: note the weasels' New Romantic costume

house in the Wild Wood in order to seek Badger's paternalistic wisdom. Badger is, of course, deep in winter hibernation, and his friends experience considerable difficulty rousing him. The effects for the knocking on the door sequence had to be spot on.

'I looked absolutely everywhere for a decent knock, and tried lots and lots of doors, and couldn't get one that worked really well,' Jacquemin recalls. 'So I had to construct the sound using 19 door effects to make up one door knock. It took 9 1/2 hours to do that one sequence, but it was important as the comedy relied on the door knock sounding just right.'

This was further complicated by the fact that the shot panned from outside Badger's home to an interior shot, so there needed to be the illusion of the sound moving through the shot—in effect the audio has to track what the visuals are doing.

In contrast to the door-knocking sequence, there is a visually dynamic scene where

Toad's motor car runs out of control and crashes. Ironically, this sequence was a lot easier to do the sound for, because the amount of movement meant that to a certain extent the excitement was as much reliant on the chopping and changing of the visuals. Even so, the many fast cuts meant that the sound had to be layered carefully, with the complication that Jacquemin didn't have one single car he could rely on to produce all the desired effects. Again, the effect on the film is a compound made up from various car sounds: a brake from one, an engine from another, and idling from another. So although the scene looks complicated, the most difficult part was how to place the effects in relation to the visuals simply in terms of panning left and right. Very important when there is a front shot of a car ploughing through the woods, avoiding trees.

'You have to get the panning right because these are very fast cuts. It was probably the most complicated thing to make that sequence work. You have to really make up all those effects using multiple sounds. You just couldn't take one and make it work. Most films are fairly complex in that way—you have to cheat a bit.'

Interestingly, the ambient effects of *The Wind in the Willows* presented Jacquemin with both a political and technical challenge: 'Terry's always been very nervous about atmospheres. I think this stems from the *Holy Grail* days when his main worry was that the dialogue was being obscured by the birds. He was really very worried about going through all that again so we had to cheat in the sense that we had a fairly sparse bird effect. Even so, you can't just run an ambient effect through without

Works of art in themselves: Some of the many thousands of drawings Terry Jones made to act as a map for *The Wind in the Willows*

treatment because once you've chopped the dialogues off, you're going to get little holes. So you have an ambient effect around the dialogue to just to make it sound

RECORDING THE WIND IN THE WILLOWS ON SET

SOUND RECORDING for *The Wind in the Willows* at Shepperton Studios was something of a double, double act. Bob Doyle was sound recordist on set while his brother Julian, was Sound Editor and two Nagra-D, 24-bit, 4-track recorders were hired from Richmond Films—one for Julian on set and another sited over in the Delta Sound Building with the Avid Audio Vision.

The Nagra-D was sync'd up to the Avid (running Film Composer) via Sony BVU protocol which it emulates. Avid Assembly Operator was Elen Pierce-Lewis: 'The Capturing Mode in the Avid enables you to control the Nagra-D from the mouse. The Nagra sync'd up with the Avid seamlessly and first time.'

'We were assembling the film as it was being shot, logging the takes from location, and feeding picture and sound separately into the Avid. Originating on 35mm and transferring the print onto Beta, and feeding that into the Avid.

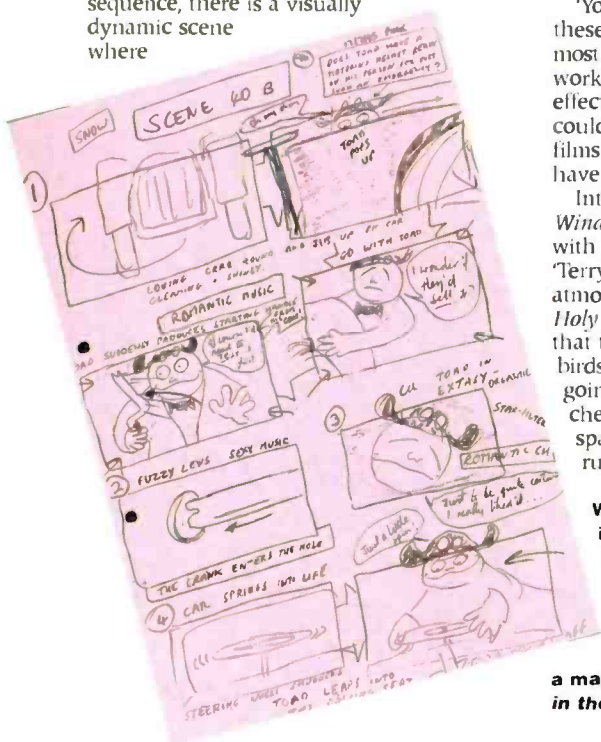
The key code-list from the film generates key numbers in the Avid—coming off of a FLEX file—relating the Beta to the print and providing a reference for the Avid for the cut list. The Avid was used for speed, the cut list generated on it then used to go back and edit the original film.

'As part of the process we were trying to obtain, and maintain, the best quality digital sound; going from the digital soundtrack recorded on the set to digital in the Avid, and then out digitally to DAT and transferring that to film stock, for viewing purposes, prior to full track-laying. So that even for the rough mix we had the very highest digital quality sound.'

The eventual off-line edit on the Avid, for both sound and picture, was used as a basis for the negative cut and final edit of the film. The original Nagra-D tapes, recorded on the set by Doyle, were fed into a DAWN workstation for the final soundtrack edit. As for the on-set recording, Rob Doyle was impressed by the robust nature of such a highly specified digital recorder: 'We've been working in some really foul outdoor locations, with lots of explosions and dust and the Nagra has performed really well, whereas the backup DAT has got dust in its transport.'

quite smooth. Given that Terry's main worry was that he didn't like the birds, it was contradictory to what we were trying to achieve because you couldn't have the atmosphere going and chop the dialogue without hearing the dialogue chopping. Invariably I had to be quite selective where the birds happened so as not to interfere with the dialogue. Even when we were dubbing, Terry would go back over sequences and want certain things added in or taken away.'

Even though the soundtrack for the film is finished, Jacquemin is still a long way away from turning his back on the project, as he still has the M&Es (music and effects)



RE1000

Electro-Voice®

True Condenser Studio Microphone



The Electro-Voice RE1000 is a monumental breakthrough in studio condenser microphone performance and value. Its sound quality and performance rivals many of the world's finest microphones, regardless of price. One listening test will reveal that this serious audio tool belongs in your studio.



Electro-Voice®

MARK IV AUDIO DEUTSCHLAND
GmbH & Co. KG
Hirschberger Ring 45
D-94315 Straubing
Tel: ++49 (0) 9421 706-0
Fax: ++49 (0) 9421 706-287

AUDIO INTERCONNECTION



DELTRON HAS THE BIGGEST RANGE

The leading professional pro-audio organisations go to Deltron – and you can too.

We've got the biggest range in Europe and the service and know-how to support it.

Every interconnect product you could want: XLRs with a unique foolproof channel identification system, a 1/4" jack plug range that includes our innovative 'silent' jack,

Litton Veam multipole, phono,

Gotham cable, stage boxes – professional-quality products built for the roughest use; by you, the professionals.

Write or fax for your copy of our catalogue now, or call today on

+44 (0) 181-965 4222



SOUND CONNECTION  SOUND PERFECTION

DELTRON Components Limited

The UK's only XLR manufacturer



Deltron Components Ltd, London, England
Tel: +44 (0) 181-965 4222 Fax: +44 (0) 181-965 6130

POSTPRODUCTION



Mole, Toad, Rat and Badger (Nicol Williamson) in deep discussion shortly after the 'door-knocking' scene

tracks) to prepare for the non-English language versions. This involves stripping down the original and taking further production decisions, such as whether or not to translate the songs, alter the effects for different markets and so on. Then there's the possibility of producing a soundtrack album—something which Jacquemin is pretty good at, if the gold discs on his walls are any measure.

We are talking to various record companies at the moment about a soundtrack album with about seven songs from the film. Unfortunately they're not very long—not pop-single length—so we would probably have to elongate if we were going to do an album. Even so, that material won't make an entire album, so we'll probably have to do a soundtrack album with incidental music, perhaps with Terry doing some narration. The film runs to about 88 minutes, so if I can condense that down to about 70 minutes and then see what holes are left, we can start to think about the narrative.

The good thing about creating soundtrack albums is that your imagination can run riot. And you can recreate everything fairly cheaply. When you think about it, visually, you may have a car going over a cliff and it might cost a lot of money to shoot, whereas on an audio sound track it is a lot cheaper to do.

IT'S NOT OFTEN that a sound designer feels totally happy with a soundtrack—more often than not due to lack of time—but Jacquemin is satisfied with the end result.

I'm very pleased with it. I don't think you can every really tell with films but I believe this one's actually a good one. When I was involved in *A Fish Called Wanda* I knew that would be very successful. *The Wind in the Willows* is an unusual film and I don't think there's anything quite like it because its not animation when that is exactly what you'd expect when you're dealing with storybook characters. But you can never tell—some for the best films in

the world have been doomed to failure!

The Wind in the Willows opens around the world later this year with its world premiere in London, UK, on October 18th. But should you be so lucky as to be a transatlantic movie aficionado the film you hear at the New York opening will not sound the same as the one in London. Typically, the land that bought you *Die Hard*, *Terminator* and *Taxi Driver* finds *The Wind in the Willows* too violent to be screened in its market-test format. After all, there are some pretty gruesome fight scenes between make-believe rats and make-believe weasels. But it wasn't so much the visual effects as the sound.

André Jacquemin finds this particularly amusing: 'I was surprised that the American market thought it was too violent. We changed all the gun shot sounds: we made them a lot softer and we used blunderbusses instead of real hard-core gun shots. The English version? There will be a different version for England where things will be slightly harder on the effects.'

Perhaps its a comment on the difference between UK and the US audiences that while the Americans thrive on the excesses of visual effects, the British are more sensitive to the subtle prompts of audio. **S**

EQUIPMENT

DDA Interface (24-channels)

Doremi Labs Dawn II v4

E-mu Emax with large sound library

E-mu Emulator III (32Mb)

E-mu Emulator IV (40Mb) both with large sample library (including sound effects)

E-mu Proteus 2 Orchestral

E-mu Proteus 3 World

Fostex RD-8 ADATs (2)

Otari 90 time-code DAT

Panasonic VHS Pro recorder/player

Sony low-band U-Matic (2)

Yamaha Pro-mix

The Shell:

The
Sender
Freies
Berlin



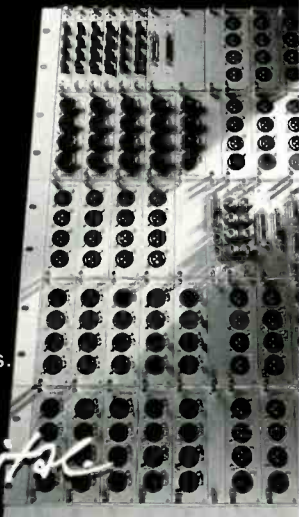
©bad

The Heart:

nexus

The **digital** audio interconnect and routing system. Compact modular design that exceeds the most stringent quality and safety standards. Total control of all parameters from any point in the system via **bidirectional** fiber optic cable. With all established input and output formats. For demanding venues with rigorous performance requirements.

For example:
The Sender Freies Berlin



The Art of Digital

stage tec

Vertriebsgesellschaft für professionelle Audiotechnik

Valentinstraße 43 · D-96103 HALLSTADT
Phone +49 (0) 951-9 72 25-25 · Fax -32
Bahnhofstraße 13 · D-79843 LÖFFINGEN
Phone +49 (0) 76 54-70 71 · Fax -70 73

Scaling New Heights in UHF Radio



From the leaders in radio microphone technology come two new world beating designs. System 1081 Handheld and System 1083 Beltpack. True diversity, 16 channel switchable UHF radio systems that quite simply redefine the cost of professional wireless.

And that's not all. Maintaining Sennheiser's 50 year commitment to quality and performance these systems truly represent a breakthrough for radio. And that's going to make a lot of people very ecstatic.

Call us now for a copy of our brochure.

SENNHEISER

Sennheiser UK Ltd, FREEPOST, High Wycombe, Bucks HP12 3BR. Tel 01494 551551 Fax 01494 551550

The British *Masters of Music* event in Hyde Park has set new records for attendance and exposure. **ANDY WOOD** goes behind the scenes to discuss the concept, the coordination, the kit, and the concert

TEN YEARS AFTER the late Freddie Mercury and Queen headlined the last rock concert in central London's Hyde Park, over 150,000 fans gathered to witness *Masters of Music*, not only the largest concert ever staged in the capital, but also one of the largest and most star-studded events ever seen in the UK.

Whereas the 1985 Live Aid production broke all records—with a huge television audience to complement simultaneous concerts in both London and Philadelphia—Wembley Stadium's 100,000 capacity crowd has been surpassed by a host of events over the last 25 years. Bob Dylan's appearance at Blackbushe Aerodrome in July 1978 currently claims the largest UK crowd with over 170,000 in attendance at a single stage event. Perhaps, then, it is rather fitting that Dylan was back again as part of the flagship for event producer Harvey Goldsmith's National Music Festival celebrations on June 29th. In fact the event began to take on the shape of a rock reunion when Goldsmith, responsible for both

You can't play *Quadrophenia* without the ubiquitous mod scooter

Blackbushe and Live Aid events, announced Eric Clapton (Dylan's 1978 support act) as the headline act.

To add icing to the cake, the bill also included the first live performance of Pete Townshend's rock-opera *Quadrophenia*.

A special version of the original Who double album, the performance featured Roger Daltrey, John Entwistle, Townshend and a host of celebrity 'guests' including Gary Glitter, who gave Roger Daltrey a major headache by accidentally whacking him in the eye with a mike-stand 24 hours before the show. Pink Floyd's Dave Gilmour, also in attendance, created another rock connection, in that *Masters of Music* also marked the 28th anniversary to the day of the first free concert in Hyde Park. Headlining that day were...Pink Floyd.

Held in aid of the Prince's Trust Charity and sponsored by MasterCard, a show of this size indubitably causes its own production difficulties, and while Hyde Park itself is a familiar site for large events, with both the VE Day celebrations and Pavarotti in the Park being staged in recent years, the very nature of a rock concert with its requirement of large-scale, sound reinforcement and staging bringing, its own brand of logistics.

PLANNING FOR THE SHOW itself began earlier this year, with Set Designer Jonathan Park (better known for his work with Pink Floyd and the Rolling Stones)

being approached by Goldsmith to create staging designs. One of the main difficulties was that at that point, artists had not been confirmed. Indeed none of the originally mooted performers of Neil Young, or Rod Stewart and The Faces, actually made it to the cut. Park was left therefore with the unenviable task of designing a stage which would not only create an image for the whole event, but also complement the artists; whoever they were to be.

His answer was to incorporate a variation of the twin circles of sponsor MasterCard's logo into deconstructed circular trussing each side of a 200ft wide stage. These were bisected by huge 120ft-high masts adorned with aircraft warning lights which, if anything, gave the stage an overall look of a huge, twin-aerialled ghetto-blaster.

The biggest coup was, of course, having the world-premiere stage performance of *Quadrophenia* and ordinarily that important highlight would have had a major influence on my stage design had I known about it

'I did some little doodles of my ideas for the concert and everybody seemed to like them, so I took on the design of this very large event that had no performers'—Jonathan Park, Set Designer.

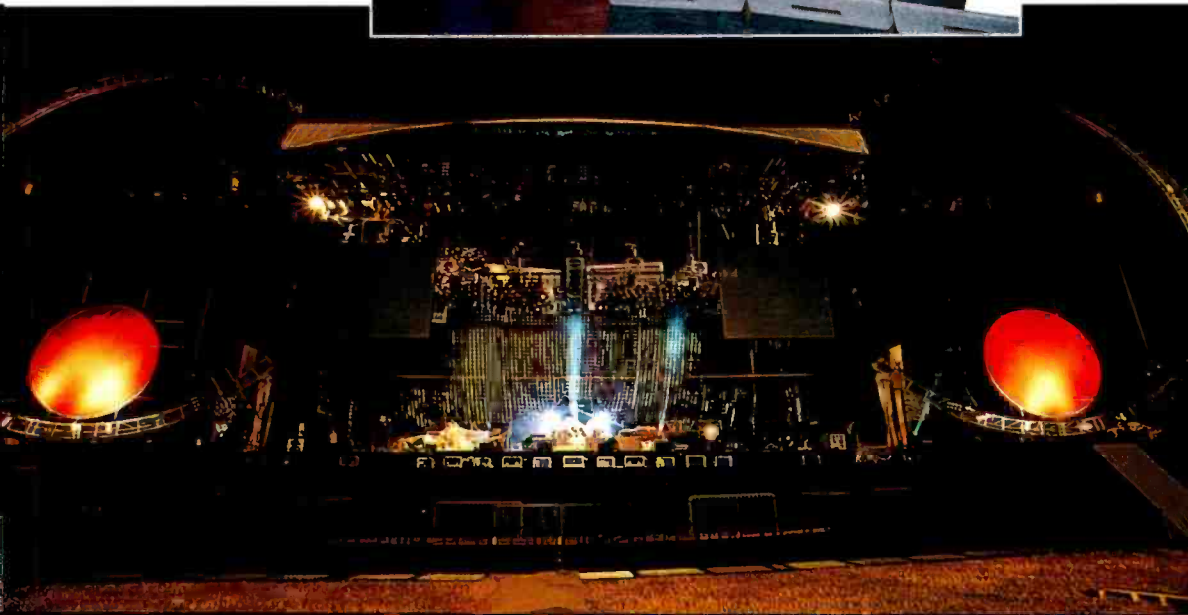
in the early stages,' explains Park. 'You can't design a set specifically for five acts, but we aimed to give each artist their own identity and have a good-looking stage with three-dimensional attributes which would help the television cameras.'

By the time *Quadrophenia* was confirmed, Park's design was already in place. But in a stroke genius the design was simply

augmented with a set of scrims to create the famous mod roundel, and a little truss 'tail' added to the left-hand circle to create a 'Q'. What was originally a generic stage design then, instantaneously, became a custom design for the *Quadrophenia* performance in minutes.

The finished stage, supplied and built by Edwin Shirley Staging (ESS) and topped by a 60ft-high Tower System roof as used at the VJ Day celebrations last year, not only served as a backdrop for the various performers, but also as host to the large JBL-loaded Clair Bros S4 sound system that was flown in two 60-box stacks from the masts within each truss circle.

'I couldn't do anything with the roof, but via the means of these big circles



The broader view: 'You can't design a set specifically for five acts'—but you can get pretty close



Living it up in Hyde Park

and the spikes, at least an architectural feeling could be created. Also, rather than have a normal monolithic tower block of PA at either side, I decided to hang it off the towers so that it had a lighter feel so that the audience would look right past it,' comments Park.

The overall sound system was provided by US-sound experts Clair Brothers to a design by Sound Consultant Chris Hey of Spencer-Hey Associates, creating not only one of the largest systems ever seen in the UK, but also one of Clair's largest ever projects. The sound specifications are awe inspiring.

In total, 266 JBL-loaded S4 speaker cabinets were used; with 140 on the Front-of-House stage wings; 108 around the site on 9 delay towers of 12 boxes each; and 16 P4 cabinets for the stage infills. Total system power was quoted in excess of 1,000,000 Watts, valued at over £3m and weighing over 100,000 kilos. In total, seven Edwin Shirley trucks were required to transport the rig which then used 58 one-ton and two-ton Lodestar motors on site.

The Clair S4 system is split into two types of cabinet, the S4P long-throw and S4F medium/short-throw. Incorporating JBL 18-inch bass, 10-inch mids and 2-inch compression drivers in a 4-way configuration, 30 boxes of each design were used in each FOH stack. All system amplification was provided a combination of Clair-Carver 2.0 and Crest 10004-9001 models. For the main FOH system a total of 16 racks of amps featuring eight monoblock and four stereo of the Clair customised 2.0s were utilised, while the Crests were used on the P4 infill duties with 10004s on the mid-high and the

9001s on the bass end.

To complete the system, the 9 delay towers were positioned around 100m apart throughout the site and were set and controlled using the tc electronic tc1380 delay unit. The overall effect created was a superbly time-aligned and crisp sounding reproduction throughout the site right down to the other side of Hyde Park corner, where even customers queuing outside the Hard Rock Cafe could hear the event.

Incidentally, the logistics of putting a system of this size together are not only limited to setting up the speakers—despite Clair having large stocks of S4 in Europe with Audio Rent in Switzerland, further boxes were also sent from Japan, with additional boxes manufactured and sent over to the UK in a sea container from the US.

While the staging and sound specifications were being slowly put together, Chris Hey was working on other problems involved with getting five major acts on and off stage with all their ancillary

equipment, as with Production Manager Mick Double liaising directly with both Eric Clapton and the *Quadrophenia* personnel, Hey was required to take the pressure off on-site.

The overall answer was to use a basic festival arrangement for the sound and staging, with the front of the stage used for performance and the rear (split off by drapes) featuring a hydraulic lift which brought backline *et al* up to stage level ready for use. Obviously, with five sets of backline, monitor



Flying high: one of the two 60-box stacks at the *Masters of Music*

and FOH desks in use, the affair could have become a nightmare, however, by using a festival-style A-B stage box system configuration interfaced with BSS splitters devised by Hey, the acts could effectively 'leapfrog' from one system to another. ☺



The JBL stacks were flown from masts within the truss circles

added for various acts with Dylan and Alanis Morissette utilising extra S4s mounted on 18-inch bass bins, with Dylan using a further bank of Clair 115s, and *Quadrophenia* a set of Clair R4s to replay the various samples, sound effects and video soundtrack to the stage.

This huge amount of monitoring is doubly unusual, especially when you consider the growth of in-ear monitoring systems (IEM) in recent years, and the gradual awareness of the damage of high SPLs on stage. As it was, only Alanis Morissette, Roger Daltrey and Gary Glitter opted for the Garwood in-ear system, with *Quadrophenia's* pair of IEMs being provided by Hand Held Audio alongside a selection of radio microphones. Four Samson UHF Synth headset mikes were delivered for Townshend and the guest actors, while four ECL-Beta 58 radio systems were also used together with a WCM16 headset ECL114 for Stephen Fry.

The decision had been made that each major act would do their regular show; although *Quadrophenia* isn't what you'd call a regular show. They are doing what can only be described as an extravaganza,' explains Production Manager Mick Double, who has worked for Clapton for over 11 years and has been responsible for The Who on various occasions since the 1970 Isle of Wight Festival. He also flitted between production rehearsals for *Quadrophenia* at Bray, and Clapton at Hayes, dispersed with a visit to Italy with Clapton a week before, Masters certainly had his work cut out. However, by spreading the workload, he was able to concentrate on the two main acts, who both used self-contained crews.

'With Clapton we normally use Concert Sound personnel, however many of the regular crew is out with Mark Knopfler, so we are using a completely new crew of five Concert Sound engineers in conjunction with Clair Bros,' Double reveals. 'The rest of the Clair crew are based at Bray, while all the site stage-crewing is being looked after by Steve Jones and a 30-strong team from Stage Miracles who ensure that everything gets on and off stage, on time.'

This ability for the artists to control much more of the production than a standard one-day event made for a highly entertaining event for the crowd, but created more problems for the production personnel who had to deal with a variety of 'extras' ranging from *Quadrophenia's* huge graphic 'postcards', and 19-strong cast, through to Clapton's last-minute decision to introduce a gospel choir for one song. A major headache however, was given to Screenco who provided two, huge, Sony Jumbotron JT 35s on stage, and a further two of the new JT 17s out in the field, to relay the stage shots to the audience.

WITH THE STAGE DESIGNS in place, and the JT35s panned left and right flown off the roof, the *Quadrophenia* production then announced the requirement for a large central 'Cinemascope'-type screen in the centre of the stage to show vintage live footage, prepared graphics and film clips, an arrangement that was unacceptable for Clapton, due on some 30 minutes later.

'There just wasn't room for more screens, so we dreamed up the idea of actually

UNLIKE A FESTIVAL, however, there was time between acts for line and sound checks. Gaps had been built into the overall show schedule, with a third system controlled by a Harrison FOH console used for video feeds and compere Billy Connolly, together with a number of musicians from the Prince's Trust itself. These artists appeared in front of a forward-stage drape to give time for back-line changes.

'We started the show with Jools Holland's Yamaha PM4000 connected to A and Morissette's PM4000 to the B system,' outlines Hey. 'As soon as Jools finished, we not only changed all the input side, but then leapfrogged over to Bob Dylan's Clair custom FOH, and Ramsa S840 monitor boards which were then connected. The B system then leapfrogged to *Quadrophenia's* PM4000s, and the A from Dylan to Clapton's PM4000 and Midas XL3 set.'

With each band using its own consoles and control equipment, the total audio input channels required for the main PA ran to over 600, with the main mix tower stacked so heavily with consoles and control gear it looked more like an audio showroom than a working area. The changeovers were made easier, however, in that a 35 minute slot had been programmed between each main act which was broken down as 10 minutes of video playback, a 15-minute support-band slot, and a further 10-minute video section.

With line checks already performed, the next main act equipment was pushed forward behind the front drape and then soundchecked where necessary. 'It all sounds very simple, but I wouldn't want to have less time to change over,' adds Hey. 'At least we get to do soundchecks which makes it different to a normal festival where bands invariably go straight into a show.'

Stage monitoring was provided by 32 Clair 12AM wedges, with a from fill of four Clair P4s fitted under the front of the stage to add extra weight. Extra monitoring was also

INTERNATIONAL DISTRIBUTORS

AUSTRALIA

Amber Technology Pty Ltd.
Tel. (02) 9751211 Fax (02) 9751368

AUSTRIA

Audio Sales Ges.m.b.H.
Tel. (02236) 26123-22 Fax (02236) 43232

BELGIUM

A. Prevost S.A.
Tel.(02) 2168025 Fax (02) 2167064

CANADA

TC Electronics Canada Ltd.
Tel. (514) 457-4044 Fax (514) 457-5524

DENMARK

John Peschardt A/S
Tel. (45) 240000 Fax (86) 240471

FINLAND

Moderato Oy
Tel. 90 340 4077 Fax 90 340 4082

GREECE

Bon Studios
Tel. (01) 3809605 Fax (01) 3845755

HONG KONG

Dah Chong Hong Ltd.
Tel. 28086111 Fax 28733911

INDONESIA

Multi Audio Perkasa
Tel. (021) 6296009 Fax (021) 6298453

ISRAEL

More Audio Professional
Tel. (03) 69656367 Fax (03) 6965007

ITALY

Audium S.r.l.
Tel. (02) 27304242 Fax (02) 27309018

JAPAN

MTC Japan Ltd.
Tel. (03) 5280-0251 Fax (03) 5280-0254

KOREA

Young Nak So Ri Sa
Tel. (02) 5144567 Fax (02) 5140193

LEBANON & SYRIA

AMAC S.r.a.l.
Tel. (06) 430363 Fax (+1 212) 478-1989 (US#)

MALAYSIA

Eastland Trading (M) SDN BHD
Tel. (03) 9845789 Fax (03) 9842288

MEXICO

Electroingenierria en Precision S.A.
Tel. (5) 5597677 Fax (5) 5753381

NETHERLANDS

Electric Sound B.V.
Tel. (036) 5366555 Fax (036) 5368742

NEW ZEALAND

South Pacific Music Distributors
Tel. (09) 4431233 Fax (09) 4432529

NORWAY

Englund Musikk A/S
Tel. (047) 67148090 Fax (047) 67113509

PORTUGAL

Audio Cientifico
Tel. (01) 47543488 Fax (01) 4754373

SAUDI ARABIA

Halwini Audio
Tel. + Fax (02) 6691252

SINGAPORE

Eastland Trading (S) Pte Ltd.
Tel. 3371021 Fax 3383883

SOUTH AFRICA

EMS
Tel. (011) 482 4470 Fax (011) 726 2552

SPAIN

Media-Sys S.L.
Tel. (93) 4266500 Fax (93) 4247337

SWITZERLAND

Audio Bauer Pro AG
Tel. (01) 4323230 Fax (01) 4326558

TAIWAN

Linfair Engineering & Trading Ltd.
Tel. 2 321 4454 Fax 2 393 2914

THAILAND

Lucky Musical Instruments Co. Ltd.
Tel. 251 3319 Fax 255 2597

WHICH PICTURE DO YOU PREFER?

Unless you want to look like Cyberman or a tank commander, it's got to be the new DT 200 series from beyerdynamic.

The designer styling and super comfort cushioning systems, combined with beyerdynamic's legendary transducer technology, keeps you in touch with your audience, in real style.

And to keep the engineering department happy, the DT 200 series packs a multitude of impressive features:— rugged construction, high performance earmonitors and a choice of really great sounding microphones.

Pictured: DT 291



Just take a look at our competition and imagine what you might look like when you're giving it your best shot! The only thing you have to look for now is your beyerdynamic dealer. They'll be happy to put you in the right picture.

For more information, call our freephone 0800 374994

beyerdynamic, UK Lewes BN 8 6 JL
Int.l: Thersienstr. 8, 74072 Heilbronn, Germany Tel 7131.617.125

beyerdynamic



With each band using its own consoles and control equipment the channels required to run the PA ran to in excess of 600

moving the main screens together in a similar system to that as we used on the Genesis *We Can't Dance* tour, where three screens tracked together and moved apart,' comments Screenco's David Crump.

The finished system saw the two 5m x 5m screens running together on a track run under the ESS roof to create a 5 x 10 central screen

just for *Quadrophenia*, while staying stage left and right for all the other acts. 'We couldn't have done it if it wasn't for the fact that the ESS roof can take such enormous weightloads. Those two screens weigh almost five tons each and have to move in an accurate, controlled fashion, completely in vision during the show,' he explains.

ON THE DAY, the only thing rather predictable that let the whole production down was the British weather, with the climate dictating a cool, grey, cloudy day that threatened to rain in buckets. While this was a boon for the Meteorites lighting personnel who were able to show off their expertise in the early evening gloom, it did nothing to add to what could have been a highly charged summer evenings entertainment. Where Alanis Morissette whipped up the crowd with what have become a series of anthems, Bob Dylan, singularly, failed to drive the songs home, while the highly impressive *Quadrophenia* arguably needs more polish, that it undoubtedly will get on its current 28-date tour of the US.

With a surprising 9.30pm curfew (which was slightly overrun) it was left to Eric Clapton to get the benefit of the failing light, and a partisan crowd, to finish with a set featuring all the standards. Prior to the show it had been pointed out that Clapton himself could have sold out the 150,000-ticket event, personally, for six consecutive nights, an alarming idea no doubt for all the production crews.

'I first worked with Eric on monitors in the 1970s and when he played Blackbushe he probably had more people there—but this is the biggest one-off rock show I've ever done and certainly the biggest ever seen in London,' a pressured Mick Double says before the show. Perhaps it will stay that way, but somehow you get the impression that Harvey Goldsmith may want to go bigger. After all, there was that very big rumour about the Beatles...

IMAGINE THE NEXT 10 YEARS...

Come and see us at PLASA on Stand E24

S5000 UHF SERIES

S1000 OPTIMISED SERIES

S2000 DIVERSITY SERIES

S101 SERIES

S2 AUTO DIVERSITY SYSTEM

RX8 BELT PACK RECEIVER

S2 ADU ANTENNA DISTRIBUTION SYSTEM

TRANTEC SYSTEMS

For ten years now BBM Electronics have been designing and manufacturing Trantec radio microphone and guitar systems. And, as you can see from the photograph opposite, we've been rather busy. In fact, we are now considered the largest and most successful manufacturer in Europe.

Our very first product was, not surprisingly, the System One. It was an instant success throughout the music industry. Reliable, hard-working and affordable, it set the standard that has now become the trademark of all Trantec products. It was also one of the first radio microphone systems to receive the DTI's legal approval (another feature that now exists across the entire Trantec range)

The System One was followed by the S2 Auto Diversity System. And, once again, the music industry applauded. But so too did broadcast companies, theatres and council chambers - in fact, praise come from everywhere that microphones are used.

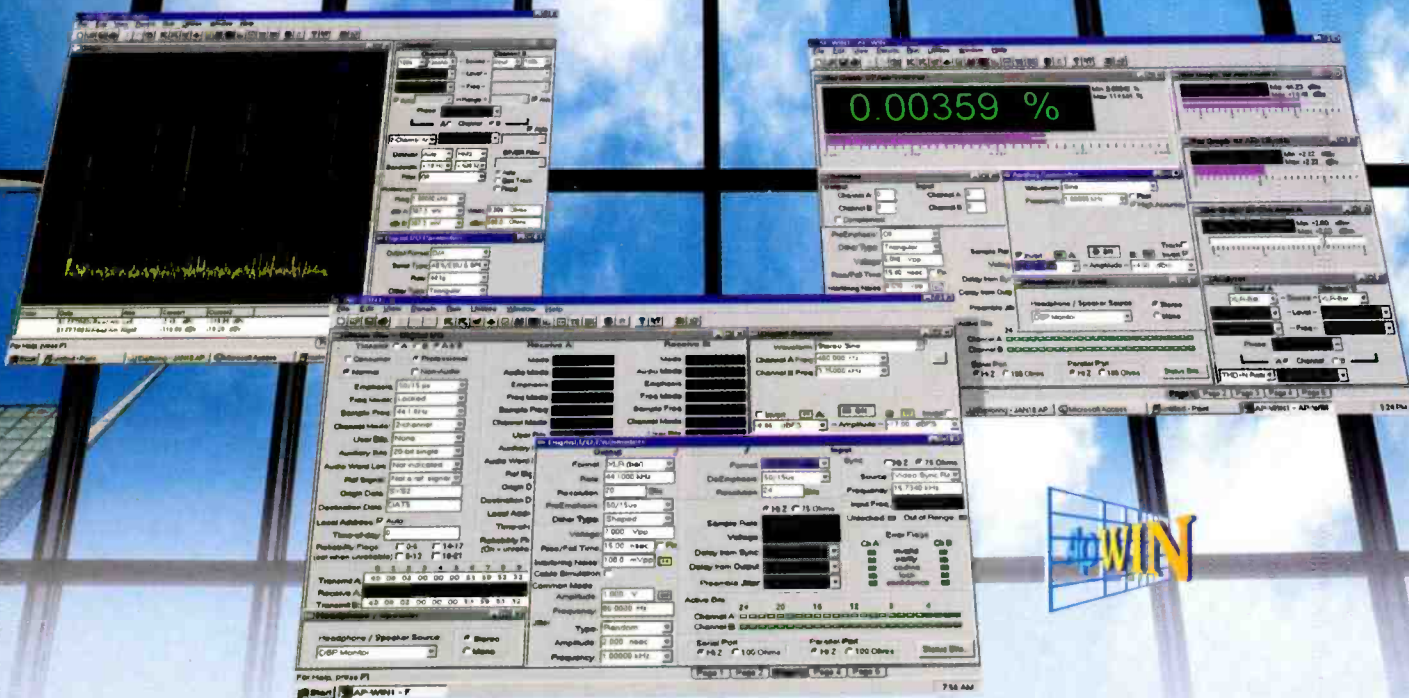
From the economically priced S1000 (over 10,000 sold) to the professional broadcast S2 True Diversity System, BBM Electronics now produces a range of Trantec VHF products for the most demanding, and in some cases, unusual applications.

Last year, we added to our range by introducing our first UHF microphone system, the Trantec S5000. The S5000 combines superb audio quality with great looks and, at £2,250.00, is highly competitive. The S5000 has already made a considerable impact in the conference and theatre industries throughout Great Britain.

It all began with the System One. Who knows where it could end.

Electronics Group Limited
28-30 WATES WAY MITCHAM SURREY CR4 4HR ENGLAND
TEL: 0181 640 1225 FAX: 0181 640 4896

We Do Windows



The recognized leader in audio testing announces software for the world's most popular graphical user interface.

Audio Precision is proud to announce Windows-based APWIN audio testing software for the System One and System Two audio analyzers

- APWIN may be purchased as an upgrade for use with all existing System One hardware
- APWIN is standard with System Two hardware
- APWIN for Microsoft Windows 3.1™ or Windows for Workgroups 3.11, now
- APWIN for Microsoft WIN95 available at WIN95 release time

- High level display and control of AES/EBU status bits
- Multiple instrument control panels per screen page
- 5 screen pages of settings and graphs store with each test
- Up to 6 parameters per color graph
- Dual graphics cursors with delta readouts
- View multiple readouts and bargraphs simultaneously with control panels
- Standardized Windows interface for ease of use
- Copy and paste to Windows word processors and spreadsheets

**Audio
precision**

P.O. Box 2209
Beaverton, OR 97075-3070
(503) 627-0832, 800-231-7350
FAX: (503) 641-8906

The recognized standard in Audio Testing



INTERNATIONAL DISTRIBUTORS: **Australia:** IRT Electronics Pty. Ltd., Tel: 2 439 3744 **Austria:** ELSINCO GmbH, Tel: (1) 815 04 00 **Belgium:** Trans European Music NV, Tel: 2 466 5010 **Brazil:** INTERWAVE LTDA., Tel: (21) 325-9221 **Bulgaria:** ELSINCO, n.e. Strelbishtie, Tel: (2) 58 61 31 **Canada:** GERRAUDIO Distribution, Tel: (416) 696-2779 **China, Hong Kong:** A C E (Intl) Co. Ltd., Tel: 2424-0387 **Croatia:** AVC Audio Videc Consulting, Tel: (41) 624 622 **Czech Republic:** ELSINCO Praha spol. s.r.o., Tel: (2) 49 66 89 **Denmark:** nph Elektronik aps, Tel: 86 57 15 11 **Finland:** Genelec OY, Tel: 77 13311 **France:** ETS Mesureur, Tel: (1) 45 83 66 41 **Germany:** RTW GmbH, Tel: 221 70913-0 **Greece:** KEM Electronics Ltd., Tel: 01-6478514/5 **Hungary:** ELSINCO KFT, Tel: (1) 269 18 50 **India:** HINDITRON Services PVT, Tel: 22 836-4560 **Israel:** Dan-El Technologies, LTD., Tel: 3 6478770 **Italy:** Link Engineering s.r.l., Tel: 0521/648723 **Japan:** TOYO Corporation, Tel: 3 (5688) 6800 **Korea:** B&P International Co., Ltd., Tel: 2 546-1457; B&P (Kum Office), Tel: 0546 53-7347/8 **Malaysia:** Test Measurement & Engineering Sdn. Bhd., Tel: 3 734 1017 **Netherlands:** Heynen b.v., Tel: 08851-96300 **New Zealand:** Audio & Video Wholesalers, Tel: 7 847-3414 **Norway:** Lydconsult, Tel: (47) 66 988333 **Poland:** ELSINCO Polska sp. z o.o., Tel: (22) 39 69 79 **Portugal:** Acutron Electroacustica LDA, Tel: 1 9414087/9420862 **Singapore:** TME Systems Pte Ltd., Tel: 747-7234 **Slovakia:** ELSINCO Bratislava spol. s.r.o., Tel: (7) 784 165 **South Africa:** SOUNDFUSSION Broadcast, Tel: 11 477-1315 **Spain:** Telco Electronics, S.A., Tel: 1 531-7101 **Sweden:** TTS Tal & Ton Studioteknik AB, Tel: 31-803 620 **Switzerland:** Dr. W.A. Gunther AG, Tel: 1 910 41 41 **Taiwan R.O.C.:** Cha Wei Electric Trading Co., Tel: 2-5612211 **Thailand:** Massworld Company Ltd., Tel: 662-294-4930 **United Kingdom:** Thurby Thandar Instruments, Ltd., Tel: (1480) 412451

Windows is a trademark of Microsoft Corporation.

**Because music business
is your business,
MIDEM is where it's
at...**

31 Years of Musical Experience

Thanks to the continued support and creativity of the music industry, MIDEM continues to be the highlight of the year. Be successful - be at MIDEM !

The Premier International Music Market

In this world, one thing is certain: MIDEM is the music industry's greatest trade show. Nothing rivals the prestige and importance of MIDEM.

The Ultimate Global Meeting Place

MIDEM is where key professionals from all areas of the music world meet and make deals. Come and help define the industry's year ahead and obtain the «inside track» on vital issues - and of course...there's music.

One Stop For The World

A stand at MIDEM spotlights your company, enhances your image and puts you at the forefront of the international market. A stand will allow you to meet your clients in the privacy of your own HQ and optimise your five super-charged days in Cannes.

Registration

An individual business-friendly tariff ensures easy access for all sectors of the industry: until 6th January 1997: 3.650 FF (excluding VAT) from 6th January 1997: 3.950 FF (excluding VAT)

The DTI May Help

A UK company wishing to exhibit at MIDEM '97 may qualify for a DTI subsidy, providing your stand is booked by September 30th, 1996.

A Dazzling Setting

Spend five glittering days on the Côte d'Azur. Mingle with top class artists and attend trend-setting concerts. No professional can afford to miss this monster-media event.

Call for further information on 0171 528 0086 and speak to Emma Dallas or Peter Rhodes about exhibiting, attending MIDEM and advertising in the MIDEM Guide, Pre-News and Daily News Magazines.

19-23 January 1997

- Cannes

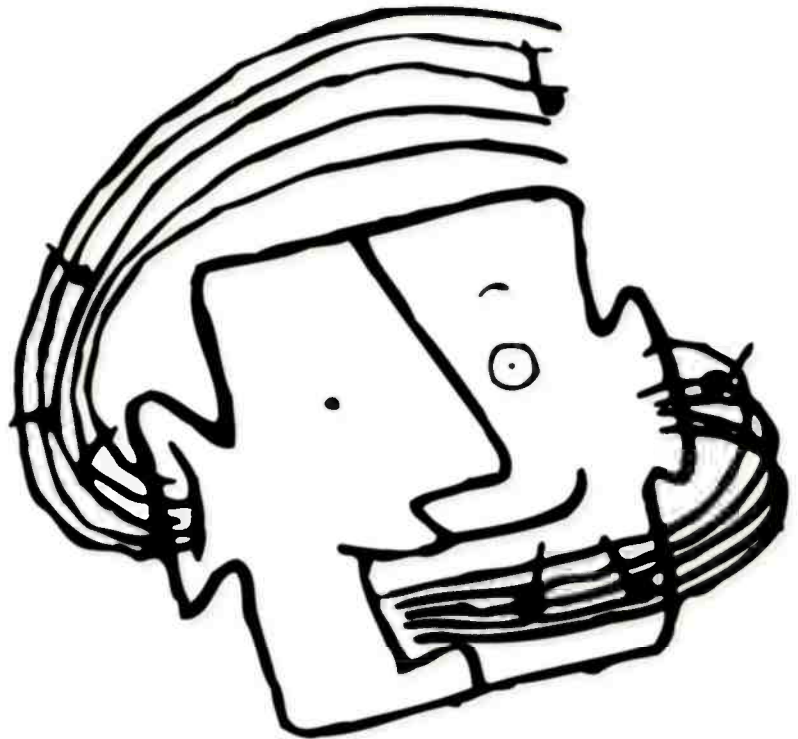


Palais des Festivals

France -

Midem '97

Music is the
keynote



Reed Midem Organisation

247 Tottenham Court Road, London W1P 0AU

Tel: 0171 528 0086 Fax: 0171 895 0949



REED MIDEM ORGANISATION
A MEMBER OF REED EXHIBITION COMPANIES



Audio caught in the net

There is much talk of the promise of audio-on-demand and internet broadcasting; but little of the problems involved in making them work. The limitations of compression algorithms are just the beginning writes **CHRIS EDWARDS**

Radio stations are falling over themselves to get onto the Internet. And it is not just with pages stuffed full of pictures: many of them have decided to start broadcasting across the network as well as the airwaves. But it is not time to ditch the radio transmitter, just yet. Those Web pages may be able to dole out real-time audio but there is no guarantee that people can actually hear it.

There are several reasons why the Internet is not really suitable for real-time audio, not least of which is the available bandwidth. Most users will use a modem to get access to the Internet and this will generally have a peak speed of 28.8kbit/s. Some will now work at 33.6kbit/s but this is still short of a basic ISDN link. You can now hook up to the Internet using ISDN almost as cheaply as using a modem, but the 64kbit/s that you get from one ISDN link is still a long way from the 1.5Mbit/s needed to get even CD-quality audio. That is assuming that you can get a full 64kbit/s from that link. As with ISDN, the answer is simple: compression. There are speech compression algorithms that work happily at 16kbit/s and below which provides a good degree of headroom for the overhead of the Internet protocol. However, music is another matter. Currently, most of the audio plug-ins for Web browsers such as Netscape are designed for speech, not for music. They will handle music but you will often encounter what the software writers term 'artefacts'. These are basically unpleasant forms of digital distortion and it is very difficult to predict exactly how the material will be distorted by a particular compression technique.

AT THE MOMENT, the general advice is to compress the source heavily for the simple reason that speech compression revolves around the idea that human speech fits a relatively narrow band of frequencies. Typically, bass frequencies are not that important and the high-frequency roll off is around 4kHz. Getting the signal into that range

will help although it will sound as though the band is playing in a tin can.

Audio quality is not the only problem. Internet service providers currently have no way of guaranteeing that they can continually pump 28.8kbit/s down your telephone line. If you have used the Web, you will have noticed the intermittent bursts of activity that punctuate the much longer thumb-twiddling waits for something to happen. This problem does not instantly solve itself when a Web site starts broadcasting. Instead, it gets a lot more noticeable. Generally, long waits are caused by congestion in the network. Service providers generally do not tell you this but they assume that when users connect to their service, each of those 28.8kbit/s links is not expected to be full all at the same time. They assume that there will be bursts of inactivity while people read Web pages and make decisions. This gives some leeway in the amount of bandwidth that they buy from the telecommunications companies. Typically, a service provider's link into the Internet will be somewhat slower than the aggregate data-rate of all of the modems that it supports on the customer's side. Some can have hundreds of modems and then use something like a 128kbit/s link into the Internet. When they get busy, there is plenty of waiting at the other end.

OFTEN, THE LACK of bandwidth on the Internet side is hidden by what are known as proxy servers. These store frequently used Web pages so that, for many accesses, a request can be serviced locally without troubling the Internet. Unfortunately, for live radio, proxy servers are no answer. The request has to go all the way to the site and back again through what can be a very narrow, congested pipe. Where proxy servers can be a help is with stored audio such as that found on promotional Web sites for artists. Assuming the artist is popular and a demo has just been released, there is a good chance of finding that the file is sitting on the provider's proxy server. This kind of audio-on-demand is arguably the best use for Internet audio as it makes good use of the medium and is something that a radio broadcast

cannot do. Over time, access speeds to the Internet will improve and service providers will get better at guaranteeing performance. But there is another problem. With each increase in average speed, some software writer out there will want a piece of the action and will come up with yet another compression technique that perhaps sounds a little better. That means that users will have to load even more plug-ins onto their computers to hear the material and studio engineers will have to work out how best to massage the source to best effect for yet another piece of compression software.

Users will have to load even more plug-ins onto their computers to hear the material and studio engineers will have to work out how best to massage the source to best effect for yet another piece of compression software

The higher-quality end of the market may well be satisfied with the various forms of MPEG audio but the experience so far with the Internet suggests that there will be many more choices on offer. The silver lining is that also-ran Internet software tends to disappear quickly, leaving only the programs that have built up a presence within a few months. The trick is spotting which ones will succeed and which will end up just littering listeners' hard disks.

These ports
take the heat
out of our
new speakers
so you can
put it
into your
performance.



H A Harman International Company

S O U N D T H A T C A R R I E S

SEE US AT
PLASA
STAND NO. G30

Big Brother is listening

The world of monitoring is plagued with talk of subjectivity and black magic. **ZENON SCHOEPE** documents the market and canvasses the manufacturers' respective views on their own loudspeakers

MONITORS ARE THE LINK in the audio chain upon which all other variables are judged. Yet it's true to say that the majority of audio professionals who stand to benefit most significantly from their use—engineers and producers—do not get to audition enough different models in the course of their work. Instead, they tend to stay with tried and trusted systems that are familiar and comfortable. This resistance to experimentation is aggravated by the knowledge that professing to have a monitoring preference is among the most personally revealing admissions that an engineer can make about gear—it can speak volumes about an individual and explains so much to a cynic. People like what they like and either keep quiet about it, or wear it on their sleeve in the hope that it will fend off any prospective courtiers. The crux of it is that nobody really wants to change away from monitors on which they have proved they can deliver good music.

However, investigating new systems ought to be a regular pastime as there are certainly enough manufacturers promising to revolutionise our lives. What's alarming is that they all clearly mean it even though common sense suggests that they can't all be right. This passion characterises the whole business of monitoring, but it's essential among the manufacturers given that their painfully crafted products are not employed creatively by the user, but can be dismissed by him in less time than it takes to wire them up. It's a nerve-wracking

experience, particularly when user's ears can be dulled by age-old prejudice; peer pressure; fashion; job-on-the-line; and just a smattering of 'black magic', which is why it's difficult to tackle the subject without offending somebody, somewhere along the way.

We can start at the horse's mouth and ask the manufacturers some direct questions to see how they interpret them. What they consider to be the **LIMITATIONS** that they overcome when designing monitors? What they consider to be **SPECIAL**, or even unique, about their products? And which monitor in their range qualifies as a **BEST** for whatever reason? How they answer is almost as interesting as what they answer, and where else can you find the word 'compromise' bandied around quite so freely as this?

ATC
ALAN AINSLIE
SALES AND MARKETING MANAGER

LIMITATIONS: 'It still comes down to matters of linearity and coloration. The room interaction thing is pretty much solved philosophically if people are prepared to look at wide dispersion monitors. Linearity is fundamentally tied up with driver design and still seems to be a limiting factor in short-term, harmonic-distortion generation. On a more extended time-span, linearity has to take into account thermal compression and it's an area where we're making great progress in, but there's still room for more. There should be a pretty linear path of driver development to reduce time-domain distortion and energy storage problems, but if you take an overall view of it there are new drivers popping up from time to time that are quite deliberately going against the good engineering trends.'

SPECIAL: 'ATC will always endeavour to engineer things better using known and proven technology. Machining all the metalwork parts on our magnet assemblies ourselves means we can work to much closer tolerances. That can improve driver performance quite remarkably because we have extreme control over the flux in the gap. We can improve electromechanical damping of the driver, and use the magnet assembly as a heat sink more efficiently, and solve many of the problems of thermal compression.'

BEST: 'The SCM100 is the least compromised and best value-for-money, overall, package because you have active amplification, the dome midrange applied properly, minimum compromise at the bass end, all for under £5,000. It plays loud, has low distortion and is true to the ATC ethic. The SCM300, with its amplification, active crossover, and limiters, is a big system that performs amazingly well and is only £17,000 which is embarrassingly good value for money.'



Silver: 'True reference monitors'

'The SCM20, 6-inch, 2-way is technically a 3-way with a mechanical crossover between a 3-inch midrange dome and a bass flare, and that driver has been re-engineered. That has to be the lowest distortion system in total terms on the market, and it will be called the SCM20S1—for super linear. Initially, it will be passive, but an active version will be released at the AES in the States.'

BAG END
JAMES WISCHMEYER
PRESIDENT

LIMITATIONS: 'With a near-field, and to some extent mid-field, the room interaction is minimised. We try to have low distortion, a wide frequency range and flat response, and we go the extra step to be time aligned. There's a lot of talk about driver placement and alignment, but it should be clearly noted that there is a specification to be Time Aligned. With time response many people are talking around each other and not talking about the same thing.'

SPECIAL: Time alignment. We have a flat response down to 8Hz and meet the time-aligned specification. We use no low-pass filter in our low-frequency system which is a fundamental problem of all other systems. Other loudspeakers work from resonance up, we work from resonance down. Other bass speakers want a big box and-or heavy cones to achieve a low resonance, but that rolls off quite dramatically with a deterioration of the phase response so the upper bass is deteriorated as well.'

BEST: 'Studio A is our top-of-the-line system, but you can add our subwoofer system to it.'



Dynaudioacoustics: 'Low distortion'

MONITORS

COSTINGS

ROGERS

Shielded LS1 £179 pair up to two big Master monitors £4-5000 (12-inch, 6-inch mid and 2-inch soft-dome tweeter) and £8,000-10,000 (2 x 15-inch, 6-inch and tweeter)

ATC

SCM10 £850 up to SCM300 system at £17,500.

B & W

805 at £1,000 up to Nautilus 4-way active at £30,000.

FOCAL PROLINE AUDIO

MC16 890FFr each up to 15,000FFr for MC210 per unit.

DYNAUDIOACOUSTICS

BM5 at under £400 up to M4/M5 hand-built series which start at around £24,000 for complete systems.

BAG END

Studio A deluxe system with stereo subwoofer and ELF1 processor for \$5500. Studio B with ELFM2 processor \$3500.

KRK

K-Roks at \$495 up to 15A5 with all amplification at about \$30,000.

RR AUDIO LABS

Dual voice-coil, 5-inch, 2-way, \$1,800 up to 502R Pentagon at \$7,500.

PMC

£366 for TB1S up to £26,000 for BB5XBB.

GENELEC

1030 at about £1,100 to some £35,000 for 1035b.

COASTAL ACOUSTICS

Boxer T3 1 x 15 at under £20,000 up to T4 4 x 12 at £28,000

TANNOY

PBM6.5 £260 up to System 215 DMT2 at £5,000.

EVENT

2020 \$400 and 2020 BAS \$1,000.

QUESTED

H108 £390 per unit up to £24,900 for HM415 system.

existing monitors to improve the bottom three octaves:

B & W

KEN WELLER PRODUCT MANAGER

LIMITATIONS: 'The battle of accuracy versus consistency. There are many products being used in studios because the engineer or producer is familiar with the sound of them, and not necessarily because they are particularly good or accurate. Many of the obvious aspects of loudspeaker design have been forgotten. The effects of diffraction are enormous yet you'll still see daft things like screws protruding out of face plates. There's also a fairly limited understanding of cabinets, and manufacturers either stick with a fairly conventional wooden box with some sort of bracing, or go for resin-rock-loaded concrete with old car tyres, and often don't have the facilities to be able to measure it and see what is actually going on. Unless you've got the measurement facilities it's very easy to make the wrong assumption.'

SPECIAL: 'The kevlar cone. Apart from its stiffness-to-weight ratio it's asymmetrical, and you don't get standing waves across the cone.'

BEST: 'The 805 does everything right without introducing the problems you get with extra bass. You have the matrix cabinet, the kevlar cone, the tweeter on the top. For a producer who wants to hear what is going on the 805 is the best thing to use. If you want bass then the 801 is the one to use.'

COASTAL ACOUSTICS (BOXER)

MATT DOBSON MANAGING DIRECTOR

LIMITATIONS: 'The major limitation is doing a direct-driving radiator that's capable of producing high enough power. We achieve high power by using a soft dome that was the largest in the world until relatively recently, allowing a 4-inch coil to drive the most critical part of the frequency range which is the mid. With a 4-inch coil you can put as much power in as you can into high-power bass drivers and we use a 900W amplifier to drive the mid. We continue that philosophy into the tweeter by using a 38mm



ATC: 'Known and proven technology'

direct-radiating dome which is larger than would be ideal from the directivity point of view, but it's a compromise we chose so we could go with a 3-way system, get the power handling and get a reasonable response up to 18kHz-20kHz.'

SPECIAL: 'We use Columax centre-pole magnets which is grain oriented Alnico. As centre-pole magnets we're getting very high powers, very high total flux, high flux density, and also extremely low leakage. We do that on the mid and high. On both domes, because

of the weight and size of the structure holding the magnets, it would be impossible to remove them in a wall so we've devised a method where domes can be changed without taking out the magnets.

'There's also the care and attention we put into hand winding, finishing and doping, to get the response we've been developing for the last ten years.

'Where ever we sell a system in the world we turn up, and measure the room and speakers, and set them up.'

BEST: 'There's no quality difference between our models—they all use the same mid and high—the difference is in the bass part of the cabinet.

If you're running a studio, and want a system that will allow you to get in as diverse a range of clients as possible, then you have to use a monitor that sounds and works well with any type of music.'

you've never come this close to perfect service

No H.H.A..... No Comment



SAMSON
THE WIRELESS FUTURE

available
from



hand held audio

tel: 0181-880 3243
fax: 0181-365 1131



The sheer force of pure sound is intensely powerful. It is majestic and exquisite. When precisely engineered to perfection, it mesmerizes. So we designed and integrated components that now add a new meaning to the concept of power.

With Meyer Sound, you only have to listen.

{To arrange an audition, call Meyer Sound Europe at +44-1734-755533}

MONITORS

DYNAUDIOACOUSTICS

ANDY MUNRO
JOINT MANAGING DIRECTOR

LIMITATIONS: 'Quality versus power. Everything you do to increase the volume output of a speaker basically decreases its sound quality. It comes down to making very robust drive units, units that can handle very high power levels. All our drive units are tested at 1,000W impulse which verifies that their linear behaviour is wide enough in dynamic range terms to come up with the levels people want. We don't set out to make the loudest speakers in the world, and I'm not in the business of competing with the seriously big blood-and-thunder monitors. If people want to listen at 130dB and do themselves permanent damage, then that's their business.'
SPECIAL: 'Low distortion primarily, by an order of magnitude. On the M3s and M4s the distortion at typically used reference levels is down in the 0.1% region.'

'To produce low distortion you've got to have very good dynamic properties and quality control. Our quality control is second to none.'

BEST: 'The one that epitomises what we think in terms of how to make a monitor nigh on perfect is the M4, but as a very real alternative the passive M3 shows what we can do with a passive system, and I think it's the best value for money. Its also universally popular, and is used by Sony Classical in Tokyo, and Iron Maiden in Essex. There aren't many monitors that can claim to satisfy both types of customer.'

EVENT

FRANK KELLY
VICE PRESIDENT

LIMITATIONS: 'The biggest technical obstacle is the interaction of the monitor with the room environment, and that's why direct-field monitoring was developed. There's the matter of reflections to deal with, and there's only so much you can do about that.'

SPECIAL: 'Our monitors are designed to be truthful in their response, and we give a lot of attention to power handling. They're not expensive either because we don't put a lot of money into the things that don't matter—quite often manufacturers of loudspeakers treat this as a fashion business. We don't, we approach it from the scientific perspective and apply appropriate technology, and put the money in the things that matter.'

BEST: 'The 2020BAS is the better of the two models in giving you the attributes of bi-amplification which are more SPL per Watt, better definition, detail, and lower distortion. Its also more convenient, and removes a lot of the variables in the sound chain. However, the passive model holds its own connected to a good quality amp.'

FAR

PIERRE THOMAS
DIRECTOR

LIMITATIONS: 'All drivers have their own sound colour; it is the job of the designer to marry that coloration to a cabinet design that will give the most accurate and neutral monitor possible. However the designer must, to a certain extent, compromise the design to enable the loudspeaker to function in rooms that are not necessarily perfect.'



Genelec: 'Only active-monitoring loudspeakers'

SPECIAL: 'We are currently working on the use of less severe roll-off filters in the crossover design, and methods of controlling box vibrations in the cabinet construction.'

BEST: 'Its compact size and perfect low-frequency control, together with the high power handling obtained by the double woofer design make the DBW 80 the perfect mid-field monitor. While the dual kevlar driver in the CR 20 is filtered as a 3-way system, even though it has only two drivers. This, coupled with the high-quality kevlar tweeter, gives outstanding performance and sensitivity.'

FOCAL PROLINE AUDIO

JEAN PIERRE CARLES
PRESIDENT

LIMITATIONS: 'Size—getting the best results from a small box, and the most bass you can.'

SPECIAL: 'We have many registered patents, particularly with the drivers because we've been developing double voice-coils on flat ribbons. We've also developed new cones with synthetic materials like polykevlar and sandwich composite materials. The advantages are rigidity and low weight which gives the best compromise between weight and speed. Our 10-inch cone weighs 3.5g.'

BEST: 'Without any doubt for broadcast it is the MB17 while for studios it's the MB26. Both monitors are very sober in sound and general balance.'

GENELEC
LARS-OLAF JANFLOD
INTERNATIONAL SALES

LIMITATIONS: 'When you design whatever'

Distributor List

(correct as at July 1996)

Austria

ATEC GmbH
Tel: +43 2234 74004
Fax: +43 2234 74074

Belgium

Amptec
Tel: +32 11 281 458
Fax: +32 11 281 459

Canada

Sonotechnique
Tel: +1 514 332 6868
Fax: +1 514 332 5537

Czech Republic

Audio Sales Prague
Tel: +42 2 544 173
Fax: +42 2 573 11779

Denmark

New Musik A/S
Tel: +45 86 190 899
Fax: +45 86 193 199

Eire

C.T.I.
Tel: +353 1 454 5400
Fax: +353 1 454 5726

Finland

Oy HedCom AB
Tel: +358 0 682 866
Fax: +358 0 682 8489

France

Mille et un Sons
Tel: +33 1 46 67 02 10
Fax: +33 1 47 89 81 71

Germany

Mega Audio GmbH
Tel: +49 67 21 94 330
Fax: +49 67 21 32 046

Greece

Bon Studio S.A.
Tel: +30 1 380 9605/6/7/8
Fax: +30 1 384 5755

Hong Kong

Linfair Engineering (H.K.)
Tel: +852 2898 3133
Fax: +852 2556 7186

Hungary

Audio Sales Hungary KFT
Tel: +36 1 156 95 15
Fax: +36 1 156 95 15

Iceland

Verslunin Pfaff hf.
Tel: +354 533 2222
Fax: +354 533 2230

India

PACE Communications
Tel: +91 22 633 5450/1/2
Fax: +91 22 633 5453

Indonesia

Para-DI
Tel: +62 21 829 2202
Fax: +62 21 829 2572

Italy

Syncom
Tel: +39 6 32 429 71
Fax: +39 6 32 429 71

Japan

General Traders
Tel: +81 33 293 2274
Fax: +81 33 293 5391

Malaysia

Meteor Sound & Light
Tel: +60 3 291 6559
Fax: +60 3 292 2560

Netherlands

TM Audio Holland bv
Tel: +31 30 2 41 40 70
Fax: +31 30 2 41 00 02

Norway

Norsk Lydteknikk
Tel: +47 64 93 20 90
Fax: +47 64 93 01 51

Pakistan

Pakwestrex & Co (Pvt)
Tel: +92 21 772 3959
Fax: +92 21 722 7259

Philippines

Stage Craft International
Tel: +632 819 1243
Fax: +632 817 1867

Portugal

Valentim di Carvalho
Tel: +351 144 13 584
Fax: +351 144 32 195

Russia

ISPA
Tel: +7 095 956 1826
Fax: +7 095 956 2309

Slovakia

Audio Sales Bratislava
Tel: +42 7 722 249
Fax: +42 7 726 809

South Africa

Prosound Pty Ltd
Tel: +27 11 334 6550
Fax: +27 11 334 6826

South Korea

Avix Trading Co. Ltd
Tel: +82 2 565 3565
Fax: +82 2 565 3561

Spain

SGT S.A.
Tel: +34 1 383 2160
Fax: +34 1 383 9916

Sweden

TonKraft AB
Tel: +46 31 795 75 95
Fax: +46 31 795 76 95

Switzerland

J&C Intersonic
Tel: +41 56 450 21 70
Fax: +41 56 450 21 71

Taiwan R.O.C.

Linfair Eng & Trading Ltd
Tel: +886 2 321 44 55
Fax: +886 2 393 29 14

Turkey

Imaj Communications
Tel: +90 212 275 8310
Fax: +90 212 275 8384

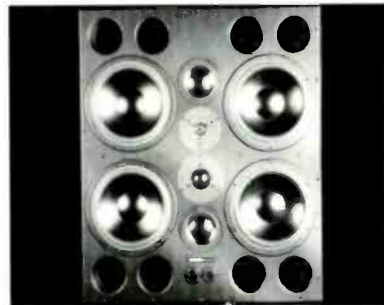
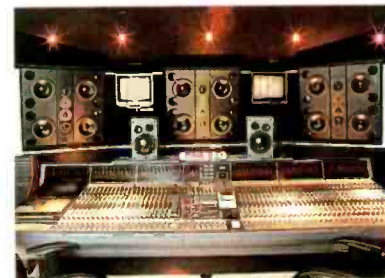
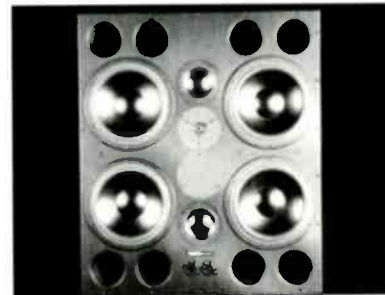
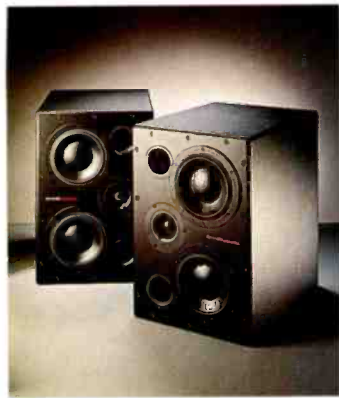
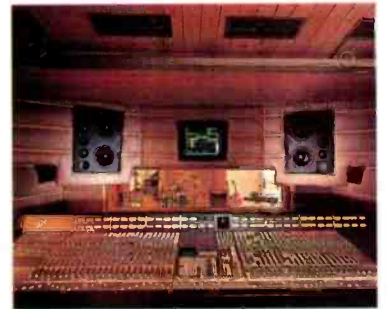
UK

Unity Audio
Tel: +44 1920 822 890
Fax: +44 1920 822 892

USA

Audio Exchange Int'l
Tel: +1 617 982 2626
Fax: +1 617 982 2610

SIMPLY THE FINEST RANGE OF REPRODUCTION FURNITURE IN THE WORLD



Dynaudio Acoustics (UK) Limited
Unit 21, Riverside Workshops, 28 Park St, London SE1 9EQ UK
Tel: +44 (0) 171 403 3808 Fax: +44 (0) 171 403 0957
E-mail: 100072.2302@compuserve.com

dynaudio **acoustics**[®]

MONITORS

Loudspeaker you have to face a number of problems and sort out the best compromise. If you don't choose to use compression drivers, for example, you suffer in some available sound-pressure level and sensitivity; although if you don't use compression drivers you also gain on less distortion and other things!

SPECIAL: 'What is unique about us is that we do nothing but active-monitoring loudspeakers, and all the R&D we do goes into this area. There are also our waveguides (DCWs) which were developed in house.'

BEST: 'They all share the same sonic quality, and it's really up to the customer to choose what kind of SPL and frequency response he wants. There are products that we do, still, produce to order, and a monitor like the 1022b, or 1022a, or the glass-fibre cabinet 1022, is probably the best speaker we ever made; although the market didn't seem to accept it too well.'

HARBETH ACOUSTICS

ALAN SHAW
DESIGNER AND
MANAGING DIRECTOR

LIMITATIONS: 'Harbeth monitors are ideally suited to broadcast and AV editing suites where small size, wide bandwidth and near-field operation is required at sensible levels.'

SPECIAL: 'Harbeth monitors use a totally new patented cone material that lets through detail and ambience lost in paper and polypropylene cones.'

BEST: 'The "Harbeth mid band Sound" is common across the range: "Best" is simply a matter of most convenient size—all have an unbeatable neutrality, so the human voice really does sound human!'

KRK

KEITH KLAWITTER
PRESIDENT AND
CHIEF DESIGNER

LIMITATIONS: 'The K-Rok was all about trying

to get the performance out of a low-end speaker on a very low margin. It's easy building the more expensive units.'

SPECIAL: 'We take a lot of R&D time on our driver manufacturing. We're fanatical about driver design and power handling; linearity; crossover interface; and acoustical design.'

BEST: 'The new ones that I'm working on now are very exciting—the all-new, powered, bi-amp series is the best we've ever done. The amplifier section is all built by us with internal time-alignment and contours, some several years of driver design, very stylised box design, and a lot of computer interface, and DSP technology are going into the crossover. The initial systems are 2-way, but the drivers have a unique cone and magnetic structure.'

PMC

ADRIAN LOADER
MANAGING DIRECTOR

LIMITATIONS: 'It takes very much longer to design monitors properly, and they're very much more expensive to build. Building to a price for our cheaper models was an interesting job, but as with all such things there are compromises that have to be made. Where you draw that line is a difficult one, but I guess it comes down to finish.'

SPECIAL: 'Transmission line. Essentially we're getting at least another octave of bottom end performance and better driver control over a conventional reflex-ported box.'

BEST: 'They all serve a particular function and have a different job to do.'

QUESTED

ROGER QUESTED
DESIGNER

LIMITATIONS: 'How much money people are prepared to spend. It's about making the right compromise between the power handling and the low-end extension of a near-field monitor.'

SPECIAL: 'The whole product range sounds similar and they're an accurate representation of what you stick in—you put crap in, and you get crap out, unfortunately all too often.'

BEST: 'The HM415 is a stunningly good speaker, but unfortunately we don't sell very many of them. For myself it would be the H208s because they're a reasonable size, reasonable cost, sonically very good, and it's the only model that we haven't had a complaint from anybody about.'

ROGERS

DOUGLAS

FLOYD-DOUGLASS
HEAD OF MARKETING
WORLDWIDE

LIMITATIONS: 'Room interaction and it is something we're addressing. Things like imaging can also come down to room design. We tend to crossover much higher than most manufacturers do so we don't affect the vocal range.'


SPECIAL: 'Voicing and imaging because we've been doing it longer than anyone. We're still British.'

BEST: 'The new Master 12 will open up the market for us in big studio monitors. It will take all our traditional values into a much more production-friendly modern music-friendly monitor.'

RR AUDIO LABS

RON REZNICK
PRESIDENT

LIMITATIONS: 'You have to decide what compromises you're going to make because everything is a compromise.'

SPECIAL: 'Low Q filter designs, and as far as 

GENELEC IS A REGISTERED TRADEMARK OF GENELEC OY, FINLAND



PROJECT AUDIO LIMITED
UNIT 1, 321 ESSEX ROAD
LONDON N1 3PS
TEL: 0171-359 0400
FAX: 0171-359 3393

ACTIVE MONITORING WITH
THE NEW GENELEC 1030A.
THE SMALL WAY TO MAKE A
BIG IMPROVEMENT.

GENELEC®

OLVITIE 5
FIN -74100 IISALMI, FINLAND
TEL +358-77-13311
FAX +358-77-12267

WHAT'S
NEW
ABOUT
ACTIVE
MONITORING?



TANNOY
POINT SOURCE.

Traditionally, sound engineers have had to combine loudspeakers and amplifiers, often from different manufacturers, for optimum performance.

From time to time speaker designers have had the idea of combining the two for specific applications.

Now Tannoy have brought their unique driver technology and years of studio experience to active monitoring, by creating the AMS8.

The AMS8 has been designed to meet the exacting demands of recording, broadcast and post-production studios.

For the technical it has a 200mm point-source, dual concentric driver, two powerful built-in amplifiers and adaptable active filters.

For the non-technical, it looks as good as it sounds.

The new AMS8 - makes all the others seem pointless.



AMS8
TANNOY

MONITORS



Quested: 'Accurate representation'

phase and transient characteristics are concerned, these things are nearly linear. They store almost no energy, they don't ring at all, and I have an amazing amount of control over the drivers this way. I do the same thing with the enclosure design, and tune the reflex at low Q. All the enclosures are either fully, or partially, nonparallel for acoustical purposes, and the faces of the enclosures are created to give little or no diffraction.'

SPECIAL: 'We only manufacture close-field monitors and claim that a mix completed on our monitors will have the same balance when reproduced on any other playback systems. They are true reference monitors that will enable highly accurate mixes to be accomplished.'

BEST: 'Our best model at the moment is the 5L Closefield monitor which has an optional Bass Augmentor named BH that will enable higher power handling and bass response of

the 5L to below audibility. They are affordable to any serious professional who requires an accurate reference monitor.'

BEST: 'Probably the best overall performance value is the 502R. The best performance for the dollar is the 702R1. The 2802 and the Trapegon 3 are both rather expensive, but they kill speakers at lots more money.'

SILVER
ETHEM
CETINTAS
DESIGNER

LIMITATIONS: 'The limitations we see for reference monitoring is the affect of the reverberant monitoring domain and the insistence that monitors are purely a sub-jective issue, they are not and need not be.'

LIMITATIONS: 'Performance of any monitor loudspeaker is ultimately only limited by cabinet volume.'

SPENDOR
JOHN CARROLL
MANAGING DIRECTOR

SPECIAL: 'Achieving full bandwidth at high SPLs with a flat response, low distortion, mid-range clarity, minimal coloration, precise imaging, and a musical sound, is the Spendor hallmark. All models have finely adjustable active filters to compensate for room acoustics.'

BEST: 'Spendor do not have a best model as such; as each product is the best available for a specific application.'

SPIRIT BY
SOUNDCRAFT
ANDY FARMER
SALES AND MARKETING

LIMITATIONS: 'In most monitoring situations you are caught between two contradictory constraints; you want something that gives a perfect reproduction of your original soundfield to allow an accurate audit of the quality of your recording, yet it has to sound close enough to a modest hi-fi speaker that your mix will work well on the end-user's home equipment.'

SPECIAL: 'We are committed to making speakers that are excellently engineered by any standards, but remain affordable. We also use only custom drivers developed over a long period of time to my specifications (and make them in interesting colours)'. 🐾

FAR

MEET US AT

PLASA SHOW (LONDON)
8 - 11 September Stand no: sq 60

SATIS (PARIS)
22 - 24 October



Professional Monitoring Design

For more information feel free to contact us

- Axis Audio System ++ 44 161 474 76 26 (England)
- Contraste ++ 33 148 18 13 70 (France)
- Jager ++ 41 71 27 87 262 (Switzerland)
- Musik Produktiv ++ 49 5451 909 198 (Germany)
- Servicios Profesionales Audio ++ 34 91 859 39 44 (Spain)
- Sound Fusion ++ 27 11 477 13 15 (South Africa)
- Far Headquarter ++ 32 41 67 65 10

CANFORD

audio
Available from Canford Audio
0191 415 0205



The **PURE** sound of
Harbeth's unique,
patented cone . . .

fast, accurate, clean,
exciting, sweet,
transparent, 3D, naked,
fantastic, beautiful

and the sound of
polypropylene . . .

woody, barking, woolly,
fuzzy, dead, lifeless, foggy,
coloured, veiled

Get a grip on reality:
step up to the Harbeth
HL Compact 7, K6 and S8

HARBETH
ACOUSTICS
DESIGN FOR SPEAKERS WITH CHARACTER

Harbeth Acoustics Ltd., Unit 1 Bridge Rd., Haywards Heath, RH16 1UA, UK
Tel: (0)1444 440955 Fax: (0) 1444 440688

When it comes to monitors, honesty is the best policy.

Boyz II Men, Stonecreek, Philadelphia – HQ410u



*Hans Zimmer & Jay Rifkin, Media Ventures,
Los Angeles – Q210/QSB121*



*– Gloria & Emilio Estefan, Crescent Moon, Miami –
Studio A – Q412C; Studio B (inset) – Q212C*



THE QUESTED CLIENT LIST includes some of the world's top names in virtually every field of professional audio. They choose Quested studio monitors for one, simple reason: they tell the truth. Whatever your application, Questeds provide an *honest, uncolored sound* – sound that you can rely on.

Successful artists, able to choose whatever gear they wish, and whose only criterion is quality, insist on Quested to make their albums. Artists like Boyz II Men at Stonecreek; Whitney Houston at her home studio; and Gloria & Emilio Estefan's Crescent Moon facility in Miami.

Top film and television engineers and composers choose Quested systems for monitoring their mixes and playing back their compositions – in stereo or surround. Bruce Botnik of Pacific Ocean Post takes his Questeds on scoring and dubbing dates. Hans Zimmer & Jay Rifkin at Media Ventures use their Questeds on major motion picture projects like *The Lion King*.

World-class recording studios handling every kind of work, from rock to classics, select Quested for their premium recording environments. Abbey Road, the world's most famous recording studio, has Questeds in Studio 2 – the room where the Beatles recorded – and in Studio 3. And Hit Factory Mastering in New York handles premastering on the world's hit records – with Quested.

There's a Quested system for every room – each with the same superior phase response and overall sonic accuracy. *We believe there are no better monitors available at any price.*

QUESTED
Studio Monitors.

Quested Monitoring Systems, 2 Rosebery Gardens, Ealing,
London W13 0HD, UK. Tel: +44 181 566 8136 Fax: +44 181 997 8780.



MONITORS



Tannoy: 'Differentiating between playback and reference'

BEST: 'Undoubtedly the new Absolute 4P active monitors. These are accurate, loud, and good for mixing since there are things you can do when designing an integrated active system that start to overcome many of the inherent problems in electrodynamic drivers that are almost impossible in a passive system.'

TANNOY
DEREK WEST
 MARKETING MANAGER
 PROFESSIONAL
 DIVISION

LIMITATIONS: 'It's generally down to technology because we will always look at developing completely new drive units, and we're not the sort of company that plays around with sticking the same drivers

in a different box next year.'

SPECIAL: 'Point source monitoring which is the only way to achieve accurate phase that gives an even phase and frequency response over a wide listening area. We're probably the only company that strongly differentiates between what we consider to be playback and reference monitors. Reference means it has to meet certain parameters of flat frequency response, dynamic range, power and phase. One of the problems at the moment is that there are so many people bringing out cheap loudspeakers and putting the word monitor on them.'

BEST: 'At the moment I would say the AMS8 which is our new active monitor because there's a lot in there that we've been able to achieve by controlling all of the electronics ourselves. It's been a big step forward for us.'

Studio Sound will be surveying the monitor market on a regular basis: please make sure you send us your product information and opinions

CONTACTS

ALESIS, US. Tel: +1 310 558 4530

Fax: +1 310 836 9192

SOUND TECHNOLOGY, UK.

Tel: +44 1462 480000.

Fax: +44 1462 480800.

ATC, Loudspeaker Technology, UK.

Tel: +44 1285 760561.

Fax: 1285 760683.

BAG END, US. Tel: +1 847 382 4550.

Fax: +1 847 382 4551.

B&W, UK. Tel: +44 1903 750750.

Fax: +44 1903 750694.

CELESTION, UK.

Tel: +44 1473 322222.

Fax: +44 1473 729662.

COASTAL ACOUSTICS, UK.

Tel: +44 1753 631022.

Fax: +44 1753 651528.

DYNAUDIOACOUSTICS, UK.

Tel: +44 171 403 3808.

Fax: +44 171 403 0957.

EVENT, US. Tel: +1 805 952 6926.

Fax: +1 805 962 3830.

FUNDAMENTAL AUDIO

RESEARCH, Belgium.

Tel-fax: +32 41 67 6510.

FOCAL PROLINE AUDIO, Europe.

Tel: +33 77 43 1616.

Fax: +33 77 37 6587.

GENELEC, Finland.

Tel: +358 77 133 11.

Fax: +358 77 122 67.

GENELEC, US.

Tel: +1 508 647 4780.

Fax: +1 508 647 4789.

HARBETH ACOUSTICS, UK.

Tel: +44 1444 440955.

Fax: +44 1444 440688.

KRK MONITORING SYSTEMS, US.

Tel: +1 714 841 1600.

Fax: +1 714 375 6496.

TONY LARKING PRO SALES, UK.

Tel: +44 1462 480009.

Fax: +44 1462 480035.

MEYER SOUND LABS, US.

Tel: +1 510 486 1166.

Fax: +1 510 486 8356.

PROFESSIONAL MONITOR

COMPANY, UK.

Tel: +44 1707 393002.

Fax: +44 1707 393536.

QUESTED MONITORING, UK.

Tel: +44 181 566 8136.

Fax: +44 181 997 8780.

RR AUDIO LABS, US.

Tel: +1 818 843 8212.

ROGERS, UK.

Tel: +44 181 683 2101.

Fax: +44 181 684 6469.

SILVER PRODUCTIONS, UK.

Tel: +44 1722 336221.

Fax: +44 1722 336227.

SPIRIT BY SOUNDCRAFT, UK.

Tel: +44 1707 665000.

Fax: +44 1707 665461.

SPIRIT BY SOUNDCRAFT, US.

Tel: +1 916 888 0488.

Fax: +1 916 888 0480.

SPENDOR, UK.

Tel: +44 1323 843474.

Fax: +44 1323 442254.

TANNOY, UK.

Tel: +44 1236 420199.

Fax: +44 1494 437431.

TANNOY, Canada.

Tel: +1 519 745 1158.

Fax: +1 519 745 2364.

There are monitors... then there is Silver @

<http://www.anadolu.net/silver>

5L CLOSEFIELD



Good News Travels Fast. And Far.



The Calrec S series broadcast console, launched at the 1995 IBC, is already installed and working in studios worldwide, including ABC Australia, MBC Korea and in the U.K. the BBC, Anglia, Yorkshire, Tyne Tees and Fountain TV facilities.

Its compact frame and considered ergonomics, its 72 channel capability, 8 groups and 32 tracks make it ideal for dubbing studios and mobiles too - Creative Technology, Visions and Black & White Mobiles have all installed S Series in their superb trucks.

In 1996 the S Series will be used for the Olympics in Atlanta, specified by North East Productions of the USA for NBC and by the BBC for National and World Service TV coverage. This nail biting test of capability and reliability clearly demonstrates the confidence that the broadcast industry has for Calrec.

The Calrec S Series. Obviously good news for studios who need first order audio in a compact frame and want it now.



Expanding the pool of knowledge



IBC96 Conference

An exciting combination of papers, panels, workshops and a great exhibition awaits you at IBC96.

The Conference, established as the leader in its field, offers you the best range of vital information ever by expanding on its popular format and presenting something for everyone.

So keep right up to date with what's going on in the industry

- register now!

IBC AMSTERDAM 12 - 16 SEPTEMBER 1996

 *see you there!*

IBC Office Savoy Place London WC2R 0BL United Kingdom
Telephone: +44 (0)171 240 3839 Fax: +44 (0)171 240 3724
Telex: 261176 IEE LDNG Email: show@ibc.org.uk
Internet: <http://www.ibc.org.uk/ibc/>



World events

August 1996

◆ August 7th-10th Thai Broadcast '96

Queen Sirikit National Convention Centre, Bangkok, Thailand.
Tel: +66 2 361 64223.

◆ August 7th-10th MacWorld Expo

Boston, US.

◆ August 15th-18th Popkomm

KölnMesse, Cologne, Germany.
Tel: +49 221 8210.

◆ August 26th-29th Windows Solutions

Expo & Conference
San Francisco, US.

September 1996

◆ September 3rd-6th Broadcasting China 96

Exhibition & Symposium
Beijing, PR China.
Tel: +86 10 609 3775.

◆ September 4th-8th CEDIA

Dallas, Texas, US.

◆ September 6th International

Monitor Awards
Beverly Hilton Hotel, Beverly Hills, California, US.
Tel: +1 212 629 3266.

◆ September 7th-10th British Music Fair

Earls Court, London, UK.
Tel: +44 1442 215435.
Fax: +44 1442 656 04.

◆ September 8th-11th Plasa

Earls Court, London, UK.
Tel: +44 171 370 8179.

◆ September 10th-12th 6th Australian Regional

AES Convention
World Congress Centre, Melbourne, Australia.
Tel: +61 3 9682 0244.

◆ September 12th-16th IBC 96

RAI, Amsterdam, The Netherlands.
Tel: +44 171 240 3839.

◆ September 16th-20th Seventh International

Symposium on Electronic Art (ISEA 96)

Rotterdam, The Netherlands.
Tel: +31 10 477 8605.

◆ September 17th-19th Interactive Multimedia

Association Expo
New York, US.

◆ September 18th-23rd photokina

KölnMesse, Cologne, Germany.
Tel: +49 221 821-0.

◆ September 21st-23rd cinéc

MOC Events Centre, Munich, Germany. Tel: +49 89 51070.

◆ September 24th-29th Live 96

Earls Court, London, UK.
Tel: +44 181 233 9306.

October 1996

◆ October 3rd-6th International Music

Yarmarok 96
National Exhibition Centre, Kyiv, Ukraine. Tel: +380 44 261 7546;
UK Tel: +44 171 700 6655.

◆ October 9th-12th NAB Radio Show and

World Media Expo 96
LA Convention Centre, Los Angeles, California, US.
Tel: +1 202 429 5350.

October 10th-12th World Media Expo 96

LA Convention Centre, Los Angeles, California US.
Tel: +1 202 775 4970.
Fax: +1 301 216 1847.

◆ October 24th-26th Broadcast India 96

Exhibition & Symposium
World Trade Centre, Bombay, India. Tel: +91 22 215 1396.

◆ October 30th -November 1st

WirelessWorld Expo
Orange County Convention Centre, Florida, US.
Tel: +1 301 986 7800.

◆ October 31st -November 1st

ITS 8th Annual Magnetic & Optical Media Seminar
Mark Hopkins Hotel, San Francisco, US.
Tel: +1 609 279 1700.

November 1996

◆ November 5th-7th Broadcast Engineering

Society Expo 96
Hotel Taj Palace, New Delhi, India. Tel: 91 11 371 9978.

◆ November 5th-9th PT/Expo Comm China

China International Exhibition Centre, Beijing, Peoples Republic of China.
Tel: +52 525 592 3257;
US Tel: +1 301 986 7800.

◆ November 6th-9th AV & Broadcast

China 96
Beijing Exhibition Centre, Beijing, China.
Tel: +852 2862 3460.

◆ November 6th-9th Apple Expo 96

Olympia, London, UK.
Tel: +44 181 390 0203.

◆ November 7th 21st Sound Broadcasting

Equipment Show (SBES)
The Metropole Hotel, NEC Birmingham, UK.
Tel: +44 1491 838575.

◆ November 8th-11th 101st AES Convention

LA Convention Centre, Los Angeles, California, US.
Tel: +1 213 258 6741.

◆ November 12th-14th BroadBand World

Expo 96
Navy Pier Convention Centre, Chicago, US.
Tel: +1 301 986 7800.

◆ November 15th-18th

Tonmeistertagung

Stadhalle, Karlsruhe, Germany.
Tel: +49 2204 23595.

◆ November 21st-24th LDI 1996

Orlando, US.
Tel: +1 212 229 2965.

◆ November 21st-24th News World 96

Intercontinental Hotel, Berlin, Germany. Tel: +171 491 0880.

December 1996

◆ December 3rd-5th Online Information 96

Olympia 2, London, UK.
Tel: +44 1865 730275.

◆ December 8th-11th Broadcast Cable &

Satellite 96 including
Pro-Audio India, Lighting
India and TV India
Pragati Maidan, New Delhi, India. Tel: +91 11 462 2710.

◆ December 8th-11th Communications India

96 including Networks
India and Wireless India
Pragati Maidan, New Delhi, India. Tel: +91 11 462 2710.

February 1997

◆ February 22nd-25th Middle East

Broadcast 97
Bahrain International Exhibition Centre. Tel: +973 550033;
UK Tel: +44 171 486 1951.

April 1997

◆ April

Entech 97
Melbourne Exhibition Centre, Australia. Tel: +61 2 876 3530.

May 1997

Pro Audio Light

and Music China 97
Beijing Exhibition Centre, Beijing, China.

Tel: +852 2861 3331.

◆ May

Expo Comm Wireless Korea 97

Korea Exhibition Centre, Seoul, Korea. Tel: +82 2 555 7153.
Fax: +82 2 556 9474.

June 1997

◆ June 7th-10th Nightwave 97

Rimini Exhibition Centre, Italy.
Tel: +39 541 711249.
Fax: +39 541 786686.

July 1997

PALA 97

Bangkok International Trade Centre, Bangkok, Thailand.
Tel: +65 227 0688.
Fax: +65 227 0913.

August 1997

◆ August 25th-28th SMPTE

Sydney, Australia.

October 1997

◆ October 16th-20th International Audio,

Video, Broadcasting and
Telecommunications
Show (IBTS 97)
Milan, Italy.

June 1998

◆ June 2nd-5th Broadcast Asia 98

World Trade Centre, Singapore.
Tel: +65 338 4747.
Fax: +65 339 5651.

October 1998

◆ October 12th -November 6th

ITU Plenipotentiary
Conference
Minneapolis, Minnesota, US.
Tel: +1 22 730 5969.

October 1999

◆ October 8th-17th Telecom 99

Palexpo, Geneva, Switzerland.
Tel: +41 22 730 5969.

Studio sound

Incorporating Broadcast Engineering
August 1996, Vol 38, No 8, ISSN 0144 5944

EDITORIAL Editor: Tim Goodyer Production Editor: Peter Stanbury Editorial Secretary: Deborah Harris US Representative: Debra Pagan Consultants: Francis Rumsey; John Watkinson Columnists: Dan Daley; Chris Edwards; Barry Fox; Kevin Hilton; Jim James Regular Contributors: Jim Betteridge; Simon Croft; James Douglas; Ben Duncan; Dave Foister; Bill Foster; Tim Frost; Yasmin Hashmi; Philip Newell; Terry Nelson; Stella Plumbridge; Martin Polon; Zenon Schoepe; Sue Sillitoe; Keith Spencer-Alien; Patrick Stapley; Simon Trask; Andy Wood Publishing Editor: Joe Hosken Executive Editor: Nick Smith **ADVERTISEMENT SALES** Executive Ad Manager: Steve Grice Deputy Ad Manager: Phil Bourne Business Development Manager: Georgie Lee Classified Advertisement Manager: Rebecca Reeves Advertisement Production: Angela Skinner PA to the Publisher: Lianne Davey Managing Director: Doug Shuard Publisher: Steve Haysom.

Miller Freeman Entertainment Ltd, 8th Floor, Ludgate House, 245 Blackfriars Road, London SE1 9UR, UK. Tel: +44 171 620 3636. Fax: +44 171 401 8036. E-Mail: cz73@cityscape.co.uk

© Miller Freeman plc, 1996. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical including photocopying, recording or any information storage or retrieval system without the express prior written consent of the publisher. The contents of Studio Sound and Broadcast Engineering are subject to reproduction in information storage and retrieval systems. Studio Sound and Broadcast Engineering incorporates Sound International and Beat Instrumental. Studio Sound and Broadcast Engineering is published monthly. The magazine is available on a rigidly controlled requested basis, only to qualified personnel. The publisher may pass suitable reader addresses to other relevant suppliers. If you do not wish to receive sales information from other companies, please write to Circulation and subscription at the address below. **Subscription Rates.** UK annual: £36.00. Europe: £50.00/US\$80.00. Overseas airmail. American continent: £62.50/US\$100.00. Rest of the World: £62.50/US\$100.00. Refunds on cancelled subscriptions will only be provided at the publisher's discretion, unless specifically guaranteed within the terms of the subscription offer. Circulation and subscription Assistant Circulation Manager: Joanna Southward UK: Miller Freeman Entertainment Ltd, Royal Sovereign House, 40 Beresford Street, London SE18 6BQ. Tel: 0181 855 7777. Fax: 0181 317 3938. US: Studio Sound and Broadcast Engineering Magazine, 2 Park Avenue, 18th Floor, New York NY 10016. US Postmaster Please send address corrections to: Studio Sound and Broadcast Engineering Magazine, c/o Mercury Airfreight International Ltd Inc, 2323 Randolph Avenue, Avenel, New Jersey NJ 07001. US second class postage paid at Rahway, NJ. Origination by Craftsmen Colour Reproductions Ltd, Unit 1, James Street, Maidstone, Kent ME14 2UR, UK. Printed in England by St Ives (Gillingham) Ltd, 2 Grant Close, Gillingham Business Park, Gillingham, Kent ME8 0QB. UK. Newstrade Distribution (UK) UMD, 1 Benwell Road, London N7 7AX, UK. Tel: 0171 700 4600. Fax: 0171 607 3352.

ABC
AUDIT BUREAU OF CIRCULATIONS
BUSINESS PRESS

PPA

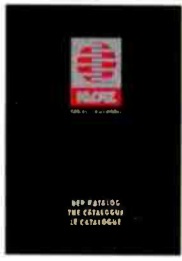
Total average
net circulation
of 18,981 copies
July 1994-June 1995.
(UK: 6,977. Overseas: 12,064. (ABC audited))

BPA

Miller Freeman
A United News & Media publication

PRODUCT & BROCHURE SHOWCASE

F A X B A C K + 4 4 1 7 1 4 0 1 8 0 3 6



KLOTZ
Professional audio cables
pre-made leads
and multi-core systems

Contact:
Adam Hall Ltd
Tel: 01702 613922 Fax: 01702 617168



Prism Sound
produces the DSA-1
hand-held AES/EBU
analyzer, the Dscope
FFT analyzer and
high-quality A/D and
D/A converters.

The DSA-1 is the only
hand-held tool that
measures carrier
parameters and data
content. With
programmable go/no-
go limits and Watchdog or Channel Check
modes it solves interface problems fast.

For more information on Prism Sound range of
products, call:
Tel: +44 (0) 1223 424988
Fax: +44 (0) 1223 425023
William James House, Cowley Road,
Cambridge CB4 4WX

Have you seen the new catalogue
from Danish Pro Audio covering the
complete range of **Brüel & Kjær Series 4000
Professional Microphones** and accessories –
the Microphones that are famous for keeping
their promises about superb transient response
– clarity – high SPL handling – low distortion –
wide dynamic range. If you want to learn
more about Brüel & Kjær microphones and
microphone techniques then get the new
catalogue.

Danish Pro Audio ApS
Hejrevang 11
3450 Allerød • Denmark
Tel: +45 4814 2828
Fax: +45 4814 2700
E-mail: msmics@image.dk



Anthony DeMaria Labs

These precision-built devices are made in
the U.S.A. to 'all-tube' designs for those
who want the best. Their well-earned
reputation for quality and reliability is
backed by an impressive list of owners and
users on both sides of the Atlantic.

Want to find out why?
Now available in the U.K.
For Sales, Service & Rental Call
tickle music hire ltd
0181 964 3399



TL Audio

Tony Larking Professional Sales Ltd.
Letchworth, SG6 - 1AN (UK)
Tel: +44 (0)1462 490600
Fax: +44 (0)1462 490700

FFD FUTURE FILM DEVELOPMENTS
The May '96 Future Film Developments
(FFD) Product Guide is now available

FFD stock: Canare, Cannon, Supra,
Switchcraft, Neutrik, Edac, Hirose, Middle
Atlantic, beyerdynamic, Sennheiser, Rycote,
Shure, Sony, ASL, Matthey & many more.

FFD offer a custom cable and jackfield manufacturing service
plus technical advice. We also buy
sell and part exchange used audio
equipment through our
sister company LTF

Whatever your audio/video
requirements, make sure you have
a copy of the FFD Product Guide
with its 6000 items to hand!

64 Oxford Road
New Denham
Uxbridge UB9 4DN
Tel: 01895 813730
Fax: 01895 813701

**For an immediate response
either FAXBACK Rebecca
Reeves directly or mail to
Studio Sound, Ludgate House,
245 Blackfriars Road,
London SE1 9UR.**

Circle
the number you require further
information about
1 2 3 4 5 6

YOUR INFORMATION

NAME

ADDRESS

POSTCODE

TEL

FAX

Advertisers Index

| | | | | | |
|--------------------|--------------------|----------------|--------------------|------------------|--------------------|
| Adam Hall | 84 | HNB | 25, 45, 49 | Richmond Film | 20 |
| AES Pro Audio | 85 | IBC Exhibition | 82 | Sennheiser | 61 |
| AKG | IFC | JBL | 70 | Sound Technology | 13 |
| Amek | 37 | JoeMeek | 24 | Soundcraft | 21 |
| AMS Neve | 39 | Loadplan | insert page 66, 67 | Spendor | insert page 66, 67 |
| Aphex | 22 | Lydcraft | 38 | Stage Tec | 61 |
| Audio Precision | 67 | Mackie | 15 | Stirling Audio | 54 |
| Audio Technica | 46 | Meyer | 73 | Studio Spares | 30 |
| Beyer Dynamic | 64, 65 | Midem | 68 | Switchcraft | 4 |
| BSS | 28 | Neutrik | 18 | Tannoy | 77 |
| Danish Pro Audio | 84 | Orban | 91 | TC Electronic | 52, 53 |
| DCS | 24 | PAG MK IV | 19, 32, 10 | Teac/Tascam | 47 |
| Denon | insert page 34, 35 | Prism | 84 | Tickle | 84 |
| Digigram | 34 | QSound | 26 | TL Audio | 55 |
| Dynaudio Acoustics | 74, 75 | Quested | 79 | Tony Larking | 84 |
| Electrovoice | insert page 59 | Raycom | insert page 34, 35 | Trantec | 66 |
| Euphonix | 0BC | | | | |
| Exhib. India | 20 | | | | |
| Fairman | 8 | | | | |
| FAR | 78 | | | | |
| FFD | 84 | | | | |
| Futters | 60 | | | | |
| Genelec | 76 | | | | |
| Ghielmetti | 36 | | | | |
| Hand Held Audio | 72 | | | | |
| Harbeth Acoustics | 78 | | | | |

Number

for

NEVE

- **NEVE 8036** CONFIGURED 24/8/16 R/PATCHBAY FITTED 24 x 1064's, GROUP MODULES 1943/1's, 4 REV RTNS, 2 x 2254A COMP/LIMITERS 16 MTR BRIDGE
- **NEVE 8036** CONFIGURED 20/8/12 R/PATCHBAY FITTED 20 x 1064's, GROUP MODULES 1900's, 4 REV RTNS, 2x 2254 & 1 x 2254A COMP/LIMITERS 8 MTR BRIDGE
- **NEVE 8036** CONFIGURED 24/8/16 R/PATCHBAY FITTED 24 x 1081's, GROUP MODULES 1943/1's, 4 x 2254E COMP/LIMITERS, 16 MTR BRIDGE

PLEASE NOTE IN STOCK 8 / 10 / 12 SIZE FRAME BUCKETS TO EXTEND ABOVE FRAMES, WITH ALL GROUP MODULES 1943/1's or 1900's.

- **NEVE 5315** CONFIGURED 36/8/2 REMOTE PATCHBAY CONSOLE FITTED 36 x 3314's, 36 x 33752's GROUP MODULES LINE AMPS 33415 / 33416.
- **NEVE 5135** CONFIGURED 36/4/2 PATCHBAY FITTED 36 x 3314's, GROUP MODULES 33723, LINE AMPS 33415 / 33416.
- **NEVE 5315** CONFIGURED 28/4/2 CONSOLE FITTED 28 x 3314's, 28 x 33723's GROUP MODULES, LINE AMPS 33415.

TEL: 01932 872672 FAX: 01932 874364
TEL: INTERNATIONAL 44 1932 872672
FAX: INTERNATIONAL 44 1932 874364



The
NEVE Specialist
 A UNITED KINGDOM BASED COMPANY

NEWLY ARRIVED

- **NEVE 5305** CONFIGURED 32/8/16 REMOTE PATCHBAY CONSOLE FITTED 32 x 3314's, 48 x 33439 GROUP MODULES, LINE AMPS 33415/33416
- **NEVE MELBOURNE** 12/4/2 FITTED 6 x 3314's, 6 x 3315's, GROUP MODULES 12 x 33723's.
- **NEVE MELBOURNE** 12/4/2 FITTED 12 x 3314's, GROUP MODULES 12 x 33723's.
- **NEVE BCM10** 10 x 1073's, GROUP MODULE 1895, LINE AMPS 1272's.
- **NEVE** 12/8 SUBFRAME FITTED 12 x 33752's, LINE AMPS 33415's & PATCHBAY.
- **NEVE** 8/2 (THE SUITCASE CONSOLE) 2 IN STOCK FITTED 8 x 34128's.

NEVE MODULES IN STOCK
 1064 / 1081 / 33114 / 1073's
 COMPRESSOR/LIMITERS 2254
 2254A / 2254E / 32264A / 2262's

SSL MODULES IN STOCK
 611E SERIES MODULES WITH TOTAL RECALL BOARDS

• ALL STOCK OWNED BY A.E.S. PRO AUDIO WANTED YOUR NEVE / SSL CONSOLE...WE WILL PURCHASE & COLLECT ANYWHERE WORLDWIDE

Studio sound

CLASSIFIED

RATES: All sections £30 per single column centimetre (minimum 2cm X 1)

Box number £10 extra per insertion

Published: monthly

Copy deadlines: contact Rebecca Reeves, Classified Advertisement Manager

To place an advertisement contact: Studio Sound (Classified),

Miller Freeman Entertainment Ltd, Ludgate House,

245 Blackfriars Road, London SE1 9UR, UK.

Tel: 0171 620 3636 Fax: 0171 401 8036

All box numbers reply to the address above

APPOINTMENTS

DECCA appointment

Maintenance/Operational Engineer

An engineer is required to join our Classical Location Recording Dept. The duties include the maintenance and setting up of equipment on location and the operation of recorders. Based in London NW6, you will be involved in work away from base assuming responsibility for the location recording equipment.

Applicants should have some experience of operational practice in recording or broadcasting, together with a knowledge of digital audio, and be qualified to HNC standard in electronic engineering. An interest in classical music would also be an advantage.

We offer an attractive salary and excellent benefits including company car, 5 weeks' holiday, bonus, pension and concessionary product.

Interested and suitably qualified applicants are invited to write in the first instance with full CV to Julie Mulcahy, Human Resources Manager, The Decca Record Company Ltd, 347-353 Chiswick High Road, London W4 4HS.

Theatre Projects Consultants is a design practice with an international reputation for the design of buildings for the performing arts. Due to an increasing workload we are seeking a new member of staff.

SOUND SYSTEM DESIGNER

To work on the planning, design and specification of sound and communications systems for theatres and performing arts buildings.

Minimum of 3 years professional theatre sound experience. Candidates must be proficient in using word processors and spread sheets. Experience of producing layout drawings and schematics using CAD will be a considerable advantage.

Applicants should possess good writing and drawing skills, be self motivated and able to work quickly and methodically under their own initiative.

Apply with written CV in confidence to:

Richard Borkum,
 Theatre Projects Consultants
 3 Apollo Studios
 Charlton Kings Road
 LONDON NW5 2SW
 Tel: +44 (0)171 4824224
 Fax: +44 (0)171 2840636

When you're seeking the finest audio professionals...

- WHITFIELD STREET LOGIC
- SOLID STATE LOGIC
- WALT DISNEY CORP
- STIRLING
- SONY
- DECCA
- THEATRE PROJECTS

These top companies have all used the Recruitment Classified Pages of Studio Sound and Pro Sound News Europe during recent months to attract top quality audio professionals. When your recruitment advertisement appears in Studio Sound and Pro Sound News Europe, 30,957 copies will be seen by a uniquely qualified international readership in excess of 170,000 - all currently active in the areas of recording, audio post, broadcast and live sound.

...make sure you're in good company

MASTERING AND DUPLICATION

Make it with us . . .
Sound Recording TECHNOLOGY

• D • I • R • E • C • T •

- COMPACT DISCS
- HIGH END MASTERING
- LATEST 32-BIT DSP
- SUPER BIT MAPPING
- 20 BIT DIGITAL RECORDING STUDIO
- 20 BIT EDITING
- SOUND RESTORATION, DE-CLICK etc
- COPY MASTERS
- DIGITALLY DUPLICATED CASSETTES
- PRINT/REPROGRAPHICS

MARKET LEADERS
 ☎ 0181 446 3218 LONDON
 ☎ 01480 461880 CAMBRIDGE

Telephone: 0181 521 2424 • 0181 503 6360 Facsimile: 0181 521 4343
<http://www.knowledge.co.uk/xxxx/hiltongrove/> Email: hgrove.demon.co.uk

HILTONGROVE

where sound advice counts

Alpha Business Centre, 60 South Grove, Walthamstow, London E17 7NX
1 min walk from Walthamstow Central (Victoria - Brt. 12 min M25, Bus - 8pm 7 days (TfL))

- Compact Discs • Pro-Mastering • Digibin Cassettes • Reprographics • Print
- 32 Bit Technology • ISDN Lines • MD2 • 3 Band DSP • One-off CD's

ONE OFF CD's £20.00 + VAT Up to 74 Mins

| | |
|-------------------------------------|-------------------------------------|
| 500 CD Singles Complete £690 + VAT. | 1000 CD Singles Complete £995 + VAT |
| 500 CD Albums Complete £820 + VAT. | 1000 CD Albums Complete £1190 + VAT |

Sadie Digital Editing (over 3hrs storage), Editing To Score, Post Mastering, Artwork, PQ Encoding.

Telephone **01424 436426**



THE CASSETTE DUPLICATING SPECIALISTS
 Real time & high speed loop bin duplication, printing & packaging. Blanks wound to length.
 TEL: 0161 973 1884 FAX: 0161 905 2171



Ground Bass Productions

DIGITAL MASTERING SUITE
 24-BIT DIGITAL EDITING
 ONE-OFF/CD DUPLICATION
 MULTI-MEDIA AUTHORIZING

London N1 8QH
 Tel: 0171 288 1833 Fax: 0171 288 1834

NEW IN LONDON

- Hard disk CD mastering
- One-off CDs from £10.00
- Real time cassette copying
- Copy masters, digital editing
- Laser printed labels and inlays
- Every copy individually checked
- Excellent quality and presentation
- Unparalleled service, best prices
- Fast turnaround - hours not days

REPEAT PERFORMANCE
 London W10
 0181 960 7222
www.repeat-performance.co.uk



PAUL LIBSON AUDIO SERVICES
SADiE digital post-pro
 NEW! Up to 17 hours hard-disk storage
 NEW! EXABYTE
 THE Post Production Service for your project at our premises or yours.
 Hire also available.
 Tel: 0378 060646 or 0171 428 0381

THE TRACKSIDE SUITE
 NEW DIGITAL EDITING/CD MASTERING SUITE USING LATEST SONIC SOLUTIONS SYSTEM.
 OVER 13 YEARS PRO AUDIO EXPERIENCE
 5000 SQ FT COMPLEX
 DIGITAL/ANALOGUE 24 TRACK RECORDING
 ARTWORK SLEEVE DESIGN
 ALL AT VERY COMPETITIVE RATES
CALL PAUL PAGE ON 01702 333453

jbs records
MUSIC and SPEECH
 REAL-TIME/HIGHER-SPEED Quality Cassette Duplication and Blanks from 1-1000.
 Computer printed Labels.
 Solo, 1/4" reel, Sony Betamax or R-DAT recording. Fast Security Delivery service.
 FILTERBOND LTD, jbs records div. FREEPOST
 19 SADLERS WAY, HERTFORD, SG14 2BR
 01992-500101

To advertise in the classified section of Studio Sound, please contact Rebecca Reeves
 Tel: +44 (0)171 620 3636
 Fax: +44 (0)171 401 8036

PRODUCTS & SERVICES



WINDLEBROOK CONSTRUCTION LTD.
 DESIGN & BUILD
 STUDIO SPECIALISTS
 SOUND • RECORDING • ACOUSTICS

FRESH RECORDS
 GRAND UNION CENTRE
 LONDON W11

FOREMARKS BUILDING, THORPE GREEN, EGHAM, SURREY TW20 8NY
 TELEPHONE 0181 841871 FAX: 0181 844438

AIR CONDITIONING & VENTILATION TO SOUND STUDIOS IS OUR SPECIALITY

We provide design only or design and installation for many well known clients. Whether it be for displacement, free cooling, V.A.V., V.R.V., split, unitary or centralised call Mike Hardy of

Ambthair Services Ltd on
01403 250306 or Fax 01403 211269
 Web: <http://www.pncl.co.uk/~mhardy/as.html>
 Email: mhardy@pncl.co.uk

STOP PRESS!
 Heavy duty air conditioning equipment. Multiples of 6.5kW. Noise level from 29 dBA (approximately NR 24).
 All hire outs surveyed free of charge.

ADVANCED SOUNDS LTD
 (Hire & Sales)

- Musical & Studio Equipment Hire
- New & Used Equipment Sales - Part/Ex

LOW RATES/GOOD SERVICE
 0181 462 6261 (or 8621)

EQUIPMENT FOR SALE



Sounds Incorporated

☎ 44 (0) 1892 861099

nick ryan

fax: 44 (0) 1892 863485

Re-selling Quality Recording Equipment
to Studios throughout the World

Europe's
Leading
Used
Equipment
Specialists

THRESHOLD
Suppliers
of the
Best in
New
Equipment

Worldwide
Express
Facilities



CONSOLES

Neve 8036 loaded 24x1064, 4x2254E's.....Ecall
Neve 80 Series loaded 24x1081.....Ecall
4x2254E's.....Ecall
Neve 20/8 class A, fitted 1053's ex-Phillips.....Ecall
Neve DSP 48 48/48 all digital console with
48 A-D, D-A, AES/EBU digital interface.
Immaculate.....Ecall
Neve 51 Series 32/8, Necam 96.....Ecall
Neve 5104 16/4, dynamics.....Ecall
Neve 8108 56 channels, in line, bar graphs.....E40k
Neve Melbourne 12/2 6x33114, 6x33115
excellent.....£6,500
Neve Kelso 16/2 all discrete.....£2,995
AMS Logic 1 + Audiofile 24 channel,
8 channel Audiofile 1992 new!.....£40k
AMS Virtual Console 48 channel, dynamics,
total recall, 24 buss, 16 aux's.....Ecall
SSL 4064G 1990, 56 mono, 4 stereo, TR Dolby
monitoring.....£155k
SSL 6064G 1989, 60 fitted, lim panning.....£140k
SSL 6040 fitted 32, no computer or recall!.....£30k
SSL 5336 16 mono, 4 stereo, instant reset,
dynamics, bar-graphs, 1989, spares kit,
£95k new.....£25k
Euphonix CS 2000D 96 channel, brand new
cancelled order.....Ecall
AmeK Mozart RN 48xRN modules, lovely.....£65k
AmeK Hendrix 56 channel, Supermove (flying
faders), 2yrs old, £107k, new, interesting history!
JUST REDUCED - BARGAIN!.....£45,000
AmeK Einstein Super E 40 channels,
Supertrue PC, virtual dynamics.....Ecall
Soundcraft TS 12 16 mono, 6 stereo, p/b,
Flame automation.....£2,995
DDA AMR 24 44 frame fully loaded, A-K Reflex
automation, Private use only BARGAIN!.....Ecall
Midas Pro 5 recording console 24/4/16,
Immaculate, great sound p/b.....£4,995
TAC Matchless 30 channel in line, excellent
condition + stand.....£5,995
Yamaha Pro Mix 1 private use only,
1 yr old.....£1,150
Tweed Audio 12/2 broadcast console.....£1,750
AMEK MODULES FOR Recall, 501,

USED EQUIPMENT LIST

PHONE +44 (0) 1225 447222 • FAX +44 (0) 1225 447333

SR 9000/6000 and Scorpion FB in stock -
brand new & bargain prices!!!

ANALOGUE TAPE MACHINES

Sluder A 827 1991, 4.500h.....Ecall
Sluder A 827 1991, remote, locate as new
2,600h.....£23k
Sluder A 800 Mk 1/3 several available.....Ecall
Sluder A 810 2 in stock, excellent.....£995
Sluder A 80 CTC Mk 2 with meters.....£895
Sluder A-80 1/4" with monitor.....£695
Otari MX 80 remote, immaculate, 1988,
1 owner.....£9,995
Otari MTR 90 Mk 1 remote needs atten.....£4,995
Tascam MSR 16 + DBX.....£2,500
Sluder B62 1 in stock.....£375
Otari MX 9050 1/4" 2T, good condition.....£495
Doiby SP 24 24 tracks of Dolby A.....£495
Audio Kinetics Pacer & Pad.....£750

DIGITAL RECORDERS

Sony 3324 with 'A' upgrades, 2 available,
private use, flight cased.....Ecall
Pro Tools 3 CORE system 888 i/o, SD 2.8 1 yr.
old as new.....£5K
Panasonic SV 3800 ex-demo, one only.....£850
Sony MDS B3 MiniDisc recorder/player/editor
with remote.....£1,150
Sony TCD-D8 just 3 months old with psu
44.1kHz.....£375
Tascam DAP-1 PortaDAT as new, ex-demo.....£850

OUTBOARD

Neve 33609C stereo comp limit.....Ecall
BRAND NEW!!.....£1,866

Neve 2253 pair of limiters in rack, psu.....£795
Neve 2252 pair of compressors in rack.....£895
Neve/AmeK 9098 BRAND NEW.....Ecall
Neve spares psu, modules etc, loads.....Ecall
Neumann PV 76 discrete mic amps, 2 left.....£175

Neumann PEV 1 discrete eq's, rare,
5 in stock.....£350
Pultec EQH-2 pair in stock, similar to EQP-1,
Price for pair.....£3,000
Focusrite RED 5 Ex-Demo, as new.....£1,400
Focusrite RED 6 Ex-Demo, as new.....£1,225
SSL Logic FX G383 dual mic amp eq, Used
once.....£1,750
Audio & Design F 760 XRS 3 in stock.....£795
Audio & Design Scamp various combinations
from.....£295
BSS DPR 402 1 left.....£495
API 554 3 band eq, 4 in stock.....£295
Meyer CP1 5 band full para eq.....£995
TC 1128 with all options fitted.....£795
White 4000 eq 3 in stock.....£295

MICROPHONES

Shock mounts for U 47, U 67 & M 49,
BRAND NEW

Oktava MK 219 BRAND NEW
Limited offer.....£199

Tetelunken ELAM 251 in stock now! But prob-
ably sold by the time this ad appears. Call to b
e put on waiting list for more
Neumann CMV-3 with 4 capsules, 1938 'Hitler'
bottle. From Goebbels private collection.....Ecall
Neumann KM 64 again AC 701 valve.....£795
Sweet as a nut
Neumann KM 26 multi pattern version of
KM 64.....£895
AKG 426 X/Y stereo 414, case,.....£1,250
superb
AKG C 451/CK1 silver body, black capsule.....£175
RCA 77 DX 50's ribbon.....£750
RCA 44 2 in stock.....£595
Sony C-38B one of Sony's better.....£450
Sennheiser MKH 815 long shotgun.....£395
Sennheiser 431 Prince's vocal mic.....£175
Octavia MK 219 latest model, MINT.....£140
AKG D 222 3 in stock.....£125
AKG D900 like a 202 w. CK9 shotgun.....£225
AKG D541 on gooseneck.....£55
AKG D1200E.....£50
Shure SM57 NEW limited offer.....£75
Shure SM 58 NEW.....£99
Beyer Soundstar 1 left.....£60

FX

Cyclesonics FS-1 Songbird the ultimate
panner, Very rare.....Ecall

Roland Dimension D just 1 in stock.....£595
Loxicon Prime Time 2 fantastic, more delays
than British Rail.....£995
Marshall Time Modulator fully working.....£595
Roland RSS System full system 4 in 8 out,
digi + anal.....£7,500
AMS RMX 16 Remote, 1 left.....£250
Ursa Major Stargate 323 2U, excellent
and different multi tap fx.....£995
Roland SRV 2000 sweet.....£350
Roland SDE 3000 sweeter.....£595
Yamaha SPX 1000.....£595
Lexicon LXP1+5+RM the lot.....£595
EMT 240 Gold Foll 1 in stock.....£795
MDB Windew Recorder fast, simple
sampler.....£450
SPL Vitaliser pro balanced SX2 model.....£495
TC M 5000 5ADF+MD2+ATAC ex-demo.....£3,600

TC M 2000 WIZARD BRAND NEW FABO
LATEST MODEL.....Ecall

TC ATAC IN STOCK.....Ecall
TC 2290 IN STOCK.....Ecall
FOCUSRITE RED, GREEN & BLUE RANGE
IN STOCK

VARIOUS

Sony DAE 3000, 1630 system.....Ecall
Quested UM-3 2x15, 3 way monitors.....£2,995
Tannoy Little RED good.....£550
Dynaudio A1 1kW stereo amp.....£695
B&W DM 7's pair excellent.....£495
Quad 405 5 in stock.....£175
Akal S 1000 8 Mb, digi.....£1,250
Akal S 1000 2 Mb.....£995
Quadra 950 32 Mb, 400 HD, 2 Gb
Micropolis AV.....£1,700
E-Max HD sampling keyboard, crunchy.....Ecall
Fairlight Series 3 Wave Supervisor.....Ecall
Neve/Coutant psu's in stock large range.....Ecall

Prices exclude VAT. • E.&O.E.

This is only a selection of the equipment we have in stock. Call to receive our regular mail shots.
Similar equipment wanted for cash. Part exchange welcome. Government & Educational orders welcome.



EQUIPMENT FOR SALE



505-507 LIVERPOOL ROAD,
LONDON N7 8NS
Tel: 44 (0) 171 609 5479
Fax: 44 (0) 171 609 5483

Mark Thompson
Helen Rider
Steve Lane
Clive Richards

SUCCULENT SUMMER SALE ONE MONTH ONLY . . . BREEZE OUT WITH A BARGAIN . . .

Examples . . .

DESKS:

| | | |
|---|-----------|---------|
| SOUNDTRACKS In Line IL 36/32 c/w Trackmix | Was | £11,000 |
| | Now | £8,500 |
| RAINDIRK SERIES THREE 28 input | Was | £6,500 |
| | Now | £4,950 |
| SOUNDCRAFT 2400 28/24/24 (late model) | Was | £6,500 |
| | Now | £4,950 |

PLUS:

Outboard, synchronisers, Dolby and more desks, multitracks and digital PLUS the best in non sale used and special deals on new equipment; call or fax for our latest list, including sale specials.

"IF THE TEA DON'T SLAY YA, THE PRICES WILL . . ."

MULTITRACK

| | | |
|----------------------------------|-----------|--------|
| SOUNDCRAFT SCM 762 24 track mk 2 | Was | £4,500 |
| | Now | £3,500 |
| MCI JH110 1" 8 track/remote | Was | £3,250 |
| | Now | £1,750 |

DIGITAL

| | | |
|--|------------|--------|
| SPECTRAL Audio Engine hard disc system | Was | £8,000 |
| | Now | £6,500 |
| ALESIS ADAT XT (new; ex demo) | Were | £2,100 |
| | Now | £1,750 |
| ALESIS ADAT (Black); used, vgc | Were | £1,400 |
| | Now | £1,200 |

TONY LARKING

PROFESSIONAL SALES LIMITED

WORLDWIDE
DELIVERY

•FOR SALE•FOR SALE•FOR SALE•FOR SALE•

NEVE! 1081, 1064, 1066 & 33135
EQ MODULES PLUS API EQ MODULES
◆ ALSO SSL & NEVE CONSOLES

CALL TEL: 01462 490600
NOW! FAX: 01462 490700

DIAL A FAX

FOR A COMPLETE UP TO DATE EQUIPMENT LIST ON YOUR FAX
Dial 0136 493333 on your
fax machine & press start
when instructed.
Some machines may
need to be switched
to polling mode to
use this service.
Cost: 49p per
minute (cheap rate
and 49p per minute
at other times)



WANTED
NEVE, SSL
STUDER, OTARI

**SC SOUND
CONTROL**
MODERN MUSIC STORES

Sound Control Professional Audio

Glasgow - 0141 204 2774 - 61 Jamaica Street
Newcastle - 0191 232 4175 - 10 Mosley Road
Manchester - 0161 877 6464 - Regent Road

For all your professional audio requirements

AKAI DD1500/DR16/DR8 - YAMAHA 02R - TASCAM DA88 - AMEK - CROWN - GENELEC
DYNAUDIO - DIGIDESIGN AUDIOMEDIA III/PROTOOL/SESSION 8 - TL.AUDIO - LEXICON - FOCUSRITE

LEXICON
AMS
EVENTIDE
VALVE
ADAT

River
PRO-AUDIO

NEUMANN
STUDER
AKG
DIGITAL
OTARI

TEL: 0171-237 1424

CALL FOR LATEST EQUIPMENT LIST NEW & USED

DDA AMR 24, 32/24/24. 36 frame, extra patchbay, RTW stereo PPM, Audioscope analyser, P & G faders, Mogami multitrack looms, loads of spares. One owner. 1988. Very good condition. Auto ready.

Price: £13,000.

Phone +45 66 11 10 25 Fax +45 65 91 07 82

SATURN 824

24 Track 2 inch. Fully maintained, serviced June. Mint. Very low mileage, has made only 3 albums. Superb machine. £8,000 ono.

Tel 01142 745 895 Fax 00353 23 38989

The Digital Village

* Pro Tools * Drawmer * Lexicon * Akai *
* TLA * Eventide * Joe Meek * Adat *
* Tube Tech * Mackle * Neumann *
* Rode * AKG * Sennheiser, etc. etc.

Studio Equipment Wanted

Outboard, Desks, Mks
Call Nick 0181 440 3440

AMS/Calrec Broadcast & Recording Mixing Console

48 Channel Digitally controlled Analogue, with Dynamics. Cost 200K in '91. Mint Condition.

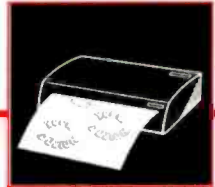
£39,950 ono. Tel: 44 (0)1904 624266

PROTOOLS III

16 Track complete with 888 i/o and S.D.II.8. Quadra 950/32/460 and 2 Dig. Av. Ext. Drive.

As new. £7,000 ono
Contact Alan Midgley
0171 267 7224

PRODUCTS & SERVICES



DESIGN PRINT APPLY

3 STEPS TO THE BEST SELLING CD LABELLER KIT INCLUDES:

- DESIGN TEMPLATES FOR MAC
- DESIGN EXPRESS FOR PC
- THE NEATO LABELLER
- 100 UNIQUE CDR LABELS
- COMPLETE INSTRUCTION GUIDE

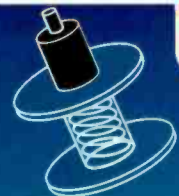
TO RE-ORDER YOUR LABELS CALL NEATO DIRECT

NEATO
CD LABELLER KIT

THE £55 SOLUTION

FAX: (0181) 932 0480
SEE US AT: <http://www.neato.com>

SALES HOTLINE: 0990 561571



CD labelling?...PressIT™!

The quickest, easiest and most accurate way to print and apply centred labels to CDs using laser and inkjet printers

Includes: 100 white, 118mm diameter labels Mac/PC templates & one piece PressIT™ applicator

£69.95
(Plus £5 P&P and VAT)

Additional white, coloured & clear plastic labels available PATENT PENDING

ROCKY MOUNTAIN TRADERS LTD
tel: +44 (0) 171 631 0707
5E Bloomsbury Street, London WC1B 3QE
fax: +44 (0) 0171 631 0704

48 TRACK MOBILE

TEL: 0031 (0)33 2963150
FAX: 0031 (0)33 2967246

DINEMEC SOUND MOBILE STUDIO

Classical to Rock
*AMS/NEVE LOGIC 2 CONSOLE
80 CHANNELS/48 INPUTS
*STUDER 48 TRACK (DASH)
*WIDE SELECTION OF MICROPHONES
*FULLY AIR CONDITIONED
BASED IN GENEVA, SWITZERLAND
TEL +41.22.349.2225 FAX +41.22.349.8377
INTERNET <http://www.dinmec.ch>

FOR ALL YOUR RECORDING NEEDS
AMPEX-BASF-MAXELL-3M-SONY-KAO
AUTHORISED NATIONAL DISTRIBUTOR
Spools, boxes, blades, splicing and leader tape
Custom wound cassettes C1 120, labels, library cases, inlay cards.
Bulk audio C-0s, cases, pancake, Broadcast cartridges.

SOUND & VIDEO SERVICES
Shentonfield Road, Sharston Industrial Estate,
Manchester M22 4RW. Tel: 0161 491 6660
FOR QUALITY PRICE AND SERVICE

STOCK LABELS FOR COMPACT DISK VHS VIDEO & AUDIO CASSETTE

- On A4 sheets for computer printing by laser printer.
- As continuous roll with holes for dot-matrix printers.
- Supplied blank white with next day delivery from stock.
- 48 hour delivery on a wide range of coloured labels.
- Custom printed labels supplied to client specification.
- Telephone for overnight delivery of FREE samples.

Supertast Labels Ltd
Unit 15, Church Road Business Centre
Sittingbourne, Kent ME10 3RS England
Tel: (01795) 428425 Fax: (01795) 422365
World Wide Web: <http://www.supertast.co.uk/label/>

HEARD BY MILLIONS BUT SELDOM SEEN

STUDIO QUALITY CONTACT CONDENSER MICROPHONES

For further information on the C-ducer range contact:-
2 High Street, Haslemere Surrey GU27 2LY
Tel: (01428) 658775
Fax: (01428) 658438

CRYSTAL! WHY PAY MORE FOR DATS?
ALL DATS ARE NOT THE SAME - SOME COST TWICE AS MUCH!

| | |
|---------|-------------------|
| DATR30 | FROM £2.89 + VAT! |
| DATR46 | FROM £3.09 + VAT! |
| DATR61 | FROM £3.35 + VAT! |
| DATR92 | FROM £3.85 + VAT! |
| DATR122 | FROM £4.35 + VAT! |

DAT STORAGE RACK-£3.50. VAT!
*HOLDS 10 DATS *LOCKS TOGETHER*
FREE STANDING OR WALL MOUNTED
COMPACT 1U PATCHBAYS
ONLY £37.99 + VAT!
32 WAY JACK/JACK
24 WAY JACK / 8 WAY MIDI
EASILY REVERSIBLE NORMALISING

NORTH ROAD WENDY ROYSTON HERTS SG8 0AB
TEL/FAX 01223 208937 CREDIT CARDS ACCEPTED

Accusound

CLOSE MICROPHONE SYSTEMS FOR ALL ACOUSTIC INSTRUMENTS
AS USED BY: BALANESCU QUARTET, CHRIS LAWRENCE, RONNIE SCOTTS CLUB, STEVE PHILLIPS, NIGEL EATON, NIGEL KENNEDY, SENSIBLE MUSIC, HOLY TRINITY, BROMPTON ACOUSTIC MICROPHONES SYSTEMS
TEL/FAX: +44 (0) 1455-552306
19 Hiteswell Road, Lutterworth, LE17 4EL, UK

Lockwood Audio
THE TANNOY Specialists
SPARES AND REPAIRS
Long established dealer in used equipment and records
Phone: +44 (0) 181 - 207 4472
Fax: +44 (0) 181 - 207 5283

Mark Griffin Furniture
CUSTOM STUDIO FURNITURE

Design and installation of racking, storage and accessories

Please call for a brochure
Contact: MARK GRIFFIN
Byrebrook Studios, (Lower Farm),
Northmoor, Oxford OX8 1AU, UK.
Tel/FAX: 01865 300171

40 Clarendon Rd West, Chorlton, Manchester, M21 0RL

A New Control Room?

- Whatever the scale of your project, almost any control room can benefit from the design principles of the Early Sound Scattering room.
- Instead of relying on creating a reflection free zone, in this new configuration of room the unwanted reflections are masked by many randomized low level reflections from the front of the room, allowing consistently accurate response and imaging throughout the room regardless of equipment layout.
- This means that very different rooms can be made subjectively identical, providing the closest thing yet to absolute reference monitoring.

If you're serious about your new control room, you should be talking to **ANDREW J PARRY**
on **0161 861 0857**

ELECTROACOUSTIC SYSTEM SPECIALISTS

MOBILE
2 mobiles • 48 channels • 32 digital tracks (TASCAM DA88) • digital edit system (AKAI DD1000) • QUANTEC, EMT, DBX, ... • air-condition • more than 80 microphones (NEUMANN, AKG, etc.)

HEINER Studio
Professional Audio Engineering
BROADCAST • LIVE-RECORDING • PRODUCTION
Telefon 0049 (0) 271 332042 • Fax 0045 (0) 271 336914
Radschilde 27 • 57074 Siegen • Germany

Peter Keeling International Studio Design

tele: +44 (0) 1952 510508
fax: +44 (0) 1952 510031
mobile: 0850 292440
email: 100714.2673@compuserve.com

HEAD TECHNOLOGY
NEW TAPE HEADS
Supplied for most makes,
Tape Head Re-Lapping/Re-Profiling.
Same day turn round.

HEAD TECHNOLOGY
11 Britannia Way, Stanwell, Staines, Middx, TW19 7HU.
TEL: 01784 256046

PROFESSIONAL AUDIO TOYS
Custom By Commission

ENVISION IT • WE CAN BUILD IT
+1-500-265-2055
<http://home.earthlink.net/~hyperjam> EMail: hyperjam@earthlink.net

STUDIOHIRE
0171 - 431 - 0212
0171 - 431 - 0212

THE AMAZING JOEMEEK STEREO COMPRESSORS, PRO CHANNEL, VOICE CHANNEL, TUBE CHANNEL. TRY BEFORE YOU BUY IN YOUR OWN STUDIO WITH YOUR OWN EQUIPMENT, OR HIRE AT SPECIAL RATES! CALL US NOW FOR DETAILS!

Environmental issue

The story so far: renowned studio designer introduces control rooms claimed to be '10Hz capable'.

Andy Munro disputes the claims in *Studio Sound's* pages. Now **PHILIP NEWELL** joins the fray

IN APRIL'S *Studio Sound*, Andy Munro criticised Tom Hidley's nonenvironment rooms and his attempts at very low frequency (Infrasonic) extension of monitoring. The concept of nonenvironment rooms was described in detail in the November 1991 *Studio Sound*, and expanded in a paper ('Control Room Reverberation is Unwanted Noise', cowritten with Tom Hidley and Keith Holland) which I presented to the Reproduced Sound 10 Conference of the Institute of Acoustics in November 1994.

In 1985, Hidley began designing control rooms in which he tried to remove, as far as possible, the acoustics of the room from the monitoring chain. He was trying to create environments where people would once again begin to mix on full-range monitors, and not rely on band-limited, close-field systems. All too often, this is done because of a lack of faith in the consistency of the main monitors and uncertainty about the sonic compatibility from one control room to another. Far from being 'boxes full of rock wool' as Andy calls them, the Hidley-style rooms are well-conceived, with a dual acoustic; one for the happenings within the room, and one, or rather none, for the monitors. This allows a pleasant ambience for the recording personnel to work in, but not one which will colour the monitoring. Unlike the Live-End/Dead-End rooms, which have not, by any means, all produced their intended commonality with each other or the outside world, the rooms have all their hard surfaces to the front of the room. These surfaces provide sufficient reflections for the recording personnel to feel comfortable in going about their tasks but the loudspeakers face almost totally absorbent

surfaces. If these are sufficiently effective, then room-to-room compatibility of monitoring becomes a realistic proposal.

Andy's suggestion that the effect can be simulated by 'a \$10 pair of headphones' is absurd. He knows that the perception of stereo via headphones is totally unlike that from loudspeakers. At low frequencies, our ears 'frequency double' and do not 'hear' very low frequencies at all. We receive these frequencies much more readily via our bodies. It has generally also been my experience that mixes done on loudspeakers translate to headphones more readily than mixes done on headphones translate to loudspeakers. What is more, recording staff need easy communications during the mixing process, and headphones preclude this.

'The idea that reverberation and diffusion are bad, and that anechoic environments are "ideal" is an anathema to virtually every sound engineer and musician that I have ever met', states Andy. He is being misleading here; in a studio, the statement is generally justified but in a control room reverberation and diffusion are bad if they colour the monitoring, mask detail, and lead to the inconsistency of mixes from one room to another. With digital noise floors of -90dB now available to the record buying public (especially if listening on expensive headphones and not \$10 ones) it is difficult to detect low-level problems when mixing in control room with -60dB of diffusive reverberation rattling around the room, 300ms or 400ms after the initial sound has gone from the recording medium. This is the subject of the aforementioned IOA paper.

As for any criticism that Hidley-style rooms are not representative of domestic listening conditions, nor are LE-DE rooms. I have certainly not seen any great swing to the use of quadratic residue diffusers on the back of walls of many domestic lounges. But what Hidley claims, and I concur with, is that experience is showing that mixes done in the Monitor-Dead/nonenvironment rooms are showing remarkably few surprises when being taken home, played in cars, or auditioned on headphones. You hear what was recorded, plus the true effects of any added processing. Recording problems become apparent on the control room

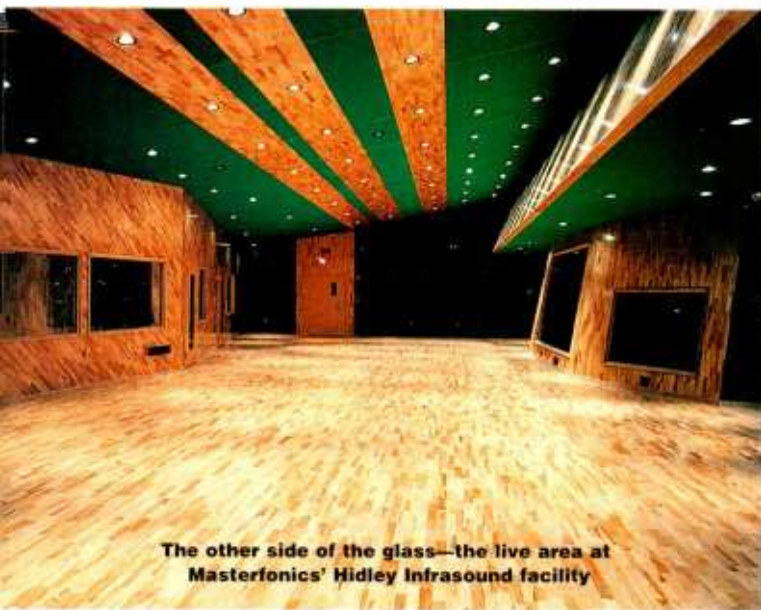
monitors, which is where the words 'control' and 'monitor' suggests that they should first be heard, and not by some hi-fi enthusiast on the finished CD.

As for Infrasonics ('subsonics', as Andy called them, is an aeronautical term, being the opposite of supersonic), I recall Michael Gerzon telling me many years ago of work by Stan Lipshitz suggesting that natural low-frequency reproduction could only be achieved by systems responding down to 'weather frequencies' (around 0.001Hz). What is more, the phase response must also be retained as far as possible. Deeper bass, if reasonably linear, means clearer bass further up the spectrum. Andy's suggestion that VLF problems are solved by cutting all below 20Hz in the mastering room is insupportable. Rolling-off at 20Hz will devastate the phase response much higher up the spectrum. If the monitors go low enough, and if VLF noise must be removed by electronic means, at least the side effects of the roll-off can be perceived, and a conscious decision can be made as to where any compromises should lie.

The claim that a 9Hz wave would require a 70m room to support it is also erroneous. Such a mode would be supported by a rear-wall reflection, so a 35m wave (9Hz) would require, for a half wavelength, one of just over 17m. Andy is wrong here by a factor of four, and contrary to his suggestions, Hidley does make control rooms of this size, acoustically at least. The BOP rooms are 16m, but the rear wall absorbers produce phase shifts which effectively render the rooms to be over 17m in the acoustic sense.

Finally, the claim that the Puk floor trap system was similar to Hidley's current ideas also seems to be erroneous. I stand to be corrected, but I believe that the floor traps at Puk were to reduce the classic floor reflection problems which causes a dip around 150Hz. Hidley addresses this problem by using the Kinoshita monitors with the woofers mounted one above the other. This produces two sharp dips, but one overlaps the other so that only two, relatively innocuous dips of no more than a few dB occur over very narrow frequency bands. Hidley's floor traps are monsters, designed to relieve the constriction of the radiation angle that a conventional floor-front wall junction creates.

He is trying to terminate the loudspeakers as though they were driving 2π space—placed at the centre of the disc of a hemisphere. Loudspeaker loading at low frequencies is a huge subject, to which Andy's casual comments do no justification. His FFT analysis may well not have shown the necessity for this, but computers do not have ears. Yes, Tom Hidley may be 'wasting' 5dB–6dB of LF energy, but if this gives greater uniformity and linearity, then I applaud it. ☺



The other side of the glass—the live area at Masterfonics' Hidley Infrasound facility

It's not the size of your budget that matters,



it's the size of your sound.

INTRODUCING THE OPTIMOD-FM 2200: DIGITAL PROCESSING THAT ANY FM STATION CAN AFFORD.

Used to be, no one could blame you for feeling fiscally inferior. The big stations had the budgets. They could afford digital processing. So, naturally, they sounded louder, held audiences longer, and got richer. The size of your budget is what determined sound, until now. With the 2200 you get key features you'll only find in processors costing three times as much. Including 8 factory audio presets, the flexibility to program 8 user settings, and the choice of either protection limiting or two-band processing. Best of all, the 2200 gives you something no other processor in this price range can: the unmistakable impact of pure digital OPTIMOD sound. So you can compete on what really matters: the size of your audio signal.

orban[®]

H A Harman International Company

Harman Audio, Harman International Industries Limited
Unit 2, Barnhamwood Industrial Park, Rowley Lane, Barnhamwood, Herts WD6 5PZ, England
Tel: +44 181-207 5050 Fax: +44 181-207 4572

© 1996 Orban, Inc. Orban and OPTIMOD are registered trademarks. 1525 Alvarado St., San Leandro, CA 94577 USA
Phone 1-510-351-3500 Fax 1-510-351-0500 E-mail: custserv@orban.com

"The sound is unbeatable"

Stephen Bray, '96

Stephen Bray, who gained world wide recognition as producer and co-writer of Madonna's "Express Yourself" and "Into the Groove," along with engineer Tony Shepperd, installed a Euphonix CS2000 console in his Los Angeles based studio, Saturn Sound. Why a Euphonix Stephen?...

"From tracking to mixing, the speed of the CS2000 SnapShot Recall™ and the instantaneous access to hard disk is amazing."

"We are attracting producers and engineers who require infinite flexibility. With the Euphonix you save at least an hour or two every time you change projects. We can go from mixing a TV show to a music album mix in seconds."

"We've joined a thriving community of artists, producers and engineers who understand the beauty of digital control and the advantages of networking with the many talented Euphonix users."

Does this sound familiar to you?...

If you are tired of waiting for old technology to keep up, if you want to get "sound from out of this world," contact the Euphonix office nearest you.

SATURN SOUND

Sound from out of this world



Saturn Sound Productions—
Tony Shepperd and Stephen Bray

**Headquarters
(Palo Alto, West US)**
220 Portage Avenue
Palo Alto CA 94306
(415) 855 0400
Fax (415) 855 0410

**Los Angeles
(West US & Int'l)**
11112 Ventura Blvd
Studio City CA 91604
(818) 766 1666
Fax (818) 766 3401

**New York
(East US)**
2 West 45th St Suite 605
New York NY 10036
(212) 302 0696
Fax (212) 302 0797

**Nashville
(Central US)**
1102 17th Ave Suite 202
Nashville TN 37212
(615) 327 2933
Fax (615) 327 3306

**London
(Europe)**
6 Berghem Mews, Blythe Rd
London W14 0HN
(171) 602 4575
Fax (171) 603 6775

 **Euphonix**
digital control audio systems

Visit our web site: <http://www.euphonix.com>