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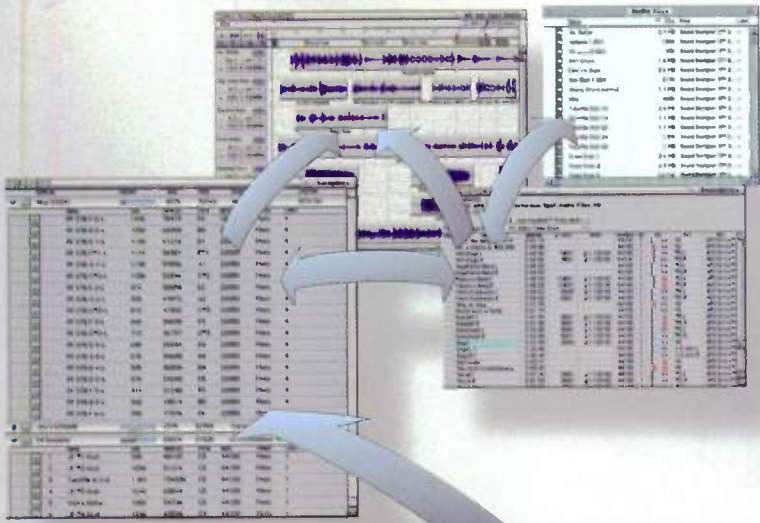

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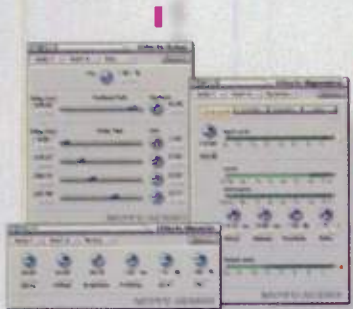

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leader

Sampling is an important technology, and many issues relating to it are covered in this month's *SOS* (see the Sampling Central special starting on page 108), but I'm a little more concerned with the direction in which sampling technology is going, and the directions in which it could go. Today's sampler is essentially a synthesizer in which recorded segments of 'real' sound can be stored to be used instead of oscillators, ROM waveforms or short ROM samples. In theory, this means that a good sampler can do anything a synthesizer can do and more, but often this ideal is compromised by the very complexity of sampling. It's not that creating a sample, or even a set of multisamples, is hugely difficult, but it does require a lot of time and patience, something I'm sure we'd all rather direct towards our music. The increasing popularity of sample CD-ROMs is evidence of the fact that most sampler owners don't really care much for the act of sampling, and those who do sample tend to do so through necessity. So, why is sampling so tedious?

If you're using a sampler as a simple recorder to capture drum loops or sections of vocal, the process is quite straightforward, but you could argue that MIDI + Audio sequencers do this kind of job rather better — and with no restrictions on sample length other than available hard disk space. The hard part comes when you want to sample an instrument so that you can play it back from a keyboard and still have it sound like the original. This requires multisampling, because if you simply take a sample and spread it across the whole keyboard range, it'll only sound natural over a narrow range. The high notes will probably sound like Mickey Mouse, while the low notes will be demonic and grumbly. While this is fine for special effects, it isn't great for imitative use. The reason this happens is that most natural instrument and voice sounds contain formants — resonances that don't change as the pitch of the note being played changes. To keep the formants roughly constant, you have to take lots of samples. There is, though, an exciting alternative that could make sampling very much easier.

The technology now exists to separate sounds into their pitched components and their fixed formants, and, in theory, these could be stored as separate parts of the same sample. If done properly, this would allow a single sample to be used over a much wider keyboard range. This gave me an idea for the instant-camera 'point and click' equivalent of a sampler. Using formant separation, it should be possible to build a machine with which you can sample the lowest note on an instrument followed by the highest, after which the sampler analyses the two sounds and uses interpolation to recreate all the notes in between, complete with their correct formants and amplitude envelopes. This might not be quite as accurate as multisampling, but then you could always include the option to take more samples where greater authenticity is required. What's more, think of the creative potential of being able to sample the low note from one instrument and the high note from another, then hear the sound transform from one to the other as you went up the keyboard. Combine this with a good auto-looping system — or use resynthesis to get around the looping problem altogether — and you'd have a very creative, easy-to-use instrument that would encourage more people to create their own samples.

While I'm future-gazing, I'd like to see more convergence between synths and samplers, especially at the populist end of the market. For example, even basic samplers could come with a set of analogue and other key synth waveforms on ROM. These waveforms could be used in isolation, or in combination with sampled sounds. I'd also like to see better performance controls over samples — having played around with Yamaha's VL70m (which uses true modelling), and Emu's Morpheus (which employs complex filtering), I think that clever filtering could deliver a pseudo-modelling approach to make instruments sound more organic, especially if the original samples were designed to take this into account. Perhaps the reason the electronic keyboard market is slowing down is that we see too many similar instruments battling it out on price rather than offering much in the way of real innovation.

Paul White *Editor*

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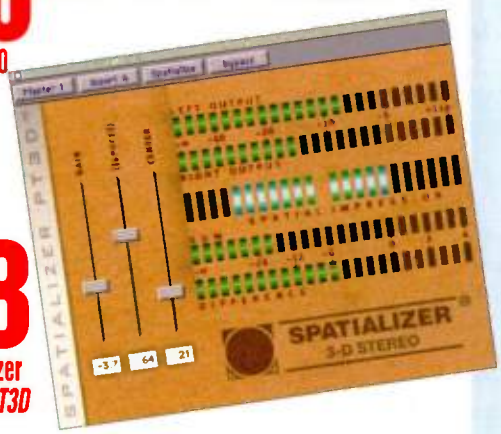

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Crosstalk

Send your letters, queries, tips and comments to: Crosstalk, Sound On Sound, Media House, Trafalgar Way, Bar Hill, Cambridge CB3 8SQ.

Our email address is 100517,1113 — or, from outside CompuServe, on 100517.1113@compuserve.com

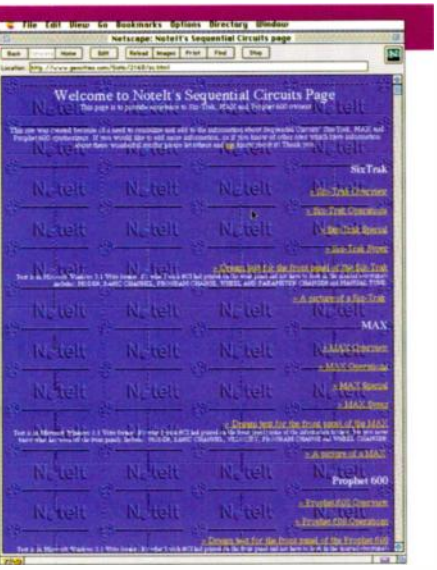
The SOS web site can be located at http://www.sospubs.co.uk

Chip Off the Old Prophet

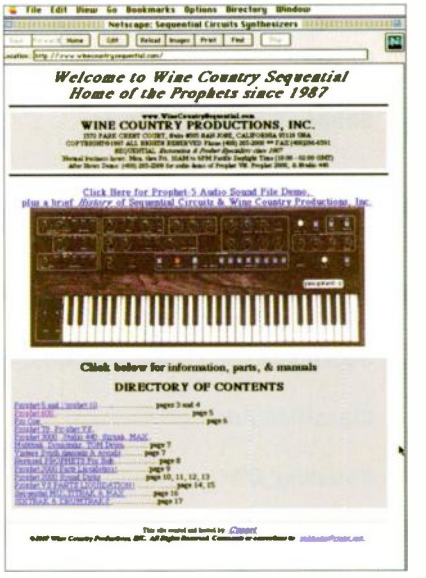
I've recently bought a Sequential Circuits Prophet 600 synth. Unfortunately, it came without a manual, and I have no idea how to select a MIDI channel: can anybody there help me out? Thanks in advance.
Steve Chesney
Manchester

Derek Johnson replies: *If you have a very early Prophet 600, you won't be able to. As you may know, the Prophet 600 was the very first MIDI-equipped synth (released in 1983) and as such had a very basic MIDI spec. During its commercial life (about three years), the operating system was steadily upgraded, and the last version — v8 — is a great improvement. Whereas early Prophet 600s were perennially in Omni mode, and responded to data sent on all MIDI channels at once, the last OS version allowed the user to set a MIDI transmit and receive channel, and tweaked a few other things. You can find out which version of OS your machine has by opening it up (carefully!) and looking at the OS chip. If it's not v8, you'll probably want to change it. Luckily, Wine Country, the Sequential support company formed by ex-Sequential employees in 1987, can supply this chip for just $39. You can contact them direct (1572 Park Crest Court, Suite 505, San Jose, CA 95118, USA. Tel: 001 408 265 2008. Fax: 001 408 266 6591. Email winecntry@aol.com), although most UK synth service specialists should be able to get it for you. Once you have v8 installed, the button-pushes you need are, I believe, as follows: Record and 8, to select MIDI Mode 3 (the Prophet 600 will now respond to just one MIDI channel); Record and 9, to display MIDI channel; and Record, 9 and Tune to increment the MIDI channel.*

Incidentally, I found a mine of Prophet 600 (and general Sequential) information on the Internet. Apart from Wine Country's own web page (http://www.winecountrysequential.com), there's the Note One page (http://www.geocities.com/SoHo/2163/sc.html), which is dedicated to providing loads of info about Sequential's SixTrak, Maxx and Prophet 600. Between the two pages, you should find plenty of jumping-off points to other pages and discussion groups, as well as spares and sounds for Sequential products. ❑



Note One's Sequential Circuits page (above).

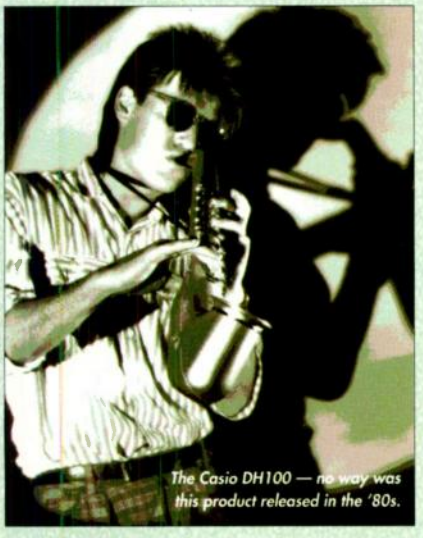


Above: Wine Country's web page.

Getting the Horn

Paul D Lehrman, in last month's article about his technological tribute to Frank Zappa, mentioned that he used Casio's DH100 MIDI Horn as a controller during the gig. Although this instrument has been long discontinued, Paul said that he'd picked his up at reasonable cost from a company in Wisconsin. Any idea who this company is, and how I can get in touch with them?
John Claydon
Tunbridge Wells

Matt Bell & Derek Johnson reply: *The company you're looking for is Consumer Electronics Corporation, and you can contact them at 12425 Knoll Road, Elm Grove, WI 53122, USA (Tel: 001 414 784 9001. Fax: 001 414 784 9066). They have what appears to be the last stocks of brand-new DH100s on the planet, and will happily sell you one for US$149.95, plus shipping costs. If you want some background on the DH100, check out the SOS review back in October 1988.* ❑



The Casio DH100 — no way was this product released in the '80s.

Calling Intermanual Rescue

I was wondering if you know what happened to Intermanual Rescue? You featured the company back in May 1995, when they were handling the auctioning of loads of Keith Emerson's old gear, but I haven't been able to contact them recently.
P Jeffrey
Brighouse

Derek Johnson replies: *We also thought the company had gone rather quiet, so we dug around, and discovered that IMR's Chris Newman was actually taken suddenly and seriously ill a year or so ago. Needless to say, this put rather a damper on his business, and Chris needed to take some time off for treatment and recovery. We hear, fortunately, that the prognosis is good, and that IMR is slowly getting back into action. In fact, Chris plans to run another auction in the near future, offering a range of classic and artist-related gear. Of course, IMR can still supply vintage synth manuals (the list continues to grow) and spare parts, not to mention offering sales and support of vintage synths and other equipment. Contact them at Millcroft Farm, Undley Road, Lakenheath, Suffolk IP27 8BY. Tel (from September): 01842 862620 (pager 01426 245994). Fax: 01842 862620. Email imr@intonet.co.uk.* ❑

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Phantom Problem?

I have two problems concerning some gear that was reviewed in your magazine. I bought these products on the strength of your reviews and am generally very happy with them. Thanks for doing a good and thorough job!

Firstly, I use a Joemeek VC3 preamp for recording vocals and acoustic instruments on my Tascam DA38, bypassing the desk. When I'm using dynamic mics or an AKG 414, all works perfectly well, although the VC3's output level is a bit on the low side (the output control is on full). Nevertheless, it sounds very good. When using my Neumann U87, however, there is hardly any output at all, and what little I hear is distorted. Plugged into the desk, the U87 works fine, and when the VC3 is inserted into the signal path there are no problems. Could this be a phantom power-related thing? As far as I know, 414s work on less than 48V and Neumanns don't. Perhaps the unit doesn't produce the full 48 volts for some reason?

Andy
via email

Paul White & Derek Johnson reply: *The low gain when recording onto a DA38 is probably due to the fact that most digital recorders register around -12 to 14dB on the PPMs when the incoming signal is +4dBu. This is designed to allow you to use some of the headroom in your desk, but it can also make level-matching difficult on occasions, so I don't think we've heard the last of this one. The Neumann problem sounds phantom power-related, and could be either a voltage or a current problem. Sound Valley, the distributor for Joemeek products, note that the VC3 is definitely capable of providing 48V phantom power, and has worked successfully with strange Russion mics that need up to 60V. They suggest that you double-check the wiring on your U87 (wiring instructions are in the mic's manual), and also make sure that the VC3's phantom power switch is actually on. If your VC3 continues to cause problems, Sound Valley would be glad to hear from you (01494 434738); if there is a fault, they can offer a very fast repair service.* ❑

Robjohns Report

The Amek 9098.

We were pleased to read Hugh Robjohns' comments in his review of the Amek 9098 Dual Mic Amp (in the July '97 issue of *SOS*). Hugh's comments about the benefits of placing high-pass filters in the 'S' path is absolutely valid, and the unit is designed to allow this and to fully exploit the flexibility of M-S signals. We will elaborate slightly on this in the next edition of the User Guide, though five pages of the manual are already devoted to a background to general M-S principles, without any direct reference to the product.

A product user guide needs to focus on how to use the controls of the product and can only give a limited amount of broader training in audio techniques.

The Amek web site (http://www.amek.com) contains technical background pages which cover many audio engineering topics, including M-S signals and image width manipulation. Paper printouts of these pages are also available free of charge (though an SAE saves us a lot of admin!), as they are of use as general, non-Amek-specific, audio training material.

Peter M Harrison
Director of Engineering
Amek

With reference to Hugh Robjohns' review of the CLM DB400 in August's issue of *SOS*, we'd like to let you know that we've taken some of his comments on board. For example, we're changing the mains switch to a rocker switch, so it won't jam; we've altered the Mid and Side output function, as recommended in the review; and we've corrected the 'Insert 2' screen print error on the rear panel.

Grant McDonald
CLM Dynamics ❑

The CLM DB400.

The Ghost of Issues Past

I'm in the process of saving for a sampler, and Emu's ESI32 is currently my number one choice for memory and price. I'd like to know if *Sound On Sound* have ever reviewed this sampler, and how I can get hold of the back issue. I hope you can help.

Stuart Smith
Walsall

Derek Johnson replies: *The simple answer to your question is January 1995, and the back issue would cost £2.95 plus £1.25 postage, but check with our mail order department for availability and price on this and any other back issues. If an article you require appears in an out-of-print back issue, photocopies of individual articles are available at £1.50 each. As you have this issue in your hand, you may well have noticed that we're running a bit of a sampler special: not only are there several features on using samplers and sample CDs, there's also a sampler buyers' guide with comprehensive spec for all currently available models — it sounds as though you've made up your mind, but you can never have too much information! Incidentally, I had a quick glance through several dealer ads over the last month or two and found some rather good offers on the ESI32. Good luck!* ❑

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Crosstalk

Control Freak

Following the article in June's *Sound On Sound* discussing the use of external MIDI controllers, I'm looking for a way to add pitch-bend and modulation controllers to my current PC sequencer setup. Apart from the PC (running Steinberg *Cubasis Audio*), I have a Korg Concert 3500 piano and Korg 05R/W. Neither Korg device has controller input sockets and the Concert 3500 lacks pitch-bend and mod wheels.

Brendan Kirby
Chertsey

Derek Johnson replies: *Unfortunately, the ideal solution to your problem is no longer manufactured: Yamaha's MCS2 MIDI Control Station provided exactly the features you're after, plus a load more, in a convenient, compact keyboard-top package. Apart from the wheels you need, the MCS2 also offered a collection of switches (for sending program changes), two sliders (labelled Controller and Parameter), a breath controller input and two footpedal and two footswitch inputs. Although MCS2s don't turn up very often, expect to pay something in the vicinity of £100 if you see one.*

Incidentally, the MCS2 isn't the sort of product you'd normally expect people to get intense about, but a quick look on the web turned up a couple of interesting things. First of all, John Hollis (writer of the Trackman *sequencer for the Atari platform) found that his MCS2 was a little lacking in the assignable controllers department — the unit is 11 years old, after all. Reasoning that it was likely to be a shortcoming of the software, John took the back off and discovered that he could solve the problem quite simply. After an unofficial tweak of the machine's code, it was working perfectly, with access to a full range of MIDI controllers. Before you visit John's site (http://www.hollis.co.uk/john/mcs2.html), download his unofficial code, make the modifications and install the software suggested, be warned that you are taking your MCS2 into your own hands. Be very sure that you know what you are doing, or seek professional help. John and SOS can't be held accountable for the results.*

The other MCS2 info we found is located on a number of sites (we got it from http://www.cs.ruu.nl/pub/MIDI/DOC/Yamaha-MCS2-bugfix), and offers one Robin Whittle's fix for a breath controller bug on the MCS2. Apparently, the breath controller on some MCS2s doesn't always output the full value range of 0-127. The solution involves swapping around two legs of one transistor; the instructions are pretty clear, with plenty of background about why you'll be doing what you're doing, and how to do it, but once again, if you search out this bug-fix file, it's your problem if anything goes wrong — be careful! We provide these contacts as general information, not recommendation.

The current market doesn't really offer an equivalent, although any hardware offering controls that transmit MIDI data would work. Units such as Peavey's PC1600 might be over-powered for your particular task. A lateral, and perhaps slightly inelegant, solution might be to use a floor-mounted MIDI controller designed to help guitarists control their effects units. These often have a built-in variable foot controller, and usually a few extra continuous controller inputs for adding your own pedals — ART's X15 MIDI Master Control and X15 Ultrafoot (Key Audio, 01245 344001) are typical examples. Finally, a really simple answer would be to buy a cheap synth (which would give you more sounds) or a compact desktop music controller keyboard, such as Roland's PC200 MkII or Yamaha's CBX-K1, and patch them into your system. ❑

Manual Labourer

As a user of manuals for hardware, software, and audio gear, I can sympathise with Godric Wilkie's manual plight (*SOS* Sounding Off May 1997). It is indeed ironic that, in these days of the Internet, Windows 95, and powerful yet inexpensive writing tools, many companies still cannot communicate their ideas effectively. As a technical writer working hard for better user manuals, I'd like to ask Godric and *SOS* readers to complete a user manual survey (at http://www.infopage.net/surveys.html). My hope is that their comments will help us writers improve our user manuals, and put an end to the kind of hassles experienced by Godric and, no doubt, many others.

Paul Findon
Hamamatsu
Japan ❑

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http://www.spirit-by-soundcraft.co.uk

WRH

shape of things to come

by Derek Johnson

Arbiter's additive Value

Kawai's new generation of additive-based synths has been generally well-received, but has suffered from one small problem: there's been no-one to supervise distribution and marketing on a truly local level. However, the situation has now changed, with Arbiter Music Technology being appointed UK distributor for the K5000 family. Arbiter will supply all sales, marketing and technical support for the K5000 range, though all other Kawai products will continue to be supplied and supported via Kawai Deutschland, with UK technical support for non-K5000 Kawai products being handled by WD Greenhill Ltd (01702 546195).

You can get full details of the K5000 family from our reviews — the K5000W appeared in January 1997 and the K5000S and K5000R in July 1997 — but there are one or two things to add with the release of the new v3 software. This free upgrade, loadable from disk, adds new additive preset patches, temporary effect cancel and octave-shift functions, new pedal assignment options, and some improvements in the user interface. Arbiter have also confirmed that there's a profile for the K5000 in Emagic's *Sound Diver* generic editor (for both Mac and PC). And this is by no means all: joining the K5000 range is a new macro control box, which adds the real-time control of the K5000S to the workstation and the rack versions.

We've saved the best news till last: the whole range now benefits from a substantial price cut, with the W dropping £300 to £1499, the S dropping £300 to £1199, and the R (which was already the best value) dropping £86 to £999.

Kawai K5000R & K5000S.

A Arbiter Group plc, Wilberforce Road, London NW9 6AX.
T 0181 202 1199.
F 0181 202 7076.
E arbiter@cix.compulink.co.uk
W http://www.demon.co.uk/arbiter

Kawai K5000W.

ESI does it — again

Emu have added a new entry-level sampler, the £1199 ESI4000, to their range. This machine offers 64-voice polyphony, 4Mb of RAM, four audio outs, and compatibility with Akai S1000/S1100 sound libraries via SCSI. In keeping with Emu's expansion policy, the ESI4000 can be enhanced with the Turbo Option Kit, this adds an extra two stereo outs, plus a stereo effects submix output, a dual stereo effects processor and S/PDIF digital I/O. The option can be provided ready-installed, with the ESI4000 Turbo costing £1499 (add a 100Mb Zip drive to the Turbo machine and pay £1699). RAM can be upgraded to a whopping 128Mb, providing over 23 minutes of mono sampling at 44.1kHz. All the familiar Emu features are here, including 64 digital 6-pole filters and a host of DSP features, such as time-stretching, parametric EQ and digital tuning. The front panel features 10 programmable buttons for triggering samples, and the ESI4000 integrates nicely with Emu's Launch Pad and KAT MIDI percussion-controller systems.

Emu have also announced a Turbo upgrade for the ESI32; this board adds three stereo outs and a stereo effects mix out, S/PDIF I/O, two stereo effects processors and ESI v3 software, which adds more filters and effects. The ESI Turbo Option Kit retails for £369.

A Emu Systems, Suite 6, Adam Ferguson House, Eskmills Park, Musselburgh, Scotland EH21 7PQ.
T 0131 653 6556.
F 0131 665 0473.
W http://www.emu.com

Syco therapy

Syco Systems are hosting an audio plug-in day on Tuesday September 23rd 1997. A huge selection of plug-ins for Steinberg *Cubase VST*, Digidesign's TDM and Audiosuite and Adobe's *Premiere* will be on show and available for hands-on demos, and product specialists will be there to answer any technical questions visitors may have on plug-ins. Contact Syco for more information and your free invitation.

A Syco Systems, Kimberley Road, London NW6 7SF.
T 0171 625 6070.
F 0171 372 7660.
E sales@syco.com

International Crimewatch *SOS*

An Internet scam was behind the recent theft of a collection of synths, including some classics. The gear was stolen in the States, but due to the increasingly international nature of the antique synth market, you may be offered some of the following:

- PPG2.3, serial number faded, with flightcase, data patch cassette and eighth-inch to five-pin DIN cable.
- Korg Mono/Poly, s/n 375702.
- Memorymoog Plus, s/n 1178.
- Oberheim OB1, s/n 0249.
- Roland R8M, s/n AC74019.
- Sequential Pro One, s/n 0595.
- Standtastic two-tier keyboard stand.

As of August, a Roland JD990, Oberheim Xpander and Roland MPU101, also stolen, had been recovered by police, but if you're offered any of the other items, Eric Montoni (montoni@netrover.com) would like to hear from you. Alternatively, contact Peter Forrest, of VEMIA (the antique synth auction people) on 01363 774627. Thanks to Peter for bringing this to our attention.

SPL get the Maxx

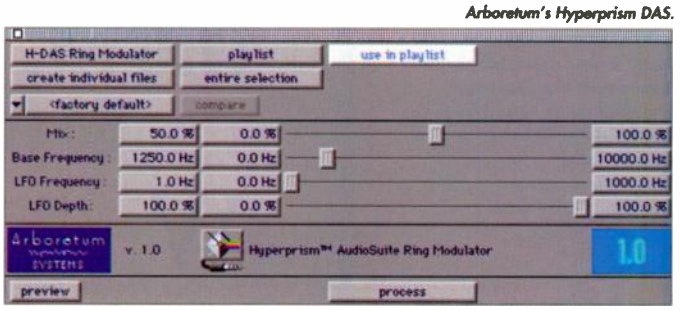
SPL's new 2-channel Charisma.

The SPL range of signal processors continues its recent rapid expansion with the launch of a 2-channel version of the Charisma tube-based tape saturation emulator and the Dynamaxx compressor/de-compressor. The Dynamaxx is, firstly, a simple-to-use compressor; parameters such as attack, hold and release are "highly automated in a musical way". The new de-compression facility inverts the compressor, and allows you to de-compress highly compressed signals such as samples and keyboard sounds; to quote the press release, "even drum sound modules regain new dynamics and vitality". You only have to get your head around two controls and three switches, and a noise gate is included at the final stage of both channels. There's also a stereo link facility and side-chain access. Naturally, we'll be putting the manufacturer's claims to the test with an *SOS* review in the near future.

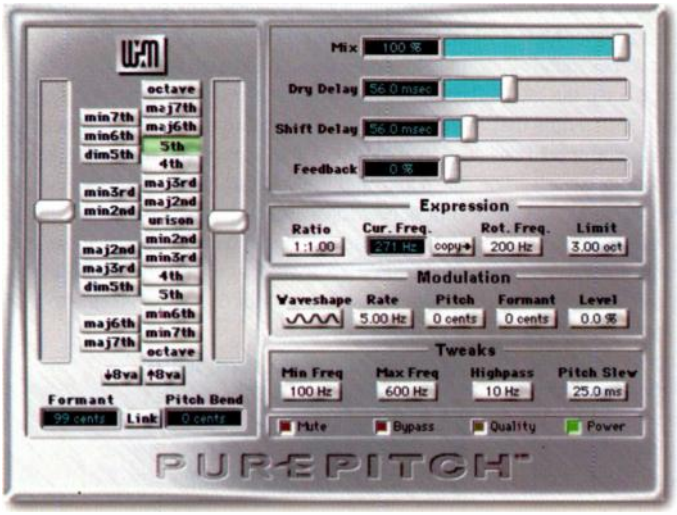
SPL Dynamaxx.

A Beyerdynamic, 17 Albert Drive, Burgess Hill, West Sussex RH15 9TN.
T 01444 258258.
F 01444 258444.
E sales@beyerdynamic.co.uk

Arboretum's Hyperprism DAS.



Pitching a Winner

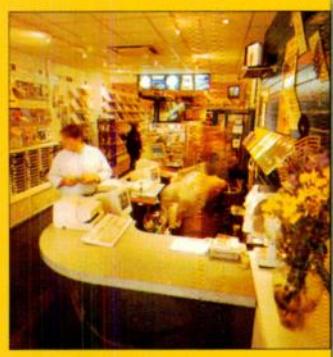


Wave Mechanics' Pure Pitch.

PurePitch, by Wave Mechanics, is a new real-time pitch processor plug-in for the Digidesign TDM platform, priced at £575.75 including VAT. Using state-of-the-art DSP techniques, *PurePitch* preserves the spectral character of the original source material, eliminating the 'chipmunk' effects that some other pitch processors cause when transposing vocals by more than a semitone. *PurePitch* can also modify the spectral character and pitch inflections of dialogue tracks, allowing the user to create subtly (or drastically) different vocal characters. The plug-in works in real time, providing instant creative feedback.

Staying with plug-ins for the moment, Arboretum have just released *Hyperprism DAS*, a £311 set of 25 plug-ins for Digidesign's AudioSuite. The plug-ins are based on previous programs from Arboretum's TDM and stand-alone versions.

A Unity Audio Limited, Upper Wheeler House, Ware, Herts SG11 1ET.
T 01920 822890.
F 01920 822892.
E unityaudio@channel.co.uk



Rose Morris, the 75-year-old London music store, has recently undergone a refit and a relaunch. The six-floor store has increased its retail space by some 50%, and features improved sheet music (over half a million items) and bass departments. The firm have also introduced an educational mail order service.

T 0800 376 9101.
E info@rose-morris.co.uk
W http://www.rose-morris.co.uk

Systems Workshop have recently been appointed UK distributor for the BPM range of large-capsule studio mics from Germany. The company's CR73, which has been compared "very favourably" with Neumann's U87, is likely to cost less than £650 including VAT.

T 01691 658550.
E 100330.3222@compuserve.com

From July 1, mixer manufacturer Allen & Heath assumed responsibility for the distribution of its product range throughout the UK. While still a part of the Harman International group, A&H have decided to part company (amicably) from their previous UK distributor, Harman Audio.

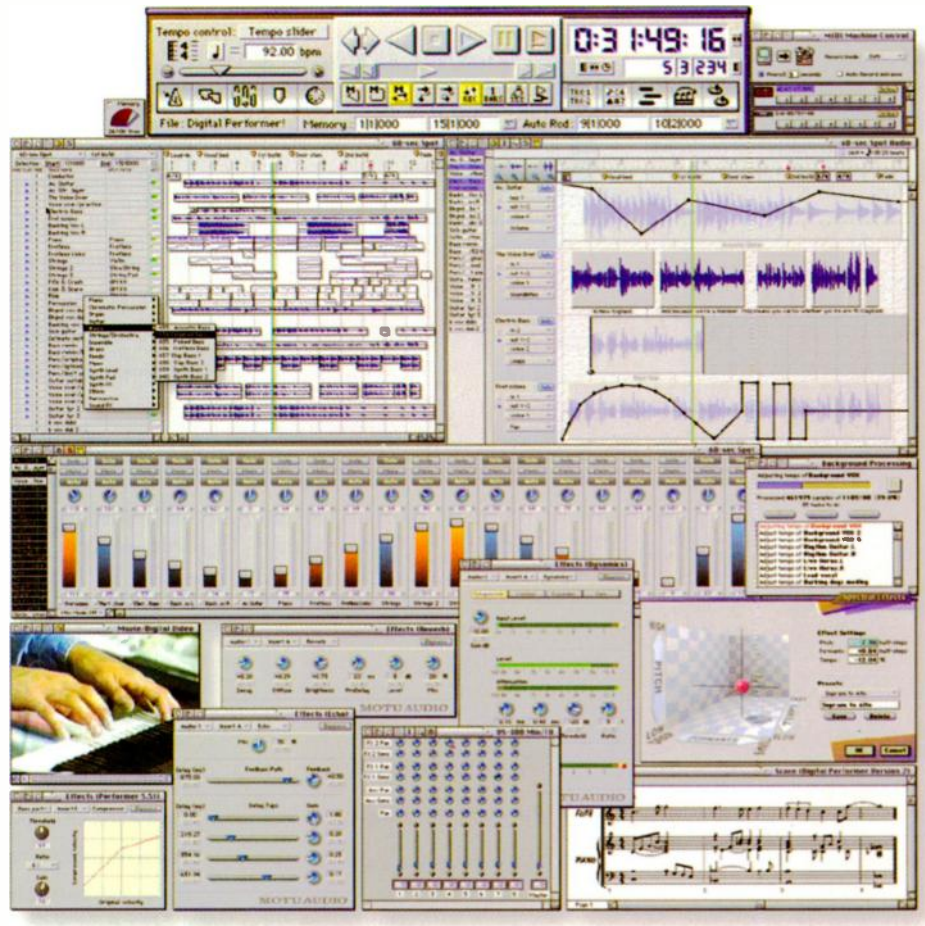
T 01326 372070.

Guitar 97, the third guitar show to be run by Manson's Guitar Shop in Plymouth, takes place at St George's Hall, Exeter on October 4-5. Opening hours are 10am to 5pm, and attendees will get to check out electric and acoustic guitars and basses from a wide range of manufacturers, and take advantage of a varied clinic schedule. Admission is £3.50 in advance or £4.50 on the door.

T 01392 496379.

The M Corporation recently won the Soundscape Dealer of the Year award. The award reflects not only volume of units shipped, but also the "quality of the pre-sales information and subsequent support."

T The M Corporation 01425 470007.
T Soundscape 01222 450120.



MOTU Digital Performer v2.1.

MOTU go Native!

While Mark of the Unicorn never actually said it wouldn't happen (read their promotional literature carefully), we didn't really expect their acclaimed *Digital Performer* to gain native Power Mac operation. Yet, following a few hints in the last upgrade, this is just what's happened with v2.1. All you need is a Power Mac with the right audio hardware (and Apple Sound Manager) and you can record digital audio the MOTU way alongside your MIDI sequences. MOTU note that with a 150MHz 605e-based machine, you should be able to manage 16 to 24 tracks of audio, while 225MHz machines should give you 40 tracks.

The new upgrade also brings several other enhancements. For a start, the software now features a plug-in architecture that will allow third parties to develop audio processing tools; support for Adobe *Premiere* plug-ins is also added (opening the way for plug-ins from the likes of BIAS, Arboretum, Waves and Cybersound). One particularly nifty trick is the ability to drag and drop digital audio between *Digital Performer* and your SCSI-equipped sampler and back; popular samplers from Akai, Emu, Kurzweil and Roland are supported. Memory permitting, you can use the facilities of software or sampler to treat samples or audio tracks and freely move them around. The 'Bounce to Disk' facility allows users to mix multiple audio tracks to a single sound file or stereo pair of sound files, in 8-, 16- or 24-bit resolution; all effects and mix automation are included in the bounce. Lastly, volume and pan automation has been improved, creating smoother changes while requiring less CPU overhead.

The launch of *Digital Performer* v2.1 coincides with the appearance of MOTU's first software plug-in: *PureDSP* is a Digidesign AudioSuite-compatible version of their pitch-shifting and time-scaling software. Mono audio can be transposed by up to an octave without losing the characteristics of the audio, and the SpectralShift function gives you control over tonal aspects of the audio — so you can change the sex of your singer, for example. Users of Digidesign's Pro Tools 4, and any other digital audio system that supports AudioSuite, will be able to use the plug-in.

A MusicTrack, 19a High Street, Shefford, Bedfordshire SG17 5DD.
T 01462 812010.
F 01462 814010.
E 100415.2665@compuserve.com

We made the console,

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- "I just sold my Mackie 8-bus and purchased the new Ghost console. The difference is amazing. The Ghost is the warmest sounding board I've ever used." - Mike Perkin (The Lab Recording Studio, Emmaus, Pa)

- I replaced a console that was more than 3 times the price, and got a quieter, more transparent, and sweeter sounding console! Big console feel, with an amazing price!" - Kurt Bevers, Brownell Sound, Oregon.

- "An incredibly musical console, ultra flexible with a real usable EQ. It is absolutely the best sounding project studio board that I've heard". - Howard Givens, Spotted Peccary Studios."

- "I love the desk, the EQ is just marvellous. Ghost is the best 8 bus recording desk on the market." - Lee Hamblyn, Engineer.

- "Intuitive handling, flexible routing, great Soundcraft sound." - Melvin Fernandes, Recording Engineer, CMM Studios, India.

- "I use the Ghost for several radio shows doing live performances. The EQ is amazing, I'm on air in 5 minutes! Doing dance stuff is one, doing live stuff is another. But I use only one board for both of them, The Soundcraft Ghost." - Barney Broomer, Sonic One Rotterdam.

- "Ease of operation and the numerous in-line inputs for my synthesizers and samplers is why I purchased the Soundcraft Ghost console." - says President of Saban Entertainment and producer of Mighty Morphin Power Rangers Shuki Levy.

- "I didn't know how useful mute groups could be and how good the EQ had to be until we used the Soundcraft Ghost." - Stefaan Windey, La Linea Musicproductions b.v.b.a., Belgium.

- "It sounds great and the EQ is very precise which makes it very easy to pin-point the frequencies I need to work on. Ghost enables me to finish mixes on the console at home, without having to use any other studio." - Phil Kelsey (Remix Engineer)

- "The console is very user-friendly and is constructed so well that it can easily withstand the rigors of even the most hectic of production schedules." - Corey Dissin, Producer at Paul Turner Productions.

- "Both myself and our Production Director Jeff Thomas used the console for PowerStation and were equally very, very impressed. For the money, the console is fantastically versatile, has good headroom and a very impressive EQ." - Alex Lakey (Engineer for PowerStation)

Ghost

"Let us know what you think about the Soundcraft Ghost by visiting our web site at **http://www.soundcraft.com** or via e-mail to **info@soundcraft.com**"

SOUNDCRAFT, HARMAN INTERNATIONAL INDUSTRIES LTD., CRANBORNE HOUSE, CRANBORNE RD., POTTERS BAR, HERTFORDSHIRE, EN6 3JN. UK. TEL: +44 (0)1707 665000 FAX: +44 (0)1707 660742
SOUNDCRAFT US, HARMAN PRO NORTH AMERICA, INC., AIR PARK BUSINESS CENTER 12, 1449 DONELSON PIKE, NASHVILLE, TN 37217, USA TEL 1-615-399-2199 FAX: 1-615-367-9046

Soundcraft

H A Harman International Company

shape of things to come

A sound called *Malice*

The latest entry in Zero-G's Altered States series of sample CDs is *Malice In Wonderland*, produced by Ian Boddy (who also produced Zero-G's *Ambient* volumes 1 and 2 for Zero-G, as well as *Dream Zone* for the Creative Essentials series. *Malice In Wonderland* features rhythm loops, effects loops, synth percussion loops and arpeggios, one-shot percussion effects, synth effects, ambiences and ethereal textures, bells, drones and weird voices. All bpms and keys are provided where appropriate. The disc is available as an audio CD, priced £59.95, from early September.

A Time & Space Distribution, PO Box 4, Okehampton, Devon EX20 2YL.
T 01837 841100.
F 01837 840080.
E sales@timespace.com

HHB's happy medium

Users of Tascam's DA88 (or Sony's PCM800) digital 8-track recorder now have a further choice of recording medium: HHB's DA113 113-minute DTRS tape, which has been developed in consultation with a number of HHB's own DA88 users. In common with HHB's DAT tape, the DA113 uses a specially formulated metal binder, keeping dropouts to a minimum.

A HHB Communications, 73-75 Scrubs Lane, London NW10 6QU.
T 0181 962 5000.
F 0181 962 5050.
E sales@hhb.co.uk
W http://www.hhb.co.uk

yamaha corner

Yamaha have been busy with their press releases this month: first of all there's a price cut on the ProMix 01 digital mixer, down to £1599, a £400 saving on its previous list price. Also on the digital mixer front, the 02R's operating system has reached v2.0, with the addition of a number of significant enhancements in both music recording and post-production applications.

The software will be installed in 02Rs shipped after September 1, and will cost existing users £199; contact your authorised Yamaha dealer. New features include:

- The ability to record four channels of 24-bit audio onto eight tracks of virtually any 16-bit recording device.
- Fully automated built-in surround sound.
- Digital aux sends.
- MIDI remote control of external devices using the 02R's faders.
- Touch sense edit, which allows a fader to be instantly updated by moving it.

Yamaha Synth Zone.

- New erase, copy and move functions, as well as off-line editing of individual parameters, channels or entire sections of automix data.
- Multiple 02R linking.

Brand new on the synth front is the MU100R, an £849 1U rack module that combines the capabilities of a General MIDI/XG module (such as the MU90R) with a VL virtual acoustic sound source. Also squeezed into the package is Yamaha's special VH — vocal harmony — technology, which allows the user to apply harmonies to signals appearing at the unit's front-panel audio input. The AWM2-based GM/XG section is equipped with 20Mb of wave ROM, divided into 1500 instrumental voices and more than 45 drum kits, 64-note polyphony and 32-part multitimbrality. The VL section (which adds one further voice to the polyphony) comes with 256 preset VL voices and locations for 70 user edits. On the effects front, the MU100R has seven internal digital effects processors, and in addition to the VH processor, features 12 reverbs, 14 choruses, 70 variations, 86 insertion effects and four 5-band multi EQs. The unit is equipped with four audio outs and a PC/Mac MIDI interface socket.

Yamaha's VL virtual acoustic technology is appearing in some other unexpected places — including, potentially, your PC. Not only is the company's multitimbral GM/XG technology available as a virtual instrument, in software, the DSP and computing power of your computer will soon be able to emulate a virtual synth. *Sondius XG*, developed in conjunction with Stanford University (the originator of physical modelling synthesis) combines the SYXG50 software GM/XG engine with the SVA physical modelling techniques used by Yamaha's VL1, VL7 and VL70m synths. The commercial version, due in a few months, will play back 44.1kHz 16-bit audio; it should require only 1Mb of memory, so will have potential for use on the internet. Audio examples (in WAV format) can be found on the Yamaha web site. You could also take a look at Sondius' web site (http://www.sondius.com) for more info.

On the support front, Yamaha's web site now has a section called Synth Zone, and it's here that you can grab software updates, synth editors and free sounds — everything from the DX7 to the VL70m is supported. Don't worry if you're not on line: most Yamaha freebies can be obtained from your official Yamaha dealer.

A Yamaha-Kemble UK Ltd, Sherbourne Drive, Tilbrook, Milton Keynes MK7 8BL.
T Product Info Line 01908 369269.
F 01908 368872.
W http://www.yamaha.co.uk

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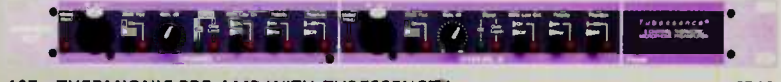

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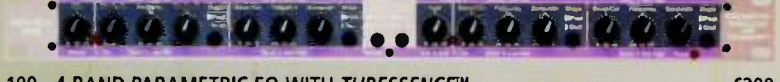

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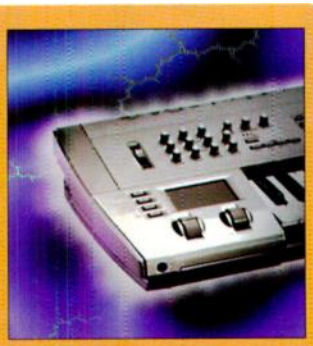
shape of things to come



The Korg digital domain tour announced last month, and featuring the new Z1 polyphonic physical modelling synth (see above), actually starts in September; call Korg on 01908 857100 to confirm dates and venues.

Sample CD specialists Time & Space have moved house, with improvements in telephones, computer system and warehousing aiming to help speed up your dealings with the company.

A Time & Space Distribution Ltd, PO Box 4, Okehampton, Devon EX20 2YL.
T 01837 841100.
F 01837 840080.
E sales@timespace.com

Until September 30, purchasers of Digidesign's Audiomedia III PCI card will be entitled to a free copy of either *Pro Tools PowerMix* v4 for Mac or *Session* v2.52 for Windows. The card, which offers 18-bit stereo A-D and D-A converters, stereo S/PDIF I/O and a signal-to-noise ratio of 90dB, is available now from Digidesign dealers, priced at £703.

T 01753 653322.

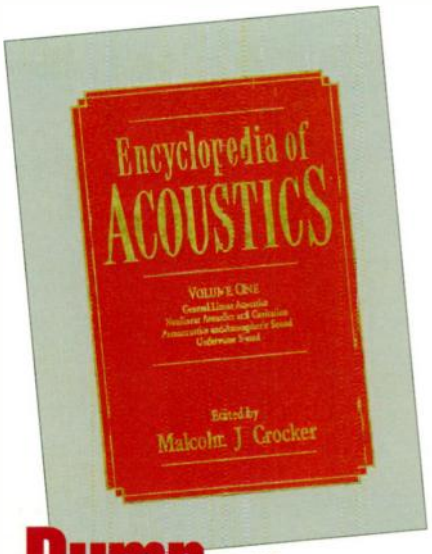
Westside Studios, run by Clive Langer and Alan Winstanley, have just bought a 24-track Otari Radar hard disk recording system. The duo were swayed by Radar's "familiar transport layout and impeccable sound quality."

T Stirling Audio 0171 624 6000.

SOS can be reached on CompuServe; our email address is 100517,1113.

Our full Internet address is 100517.1113@compuserve.com

The *SOS* web site is located at http://www.sospubs.co.uk



Pump up the Volumes

One of the surprise publishing releases of recent times is John Wiley & Sons' *Encyclopedia of Acoustics*, edited by Malcolm J Crocker. Apparently, this substantial four-volume set provides the "most comprehensive coverage of acoustics for over 100 years"; the publishers claim that, for the first time ever, all aspects of acoustics have been brought together in one publication. And looking at the contents, I'd find it hard to argue. Purely musical topics are, of course, present — from the acoustics of all musical instruments to loudspeaker design and computer music — but the bulk of the text deals with pure physical acoustics: ultrasonics, infrasonics, architectural acoustics, the propagation of sound in the atmosphere, underwater and through the earth, noise effects and control, vibration and shock, acoustics of speech and communication, acoustical measurement, and so on. The section on physiological acoustics in volume three provides a most in-depth discussion of hearing and the perception of sound in humans; animal bio-acoustics is also covered in volume four.

This is a serious textbook, and contains some serious physics. But don't let the formulae put you off — much of the text actually explains what's going on in a clear enough fashion. At £355 a set, not many people are going to buy the *Encyclopedia*, but if you're a student or professional with a serious interest in acoustics, your school, college, university or facility should be encouraged to get a copy.

A John Wiley and Sons Ltd, Baffins Lane, Chichester, West Sussex PO19 1UD.
T 01243 770216.
F 01243 770432.
W http://www.wiley.co.uk

Behringer's new desk job

The latest entry into Behringer's Eurodesk family is the MX802 8-channel mixer. For just £169, the MX802 offers four mono inputs, two stereo inputs, two aux sends with two stereo returns, 48V phantom powering for condenser mics, peak LEDs on all channels, 3-band EQ on all channels plus separate main mix, control room and headphone outputs.

A Behringer UK Ltd, St Vincent House, 59 Woodbridge Road, Guildford, Surrey GU1 4RF.
T 01483 458877.
F 01483 458822.
E 100632.1022@compuserve.com

education corner

DRAKE MUSIC PROJECT

The Drake Music Project, the charitable organisation dedicated to creating music-making opportunities for physically disabled people, is continuing to expand. New projects begin in Coventry and Edinburgh in September, and next year the project is due to launch in Manchester. In London, there will be even more workshops, and courses are planned in songwriting, music for film and TV, music making and composition. The general workshops on software and hardware technology and developing musical skills continue. Workshops are open to any physically disabled child or adult with an interest in making music; previous experience isn't required.

The project, which also operates in Yorkshire, Belfast and Dublin, is also looking for tutors, due to their expansion.

A The Drake Music Project, Christchurch Forum, Trafalgar Road, London SE10 9EQ.
T 0181 305 0580.
F 0181 305 0583.
E drake@dircon.co.uk

MANGO MULTIMEDIA

London's Mango Multimedia recently held the first of what will be a regular series of open evenings aimed at giving potential students demonstrations of the various courses on offer. Mango can provide training in MIDI production and programming, digital recording and editing, Adobe *Premiere* and graphic imaging; there's even a course dedicated to teaching you

Loud & proud

A new range of "high-performance" studio tools is being launched by DACS. Each Clarity MicAmp microphone amplifier and Clarity HeadLite headphone amp is hand made, individually set up and comes complete with a three-year guarantee. The MicAmp is a 2-channel, low-noise, discrete component-based device, while the HeadLite is a 4-in, 4-out amplifier with input selection for each channel. It can drive any impedance of headphone to the headphone's maximum level, without distortion. Soon to join the range are the KeyBoard DI/preamp, which boosts signals to balanced line level, plus a series of 24-bit, 96kHz/88.2kHz analogue-to-digital convertors.

A DACS Ltd, Freepost NT1808, Gateshead NE10 0BR.
T 0191 438 5585.
F 0191 438 6967.
E douglasjpdoherty@compuserve.com

Red Systems hit that perfect beat

New British company Red Sound Systems is behind a new product: the Voyager 1 Beat Xtractor. Primarily aimed at remix DJs, Voyager 1 connects in-line between a sound source such as a CD player or tape deck and mixing desk. It analyses the passing audio signal, calculates a tempo, in beats per minute, and generates a stable MIDI clock, which allows MIDI drum machines and sequencers to be reliably sync'd to existing audio. The unit could also be used by drummers to control the tempo of a band's MIDI sequences, rather than having to play to a click, by feeding signals from a miked-up drum kit into Voyager 1. The standard blue-finish machine, will retail for £249.50, while a limited-edition chrome-finish model will retail for £299.50. All Red products come with a three-year guarantee.

A Red Sound Systems Ltd, Chancery Court Business Centre, Lincolns Inn, Lincoln Road, High Wycombe, Bucks HP12 3RE.
T 01494 429321.
F 01494 446321.
E 106345.1123@compuserve.com

how to set up your own label. The studios include a voiceover/edit suite and a 16-track analogue, 8-track digital recording studio and programming suite. The next open evening is planned for September 10, with another on October 15. Give Mango a call for an invitation.

A Mango Multimedia, Studio B1, 21 Steward Street, London E1 6AJ.
T 0171 377 2722.
E info@mangomultimedia.demon.co.uk

ARNOLD & CARLTON COLLEGE

A winner has been found for Arnold & Carlton College's first national computer sequencing competition. The initial list of 503 entries was whittled down to 10 finalists, who met at the Nottingham college on July 25 for a play-off. Each contestant was provided with a 16Mb PC running Steinberg's *Cubase*, and had two hours to produce a complete competition of no more than 30 seconds in length. Chris Paynter, an Atari ST user from Ringwood, Hants, was the winner, scoring a copy of *Cubase* and audio equipment, courtesy of The M Corporation. Judges included Caroline Teeling, head of A&R at new Warner Music label Coalition, Justin Baron, education co-ordinator for Harman Audio (distributors of Steinberg in the UK) and Arnold & Carlton's Carlos Thrale.

T 0115 953 1222.

CONFETTI SCHOOL OF RECORDING TECHNOLOGY

Nottingham's Confetti School of Recording Technology has recently undergone refurbishment of its multi-studio complex. This has included the installation of a 64-channel Otari Status mixer, with on-board dynamics and moving faders, and a new digital editing suite based around a Yamaha 02R desk, 16 tracks of Alesis ADAT XT and Soundscape v2. The computer resource centre has been refitted with 15 166MHz Pentium PCs, all with 32Mb of RAM, Yamaha DB50XG daughterboards, *Cubase Audio* and *Sound Forge* software. The facility has also recently purchased a Yamaha 03D, Roland JV2080 and JP8000, Emu E4X, Planet Phatt, Orbit V2 and Launchpad, various TL Audio processors and Lexicon's new PCM80 and MPX1 effects units. New HNC and HND sound recording and music technology courses start this September, and Confetti can offer a range of courses, from eight weeks to two years in length. All courses are funded by the Further Education Funding Council, so fees are low, and occasionally free. Contact Confetti for details.

A Confetti School of Recording Technology, Unit 2, 6-10 Convent Street, Nottingham NG1 3LL.
T 0115 952 2075.
F 0115 953 6678.
E confetti@btinternet.com

LIPA

Liverpool's Institute of Performing Arts has installed a TL Audio C1 valve compressor in each of its five studios. The studios have been used to train students for nearly 24 hours a day for 10 months, "and they haven't let us down once", says head of sound John Thornton.

T TL Audio 01462 490600.
T LIPA 0151 330 3000.

NORFOLK COLLEGE OF ARTS & TECHNOLOGY

A new part-time evening course in sound recording and studio administration is to join the college's BTEC national diploma in popular music. Further details from the college.

A Norfolk College of Arts & Technology, Tennyson Avenue, Kings Lynn, Norfolk PE30 2QW.
T 01553 761144.
F 01553 764902.

THE SOUNDBEAM PROJECT

You may recall our discussion of non-contact controllers in Crosstalk some months ago; of particular interest was the Soundbeam MIDI

controller. We've just had news that the Soundbeam Project are running the fourth in a series of residential weekends on November 7-9, at Kinnersley Castle in Herefordshire. The course aims to provide teachers and other interested parties with an opportunity to learn about the therepeutic and creative applications of the Soundbeam and other technologies.

A The Soundbeam Project, 463 Earlham Road, Norwich NR4 7HL.
T 01603 507788.
F 01603 507866.
E 100530.3530@compuserve.com

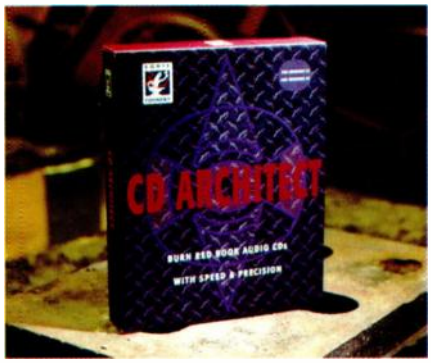
shape of things to come

Selling made Cimple

Service specialists Cimple Solutions are making a gradual move into retail and distribution. Their first lines include a range of products from German company EES. The first units to arrive in the country include a PC MIDI interface (mentioned in our roundup of PC interfaces in last month's issue) plus the MIDI-CV7, a 7-channel MIDI-CV interface. This £449 unit offers a comprehensive feature set, including gate and CV outs for each channel and a DIN Sync output for all your old Roland sequencers and drum machines. It offers a choice of V/octave or Hz/V CV output types, plus three MIDI-syncable LFOs and a range of modulation options.

Cimple have also been appointed exclusive UK distributors for Viscount's affordable effects processor and MIDI data filers.

A Cimple Solutions Professional Ltd, Unit 2-17 Wembley Commercial Centre, 80 East Lane, North Wembley, Middx HA9 7UR.
T 0181 904 4141.
F 0181 904 1200.
E sales@cimplesolutions.demo.co.uk
W http://www.cimplesolutions.demo.co.uk



Build your own CD

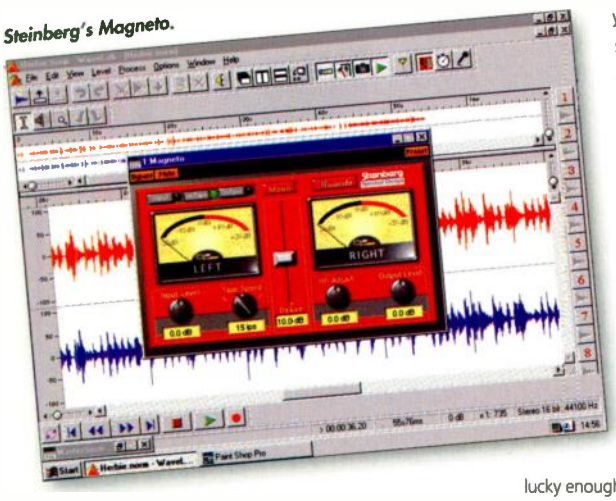
Sonic Foundry's newest software, *CD Architect*, is a waveform-editing and Red Book audio CD-burning package for the Windows 95 and Windows NT platforms. The software, which allows users to import audio from a wide range of sources and edit it, can even function as a *Sound Forge* v4 plug-in. Up to 99 tracks with 99 sub-indices per track can be included on each disk. The software burns using the 'disk-at-once' method, with full support of PQ-code editing.

A MCMXCIX, 9 Hatton Street, London NW8 8PL.
T 0171 723 7221.
F 0171 723 8150.
E sales@mcm.co.uk
W http://www.sfoundry.com

Steinberg: Back to 'basis

Steinberg have launched *Cubasis AV* for Power Mac. This new software makes the technology introduced by *Cubase VST* available at a new, lower price point: just £129. The software offers eight stereo audio tracks, which can be separately mixed, alongside 64 MIDI tracks. Multimedia features are also provided, with a video window allowing moving pictures to be run in sync with the audio and MIDI information. A printable score editor is also included, along with built-in effects. *Cubasis AV* requires a minimum of a 6100/66 machine, with 16Mb of RAM, a CD-ROM drive, 2nd level cache and System 7.5 or higher.

Steinberg's Magneto.



Other new releases from Steinberg include the *Magneto* analogue tape saturation emulator and the *Roomulator* high-spec reverb plug-ins for *Cubase VST*.

Steinberg have announced a price reduction for the *WaveLab 1.6* digital audio mastering software for the PC. Priced originally at £399, the software can now be yours for just £329 including VAT. Another significant price cut is being applied to *Time Bandit*, the specialised pitch-shifting software: it's dropping from £329 to £199, which makes it quite a deal.

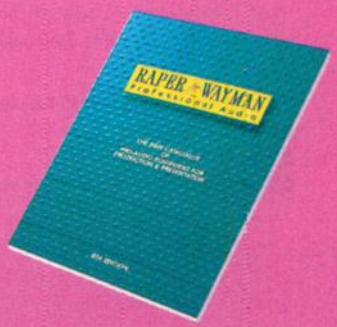
Speaking of deals, if you get down to your local Steinberg dealer quickly, you might be able to take advantage of a limited offer. Every copy of *Cubase* v3 and *Cubase Score* for PC will include a free soundcard, complete with daughterboard socket and joystick port for optional MIDI connection; the card allows 16-bit digital audio and simultaneous record and playback, and features a 20-voice polyphonic FM synth. The bad news? This offer is only good until the PC version of *Cubase VST* is launched, but if you're lucky enough to get your hands on one of these special packs, you'll get a free upgrade to *VST*.

A Harman Audio, Borehamwood Industrial Park, Rowley Lane, Borehamwood, Herts, WD6 5PZ.
T 0181 207 5050.
F 0181 207 4572.

SOS can be reached on CompuServe; our email address is 100517,1113.

Our full Internet address is 100517.1113@compuserve.com

The *SOS* web site is located at http://www.sospubs.co.uk



The eighth edition of Raper & Wayman's pro audio catalogue — their biggest ever — is now out. It's even more tightly packed with products aimed at recording studios, post-production suites, AV presenters, conferencing, PA and education.

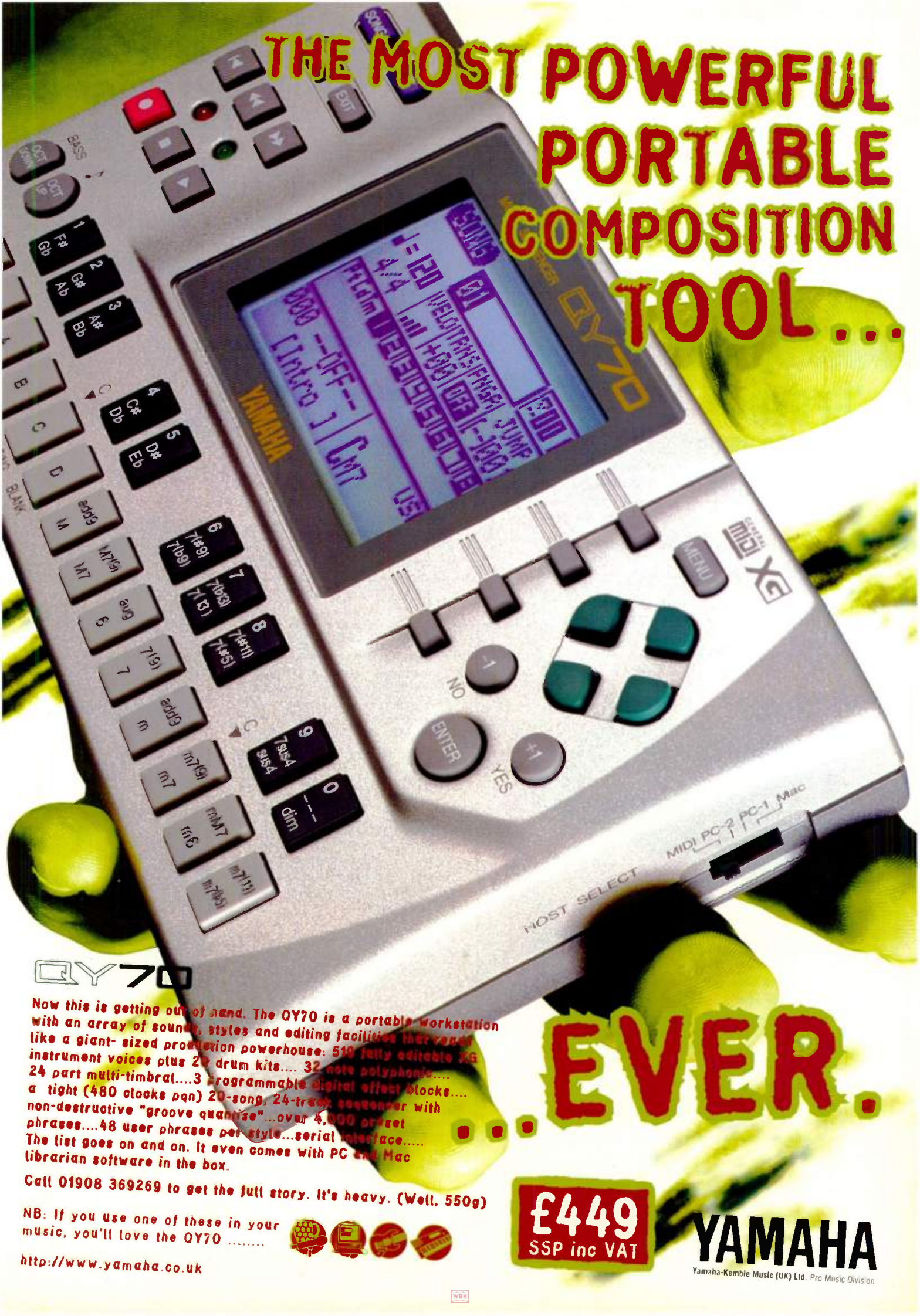
T 0181 800 8288.
E R+W.proaudio@dial.pipex.com

Global Distribution have dropped us a line to let us know that The Prodigy are now owners of the Syntecno TeeBee TB303 Bassline clone. The group have been using the TeeBee on their festival dates during the summer.

T 01788 584925.
W http://www.globaldistribution.com

Two new sound cards for Korg's Wavestation are now available from Sounds OK. Trancewaves Volume 1 contains a collection of wave sequences, while Volume 2 is a set of new sounds. Squelchy basses, lead sounds, sample-style synth and orchestral hits, plus dance effects and some wave sequences, are all included. Each card retails for £55, or you can buy the pair for £95, plus £2 postage.

T 01276 682313.
F 01276 682717.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shape of things to come

The bods at Hiltongrove.

'Grove on the move

Mastering and CD and cassette duplication specialists Hiltongrove have bought, and moved into, new premises. The new location has allowed the company to build three new studios, enlarge its offices and to introduce a reprographics and design studio — a fourth studio is due to be built in September. Recent purchases include a CEDAR De-Clicker and B&W 801 monitors (which allow monitoring down to 20Hz). The company works for a wide range of clients — individual artists and independent bands are as welcome as more high-profile customers. Recent work has been done for the likes of Warner Brothers, MCA/Universal, Virgin and BMG. Hiltongrove were also involved in the restoration, editing and re-mastering of 70 years of Russian archive recordings.

A The Hiltongrove Business Centre, Hatherley Mews, Walthamstow, London E17 4QP.
T 0181 521 2424.
F 0181 521 4343.

Soundtracs' Super 8

The RX8 is a new 8-buss mixer from Soundtracs. Due imminently, at a price of around £1200, the desk is aimed at both the studio and live sound reinforcement markets. Available in 24- or 32-input versions, each mono input of the RX8 offers 3-band, swept-mid EQ, switchable phantom power and balanced mic inputs, phase reverse, six auxiliary sends (pre- or post-fader), insert points, solo-in-place and mute buttons, and signal and peak LEDs. The desk can also handle two 2-track machines, provides a mono and a stereo monitor output and four stereo effects returns. A novel tape-normalling system allows the four aux returns to be used as eight tracks of off-tape monitoring, instantly switchable to eight normal mono inputs at mixdown.

A Soundtracs, Unit 21D, Blenheim Road, Longmead Industrial Estate, Epsom, Surrey KT19 9XN.
T 0181 388 5000.
F 0181 388 5050.
E sales@soundtracs.co.uk
W http://www.soundtracs.co.uk

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turnkey

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Turnkey have teamed up with some of the industry's leading manufacturers exhibiting at the PLASA show to bring you an incredible giveaway of over £10,000 worth of equipment!

Thirteen prizes mean thirteen winners, so you have a great chance of success! All you need to do is fill in the entry form opposite, to take part in the prize draw of the year, and what's more, if you come down to the show itself to enter, we'll give you two entries for the 'price' of one, and you get to take in all the latest gear in the flesh. Go ahead - what have you got to lose!

COMPETITION

COMPETITION ENTRY FORM

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Tel. No. ☐☐☐☐☐☐☐☐☐☐

Equipment spend per year £ ☐☐☐☐☐☐

Equipment magazines read:

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Order of preference of prizes (1-11):

1 AKG Drum Mic Set ☐
2 Fostex D5 DAT machine ☐
3 Fostex D80 HD recorder ☐
4 KAM GMX1 DJ mixer ☐
5 Roland VS880 ex HD recorder ☐
6 Samson Servo 170 amp ☐
7 Sennheiser 1051 Radio mic ☐
8 Soundcraft Spirit LX7 mixer ☐
9 Steinberg Cubase software ☐
10 Vestax MW3000 DJ mixer ☐
11 Yamaha AN1x synthesiser ☐

Send entry forms to Turnkey at the address below clearly marked "PLASA PRIZE DRAW", incomplete forms will not be entered, only one prize per person, photocopied or otherwise duplicated forms will be disqualified. PLASA exhibition is on 7th to 10th September at Earls Court. Room to be confirmed. Turnkey can be found on stand G35. Draw not open to employees of any participating companies, no purchase necessary. Draw will take place on 11th Sept, winners to be notified by post and prizes to be delivered within 28 days.

digidesign

ProTools Plug-ins

t.c. tools £775

Arguably the best reverb plug-in available, TC Tools uses algorithms developed from the M5000 mainframe reverb. Great user interface allows you to visualise the effects via the graphics, making it intuitive and easy to use.

Dolby Surround Tools £1339

Produce Dolby Surround mixes entirely within the ProTools environment. Both Encoder & Decoder Plug-ins are available as a bundle providing digital implementation of encoding/decoding process.

Focusrite D2 £880

Based on the famed Focusrite Red 2 Dual EQ designed by Rupert Neve, the D2 plug-in matches the high-quality expected from the company, even down to the brushed aluminium front panel.

Antares Auto-Tune £580

The plug-in that many professionals have but none will admit to it! AutoTune identifies the pitch of a signal and corrects it to a defined scale, retaining original quality, making intonation problems a thing of the past. Available as a TDM or VST plug-in.

ProTools v4.0 Package

- 7300/166 32/2.0CD & keyboard
- Apple 1705 17" MS Display
- ProTools Core & 882 Interface
- 2 Gbyte Approved HD
- Microsoft Office

NEW MAC **£7899** INCLUDING INSTALLATION £9281.33 INC.VAT

ProTools Project Package

- 7300/166 32/1.2/CD & Keyboard
- Apple 1705 17" MS Display
- 2 Gbyte Approved HD
- ProTools Project Core
- 882 I/O Interface
- Microsoft Office

NEW MAC **£4475** INCLUDING INSTALLATION £5258.13 INC.VAT

AudioMedia III Package

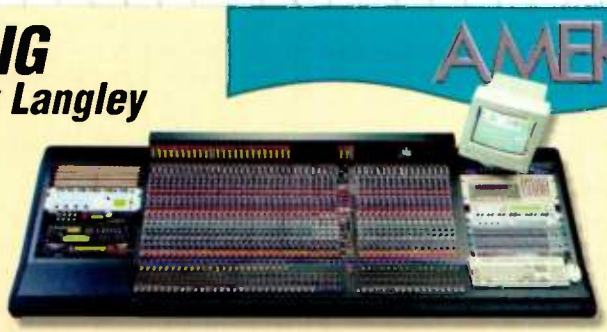
- Performa 6400/200 32/1.6/CD 28.8 modem & Keyboard
- Apple 15" AV MS Display
- AudioMedia III card
- ProTools PowerMix Software

NEW MAC **£1875** INCLUDING INSTALLATION £2203.13 INC.VAT

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

BIG by Langley

AMEK



- 4 band EQ, 8 Auxiliaries
- SuperTrue V3.1 VCA Automation
- Virtual Dynamics on-screen editing
- Unique Rupert Neve Voice Recall
- 12 bus, 24 output
- Frame sizes from 28 to 44 inputs

As Amek dealers we have on demonstration a fortyfour input Big by Langley console. The Big's SuperTrue Version 3.1 VCA automation compatible with all other Amek desks up to the flagship Neve 9098 series console. With the Virtual Dynamics on-screen processing plus Rupert Neve voice recall, this is a console that is packed with facilities, over and above what it offers as a fully featured inline console: 4 band EQ, 8 auxiliaries, 12 bus, 24 outputs available in frame sizes from 28 to 44 with or without bantam patchbay. ***Call for an appointment.***

GREAT VALUE **£POA**

9098 SERIES

EQ £1350

4 band equaliser and swept high and Low Pass filters. Outputs are transformer-balanced in classic Neve style. In addition to standard controls, the mid-bands include steep notch filters. The Sheen and Glow functions recreate the 'sound' of classic old Neve modules.

NEW DUAL COMPRESSOR £1879

Dual channel compressor/limiter based on Rupert Neve's much sought after 2254 unit of the 1970s. Digital control of the analog signal allows parameters to be set accurately and quickly. Unique 'Ambience' control suppresses introduction of unwanted reverb.

DUAL MICROPHONE AMPLIFIER £1175

2 separate channels each with Mic amp and DI inputs. Maximum gain range is 70dB with switched and fine gain control. High Pass Filter, Mute switch, Transparent LED meters, Phase switch and Phantom Power are standard. Stereo operation is possible and A+B and M/S (Mid/Side) decoding circuits with Width control are included.

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

*We will beat any genuine quote from a UK or European dealer at the time of order. We must be able to substantiate the quote and the goods must be available and in stock. Prices include 17.5% VAT except Digidesign bundles. Uk mainland carriage £9.99. Please allow 10 working days for cheque clearance. Errors & omissions excepted.

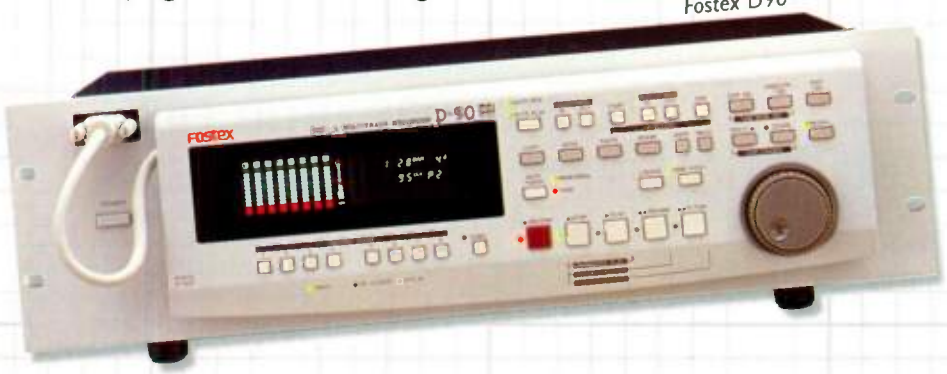
KORG ensoniq ALESIS Steinberg Technics Vestax FATAR

EUROPE'S LOWEST

FOSTEX AN R8 FOR THE 90'S!

Fostex's R8 analog multitrack recorder dominated the recording market for much of the late eighties and early nineties - now their digital equivalent has come of age, and what an age it is!

Fostex D90



The D90 is a 3U rackmount unit, with 8 individual in/outs and outputs, a removable front panel which doubles as a remote and meterbridge, and our offer includes a removable 1.3 gig hard drive. It slaves to MIDI Time Code with MIDI Machine Control commands, as well as being able to act as a master, and slaves to existing D80 or DMT8 / VL machines to form 16, 24 or more track setups.

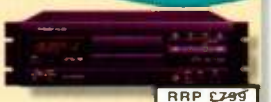
It does all this with no track loss, and not only has SPDIF digital ins and outs to allow backup to a standard DAT machine and direct digital recording, but also 8 channel digital i/o in ADAT format - integration with an existing ADAT system couldn't be simpler! Easy to use editing allows cut, copy and repeat pasting across multiple tracks, whilst virtual tracks allows you to record multiple takes for easy comparison. Options include a balanced analog i/o kit and SCSI interface for connection of high performance drives and high speed backup.

- *Full 8 Track Recording Plus Virtual Tracks*
- *ADAT Format I/O Built In*
- *Sample Accurate Synchronisation*
- *Optional SCSI & Balanced I/O Kits*

NEW PRODUCT **£1499**

INCLUDES 1.3Gb HARD DRIVE & 2 X 8-WAY LOOMS FREE

DA20 DAT MACHINE — TASCAM



If you need a 19" rack mount DAT machine, they don't come any cheaper than this! But that's not at the expense of a quality machine: reliable tray-loading mechanism, SCMS is switchable in or out, both analog and digital recording at all 3 sample rates and coaxial SPDIF in and out. High sound quality is guaranteed by 1-bit DAC playback, and there is a special 'Table-of-Contents' feature.

~~RRP £799~~ **£639**

DA30 MkII DAT RECORDER

Professional machines start here! Tascam's DA30 and it's current Mark II equivalent are probably the most commonly found machines in professional studios, and with good reason: they combine a range of pro features such as 44.1kHz recording, AES/EBU digi I/O, balanced analogue connections, and now a jog / shuttle wheel, with sturdy build quality and excellent reliability. Incredible new low price makes pro quality affordable!

~~RRP £1299~~ **£975**

102MkII & 202MkIII TAPE DECKS

Fantastic deals on Tascam's superb professional quality mastering cassette decks. Both are full 19" rackmount units, the 102 MkII is a single deck unit, the 202 MkII is a double deck, which records on both decks. Limited stocks only at these prices, ideal for mastering and duplication.

~~RRP £249~~ **£199**

~~RRP £349~~ **£269**

PCM-R500 DAT RECORDER — SONY

Sony lead the way in the DAT market once again with the new PCM-R500. A professional machine through and through, it features a four motor direct drive transport, jog shuttle wheel for fast precise transport control, balanced mic and outs, AES/EBU digital connections, and Sony's proprietary Super Bit Mapping system, to get the maximum possible quality out of the unit's ADCs. Unbeatable price only from Turnkey!

~~RRP £1175~~ **£999**

DTC-ZE700 DAT RECORDER

We have exclusively secured a small supply of the Sony DTCZE700 to bring you the cheapest full size DAT machine on the market, but this is not at the expense of features. SPDIF coaxial input and output in and out, digital and analog recording at all three sampling rates (32 kHz, 44.1 kHz, 48 kHz), as well as all the usual ID functions and a full function infra red remote control. Also features Sony's exclusive Super Bit Mapping technology for incredible recording quality. Another DAT exclusive from Turnkey!

~~RRP £729~~ **£499**

MDS-JE500 MINIDISC RECORDER

Although DCC looks to have died as a format now, Minidisc is thriving, and rapidly becoming a standard in radio stations and other institutions around the world. With sound quality almost as good as DAT, and a range of exciting features like Combine, Move, and Auto Cut, it makes an ideal choice for mastering on a budget. If MiniDisc is for you, there's no better value on the market than the MDS-JE500, with digital input, jog dial and full function remote control as standard.

~~RRP £389~~ **£269**

MZ-R30 PORTABLE MINIDISC RECORDER

Now available is this compact portable version of the MDS-JE500 as featured above. This must be the neatest walkman you've ever seen!

~~RRP £399~~ **£249**

THE UK 4 TRACK CENTRE

Our famous 4 track pack includes everything you need to start making music: Maxell headphones, a dynamic microphone, a chrome tape cassette, head cleaning kit and the best book we've yet seen on multitrack recording, taking you through basic track laying, mixdown etc... with sections on everything from mic placement to synchronisation and MIDI. We've obtained some great 4 track pricing and for a limited period, we will give you the 4 track pack (normal price £59.95) absolutely free when you purchase any of these multitrack recorders.

PORTASTUDIOS — TASCAM

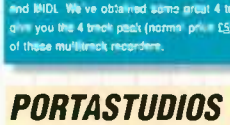
PORTA 03 MkII

New version of a classic portastudio. Improved styling and metering.

~~RRP £229~~ **£149**

ALL MULTITRACKS INC '4 TRACK PACK' ADD £10 FOR PORTA 03 MkII

414



All new Portastudio from Tascam! Records on all 4 tracks at once using DBX noise reduction. Double speed recording for better bandwidth. 3 band EQ, 4 aux inputs and full LED metering makes it great value for money. Includes free four track pack!

NEW **£349**

424 MkII

A brand new version of the best selling 424 from Tascam. Dimensions of the portastudio. Features include 3 band EQ with a mid sweep, records to all 4 tracks at once, 2 independent auxiliary sends (1 switchable pre/post fade). Logic controlled 2 speed transport with built in memory location points. DBX noise reduction, error suppress feature.

~~RRP £499~~ **£469**

ALL MULTITRACKS INC '4 TRACK PACK' ADD £10 FOR X-14 — FOSTEX

X-14

The ultimate introduction to multitrack recording ever! Built in mic for instant recording and straightforward operation means anyone can make a track without reference to the manual. Buy with our completely free track pack for only £10 more!

NEW PRODUCT **£149**

XR SERIES MULTITRACKS

XR3

High speed machine at £249! New auto-bounce facility and built in mic - ideal for 4 track recording on the move.

NEW **£249**

XR5

Stunning new flexible speed Fostex machine with individual EQ, up to 3 aux sends and 2 stereo returns, 2 inserts & 4 separate tape outs allowing the mix with an additional mixer.

~~RRP £420~~ **£335**

XR7

The XR7 breaks new ground in price and performance - 6 inputs (2 mics), 2 stereo aux returns, low/hi plus sweep mid EQ. Records up to 4 tracks at once - double speed transport, Dolby C.

~~RRP £499~~ **£449**

D5 DAT RECORDER

Exclusive actop purchase on a genuine professional machine brings quality within reach of the rest of us. Now that Sony's domestic machines are discontinued, this is one of the cheapest DATs around but just look at the spec list. 19" rackmount, 44.1 kHz analog recording, SCMS-free operation, error detection indicators, balanced ins and outs on XLRs, AES/EBU professional digital connections as well as all the usual DAT features from the makers of the industry standard D20B timecode machines. Huge reduction.

~~RRP £1299~~ **£769**

SV3800 INDUSTRY STANDARD DAT RECORDER — Panasonic

The Panasonic SV3700 has been the industry standard mastering DAT recorder, and is now superseded by the SV3800. Using 1 bit, 64x oversampling (equivalent to 20 bits), you can be sure of the highest possible sound quality. Records and plays back in all 3 sample rates via analog and digital inputs. Highly useable jog/shuttle wheel. AES/EBU and SPDIF digital connections, error checking and many other software features. In stock now!

~~RRP £1291~~ **£POA**

MT50 MULTI-TRACKER — YAMAHA

BOTH INC '4 TRACK PACK'

The MT50 can record on all four tracks simultaneously, and works at double the normal speed for improved frequency response and reduced wow and flutter. Each channel has it's own two band EQ, an auxiliary send for use with effects units, and DBX noise reduction is incorporated to help background noise to a minimum. A special 'sync' output bypasses this so is not to interfere with timecode!

~~RRP £389~~ **£279**

MT4X MULTI-TRACKER

The MT4X is Yamaha's top of the line machine and has a specification to go with it! It's logic controlled transport means that as well as two autolocate points and 'return to zero' function, you also get a special 'rehearsal' mode, so that you can practice dropping in and out as many times as you like, without risking erasing your precious recording! Other great features include three band EQ on each channel, two auxiliary sends, LCD mixer fig, double or single speed operation, and individual track outputs for use with an external mixer.

~~RRP £569~~ **£379**

**Offer will last only per one item per customer in a UK or European mailer at this level is limited. We would be able to substantiate the prices and the goods must be available and in stock. Prices include 17.5% VAT. UK mainland carriage £9.99. Please allow 10 working days for cheque clearance. Errors & omissions excepted.*

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PRICES GUARANTEED*

VIRTUAL STUDIO? VIRTUAL GIVEAWAY!

Roland

VS880 DIGITAL WORKSTATION

Roland's VS880 has become the de-facto standard for compact digital eight track recording, hardly surprising with it's combination of great sound quality, compact size, and excellent feature set.

Each of the 8 tracks has 8 virtual tracks, allowing you to record several different takes, and then compare them afterwards, even if you've already recorded on the other 7 tracks. The built in digital mixer can handle up to 14 channels, features 2 band parametric EQ, 1 external and 2 internal aux sends (to the optional FX board), and is fully automatable over MIDI. The SCSI port allows the connection of external SCSI devices for recording or backup, which can also be made to DAT via the digi i/o. There's not even any need for a separate synchroniser, as it puts out MTC as standard to sync up your sequencer.

New version 2 software not only allows automation data to be recorded directly to the hard drive for total integration, but also brings numerous new effects to the optional board, including COSM based mic emulation - make your SM58 sound like a U87! Existing owners can upgrade to version 2 for only £49.

To offer a completely integrated solution, we are bundling the VS880 with a 1.4 gig hard drive and mounting kit, and the FX board together. These would normally have a combined retail price of £2238, but for a limited period only all this can be yours for only £1849!

- Digital Mixer with Full Automation
- Totally Integrated Solution
- Built in MIDI Sync
- 64 Virtual Tracks
- Built in Effects

~~RRP £2238~~

£1649

INCLUDES 1.4Gb HD, MOUNTING KIT & FX BOARD

03D Digital Console

FREE TRIAL OFFER — YAMAHA

Like the 02R, the 03D is a fully-automated digital mixing console set to have a large impact on the mixing market. With 26-inputs & 18-outputs the console features fast 32-bit internal digital audio processing, versatile analog and digital I/O configuration, new 32-bit onboard multi-effects processors with freeze (sampling) and guitar amp simulation effects, motorised faders, fader and mute grouping, surround sound mixing, onboard automation, MIDI remote capabilities and much more. *Call now for a Turnkey Professional brochure and a free trial!*

~~RRP £2999~~

£POA

02R Digital Console

The fully digital 40 input 8 bus console with total automation and moving faders. 4 band parametric eq and dynamics for every input and 2 comprehensive on-board fx processors with a range of reverbs, delays and other standard fx. Optional interface cards allow full digital connection of ADAT, T-DIF and AES/EBU formats for integration of MTR and hard disk systems.

~~RRP £6999~~

£POA

PROMIX 01 Digital Mixer

STOP PRESS! NEW LOW PRICE ONLY AT TURNKEY

~~RRP £1999~~

£1499

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

DIGITAL PROBLEM SOLVERS

FRIEND-CHIP

In today's increasingly digital world, many people are still using their equipment's analogue ins and outs, because of the difficulty of interconnection and synchronisation. Friend Chip's new sensibly priced digital patchbays and 'black box' problem solvers end the misery and make the digital studio a reality! The DigiMax digital patchbay (£299) has 8 inputs and outputs (2 each on optical), can accept both AES/EBU and SPDIF signals, and is MIDI controllable. An XLR version (£499) is also available for greater AES/EBU reliability. The Audio Time Base (£499) is a 1u 19" rack which acts as a master clock source for your studio, outputting word clock, Digidesign Super Clock and SPDIF. The master clock can be internally generated, or a reference taken from mains, SPDIF word clock, Super Clock, video or LTC (SMPTE). Lockup from timecode is in around 1 second!

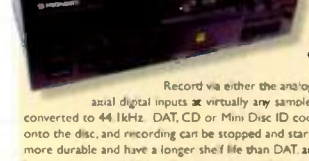
Also in the range:

OP-CON: optical to co-axial and vice versa	£69
PRO-CON: SPDIF to AES/EBU and vice versa with SCMS wrapping	£129
D 4-2 COPY CON: switcher with 1 optical & 3 coax ins, 2 coax outs and SCMS wrapping	£99
SR44.1: converts almost any incoming sample rate to 44.1kHz (ideal for ProMix01 and non 44 DATs)	£149
SRC/W: sample rate conversion to 32, 44.1, 48kHz, with built-in master/word word clock	£249
Super Clock Driver: converts DigiDesign superclock to word clock and vice versa, 3 outputs	£129
Silent Audio Clock: converts Super Clock to word clock and vice versa, with synchronous SPDIF	£129
ADAT Audio Clock: ADAT 9 Pin to word clock, Super Clock and SPDIF clock converter	£129
ADAT Word Clock Synchroniser: ADAT 9 Pin to word clock and Super Clock converter, also adds MTC (synchronise your sequencer) with TRIG mixing	£199
ADAT SPDIF Synchroniser: as above but with converts only to SPDIF	£199
ADAT MIDI Machine Control: MIDI to ADAT 9 Pin converter with MIDI thru (add to those of the above for full remote ADAT control from your sequencer)	£69
Rack: holds up to three 'black boxes'	£49

FROM **£69**

PDR-05 CD RECORDER

OVER 40% OFF PRICE — PIONEER



Why master to DAT when you can master to CD for the same price? For the price of a budget DAT machine, we bring you this Incredible deal on the Pioneer PDR-05.

Record via either the analogue inputs, or the optical or co-axial digital inputs at virtually any sample rate, and have it automatically converted to 44.1kHz. DAT, CD or Mini Disc ID codes are automatically translated onto the disc, and recording can be stopped and started on the same disc. CD's are more durable and have a longer shelf life than DAT, and you get all the advantages of instant access, and impressing your mates with your very own CD! Full function infra red remote control included, 74 minute media £9.99 each, or £85 for 10.

These will sell cut quickly - order now!

~~RRP £1399~~

£799

DD8 HD MULTI-TRACK RECORDER

NEW PRODUCT — AKAI

Akai's new DD8 records and/or plays back 8 tracks at a time directly onto hard drive, or internally 2.6 gig magneto optical discs. There is finally no lengthy backup at the end of a session, or reload at the beginning (of course you can still make a safety copy if you wish to). Sync multiple machines together, use it with the DL1500 remote for DD1500 style Note/View operation and editing, choose from a myriad of expansion options: T-DIF, ADAT, AES/EBU and analog I/O, digital EQ, Ethernet, SMPTE, MIDI 9 PIN and Biphase synchronisation - the list is endless!

Call for a Turnkey Professional Brochure and a free trial.

PRICES FROM **£3199**

DR-16 HD MULTI-TRACK RECORDER

First there was the DR4, then the DR8, and now Akai bring you 16 tracks of no-nonsense hard disk recording in a single box. 8 inputs and 16 individual outputs are provided making it perfectly suited for full blown multi-track recording. Amongst the options available is a video edition board to give a full colour display of all the tracks, which makes editing a breeze. Fly right from Turnkey and we will include a free 2 gig hard drive!

~~RRP £4199~~

£3599

INC FREE 2GIG HD

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

MULTITRACKS NEW, USED & EX DEMO

Akai DR4VR £699	Fostex XR3 ..... £189	Tascam DAP1 ..... £1227
Akai DR8 ..... £2599	Fostex XR5 ..... £289	Tascam 564 ..... £1099
Akai DR16 ..... £3995	Fostex XR7 ..... £369	Tascam Porta03 MK2 £159
Alesis ADATXT £1650	PanasonicSV3800 ... £895	Yamaha MT4X £349
Fostex D5 ..... £679	Sony MZR3 ..... £279	Yamaha MT50 ..... £249
Fostex D80 ..... £899	Tascam DA20 ..... £639	Yamaha MT8X £599
Fostex D90 ..... £1295	Tascam DA30MKII ... £965	
Fostex DMT8VL £899	Tascam DA88 ..... £1899	

D80 HD RECORDER

2 FREE LOOMS — Fostex

The D80 is a 3U rackmount unit, with 8 individual tracks, individual line outputs, a removable front panel doubles as a remote and memory edge, a removable 1.3 gig hard drive. Slave to MMC as well as being able to act as a master, all with no track loss, a true digital mix and outs to allow hookup to a standard DAT machine and direct digital recording. Easy to use editing menus on, easy and master facilities across multiple D80.

~~RRP £1499~~

£1249

NEW D90 only £1499 WITH ADAT I/O SCSI & BALANCED OPTIONS

DMT-8 VL DIGITAL MULTITRACKER

INC '4 TRACK' PACK & SM58 — Fostex

The personal digital multitrack is here at last, and at a price you won't believe! 8 separate tracks of CD quality audio recording/editing, hard-disk (up to 12 minutes). Record 2 tracks simultaneously (eg vocals, acoustic guitar) and punch in 'MIDI' without losing a track. The 8 balanced mixer accepts mic, line, with a 2 band EQ and 2 aux sends. Separate outputs and S/PDIF optical output. Also has 4 tracks when you don't need 8!!

INCLUDES FREE SM58 inc. ONLY AT TURNKEY

RRP **£999**

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Authorised Dealer Soundcraft DRAWMER MACKIE Roland SONY TASCAM Fostex

EUROPE'S LOWEST

ZOOM — A JOURNEY TO THE MOON!

Zoom is a Japanese company that was set up a few years ago by disgruntled staff from some of the major Japanese manufacturers. Their sole aim was to produce innovative new effects processors, that represent the best value for money on the market. Have they achieved that aim? We certainly think so!

1202 *TRUE STEREO FX PROCESSOR*

The 1202 is a full 19" rack unit, featuring true stereo 16 bit processing at 44.1kHz. The quality of the reverb alone would make it worth the price, but there's lots more: two simultaneous effects are offered, including delay, chorus, flanging, tremolo and pitch shifting, as well as various reverb types including reverse. If one of the 512 presets doesn't suit exactly then using the two parameter knobs will allow you to tweak the program until it does, and the addition of 2 band EQ will further tailor the sound to your mix.

~~RRP £149~~
£99

- *16 Bit 44.1kHz True Stereo FX Units*
- *Great Quality Reverb & Multi FX*
- *Vocoder Effect and Mic Input on 1204*
- *Over 500 Different Presets*

1204 *TRUE STEREO FX PROCESSOR*

The 1204 builds on the success of the 1202 by adding MIDI control, 100 extra user presets for storing your own edits, and a two digit LED display. On top of this, there is also a rotary speaker effect, and a vocoder - a front panel mic input is even provided for quick and easy setup.

Nothing else touches these units at the price - check one out today!

RRP
£199

INC FREE 10u DESKTOP RACK & 4x 3m JACK LEADS

dbx

1066 *DUAL COMPRESSOR LIMITER GATE*

DBX build on the success of their highly acclaimed dynamics processing range with the flexible new 1066. In addition to all the professional features expected from this respected brand, the 1066 offers switching between their patented "Overeasy" soft-knee and hard-knee modes, sidechain switching, ultra-low distortion "Peak Stop Plus" limiting and meticulous US hand-built quality. A/B this product at Turnkey to hear why DBX remains an industry standard in signal processing.

NEW BOXED
£479

266 *DUAL COMPRESSOR GATE*

Two channels of classic dbx compression with new Auto-Dynamic™ Attack and Release controls, programmable expander gates, balanced inputs, precision LED metering and sidechain insert. Front panel selection of stereo or dual mono operation, all in a standard 1U rack design. Entire dbx range on demo at Turnkey!

RRP £229
£199

286A *'CHANNEL STRIP'*

These days, in the age of MIDI and hard disc recording, most people tend to only record one audio track at a time, and have seen the value in investing in a good quality microphone. However, a mic is only as good as the circuitry you pass it through afterwards, and for some time, high end manufacturers have produced 'channel strip' style boxes which include all the essential acoustic recording processes in one device. Now the DBX 286A brings you a high quality mic pre amp, Over Easy compressor / de-esser, enhancer and expander / gate all in one device, offering you a premium quality signal path at a budget price. The ideal enhancement to any project studio!

RRP £229
£199

163A *COMPRESSOR/LIMITER*

Compressors and de-essers are an essential part of the recording process, but the plethora of controls that many of them are fitted with can often lead to confusion and ending up with a worse result than you started with. The DBX 163A and 263A are designed to give you high quality results, with total simplicity - a single control gives you 'more' or 'less', and the rest is all taken care of for you. The units are also ideal for portastudio and budget mixer owners, as they sport a front panel mic input, so no insert points are required. Buy one of each and get a free universal rack tray. Limited stocks only - order now to avoid disappointment!

~~RRP £169~~
£99

263A *DE-ESSER/COMPRESSOR*

~~RRP £169~~
£99

BUY THE 163A & 263A AND GET A FREE UNIVERSAL RACK TRAY

VTP-1 *DIGITAL MIC PRE*

The all new 2 channel VTP1 tube mic amp / EQ looks set to take the market by storm. It combines four bands of semi parametric EQ with a high definition mic amp based around a proprietary valve design. Phase reverse, high pass filter, 20dB pad (line inputs also available) and 48v phantom power are provided, together with high quality balanced analog outputs, and AES/EBU and SPDIF outputs at 44.1 or 48 kHz. Ideal front end for any digital system.

NEW BOXED
£999

VCS1 *COMPRESSOR*

The VCS1 is brimming with innovation and quality, and brings you a sensibly priced dual channel valve dynamics processor with plenty of useful features. The compressor has the usual envelope, threshold and ratio controls, but is also switchable between hard and soft knee compression, and has an auto mode for ease of use. There are also separate gate and limiter sections, to give highly detailed signal control. Valve gain is variable to give a range of sound from subtle colouring through to controlled distortion. Call for more info.

NEW PRODUCT
£799

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

XR300 *SYNCHRONISER* — **TURNKEY EXCLUSIVE**

Long the synchroniser of choice in professional studios, we now exclusively bring you this industry standard unit at an unheard-of price. Features include true SMPTE as well as standard tempo-based MIDI clocks (Song Pointers or MTC for compatibility with all MIDI sequencers. Large LED time-code display. Merged MIDI input. Straightforward operating system. Full 19" rack unit.

RRP £299
£169

G4 *ROTARY SPEAKER SIMULATOR* — **OVER 65% REDUCTION IN PRICE**

Ever wondered why you can't quite get your organ sounds to sound like a real Hammond? That's because half the secret of the sound lay in the special rotating Leslie speakers used to give the characteristic vibrato effect. The G4 allows you to control acceleration, speed, rotor / horn balance, and even mic placement, giving a superb reproduction, complete with overdrive. Loads of creative uses including loop processing, guitars etc. as well as organs.

This incredible end of line clearance deal with a 65% reduction means they will sell out fast. Buy now to avoid disappointment!

~~RRP £369~~
£129

STUDIO QUAD *4 CH. STUDIO FX PROCESSOR*

At last - "Multi effects as they should be" The new Digitech Studio Quad features not only their custom designed and ultra-powerful 'S-DISC' chip, but also 4 independent inputs and outputs, which using the built-in sub-mixer, can be configured as 4 mono ins feeding 4 effects processors, feeding 4 stereo outputs. Huge screen, and new intuitive operating system make editing a breeze. 20 bit converters give greater than 90 dB signal to noise ratio. Effects include reverbs, delays, detuning, chorus, flanging etc ... Hundreds of other features too numerous to mention.

RRP £529
£POA

STEREO VITALIZER *ENHANCER/EXCITER PROCESSOR*

The Vitalizer is the Rolls Royce of enhancer / exciter processors. Using a significantly different process to other such products, the effect deals with the full frequency range and is substantially smoother and richer. Also included is a "surround" effect which varies the width of the stereo field. massive bulk purchase allows this unbelievable price - check one out now - we guarantee you'll be impressed.

RRP £569
£299

G5 *SYNTH BASS PROCESSOR* — **OVER 70% REDUCTION IN PRICE**

The amazing G5 gives you instant access to all those classic analogue synth sounds also giving you the ability to create your own sounds from it's large tonal palette. Using special waveform characteristics it will also become a distortion/fuzz, octave divider or auto wah - making the G5 the most useable bass processor ever!

This incredible end of line clearance deal with over an 70% reduction means they will sell out fast. Buy now to avoid disappointment!

~~RRP £349~~
£89

PCP330 *VOCODER*

Freeform Analog Technologies FreeBass is already one of the most successful sound modules of the year, and now following hot on its heals comes the PCP330 Procoder.

One of the most asked questions in the industry must be "Why doesn't anyone make a vocoder anymore?" - well here it is, with a fantastic feature list, great sound quality and a down to earth price. The carrier can be either an internal VCO or external line input, whilst both line and mic inputs are given for the modulator signal. Eleven filter bands each have their own level knob on the front panel giving true hands on control of your sound, and the sibilance (unvoiced) control also has an external input if required. The final output can contain any mix of modulator, carrier, vocoded signal and a special filtered version of the signal.

Remember, this doesn't only create robot voices, there are thousands of creative uses, and it's also ideal for processing drum loops.

Order now and own an instant classic!

NEW PRODUCT
£299

MIDIVERB 4 *PRO QUALITY FX UNIT*

The MidiVerb 4's excellent Alesis effects algorithms produce dense, natural Reverberations, rich Chorus and Flange, Delay and Pitch effects that are designed for professional use. There are thirty-two effects algorithms, and 128 Preset and 128 User Programs to choose from. Large backlit LCD, online help, MIDI controller routing and programmable footswitch give you complete creative control. Choose £50 worth of cables absolutely free - only at Turnkey!

RRP £329
£289

INC £50 WORTH OF CABLES FREE

COMPOSER *WORKHORSE COMPRESSOR*

A natural sounding and fully featured compressor at a give away price!

Built-in gate removes any unwanted noise, soft-knee action makes compression much less obtrusive, "auto" mode makes quick setup a doddle and side-chain access means it can also be used for de-essing etc.

~~RRP £349~~
£199

We will beat any genuine quote from a UK or European dealer at the time of order. We must be able to substantiate the quote and the goods must be available and in stock. Prices include 17.5% VAT. UK mainland carriage £9.99. Please allow 10 working days for cheque clearance. Errors & omissions excepted.

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Fax: 0171 379 0093 114 Charing Cross Road London WC2H 0DT E-mail: sales@turnkey.demon.co.uk Web site: http://www.turnkey.uk.com

PRICES GUARANTEED*

Bellari

PREMIUM QUALITY VALVE OUTBOARD EQUIPMENT

If you've previously used valve equipment, you'll be well aware of the magical quality that tube circuitry produces, and if you haven't used it - try it now! Many manufacturers use the word valve as an excuse to charge exorbitant prices for their product, but not Bellari, and our factory direct exclusive makes the range unbelievable value for money!

The RP583 Studio Tube Compressor / Limiter

has become an instant hit, offering as it does two channels (stereo linkable) of some of the finest sounding compression money can buy, with a smooth and natural compression characteristic. Ratio is continuously variable from 2:1 to infinity, and there are separate controls for attack, release, threshold and make-up gain. Dual VU metering is provided, as well as jack and balanced XLR ins and outs, and sidechain access is fully catered for. Ideal for a variety of instruments, vocals and complete mixes.

NEW PRODUCT **£499** FACTORY DIRECT

RP533 Studio Tube Multi-Processor

Whilst mixers these days are of a better quality than they used to be, to get the best possible signal to tape or disk, you can't beat a dedicated unit - and for value for money, you can't beat the Bellari RP533 Studio Tube Multi-Processor. The all tube 2u box, features a premium quality transformer balanced mic pre amp with switchable 30dB pad, phase reverse and true 48V phantom power. The compressor has all the features of the RP583, and the exciter section adds a wonderful sheen to virtually any sound, as well as beefing up the bottom end. Each stage has it's own bypass switch, sidechain access is provided, and the large VU meter can monitor input, output, or gain reduction. No serious recordist should be without one!

NEW PRODUCT **£499** FACTORY DIRECT

RP520 Studio Mic Pre Amp

A true dual tube mic pre amp at a bargain price, with tubes used at all the crucial gain stages, not just strapped across the outputs. Features include phase reverse, input and output pads, separate gain and output level controls, true 48v phantom power, jack and XLR ouputs and dual VU meters. Bypass you desks mic amps and feel the quality!

NEW PRODUCT **£399** FACTORY DIRECT

RP562 Stereo Exciter

Traditional exciters usually do a good job of brightening up the extreme top end, but can often leave you with a rather harsh signal lower down. The incredible warmth of the Bellari Sonic Exciter ends all that, providing a sparkling top end with no harshness, and a huge bottom end to boot. The stereo unit has both Jack and XLR connectors, dual VU meters, and even a separate subwoofer output with it's own cutoff and level controls. Superb sound quality at a fraction of the price of similar devices.

NEW PRODUCT **£299** FACTORY DIRECT

ADB3 Stereo Direct Box

Stand alone 2 channel tube DI box.

NEW PRODUCT **£129**

MP110 Direct Drive Mic Pre Amp

Stand alone single channel tube mic pre amp.

NEW PRODUCT **£169**

GREEN RANGE

Focusrite

Focusrite have long represented the pinnacle of audio achievement, but sadly their products have always been out of reach for most of us. Now, specifically with the high quality project studio in mind, they have designed the Green range of processors. The first 5 products are:

RRP **£819** DUAL MIC PRE

The Focus - 4 band parametric EQ with filters.

RRP ~~£939~~ **£799** FOCUS EQ

The Dual Mic Pre - an audiophile quality dual channel mic preamp.

The Voicebox - this combines a mic/instrument preamp, compressor, de-esser and parametric EQ in a single unit - the ultimate signal path for digital recording!

RRP **£989** VOICE-BOX

The Compressor - highly versatile compressor with hard & soft knee types, separate limiter and gate and built-in sidechain filters.

RRP **£1049** COM-PRESSOR

The Channel Strip - similar to the Voicebox, but also featuring line level inputs and extra EQ.

RRP **£1129** CHANNEL STRIP

All 5 are on permanent demo at Turnkey.

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

EQ1

Parametric EQ

TL Audio

TLA's range of outboard must be the best selling valve gear ever! Their classic warm valve sound, combined with the low noise floor that modern digital recording demands have made them a huge success story. Our tremendous buying power now allows us to offer the superb EQ1 at this incredible price. The EQ1 is a dual 4 band (or single channel 8 band) parametric EQ - a high performance transformerless pre amp is followed by four valve stages per channel, which provide a fine and gradual overdrive characteristic, and a frequency response which is virtually flat from 20Hz to 40kHz. Limited quantities only at this price!

RRP ~~£821~~ **£499**

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

PME4

BUY A PAIR FOR ONLY £149

PARAMETRIC EQ

PEMEY

Mist on the heels of last month's hugely successful PME8 deal, an opportunity to obtain the single channel version of the same, for a fraction of it's original price. The PME4 is a 1U rack featuring a single channel of fully parametric (cut/boost, frequency and 'Q') 4 band EQ, clearly laid out, and each control with its own knob. A second output is also provided with a 40Hz high pass filter for removing unwanted rumble etc.

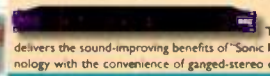
Very limited stocks - first come, first served!

RRP ~~£189~~ **£79**

362

SONIC MAXIMIZER

BBE



The 362 series delivers the sound-improving benefits of "Sonic Maximizer" technology with the convenience of ganged-stereo operation.

RRP ~~£189~~ **£149**

362NR SONIC MAXIMIZER & NOISE REDUCTION only £179

362SW SONIC MAXIMIZER & SUB WOOFER CONTROL only £169

MPX 1

lexicon

For those of us who need top quality reverb & multi FX but cannot stretch to the expense of the PCM80 & PCM90, Lexicon have released the MPX-1. Featuring the famous 'Lex' chip for reverb and separate DSP processor for multi FX, the MPX-1 brings you all that is good in signal processing for under £1200 inc VAT! Up to 5 simultaneous effects are available including pristine quality stereo pitch shifting, and effects can be "morphed" from one algorithm to another, as pioneered in the Vortex. All new operating system includes on-line help and database for sorting presets. Achieving quality results is as stress free as possible.

RRP ~~£1199~~ **£999**

4 POLE

FILTER

waldorf

The 4 Pole is the legendary Microwave / Wave 24 dB lowpass filter. You are free to apply this filter to any audio signal that you patch into the Filter. So if your favourite sampler or sample player lacks that special quality, you can give it a sonic boost via the 4 Pole Filter.

It is the most powerful (and quite possibly the only) analog filter available today!

NEW BOXED **£269**

MODEL 316

SEMI-PARAMETRIC EQ

spectral electronics

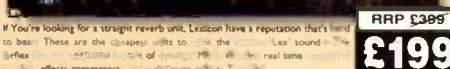
Spectral Electronics are perhaps better known for their ultra high quality broadcast mixers.

The Model 316 is a 3U rack offering 16 channels of 3 band semi-parametric EQ and was originally designed for their high end sub mixer the Xtramix CX. Each band features up to 15dBs of boosts or cut and frequencies of 50Hz-500Hz (low), 500Hz-5kHz (mid), and 5kH-15kHz (high). This is a unique opportunity to upgrade the EQ on your mixer to a standard that is not fitted on many professional consoles, or add EQ to mix-filter sections of inline desks.

RRP ~~£789~~ **£349**

ALEX

EFFECTS PROCESSOR



If You're looking for a straight reverb unit, Lexicon have a reputation that's hard to beat. These are the cheapest units to offer the 'Lex' sound. The Reflex [illegible] of dynamic [illegible] real time [illegible] effects parameters [illegible] discount only at Turnkey.

RRP ~~£309~~ **£199**

REFLEX ALSO AVAILABLE WITH MIDI CONTROL only £299

X POLE

FILTER

Where do you get if you take two of Waldorf's 4 pole filters, put them in a rack and spice it up? The all new X-Pole! Maximising all of the 4 Pole's great sound, MIDI and tactile controllability, the X Pole allows you to treat two mono signals independently, or the two channels can be linked together for a stereo signal. 2u rack design makes for easy integration into your studio. Fatten up your sound today - your loops need never be the same again!

NEW PRODUCT **£439**

OUTBOARD NEW, USED & EX DEMO

Alesis 3630 ..... £169	APHEX-105 ..... £199	Lexicon ALEX £169
Alesis MEQ230 ... £34233	Behringer Composer £139	Lexicon MPX1 ..... £869
Alesis MICROVERB4 £179	Behringer Dualfex .. £119	Lexicon REFLEX ... £339
Alesis MIDIVERB4 .. £269	Behringer Ultrafex .. £189	PHONIC PCL3200... £169
Alesis Nanoverb.... £145	BOSS GX700 ..... £369	TC Final £1395
Alesis QUAD2..... £599	BOSS SX700 ..... £359	TC M2000 ..... £1095
APHEX-104..... £199	Drawmer 1961 ..... £975	Yamaha REV500.... £349

SRV-330

REVERB UNIT

UNDER HALF PRICE

Roland

This incredible unit from Roland uses the technology developed for their £24 000 RSS system. As well as being an ultra high quality reverb unit (30bit processing is employed!), the 3D technology allows early reflections to be realistically placed and surround you in a 360 degree circle. Full MIDI control, true stereo processing, +4/-20 dB ins & outs, a wealth of editing facilities and exceptionally quiet performance make this an unmissable buy. ***Very limited quantities at this bargain price!***

RRP ~~£869~~ **£429**

[illegible] genuine spec from a US or European dealer at the time of order. We must be able to [illegible] and the goods must be available and in [illegible] Prices exclude 17.5% VAT. UK mainland carriage £9.99. Please allow 10 working days for cheque clearance. Errors & omissions excepted.

EUROPE'S LOWEST

turtle beach — A DIGITAL HURRICANE IN YOUR PC?

99% of available sound cards use the old-fashioned "DMA" system of recording audio in order to be compatible with Soundblaster games. With the Pinnacle and Fiji, Turtle Beach abandoned this system in favour of their proprietory Hurricane architecture. Basically, it gives you more tracks than DMA on the same PC hardware, and leads to less driver conflicts.

FREE DIGITAL ORCHESTRATOR PLUS WITH PINNACLE (WORTH £129)

The Turtle Beach Multisound series has long been considered the "Rolls Royce" of sound cards, from the very first Multisound in 1993, through to the highly respected Tahiti card, and now - the Multisound Pinnacle.

The audio quality of the Pinnacle is beyond reproach, based around a Motorola DSP with 20bit convertors on both record and playback, 64x oversampling, and Delta/Sigma convertors. An on-board Kurzweil chip provides a top-quality set of synth sounds, which can be augmented with your own samples which can be mapped to a MIDI keyboard via the SampleStore™ control panel. (Up to 48 Meg of samples can be loaded, depending on the size of SIMMs fitted). Create your own drum-kits, mix in break-beats sampled from CD etc... etc...

Other upgrade options include a synth daughter-board (eg DB50XG), cable for MIDI interface, and S/PDIF daughter board allowing direct digital transfer to/from DAT, CD player, MiniDisk etc... (£99 for either card). The Pinnacle is bundled with Voyetra's D.O.P. sequencer which gives up to 16 audio tracks with digital effects (eg reverb, delay....) depending on hardware specification.

- 20 BIT DAC / ADC
- Enhanced or Std Duplex
- Sample Store (up to 48 Meg)
- Kurzweil Wavetable Synth
- WaveBlaster™ Connector (for DB50)
- Optional S/PDIF Daughterboard

PINNACLE
£449
INC. FREE DIGITAL ORCHESTRATOR PLUS

FIJI
£349
A PINNACLE BUT WITHOUT SYNTH & SAMPLESTORE

CAKEWALK PRO 6 **£149** WHEN PURCHASED WITH FIJI OR PINNACLE

LOGIC AUDIO **£349** WHEN PURCHASED WITH FIJI OR PINNACLE

CUBASE version 3.0 **£249** WHEN PURCHASED WITH FIJI OR PINNACLE

TURNKEY PENTIUM PC

Ringing round for the cheapest Pentium? Well you might be letting yourself in for substandard motherboards, dodgy BIOS, non-Intel chips. Leave your fears of frustration behind with a Turnkey-brand proven audio-ready PC built with carefully selected components. We don't just supply whatever's cheapest and hope for the best!

Turnkey PC + M-Dimian DMan + Digital Orch	£1,369
Turnkey PC + Pinnacle + Digital Orch	£1,695
Turnkey PC + Fiji+ Cubase 3.0	£1,699
Turnkey PC + Pinnacle + Cubase 3.0	£1,849
Turnkey PC + Audiowerk 8 + Logic Audio	£2,049

SUPERB VALUE PC STARTER SETUP! RRP ~~£1695~~ **£1199**

Intel Pentium 166 MMX mmx processor, 512k cache, 16 Mb RAM, 1Gb HD, 12x speed CD, 14" SVGA display, Windows95, keyboard & mouse, Cubase 3 (free upgrade to VST), 16 bit full duplex and Yamaha SW60 soundcards & MIDI interface

Ask about upgrades to Pentium mmx chip, 15" and 17" displays, SCSI cards and CD-R drives

ZIP REMOVABLE DRIVE

INC DISK & 25 PIN SCSI CABLE — iomega

There was a time when hard disks were a luxury for sampler owners, but with the advent of the ultra cheap Iomega Zip Drive, this has become a thing of the past. For under £150 the Zip drive stores 100Mb (94Mb formatted) on each cartridge. A must for anyone with more than 2 meg of RAM!

RRP ~~£219~~ **£149**

SIBELIUS-7 TOP-END NOTATION V3.0

Sibelius

Why do so many music academies use a program which doesn't work on the PC or Mac? Because for professional notation type-setting, nothing else comes close. "In a totally different league from anything else" - Paul Patterson, Royal Academy of Music, Future Music Platinum award.

We are now an Acorn Authorised Dealer, we stock and demonstrate the exciting new RiscPC computer, running RiscOS 3 powered by the 200 MHz ARM Processor, and with optional 486 or 586 board for running Microsoft Windows software.

Call Geoff for DEMO. One to one tuition also available upon request.

FROM ONLY **£499**

MUSICTIME NOTATION ARRANGER

PASSPORT

Music Time has been our best selling music package for 4 years. Based around the industry leading Encore software (as used by Disney and many film & TV producers), it allows you to perform all editing functions without leaving the notation environment, making it simple and clear to use, especially for people with some classical music training.

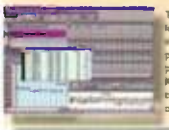
RRP ~~£99~~ **£79**

With Music Time Deluxe you get both CD-ROM and floppy versions in the box, and many more features including part extraction, cross-staff beaming, context playback of complex repeats (DC, Coda etc), and automatic part extraction. Also included is a free Soundblaster™ type MIDI interface cable.

NEW DELUXE VERSION RRP £129 **£99**

CAKEWALK v6.0 GREAT NEW VERSION IN STOCK

CAKEWALK



The top US sequencer races ahead with new version packed with killer features - 10 or more audio tracks (processor dependant), Realtime effects (reverb, flange, EQ, chorus, delay, up to 4 at once). Time compress/expand, pitch-to-midi conversion, support for Microsoft DirectX Audio Plug-ins (eg KS Waves). CW Pro 6 can completely control a VS880, ProMix01 or Mackie1604vlz64, or you can design your own mixer screens.

RRP £349 **£329**

16 BIT DUPLEX DIGITAL AUDIO RECORDING

midiman

This 16 bit card has much lower noise levels than similarly priced cards, and allows full duplex recording on two 486 or Pentium computers. Ideal with Cubase 3.0, Digital Orchestrator, Sound Studio Gold etc... Built-in MIDI interface (cable included in the price), and connector for optional synthesiser daughterboard.

Really really easy installation with Win95 (Plug 'n' Play). After putting the card in, switch the PC on, and insert the disk when prompted. Takes about 90 seconds! (a bit longer if you already have a sound card). Buy with Cubase - £399, with Digital Orchestr. - £275

RRP £249 **£189**

BAND-IN-A-BOX INTELLIGENT ARRANGER v7.0

PG music

Tired of starting each song with a 'Basic Beat'? Band-in-a-Box is the worlds leading intelligent arrangement software. Combine your chord list with built in styles, or create your own. NEW VERSION now includes full GS / XG compatibility, as well as 'Auto Soloing' which has to be heard to be believed. Notation / Lyrics display during playback. Can import music into Cubase.

FOR PC, MAC (v6.0), & ATARI (v5.0)

#1 SELLER **£89**

SOUND STUDIO GOLD AUDIO SEQUENCER + EFFECTS

Evolution

At £149, Sound Studio Gold is the **cheapest** hard-disk recording sequencer with real-time digital effects. Based on the popular "Sonicstorm" digital audio engine, Sound Studio Gold adds reverbs, echos and other realtime effects, plus a host of useful features like loop-in-record, AVI support for Video playback, and notation printout. Features: 16 Audio Tracks (mono or stereo) • Audio Record while playback • Audio Track bouncing • Realtime Reverb/Echo/Volume/Panning • 256 MIDI Tracks • Large Time display • AVI Support • Left and Right Master Level faders • VU meters for audio input/record

NEW ONLY **£149**

2 EXCITING NEW SOUND CARDS FROM MIDIMAN

We've found the MIDIMan DMan (above) to be an excellent choice for musicians - no tinny FM synth, MIDI cable included, no mickey mouse software etc... Having captured this area of the market, MIDIMan now aim to move upmarket, with two exciting new sound cards for professional audio applications:

DMAN 2044 - PCI card provides 4 audio ins and 4 (surround) outs (8 on separate FireWire jack plugs (NOT stereo mini-jacks!) 20 bit, 128x oversampling, onboard DSP + software synth with effects, full duplex recording and monitoring, built-in MIDI interface. Comes with Windows95 drivers for all audio software.

DIO card - Not just S/PDIF (on RCA) but AES/EBU (on XLR) interfaces. Use either digital input as "word-clock" to synchronise the digital outputs. Onboard DSP allows use or "processor challenged" systems, and permits future software upgrades.

IDEAL FOR MUSICIANS WITH DAT MACHINES

BOTH ARE **£299**

CUBASE INC FREE MIDI INTERFACE — Steinberg

CUBASE 3.0 PC The industry standard MIDI sequencer is now even better value than ever! Version 3 now includes hard disk recording facilities that work with virtually any soundcard!

Get £50 off Score version at only £449

Free upgrade to VST PC version when available

CUBASE VST MAC As well as all the great sequencing and audio recording facilities you've come to expect from Cubase, Power PC owners can now take advantage of up to 32 audio tracks, complete with built in digital EQ, DSP, reverb and FX! ***Get £50 off Score version at only £449***

EACH **£329**

MIDIQUEST 6.0 UNIVERSAL PC EDITOR LIBRARIAN

Sound Quest

MIDIQuest is the most powerful, flexible and comprehensive editor librarian around, with support for the widest range of MIDI devices including: YPSR, TYR1080 series, Morpheus / UltraProteus, MU50, MU80, Quadraverb Plus / GT, Classic Keys, TD-7, KT76 / KT88, Korg X5, DPM3 and many others. Driver upgrades are generally free of charge, so MIDI Quest will last for as long as MIDI is around! It's a really good investment. New version comes on CD-ROM and is fully Windows 95 native (ie 32 bit).

RRP £235 **£199**

MIDI INTERFACES FOR PC COMPATIBLES

INTERFACES

Gameport Cable	fits any Soundblaster™ type card	£25
MIDI Link	1 in, 1 out serial interface for notebooks	£69
MPC401-II	1 in, 1 out MIDI card with Wavblaster	£65
Winman 1x1	Works easily with your existing sound card	£59
Winman 2x2	2 in, 2 out MIDI card for Win/own only	£79
Portman 2x4	2 in, 4 out parallel interface for notebooks	£119
MIDI Edge 1x4	1 in, 4 out MIDI card with Wavblaster	£129
WinMan 4x4s	4 in, 4 out MIDI / SMPTE card for Windows	£219
PortMan 4x4s	4 in, 4 out MIDI / SMPTE box for laptops	£219
PortMan 4x4s	as WinMan4x4s except for Parallel port	£219

REBIRTH RB-338 SOFTWARE SYNTHESISER

If you're into techno, trance, ambient, hardcore - you simply must have the sound of a 303 in your arsenal of sonic weapons. As it's been out of production for well over a decade, those still in existence are collector's items. They'll cost you an arm and a leg, which has opened a market for clone products. The Rebirth RB-338 is a CD-ROM which gives you two 303s and one 808 - a software recreation of these two classic pieces of analog hardware. All the quirks and subtle qualities of the real thing are there, with full MIDI and sync capabilities. No cables, no boxes... all you need is a Mac or a PC.

NEW PRODUCT **£149**

We will beat any genuine quote from a UK or European dealer at the time of order. We must be able to supply the item, and the ... must be available and in stock. Prices inc. ... 17.5% VAT. UK mainland carriage £9.99. Please allow 10 working days for cheque clearance. ... & ... welcome.

PRICES GUARANTEED*

emagic

Audiowerk8

HARD DISK RECORDING BREAK-THROUGH

- 2 Ins, 8 Outs and Digital I/O on 1 Card
- Use 2 Cards in the Same Computer
- Optional Multichannel Digital Interfaces
- Comes with VMR Software Bundled Free

NEW PRODUCT **£499**

Every now and again products like Tascam's first portastudio and the Alesis ADAT come along and revolutionise the recording market. Emagic's new Audiowerk 8 is now set to bring multichannel computer hard disk recording within reach of everyone.

For an incredible £499 including VAT, you can now buy a PCI card for Mac or PC, which gives 2 analog inputs, 8 analog outputs, and SPDIF digi I/O as standard! You even get Emagic's new Virtual Multitrack Recorder software thrown in!

Virtual Multitrack Recorder

The bundled VMR software gives a clear virtual representation of an 8 track tape recorder, making operation incredibly straightforward. Multiple takes can be recorded per drop, and your favourite version selected afterwards. The large smooth scrolling waveform display makes editing a doddle!

This is just the start of the good news though - the Audiowerk 8 integrates seamlessly with Logic Audio on either platform, you can use 2 cards in the same computer to give 24 track recording with 16 outputs, and a daughter board socket will allow future options like an ADAT 8 channel optical digital i/o, or 4 extra stereo SPDIF outs! The card is only 7" long, so it fits in virtually any machine, and uses state of the art bitstream convertors for pristine sound quality. The card is on permanent demonstration in our exclusive Emagic PC. Call us now!

NEW PRODUCT **£869** INC LOGIC AUDIO PC

NEW PRODUCT **£1049** INC LOGIC AUDIO MAC

S3200XL STUDIO SAMPLER

INC FREE ZIP DRIVE & EXTRA 16 MEG — AKAI

Akai's flagship sampler is now the industry standard amongst top flite MIDI studios. The 3U rackmount machine features 32 note polyphony, 10 outputs, 16 meg expandable to 32 with SIMMS, SCSI, SMPTE, digital i/o, on board FX, and powerful multimode filtering.MESA editing software, and a range of expansion options. Buy from us and get an extra 16 meg and a ZIP drive free!

RRP ~~£3297~~ **£2699**

S3000XL WORKHORSE SAMPLER

INC FREE ZIP DRIVE & 16 MEG

Akai continues it's tradition of supplying workhorse samplers to the studio market with this sturdy offering. The compact 2U rackmount machine features 32 note polyphony, 10 outputs, 2 meg expandable to 32 with SIMMS, SCSI as standard, MESA editing software, and a whole range of expansion abilities including digital i/o and an extra filter board. Buy from us and get 16 meg and a ZIP drive free!

RRP **£1799**

S2000 SAMPLER

Akai's entry level studio sampler, the S2000 doesn't skimp on features. 32 note polyphony, low pass resonant filters, 2 meg RAM expandable to 32 meg, optional 8 output board and quad FX board. Comes bundled free with MESA software to allow full graphic editing from your computer.

~~£1499~~ **£1199**

RRP ~~£999~~ **£849**

We endeavour to keep all AKAI expansion boards in stock at all times, including those for the more obscure and discontinued models. Here are some examples of ways to get the maximum out of your sampler or hard disk recorder:

IB208P	8 outputs & digi i/o for S2000	£399
IB304F	2nd filter board for S2000/S3000XL	£349
EB16	multi FX board for S2000/S3000XL	
EXM3008	8 meg expansion for S2800/S3000/S3200/CD1000	£549
EXM008	8 meg expansion for S1000/1100	£499
IBM208P	8 outputs & digi i/o for MPC2000	£249
IB807V	monitor output board for DR8/DR16	£499
IB804AEX	8 in 16 out ADAT interface for DR16	£399
IB803M	MIDI interface for DR8/DR16/DD8	£199
IB802T	SMPTE board for DR8/DR16/DD8	£249

S20 SAMPLER

All new sampler from the makers of the industry standard, the S20 brings quality sampling to a new affordable level. 16 bit sampling gives great quality, and the standard 1 meg memory is expandable to 17 meg, giving up to 18 minutes sampling time depending on the sample rate used. Built in sequencer means you can build up grooves without the use of a computer, and the special auto loop tempo mode makes BPM calculation a doddle. The 1.44 meg disk drive reads floppies from virtually all Akai samplers giving you instant access to a huge library of sounds. Initial stocks are very limited - get your order in now.

NEW PRODUCT **£479**

MPC 2000 SAMPLING DRUM MACHINE

Ever since the launch of the Roger Linn MPC60, Akai have led the way in sampling drum machines. It's latest evolution, the MPC2000, is a lot more than a glorified drum machine however - the 64 track sequencer is a development of what many people consider to be the only real alternative to classic Roger Linn based setups (32 MIDI channels are available), the sampling section is virtually identical to the best selling S1000. SCSI is standard, and the outputs can be expanded from 2 to 10 and digi i/o for only £249. There are far too many other features to mention here - go demo now at Turnkey.

RRP ~~£1199~~ **£1175**

INC FREE 8 MB RAM

REMIX 16 SAMPLING UNIT

Akai are world leaders in sampling - just try finding a production studio without one of their machines - and now they have brought their knowledge to the DJ market. 16 pads trigger fully editable samples live, whilst the removable cross fader (with programmable buttery) fades between the internal mixer and the sampler. There are far too many features to list here - but if you want to take your mixing to a higher level, this is the tool to do it.

RRP ~~£999~~ **£549**

INC FREE HEADPHONES

MU10 GM SOUND MODULE

CUBASIS — YAMAHA

The Yamaha DB50XG daughter board took the market by storm. Yamaha release the MU-10 external sound card. No more system drivers, no IRQ conflicts, no DMA problems, just connect to the serial port (cable included) and install the software. This beats even the easiest plug'n'play cards. FOR SOFTWARE: Yamaha wouldn't settle for the "stocking filler" programs often thrown in with lesser products. MU10 includes the CD-ROM version of Steinberg's award-leading Cubasis. (see Cubase Link). Also you can record on ... the MU-10. Ace!

RRP ~~£199~~ **£189**

PROTECH 12x CD-ROM DRIVE

turnkey

If you were access to large amounts of sample library at £4/Mb, then there's no better way to do it than via CD-ROM. Hundreds of titles are now available full of everything from orchestral instruments to hip hop loops, all ready prepared to load into your sampler. In theory SCSI is SCSI, but in practice it's just not the case, particularly when it comes to interfaces. Drives that work perfectly with one machine will often flatly refuse to work with another. So we've taken the guesswork out, and come up with a bargain priced CD-ROM drive that works with all current Akai, Emu and Roland machines, and whilst it isn't as 12x normal speed, for ultra quick loading (most speed depends on SCSI spec of sampler). Guaranteed to work! (Supplied with connector for 25 pin SCSI port, specify sampler when ordering - may require additional cable)

NEW PRODUCT **£169**

ESI32 + SCSI SAMPLER WITH V2.0 SOFTWARE

EMU

Featuring 32 note polyphony, 4x polyphonic, 24dip resonant filters, high quality library, LFOs and Envelope controls, Time-stretch, doppler FX, parametric EQ, vector mix. All E-mu samplers come with free access to our enormous sample library (will have all the ESI library on CD-ROM) and excellent disk support (when Geoff are around).

RRP ~~£1199~~ **£POA**

Now bundling with SCSI interface, 8x speed CD-ROM drive, ZIP drive and 8Mb of RAM plus a CD for the ... all for only **£1199**

CALAMARI ESI-32 TURBO EXPANSION BOARD

The upgrade all ESI32 owners have been waiting for! For only £369 you get the extra outputs giving a total of ten, two simultaneous FX processors, and a massive all new filter types taken from the E4x. Unbelievable value for money - every ESI owner should have one!

NEW PRODUCT **£369**

E6400 ALSO AVAILABLE only £1999 INC.16 MEG FREE

CDR400 CD RECORDER PACKS

WIN95 PLUG 'N' PLAY — YAMAHA

With recent advances in computer technology, your computer can now be your mixer, multitrack and effects unit all in one. The Yamaha CDR400 is the next step, freeing you write your CD-gold disk without leaving the PC or digital domain. The drive fits internally and connects via SCSI2. Your CDs will play in ordinary Hi-Fi CD players - a great way to distribute demo recordings, or to give a stereo master to a CD pressing plant. The drive also doubles as a Hitachi-spinning CD-ROM player, multi-session CD player and PhotoCD viewer. Plus CD-R is an ideal way to back up your PC's data, whether wav files or any other data for that matter!

CDR PACK **£999**

PACKAGE #1 : CD-R400, WinOnCD Pro, Adaptec 2940 scsi, Steinberg Wavelab 1.6 + 2 gold discs. Please contact us to make sure your PC has high enough spec. P166/32Mb pre-ferred.

PACKAGE #2 : Tumkey Pentium (MMX?)II, 12Mb RAM, 1.7 Gb HD, 512k cache, 2Mb SVGA, 16x CD-ROM, Yamaha CDR400, WinOnCD Pro, Adaptec 2940 scsi, Midiman DMan, Steinberg Wavelab 2 gold discs plus installation and setup - £2299

This PC is fast enough to reliably write data at 4x speed (640 fps).

WITH OUR HIGH SPEC PENTIUM **£2299**

SAMPLE LIBRARIES

Time-Space

We have two 100 CD jukeboxes in store holding the complete Time & Space range of sample CDs. Whether you want drum loops for techno, drum & bass or deep house, ethnic instruments & effects or a sound FX library - there's more to be something to suit your needs. Hundreds of discs make ideal listening for all kinds of samples, from drum loops and mixers to full blown sound effects.

Check one out today!

PRICES FROM **£19**

COMPUTER NEW USED & EX DEMO

Emagic Logic Audio	£319	Turtle Beach Pinacle	£329	Yamaha MU10XG	£179
Steinberg Cubase 3	£199	Turtle Beach TBS2000	£149	Yamaha SW60	£129
Steinberg Cubase score	£479	Turtle Beach Tropez	£260		
Turtle Beach Fiji	£139	Yamaha DB50XG	£99		

SAMPLING NEW, USED & EX DEMO

Akai CD3000 XL	£1999	Akai S3000XL	£1549	Emu E6400	£1999
Akai CD3000i	£1499	Akai S3200XL	£2995	Emu ESI32 SCSI	£799
Akai MPC 2000	£975	Emu E4	£3199	yamaha SU10	£249
Akai S2000	£549	Emu E4 Keyboard	£2799		

SU10 SAMPLING UNIT

INC 2 FREE TIME & SPACE CDs — YAMAHA

Yamaha's SU10 is a ground breaking unit, making professional quality stereo sampling available to everyone. Up to 54 seconds of sampling is available and 48 samples can be held in memory at any one time. Samples can be filtered, reversed, looped, crushed, pitchshifted and even scratched using the ribbon controller. The built in sequencer means you can produce your own tunes using just this unit! The SU10 comes bundled with 2 free Time & Space CDs containing almost 800 samples.

RRP ~~£299~~ **£269**

ALSO AVAILABLE WITH 3 OCTAVE MIDI KEYBOARD only £329

*We will beat any genuine quote from a UK or European dealer at the time of order. We must be told ... to enable the quote and to ... Prices include 17.5% VAT. UK mainland carriage £9.99. Please allow 10 working days for cheque clearance. Errors & omissions excepted.

EUROPE'S LOWEST

YAMAHA

BLUE MEANIE INVASION!

A3000 SAMPLER

Arriving any time now, Yamaha's A3000 is their first entry into the sampling market for almost ten years, but this break has allowed them to take a good look at the market and come up with a highly competitive product. 64 note polyphony, four outputs (expandable to twelve plus digi i/o), .WAV file compatibility and memory expandable up to 128 meg, means that the A3000 must be taken seriously at this price. Call for full details or a demo.

- *64 Note Polyphony as Standard*
- *4 Outputs Expandable to 10 + digi i/o*
- *Reads Akai and .WAV Format Files*
- *Memory Expandable to 128 meg*

NEW PRODUCT
£1299

AN1x VIRTUAL ANALOGUE SYNTH

The analogue emulation market is hotting up with this exciting new release from Yamaha. Building on the incredible success of the CS1x, the AN1x is built on the same design principles, but uses technology from the groundbreaking VL range to produce stunning virtual analogue sounds. With a 5 octave aftertouch sensitive keyboard, 10 note polyphony, 8 knobs and a ribbon controller, and built in effects, the AN1x is sure to be an instant hit. Demand will far outstrip supply - get your order in early!

- *Amazing Low Price for Polyphonic Modelling*
- *10 Note Polyphony*
- *Front Panel Knobs all Send MIDI Controllers*
- *5 Octave Velocity & Aftertouch Keyboard*

NEW PRODUCT
£899

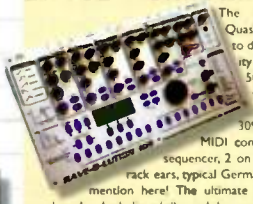
QUASIMIDI

TECHNOX SOUND MODULE

If you need to get your hands on some top quality dance sounds on a budget, look no further than Quasimidi's Technox. All sounds can be edited via the LCD display and two front panel dials, which are also used for sound selection - sounds are divided into groups to make it easy to find the one you want. 16 part multitimbral and always 24 note polyphonic with built in effects, it makes a perfect addition to an existing MIDI setup, but is comprehensive enough to use on its own, and the superb arpeggiator means you'll never get bored! *Call for a free demo CD. Money back within 7 days if not satisfied (ask for conditions).*

FACTORY DIRECT **£399**

RAVE-O-LUTION 309 DANCE WORKSTATION



The Rave-O-Lution 309 is undoubtedly Quasimidi's best and most innovative product to date. Imagine the raw powerful sound quality of Roland's TR909 and TB303, give them 50 times as many sounds, add resonant filters to the drums, and you've still only got half the instrument that is the Quasimidi 309! Knobs for all functions all send out MIDI controllers, built in real-time and step-time sequencer, 2 on board effects processors & EQ, optional rack ears, typical German build quality - far too many features to mention here! The ultimate dance production workstation, must be heard to be believed. "superb bass synth ... excellent drum sounds ... one of the most immediately useable products on the market" - Sound On Sound. *Call for a free demo CD. Money back within 7 days if not satisfied (ask for conditions).*

RACK EARS ALSO AVAILABLE only £25

FACTORY DIRECT **£649**

309 AUDIO-EXPANSION

Input / output expansion board now available only £149! 2 extra outputs, 2 inputs allowing you to route any 2 external signals through the AES synthesis. Also comes with new operating system with many new features.

FACTORY DIRECT **£149**

QUASAR SOUND MODULE

Quasimidi's first groundbreaking product, and still a stormer! The simultaneous use of multiple types of synthesis including Analog Emulation and FM, give this module a huge range of sounds from standard General MIDI tones through their famous dance sounds (including 909 etc) to incredible special effects. Huge LCD and dual digit LED displays in conjunction with a plethora of front panel knobs and buttons make use of the comprehensive editing facilities child's play. 2 MIDI inputs, 6 audio outputs, always 28 note polyphonic, and superb onboard effects and arpeggiators. Two sound expansions are also available to turn it into the ultimate dancefloor machine - Hardcore and Techno, both only £169. Sorry, no demo CD available of this one, but take our word for it, it sounds the business! *Money back within 7 days if not satisfied (ask for conditions).*

FACTORY DIRECT **£699**

JV1080 SYNTH MODULE

Roland

In the same way as the S1000 became the industry standard sampler, Roland's JV1080 has become the industry standard synth module. It's not hard to see the reason why - straightforward operation combined with top flight sound quality and a huge range of useable sounds.

But expandability of the machine is where it really comes into it's own. There are over 10 different expansion boards which can be fitted (up to 4 at once), each one with as much ROM as the original machine, covering sounds from Vintage to Orchestral and Dance to World. At Turnkey we have the full range in stock, as well as an unbeatable price on the machine itself. Buy with any four expansion boards for only £499 extra!

~~RRP £1189~~
£869

JV2080 SYNTH MODULE

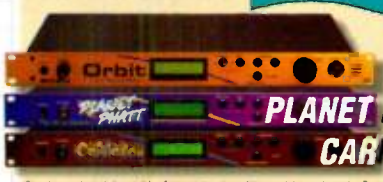
The Roland JV1080 has been become the industry standard sound source for home studios and professionals alike. It's superb sound quality, 64 note polyphony and expandability were a winning combination.

Now the new JV2080 builds on that success by offering a giant editing screen, three independent effects processors as well as reverb / delay and chorus, and room for 8 of Roland's renowned expansion boards - the potential is virtually limitless! Judging by the success of the JV1080, these will be in strong demand - call us now! Buy with any four expansion boards for only £499 extra!

~~RRP £1399~~
£POA

SYNTH MODULES

EMU



ORBIT
PLANET PHATT
CARNAVAL

Emu have taken their wealth of experience in making modules such as the Proteus, Vintage Keys and Morpheus, combined it with the flavors from the incredible Emulator 4, and with their usual innovation, come up with the Orbit, Planet Phatt and Carnaval.

The Orbit is stacked full of classic drum sounds, pulsating basses, ambient pads, as well as a huge variety of hits and effects. Planet Phatt brings a new definition to swing, and the Carnaval is ideal for dance grooves as well as Latin applications.

The inclusion of the E4's 16 different types of 6 pole filters mean that these modules have more powerful filtering than any other synth! Finally the 'BEATS MODE' includes a wide selection of loops and grooves, which can have their pitch changed without tempo change and vice-versa, and even their sounds too!

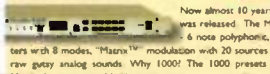
V3 software now gives improved bitass mode and other enhancements.

Orbit upgrade available for only £69.

~~RRP £869~~
£749

MATRIX 1000 SYNTH MODULE

Oberheim



Now almost 10 years old, and still sounding as fresh as the day it was released. The Matrix 1000 is essentially a Matrix-6 in a rack - 6 note polyphonic, 2 oscillators per voice, true analog VCF filters with 8 modes, "Matrix™" modulation with 20 sources and 32 destinations, raw gutsy analog sounds. Why 1000? The 1000 presets were generated by Matrix-6 owners worldwide in response to a competition to find the best analog sounds on the planet. You're sure to find the perfect patch for virtually any application. Group mode allows chaining of up to 6 units to create a true monster! Fully editable via MIDI, Mac PC or Atari editor (available for only £49).

~~RRP £599~~
£399

PROGRAMMER FOR MATRIX 1000 OR MICROWAVE

access

There's no doubt that the Oberheim Matrix 1000 and Waldorf MicroWave deliver powerful analog sounds. However, when it comes to programming your own sounds, top producers have tended to go for older synths like the Minimoog and Super Jupiter, because their knobs and sliders make for easy creation of new sounds. The Access programmer gives you the best of both worlds - now you can freely experiment with your modern analog synth using the same intuitive front panel, and better still, record every tweak of a parameter into your sequencer.

EXCLUSIVE
£329

DEEP BASS 9 TB303 CLONE

Control Synthesis

A great sounding TB303 clone. It reacts with 1 knob per function - all the sound control's of the 303 are duplicated, filter cutoff, accent and glide all controllable over MIDI. Audio input allows treatment of external signals by the filter etc, and CV / gate in / out also means it can be used as a MIDI - CV convertor. An excellent analog bass machine - this unbelievable price on the end of the line means they will sell out very quickly!

~~RRP £449~~
£249

MSE1 & MVS1 SOUND MODULES

Roland

Spectacular end of line clearance deal on these superb Roland speciality sound modules - buy a stand-alone module for less than the price of a JV1080 expansion card! Both are 8 part multitimbral, 28 note polyphonic, and have dual 20 bit FX processors. The MVS1 has all the classic analog sounds from Jupiters to ARPs to Moogs, and the MSE1 has the fattest string pads and clearest solo sounds you're likely to hear anywhere, and RSS! Stocks will not last long - get your order in now!

~~RRP £499~~
£199
MSE1

~~RRP £499~~
£199
MVS1

SOUND MODULES NEW, USED & EX DEMO

Alesis D4S	£249	Korg 05R/W	£250	Yamaha MU50	£299
Alesis QSR	£649	Korg X5DR	£389	Yamaha MU90	£549
Alesis SR16	£129	Kurzweil K2000KB	£1649	Yamaha P50	£279
Boss DR5	£249	Roland JV1080	£850	Yamaha QY22S	£99
Emu MORPHEUS	£799	Roland JV2080	£1199	Yamaha QY700	£999
Emu Orbit	£595	Roland MC303	£385	Yamaha RY20	£229
Emu PLANET PHATT	£595	Studio Electronics ATC1	£699	Yamaha RY8	£99

We will beat any genuine quote from a UK or European dealer at the time of order. We must be able to substantiate the quote and the goods must be available and in stock. Prices include 17.5% VAT. UK mainland carriage £9.99. Please allow 10 working days for cheque clearance. Errors & omissions excepted.

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PRICES GUARANTEED*

Roland

JUPITER STRIKES BACK!

JP8000
ANALOG MODELLING SYNTH

So far, modelling technology has been used to recreate acoustic timbres, but Roland are the first to specifically model true analog synthesis with their new Analog Modelling technology, and believe us, the results are spectacular!

Analog Modelling not only produces superb emulations of the great synths of the 60's and 70's, but also totally unique timbres never before heard. Realtime control is excellent, and all knobs, sliders, buttons and the ribbon controller send out Continuous Controller messages. For instant creativity, a powerful arpeggiator and real time phrase synthesiser are included, which can be easily synchronised to an external MIDI clock. This is very likely to be the hottest synth of '97 - order now!

- *Superb New Analog Modelling Synthesis*
- *Unrivalled Realtime Control*
- *Highest knob Count Around for Easy Programming*
- *Built in Arpeggiator and Realtime Phrase Synth*

RRP ~~£1499~~
£1199

FAT

FREEBASS TB303 CLONE

If you need the unique sound of an original Bass Line™, but can't afford the inflated prices that go with it, then Freeform Analog Technologies' Freebass is the product for you!

It's the only authentic sounding TB303™ clone on the market, and it's got MIDI! 1U rack with 1 knob per function, all the sound controls of the 303 are duplicated. Cutoff, Resonance, Envelope Mod, Accent, Tune and Decay. Waveform is continuously variable from square wave to sawtooth, and an auto tune button is included to retune the oscillator - no more continual drifting!

On top of this, there's an audio input to the filter stage, allowing you to process any external signal with the FB383's powerful synthesis. The ultimate analog bass machine - this incredible price means these will fly out of the door! Another Turnkey exclusive.

- *Superb Sounding TB303™ Clone*
- *Fraction of the Price of an Original*
- *External Input to the Filter*
- *Exclusively Available at Turnkey*

NEW PRODUCT
£199
FACTORY DIRECT

MC-303 GROOVEBOX
DANCE WORKSTATION

Roland

The enduring popularity of the TB303, MC202 and TR909 has just refused to go away but increasing rarity has meant that secondhand prices have been driven up to ridiculous levels. Roland, the creators of these machines, now bring you the MC303 Groovebox which combines all their classic drum machine sounds, a step time / real time sequencer, 303 'acid' bass sounds complete with front panel filter controls and a whole host of other useable sounds (it's 16 part multi-timbral!). This box is an all in one dance music solution, and believe us, it sounds the business! Initial supplies will be very limited, order now to avoid disappointment!

NEW
£POA

ALSO AVAILABLE WITH MK149 MIDI KEYBOARD only £599

MICROWAVE II
WAVETABLE SYNTHESISER

waldorf

The Microwave II combines all the famous features of the original Microwave together with today's requirements for user interface, signal to noise ratio and sonic purity. It's simplicity of use is obvious with the use of just 5 rotary dials and a 2x40 character back lit LCD. On the back the Microwave II has 2 fully modulatable stereo outputs (configurable as 4 monos with panning). Tone generation comes from a powerful DSP generating wavetables, the 10 voices each feature two oscillators, 2 wave generators, a mixer, two filters in series, a stereo amplifier, four envelopes, 2 LFOs, a modulation matrix with 16 slots and several 'modifiers', more than enough to keep even the most demanding programmer satisfied!

NEW PRODUCT
£999

XM1 & XMc1
ORGAN MODULES

HAMMOND

Amazing sounding all new organ module with remote drawbar controller. Based on the guts of the £8000 X83, there is nothing as realistic as this on the market. Built in Leslie simulator and overdrive, up to 3 registrations simultaneously, variable release envelopes, percussion and too many more features to list here. Exclusively supplied by Turnkey.

RRP £1089
£999

BASS STATION
BUDGET MONO SYNTH

novation

END OF LINE CLEARANCE EXCLUSIVE TO TURNKEY

...you ... to get the ... analog ... on a ... than the Bass Station keyboard is for you. Like this is no mere toy! Two oscillators, pulse width modulation, two LFO's and knobs that send out MIDI information, make this a versatile sound creation tool, capable of a wide range of bass sounds and effects. An ideal addition to any MIDI setup!

RRP £349
£219

PULSE
MONO SYNTH

waldorf

Waldorf quality at a previously unheard of price! Their first venture into the burgeoning monosynth market has been universally acclaimed, and rightfully so. The Pulse's three oscillators ... some of the fattest sounds around, and its modulation matrix allows a far higher degree of programming complexity than anything else in its range. Add to this the fact that editing any parameter sends out a MIDI controller and you have a fantastic all round performer.

RRP
£499

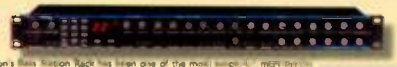
DR-660
Dr. RHYTHM DRUM MACHINE

BOSS

BOSS have been making Dr. Rhythm drum machines since the early eighties, combining value for money and ease-of-use with the latest drum and percussion sounds. The DR-660 builds on the success of the DR-550 Mk2, but offers 16 full velocity and aftertouch sensitive pads, 4 separate outs (unheard-of at this price), and 255 drum sounds including the best of TR808 / 909. The 660 also boasts the 'human feel' control first introduced on the R8 which allows velocity to control a real-time crossfade between several waveforms. Process your sounds with on-board digital reverb and chorus - fully editable, with individual effect send control for each drum sound.

RRP £459
£299

SUPER BASS STATION
NEW MONO SYNTH



Novation's Bass Station Rack has been one of the most ... mono-synths ever, and now they take the concept one further. Three oscillators give extra fat sounds, whilst ring modulation and oscillator sync, along with noise and distortion generators give it a hard edge when required. Even the MIDI sync benefits from LFO to MIDI clock sync, and there's an arpeggiator. Limited stocks very limited - get your order in now.

NEW PRODUCT
£499

PULSE PLUS
MONO SYNTH

STOP PRESS! NEW LOW PRICE

The Pulse Plus has all the features of the Pulse but with audio input, CV and gate control. You can even ... your guitar through it! The ... fattest sounding monosynth around ... just got better - check one out today!

NEW
£599

SR-16
DRUM MACHINE

ALESIS

The SR-16™ Stereo Drum Machine is an excellent tool for songwriting and performance. It features a great selection of 233 sounds, offered both in dry form and with reverb. Alesis's exclusive Dynamic Articulation™ feature enables a drum sound to change its tonal content as it's played harder for truly realistic performances. The SR-16 features 200 preset patterns that were actually played in by top studio drummers - not just programmed and quantised. Of course, the SR-16 also provides complete MIDI implementation, a footswitch input, flexible programming and editing features and velocity sensitive pad buttons.

RRP £299
£189

SC88-VL
SOUND MODULE

Roland

Based on the original Sound Canvas module, but with much more of everything, the SC88 is 32 part multi-timbral with two independent MIDI ins, also 64 more polyphony for handling virtually any MIDI streams ... it. Having twice as much sample ROM too, the SC88 is really like two SC55s, except with 18 bit D/A converters, delivering the same audio quality as the JV-1080 synth. Choose from a GS / GM compatible sound palette of 654 individual sounds, and 24 drum kits. The built in interface for Mac or fast PC makes it even better!

RRP £649
£369

MICRO PIANO
PIANO MODULE

KURZWEIL

The MicroPiano is the most highly regarded piano module on the market, featuring Kurzweil's breathtakingly realistic true stereo samples - 32 note polyphony means you won't suffer from note-stealing and the wide range of other keyboard sounds and strings make it useful in many other situations. Built in effects including very high quality reverb mean there's no need to tie up another effects unit. Strictly limited quantities at this price, main thing stocks won't last long. Order today - you won't be disappointed!

RRP £599
£349

*We will beat any genuine quote from a U.K. or European dealer at ... like for like ... order. ... these the only ... rebate ... Refund and the brands ... be available ... in the U.K. Prices include ... VAT. UK ... carriage £9.99. Please allow ... working days for cheque clearance. ... & omissions excepted.

Authorised Dealer · Soundcraft · DRAWMER · MACKIE · Roland · SONY · TASCAM · Fostex · digidesign

EUROPE'S LOWEST

Wave Synthesiser

TURNKEY EXCLUSIVE! waldorf

We now offer a new custom range of Wave synthesisers with 76-note keyboards in four colour options - standard blue, red (as shown), Sahara and black. Totally unique sound.

PRICES FROM £6299

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

CTK-601 GENERAL MIDI KEYBOARD

CASIO

A 61 key, touch sensitive, General MIDI keyboard at an unbelievable price. This is an ideal instrument for professionals and beginners alike as it is extremely easy to use, but don't think that means it's not powerful. The sound quality is excellent and the auto-accompaniments, which can be transmitted via MIDI, are superb. Add to all this 10 digital effects, four sound control pads, layered or split keyboard modes, recording and four registration memories and you've got the best value for money keyboard on the market. And we've got an unbeatable deal - Turnkey price includes free power supply, stand and headphones!

RRP £199

K5000s ADDITIVE SYNTH

KAWAI

In this age of many 'soundalike' sample + synth keyboards, it's not often you get something coming along with a completely fresh approach. Kawai have dared to be different though with the K5000S, and reintroduced additive synthesis. This has been tried in the past, but the limited DSP power has severely curtailed the possible results. The only method of synthesis that can theoretically produce any possible sound, additive has a palette which ranges from superb acoustic simulation, to timbres quite unlike those offered by any other synth. The inclusion of a traditional synthesis section complete with an incredibly powerful filter means it's also a cinch to create fantastic analogue style sounds, and a generous complement of knobs which all send MIDI controllers add to the ease of use. Far too many features to mention here - call for more information or for a demo.

NEW PRODUCT

RACK VERSION ALSO AVAILABLE only £999

£1199

XP-10 MULTITIMBRAL SYNTH

INC FREE STAND, 'PHONES & CABLES

Roland

Fantastic deal makes this the most affordable pro keyboard on the market. Take Roland's legendary sound set, add a discreet five octave keyboard, an arpeggiator and innovative editing features like sound morphing and you have the XP10. Fully General MIDI compatible for all your midiphiles, the XP10 comes bundled with a free stand, headphones and cables only at Turnkey.

RRP £499

£399

THE RAVEN KEYBOARD DANCE WORKSTATION

QUASIMIDI

Dance experts Quasimidi have done it again with this incredible new product. Stacked full of hundreds of the finest dance sounds, from fat analog synths through retro drums and special effects. On board sequencer with special loop motif mode makes it a cinch to create instant hits! Typically superb sound quality from this top German manufacturer. Also available, Raven Max expansion board giving over a thousand new sounds. Call in for a demo, we guarantee you'll be impressed. Free demo CD available, please call to receive one. Money back within 7 days if not completely satisfied - please ask for conditions.

NEW PRODUCT

£999

QS8 EXPANDABLE SYNTH

ALESIS

The QS8 64 Voice Expandable Synthesiser starts with an 88 note piano weighted keyboard, and a powerful 64 Voice synth engine, powered by 8MB of sound ROM which is expandable to 16MB, either through the large range of Alesis QuadraCards, or blank Flash RAM cards for use with the free Alesis Sound Bridge sample transfer software. There are 640 programs and 500 'mixes', including a complete GM bank. Built-in serial port for direct interface to a computer, and free CD-ROM filled with sequencers, editors, song files, and samples which turn the QS6 into a complete music work station. Call now for more details, and find out about one of the most underrated synths on the market.

RRP £1699

£1499

QS6 ALSO AVAILABLE only £599 QS7 ALSO AVAILABLE only £849

XP-50 WORKSTATION KEYBOARD

Roland

All the power and flexibility of the JV1080 in a keyboard, together with what has to be the best onboard sequencer around, and a built in disk drive. The XP50 has a 5 octave keyboard and 2 outputs, also available is it's big brother the XP80 with a 7 octave keyboard, 4 outputs and the long axe display as featured in this new JV2080. We have limited stocks only at staggering prices - don't delay - order today!

RRP £1499

£999

XP-80 WORKSTATION KEYBOARD

RRP £1799

£1299

PROPHECY VIRTUAL MONOSYNTH

KORG

The Prophecy is already a legend in its own lifetime, and this incredible new low price makes it better value for money than ever. Virtual synthesis not only gives some great acoustic simulations, but also superb analog sounds, from Moogs through ARP's to some of the classic Rolands. The keyboard that revived the arpeggiator still has one of the best around today, and the ribbon controller and knobs galore make for a highly expressive instrument. Limited stocks only at this price - buy now or forever hold your peace!

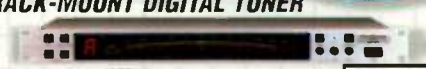
RRP £999

£699

CALL SOHO SOUNDHOUSE ON 0171 379 6766 FOR DETAILS

DTR-1 RACK-MOUNT DIGITAL TUNER

KORG



- Oversize easy to read LED meter.
- Auto tuning with 3 selectable modes; Strobe, Cent, Hz.
- Two tuning inputs to handle tuning of 2 instruments.
- Built-in microphone is perfect for tuning acoustic instruments.
- 3-Octave reference tone. • Cable check function.

RRP £249

£169

DTR-2 RACK-MOUNT DIGITAL TUNER

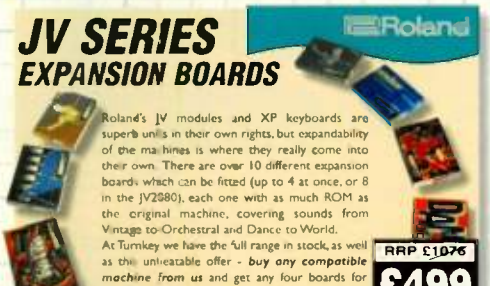
- Rack-mount auto chromatic tuner with large LED meter.
- Full 7 octave tuning range.
- Auto reference calibration function can automatically calibrate the tuner to instruments that are not easily tuned.

RRP £149

£99

JV SERIES EXPANSION BOARDS

Roland



Roland's JV modules and XP keyboards are superb units in their own rights, but expandability of the machines is where they really come into their own. There are over 10 different expansion boards which can be fitted (up to 4 at once, or 8 in the JV2080), each one with as much ROM as the original machine, covering sounds from Vintage to Orchestral and Dance to World.

At Turnkey we have the full range in stock, as well as this unbeatable offer - ***buy any compatible machine from us*** and get any four boards for only £499! Check them out today!

RRP £1076

£499

TRINITY KEYBOARD WORKSTATION

KORG

When it comes to workstation keyboards, the Korg name is legendary. Their current flagship product, the Trinity not only features the customary range of exemplary sounds, but also touchscreen technology to make it one of the most intuitive instruments on the market, and a range of options to turn it into a fully fledged recording studio: sample playback (Akai compatible), Prophecy expansion board, and even hard disk recording!

RRP £2345

£1499

TRINITY PLUS £1799
TRINITY PRO . £1999
TRINITY PROX £2499

JS1 ELECTRIC GUITAR

UNDER HALF PRICE

Jackson

The JS1 is equipped with 2 high output humbuckers and classic tremolo system. Built to the usual high Jackson standard. We have managed to acquire a small number of these guitars at an unbelievable price. *We are central London's exclusive Jackson dealer and keep in stock the full range of Performer Series through to the Japanese Pro Series and up to the incredible USA made guitars including Custom Shop.*

RRP £299

£149

PC-160 MIDI CONTROLLER KEYBOARD

Roland

The PC160 has full-size keys with touch-sensitivity, an expressive 'bender' lever allowing pitch glides, vibrato etc., 32 octave switches let you play over a 6 1/2 octave range. There's also a socket for optional sustain pedal (£14.95), and editing of GM/GS parameters for sound modules & cards which support this feature (eg Yamaha D850).

This incredible cheap deal is based on a once-only bulk buy shipment. Order now while stocks last. Batteries included. PSU optional.

RRP £139

£69

CS1x SYNTHESISER

YAMAHA

Here's another fantastic addition to this year's slew of equipment specifically designed for dance music. Not only does it look great, it sounds great too! As well as 400 XG format voices and 11 different drum kits, the CS1x also has 128 special performance sounds especially designed for dance and techno music. Front panel knobs allow instant access to crucial editing parameters like the filter, and 2 are assignable to anything you like. Round this off with top quality effects and an arpeggiator, and you have what has to be the best value keyboard of the year!

RRP £599

£POA

SANSAMP RANGE

TECH 21 • NYC

The Tech 21 range of hand built American products emulates every tube amplifier sound ever desired, giving you the classic Fender, Marshall, Bangle, Hiwatt, Vox sounds etc., all in one versatile unit at a fraction of the cost of the originals!

XXL distortion preamp pedal	£89
TRLOD 3 ch. preamp	£149
GT2 preamp simulator	£149
Classic SansAmp	£249
BassDriver DI	£169
SansAmp PSA1 rackmount	£499
Trademark 60 1x12 - IN STOCK	£499

CALL SOHO SOUNDHOUSE ON 0171 379 6766 FOR DETAILS

PC-200 MkII MIDI CONTROLLER KEYBOARD

Compact touch sensitive master keyboard offering full control over pitch bend and mod, data slider assignable to reverb, pan or any controller, sustain pedal input, transpose over 2 octave range, send patch & bank change messages.

Check out our unique package prices with these modules:

EMU + PC200	£429
MOC1 + PC200	£399
MU10 + PC200	£319
SC7 + PC200	£219

RRP £189

£149

MK149 MIDI CONTROLLER KEYBOARD

Evolution

Compact touch sensitive master keyboard offering full control over pitch bend and mod. wheel assignable to reverb, pan or any controller, sustain pedal input, transpose over 2 octave range, send patch & bank change messages.

Check out our unique package prices with these modules:

EMU + MK149	£299
MOC1 + MK149	£339
MU10 + MK149	£299
SC7 + MK149	£199

NEW

£119

GM01 GUITAR RADIO SYSTEM

UNDER HALF PRICE

Soundcraft

The GM01 by Soundcraft is a single channel diversity guitar/bass radio system. This system gives you total freedom from the hassle of cables, with none of the interference or drop out sometimes experienced from systems at this price. This end-of-line clearance deal represents the last opportunity to acquire one of these superb systems at a fraction of their original asking price.

Hurry - Limited quantity available, as always first come, first served!!

RRP £327

£149

KX88 MASTER KEYBOARD

YAMAHA

The KX88 has been the luxury master keyboard of choice in top studios, and with the death of the Synclavier, has probably the best action available. 88-note wooden weighted keyboard inputs for 2 sustain pedals, 2 continuous controller pedals (one of each is included), breath controller, 2 wheels, 4 sliders, 5 momentary switches, 2 toggle switches and after touch. Apart from taking pride-of-place in your studio, the KX88 can be considered a collectors item, and with no sounds to go out of date, it will last your whole musical career!

RRP £1649

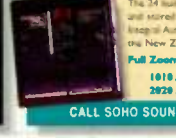
£849

KEYBOARDS NEW, USED & EX DEMO

Korg X5	£399	Korg Trinity Hard Disk Option	£399
Alesis QS6	£569	Korg Trinity PLUS	£1799
Alesis QS7	£798	Korg Trinity PRO	£1999
Alesis QS8	£1399	Korg Trinity Prophecy Option	£299
Hammond GM1000	£349	Korg Trinity PROX	£2449
Hammond XB2	£849	Korg Trinity Sample Option	£429
Korg N364	£699	Korg Trinity Scsi Option	£249
Korg PROPHECY	£549	Korg X3	£799
Korg Trinity	£1350	Korg X5	£399
Korg Trinity Digi Io Option	£99	Korg X5D	£499
Kurzweil PC88	£1699		
Roland A33	£325		
Roland PC200GS	£139		
Roland RD500	£1249		
Roland XP10	£389		
Roland XP50	£850		
Roland XP80	£1299		
Yamaha CS1x	£399		
YAMAHA PF150	£1185		

MULTI-FX PROCESSOR ZOOM 505 & 506 - IN STOCK

ZOOM



The 24 built-in Digital and Analogue Effects, 9 of which can be used simultaneously and stored in any one of 24 fully programmable memory locations, alongside the exclusive Auto-Chromatic Tuner and Amp Simulation, make the New Zoom 505 Guitar a musician's multi-fx processor.

Full Zoom range in Stock

1010	£CALL	2020	£CALL
2020	£149	4040	£CALL
		8080	£CALL

NEW

£99

CALL SOHO SOUNDHOUSE ON 0171 379 6766 FOR DETAILS

We will back any genuine quote from a UK or European dealer at the time of order. We must be able to ... and the ... must be available and in stock. Prices include 17.5% VAT. UK mainland ... £9.99. Please allow 10 working ... Errors and omissions ...

PRICES GUARANTEED*

TURNKEY MEGADEAL

ALESIS MONITOR 2
MID FIELD STUDIO MONITOR

Buying a great pair of speakers for your home studio setup often envolves a compromise between sound quality, cost, bass performance and portability. Now you can have it all with this once in a lifetime deal on the stunning Alesis Monitor 2's.

Flat bass response down to 40Hz assisted by the substantial ported cabinets which come in a mirror image pair. The three way design with 10" woofer offers superior transparency with excellent quality reproduction across the whole frequency range. Power handling is up to 150w per speaker. We cannot hold this offer forever - buy now before it's too late!

~~RRP £699~~ **£399**

BUNDLE WITH SERVO 550 only £749

SOUNDCRAFT SPIRIT STUDIO
CONSOLES BY SPIRIT

Soundcraft's Spirit Studio desks revolutionised the project studio market when they were introduced over 5 years ago offering sound quality and features only previously found on desks several times the price. Even then they were great value for money, but because Soundcraft have recouped their R&D costs, and because of our substantial buying power, they are now available at an unbelievable price. No other desks represents such fantastic value for money, just check out the feature list!

'In line' layout means 40, 56 and 72 inputs respectively for the 16, 24 and 32 channel desks, 4 band EQ with 2 mid sweeps, 6 aux. sends, 8 true subgroups, direct outs on every channel, LED metering, fader reverse - the list is endless!

~~RRP £1537~~	~~RRP £2063~~	~~RRP £2804~~
£969	£1469	£1999
16 ch	24 ch	32 ch

SOUNDCRAFT SPIRIT FOLIO NOTEPAD
PORTABLE MIXER

For quality mixing on a budget, this has to be the neatest solution around. Typical Soundcraft quality has been further enhanced by the use of surface mount technology and custom designed rotary pots. 4 mono inputs are provided along with 2 stereo which also feature RIAA preamps for record deck connection. 2 band EQ and an auxiliary send complete a highly flexible package.

~~RRP £199~~ **£149**

FOLIO F1 NEW MIXER

The introduction of the new F1 sees the Williams team of mixer manufacturers in top gear! Features include 3 aux. sends, 100mm faders, 3 band mid sweep EQ and insert points. Available in 14 or 16 channel versions.

~~RRP £379~~ **£299**

FOLIO SX
MULTITRACK RECORDING CONSOLE

The Folio SX represents incredible value for money offering as it does 12 mono and 2 stereo fader channels, 3 band mid sweep EQ, 3 aux sends and a whole lot of other goodies. Optional rack ears also available.

~~RRP £619~~ **£479**

GHOST CONSOLES

INC FREE METER BRIDGE

Ultra low noise inputs, 4 band EQ with 2 fully parametric mids, up to 12 auxiliary sends, MIDI mute automation and MTR transport control are a few of the features that put other project consoles to shame (no MIDI on LE versions).

~~RRP £6607~~	~~RRP £4617~~
£3399	£2849
32 ch LE	24 ch LE

MIXERS NEW, USED & EX DEMO

Mackie 24..... £2250	Sndcrft Folio Notepad £119	Sndcrft Powerstation £869
Mackie CR1202VLZ . £295	Sndcrft Folio SX.... £350	Sndcrft SPIRIT16 . . £879
Mackie CR1604VLZ . £550	Sndcrft Ghost24.... £2299	Yamaha Promix 01 . £1299
Sndcrft Folio F1 14 . £249	Sndcrft Ghost24LE £2495	
Sndcrft Folio F1 16 . £299	Sndcrft Ghost32LE £2995	

SERVO 170
AMPLIFIER

Samson's Servo 170 is specifically designed for use with nearfield monitors and does an excellent and unobtrusive job, sticking as close as possible to the 'wire with gain' ideal for an amplifier. It offers a power rating of 85 Watts per channel RMS, making it an ideal partner for most of today's nearfield studio monitors. The standard 2u design means it fits neatly into your rack system. Independent left and right volume controls are given, and there are built in signal and clip led's, together with protection circuitry to help prevent blowing your speakers.

At this price stocks won't last long - another Turnkey exclusive!

~~RRP £289~~ **£179**

SOUNDCRAFT SPIRIT AUTO 32
CONSOLE BY SPIRIT

Soundcraft's Spirit Studio desks are well known for their build quality, superb sound and features, as well as being tremendous value for money. For those of you who would find VCA automation useful, we have managed to exclusively secure a very limited supply of Spirit Auto32 at an unbelievable discount - just check out the price! The desk sends and receives simple MIDI controller messages (no messy sysex), so it can be used with virtually any sequencer. First come first served!

ONLY 2 LEFT!

~~RRP £6607~~ **£1999** AUTO 32

ABSOLUTE ZERO
by SPIRIT
NEW NEARFIELDS

The latest additions to Soundcraft Spirit's monitor range are the Absolute Zero's. For those of us with slightly less demanding monitoring applications, they make the ideal choice.

~~RRP~~ **£199**

ABSOLUTE 2
by SPIRIT
STUDIO MONITORS

Here is list! Stunning sounding and looking monitors, from the UK's leading value manufacturer. Incredible bass extension and power handling at a killer price. In stock now, come in and audition them ASAP!

~~RRP £259~~ **£POA**

WMS51
WIRELESS MIC SYSTEM

High quality diversity radio mic systems have always been the reserve of the professional, due to the high costs often associated with them. AKG's WMS-51 system breaks that tradition, offering an unbelievable price/performance ratio. The system consists of the HT51 transmitter featuring AKG's well known and respected d3700 dynamic capsule. Reception is handled by the SR51, a half rack receiver featuring balanced and un-balanced outputs, a control for squelch (RF interference reject) and a true diversity facility.

~~RRP £316~~ **£219**

AKG C3000
LARGE DIAPHRAGM MIC

INC FREE BOOM STAND

The C3000 uses all of AKG's experience in building large diaphragm mics such as the C12 and C414, but by using modern manufacturing techniques, and only offering two patterns (cardioid and hyper cardioid), the price has been kept to a minimum. Its open sound and superb frequency response make it ideal for vocals, as well as sounding great on a variety of other instruments.

~~RRP £399~~ **£269**

CONTROL 5
STUDIO MONITORS

These classic monitors from JBL have been a standard in studios for several years and still stand up very well against more recent competition. The solid build quality you can expect from JBL comes as standard and the ported design gives fantastic bass response. Internal bass help to promote brilliant tweeters and a compulsive Turbosound subwoofer is also available for only £199. Exclusive to Turnkey.

~~RRP £439~~ **£249**

CONTROL 1 COMPACT MONITORS

These superb compact monitors (RRP £229) are ideal for use in the studio on a budget. Specially designed cabinets with built in class D amplifiers ensure that these are the only monitors you will ever need.

~~RRP £199~~ **£99**

BUNDLE WITH DENON PMA250 only £269

SHURE SM58
INDUSTRY STANDARD DYNAMIC MIC

Shure's SM58 has been the industry standard microphone for as many years as we can remember, and even today it's still a great buy. Robust enough to withstand countless heavy metal gigs, versatile enough for a wide range of studio uses, the yard-stick by which all other mics are judged, now at an unbelievable price.

~~RRP £169~~ **£99**

RODE NT1
LARGE DIAPHRAGM MIC

Rode have quickly made a great name for themselves with the NT2, now the NT1 cuts out the frills at an incredible price. The gold plated large diaphragm capsule gives a superb mid frequency response, and is great for all round use and particularly good on vocals. If you only have one mic this has got to be a strong contender!

NEW PRODUCT **£329**

NT2 ALSO AVAILABLE only £499

IMPACT SERIES

Turbosound is a legendary name in the PA business, but until recently many of us could only dream of owning a Turbo rig. Now with the introduction of the Impact series you can stop dreaming! Turbosound quality at a previously unheard of price - for example we can offer the superb Impact 120's at only £999 a pair - incredible value for money! Come down for a demo now - they're sure to make an impact!

~~RRP £1295~~ **£999**

~~RRP £282~~ **£199**

CALL TURNKEY SOUND SYSTEMS ON 0171 497 5737 FOR DETAILS

MICS NEW, USED & EX DEMO

AKG C1000S £179	AKG D3900..... £99	Soundcraft DM01... £199
AKG C3000..... £269	Shure SM57..... £89	
AKG D3700..... £79	Shure SM58..... £99	

AMPS NEW, USED & EX DEMO

Bose 802 ..... £599	JBL TR225 ..... £789	Yamaha P3500 ..... £499
C Audio ST400 ..... £449	Yamaha P1500 ..... £375	
C Audio ST600..... £549	Yamaha P2500 ..... £449	

STAGELINE DJP200s & KAM GMX 250

MIX PACK

INC FREE CABLES

Another easy to use package for the budding DJ. The brand new GMX 250 mixer from KAM in combination with Stageline's DJP200s is the ultimate bedroom package!

- 1 x Stageline DJP200
- 1 x KAM GMX 250
- 2 x [illegible]
- 2 x Phono Cord
- 1 x Allen&[illegible]

~~RRP £580~~ **£349**

CALL TURNKEY SOUND SYSTEMS ON 0171 497 5737 FOR DETAILS

HARBETH MONITORS
FROM HARBETH ACOUSTICS

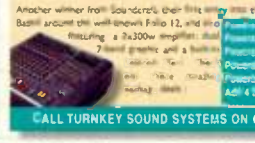
Many of today's popular bedroom monitors, sound impressive in the store, with exaggerated bottom end and sparkling treble. But mixes made on these monitors can still sound wrong when played on other systems. The problem? Lack of clarity and detail in the mid range, particularly vital when working with vocals and lead instruments. Harbeth, manufacturers of monitors for the BBC and others for many years, now address this problem with their new expressive near-field monitors, offering great frequency response, and excellent mid range clarity.

NEW PRODUCT **£379** PER PAIR

MONITORING NEW, USED & EX DEMO

Alesis monitor 1..... £199	Samson SERVO150 .... £194
Alesis RA100 ..... £189	Samson SERVO240 .... £199
Behringer Autocom £169	Samson SERVO500 .... £339
JBL CONTROL 5..... £199	Soundcraft Absolute 0 .. £179
JBL CONTROL1 ..... £149	Yamaha NS10MSTUD ... £275

POWERSTATION
PA MIXER BY SPIRIT



Another winner from Soundcraft, their first entry into the powered mixer market, is sure to be a success. Built around the well known Folio 12, and incorporating a 2x300w amplifier, 7 band graphic and a built in [illegible]

CALL TURNKEY SOUND SYSTEMS ON 0171 497 5737 FOR DETAILS

SL 1210 MkII
TURNTABLE

After more than 10 years at the top, Technics SL 1210s are still [illegible] their own. Solid build quality, rotary instant start & stop and a [illegible]

~~RRP £499~~ **£POA**

CALL TURNKEY SOUND SYSTEMS ON 0171 497 5737 FOR DETAILS

[illegible] Prices include 17.5% VAT. [illegible] £9.99. Please allow 10 working days for cheque clearance. Errors & omissions excepted.

Audio Technica

Back-Electret Mic

PAUL WHITE tries out a reincarnation of one of his favourite budget mics, and finds that the best has just got better.

There's no shortage of good capacitor studio mics around if you've got the budget to pick and choose, and there's certainly no shortage of dynamic models, but where do you look when you want capacitor-mic quality on a dynamic-mic budget? The answer is to be found in the back-electret sector of the market, but this covers everything from naff camcorder mics up to top-end Audio Technica and B&K studio mics so, unless you know exactly what you're looking for, it's all too easy to make the wrong choice. Fortunately, every so often, something comes along that challenges your preconceptions of what you can realistically expect for your money.

A couple of years back, I reviewed the Audio Technica 873R microphone, which I've been recommending ever since. However, some users are put off by its small size. The good news is that Audio Technica have taken the capsule assembly from the 873R and used it as the basis for the ATM89R, which looks, on the outside, much like a good-quality dynamic stage microphone. This resemblance is deliberate, because Audio Technica want the mic to appeal to live vocalists as well as studio owners; to that end, they've built in a new shock-mount system, which I have to say is one of the very best I've tried at rejecting low-frequency handling noise and rumbles.

The ATM89R is a fixed-pattern, hypercardioid mic, though it is possible to fit different capsules for cardioid, sub-cardioid or omni operation, as you can to the ATM873R. Unlike some back-electret mics, which can operate from either battery or phantom power, the ATM89R runs on phantom power only, which is one reason the designers have been able to make it so sensitive.

Those unfamiliar with the theory of back-electret mics may be interested to note that it is quite possible to build these mics with the same characteristics as their conventional capacitor counterparts; the main difference is that the electrical charge on the capsule is provided by means of a permanently charged electret material fixed to the back plate, rather than by an applied DC voltage. The charge will eventually drain away, which means that the capsule will have to be replaced, but as this typically takes several decades, it isn't an immediate concern — and to our older readers, no concern at all!

Another feature of this microphone is a properly thought-out windshield, which is rather more sophisticated than the perfunctory systems fitted to most hand-held mics. In addition to the usual outer mesh basket and inner foam sleeve, there's a further foam element positioned right over the capsule on a lightweight plastic frame. This does improve matters, but in the studio, stand mounting and an external gauze pop shield are still recommended.

> "If your budget is strictly sub-£200, the ATM89R stands capsule and basket above the rest of the crowd."

EXTRAS

- **ACCESSORIES:** Soft zip pouch and stand-mount clip.
- **OPTIONAL ACCESSORIES:** AT853C-ELE Cardioid capsule; AT853O-ELE Omni capsule; AT853SC-ELE Sub-cardioid capsule; shock mounts; AC-powered external phantom power supplies; mic cables; high-Z matching transformer.

pros & cons

AUDIO TECHNICA ATM89R £200

pros
- Warm, natural sound.
- Low noise with good sensitivity.
- Attractive, solid styling.
- Very low handling noise.

cons
- No battery alternative to phantom power, which may limit its usefulness for location recording.

summary
The best sub £200 back-electret mic I've tried in recent months.

SOUND ON SOUND

TECHNICALITIES

At the heart of the capsule is a very low-mass diaphragm — just two microns thick — with a thin layer of gold applied to its surface to render it electrically conductive. This low mass enables the mic to react more quickly to transient sounds, and its frequency response of 70Hz-20kHz equals that of most studio capacitor mics. In side-by-side tests, the mic is also far more

ATM89R

sensitive than conventional dynamic mics; with an output of almost 8mV per Pascal, it also compares well with typical studio capacitor mics. This extra sensitivity helps when you come to record quiet acoustic instruments that would otherwise have your mixer input gain set at maximum, and the practical benefit is that recordings are quieter. The signal-to-noise ratio of the mic itself is quoted as 67dB, and with a maximum SPL handling of 138dB, you don't have to worry that it will overload when close-miking percussion. Output impedance is 100Ω, making it suitable for use with all low-Z mixer inputs.

Most vocal mics are 'doctored' at the high end to give them a slight presence lift, and this mic is no exception, but the presence peak is both gentler and higher up the spectrum than it would be on a typical dynamic model. There's also a very slight rise at around 150Hz, which gives the mic warmth in the 'chesty' region of the vocal spectrum. Like all cardioid mics, if the ATM is used close to the source it will give you a rising bass response, which is one of the reasons the designers have chosen to roll off the basic response at 70Hz rather than letting it extend lower.

The ATM89R's alternative capsules.

FINAL IMPRESSION

I think Audio Technica have got it just about right with the ATM89R: at the asking price, it has to be one of the best bargains around at the moment. For vocals, the sound is clean and natural, with a pleasant warmth, while the high sensitivity makes it useful as an acoustic guitar mic, or for working with ensembles further away from the mic. The extended high-end response also makes it suitable as a drum overhead, and the handling noise is as good as for any mic I've tried — particularly impressive is the way low-frequency handling noises and cable noises are attenuated. Similarly, the pop shield has been designed to be more effective than most, and the overall feel of the mic is pleasingly solid, without it being too heavy for extended periods of live performance. The option of purchasing alternative pattern capsules is useful, though most project studio mics seem to be left permanently set to cardioid. If you can afford to spend £300 to £350, the Rode NT1 is my best buy at the moment, but if your budget is strictly sub-£200, the ATM89R stands capsule and basket above the rest of the crowd. SOS

£ £199.95 including VAT.
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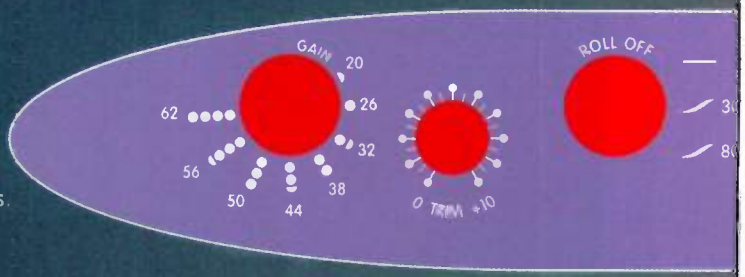

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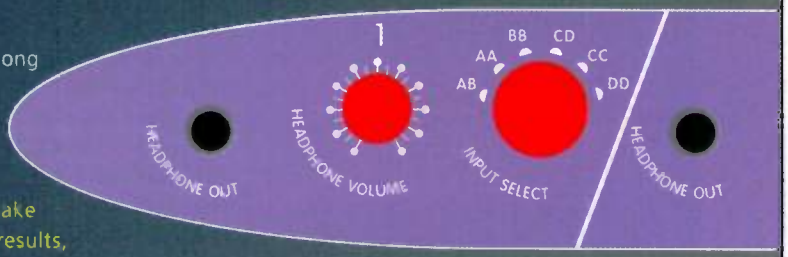

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Demeter VTD82B

Tube Direct DI Box

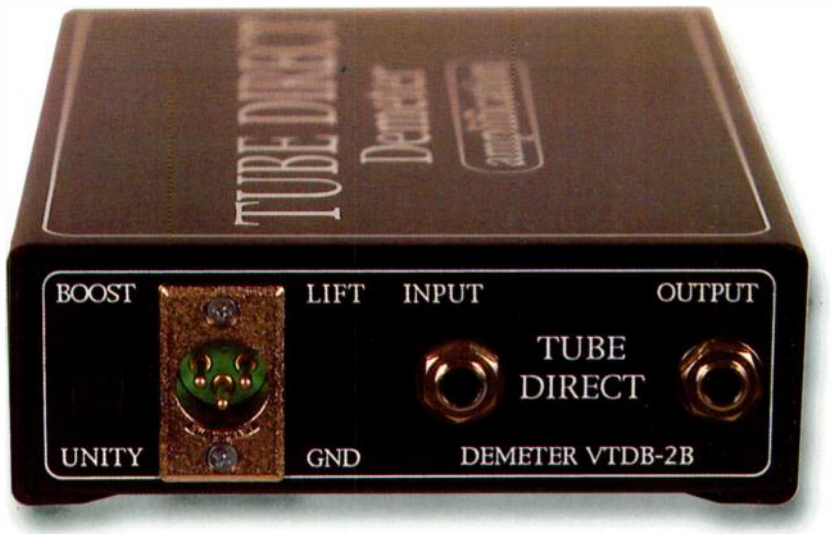
PAUL WHITE attempts to discover whether the Demeter Tube Direct is really the princess of DI.

Demeter is a name normally associated with tube-based signal processors, and this DI box must be one of the simpler products in their range. Intended to work both live and in the studio, the Tube Direct is designed to accept a high-impedance, instrument-level signal (such as an electric guitar), then convert this to a balanced, line-level signal suitable for connection to a mixing desk. A second unbalanced jack output is also provided, which may be used to connect a buffered version of the input signal to a back-line amplifier in live situations.

The unit's construction is solid but hardly elegant. A two-part folded steel case houses the electronics, which are mains powered via a captive lead. In the studio this is no problem, but for live use the requirement of a mains lead for a DI box is less than convenient. The lead is secured using a self-clamping plastic grommet, and though these are quite secure, they do tend to place stress on the secured section of the cable; I find they're also quite difficult to remove and insert should the cable need repairing. The voltage rating on the PSU capacitors leads me to believe the valve runs off a reasonable HT voltage rather than in 'starved' mode, and though the valve itself (an ECC83/12AX7 dual triode) doesn't have a retaining clip, it seems quite secure in its ceramic base. Separate PCBs are used for the PSU and valve circuitry, with the balancing transformer bolted directly to the case. All the wiring is discrete and hand-soldered, and star washers are used to prevent the transformer mounting bolts from working loose. There are input and output connections, and a Boost switch that provides around 10-12dB of additional gain and a ground lift switch.

Though valve DI boxes can't be driven from phantom power, for obvious reasons, they do have certain tonal attributes, not least the way in which valves compress when driven into their non-linear region. When used with guitars, this produces a more solid, even sound with nice top-end detail, and acoustic guitars with good pickup systems can sound exceptionally nice. What I really like about good valve circuitry is how it flatters the sound without adding any obvious coloration, though there's always a danger that when you're driving a valve hard with a complex signal as a source, the intermodulation distortion products can confuse the sound, and occasionally produce a dissonant edge.

Tested with my own acoustic guitar (which already has a built-in preamp), the sound became better integrated and slightly less edgy when DI'd via the Tube Direct; in the Boost switch position with the gains rematched at the mixer end, the sound was slightly warmer and smoother than on the normal setting, I felt. Though the effect is fairly subtle, it's definitely there, and, although some sound sources will benefit more than others, I liked what this box did. Furthermore, the Tube Direct isn't limited to acoustic and electric guitar or basses; it can also be used to warm up synths, samplers, or even vocals if fed from a channel insert point. This is not a pretty box to look at, but it certainly sounds the part. SOS



"What I really like about valve circuitry is how it flatters the sound without adding any obvious coloration..."

pros & cons

DEMETER TUBE DIRECT £558

pros
- Gives a warm, comfortable sound without seeming unnatural.
- Straightforward operation.
- Rugged construction.

cons
- Rather utilitarian physical design.

summary
A sweet-sounding valve DI box from a company with a good reputation for valve-based products.

SOUND ON SOUND

info

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LA Audio EQX2

Parametric EQ

Does the world need another budget parametric equaliser? PAUL WHITE discovers that it never had that many in the first place.

While compressors, gates and effects units come at us from all sides, there really aren't that many stand-alone equalisers at the non-esoteric end of the market, yet console EQs are often insufficiently flexible for any more than the most basic tasks. Part of the reason for this situation may be the difficulty of designing a good equaliser without spending a lot of money on components, but companies such as TLA, Aphex and Rane have proved that it is possible. LA Audio's approach is a 6-section parametric EQ that can be used either as a dual 3-band unit or a mono 6-band device. In my experience, very few jobs need to go beyond three bands, but it's always useful to be able to apply all your resources to one signal when the need does arise, especially if there are several 'rogue' frequencies that need notching out.

The EQX2 comes as a 1U, mains-powered processor with a choice of balanced XLR and balanced jacks at both input and output, optimised for +4dBu and -10dBV operation respectively. The Mode button, for selecting mono or stereo operation, is located on the rear panel, but all other controls are on the front.

Each of the six channels has the same control configuration, comprising a Cut/Boost control, a Q control and a Frequency knob. The knobs have a nice rubbery feel, with clear marker lines, but the Frequency controls are only calibrated at their maximum and minimum positions, and with a range of some 40:1, that leaves you totally in the dark as to what's going on in the middle. The Q controls are splined pot shafts with notched position markers, and while this saves panel space it does make them difficult to see. Again, it's impossible to judge what bandwidth is being applied between the two extremes; perhaps a centre detent (with printed value) would have helped a little.

The Cut/Boost control is detented and has the usual +/-15dB gain range. Each channel covers the same three frequency ranges, but the range of control is very wide, which means that in mono applications there's still plenty of scope to set the filters where you need them. The low section covers 20Hz-1kHz, the mid section 200Hz-8kHz, and the high section 500Hz-20kHz. In all cases, the Q control varies the filter bandwidth from around three octaves down to just one semitone, and a clip LED in each channel warns of overload caused by too much input and/or excessive boosting. Each of the two channels has its own bypass button, but there are no individual bypass buttons for the six filter sections — something that could make setting up easier, especially for the inexperienced user. A further button brings in a 12dB shelving high-pass filter at 75Hz to take out unwanted LF.

VERDICT

Compared to other cost-conscious equalisers, the LA EQX2 actually sounds pretty good, though you'll still notice the difference if you put it side by side with something really tasty, such as a Drawmer 1961 or one of the expensive esoteric models — EQ is one area where more money usually does equate to higher performance. The better equalisers let you pile on more EQ without making the sound seem unnatural, phasey or muddy. In this respect the EQX2 behaves well, as long as you don't go in for excessive boosting. Used carefully, the EQX2 allows you to warm up the bass, focus the high end and scoop out any boxiness. Having a fully variable Q also means you have much more scope than you'd get from a typical desk EQ.

On balance, though, this is a well-designed processor that offers the right mix of features and performance, so if you feel the need for more flexible EQ, but can't stretch your budget to the more exotic models, you won't go too far wrong with the EQX2. SOS

pros & cons

LA AUDIO EQX2 £249

pros

- Good balance of features and sound quality.
- Can be used in both dual-channel and mono modes.

cons

- Q pots are small, and both the Q and Frequency controls need better printed scales.

summary

Despite a couple of operational niggles, this is actually a nice-sounding equaliser for the money.

SOUND ON SOUND

In building this equaliser to a price, LA Audio have obviously had to make compromises, but they're one company who can usually be trusted to put the sound first and find somewhere else to make savings. For example, the small Q controls are a little irritating, especially as it's hard to see the pointer, and the lack of proper scaling around the frequency and Q controls means that you have to rely totally on your ears. In theory, this is how you *should* set up an equaliser, but after a hard day listening to endless takes of the same song, visual confirmation of what you're doing is sometimes reassuring, especially as you can't bypass individual bands.

info

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Fostex X14

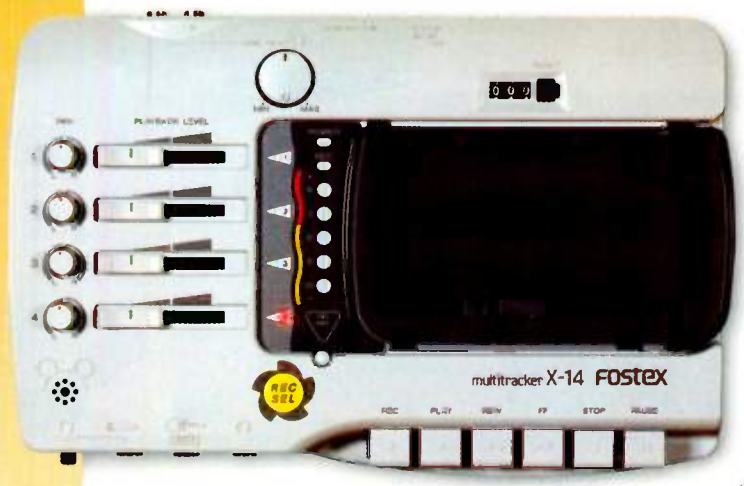
4-Track Cassette Recorder

Is the X14 cheap and cheerful, or just cheap? DEREK JOHNSON finds out.

Since their appearance in the early '80s, cassette-based 4-track recorders have offered the masses unprecedented access to multitrack recording on a cheap tape format. Yet there has always been a significant number of potential users excluded from this revolution, because although the cheapest cassette multitrackers are cost-effective, they still cost several hundred pounds. The industry's answer has been stripped-down and affordable units, typified by Fostex's X15. This machine, released in 1983 for about £300, has provided many with their first taste of home multitracking — and lessons learned on simple equipment often prove of value as you move up the ladder.

It's into this entry-level market that Fostex's latest multitrack, the X14, arrives. This late-'90s answer to the X15 is even simpler to use and more stripped-down on the features front, alarmingly so in some ways. For example, the X15 offered noise reduction, 2-band EQ, varispeed and recording on up to two tracks at once. The X14, which also runs at normal tape speed, does away with noise reduction, offers no EQ, lacks varispeed and can record on just one track at a time. It also manages without effects sends, insert points and individual tape outs. We're in serious no-frills territory here.

But before you turn the page, we'll get to the good news: the X14 retails at £149, half the original price of the X15.



FEATURES

A positive side-effect of the X14's unpretentious simplicity is that there are no hidden depths: one look at the controls should be enough to tell most users all they need to know about the machine's operation. The mixer section comprises four sets of pan pots and level faders (with record-ready LEDs to the right), a track-record select switch, a built-in mic (with automatic level control) and mic on/off switch, and a master output level knob. A big friendly bargraph meter registers the level of any incoming audio signal. Connections are few, comprising a mic input (with gain control), a guitar/line input, a headphone socket, and a stereo pair of phono sockets at the rear, for connection to a cassette deck or monitoring system. The cassette mechanism comes with mechanical transport controls and a mechanical tape counter. Power is, understandably, external.

The manual seems to indicate Fostex's respect for all their customers, from entry-level to pro: it goes into surprising depth for such a simple machine, and is perfectly designed for the absolute beginner.

OPERATION

Recording is easy. First, decide whether you're using a mic (the built-in one, or an external one) or a guitar/line source (synth, drum machine or whatever). Then use the Rec(ord) Sel(ect) button to choose a track to record (it cycles through 'off' and the four tracks), press the record button, and go. There's no input-level control on the guitar/line input, so you'll have to get your level right at source, with help from the X14's bargraph meter. Note that you can't select a track to record on while record is engaged, even if the transport is paused. When you've finished with your first track, select the next track, turn up the volume of the first track and play along with it. Do this for four tracks, and you're ready to mix. This will be easy — no pesky EQ or effects to worry about. Balance the level and pan position of your four tracks, record the result onto a stereo deck, and you're done.

pros & cons

FOSTEX X14 £149

pros
- Cheapest multitrack around.
- Very easy to use.
- Great manual.
- Built-in mic.

cons
- No noise reduction.
- Records just one track at a time.
- No battery operation.
- No bouncing.

summary

The X14 offers reasonable sound, and the cheapest way into multitracking around. Good to carry around as a notepad, but probably not a serious musical tool.

SOUND ON SOUND

Beyond this, there is nowhere to go: bouncing isn't possible, nor is recording in stereo — though you could record a backing track on a stereo cassette deck, pop the tape into the X14 and overdub two more tracks. And effects could, of course, be patched in-line with the stereo output.

The built-in mic's not too bad, by the way, bearing in mind its close proximity to the tape transport, and that it's not exactly a studio mic. Beware of setting up a feedback loop between your monitoring and the mic, though, and watch out for the automatic level control circuit.

VERDICT

What can you say about a product that's this simple? It's cheap, does exactly what it says it does, and sounds surprisingly good, considering the lack of noise reduction. It's a pretty good bet if you want something compact to drag around on tour (though it doesn't run on batteries, unlike the X15), and the built-in mic means that if you simply must get that killer tune onto tape, *now*, the X14 will be ready even if you don't have a mic to hand.

There's little competition for the X14: only Tascam's Porta 03 MkII, offering Dolby B noise reduction and 2-channel recording for around £200, comes to mind. So if you want absolutely no fuss and no frills, and could do with saving 50 quid, the X14 is for you. SOS

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Joe Meek VC2

Single-Channel Valve Voice/Instrument Processor

PAUL WHITE checks out the first tube product in the Joe Meek range.

Regular *SOS* readers will be familiar with the bright green Joe Meek signal processing range, a group of products created specifically to produce a vintage sound. Designed by Ted Fletcher and based on an original circuit concept by the legendary '60s producer Joe Meek, the compressor circuit, which is at the heart of most of the product line, uses an optical gain-control system based on a photocell and light source, but Ted has added some clever feedback circuitry to speed up its response, as well as redesigning the control system for greater stability and predictability of operation. However, in this model, the vintage circuit has been joined by a 2-stage high-voltage tube line amplifier, with the aim of delivering an even warmer sound.

The VC2 has no on-board EQ or expander gate, but it does have a rear-panel insert on a TRS jack (which comes directly after the preamp section) so that you can patch in your own. There's a choice of mic or line inputs, both on XLRs, and the mic amp has a transformer input stage.

From the preamp, the signal passes through the insert point, then the compressor, and finally the enhancer, before emerging on three connectors providing a choice of line-level-balanced XLR, -40dB-level-balanced XLR (for connection to a mic input), and a balanced quarter-inch jack. A further Mix In jack allows external line signals to be mixed with the VC2's mic/line signal prior to compression, and there's a phono Link socket for stereo linking two units.

LAYOUT

At the centre of the front panel is a large moving-coil VU meter that can be switched to monitor either compressor gain reduction or output level. A large knob sets the mic/line gain up to a maximum of 60dB, and the usual mic amp pad, phantom power, phase and LF roll-off switches are fitted. A red LED shows that the phantom power is active; bi-colour green and red LEDs indicate the phase and low-cut switch status.

pros & cons

JOE MEEK VC2 £1760

pros

- Easy to set, with clear metering.
- Helps sounds sit properly in a mix.
- Clean mic preamp section and very musical compressor.

cons

- Some users may worry about the lack of a separate compressor ratio control.

summary

A distinctive-sounding signal processor that makes light work of vocals, and is flexible enough to be used on instruments.

SOUND ON SOUND

The 2U VC2 is a single-channel device combining a mic/line preamp, a compressor, and an enhancer section very similar to that used in the VC4 (reviewed last month). Just a few years ago, it seemed that the 'everything in one box' channel approach was being rather slow to take off, but now the market is awash with voice channels, studio channels and other similarly named devices, all of which aim to provide a one-stop solution for getting a quality mic or line signal into a recording system without the need for a mixer. In adding a hybrid solid-state/valve device to the line, Joe Meek are obviously hoping to expand their market share by taking a slice of the valve processor business, and using valves fits into the overall Joe Meek design philosophy, which seems to be to deliver character rather than outright accuracy.

"Like other models in the range, the compressor has a smooth, well-rounded sound, but it doesn't squash the detail out of the signal..."

The compressor has conventional controls for threshold (labelled Compress), attack, and release, though there's no ratio control on this model. Instead, there's a push switch that provides two preset ratios, one a higher ratio for creating more obvious pumping effects. A compressor bypass button is fitted, as is a bypass switch for the insert point, and both these buttons have status LED indication. Compressor gain reduction may be shown on the large, illuminated moving coil VU meter. That leaves the enhancer, which has Drive, Q and Enhance knobs as well as its own bypass button, followed by the Main Output level control.

The enhancer works by bandpass-filtering the side-chain signal, then compressing it before adding it back to the original, and though this is rather different to the usual

harmonic generation approach, the subjective result is broadly similar. There's a dual-colour Drive LED to help set up the drive level, but this provides only a general indication of what's going on, and you have to make the final settings by ear. At the wider Q settings, the sound starts to become harsh and scratchy, so this setting is best reserved for treating individual instruments or for adding edge to drums — at narrower settings it acts more like a conventional enhancer.

OPERATION

Overall, the VC2 behaves very smoothly and is easy to set up, though, as I've mentioned, low Q (wide bandwidth) enhancer settings are probably too harsh to use on anything more subtle than a snare drum. More modest Q settings, combined with a restrained enhance level, add a flattering sheen to most sounds, especially voices and plucked instruments: the up-front, intimate vocal quality that can be achieved is exactly what most people are after when they say they want a more 'produced' sound.

The mic preamp has a warm but transparent quality that makes it sound good with both dynamic and capacitor mics, but the main character of the unit still comes from the compressor. Like other models in the range, the compressor has a smooth, well-rounded sound, but it doesn't squash the detail out of the signal, and it still sounds appealing when a lot of gain reduction is being piled on with the high-ratio switch setting. If you set it right, you can take the most outrageously uneven vocal line and make it sit perfectly in a track.

The tube's contribution is most noticeable when the compressor and enhancer are bypassed. Sounds become slightly more dense-sounding, and brittle detail within the sound is smoothed out without any top end being lost. When all the sections are switched in and set sympathetically, the resulting vocal sound from a halfway decent capacitor mic is excellent.

SUMMARY

The VC2 is a valuable addition to an already deservedly popular range of processors, combining the classic Joe Meek compressor and enhancer circuits with the warmth of a tube-amp stage and a good-quality transformer mic amp. Everything works exceedingly well with a minimum of controls, and I didn't feel the lack of a variable compression ratio at all. The only thing that's missing if you need a one-stop channel solution is EQ — you'll have to patch one in via the insert point if you need it — but, on the whole, this box gives you all you need to record a great vocal sound. The VC2 is a valid and cost-effective alternative to some of the currently available up-market vintage-style tube-based processors, and it really does produce that elusive vocal sound with the minimum of effort. SOS

info

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T 01494 434738.
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Groove Tubes

Capacitor Microphones

Already well known for their valve mics and valve processors, Groove Tubes have introduced two new mics, one a valve model and the other solid-state. PAUL WHITE compares the two newcomers.

Groove Tubes is the brainchild of Aspen Pitman, a self-confessed tube-gear addict with a penchant for nice microphones. Over the years, the company have built up a range of distinctive tube microphones that have gained a reputation for their warm, flattering sound, but these new models represent a departure from tradition in two areas. The first is cosmetic — instead of adopting the classic Groove Tubes cylindrical shape of earlier models, these new mics have a very Neumann-like profile, though the heavy punched grille creates a strong visual distinction. Apparently, the open grille is inspired by early RCA mics, and a further layer of woven material made of nylon and copper forms an inner protective layer that also provides RF shielding. The second big deviation from the norm is that the model 5sc is all solid state — a kind of tubeless Groove Tubes.

To take the enigmatic tubeless mic first, the 5sc is based around a large-diaphragm (around an inch in diameter), fixed cardioid-pattern capsule protected by a punched metal grille. This is a true capacitor capsule with an exceedingly thin diaphragm, and requires a 48V phantom power source to operate. To quote the literature, the capsule is reminiscent of, but not an exact copy of, the classic European capsules of the 1960s. Inside the nickel-plated brass body is a class A FET preamp with a transformer-coupled output stage, and all the components other than the transformer are mounted on two heavy glass-fibre circuit boards. Access to the circuitry is achieved by unscrewing the retaining ring around the output XLR connector, which allows the machined body shell to slide off.

Two slide switches are fitted into a machined recess just below the grille section of the mic, one for switching in a 10dB pad, and the other for bringing in a low-cut filter. The Groove Tubes logo indicates which side of the mic is active. Constructionally, the mic is encouragingly solidly built, with excellent capsule protection and an attractive matt plated-nickel finish. The recessed switches are virtually impossible to operate by accident, and the mic comes in its own foam-padded mini flightcase. A simple but effective shockmount is provided.

pros & cons

GROOVE TUBES 5SC & 6TM
£499 & £999

pros
- High standard of construction.
- Detailed sound quality, with the tube model also sounding nicely warm without appearing artificially coloured.

cons
- The 'tubeless' 5sc can sound a little unexciting compared with its valve-based siblings.

summary
Both these mics are welcome additions to the already well-respected Groove Tubes range, and the solid-state 5sc provides the user with a greater choice of tonal character.

SOUND ON SOUND

TUBELESS TONE

Tested with vocals, the 5sc delivers 32mV/Pa and is adequately sensitive for most studio work, which generally tends to involve close miking anyway. It has a less obviously flattering sound than the other mics in the range, and gives a greater impression of tonal accuracy. Compared with the new Rode NT1, also tubeless, it didn't sound as warm and delivered a rather less solid sound. Adjectives such as clean and crisp seem appropriate, and the sound exhibits plenty of transient detail, so it would perhaps be suited to someone who already has a rather thick or top-light voice. This impression is corroborated by the frequency response plot, which shows a nominally flat response with a quite shallow presence hump in the 4kHz region and a more pronounced lift at about 15kHz. Those who need help to thicken their vocal sound will do better to look at the tube models in the range, but for a more straightforward representation of the source sound with a little added top-end sparkle, this is the model to go for.

TUBE TIME

Outwardly, the only real difference between the 5sc and the tube-driven 6TM is that the latter has a black nickel satin finish, and if you look a little more closely, you'll find it has four slide switches rather than two. As for shape and weight, they're identical. Because the 6TM is a

5sc & 6TM

tube mic, it requires one of Groove Tubes' external power supplies to provide the HT and heater voltages for the valve, and the model provided for review has two channels, allowing two mics to be used from the same supply. The power supply connects to the mic via a multicore that carries both the audio signal and the power, but as a concession to the number of people who didn't like the 9-pin D-connector used on the earlier mics, the company have chosen to fit a 6-pin XLR connector to the microphone, and the 9-pin has been retained only at the PSU end. The mic signal emerges from the PSU on a conventional balanced XLR.

Inside, the mic has a similar capsule construction to the 5sc, except that it uses dual diaphragms — again, 5-micron, gold-evaporated — to achieve multiple switchable patterns. Both sides of the capsule are matched to within 1dB. Unusually, the pattern switching is handled by two switches, one for selecting omni, cardioid or figure-of-eight, and the other for switching from wide cardioid to hypercardioid. The pad and roll-off switches are the same as on the 5sc.

Powering the on-board preamp is a Groove Tubes-selected 5718M miniature wire-ended triode valve soldered directly to the circuit board. Again, the output is transformer coupled using a CineMag Nickel core transformer which is custom wound for low distortion.

In tests against the 5sc, the 6TM has a significantly warmer, more comfortable sound, but it also handles detail well. While some valve mics work well with only specific types of voice, I get the impression that this one will suit most singers. The sensitivity is broadly similar to that of its tubeless counterpart, and in typical studio situations where the mic is used close up, the background noise performance of both mics is more than adequate, the valve model only slightly noisier than its solid-state counterpart.

SUMMARY

Both these mics are good performers, but in slightly different ways, and the tube-driven 6TM sounds pretty much as you'd expect from Groove Tubes, with a lively, warm character. The 5sc is the company's first tubeless mic, but it uses the same basic capsule construction and delivers more of a warts-and-all, tell-it-like-it-is kind of a sound. Being ruthlessly honest, I have to say that I prefer the sound of the cheaper Rode NT1 as a large-diaphragm, solid-state microphone; if anything, the 5sc errs on the side of sounding just a little lightweight, no doubt due to its presence boost. While lack of coloration is a trait to be admired in certain microphones, large-diaphragm mics are generally used more for their ability to sound larger than life than for their uncompromising accuracy. Nevertheless, different voices do demand different types of mic, so if you need a mic that can open up the top end of the sound while keeping the low-mid clean, the 5sc should do a great job. SOS

info

£ 5sc £499 (with stand adapter and shockmount); 6TM £999 (with power supply). Prices include VAT.
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Zobel Active

Active Monitors

PAUL WHITE auditions a new name in active monitors, and discovers an interesting design approach that combines light weight, small size and a well-controlled bass end.

Active monitors come in all shapes and sizes and, despite the physical limitations of moving-coil loudspeakers, the ingenuity of speaker designers never ceases to amaze me. As a result of their almost fanatical devotion to sonic 'truth', we now have a wide choice of remarkably accurate loudspeaker systems that are both compact and affordable. Currently, the active speaker is flavour of the month, and there's a strong argument to suggest that active monitoring is the best way to go, but Zobel have approached the design of their active system in rather an unorthodox way.

Realising that desk reflections can be a real problem when nearfield monitors are used, they've designed their Active Ones to have an almost letterbox-like dispersion pattern so that, in effect, the sweet spot is very wide but covers a relatively narrow vertical angle. This is achieved by using two bass/mid drivers, one above and the other below the tweeter — though this configuration is by no means unique: it was first researched properly by Joe D'Appolito, whose name has been adopted to describe the arrangement. I suppose the theory is not dissimilar to that of column-type PA loudspeakers, which have a similar dispersion pattern, but it does mean that the speakers have to be mounted upright — if you lay them flat on the meter bridge, the 'letterbox' pattern will be rotated by 90 degrees, narrowing the sweet spot and spraying sound all over the surface of the console. The manual makes this quite clear, but I'll bet some users will still try using these horizontally, just because they look cooler that way!

Measuring a compact 38cm x 20cm x 31.5cm and weighing a very manageable 10kg each, the Active Ones come as a right/left mirror image pair; to make transport easier, they have a tough strap handle fixed to the rear panel, plus there's a solid protective baffle that clips onto the front of the box to protect the drivers in transit. These provisions, coupled with the light weight of the boxes, makes this a very practical portable reference system; in all other respects, the construction appears to be similar to that of other ported cabinets.

pros & cons

ZOBEL ACTIVE ONE £1299

pros

- Detailed sound with an even bass end when used at moderate listening levels.
- Compact and portable.
- Handle and in-transit driver protection baffle supplied as standard.

cons

- Sound quality tends to become noticeably harsher when the level is close to clipping.

summary

These are very revealing monitors with a useful amount of bass extension, suitable for the discerning user who doesn't want to monitor at deafening levels, and who values portability.

SOUND ON SOUND

There's no built-in EQ to compensate for changes in the bass end due to positioning, but a sensitivity switch allows the user to select -10dBV, 0dBu or +4dBu operating levels from the XLR input. The mains inlet and the power switch are on the rear panel. Both bass/mid drivers are fed from individual power amplifiers. Few specific amplifier details are available, as the manufacturer would prefer to keep some things secret, but I'm told that the high-efficiency drivers make it possible to use relatively low-power amplifiers, which help keep the weight down. The feedback circuit topography of the amplifiers effectively eliminates output impedance, and the result is a very high damping factor and very tight driver control.

The bass/mid drivers are built for Zobel by a major European manufacturer, and feature woven carbon-fibre lightweight cones in roll surrounds. The effective cone diameter is only around 10cm per driver, and both speakers have a ported acoustic enclosure.

At the high-frequency end is a 25mm soft-dome tweeter, again built to Zobel's own specification, matched in pairs. The high end is run at reduced power, with the amplifier running in Class A mode to eliminate crossover distortion at high frequencies, and a fourth-order crossover (based on the textbook Sallen and Key circuit) operates at 3kHz. The result is a response that's flat within ±2dB from 55Hz-20kHz, but the trade-off is that the maximum SPL is limited to 98dB at one metre. Although this is quite adequate for sensible nearfield monitoring, there will undoubtedly be those who disagree with my definition of the word sensible. Thermal

One

protection is provided to shut down the system if the amplifiers are allowed to overheat, and clipping is monitored by a red LED adjacent to the green power LED on the front panel.

PERFORMANCE

Tested with a wide variety of source material, the Active Ones impressed me with their deep, well-controlled bass end and detailed, articulate mid and high end. The transient response seems to be particularly good, and though this tends to result in a slightly forward sound character, the result isn't edgy or abrasive at realistic listening levels. Certainly these are very revealing monitors: if something is amiss in the mix, there's every chance these speakers will let you hear it. Providing you keep an eye on the clip LEDs, you can get a quite a lot of level out of the Active Ones at the regulation one-

> "These are very revealing monitors: if something is amiss in the mix, there's every chance these speakers will let you hear it."

metre listening distance, but the tonality does start to become a little more brittle as the maximum level is approached. There's also quite a noticeable difference in tonality if the speakers are positioned for a seated monitoring position and you stand up. This is to be expected, due to the deliberately restricted vertical dispersion angle, but if you have to stand up to adjust effects or equalisers, it's something you have to remain aware of.

SUMMARY

Zobel's Active Ones are priced to compete with the smaller and better established Dynaudio and Genelec active monitors, which means they're not going to have an easy run, but I get the impression that a lot of serious thought has gone into their design, and they are extremely good at their job. For me, their main strength is their revealing, detailed character when used at modest monitoring levels of 85-90dB; considering that these are fairly small nearfield monitors, they deliver a creditably stable bass end. Stereo imaging is also good, and the integral carrying system should appeal to producers looking for a mobile reference that's easy to transport and set up. Some will find the maximum SPL a little limiting, and certainly the tonal smoothness suffers a little if you work these speakers near their limits, but used within 'safe' monitoring limits (sustained average levels of over 90dB are considered to be harmful to your hearing), they sound crisp and well integrated. You can certainly buy more flattering speakers, but Zobel's specific design aim was to deliver a reference you could trust to pinpoint any weaknesses in your mix, and in my view that's exactly what a good studio monitor should be. It's certainly worth calling Stirling to book a demo. SOS

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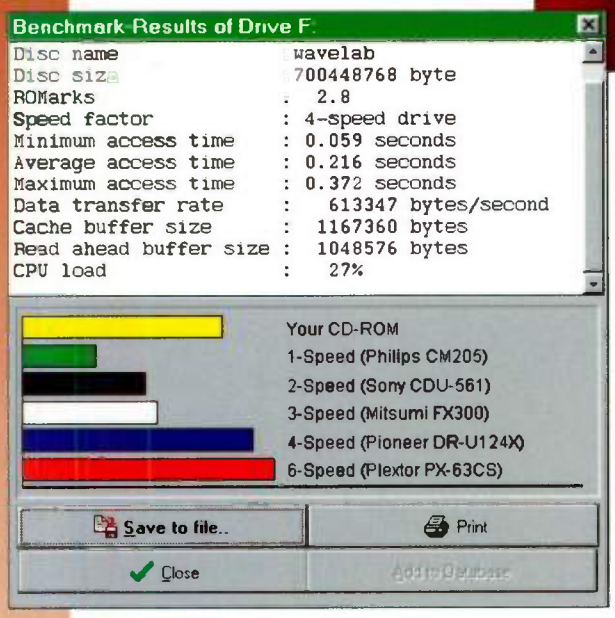
Dynatek CDS

External 4-Speed SCSI CD-ROM Drive

Musicians have problems finding CD-ROM drives that work reliably with samplers. MARTIN WALKER checks out one that claims to work with everything.

The test results for this CD-ROM drive are good for its class, although they will be affected by the rest of your SCSI system.

Buying a SCSI CD-ROM drive ought to be simple — decide on a speed (4x, 6x, 8x or faster), carry out a quick check on performance specs and price, and then buy your chosen model from a reputable local or mail-order outlet. Sadly, life is never so simple. Compatibility, far from being a matter of looking for an appropriate tick in the manufacturer's catalogue, is not a yes/no feature. There are so many conflicting standards out there that compatibility must be tested with each hardware device that you might want to connect. And musicians have a harder time than most. Some samplers, including Akai models, are picky about working with some drives. Akai say at their web site (http://www.akai.com) that NEC drives will not work, but most others will.



The CDS654E's spec, as verified by the CD Certify Pro utility.

> "For those who would prefer to grab a SCSI CD-ROM drive as a snack, rather than making a meal of it, the Dynatek is an ideal choice."

However, Akai unreservedly recommend only Apple Mac CD300E or CD600E models, and you won't find out whether another one works unless you can try it before you've bought it.

The Canadian company Dynatek have seized on this fact to provide a range of products that have been thoroughly tested with a range of music hardware, and this removes much of the guesswork from a CD-ROM purchase. The review model is a 4-speed SCSI device in an external casing, with in-built mains power supply. It features the same front-panel controls as most others — apart from the disc tray, there's a headphone socket and thumbwheel volume control, an LED, and an eject button. The LED is normally green to show that the unit is switched on, but changes to yellow to indicate 'busy' status. The change in colour was extremely subtle to my eyes, and a red/green LED would have been easier to see. The rear panel has a standard IEC mains socket, a small rocker mains switch, a pair of phono sockets for stereo audio output, and two 50-pin Centronics-type sockets for SCSI connection. In addition, there's a push-button SCSI ID selector, operating between 0 and 6, since ID 7 is normally used by a computer host adapter. However, for sampler use this convention does not apply, so having access to ID 7 as well would have been useful. A termination block is provided for use if the drive is at the end of the SCSI chain.

GOING FOR A TEST SPIN

Although there is no mention of which device is actually inside the Dynatek's casing, one of

654SE

the beauties of SCSI devices is that they can plug into any other SCSI-equipped controller. I attached the drive to my PC, and then powered up, and a new entry automatically appeared in Device manager — with the mechanism identified as the Sony CD-ROM CDU76S. I tested the drive with the *CD Certify Pro* utility provided with Quarterdeck's *Winprobe 95*, and it gave the results shown in the screenshot, left. This confirmed the speed as 4x, with an average access time of 216ms. It also worked with everything I could find to throw at it — Akai 2000, 2800i, and 3000 samplers, and both Mac and PC computers; I also managed to digitally grab a track from an Audio CD using the drive and *WaveLab 1.6*.

CONCLUSIONS

For those who would prefer to grab a SCSI CD-ROM drive as a snack, rather than making a meal of it, the Dynatek is an ideal choice. Although quad-speed devices are fairly slow by today's standards (new PCs come with 8- or 10-speed devices), unless you plan to do a lot of computer software installation, or run video clips, this speed will be perfectly adequate. Music Connections advertise that "Dynatek CD-ROMs work with all music applications, unlike cheaper imitations". However, there is nothing inherently better about them — what you're paying more money for is the extra time Dynatek have taken to check compatibility, which other manufacturers seem loath to do.

The price will seem high to PC owners who are used to IDE drives at under £100, but SCSI CD-ROM drives are more expensive, especially when supplied in external cases. If you need a drive that works reliably with music applications and hardware, this could save you a lot of hassle in the long run. You might buy cheaper, but unless you have a money-back guarantee to cover incompatibility problems, you might end up wasting a lot of time trying to negotiate a refund. Full marks to Dynatek for spotting this gap in the market and filling it. SOS

pros & cons

DYNATEK CDS654SE £175

pros
- Compatible with a wide range of music hardware and applications.
- Works with digital grabs of CD audio.

cons
- Rather a high price for the rated performance.
- No access to SCSI ID 7.

summary
An easy and reliable way to buy a quad-speed CD-ROM drive, albeit slightly more expensive than some.

SOUND ON SOUND

info

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Spatializer

TDM Spatial Enhancement Plug-In

PAUL WHITE explores the far dimensions of space using this spatial enhancement plug-in.

The Pro Tools plug-in market is expanding at such a rate that in order to run all the different plug-ins at the same time, you'd need an expansion chassis the length of a stretch limo, stuffed with DSP Farm cards. Plug-ins perform a number of processing tasks, nominally divided into effects and processors, though I'm not quite sure which camp the Spatializer *PT3D* fits into. It's applied like a process, via a stereo insert in the Pro Tools environment, but the spatial enhancement treatment it provides is most definitely an effect.

Spatial enhancement software and hardware has been with us for many years now, the most notable players probably being Roland, with their very ambitious RSS system, and QSound. Spatializer build both hardware and software spatial enhancement devices, and their approach is more in line with that of QSound than that of Roland, in that their aim is to widen the stereo image rather than attempt to place sounds behind the listener using a conventional two-speaker stereo monitoring system. The underlying process relies on spectral filtering and delay, applied to the signal being processed in such a way as to trick the human hearing system into believing that the sound is coming from the sides rather than from the front. Such systems also tend to include some form of crosstalk cancellation, because, in a normal loudspeaker listening environment, the left ear hears some of the output from the right-hand speaker, and vice versa.

To make stereo width enhancement work properly, a lot of real-time processing needs to be done, but one thing the designer has to keep in mind is that the process must remain easy to control. In that respect, Spatializer have done a great job of making their PT3D very friendly. Once it's installed from floppy, all you have to do is insert it into the desired part of the signal path (for example, the master faders) and adjust three simple controls. Like most plug-ins, the program is protected by having a limited number of installs: in this case, two. Before you format a drive, the *PT3D* needs to be de-authorised in order to restore the install to the floppy disk. I feel insecure with such systems and find them incredibly irritating — if my drive needs reformatting, I have about half a day's work removing all the various installs from my drive, and if one gets missed, it's flushed down the drain with the rest of the data on disk.

pros & cons

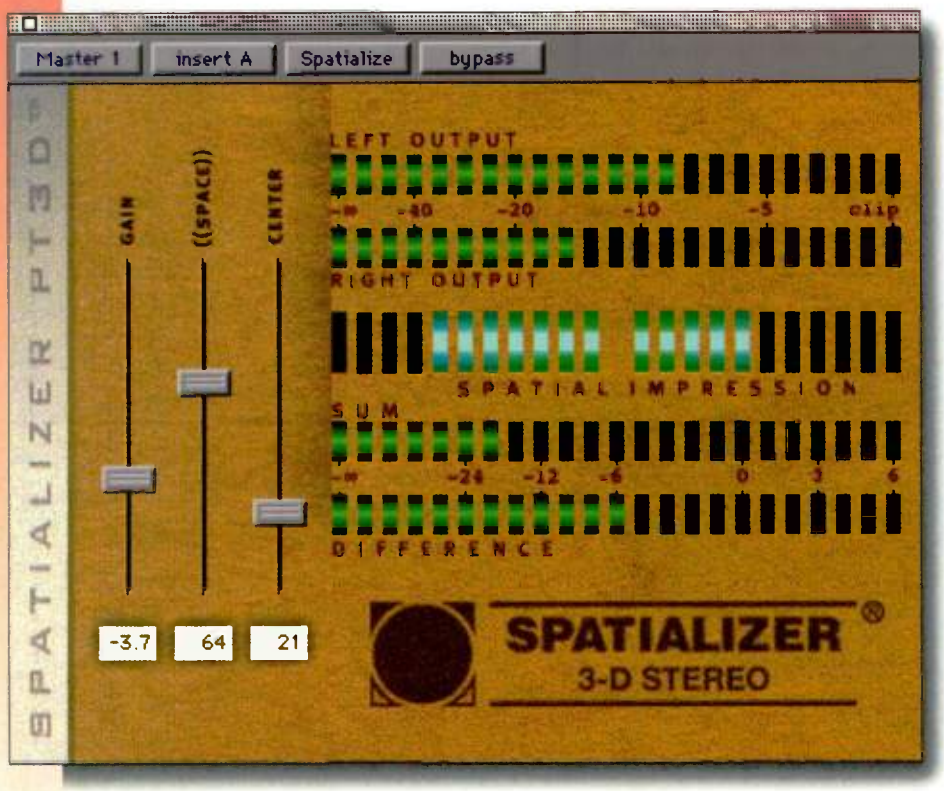
SPATIALIZER *PT3D* £305

pros
- Simple user interface with good metering.
- Impressive degree of width and depth enhancement.

cons
- Compatible with Pro Tools TDM systems only.

summary
A straightforward and very effective spatial enhancer capable of very convincing results.

SOUND ON SOUND



THE INTERFACE

Spatializer *PT3D* appears as a fairly typical plug-in window, though the Conservative Club colour scheme helps it stand out from the competition. Along the top of the window are the usual plug-in buttons, but the majority of the window itself is taken up with metering. Conventional bargraph meters show the output level, but separate meters are included to show the sum and difference signals between the two channels. A further meter monitors spatial impression by simultaneously showing left and right deflection from a central mono point. Impressive though the metering is, it's not just for show — for example, if the Sum meter constantly reads a low value, there's a likelihood that mono compatibility will be compromised.

> "Spatializer have done a great job of making their *PT3D* very friendly."

The first slider control simply sets the gain of the processor — some settings can cause gain increases, so it may be necessary to adjust the Gain control to prevent this. Space, as you

PT3D

might expect, sets the amount of spatial enhancement: the higher the setting, the wider the sound. Finally, Center adds a mono summed version of the signal back into the mix. The widest mixes are obtained when this control is set at zero but, on some material, sounds mixed dead centre may seem to fall back in the mix. Adding more Center can restore the natural balance of the mix without unduly diluting the stereo-widening process.

IN USE

The process works fine on both whole mixes and submixes, although, to maintain maximum contrast, I'd tend to use it just on submixes so as to push some elements of the mix out beyond others. For example, delay or reverb effects, backing vocals, and abstract synth parts can be pushed right out to the sides; unlike conventional ghetto-blaster stereo wideners, which work on phase only, Spatializer's process genuinely creates the impression that parts of the mix have moved forward and wrapped around the sides of the listening environment.

In fact, the effect is very seductive: when you bypass it, the sense of loss is similar to that experienced when you switch an exciter out of circuit, or switch a stereo signal to mono.

A potential problem with all stereo enhancers is that they can compromise both tonal balance and mono compatibility. On the mono-compatibility issue, I've always felt that as real life isn't mono-compatible, nobody should expect recorded material to be either. Provided that the side effects of listening in mono are within acceptable limits, why worry too much? As it stands, the comprehensive metering provided within this plug-in provides a good indication of potential mono compatibility problems, though I feel a mono test button could have been added to the plug-in button menu to allow the user a quick and easy means of assessing the situation.

SUMMARY

Tonally, the Spatializer *PT3D* is surprisingly benign, with no obvious loss of bass end or punch. Obviously there are some EQ changes to create the spatial illusion, but these are quite natural-sounding and create the impression of certain sounds moving closer, rather than seeming to be changes of level or tone. Apparently, most of the processing occurs between around 400Hz and 5kHz, and the manual suggests that equalising at 500Hz and 2kHz can provide interesting results. This particular process is designed to be compatible with Dolby Pro-Logic — though, as the manual points out, it isn't designed as a substitute for that process, and mono compatibility is also very reasonable in most cases.

Personally, I like 3D enhancement effects, providing they're used carefully, and I feel they can add a sense of intimacy and dimension to a mix that conventional effects can't replicate. Of the 3D audio packages I've tried, it's probably fair to say that Spatializer *PT3D* is one of the most straightforward to use, and the auditory illusion it produces compares very favourably with competing systems. SOS

info

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Bass Sound Module

Bass, how small can you get? NICHOLAS ROWLAND gives Alesis' new bottom end a good slap.

We've seen a plethora of units recently dedicated to emulating those hip and trendy analogue squelches (send in the clones, Mr Roland), but jack-of-all-traders, offering many different types of bass sound, are something of a novelty. In fact, I can think of only one — the Peavey Spectrum Bass, now in its Mark II incarnation. Having used a Mark I version in the past, I can say that there are definite advantages to being able to quickly access a range of bass presets, particularly when you're more interested in writing a real mover and shaker of a bassline than you are in programming the sound with which to play it. Hence my more-than-passing personal interest in the arrival of Alesis' new NanoBass. Like its cousins, the NanoPiano and NanoSynth, this is essentially a preset instrument (and, if you haven't twigged yet, those presets are all bass sounds) with relatively limited editability from its own front panel, but with awesome potential via MIDI. If you like nothing better than to eat System Exclusive data for breakfast, dinner *and* tea, the NanoBass is far bigger than its third-rack width might suggest.

THE OUTSIDE IN

As with all the other Nanos, there's no need to expend too many words on the externals. Front — five knobs, controlling volume, effect level, MIDI channel select, bank select and program number, plus two LEDS (power on and MIDI activity indicator). Back — socket for the supplied 9V AC wall wart, MIDI In and combined MIDI Out/Thru, and stereo left and right outputs (on quarter-inch unbalanced jack sockets). If you want to use the NanoBass as a mono unit, you need use only the left socket, although you will lose the full benefit of the effects, as many of these are in true stereo. That's the bodywork covered; what about the engine? Under the hood you'll find 4Mb of ROM, chock-full of 264 16-bit, 48kHz samples. Further sound manipulation comes courtesy of Alesis' Composite Synthesis system, as used in their QS range of synths (and, indeed, the NanoPiano and NanoSynth). Each NanoBass voice consists of a waveform, a sweepable low-pass filter, three envelope generators, three LFOs, and a programmable effects section offering four independent stereo multi-effect processing busses. So much power for one so small. But, as with the NanoPiano, to be able to customise the sounds you'll need editing software equipped to handle SysEx data, plus a far more comprehensive MIDI data specification than is supplied in the current manual. Also, as the NanoBass has no means of storing user edits, you'll need an external patch librarian.

> "One of the main virtues of having the NanoBass in your studio is in being able to quickly dial up the right sound for the situation."

pros & cons

ALESIS NANOBASS £339

pros
- No shortage of presets for the real world.
- Easy to use, but with considerable clout via MIDI.
- 64-note polyphony.
- Small enough to hide in your socks.

cons
- No user memories.
- Need to be a wizz with SysEx to edit.

summary
Versatile all-rounder with plenty of bang for your buck.

SOUND ON SOUND

THE INSIDE OUT

The good news is that it may well be a long time before most of us would even want to tackle the DIY modifications, such is the diversity and range of the 256 presets on offer within the NanoBass. These are presented in 16 banks, namely: Acoustic, Fretless/Harmonic, Elec 1, Elec 2, Elec 3, Funk, Acid, House, Rap, Industrial, Synth 1, Synth 2, Synth 3, Layer, Drone and Effect. With 16 sounds per bank, you can already begin to appreciate that there's plenty to get your teeth into, whatever your musical preferences. Inspirational acoustic double basses, FM funk floor-fillers, gritty analogues, vitriolic indie pop, clunky clavinets, flanged, fuzz, dub, sub... it's all served up here in glorious Technicolor. I could go through the list of my personal faves (a big hello to Big Emo and Fuzz Pluck from Synth 3, Super Rez and Gargoyle from Acid and Woody from House) but I don't think that's the point here. In most styles of music, the bassline is rarely treated as a character part: what matters is how it integrates with the rest of the track. So to put that to the test, I invited the NanoBass to sit in on a session with my usual virtual sidesmen while we ran through a series of MIDI file standards covering many different styles of music. This confirmed what I already knew as soon as I switched this little creature on — that one of the main virtues of having the NanoBass in your studio is in being able to quickly dial up the right sound for the situation.

The NanoBass responds to both velocity and aftertouch, and what's noticeable with many of the patches is just how dynamically expressive they are. Hit a key harder and you get more resonance, more sustain or, in the case of most of the layer sounds, a change to a complementary sound.

Bass

There's further fun to be had with the modulation wheel, the precise result being dependent on the sound chosen. On some presets it simply, er — adds modulation; on many of the acid sounds it opens the filter to create that nasty fizzing effect we all love. With several of the presets in the Effect bank, which sound as though they're arpeggiated, it alters the tempo of the sequence.

All this you have to find out by trial and error, as the preliminary manual is woefully short on detail, merely advising 'suck it and see' experimentation with the modulation wheel, plus controller numbers 12, 13, 91 and 93. The manual is also reluctant to reveal details of the preset effects which, again, vary according to the preset selected. Aside from straightforward flanges and reverbs, clearly, there are some sophisticated multi-effects being thrown at the sounds in there. I should

> "...let the NanoBass into your studio and you'll wonder how you ever did without it."

mention that, like the NanoPiano, the polyphony of the NanoBass varies between 64, 32 and 16 notes, depending on whether the preset selected uses one, two or four voices per note respectively. Again, the manual doesn't make it clear which presets use the most voices, although most conventional basslines would be hard pushed to exhaust even the lowest limit. That said, if you're into the Jaco Pastorius chordal approach, or find that the upper registers yield some appropriate lead sounds (as indeed they do), then you'll find a friend in Alesis' intelligent note stealing system, known as Dynamic Allocation.

WOULD I BUY ONE?

A good bassline can make or break a track, so for my money it makes sense to give the job to a dedicated unit which can handle it properly. You might not see it that way, but let the NanoBass into your studio and you'll wonder how you ever did without it. It's easy to use, it's versatile (even more so via MIDI), it sounds good, and it's got a few surprising sounds which are quite inspirational in their own quiet way. And for generalist musicians, I bet it'll prove a better long-term buy than any analogue bass clone.

But if there's scant detail on the technical side, what does that manual contain? Apart from preset lists and info on setting up, there's a couple of jokes about bass players and a whole chapter devoted to how to approach the writing of basslines (and, indeed, of music generally) in an open-minded and creative manner. And that's the point of the NanoBass. It won't write great basslines for you, but it *will* provide an armoury of sounds which may just spark your creativity.

SOS

info

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Publish and be Damned?

MUSIC PUBLISHING IN THE REAL WORLD

Getting a good publishing deal is as easy as predicting the toss of a coin five times in a row. BIG GEORGE WEBLEY takes a looks at heads and tails.

To give an accurate and full picture of the ever-changing complexities of music publishing would take up 100 times the space of this entire magazine — and that's no exaggeration. So since I can't hope to give you that level of understanding, the next couple of pages are an insight into how you can survive the trauma of "Do I or Don't I sign away the rights to the most money an artist can make in the music business?" We'll look at what some of the rip-offs are and how hard you may have to bite your lip when they affect you.

Of course, if you're just about to sign a five-year, multi-million pound record deal and the subject of publishing rights just happens to come up during last-minute negotiations, rather than reading this article I suggest you speak to your legal team immediately.

On the other hand, if you're thinking about forming your own publishing company (which, if you have a minor hit, can be very profitable when one of the majors buys you up, but until that point is a totally-time consuming, laborious and thankless task which incurs huge phone bills, solicitors fees and reaps no money whatsoever), or you're about to embark on a career practising music business law and specialising in publishing and its many legal intricacies, there are some excellent and informative books on sale in the classified section of this magazine, all at reasonable prices (see the 'Further Reading' box elsewhere in this article). These books contain everything you will ever need to know about fiscal remuneration from cross-collateral territorities and give examples of projected income from highly successful imaginary product, all explained at length in a highly technical and small print-type way.

But if you want an honest assessment of being a songwriter or composer in the latter part of the '90s that pulls no punches and isn't bogged down in irrelevant points or contractual niceties, then read on, at your own risk.

After decades of hits, the Stones call the shots when it comes to publishing, commanding percentages way beyond those attainable by bands just starting up.

WHAT IS PUBLISHING?

Put in its simplest terms, publishing is the collection of all money earned from the sales and performance of written work, inclusive of music, lyrics, poems and stories. There are two reasons for having a publisher (who takes a sizeable percentage of that money):

1. They (hopefully) have a network of reliable collection agencies and the experience to collect money from every source that pays for the use of the written work.

2. They will endeavour to exploit your work to the widest possible market, in order to earn you (and them) more money.

In other words, they can get money from places that you don't even know exist, and a percentage of something is better than all of nothing. Plus they will do their very best to find other ways of making money out of your work, without you lifting a finger. So the two key words here are Money and Exploitation, which we'll look at more closely later.

Another aspect of the creative side of publishing which is split into two is the people who need it, hereafter known as the Artist (oops — contract speak). There are artists who perform their own

material — be that brit pop, techno rave, easy listening ballads, folk, reggae, whatever — and artists who write songs for other people to perform. Which side of this divide you fall will affect how you reach your decision to sign on the dotted line. Of course, if you're in a band, you wouldn't say no to Whitney Houston releasing one of your tunes as a single, and I doubt if there's ever been a songwriter in the history of recorded music that would have turned down their own record deal, but getting a publishing deal is about getting the best for what you *are*, not for what you wouldn't mind being.

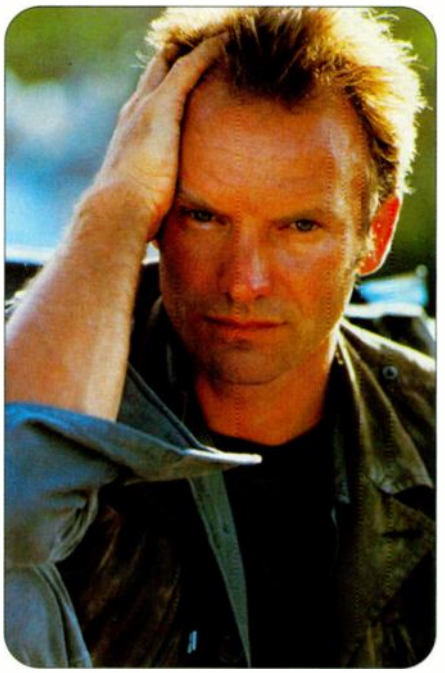
MONEY

Publishers give you money in two ways: Advances and Royalty cheques. Unless something drastic occurs, every penny they pay you as an advance comes out of the money you will eventually earn, and the more money they offer as an advance, the smaller your percentage is likely to be. 'Percentage' refers to what proportion of the total income is yours and what is theirs. The lowest split you should even entertain is 60/40 (except in exceptional, one-off circumstances, which we'll deal with a moment). Bands such as the Rolling Stones probably get 90/10, but anything between 60/40 and 80/20 is acceptable, and can be used as a bargaining tool from both sides of the table. If you're a struggling live act in dire need of money to pay off loans on equipment and fix the van, you could push for a bigger advance and a smaller royalty payment. Do bear in mind, though, that when you've got a number one single and album all round the world, and instead of getting £30 million in royalties you only get £20 million, you'll curse that old van and the credit card company, who now treat you like gold but a few years ago were on the verge of requiring you to mortgage all your vital organs when you agreed to 50/50 instead of 75/25 in order to get an extra £2000. It happens. The less you ask for up-front, the stronger your position in negotiating a higher percentage.

> "Contracts are packed full of waffle to grind you down and keep the legal profession in Saville Row suits, which they collect in their Rolls-Royces."

For non-performing composers, the truth is that, unless you're offered an absolute fortune, a blanket publishing deal is probably the last thing you want at the beginning of your career. The chances of getting a song covered by an established artist are enormously reduced if you don't have the publishing to offer as a sweetener. These days there are very few opportunities for new songs to be recorded by established artists (although there is a place where songwriters are in great demand — we'll get there later), and the chances are that your first taste of publishing will be with a one-off song assignment. This is where the singer's management will want to own the publishing on the song/s their artist is recording. The standard percentage in these cases is 50/50. They too are aware of how much money songwriting generates, which is why they want half of your money. The prospect of an artist who guarantees a large number of sales recording your song is a good enough incentive for you to agree the lowest percentage terms in publishing (anything less than 50/50 is daylight robbery, although it does happen). And if they have half of the royalties, there's more chance of your song being the B-side of the next single. (Did you know that the B-side of a single earns the same amount as the A-side on sales? This is why there are so many completely useless B-sides written by artists who haven't written the A-side.)

But whether you're part of an active live or production band or a solitary songwriter, it's preferable to hold onto your publishing until you've made your mark and the big deal comes along. The Shamen reportedly signed a deal for a £1 million advance and top royalties after 'Ebenezer Goode' got to number one in the charts.



Your pre-success past can haunt you, even when you reach the top. As a struggling musician in the '70s, Sting signed away his moral right to his early songs. Years later he was unable to stop the use of one of these songs in a deodorant advert, even after a court case.

EXPLOITATION

Sometimes a publisher can make you richer than a lottery winner without you doing anything. Placing one of your old songs on a hit film whose soundtrack CD goes ballistic can earn you well over a million pounds, and a lot of new friends. To a slightly lesser extent (although they're still not to be sniffed at), TV adverts are also very nice little earners. A bunch of session players re-record your tune on union rates while you cop up to £10,000 a week in royalties (it can be an awful lot more if the ad is shown in cinemas). This may sound brilliant, but some people would disagree with you.

Take Sting: he wasn't that impressed by the huge amount of money his song 'Don't Stand So Close To Me' earned him when his publisher (at the time) allowed a deodorant company to use it for a TV advert. A year or so before he became famous, while ▶

READING CONTRACTS

Never, ever, sign anything until you have taken it to a solicitor to read through for you. If you're in the Musicians Union, you will get a basic reading free. But before you take it to someone, read it to yourself, aloud. Start by photocopying it twice, once for the archives and secondly to mark up and cross out. Contracts are packed full of waffle to grind you down and keep the legal profession in Saville Row suits, which they collect in their Rolls-Royces. Go through the clauses one by one, underline the parts you don't understand, and cross out the bits that qualify every angle of a point (for example, "the Artist hereby assigns to the Publisher all the copyrights and all other rights whatsoever and howsoever now or hereafter known in all musical compositions and/or lyrics and/or original arrangements of musical works which may prior to the date hereof have been written composed or created in whole or in part by the writer and not been assigned by the writer to any third party". This amounts to you giving them the same publishing rights on songs or parts of songs you wrote years ago that haven't already been published by someone else).

Music Publishing

still in Newcastle, he signed a deal with Virgin music. The terms were a 50/50 percentage split, and the company also spent over £2000 (a fair amount 21 years ago) demoing up Sting's band. One of the standard clauses stated that he had signed away his moral right to all the music he would write during the lifetime of the contract. Which meant that the publishers were free to use his music for any purpose which would generate money, without asking his permission. And, as the advert used a soundalike band, Sting couldn't even stop the advert due to unauthorised use of his performance.

As I recall, during the subsequent 11-day trial, he spent around £150,000 *not* to be able to buy his moral rights back, although the advert came off air shortly afterwards. However, he did raise his percentage to a rumoured 90/10 and shorten the length of the contract (as is the case in all industry legal wrangles, both sides kept very quiet about the details).

You are not in Sting's position yet, so you have little chance (or, more likely, no chance) of keeping your moral rights in any contract that comes your way. In reality that isn't much of a problem, as most people would be over the moon to have a gorgeous model rubbing a roll-on deodorant all over his/her body whilst their music earned them enough money to buy a country mansion. But if you're totally committed to a cause — vegetarianism, for instance — you can legitimately ask (and usually get) a clause in whatever contract is on offer, to the effect that "at no time will your work be used in the promotion of meat sale, production, consumption or that of any other meat- or livestock-related product". But you have to get anything you want in a contract prior to signing it: once a contract is signed, sealed and delivered, the chances of amending it with details like this are zero.

WHAT ARE THE CHANCES?

To put it into context, there's more chance of you becoming an astronaut today than there is of becoming a successful songwriter. But all is not lost. The main questions are whether you can find the right opportunity, and, more importantly, whether you're dedicated enough to go for it and grab that opportunity.

Nashville — centre of the modern songwriting world...

...and 'Music Row', the part of town dedicated to the recording, legal, management and publishing aspects of the music business.

The days of the Brill building in New York, or Tin Pan Alley (Denmark Street in swinging '60s London) are gone forever. The only place that comes close these days is Nashville, Tennessee. In America, country music — which is a broad church, and encompasses all verse/chorus/chord pattern songs — is a boom business, and over the last 30 years has become a haven for many British songwriters and musicians. Country music is the only genre of mass-appeal popular music where the artists generally don't write their own songs — although, coincidentally, artists or their managers do seem to co-write a lot of songs with new songwriters.

Despite being a town dripping with money (it's also one of America's principal financial centres) Nashville still runs its business on traditional small-town values. The majority of the industry is based in two streets (see map above), which are full of studios, record companies, law firms, management companies and publishers. If you have a song, you can literally knock on any door and ask to play it and someone will listen. You don't even need to take a guitar with you — there are more classic Martin acoustic guitars hanging on office walls in Nashville than there are on the rest of the planet.

In a day it's possible, without prior appointments, to be heard by a dozen million-unit-selling publishers, managers, producers and studio bosses. But it will be the toughest day of your songwriting career.

Nashville is also legendary for its songwriters' cafés, where every evening established writers will get up and play one of the hit songs they've written for a man in a black hat, or a man in a ▶

BOTH SIDES OF THE COIN

Breaking down the income that songs generate is a major part of a publisher's job, particularly when that money is earned in foreign parts. In reality, there are only two collection agencies who account for the majority of the money you will earn from your work. They are:

• Performing Right Society Ltd (PRS), 29-33 Berners Street, London W1P 4AA. Tel: 0171 580 5544. Fax: 0171 306 4050.

They collect all the money generated by the performance of music, whether pre-recorded or live, on radio, TV, juke boxes, and in pubs, shops, and so on. All establishments that invite the public in need a PRS licence to play background music (even the radio) — though this type of licence is not to be confused with a music licence. To join PRS, you must have had three songs commercially released. The lifetime membership fee is £50.

• Mechanical Copyright Protection Society Ltd (MCPS), Elgar House, 41 Streatham High Road, London SW16 1ER. Tel: 0181 664 4400. Fax: 0181 769 8792.

These people collect the money from every manufactured copy of a CD, record, tape, video, CD-ROM, or anything else that contains music which is sold. It's free to join, as they take a small commission. They also have the Copyright Clearance Department (see my article in the June issue of *SOS*), which is the best free service in the entire music business.

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white hat, or a red-haired girl in a gingham dress, or a brunette in tight jeans. You can put your name down and hopefully get called up, although when you hear your name it sends a cold shiver up your back, as these writers are more than just fantastic — they're the best of the best. If you're good enough, the most you can hope for is a chat with one of the elite; maybe, after a couple of months of bumping into each other at cafes, they might invite you over for a barbeque. That's you on your way towards either a co-writing session or an orgy.

"Publishers can get money from places that you don't even know exist, and a percentage of something is better than all of nothing."

The fact that Nashville is so accessible explains why it's a town swamped in available songs (one company told me they currently have half a million tunes looking to get placed), and a personal recommendation is worth more to the people who put songs forward to artists and producers than a hunch. But if you're serious about being a writer of good three-minute songs, with a hook-line and a narrative, you ought to go to Nashville and check it out — it's the centre of the songwriting world.

What do you mean, you can't afford to? This is not an industry where careers are delivered to your door; if you get a song placed and it does well, you can look forward to a life of sitting around penning tunes and hanging out with buddies down at the bar, while airbrushed artists tour the country making you vast sums of money. If you're not prepared to give it a shot, there are lots of other people who are. Fortune favours the brave, and there are plenty of middle-aged factory workers who wish they'd given it a shot rather than sitting indoors waiting for the phone to ring. No-one is beating a path to your door to sign you up — you have to go looking for it.

Getting to Nashville is easy: there's a flight direct from Gatwick for less than £300, motels cost about £20 a night (or £25 a night for two), and you can eat as much as you want for £5 a time in a variety of chain restaurants. A car will cost about £200 per week, inclusive of top insurance (you need a car to do business in the USA) and petrol is 20p per litre. So what are you waiting for? Composers and musicians have historically globe-trotted to seek richer pastures: why are you so special?

NOTE FOR NOTE

There's more money made out of songwriting than any other aspect of the music business. For instance, every time Radio 1 FM play a tune, they pay £34 for the privilege — not to the artist or ▶

WHO CAN YOU TURN TO?

• British Academy of Songwriters, Composers and Authors (BASCA), The Penthouse, 4 Brooke Street, London W1Y 1AA. Tel: 0171 629 0992. Fax: 0171 629 0993.

Of all the songwriters' clubs, guilds and societies in Great Britain, the most useful is BASCA (British Academy of Songwriters, Composers and Authors). Established 50 years ago, they have around 3000 members from all areas of contemporary songwriting and composition. They have a position on the board of all the major organisations that deal with copyright royalty payments, and they fight the songwriter's cause.

They also hold, free of charge, a fortnightly Business Affairs Workshop attended by two industry lawyers, a specialist accountant, and representatives from PRS and MCPS, where writers can voice their own concerns and have their problems dealt with on the spot. Alongside these are regular workshops where unsigned songwriters get the chance to have their work critiqued by leading publishing A&R representatives, as well as experienced (and successful) songwriters — not for the faint-hearted. BASCA also administer the highly credible (sic) Great British Song Contest, where the winner goes on to represent the nation in the Eurovision Song Contest.

But don't let that minor point deter you from enquiring into the wide range of other crucial services they provide either free or for a nominal fee. Membership starts at £35 per year.

DOES SIZE MATTER?

There are five major music publishers on the planet — BMG, EMI, Sony, Warners and Polygram — whereas there are tens of thousands of smaller publishing companies in Great Britain. Let's look at a couple of the pros and cons of being signed to either one.

MAJOR PROS:
- More negotiating muscle and an ever-tightening grip on all the outlets that use music.
- Plusher offices, with more people to work on your catalogue.
- A larger standard percentage rate.
- Being on the same roster as hundreds of superstars.

MAJOR CONS:
- You are the smallest cog in an enormous machine.
- No personal relationship between your talent and their money.
- A longer wait to be accounted to and faceless bureaucracy to deal with when you have a concern you want to raise.
- You're an insignificant name on a large roster, and you may only be there because the company wants to own more assets than their competitors, whether they pay off or not.

SMALL COMPANY PROS:
- You're treated as an artist and not a number.
- There's someone you can talk to about your creative flow and who cares.
- Personal attention for you and the exploitation of your work.
- You will not be part of the faceless market-share mentality of all major corporations.

SMALL COMPANY CONS:
- They go into liquidation and your career gets frozen in the courts.
- If you fall out with them, life can be pretty sticky (mind you, if you fall out with a major you can be stuck for life).
- If one of their other artists gets a tickle, you get forgotten.
- They're undoubtedly administered by one of the majors anyway, and therefore you're losing out on the commission they're paying to the majors.

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Music Publishing

▶ singer, but to whoever owns that song. If you're the composer you'll be lucky to get more than half of that. Why? The PRS [Performing Right Society] account to the publisher, who will take half of all performance royalties (they normally do), then the publisher accounts to you — and charges you for accounting. If you're a member of PRS you can ask for these royalties to be accounted directly to you: not only will you save commission, you'll also get your money 90 days sooner.

On income from international sales you can be at the mercy of some terrible financial dodges. Most, if not all, contracts state that the artist will receive 'X' percent of all *net* monies received by the publisher from foreign parts. What happens, time and time again, is that a publisher will have a stake in a network of foreign collection agencies who will collect your earnings, take a commission and pass it onto the next collection agency, who repeat the process. Your money can be collected by as many as 10 collection agencies *en route* to your pocket — with the result that much less ends up in your pocket.

This is just one of the things you'll have to put up with until you cease to be a struggling artist and become a multi-national company in your own right, but that's a hit song away. You might already have written it, too. Nick Lowe's most financially successful song is 'What's So Funny About Peace Love and Understanding?'. He wrote it as a teenager and recorded it with his band Brinsley Schwartz in the early '70s. It was covered in the late '70s by Elvis Costello and the Attractions, but it made the big bucks in the '90s when some anonymous American male beefcake singer recorded it and it was included on the soundtrack album to the Hollywood blockbuster *The Bodyguard*.

The trick is to know the right time and the right company to sign away your publishing to. That doesn't mean the first offer that comes along: never be pressurised into signing, always take independent legal advice, and always make it *your* judgement call. That judgement may be that you have no option but to sign — but remember that publishing deals are similar to the retail trade: if someone offers you a deal, there are a number of other companies out there who may be willing to match or better that offer. Bettering the offer may mean a smaller advance but a larger percentage, or vice-versa.

So good luck in getting the right publishing deal: it's something not to be entered into lightly. Until then, make sure you protect your work — sending a copy to yourself in a registered envelope is an adequate method, as long as you don't open the envelope. An even better bet is to give it to someone respectable that you trust to hold onto for you. If you feel the investment is worthwhile, put it in a safe deposit at a bank; depending on the bank this can cost £50 per year, whereas a registered envelope costs less than a fiver, and is legally safe (ish). There's no such thing as a *really* safe bet in this business. SOS

> "Every time Radio 1 FM play a tune, they pay £34 for the privilege — not to the artist or singer, but to whoever owns that song."

GOING GLOBAL

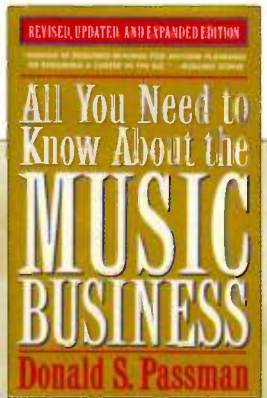
• Nashville Songwriters Association International (NSAI), 15 Music Square West, Nashville, Tennessee 37203 USA. Tel: (001) 615 256 3354. Fax: (001) 615 256 0034.

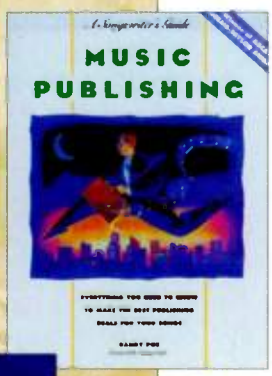
This is possibly the most in-tune songwriters' organisation in the world, and is truly international, running writers' workshops and setting up showcase gigs for million-selling composers all over the world, even in Britain. Members include all the very best, and that does mean the most successful, and they offer books and videos which explain how things work. Their rates are over $100 per year but you get a lot for your money. Y'all give 'em a call, ya hear?

FURTHER READING

As I mentioned at the start of the article, there are a number of comprehensive music publishing manuals on offer, all of which will give detailed breakdowns of every point of law relating to your circumstances (and everyone else's). In practice, the more you try and change the wording of a contract the richer the legal profession get, the longer you take to get a deal, and the more the publisher goes off the idea. But if you want to read a horror story of truly terrifying proportions I highly recommend *Expensive Habits — The Dark Side of the Industry*, by Simon Garfield, ISBN 0-571-13721-0.

This is a true and frank account of some of the most despicable business deals done between established companies and top stars such as George Michael, Bruce Springsteen, the Rolling Stones, the Kinks, and an up-and-coming combo who should do well for themselves, The Beatles. It's a fascinating insight into how bad things used to be in the music industry. I eagerly await a book about how much worse things have become in the corporate world we live in.





Some of the books available from SOS Mail Order on the subject of publishing (see the back pages of this magazine).

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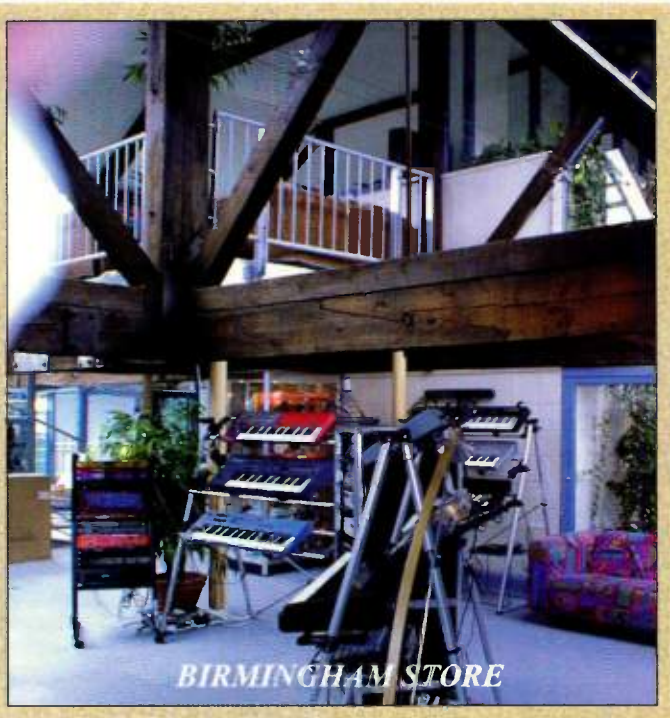

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Z1 NOW IN

PRICE BEAT

Sound Generation Nord Lead is the first digital synthesizer to use 'Virtual Analog Synthesis'. Clavia has analyzed analog synthesizer design in detail and implemented the research in a digital model. Nord Lead employs mathematical simulations of the electronic signal generated by analog oscillators, instead of using waveform tables. This enables it possible, for example to sweep the pitch smoothly over a very wide range and effects for true pulse width modulation.

Voices - 4 voices expandable to 12. 4 part multi timbral.
Special Features - Velocity programming: Each function, controlled by a knob, can be programmed to velocity. Morphing: Each function, controlled by a knob, can also be controlled by the modulation wheel/pedal to continuously fade between two values.
Performance controllers - 4 octave velocity sensitive keyboard with octave shift buttons (5 oct.). Modulation wheel, the 'Pitch Stick' (features no dead zone at zero crossing), pedal input for sustain or expression pedal. Patent pending for the 'Pitch stick'
Oscillator section - Two oscillators generating triangle, sawtooth or pulse (with adjustable width) waveforms. Oscillator 2 can also generate noise with a colour control. Oscillator 2 can be hard 'synched' to oscillator 1. Linear deep frequency modulation of osc1 from osc 2.
Filter section - 12dB '2 pole' lowpass, 24dB '4 pole' lowpass, bandpass or highpass. Cut off, resonance, envelope amount, envelope amount controlled by velocity, keyboard tracking and ADSR envelope.
Amplifier section - ADSR envelope, gain control.
Modulation section - LFO 1 generating triangle, saw or random routed to Osc 1+2, Osc 2, filter or pulse width. LFO 2 produces a triangle waveform, routed to Osc1 and 2 or amplifier. It also controls the rate for the arpeggiator. Arpeggiator: Range: 1-4 octave. Modes: Up, down, up/down. Modulation envelope (attack, decay) for osc 2 pitch or FM amount.
Performance section - Play mode: poly, legato, mono, unison mono, unison poly. Manual mode: 4 program slots for layering possibilities. Portamento: auto portamento.
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Memory - 40 user-programs, 59 factory programmes and 100 factory performances. With the 8 voice expansion-card, the Nord Lead can hold an additional 297 (99x3) user-programs and 300 user-performance programs on a PCMCIA 128 kilobyte battery backed RAM card.
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NORD 2 RACK 2 £1495
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YAMAHA

NEW

Has this company woken up from a deep sleep or what. I mean, this is the company that bought us DX synths, TX Synths and VL synthesis. And now this little winder called the ANIX. This synth really must be heard. No advert can ever convey just how good this little gem really is. Don't forget there's still the CS1X & VL70 as well. Also hot on the heels of the ANIX is Yamaha's A3000, this sampler is so packed full of features, that it has most of the established sampler manufacturers hurriedly rushing back to the drawing board. Once again you must come in and sample the delights of this unit for yourselves (no pun intended.)

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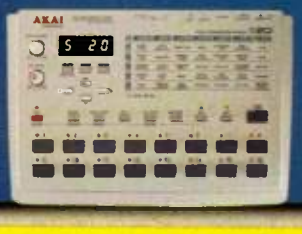
ENSONIQ

ASR-X
RRP
£1199

MR RACK
RRP
£899

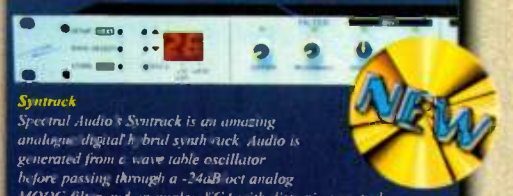
AKAI

As we are the UK's largest AKAI retailer you can be sure that you will find units on show and on demo in all of our MUSIC CONNECTIONS stores.



Spectral Audio

SYNTRACK
£299



Syntrack
Spectral Audio's Syntrack is an amazing analogue/digital hybrid synth/rack. Audio is generated from a wave table oscillator before passing through a -24dB/oct analog MOOG filter and an analog VCA with distortion control. An external audio input allows anything to be passed through the filter and distortion sections. All parameters are controllable in real time over MIDI.

It sounds absolutely unique. Amazing DX-like basses, jungle dope-basses, squealing leads, and all manner of bleeps and thwaps can effortlessly be coaxed out of this little baby. It really hits the sweet spot! **FACTORY DIRECT PRICES!**

Steinberg

Rebirth Techno Micro Composer
RB-338

Software synthesis / Two Bass Lines / One Rhythm Section / Digital Delay / Distortion / Integrated Sequencer / Full Automation
Believe the unbelievable

propellerhead SOFTWARE

Steinberg

STEINBERG OPEN DAYS

The Steinberg roadshow will be appearing at our Chelmsford branch on Saturday 6th of September from 11am onwards. Main attraction of the event will be Cubase VST for PC. More details can be obtained from 01245 354777.

novation

Super BassStation
An exciting evolutionary development of the BassStation rack, the new Super BassStation adds a plethora of must-have features: a sub oscillator, white noise, ring modulation, LFO2, independent external MIDI sync of both LFO's, arpeggiator, analogue chorus and distortion effects and stereo outputs with assignable autopanning. The MIDI to cv/gate converter can now be run on a seperate channel, and can even derive an analog trigger output from MIDI clock. Phew!
This unit can now be seen as a serious tool for the serious synthesist.

EMU

EMU E-SYNTH
Just arrived by EMU the stunning new E-SYNTH. Just study the specification below to realise what this new combination can do for you.

Up to 128 note polyphonic
Up to 32Mb High Quality ROM sounds
Up to 32Mb Multitimbral with voice card
16 Outputs
Digital Modular Synthesis
64 x 6 Pole Filters with 2 filters
24 bit stereo effects
Advanced 48 track sequencer
Stereo sampling up to 64Mb
Digital Resampling
Pc & Mac Editor included
SCSI Interface & 2 Great Cd-Roms included

With all this standard spec, you reckon you can live without this great new piece from EMU. CALL US FOR DETAILS.

Roland

As manufacturers of some of the finest Hi-tech music equipment ever made, it is only fitting that a company, of the calibre of Music Connections holds a very comprehensive range of their equipment in stock, for you to try & purchase. If you have any questions, or you have been quoted a price and would like to see if we can beat it for you, give us a call & let us show you why we are the best.

RACKS
£CALL

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Music Connections have grown yet again!
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Providing Links, sales, part-ex and reviews everything you would require is now available via the internet. you can even email us for brochure requests etc.

www.musicconnections.co.uk

Notice to salespersons
Chelsea is in need of a hard working, experienced, dedicated salesperson. if you believe you fit the bill please give us a call.

EMU DARWIN EXCLUSIVE

Introducing the DARWIN 8 Track Digital Hard Disk Recorder from Emu Systems. DARWIN is a stand-alone random access recorder that features screen-based digital audio workstation (DAW) style recording/editing capabilities, tape based system ease-of-use, and a price point competitive with ADAT and DA-88 modular multitrack digital recorders. What does that mean to you? Plenty. DARWIN is much more than a simple recording device. DARWIN is a creativity tool unto itself which will stimulate your imagination and allow your recordings to evolve as quickly as your ideas. Forget the limitations of traditional tape-based recording. DARWIN delivers the mindbending power of non-destructive random access and recording editing. Consider being able to cut and paste that riff you could only get right once, over and over throughout a song, seamlessly and effortlessly. Or, completely change the structure of a song - dozens of different ways with just a few keystrokes - without affecting your first take. Or, instantly resurrect that once-in-a-lifetime vocal track you accidently punched-in on and wiped out. DARWIN will do it all.

Just when you thought you had made up your mind on what hard disk recording package to buy, EMU arrive to spoil your plans. Do you remember the [illegible] this wonderful piece of equipment developed by EMU but unaffordable by you. Well EMU thank god have had a change of heart. Exclusive to Music Connections we bring you that exact piece of equipment for the amazing sum of [illegible]. Yes that's right just [illegible]. Now when we heard this news we had to stop and think? Is there anything that's comparable at anywhere near the price to this amazing piece of equipment. To tell you the truth, we don't think so. And could this new really be the end of tape based recorders as we know them?
This machine is so capable that it is impossible to tell you everything about it in an advert, and really you should see it in the flesh to see just what amazing value this represents. So if you were thinking of a tape based machine, maybe you should think again. Give us a call, come and try it, or forever stay in the dark ages.
This offer is limited to first come, first served.

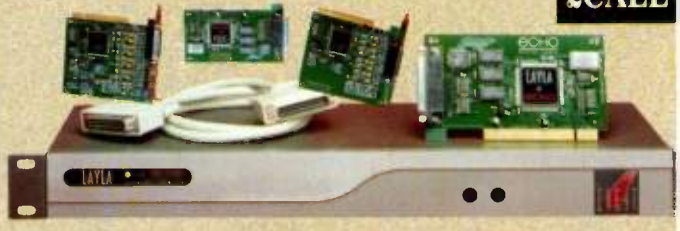
Advanced DAW features?
Absolutely. Try on DARWIN's high resolution graphic display, or nondestructive playlist-style editing, or multiple levels of undo. And these are just the tip of the iceberg.
Want more than 8 tracks?
No problem. Up to four DARWIN units can be slaved together for 32 instantly accessible tracks. Of course DARWIN can also be used as an expander to a tape-based multitrack. But most amazing of all is the unlimited track capability of a single DARWIN through it's Virtual Slave Reel (VSR) feature. Using VSR, you can instantly create new versions of a project that can then be used for recording additional tracks. The number of additional tracks that can be created with VSR is limited only by your available disk space.
In addition to the already proven expansion cards including ADAT sync Option card, ADAT Digital I/O card and 4 input expander card EMU are dedicated to improving an already outstanding machine. Recently released is the new DSP card with a 32-bit floating processor for timestretch, pitchshift, gain and compression and soon to be released is the SMPTE time code card allowing 16 Darwins to be linked together and features the best interaction with ADAT seen to date.

ENSONIQ PARIS™

20-bit Multitrack Recording system

PARIS is the most advanced digital audio recording system ever developed. PARIS seamlessly integrates digital audio recording, object-orientated editing, digital mixing with automation, real-time effects processing and MIDI sequencing into an intuitive and flexible environment. PARIS grows to meet your needs with a dedicated control surface and a family of expandable input/output modules. Powered by ENSONIQ DSP technology on a cross platform PCI card, PARIS delivers a total audio recording solution at a revolutionary price.

EVENT LAYLA - 20bit Multitrack Recording System



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digidesign®

ProTools £CALL

Now you can literally get your hands on ProTools digital audio workstation software

Mackie Design's HUI is designed to control and respond to Digidesign's ProTools Version 4.0 and in the near future, DAE compatible software too. HUI lets you mix via a real, tactile control surface complete with motorized faders...rather than with a mouse or a unidirectional fader pack. Perform real-time, hands-on multi-channel fades, mutes; select and adjust sends; create subgroups; and change dynamics. In short ; track and mix down just the way you would on a large, automated console, yet with complete bi-directional interaction with ProTools 4.0. HUI will immediately reflect all standard mixing values, functions and pointers.

HUI controller architecture supports standard MIDI protocol in either 7-bit or higher resolution 9-bit applications as well as utilizing simple controller and note values. Rear panel I/O includes analog jacks (three stereo audio pairs), a footswitch jack, ADB mouse thru, MIDI in and out and RS422 port for direct computer connections.

HUI £CALL

AUDIOMEDIA III now available call for details.

emagic

EMAGIC £CALL

Audiowerks8 is a PCI recording card with 2 analog inputs, 8 individual outputs, and stereo digital I/O (S/P-DIF). Audiowerks8 is fully compatible with any MacOS or Windows 95 PCI computer.

FOSTEX

D-90 £CALL

NEW

FOSTEX D-90

- True multitrack recording
- CD-quality recording and playback
- Removable Front Panel Remote
- Unique Virtual Reels
- Cut, Copy, Paste & Move Editing
- 8, 16 or 24 Tracks
- Analog & Digital I/O
- Flexible Loopy Functions

FOSTEX D8/16

Some digital recorders ask you to make do with 12-bit recording, some with compression, some even expect you to accept inferior sample rates.

Professionals don't accept these 'cost cutters' so why should you?

The fact of the matter is that CD quality recording demands full linear 16-bit resolution digital to analog conversion at a sample rate of 44.1kHz.

A specification which the Fostex D8/16 meets with ease. With it's own 32-bit RISC CPU, this incredible machine gives 8 tracks of CD quality recording and playback, to and from an internal 540 MB hard drive which is upgradeable.

Your tracks include 4 track simultaneous recording, cut, copy, move and paste audio editing with full or edit only undo & redo, MTC (Midi Time Code) sync facilities, 6 automatic locations for jumping to songs or sections, a handy dual-function jog/shuttle wheel providing digital scrub without pitch change, Auto locate to ABS time and Abs Pad, archiving via DAT and individual channel outputs.

You with all this sophistication it's easy to use, adding new meaning to that often misused phrase 'capetian studio'

D-160 £CALL

NEW

NEW

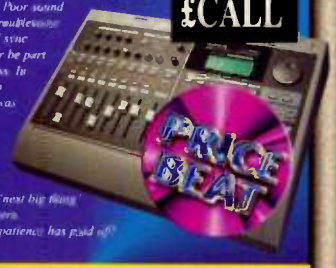
DD8 £CALL

Roland

ROLAND VS-880

For anyone who's ever felt the limitations of tape-based multitrack recording, the VS880 is the product you've been waiting for. Poor sound quality, limited tracks, troublesome effects access and MIDI sync problems need no longer be part of your recording process. In the past, the only way to resolve these problems was to spend big bucks on complicated, multi-component systems. So maybe you had to settle for less. Or maybe you waited, hoping that the 'next big thing' would have all the answers. Congratulations... your patience has paid off!

VS-880P £CALL



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DYNATEK

CDR 200 £395
Dual speed record, Quad speed read
software, cables & discs

CDR 400 £595
Quad speed read/write state of the art technology
inc. cables, software & discs)

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AKAI

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DR16 £CALL

Digital Performer 2.1

Up to 40 tracks of digital audio recording, mixing, busing, EQ and effects processing - all non destructively in real time on any Power Macintosh without expensive extra hardware inside your mac.

Real time effects, including reverb, dynamics processing (compressor, limiter, expander and gate), chorus, echo and more. Real time means non destructive - you can change or remove them at any time.

Connect your sampler to your Mac and drag and drop samples between them. Store all of your samples directly on your Mac. Apply powerful audio processing and DSP to your samples. Digital Performer unites the worlds of sampler-based audio and hard disk recording.

Digital Performer 2.1 provides unparalleled intergration between your Macintosh hard disk recording capabilities and today's hottest samplers, like the E4 series from Emu Systems and many others.

NOW shipping!

KORG 1212I/O

KORG SOUNDLINK DRS

The 1212I/O PCI Multi-channel audio interface for Soundlink DRS features 12 inputs and 12 outputs configured as two analog I/O's, an S/PDIF I/O and an eight channel ADAT optical I/O for true multi-channel recording with PC. All I/Os can be used simultaneously for maximum interfacing flexibility.

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Package Deals

Topaz/Darwin/DCP8/Effects Network/ CAD E200 & Tascam 103 cassette deck
SALE PRICE £4095

Darwin & Mackie 1604VLZ
SALE PRICE £2395

Darwin & Korg 168RC
SALE PRICE £2695

Darwin/Topaz 24 & stand/Looms/Mbridge
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Darwin & Yamaha 03D
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Darwin & Yamaha 02R
SALE PRICE £6995

Darwin & Mackie SR32.4 & Leads
SALE PRICE £2995

Darwin & Korg Soundlink 168RC
SALE PRICE £2995

AKAI S2000 & EZFlyer with SCSI & 8MB RAM
SALE PRICE £1199

Event 20/20 & Samson Servo 170
SALE PRICE £549

Mass 150 & Tannoy System 600
SALE PRICE £449

Mass 150 & Yamaha NS10
SALE PRICE £449

SOUNDTRACS

TOPAZ
A dedicated multitrack recording console must provide the following: Superb audio performance, exceptional equalization, versatile monitoring, comprehensive patching and 1st class ergonomics.
All are in abundance in the stunning new Topaz Project Studio Console from Soundtracs.

YAMAHA

03D £CALL

YAMAHA 03D
If you're ready for a compact,comfortably priced, full-featured digital mixer - one especially made for professional project and post production studios relying on modular digital multitrack recorders such as TASCAM, ADAT, AES/EBU and YAMAHA digital formats - then you're ready for the 03D Digital Mixing Console. Nestled between the popular ProMix 01 - famed for bringing affordable digital mixing to the masses - and the award winning, industry standard 02R Digital Recording Console.

DIGITAL 8•BUS

- 48 true channels for tracking, overdub & mixdown jitter-free, touch-updateable motorized faders
- 12 aux sends per channel.
- 10 fade & mute groups.
- 24-bit output.
- 32-bit processing
- Direct assign.
- Dynamic & snapshot recall of all parameters.
- Multiple simultaneous digital effects, dynamics & EQ.
- V-pot virtual rotary controls.
- SVGA monitor output.
- Mouse & keyboard inputs
- Built-in hard disk & floppy drive
- Instantly upgradeable DSP effects

MACKIE.

- Dedicated transport controls & jog shuttle
- Built-in multifunction meter bridge
- Powerful CPU with 8 megs of memory
- Record-ready button on every channel

and that's just a preliminary spec list!

Still the world leader in small mixers the VLZ range includes 1202, 1402, 1604, SR24, SR32 and LM3204. These consoles offer the highest audio and build quality with easy to use features that take the effort out of superb mixing.

Don't forget the Original Mackie 8•BUS
Still one of the leading mixing consoles in the world for reliability, sound quality, ease of operation & ergonomics.

Put this together with our amazing price deals and you've got a serious machine at a serious price.
CALL FOR DETAILS!
COMPLETE MACKIE RANGE AVAILABLE AT ALL STORES!

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PreSonus
Audio Electronics

STOP PRESS...STUNNING NEW BLUE MAX
SEE 1ST PAGE FOR DETAILS

The DCP-8 is an eight channel, digitally controlled analog dynamics processor. plug it into the inserts of your mixer, MIDI it up to your sequencer and it will give you a compressor/limiter, a noise gate, automated fader levels, automated mutes and glitch free real-time control of parameters (even compression ratio) across all eight channels. Settings may be saved as a snapshot into one of the 100 user memories. A DCP-8 environment is available for EMAGIC Logic.
Presonus will make you a custom DCP-8 if you have a specific need that is not addressed in the stock unit, how's that for service!

The ACP-8 is 8 high quality compressor gates housed in a steel 2U rack mount unit. Each compressor allows control of threshold, ratio, attack, release and output gain. Each is individually selectable for hard or soft knee, peak or auto compression. Each gate features threshold, release and attenuation controls. It's all here!

ACP-8 **£599**

DCP-8 **£599**

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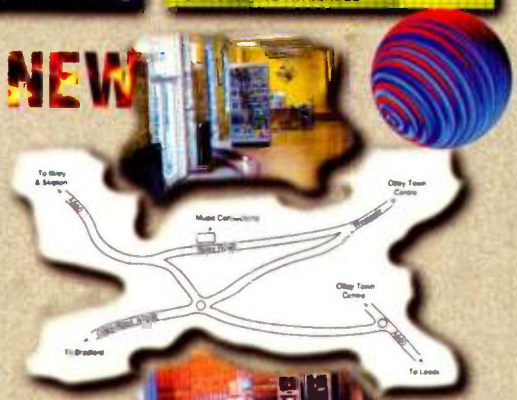
NEW



NEW

Focusrite
GREEN **£CALL**

GREEN RANGE
A dual Mic Preamp, parametric EQ and compressor combine to make Focusrite the range to suit all needs.
NEW COMPRESSOR/LIMITER & CHANNEL STRIP AVAILABLE.

lexicon
MPX-1 **£CALL**

DUAL MULTI-PROCESSOR EFFECTS
Two separate DSP processors for awesome effects power. Uncompromised Lexicon reverb and ambience effects even in combination with any other effects. (Pitch, Chorus, EQ, Mod, Delays)

YAMAHA
REV-500 **£CALL**

The REV500 is an extremely good digital reverb which can hold it's head up confidently in any company. Regardless of it's price, however it really is something special and certainly worthy of an audition. It may not represent the ultimate in reverb simulations, but it's not very far off and certainly offers an affordable and worthwhile upgrade from it's predecessors.

JOEMEEK
VC3 **£CALL**

VC3 Pro Channel
The Joemeek 'Channel' philosophy on a budget. This box is stunning! A classic high performance microphone pre-amplifier, Joemeek optical compressor and Joemeek enhancer. The Joemeek VC3 Pro Channel is essential when warming up digital sound, playing live or any function which demands the highest quality signal processing on a budget. The Joemeek VC3 Pro Channel will out-perform many similar boxes costing 3 times the price.

SPL
VITALIZER **£CALL**

VITALIZER
The unrivalled Vitalizer equalization system has been created using a highly complex system of variable, interactive filters and amplitude controlled phase shifters. These are under the control of a specially designed analogue computer that responds to both the dynamics and frequency content of the input signal. Specially developed to be compatible with the way the human ear perceives sound, the unit ingeniously re-shapes the entire sound spectrum, so it appears louder, more detailed and commercially appealing.

Rola
SX-700 **£CALL**

SX-700
Boss unleashes the SX-700 Studio Effects Processor, a 1U rackmount unit that features standard spatial effects like reverb and delay, the latest Intelligent Harmonist (intelligent pitch shifter) and other modulation effects, as well as RSS 3-D effects that can place your sound anywhere in a three dimensional field. Overall, it puts more spatial processing at your fingertips than a whole slew of dedicated effects. And the SX-700 delivers better performance and a more user-friendly interface than ever before.

CAD
FACTORY DIRECT

E-300 **£699**

E-100 **£299**

E-200 **£449**

The introduction of the Equitek series microphones signaled the most significant improvement in microphone technology in decades. The extraordinary transparency resulting from our unique servo design and exceptional flexibility have created a new 'bench mark' for cost and performance. These mics have received stunning reviews in all pro-audio and hi-tech magazines why not come in and let your ears be the judge!

ENSONIQ
DP-PRO **£CALL**

DP PRO
For years ENSONIQ has been widely recognised for their award winning effects processors. With the DP4+ we gave the audio industry the best sounding most flexible multi-effects processor ever. Now we are raising the standard again with the DP PRO, a 24-bit true stereo effects processor.
The DP PRO is an all new, fully professional dual effects processor. It is a true stereo system powered by two of our generation ESP-2 digital signal processors running at sample rates up to 48kHz with a dynamic range better than 100dB. It is equipped with high resolution 20-bit converters and super low noise circuitry for maximum performance 24-bit digital I/O option.

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PART-EX DEALS

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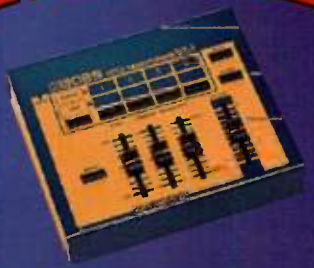
DBX120XP
If it's bass enhancement you need, look no further. This unit makes the bass go right through you. Normally this unit retails for £275.
our price £179. Hurry limited stocks!

EMU ESI32 SCSI
For a limited period we can offer this amazing sampler for an **unbelievable £??**

YAMAHA PRO R3
When Yamaha make a top reverb they really go for it, and the PRO R3 is no exception. We only have two of these units for sale and **at just £???** they won't last long. So if it's top quality reverb you need don't delay (no pun intended).



BOSS VT1
This vocal transformer from BOSS is a real steal at just **£???**

ROLAND MC303
For a limited period only, we have a small amount of MC303's for sale at an unbelievable **summer price of just £469.** At this price why buy a copy?

KORG SOUNDLINK 168RC
We must be mad, and you must be mad if you don't buy this. If it's a 16 input desk you're after can you afford to miss this one?
At just £1295 this desk is a steal.

ROLAND RAP10
This PC sound card has an exceptional sampling facility at CD quality. Exceptional value at **£??**

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Jungle Fever

ENDEMIC VOID

In less than five years, jungle has evolved from cheesy sped-up James Brown samples to some of the most innovative music around. We sent CHRISTOPHER HOLDER to talk to Danny Koffey, one of those in the front line.

Danny Koffey's studio is a real party zone. Well, actually, what I mean by that is his studio shares a building with a depot for kiddies' party paraphernalia. Boxes of paper hats, Mr Men serviettes, party poppers; everything you could possibly need to complement the fairy cakes and the cocktail sausages. The actual atmosphere is far more workmanlike, and this is representative of Danny's attitude to his craft.

"I come to the studio every day, and apart from my DJ work this is what I do. I work hard at my music; it's my passion. If you haven't got the passion, there's not much else that can keep you going, because there's not too much money in it — ▶

DIFFICULT TO A VOID

The latest Endemic Void release, *Lamentations*, is on Language/Crammed Discs. Meanwhile, if you're lucky enough to find his first release, *Equations*, knocking about, snap it up.

Danny also records under the name Tertius, so keep an eye out for anything under that moniker.

If you want to get in touch with the man Endemic, he can be reached at PO Box 3616, London NW6 SDO.

▶ not at this end of the music industry, anyway."

Anyone with half a ear for the underground dance scene will know that jungle is producing some of the most innovative and challenging new dance music around, and anyone with half an ear for the jungle and drum & bass scene will know of Danny Koffey and his Endemic Void project.

Danny's first major break came with the release of his debut long-player, *Equations*, on the Language label, which sold more than 4000 copies worldwide; more recently he's made a splash with a further Endemic Void release, *Lamentations*, demanding attention from everyone in the know. The Endemic Void cuts are remarkable for a sound that Danny describes as "hanging in the balance". The balance lies between the funkiness of jazz snares, the dancefloor sensibilities of jacked-up rolling rhythms, the foot-tapping cool of plucky basses, and the Ray-Ban-donning jazz influences of vibes and Rhodes keys. If you still have no idea what I'm talking about, imagine the general groove of the Ford Puma ad (the one with a reanimated Steve McQueen in the driver's seat), combine it with some electronica and beats by Gene Krupa on speed, and you'll have a better idea.

BEAT NICK

A jungle artist has to have watertight breakbeats. They've just got to. So I have more than a passing interest in the origin of Danny's.

"To be honest, I don't really mind where the beats come from. It might be a concern if you're looping your breaks, but I'm not. With any given breakbeat, I'll chop it up into every edit possible, and construct my own breaks from those edits. But I won't buy sample CDs, because I can't stand listening through the samples. Most of the time you have to listen to so many crap ones, and when a good one finally comes along... well, it does your head in.

"For other sounds I do sample from records. I sample a lot of jazz, but I wouldn't use anything noticeable. If I'm going to take a loop or a section of any kind, I'll mould into my own sound, filtering it to death — there would be no way you would realise what it was. Most of the time I'll sample chords, or just one note and play my own riffs.

"Overall I think what has changed, since people were doing breakbeat four years ago, is that the focus is far more on getting quality samples. When breakbeat was starting out people could afford to be less discriminating — it was more about snare and hi-hat edits, and going over the top with long snare rolls, that sort of thing. They used to go mad because it was new and not many people had done those sort of edits before — I know, I used to do it myself. Now it's much more about intricate programming and quality sounds. I take a long time to program my breaks and it's what I gain most satisfaction from."

> "Jungle music is coming from the bedrooms of DJs — that's where the roots are."

SPEAKING MY LANGUAGE

The last two Endemic Void releases have taken shape from first principles to final mixdown entirely within Danny's studio. That's because he's packing a rack full of desirable outboard: gates, compressors, effects, A/D convertors, tape saturation simulators, everything that's required to get your tune into a releasable state... Nope: think again. The refreshing part about what Danny does is that it's achieved entirely with the bare essentials.

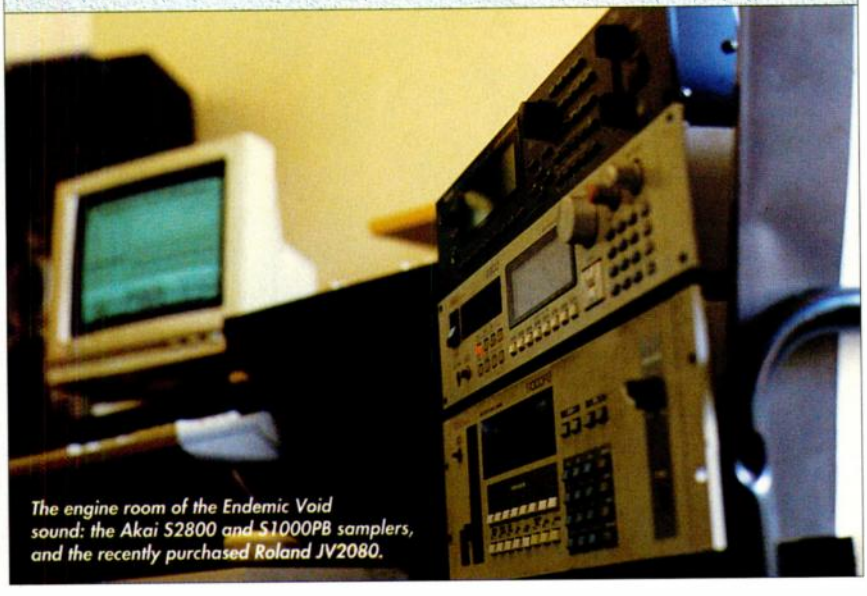
"I started off with the [Akai] S2800 sampler. I also had a rubbish Casio PSR home keyboard, which had a MIDI socket, so I messed around with that. Then I bought the Atari and *Cubase*. I got my deal with Language on the strength of a demo really just using those. After I got the deal I bought the [Yamaha] ProMix 01 and the [Akai] S1000PB. I only bought the S1000PB because I was desperate for more outputs [the S2800 has four], but I soon realised it was a terrible purchase. Neither of them has SCSI, so I end up having to save samples from the S2800 onto a floppy and load them into the S1000. It's very ▶

GEAR BOX

- Akai S2800 sampler
- Akai S1000PB sampler
- Roland JV2080 synth
- Atari 1040 running *Cubase*
- Fatar SL161 controller keyboard
- Novation Bass Station synth
- Alesis Monitor One monitors
- Sony 55ES DAT
- Yamaha ProMix 01 mixer

"Tony Thorpe from Language records has quite often talked me into taking a track to another studio, like Odessa studios, where they've got an SSL console. That's the background that he comes from, working with the KLF, and he's used to working with expensive desks, deluxe compressors and the rest. He's talked me into it in the past and it's not worked. I don't do it any more.

"I've got to a point where I'm happy with the sound that I've got, and anywhere where I don't know the sound of the room or the speakers, it's difficult to get the sound I'm after. Also, overproduction in jungle is very easy to spot. I wouldn't have said that my music sounds crusty, but I wouldn't have said that it was overproduced either. Jungle music that comes out of the big studios just sounds too clinical for me. Jungle music is coming from a different place altogether: it's coming from the bedrooms of DJs — that's where the roots are."



The engine room of the Endemic Void sound: the Akai S2800 and S1000PB samplers, and the recently purchased Roland JV2080.

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time-consuming. I could get a SCSI upgrade, but that would mean fitting both with a SCSI port at about £100 each. But I don't want to do that: I'd much rather get rid of these two and find myself a new sampler. Trouble is that the S2800 is not even worth a grand now, and the 1000PB is probably only worth about £300. If I'm going to buy a new sampler I think I'll go for the top of the range, something like the Emu EIV, or the Akai S3200XL. I wouldn't go any less than that, even if that means buying it on the knock and paying monthly.

"The ProMix 01 is wicked. I love it: it's my best piece of equipment. When you start getting into the MIDI side and the other stuff on it, it's incredible — for the money it's a blinding bit of equipment. The ProMix's onboard reverb isn't so great, though. I think it's an SPX900 reverb in there, something like that, and I don't get on with that so well. But I have to use the effects, they're the only ones I've got. Otherwise it's just such a versatile mixer and it sounds crystal clear.

"Last month I bought the [Roland] JV2080 which I'm really impressed with. In the past I've messed around quite a bit with my mate's JV1080, and I really liked the sounds, and the 2080 improves on those. The drum kits are all in stereo and sound wicked, and there's eight expansion cards available, with up to 4000 sounds. It's great: the sounds are all quality.

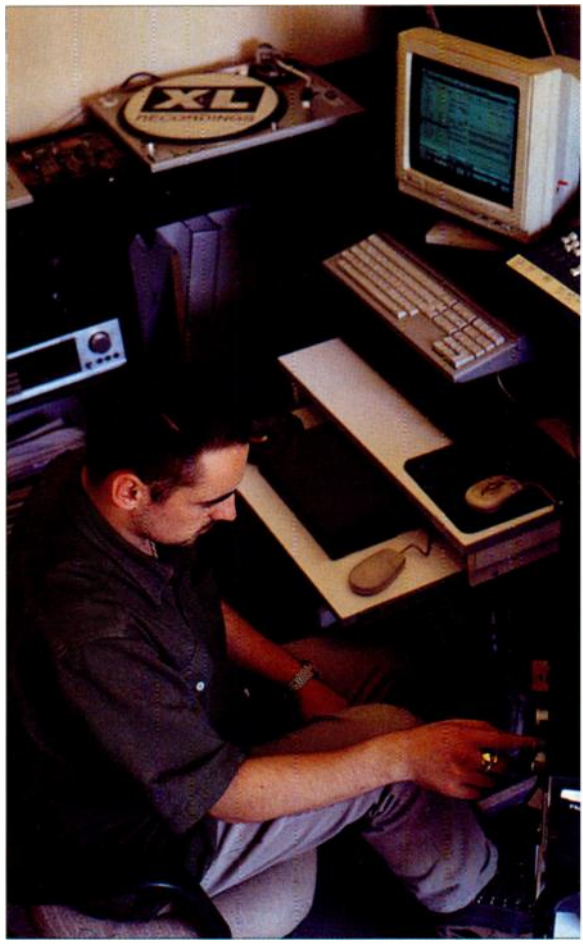
"The trouble is, my shopping list is extensive. Every time I pick up a magazine I want something new. It's not a cheap business. If what I was doing was a hobby, it would almost be impossible to buy equipment — it's too expensive. Even when it's a job, I've got to live, and this is not a big money-making venture. I'm slowly getting what I want, but with my studio I've always wanted to upgrade, rather than buy a whole heap of new gear. For me that'll mean a better sampler and the Yamaha 03D."

BUZZ IN THE BASS BIN

"The first track that I actually mixed down myself was a track called '9mm'. I gave it to a DJ, Darren Jay, to play, and he played it as the first tune of his set at the Ministry of Sound. As I said, it was the first thing I'd ever mixed down on my own, and on that system it was blinding. I was there saying, 'Yeah, this is my track', and then the bass dropped. The frequencies in this 808 kick drum were frightening. I'd just got my ProMix the day before, and I was giving the kick +15db at 100Hz, thinking I was making it 'really loud'. The sound was nice on my hi-fi speakers, but it was something else at the Ministry. For the rest of the night you could see the house engineers looking stressed, changing the decks over, doing all sorts, because they couldn't get rid of this low-frequency hum from the bass bins on the left side. The hum wasn't there for the two previous sets, but when Darren Jay played my tune it must have blown it up. It was so loud that when the bass came in you could feel it rattling your ribs — shit, it was loud!

"But that was a really good lesson for me. Like any job, you've got to do it for a little while to become proficient. I'm a lot more subtle with my mixdowns now. I like a nice calm mix, I don't like angry-sounding elements poking out. I like it all to be nice and clean — no big delays bouncing around, and no huge reverbs filling the space."

That's the mixdown, but how does he start his tracks from scratch?



"If what I was doing was a hobby, it would almost be impossible to buy equipment — it's too expensive."

JAM TRAFFICKING

Danny's horizons would appear to be broad. He's riding on the crest of the wave of, arguably, the most progressive dance genre of the moment, and he's making it equally accessible to the sweaty clubber, the polo-necked lounge lizard, and the musician who would kill to improvise over his grooves.

"Actually, I was supposed to be doing something during August a bit like that, but it fell through. Some guy booked me for the Ibiza jazz festival — that would have been blinding. It would have been the only electronic set at the festival, and I had a few ideas about what I was going to do: I was going to take a Mac PowerBook, *Cubase*, and a sampler, set it all up, and do five or six tracks. But I also work with a singer, Danger, who was going to come and sing, and I was going to have an open stage, with about four microphones and invite musicians at the festival to come up and jam along to the set. I was thinking, 'Yeah, that sound great, loads of sax players and the like getting up and jamming along'. It will happen eventually, but the Ibiza gig would have been extra special because of all the talented musicians out there who could have jammed with me."

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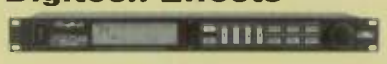

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"A lot of the time I'll be inspired by a breakbeat sample. It'll be something that blows me away so that I just can't wait till I get into the studio with it and whack it in the sampler. I usually spend about four hours chopping it up. Once it's chopped into as many edits as possible I'll reconstruct that break using those edits. I'll set the original break looping, get it synchronised with a kick on the first beat from *Cubase* and reassemble it by matching the beats on top of the original break. Once it's together I can delete the original breakbeat and begin

"I think you primarily have to write a track for yourself, and yourself only."

messing with my sequenced copy, changing it into my own. That way gives you a lot more freedom and you can play your break at the original pitch instead of pitching it right up, and it sounding all Mickey Mouse and horrible.

"After that I start pulling in sounds and layering it up over eight or 16 bars — start getting a groove running. Then I'll arrange it and add more parts. Usually I don't stop on a track; I just keep adding bits, and arranging till I feel that it's there."

FORMULA NONE

So if someone liked some of the sounds of jungle and wanted to get themselves the right gear and the right approach, how should they go about it? As you'd expect, there is no formula...

"I believe music is very personal. If you've got an idea for a jungle track, don't feel that there's any formula you have to stick to, because there isn't. I don't believe in any of these boundaries, like 'It has to have hard beats or this DJ won't play it' — those sorts of considerations don't go through my head when I'm writing a track. I think you primarily have to write a track for yourself, and yourself only. If a DJ is going to play it, it'll be far more satisfying if they pick it up because they like it for what is, rather than like it because the beats are really heavy or because of the bass being really good. That's what I think, anyway.

"Obviously, there are certain bits of equipment that are pretty necessary. A sampler is going to help," he laughs; "a sampler and a good sequencer are going to help you a lot. What you buy apart from those is based on what you're trying to achieve. But a sampler is essential. I was writing jungle on my S2800 and *Cubase*, no problem. I had some ideas and I knew what I wanted.

"I think the kids need to know that you can do it from your bedroom. You'll be told that to get a mix ready for pressing you'll need compressors, an expensive reverb, and a professional desk, but you don't. I hope if people get anything out of reading about my studio, it'll be that it *is* possible, with the type of gear that most home studios have got." SOS

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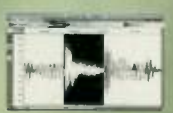

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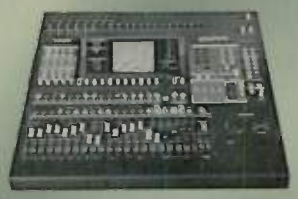

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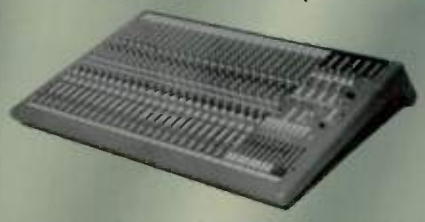

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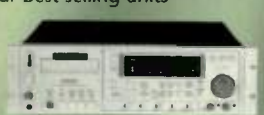

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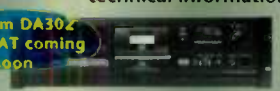

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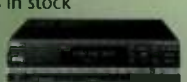

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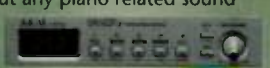

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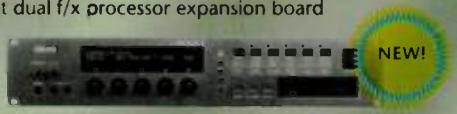

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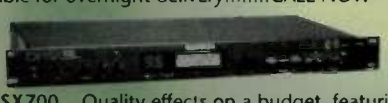

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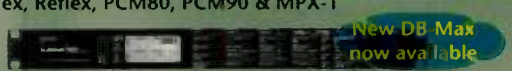

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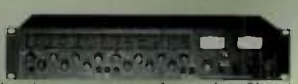

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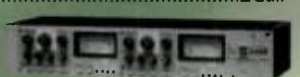

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Silver SL (pair).....£735
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Quad almighty?

DIGITECH STUDIO QUAD V2 MULTI-EFFECTS UNIT

Four inputs, four outputs up to four simultaneous effects... Digitech have kept to the magic number for this upgrade of their user-friendly multi-effects processor, but is it a superior being? HUGH ROBJOHNS finds out.

It's on 8 months since the Digitech Studio Quad was first reviewed in this august journal (in February 1996) but Digitech have already released an upgraded version of it — version 2, in fact. To refresh your memory... the Studio Quad is a 4-input, 4-output digital multi-effects unit which may be configured to operate as two independent stereo processors or as multiple mono in, stereo out effects units. The machine can generate up to four different effects at once, and all the usual reverbs, time-delay based effects, auto-panning, pitch-shifters and so on are available.

The main improvements on the original are the 10 new effects modules in addition to the original machine's 50, plus a total of 180 factory preset programs; the new Studio Quad also has better input and output routing and has undergone some tidying up in the MIDI department. And if any version 1 owners out there are beginning to feel a bit miffed, fear not — for a very reasonable £49.95, you can have your machine upgraded to the new spec.

BLACK BOX

The basic look and feel of the machine haven't changed since the first edition: it retains the clear backlit LCD panel and the chunky illuminated push buttons to the right (described originally as resembling partially sucked Glacier Mints). On the far right-hand side is a parameter wheel for editing the various effects settings.

The rear panel has four sets of electronic balanced inputs and outputs on quarter-inch TRS jack sockets with switchable sensitivity (-10dBV or +4dBu). The audio connections are supplemented by MIDI In and Out/Thru sockets together with another jack for a footswitch or remote control facility. Input and output levels are set via the Levels menu, but an automated mode is available where the machine samples the input signals for a few seconds and sets the gain accordingly.

The externa power supply module connects via a 4-pin DIN plug. (When will manufacturers realise that we all hate external power units, even if it does make it easier for their equipment to pass the EMC regulations!) The left-hand side of the case, and the heatsink to the rear, get quite warm in use, although not hot enough to cause a problem. The analogue converters are the same as the original machine's, with 18-bit, 128-times oversampled delta-sigma A/Ds and 20-bit, 64-times oversampled D/A stages. The sampling rate is 44.1kHz, but there are no provisions for digital interfacing.

> "As multi-effects units go, the Quad is really well designed."

Some of the effects (principally those that tend to involve large amounts of feedback, such as the flangers) are noticeably noisier than the others; even so, I don't think anyone is likely to complain about the noise performance of the Studio Quad, which I found to be wholly satisfactory and well up to the standards expected of this type of equipment.

BIG SYSTEM

Ergonomically, the version 2 machine is identical to the original Studio Quad — as multi-effects units go, the Quad is really well designed and relatively ▶

INTRODUCING THE HR824 ACTIVE MONITOR.

If you've been trusting the quality of your creative product to passive monitors, there's an astonishing revelation waiting for you.
In our opinion, the active, biamplified HR824 is the most accurate near-field monitor available — so accurate that it essentially has no "sound" of its own. Rather, Mackie Designs' High Resolution Series™ HR824 is the first small monitor with power response so flat that it can serve as a completely neutral conductor for whatever signal you send it.

Mackie acoustic engineer David Bie uses scanning laser vibrometry to map HR824 tweeter dome vibrations.

SCIENCE, NOT SNAKE OIL.

Internally biamplified, servo-controlled speakers aren't a new concept. But to keep the cost of such monitors reasonable, it's taken advances in measurement instrumentation, transducers, and electronics technology.
In developing the HR Series, Mackie Designs sought out the most talented acoustic engineers and then made an enormous commitment to exotic technology. The HR824 is the result of painstaking research and money-is-no-object components, not to mention thousands of hours of listening tests and *tens* of thousands of dollars in tooling.

FLAT RESPONSE ON OR OFF AXIS

One of the first things you notice about the HR824 is the gigantic "sweet spot." The detailed sound field stays with you as you move back and forth across the console — and extends far enough behind you that musicians and producers can hear the same accurate playback.

The reason is our proprietary exponential high frequency wave guide. Without it, a monitor speaker tends to project critical high frequencies in a narrow beam (Fig. A) — while creating undesirable edge diffraction as sound waves interact with the edges of the speaker.

HR824 Active Monitors accept balanced or unbalanced ¼" and XLR inputs. Jacks & removable IEC power cord face downward so that the speaker can be placed close to rear wall surfaces.

Imaging and definition are compromised. The "sweet spot" gets very small.

Like biamped speakers, wave guides aren't a new concept. But it takes optimized internal electronics and a systems approach to make them work in near-field applications.

The HR824's wave guide (Fig. B) maximizes dispersion, time aligns the acoustic center of the HF transducer to the LF transducer's center, and avoids enclosure diffraction (notice that the monitor's face is perfectly smooth.) The exponential guide also increases low treble sensitivity, enabling the HF transducer to handle more power and produce flat response at high SPLs.

(HR824)

CLEAN, ARTICULATED BASS.

Seasoned recording engineers can't believe the HR824's controlled low bass extension. They hear low frequency accuracy that simply can't be achieved with passive speakers using external amplifiers. Why?

First, the HR824's FR Series 150-watt bass amplifier is directly coupled in a servo loop to the 8.75-inch mineral-filled polypropylene low frequency transducer.

It constantly monitors the LF unit's motional parameters and applies appropriate control and damping. An oversized magnet structure and extra-long voice coil lets the woofer achieve over 16 mm of cone excursion. Bass notes start and stop instantly, without "tubbiness."

Second, the HR824's low frequency driver is coupled to a pair of aluminum mass-loaded, acoustic-insulated 6.5-inch passive drivers. These ultra-rigid drivers eliminate problems like vent noise, power compression, and low frequency distortion — and couple much more effectively with the control room's air mass. They achieve the equivalent radiating area of a 12-inch woofer cone, allowing the HR824 to deliver FLAT response to 42Hz with a 38Hz, 3dB-down point.

Third, the woofer enclosure is air-displaced with high-density adiabatic foam. It damps internal midrange reflections so they can't bleed back through the LF transducer cone and reach your ears. The typical problem of small-monitor midrange "boxiness" is eliminated.

A TRUE PISTONIC HIGH-FREQUENCY RADIATOR.

We scoured the earth for the finest high frequency transducers and then subjected them to rigorous evaluation. One test, *scanning laser vibrometry*, gives a true picture of surface vibration patterns. Two test results are shown in the upper right hand corner of this ad. Figure C is a conventional fabric dome tweeter in motion. You needn't be an acoustic engineer to see that the dome is NOT behaving as a true piston.

The Mackie HR824 Active Monitor. ±1.5dB from 42 to 20kHz.

Figure D shows our High Resolution metal alloy dome at the same frequency. It acts as a rigid piston up to 22kHz, delivering pristine, uncolored treble output that reproduces *exactly* what you're recording.

Fig. C: Uneven fabric dome tweeter motion distorts high frequencies.

Fig. D: HR824 alloy dome's uniform, accurate pistonic motion.

INDIVIDUALLY OPTIMIZED.

We precisely match each transducer's actual output via electronic adjustments. During final assembly, each HR824 is carefully *hand-trimmed* to ±1.5dB, 42Hz-20kHz. As proof, each monitor comes certified with its own serialized, guaranteed frequency response printout.

The HR824's front board has "radiused" edges to further eliminate diffraction; an "H" brace bisects the enclosure for extra rigidity.

Mackie is one of the few active monitor manufacturers that also has experience building stand-alone professional power amps. Our HR824 employs two smaller versions of our FR Series M-1200 power amplifier — 100 watts (with 150W bursts) for high frequencies, and 150 watts (200W peak output) for low frequencies. Both amps make use of high-speed, latch-proof Fast Recovery design using extremely low negative feedback.

TAILOR THEM TO YOUR SPACE.

Because control rooms come in all shapes, sizes and cubic volumes, each HR824 has a three-position Low Frequency Acoustic Space control. It maintains flat bass response whether you place your monitors away from walls (*whole space*), against the wall (*half space*) or in corners (*quarter space*). A low frequency Roll-Off switch at 80Hz lets you emulate small home stereo speakers or popular small studio monitors.

CONFRONT REALITY AT YOUR MACKIE DESIGNS DEALER.

We've made some pretty audacious claims in this ad. But hearing is believing. So bring your favorite demo material and put our High Resolution Series monitors through their paces.

If you've never experienced active monitors before, you're going to love the unflinching accuracy of Mackie Designs' HR824s.

If you've priced other 2-way active monitors, you're going to love the HR824's price AND its accuracy.

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pros & cons

DIGITECH STUDIO QUAD V2 £530

pros
- A good-sounding collection of effects.
- Versatile and flexible effects patching and routing.
- Original units can be upgraded at a very reasonable price.

cons
- The handbook could be improved.
- Outboard power supply.

summary
A very useful and useable high-quality effects unit with a good range of easy-to-use programs, the Studio Quad is suitable for the 'Plug-and-play' user, but also offers a fine degree of editing to satisfy inveterate tweakers.

SOUND ON SOUND

▶ easy to set up, configure or customise. The most important thing to get to grips with is how the processing power is divided and allocated, because each of the effects routines requires a different proportion of the machine's signal-processing power and this has a direct influence on which effects can be run simultaneously.

To this end, each effect is defined as quarter, half or full, and any combination of effects can be used provided the processor requirement doesn't add up to more than one. For example, you could have a single powerful effect using the full processor, or two effects from the half-processor category (working either in series or parallel on the same channel, or on two different signal paths at the same time). Alternatively, you could use four quarter-processor effects in various combinations on one, two or four channels. There are actually 12 different configuration setups to choose from, with four quarter processors allocated to four different signal paths as Configuration 1, and a single full-processor effect installed in channel 1 as Configuration 12, with all the other possible combinations available in between. If you don't want to design your own configurations, it's very easy to recall a suitable factory preset and replace the stock effects with your own alternatives — a technique I found to be a lot quicker and easier than designing effect chains from scratch.

Every effect can be achieved in a full-size processor module (obvious, I suppose) but there are 22 effects that can *only* be obtained in this environment — specifically the most complex algorithms, which need a lot of DSP power to operate and consequently don't leave room for anything else. Another 17 processes require half the processing power, leaving 21 that will run happily in a quarter-processor environment, including the compressor, gate, a couple of reverbs, the chorus and flange programs with built-in delay facilities, and the simplest of pitch, detune, chorus, flange and equaliser programs.

The fact that these last effects don't require much in the way of processing is potentially a little misleading, because it's tempting to think that the less the processing, the weaker the effect. While this may be true at a technical level, from the user's point of view the quarter-processor effects should certainly not be ignored — I found them to be very capable, useful and generally of high quality. They may be lacking in some of the more esoteric adjustment parameters, but otherwise they sound every bit as good as the more complex algorithms.

The new programs add some useful facilities to enhance the overall value of the machine. I don't think I'll be selling my old Leslie 122, but the Rotary Speaker Simulator could be manipulated to provide a very credible effect within a mix. I liked the Smooth Pitch Shifter and Harmony generator a lot, and the Analogue Delays (generated by an algorithm simulating tape-based delay) are fun too. The other new programs — Chorus/Delay, Flange/Delay, Pre-delay, Room Echo and Compressor — are equally useful additions to the Studio Quad and all perform as expected.

FX EDITING

Every effect can be modified via an editing mode that's accessed with a button next to the LCD panel. Pressing this Edit button cycles through the active effect processes, followed by their input configuration, output modes and Modifiers. While a process is flashing, its adjustable parameters are made available in up to seven pages, with each page revealing four parameters. The large numbered buttons on the control panel are used to allocate the data wheel to these parameters, which may then be adjusted using this wheel.

The Modifiers provide the means of controlling selected parameters, either with the internal low-frequency oscillators (which can be programmed for speed, depth and five different waveforms), MIDI control data (including aftertouch), or even the signal source volume, which allows for some very expressive effects indeed.

Like most multi-effects units these days, the Studio Quad allows most of its parameters to be assigned to various MIDI controller data, and the usual patch-change information can be used to recall preset memories. A comprehensive MIDI implementation chart is included at the back of the handbook to aid in setting up your MIDI system. As part of the upgrade, some of the MIDI functions have been improved: there's a new MIDI Merge function in the Utility menu, which combines incoming data with the Studio Quad's own data before outputting the mix through the MIDI Out port, and a new look for the SysEx page. There's also a tuning facility for the Harmony pitch-shifter program: the base reference can be set anywhere between A=427 and A=453, with A=440 as the default.

"The quality of effects, the versatility of programming, and the remote control via MIDI combine to make this a unit that, once screwed into the rack, is going to stay there."

IN USE & CONCLUSION

This is the kind of unit that will impress straight out of the box, because the factory presets are well designed and very varied. For version 2, the programs have been re-ordered so that they appear in groups of related effects, making it a lot easier to navigate around the machine.

The quality of the Studio Quad's effects belies the fact that this unit has been built to a budget. Sure, the pitch-shifters are not exactly state-of-the-art and they will sound artificial on their own, but this is a characteristic common to all but the most expensive units, and it doesn't present a problem when they're used within a mix. The reverbs (even the simplest ones) are all very credible and produce nice, believable illusions of real spaces. The chorus, flange, delay, and equalisers are all very competent too — indeed, it's hard to point at a weak effect.

Trying to scroll down through the presets to a new program was a bit frustrating at first, because the machine tried to load every program in sequence! However, this operation can be disabled, allowing you to search the presets at leisure, only loading the desired program when you press the Program button (much as on the Yamaha SPX units).

The ability to determine the order of effects is very powerful — there's a world of difference between compressing an equalised signal, and equalising a compressed one. Not only is this important from the point of view of how good the end result sounds, but it's also very educational and may provide you with ideas and techniques that can be used with conventional outboard equipment.

The quality of effects, the versatility of programming, and the remote control via MIDI combine to make this a unit that, once screwed into the rack, is going to stay there — and the fact that Digitech are prepared to support the product with retrofittable upgrades is also a very reassuring sign. You may acquire better and more expensive effects units in the future, but the Studio Quad is one of those very capable units that will always find a role for themselves in any studio. SOS

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ALESIS WEDGE REVERB PROCESSOR

PAUL WHITE checks over the Alesis Wedge and finds that, despite its simplicity, it's not the thin end of the reverb.

In developing the Wedge, Alesis have almost returned to their roots — their original Midiverb was designed to look like the desktop remote for a much larger system. The Wedge is obviously a far more advanced unit than the old Midiverb, and the user isn't confined to presets, but the 'remote control' look is back. Alesis have gone out of their way to stress the 'remote control-like' design of the Wedge, but the forest of cables projecting from the rear panel rather spoil the illusion. With up to four jack leads, two MIDI leads and a power connector, the Wedge will never be as tidy to use on a desktop as a true remote control.

THE PACKAGE

The Wedge gets its name from the shape of its case, though it looks more like a drum machine than a slice of cheese. Four sliders provide direct access to the four parameters that are displayed on screen at any one time and, like the Midiverb IV, the Wedge uses a multiple page system to scroll around the various sets of four parameters. When you're editing effects, pressing the Edit button takes you to the next page, and the current page (along with the number of available pages) is shown in the display window. Four buttons, labelled A to D, sit beneath their displayed parameters, and you can use these to jump from one parameter to another, but as moving any fader automatically selects the relevant parameter, you'll rarely need to use them. However, holding one of them down for a second or two brings up a concise form of on-line help that describes the parameter in question — nice idea! Patches may also be named via these buttons, and the Wedge comes with 128 factory patches plus a further 128 user patches. The final 28 patches in the preset list are basic configurations; the user section comes ready filled with patches that may be changed or overwritten. MIDI may be used for program selection, to dump and restore patches, or to control up to two effects parameters in real time. There's also the option of creating a patch map if you need to call up specific effects with specific MIDI program change numbers.

Wedge

Behind all the marketing and cosmetics, the Wedge is really a development of the Midiverb IV's excellent user interface and overall concept, but it is powered by two Quadraverb II chips, enabling it to deliver a better technical performance. Like the Midiverb IV, it presents effects a choice of different configurations, but in the case of the Wedge, 28 are available, most providing one or two effects in single, series, parallel or dual mono varieties. Once a configuration's loaded, all the parameters of the effects that go to make up the configuration can be adjusted, but the configuration itself can't. Though the Wedge does have a limited degree of multi-effect capacity, its main purpose is to produce good-quality, easy-to-edit reverbs, and in this context the configurations don't really impose any limit on its flexibility.

A new (and obviously trademarked) feature has been added in the form of the Impulse Audition feature, which is activated by the Tap Tempo button. This simply generates an electronic impulse that can be used to evaluate the reverb or effects patch currently loaded. This button also has a third function — if you press and hold it, the Wedge enters automatic setup mode and adjusts its input level setting to match whatever signal is present on the input at the time. Again, this feature has been carried over from the Midiverb IV, and it's an excellent idea.

Because of the discrete faders beneath each parameter, the Value knob isn't likely to be quite as busy as it was on the Midiverb IV, but it may still be used for parameter editing for the benefit of those newer musicians who can't remember what faders are for. It's also used to step through programs, with patch change being virtually instantaneous. The rest of the operating system is equally simple, and the small number of buttons is positively refreshing. The Utility button provides access to the usual MIDI setup parameters, patch map and SysEx dump options, but you can also select whether or not to have the dry signal defeated in bypass mode. Further pages allow you to select the MIDI modulation sources for real-time control, and to specify their range. To set up the input and output levels manually, it's necessary only to hit the I/O button and, once a program is edited, it may be saved into any user memory via the Store button. The remaining buttons are Compare, which switches between pre-edit and post-edit versions of the current patch, and Bypass — which does exactly what it says on the tin.

THE EFFECTS

All the effects are based on the 28 configurations shown in the 'Configurations' box; a plus (+) in the title signifies a dual patch, for which independent sends can be fed to the left and right inputs to go via two different stereo effects, that are then combined at the output. A colon (:) in the title signifies a dual mono signal path; an arrow (>) shows that one effect feeds into another. Each effect in the chain has a mix parameter determining how much of the effect goes directly to the output and how much to the next effect in line.

Anyone who's used a Midiverb IV will be at home with the Wedge straight away. The main difference is that there are a few new parameters and configurations, and more pages of parameters on most effects. Even so, the majority of effects only have four or five pages, so editing really is a breeze. The main effect is reverb, and Alesis have tried very hard to provide the optimum balance between flexibility and ease of use. The usual decay, damping, diffusion and density controls are augmented by Early Reflections Shape, Spread and Level, Swirl, and a gate for creating your own gated reverb effects. A new Reverb Depth parameter makes the reverbs wider and deeper, at the expense of some mono compatibility.

Delays come in mono, stereo and multitapped variations with almost five and a half seconds of delay available in mono, and ▶

pros & cons

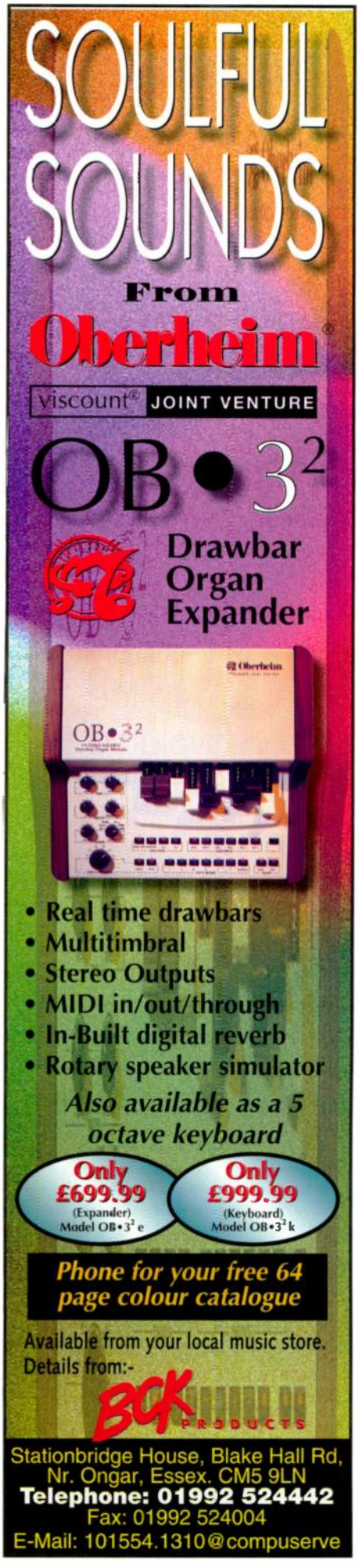
ALESIS WEDGE £449

pros
- Very easy to use.
- Flexible reverb editing.
- Good sound quality.

cons
- Though the case looks neat, the wiring can detract from the overall tidiness.

summary
A good combination of straightforward operation and high-quality reverb sounds.

SOUND ON SOUND



> "Conceptually, the Wedge is no great advance, other than in its rather gimmicky packaging, but the operating system is infinitely preferable to the rather convoluted Q2 system."

▶ half that in stereo. A low-cut filter may be introduced into the feedback loop to emulate old tape-echo units, and modulation is included within some of the delays, so you can add chorus-like effects without needing a separate chorus effects block. The usual chorus, flange and phasing modulation effects are joined by Tremolo, Panning and Lezlie (sic) simulations, and there's also a pitch shifter dedicated to aural thickening effects. Pre-delay is available in both the reverb and modulation sections.

IN USE

As you can imagine, the Wedge is very simple to use, and if you can find some way to hide the bunch of cables poking out of the rear, it also looks extremely smart. The display is large and generally clear, though it's a little slow in responding when you change pages, but the unit seems to be designed to be looked down at rather than viewed from the side, which is a more likely requirement if it's on top of your console and you're sitting down.

On paper, the dynamic range of the Wedge is 90dB, but in reality the noise limitation is usually determined by the rubbish coming from your effects mix buss, not the effects box itself. Electronically balanced inputs and outputs allow interfacing with both semi-pro unbalanced and professional balanced equipment, and the 1MΩ input impedance means that you can plug a guitar in directly, if you want a very clean sound. A combination of 18-bit, oversampled conversion and a 48kHz sample rate produces both a wide bandwidth and a good noise figure but, on a more down-to-earth level, no footswitch jack is fitted, which makes the unit almost useless for live performance unless MIDI control is used.

Subjectively, the reverbs have very much the character you'd expect from the Quadraverb 2 and they're generally very open and smooth. They still don't quite manage Lexicon's trick of sounding perfectly natural even when the original sound is removed from the mix altogether, but they integrate nicely with a mix and are very quick to set up. The addition of an ambience program is useful in this modern age when most reverb on records tends to be 'invisible', and the modulation effects are clean and dynamic with lots of movement.

The MIDI control side of things is simpler than on many units, but being able to control two parameters per configuration is probably as much as most users can deal with. How well this works depends largely on what effect is being controlled, and what signal is passing through it at the time. For example, adjusting the chorus depth when a signal is present isn't recommended, as the large amount of data being changed leads to audible zipper noise. However, most parameters change reasonably smoothly, and though the destination parameters for each algorithm are fixed, they're probably the ones you would have chosen anyway.

CONFIGURATIONS

Large Hall	Quad Chorus
Hall Reverb	Quad Pitch
Stereo Room	Lezlie>Room
Room Reverb	Delay>Room
Chamber	Chorus>Room
Ambience	Room>Flange
Large Plate	Flange>Delay>Room
Plate	Room+Delay
Room+Hall	Room+Chorus
Room+Plate	Room+Flange
Plate+Hall	
Non-linear	
Mono Delay	+ dual patch
PingPongDelay	: dual mono signal path
MultiTap	> effect feeds into another effect
Delay:Delay	
Chorus/Flange	

SUMMARY

Conceptually, the Wedge is no great advance, other than in its rather gimmicky packaging, but the operating system is infinitely preferable to that of the rather convoluted Q2 system. Though it's less versatile than some effects units, in combining ease of use with a more up-market sound quality, Alesis have, I think, made the right move as far as the market is concerned. When you're doing a mix, at least one dedicated reverb is always required, and the Wedge does give you control where it's needed, in fine-tuning the reverb algorithms. Being able to shape early reflections, add swirl, and adjust damping and filtering means that you have all the tools you need to create your own custom reverb settings, yet without the complexity — and the endless forest of parameters — some manufacturers present you with. If you've ever dreamed of having a Midiverb IV with Q2 quality, this is it. SOS

SECOND OPINION

I had a couple of days with the Wedge, and here are my impressions. A large display, function keys and edit sliders might be common on synths, but on a multi-effects processor they are a departure. And what a difference they make: editing just couldn't be easier or faster. Quite apart from the display and the knobs, I also rather liked the on-line help system and the Tap/Audition button. While you're editing Programs with a delay element, this button allows you to set delays to match a song's tempo; otherwise, it sends a frequency-rich blast of noise through the current effect — great for spotting undesirable artefacts in a reverb.

The front end is great, and the sound is exemplary, but let's play devil's advocate. A product called Wedge should be, well, wedge-shaped, and this box is only slightly so. It's small enough to stick on just about any work surface (or on top of my Atari!), but a little propping up is in order to keep the display visible. And to my ears, many of the factory settings are over-bright, with delays often *brighter* than the input signal. However, it was easy enough to tame these tendencies with a few quick tweaks among the comprehensive parameter set. Finally, when you're working with long delay times (you can have over five seconds in some algorithms) and extreme feedback settings, the occasional anomaly occurs. For example, after working with a long, complicated feedback-based delay, which I duly sampled, I turned the delay time and feedback controls to 0; but when I moved on to create another delay effect, chopped-up bits of my previous work were played back to me. Admittedly, this problem won't occur for everyone, but on my other processors turning down delay time and feedback controls generally clears the delay buffer.

Apart from these small points, the Wedge can be highly recommended — and for a unit that specialises in reverb, its extra effects are pleasingly well specified. *Derek Johnson*

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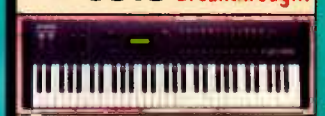

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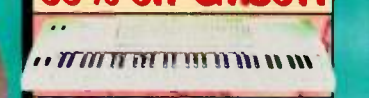

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From the new Studio 30 RRP £99 to the superb specified Studio 2001 with its revolutionary new semi-weighted hammer action RRP £1249 we have just the right keyboard for your needs. SEE pocket PLUS the right software to make the most of your keyboard's sound generating capabilities. Our famous multi-keyboard sound packages can save you even more money.

e.g. Studio 880 – 88 note piano weighted hammer action PLUS Akai S901P piano module

Only £699

Evolution Music Creator Pro PLUS FREE
- 48 Full Size Keys Velocity sensitive • LED Display
- Pitch Bend Wheel • Modulation Wheel • Transpose
- Octave Shift • Program & Bank Change
- Includes Connecting Cable for Soundcard
- 8 Program Memories

Only £99

Evolution Pro 61 New 61 note model now available with on board stereo speakers!

Only £159

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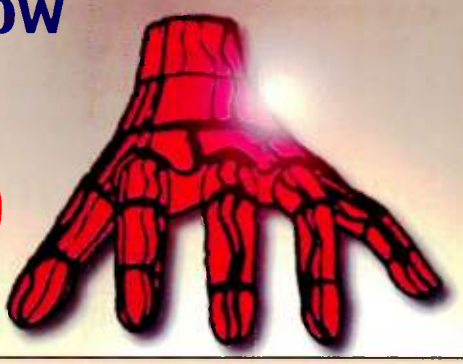


AKAI Sampling Sensations E-MU

Unbeatable deals on the complete range PLUS FREE lifetime membership to our unique and vast sound library!

Akai CD3000XL

All the power and features of the classic Akai S3000 range with the convenience of a built-in quad speed CD-ROM drive. In addition Music Village have a very special bundle deal. For just £1999 you get the CD3000XL fitted with 24Mb Ram, 4 CD-ROM discs and an Iomega Zip drive for storing your own samples. If that's not enough we also give you free lifetime membership to the Digital Village sound library.

- 10 outputs
- Built-in CD-ROM Drive
- 24Mb Ram
- FREE Zip Drive
- 4 FREE CD-ROMs
- FREE Digital Village Library Access

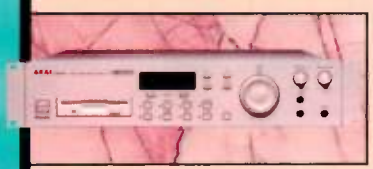
Bundle Price **£1799**

Akai S20

Brilliant new low cost sampler

- High quality 16 bit Stereo sound
- 16 part multitimbral
- Expandable memory
- Easy to use
- Great build quality

RRP only **£499**



Akai S2000

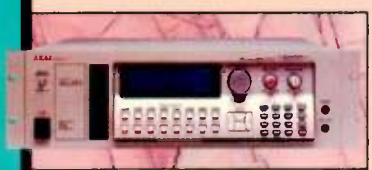
All the power and quality of the S3000XL at an affordable price. Can be expanded with 8 additional outputs and up to 32Mb of Ram with standard Simms.

£PLEASE RING!

Akai S3000XL

The industry standard sampler with 10 outputs, graphic waveform editing, resonant filters, SCSI, totally expandable to the spec of the S3200XL.

£PLEASE RING!



Akai S3200XL

As the 3000XL but with optional IB304F filterboard and IB208T prefitted giving a third envelope, 2nd filter in every keygroup and ring modulation, distortion, delays and 4 reverbs.

£PLEASE RING!

Akai MPC2000

Sequencing/Sampling Drum machine. SCSI as standard. 2Mb memory expandable to 32Mb, graphical waveform editing, rock solid timing and excellent swing function.

£PLEASE RING!

Akai Module Madness!!

Yes – thanks to our bulk buying policy we can now offer these superb half rack modules at an incredibly low price!

Akai SG01V – Vintage
Akai SG01K – General MIDI
Akai SG01P – Piano

RRP £299 **Our Price** only **£199**

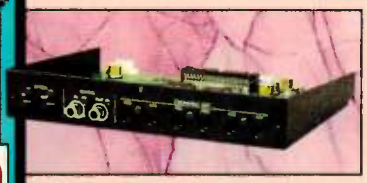
Emu ESI-4000

The latest affordable Emu with the famous E4 filters and excellent DSP for those who really want to mutate their samples. Expandable with digital I/O, 6 additional analogue outputs & FX by adding the Turbo board.

- 18 filter types
- 64 voices
- expandable to 128Mb RAM
- 4 outputs
- upgradable with Turbo option

RRP **£1199**

Limited stocks of ESI32 still available – **Call for an amazing price!**



Turbo Board for ESI-32

The world renowned E4 filters are now available to ESI owners, and if that's not enough you now get an additional 6 outputs (taking the total to 10), digital in/out and dual FX processing (also derived from the E4). This is the upgrade ESI owners have been asking for and EMU have come through in a BIG way.

- E4 Filters
- 6 Additional outputs
- Digital in/out
- Dual FX processing

RRP **£399**

ESI-4000 + Turbo Board

Special Bundle Price **£1499**

Zip Drives and CDROMs always available – **Staggering bundle deals!!**

E-Synth

EMU owners have long known that their sampler has a hugely powerful synthesiser under the bonnet if only it had onboard sample ROM. Here's the E-mu that really does give you the best of both worlds, all the great features of the E4X (64 note polyphonic, internal hard drive, 24bit dual FX, Digital i/o balanced outs) and now 16Mb of ONBOARD WAVEFORMS there whenever you power up the machine.

- 16MB of onboard waveforms
- supplied with fitted hard drive
- expandable to 128Mb
- up to 16 outputs
- 64 note polyphonic

Stunning Price **£PLEASE RING!**

16Mb Rom Board

Turn your EMU Emulator into an instant access synth. The sound ROM adds 16Mb of permanent sample memory to your sampler while all the preset parameters can be adjusted and saved to RAM, creating your own individual presets available instantly when you switch on.

RRP **£449**

Emu Orbit

128 more presets (beat kits, LFO presets), 40 more beats, 28 songs.

£PLEASE RING!

Emu Planet Phatt

A massive 640 presets, easy to edit with its 3D digital 6-pole resonant filters, loads of realtime control and a Beats mode not to be missed.

£PLEASE RING!

Emu Carnaval

For anyone serious about percussion or latin based music this module is a must have. Incredible brass and guitar samples and vocal chants. Use the on board beats mode to add a little latin spice to your track.

£PLEASE RING!

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Sensational Digital Deals!!

42% off the Korg Soundlink 168RC!

- 16 digital inputs and outputs (add optical)
- 8 analogue mic / line inputs (2 with phantom power)
- 3 band EQ (sweepable with 'Q' on mid)
- 2 superb internal fx processors
- automation – 100 'scenes', MIDI control

Yes, it's true – this fantastic price breakthrough is for real. Until now you couldn't even buy a stereo digital mixer for this price! Now we can supply this incredible 8 Buss digital desk for an amazing...

£1099 (was £1899)

M.V EXCLUSIVE PACKAGE DEALS

Adat XT + 168RC only **£2999**

Fostex D90 + 168RC only **£2499**

Fostex D160 + 168RC only **£3799**

Yamaha 03D

Yet another breakthrough from Yamaha in terms of quality, facilities and price! Up to 26 inputs (18 analogue standard), 16 outputs, 28 dynamics processors, 28 x 4-band fully parametric EQ, 20 bit A/D D/A, motorised faders, mouse input, MIDI machine control, 2 internal FX processors, large integral screen, 4 aux sends, surround sound.

£PLEASE RING!

Yamaha 02R

This monster, launched last year, is still one of the most highly desirable pieces of pro audio hardware around. Up to 40 inputs (24 analogue standard), 40 x 4-band fully parametric EQ, 20 bit A/D D/A, motorised faders, 8 aux sends, large integral screen, optional meter bridge.

£PLEASE RING!

EXCLUSIVE!

Phonic MM122

- 4 mono channels & 4 stereo channels
- pro quality slider faders • gain control on all channels except 9-10 & 11-12 • high & low shelving EQ ± 15dB • phantom power
- 2 aux sends & 2 stereo aux returns
- pre/post switchable inserts on channels 1&2 and post fader inserts on 3 & 4
- 19" rack mountable

only **£199** plus FREE UM87 mic worth £80

Power Amps

	R.R.P	Special
Omniphonics Footprint	£ 399	£ 279
Samson Servo 120	£ 199	£ POA
Samson Servo 170	£ 229	£ POA
Samson Servo 260	£ 299	£ POA

Yamaha, C Audio, Crown, Alesis – Great Prices!

Absolute Zero's PLUS Samson Servo 120 bundle RRP £368 only **£329**

Soundtracs

50% off Topaz Project 8

These consoles have always been very highly regarded, even at their original RRP of nearly £3200 just for the 24-8-2 model. Now however, we can offer these superb products bundled with the meter bridge, stand and 2 looms at an

ASTONISHING HALF PRICE!

But grab one quickly – It can't last

24-8-2 + Meter bridge + Stand + 2 Looms only **£1899**

MACKIE

Unbeatable deals on SR Series, 8 Bus Consoles and New 12, 14 & 16 Channel VLZ Models

Behringer Eurodesks and Euroracks at incredible new low prices!!

Behringer MB8000 Meter Bridge for MX8000 Eurodesk in stock – ONLY £299
Also 'Cybermix' automation software for PC – suitable for any desk with insert points! – ONLY £499

Soundcraft Spirit Studio

These superb mixing consoles are available in 3 configurations: 16/8/2, 24/8/2 & 32/8/2 and feature:

- In line design • Up to 72 inputs at mixdown (32ch)
- up to 32 discrete tape sends • 8 bus group section and stereo master • fader flip to save repatching
- 6 versatile aux sends • 4 stereo FX returns with EQ
- 4 band EQ (2 swept mid) • EQ switchable between signal paths • 2 band EQ on each group bus
- PFL soloing on all channels and monitor inputs etc.

Legendary Soundcraft quality at a fraction of the original price!

16-8-2 **£965** | 24-8-2 **£1465** | 32-8-2 **£1995**

Soundcraft Spirit Folio Mixers

Incredible new prices!

These mixers have always been excellent value for money but now they are simply unbelievable!

Folio Notepad	was £203	NOW £119
Folio F1 14-2	was £381	NOW £269
Folio F1 16-2	was £452	NOW £319
Folio SX	was £623	NOW £479

1/2 Price Yamaha!

S15 Monitors

Yet another sensational scoop purchase from the Village. Trapezoidal bass reflex speaker, 5" woofer with extended cone excursion & 1" titanium dome tweeter, 80 watts RGM, 160 watts Max, 85Hz – 40kHz

RRP £218 per pair **Our Price** only **£99**

Exclusively packaged with Samson Servo 120 1U Power Amp

RRP £417 **Our Price** only **£249**

Monitoring Magic

Unbeatable Deals on monitors and monitoring systems by Yamaha, Alesis, Soundcraft, Tannoy, KRK, Phonic etc.

£PLEASE RING!

Soundcraft Absolute Zeros

£PLEASE RING!

Absolute 2's - Still a best seller

EXCLUSIVE!

1/2 Price Tannoy!

System 6 NFM II's

Super response nearfield reference monitors, 5.5 inch dual concentric high sensitivity high power design (175 watts each, peak power handling), magnetic fluid cooled coil, hi-end crossover network, bi-wired gold plated terminals, 5 year warranty!

Legendary Tannoy quality at a price you can't afford to miss

RRP £529 MV Exclusive

exclusive monitors package: NFM II's plus Samson Servo 240 amp – only £499

only **£259**

Harbeth Xpression! DPM-1 Monitors

Don't just read about these monitors, come and hear them for yourself! They offer mid range clarity & stereo imaging unrivalled in this price bracket. Harbeth are the Speakers of choice for the BBC. One listen and they'll be yours too.

only **£369**

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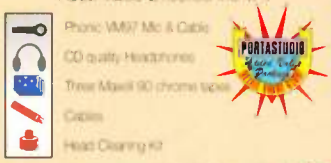
MV Portastudio Added Value Packages

From the company that originally conceived the P.P.D. (Portastudio Package Deal), comes the latest in a long line of superior bargain offers!
Not One but Two Added Value Packages for you to choose from...

Added Value Package One
Retail Value £449.00 Inc VAT

- Cables
- CD quality Headphones
- Three Maxell 90 chrome tapes
- Head Demagnetiser
- Head Cleaning Kit

Added Value Package Two
Retail Value £100.00 Inc VAT



- Phonic VM97 Mic & Cable
- CD quality Headphones
- Three Maxell 90 chrome tapes
- Cables
- Head Cleaning Kit

Portastudio	PLUS.....	Added Value Package One	OR	Added Value Package Two
Fostex XR3 The new budget standard		£229		£249
Fostex XR5		£315		£335
Fostex XR7		£429		£449
Tascam Porta 03		£179		£199
Tascam 414		£329		£349
Tascam 424 MkII		£429		£469
Yamaha MT50s		£279		£299
Yamaha MT4X		£379		£399

Digital Tape Multitracking

Alesis ADAT XT

The next generation of the ADAT format, stunning audio quality and new features

Tascam DA88

Call now for the very best deals on these superb products!

M.V EXCLUSIVE! PACKAGE DEAL

ADAT XT plus Soundcraft Spirit Studio 16-8-2 Desk our price only **£2899**

Fostex D80

8 Track Hard Disk Recorder
and now the fabulous new...
D90 and D160

featuring: vari-pitch, enhanced synchronisation, ADAT digital interface, 9 virtual reels, SCSI option, balanced I/O option.

PLEASE RING!

D80 plus Soundcraft Spirit Studio 16-8-2 Desk only **£2149**

D90 plus Soundcraft Spirit Studio 16-8-2 Desk only **£2329**

D160 plus Soundcraft Spirit Studio 16-8-2 Desk only **£3299**

Tascam DA38

108 minutes of digital recording time; 44.1kHz and 48kHz sampling rates; superb quality

UNBELIEVABLE NEW LOW PRICE! **PLEASE RING!**

M.V EXCLUSIVE! PACKAGE DEAL

DA38 plus Soundcraft Spirit Studio 16-8-2 Desk only **£2999**

Roland VS-880 VXPanded

Announcing the incredible VS-880 SI system expansion kit for VS-880, providing powerful additional functions to this innovative digital studio workstation..... Automated mixing, easy recording with an inserted effect in 'input track' mode, effect insertion for master out, scene change by midi program change message, simultaneous playback of 8 tracks in 'master mode' recording, digital output with copy protection, 10 additional effect algorithms (3D algorithms in total), voice transformer, mic simulator, 16 band vocoder, hum canceller, space chorus, reverb 2, 4 band parametric eq, 10 band graphic eq and voice canceller plus over 20 powerful features in editing/sync sections.

ALL drive options available including Zip, EZ, Jaz at the very best prices and up to 5 year warranties!

Call for best package deal

Fostex DMT8 VL

8 tracks of CD quality digital recording for under a grand!

• 540MB internal hard drive – user upgradeable • 3.5" expansion bay for soon to be released IDE and SCSI interface options • 16 Bit, 44.1kHz, no compression

RRP only £999

SCSI option now available RRP only £199

Plus FREE Music Village portastudio "Added Value Package Two" (excluding tapes and head cleaning kit – You won't be needing those!)

Yamaha MD4

Digital 4 track on Minidisk

- 3 Band EQ
- Mic/Line switch & gain
- Aux send/return
- Instant search/locate
- Cue list system
- Separate track outs
- Large LED screen
- Auto punch in/Rehearsal

Plus FREE Lexicon Alex Digital Reverb only **£865**

Sony MDM-X4

Digital 4 track on Minidisk

• 10 input/4 Bits input system • 4 Mic/Line mono inputs • 1 stereo input and 2 stereo return inputs PLUS 2 Aux sends • 3 Band EQ on mono ins • 2 Band EQ on stereo ins • MMC/MTC compatible • Mix-write function – Stereo bouncing • Track/section/song edit • 11 point Locate function • Undo/Redo • Jog Shuttle • Large Display • Includes 5 FREE Disks

Plus FREE Lexicon Alex Digital Reverb only **£999**

Tascam 564

Digital 4 track on Minidisk

- Sequencer style editing
- 4 Balanced XLR inputs
- Non-destructive track bouncing
- 4 Stereo inputs with 2 Band EQ
- Bounce forward gives 10 tracks before erasing
- 4 Mic/Line inputs with 3 Band EQ
- Individual track outs & S/PDIF digital out

Plus FREE Lexicon Alex Digital Reverb only **£1099**

Pioneer PDR-05 CD Recorder

Yes it's true – Now you can master direct to CD, for the price of a budget DAT machine. No computer needed!, this is a stand alone unit!

ASTONISHING!!

Village price only **£799**

Minidisc Madness!!

Sony MDS-JE510

Another coup for the Village buying department – Now you can digitally master on this popular format for an unbelievably low price! Editing features such as compile, move and autocue, jog dial, digital input, full function remote control.

Village price only **£269**

Sony MZR30

Something to fit your pocket – literally! The tiny portable version of Sony's wonderful minidisc technology.

Village price only **£249**

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Specialists in modern music technology

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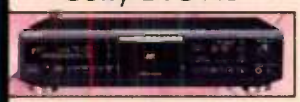
230 High Street, Barnet · 0181 440 3440

Dynamic DAT Deals! All under £1000

Sony DTC A6

Tascam DA20


Sony ZE700

Tascam DA30

Panasonic SV-3800

Fostex D5

For the very best deals on DAT machines – Call us now!

The Russians are coming!

Nevaton CMC51

The Nevaton CMC 51 is an ultra high quality multi pattern capacitor microphone, designed and individually hand crafted for professionals. Dual diaphragm, pressure gradient capsule, configurable to any one of 4 direction patterns, integral 10dB attenuation pad switch enabling it to handle levels in excess of 120dB. Superb vocal mic but flexible enough to cope with any recording situation. In tests this mic has more than held its own against competition costing up to 3 times its price! (Neumann U87's, U47's etc)

Come and hear for yourself

EXCLUSIVE! Only £599

37% off Soundcraft Spirit

True Diversity Radio Mic Systems
DM-01 Handheld (AKG D3700 Capsule)
or LM-01 Lavalier (Clip-on)

Superb quality radio systems at previously unheard of prices

The Village strikes again! RRP £349 Our Price Only £199

Multicore Stagebox

30 metre high quality 20 way balanced stage box fitted with 16 XLR inputs and outputs (left, right and 2 sends) with numbered tails also on XLRs

£299

4 Way 19"Rackmount DI Box

A quality 19" rack mounted passive DI box with 4 independent inputs, plus link in and D-110-20db attenuation switching and ground lift plus XLR outputs on front and back

£99

Computer Systems

Pinnacle £479

Enhanced Full-Duplex soundcard

- 16-bit digital audio using 20-bit oversampling delta-sigma converters giving a signal-to-noise ratio of -97dB
- Optional digital I/O (S/PDIF, Coax) giving zero generation loss • Midi sampling optionally upgradable to 64Mb of user sample memory
- 5Mb Kurzweil ROM or board with digital FX

Dart Pro £299

Clean up any audio file with incredible ease with a full suite of powerful noise eliminators

DeNoise – Removes any constant disturbance like hum, hiss and record groove distortion

DeHiss – An adaptive filter specifically designed to remove hiss and other broadband noise

DeClick – Intelligent noise detector searches for clicks, clicks and other impulsive noises and automatically removes them

Also included: Spectrum Analyser, Fade In, Fade Out, Crossfade and Noise Reduction

Multi!Wav Digital Pro £449

Professional Digital I/O for Windows

Make digital masters, digital mixdowns, sample edits and direct transfers of audio files with no generation loss.

- AES/EBU + S/PDIF digital I/O capability
- Real-time digital format conversion
- Independent master or external sync clock
- 18-bit analog output
- Multiple card support

TripleDat £1290

Affordable and professional multitrack hard disk recording, editing and red book mastering system for the PC.

- 4 channels record and playback
- Stereo analogue in and out
- Stereo digital in and out (S/PDIF with coax)
- Wavelab/Sekers realtime effects suite
- Data Streamer System backup software

TripleDat can write red book compatible CDs directly from the arrange window and support almost any CD writer on the market.

Yamaha DB50XG and SW60 Cards

In stock from only £99

Audiowerk8 by Emagic

"Every few years home studio technology takes a leap in quality and a drop in price". This is a 2 in, 8 out PCI soundcard with "Virtual multitrack recorder" software & stereo digital I/O (S/P-DIF). Fully compatible with any MacOS or Windows 95 PCI computer.

CD quality 8 track recording

RRP only £499

MOTU Micro Express

- MIDI interface for Macintosh and Windows 3.1 and 95 • Can connect to both a Mac and a PC at the same time • 96 MIDI channels
- 4 independent MIDI IN • 8 independent MIDI OUT • SMPTE time-code (LTC) generator and reader • Converts LTC to MIDI TimeCode (MTC) to send a Mac, PC or any other device to SMPTE time code • Supports MIDI Machine Control transport messages • 16 presets with 8 programmable, battery-backed memory
- Internal Power Supply (no Wall-Wart!)

96 MIDI channels for Mac / PC Only £299

Audio Technica

Quality on a budget

Pro 9D – High SPL dynamic mic with a hypercardioid (cardioid pick up pattern) ideal for drums, piano, brass etc

RRP £100 Our Price Only £69

ATM 31a – Battery / Phantom powered condenser mic, superb for vocals

RRP £150 Our Price Only £99

ATM 910PRO – Enclosed studio monitors, perfect for recording and monitoring

RRP £130 Our Price Only £59

Microphone Madness!

Shure SM58	£99	Shure SM57	£89
Octava MK219	£219	Rode NT2	£POA

Audio Technica ATM 4033 plus 8441 cradle (was £695) NEW LOW PRICE

Audio Technica ATM 4050/CM5 (was £995) Now £799

Guaranteed lowest prices on all Mics

AKG Mic Scoop

D3900 – Top of the line dynamic vocal microphone with high end low frequency contouring switches
RRP £245 – VILLAGE PRICE £99

D3700 – Professional dynamic vocal mics
RRP £129 – VILLAGE PRICE £69

C1000S – Cardioid HyperCardioid vocal mic
RRP £281 – NEW LOW PRICE

C3000 – Cardioid HyperCardioid, large diaphragm
RRP £363 – NEW LOW PRICE

WMS51 HT PLUS – Handheld diversity radio mic – stunning quality at an amazing price

ONLY £299 each or 3 for JUST £699

3 FOR 2

Phonic UM97's

High quality dynamic Mic (SM58 copy)

£45 each or 3 for just £99

Accessories Megadeals

Headphones

Audio Technica ATH-M40 enclosed monitor type £45 £29
Audio Technica ATH-P5 – extended response studio monitor £120 £99
Beyer DT100 £PLEASE RING
Sennheiser Manhattan £25 £20

Pulse Point TS2 – synchronises your tape machine to your sequencer using MIDI, generate and read all four SMPTE formats, then convert to MIDI CLOCK, MIDI SONG POINTER and MIDI TIMECODE format only £89

Quality Mic cables
6 metre Jack – XLR £6.99 6 metre XLR – XLR £7.99

Second Hand

Key: Ch=Chadwell · B=Barnet · C=Cambridge · Cr=Croydon

Mixers

Roland M240/24ch with EQ	£ 399	Ch	Mackie 1604	£ 550	Ch
Akai MPX820	Offers	B	Studiomaster Diamond Pro12-2	£ 249	Ch
Peavey MX 12-2	£ 249	Ch	Studiomaster Proline 16-2	£ 399	Ch
Alesis 1622 (16ch 6 auxes)	£ 349	Ch	Carlsbro Promix 16-2	£ 349	C
3G Unit 8 124-8	£ 999	C	Rem Micro 12-8-2	£ 299	Ch
Soundcraft 6000 (36-8, 8 stereo channels)				£ 1999	Ch

Keyboards

Yamaha DX7	£ 299	B	Prophet VS	£ 1050	B
Korg M1	£ 599	C	Roland JX10/PG800	£ 699	B
Korg 01W FD	£ 899	Cr	Roland D20	£ 399	C
Roland JX1	£ 249	Ch	Roland JX3P	£ 299	C
Korg Prophecy	£ 599	B	Hammond XB2	£ 849	Cr
Roland W30	£ 599	B	Yamaha QS300	£ 499	B
Yamaha CS3X Rare analogue	£ 599	B	Kawai SX240 Rare analogue	£ 249	Ch
Yamaha SY85	£ 799		Roland D50	£ 499	C
Korg X3	£ 799	C	Korg X5D	£ 399	B
Gem S2 synth	£ 899	B	Roland A90	£ 249	Ch

Modules

Yamaha TX802	£ 399	Ch	Korg EX8000	£ 249	Ch
Kawai K1r	£ 199	C	Akai S01	£ 399	Ch
Roland U110	£ 199	Ch	Yamaha MU80	£ 399	B
Roland U220	£ 349	C	Roland D110	£ 249	C
Alesis DM5	£ 249	B	Korg EX8000	£ 249	Ch
Ensoniq SQr plus	£ 349	C	Akai S01P	£ 149	Ch
Emu Proformance +	£ 199	Ch	Boss DS330	£ 249	Ch
Peavey Spectrum Bass	£ 229	Cr	Yamaha TX81Z	£ 199	B
Korg M1r	£ 599	C	Novation BassStation R	£ 329	C

Drum Machines / Sequencers

Roland CR80	£ 199	C	Kawai Q80	£ 249	B
Roland MT100	£ 149	Ch	Roland MV30	£ 425	B

Recording

Tascam 688	£ 699	B	Art Multiverb	£ 229	Ch
Peavey Addverb	£ 199	Ch	Tascam Porta 2	£ 249	Ch
Alesis Nanoverb	£ 99	B	TDA MR8T 8-track cass	£ 499	Ch
Peavey Q103 EQ	£ 149	Ch	Sony DTC 690	£ 349	Ch
Alesis Monitor 2's	£ 449	Ch	Yamaha MT50	£ 199	B
Roland DM800	£ 1200	B	Drawmer DI221	£ 249	Ch
BSS DPR901 dynamic EQ	£ 499	Ch	Akai MG614	£ 449	Ch
Sansui MR6 6-track cass	£ 349	Ch	Tascam 238 8-track cass	£ 399	Ch
Fostex 4050 monitors pr	£ 299	Ch	Langevin CR6a mic	£ 349	Ch

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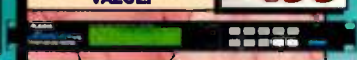

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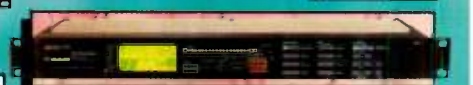

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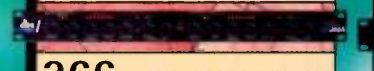

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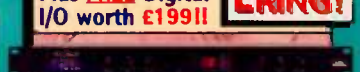

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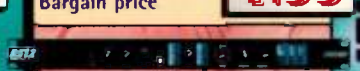

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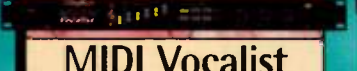

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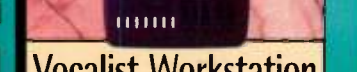

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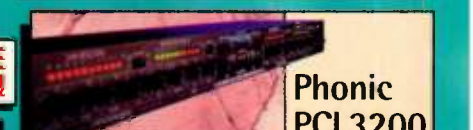

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Multi Story

MULTI-EFFECTS EXPLAINED

Part 3: Having looked at the various types of effects available, PAUL WHITE explains the importance of the order in which these effects are applied.

Over the past two months, I've covered the effects blocks most likely to be found in a typical multi-effects unit, and looked at the difference between the series and parallel connection of effects blocks, so now it's time to see how the various blocks can be used together to create different composite effects. One of the most important factors is the order in which blocks are connected, and this is particularly true in patches where reverb or delay is being used. For example, consider a dramatic effect such as a flanger, connected in series with a reverb block. Do you put the flanger before the reverb or after it? In fact you can connect them either way round, but the result will be very different.

Reverb creates thousands of delays which effectively scatter a signal in time. If you put the flanger before the reverb, the reverb reflections will effectively break up the cyclic nature of the effect, resulting in a more diffuse sound. Instead of the deep modulation effect associated with flanging, you'll get something more subtle, sometimes described as a reverb with shimmer. On the other hand, put the flanger after the reverb and the whole reverb tail will be flanged to produce the familiar 'whooshy' effect. Chorus is often placed before reverb to add a little movement and shimmer, and that can work well on more ethereal sounds, or pianos.

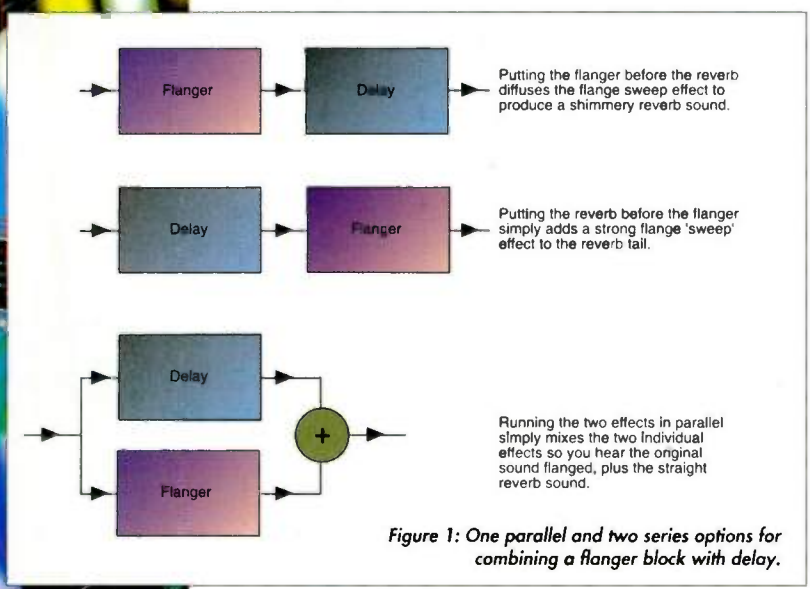

Figure 1: One parallel and two series options for combining a flanger block with delay.

Substituting a delay block for the reverb produces similar, but perhaps less marked, differences. If the delay has feedback to create multiple repeats, and you put the flanger first, then each repeat will be, in effect, an image of the same section of the flanger sweep as the original sound, but delayed in time. As the repeats will tend to overlap when sustained sounds are being treated, the effect will be to overlay one flanger sweep with several more sweeps (decaying in level), but starting at different times depending on the delay time setting. This results in a weakening of the flanger sweep effect, but the complexity of the sound is increased, producing more movement and interest. However, some impression of flange sweep will probably remain, simply because multiple delays aren't as complex as reverb.

Putting the flanger last will simply impart the familiar sweeping sound onto everything that's fed into it. If the flanged effect is mixed in with the original dry signal, the result is a clean original sound followed by the flanged echo, which can still be more subtle than effects settings that treat the original sound as well. In terms of applications, chorus, flange or detuning (via a pitch-shifter) can be placed before a delay or echo block to create an impression of space and distance.

So far we've been talking about series connection, but many effects units also include the facility for putting blocks in parallel. Sticking with delay and flanging for the moment, if we were to put these two blocks in parallel, the output would be a mix of two distinctly separate effects — a clean delay and a flanged original sound. Figure 1 shows the one parallel and two series options for combining a flanger block with delay.

Let's stick with flanger before delay a while longer and see what else you might do with it. You could add a little reverb at the end of the line, because then each discrete delay (which is also flanged) would be diffused into a cloud of reverb rather than being a hard repeat. The effect is to further diffuse the flange effects and to increase the sense of space. Stereo reverb will also add stereo width to the sound, even if mono flanger and delay blocks come before it, though a stereo multitapped delay probably gives the best effect. Figure 1 shows our new chain of flanger, delay and reverb. Note that the delay includes a feedback component to produce multiple echoes.

EQ AND FX

Most multi-effects units also include EQ of some sort, but while the applications are obvious when you're working with guitar sounds, for example, it's not quite so clear how to use them in conjunction ▶

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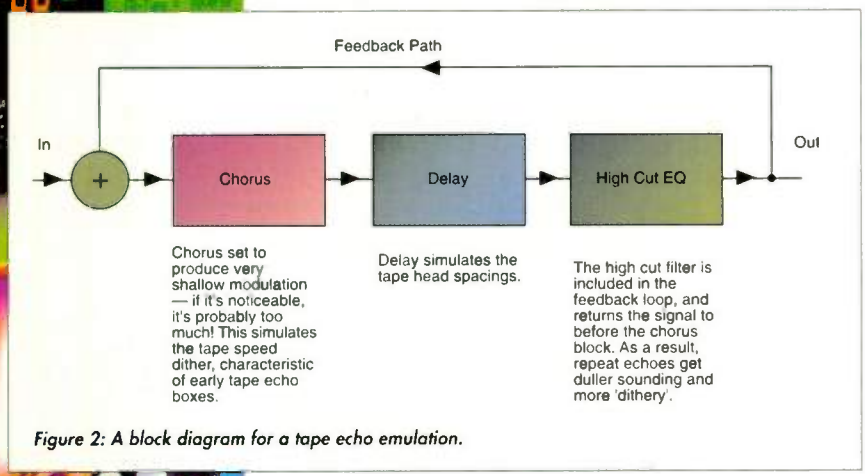


Figure 2: A block diagram for a tape echo emulation.

▶ with other blocks to create specific effects. For example, say that you want to turn a digital delay into an approximation of a tape echo sound. You could put a very shallow chorus in front of a multi-tapped delay, to simulate the wow and flutter that comes from a capstan that's not been cleaned for years and a pinch roller that's flattened out of shape, but you also need to recreate the very limited bandwidth of the old tape systems. Putting in a high cut filter to roll off the top at 3 or 4kHz provides a rough approximation, but to get it more accurate, you have to think in terms of what the original machine did. Remember that tape delays create multiple echoes in the same way as digital delays — they feed some of the output back to the input. In the case of the tape echo unit, though, the signal is being fed back into a system with a re-cued bandwidth, so every time a delay circulates, it becomes duller. To emulate this with a digital system, you have to take the delay block's feedback path from after the filter — this way the delays pass through the filter every time they re-circulate, progressively removing more top end. In fact, being really pedantic, you'd need to return the feedback path to the chorus input to add more 'capstan error' each time the sound goes around the loop — this gives a far better representation of the real thing. In some effects units, the delay block itself may include the option of filtering the feedback path. If not, you'll have to look through the manual to see if your particular unit will let you place an EQ block after the delay block, then take the feedback from the delay output. If you can't, you'll just have to settle for second best and filter the whole delay output, which means that all the delays will be equally equalised rather than becoming progressively less toppy. Figure 2 shows the block diagram for a tape echo emulation.

DISTORTION AND DYNAMICS

Distortion is important to guitar players, but it can also be used more subtly, to add character to synth or sampled organ patches, or to make digital synths sound more analogue. As a general rule, distortion should come right at the front of the signal chain so that any following effects blocks can work on the new harmonics that the distortion introduces. For example, a flanger sounds far more dramatic on a harmonically rich sound.

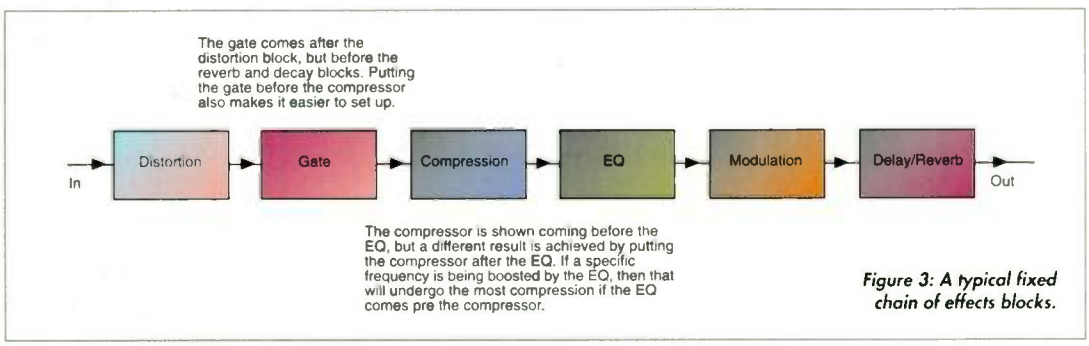


Figure 3: A typical fixed chain of effects blocks.

Because distortion involves high gain, noise can be a problem, so noise gates are often included as part of the effects repertoire. These are usually best placed directly after the distortion block or, if there's an EQ block following the distortion, they could come after that instead. As a rule, gates come before compressors — because the output from a compressor has a smaller dynamic range than the input, it's harder to get the gate threshold right if you gate after compression. It also makes sense to put the gate before any effect that involves delay or reverb, because putting the gate at the end of the line may well chop off the ends of slowly decaying sounds. If you gate before delay or reverb, then even if a sound is cut off slightly early, the sustain of the reverb or delay (which now comes after the gate) will help disguise the fact. Figure 3 shows a typical chain of effects in the most practical order (though arguably the EQ block could be used almost anywhere in the chain). The simplest way to remember the basic connection rules is: distortion or other dynamic processors at the front of the chain and delay or reverb at the end.

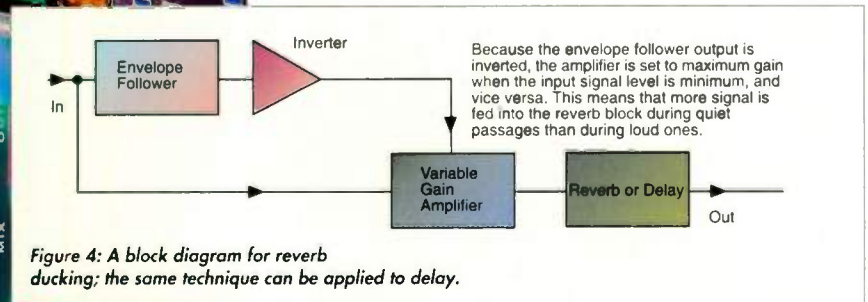


Figure 4: A block diagram for reverb ducking; the same technique can be applied to delay.

Because these series connection rules apply in the majority of cases, some multi-effects designs simplify the whole system by presenting the user with a predetermined chain of blocks which may be switched on or off. Additionally, there are often several alternative effects of a similar type that can be assigned to each block — for example, one block may provide modulation effects such as flanging, chorus, phasing or vibrato.

MODULATION AND ENVELOPES

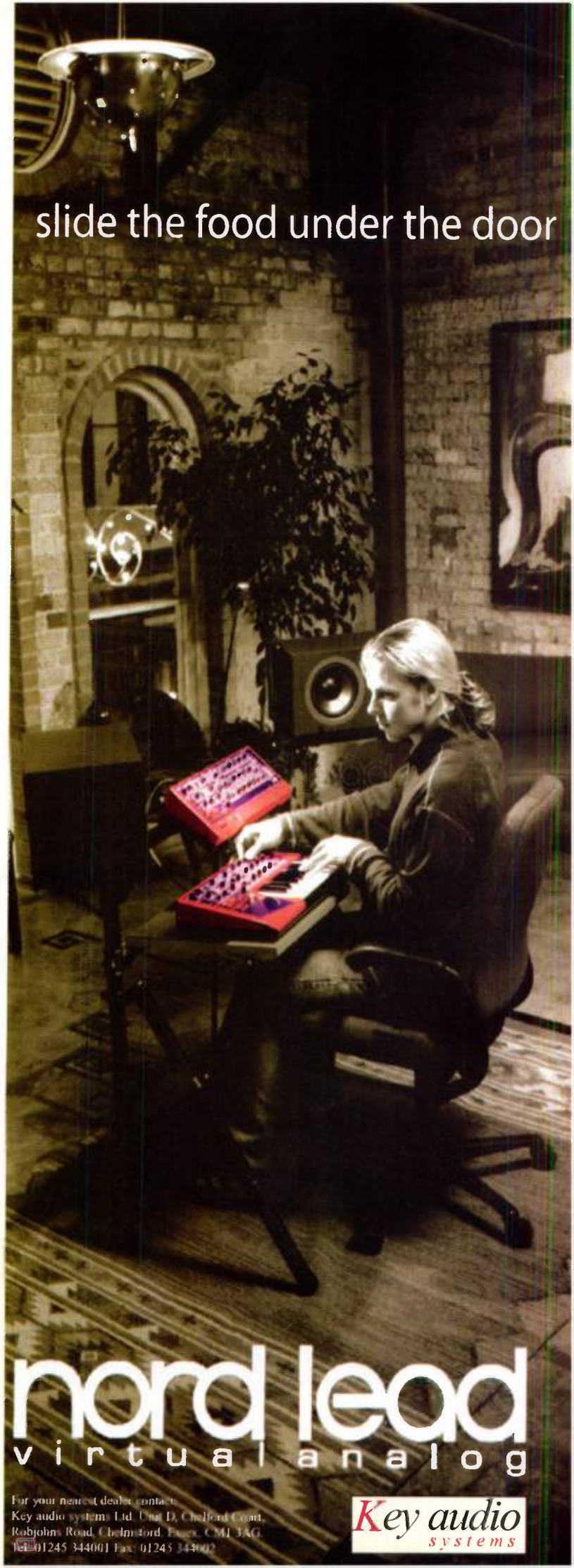
Most multi-effects units contain modulation effects of one kind or another, the more obvious ones being chorus and flanging, but recently their designers have started to get more adventurous. For example, you may have a synth-style resonant filter that can be modulated via an LFO, or even by the envelope of the sound being processed. This latter option needs an effects unit that includes an envelope follower. You can create synth-like filter sweeps with these that follow the input signal level, say, or you can take the input envelope, invert it, and use that signal to control a gain block placed in front of your reverb block. This will pull the reverb down in level when the input is loud, but during pauses or quiet sections the reverb will increase. It's known as reverb ducking, and is useful for keeping busy mixes clean. If you're lucky, the whole ducking option will be built into the reverb block; if you have to build it yourself, though, at least you'll know what blocks you need and how to connect them. Figure 4 (see left) shows a block diagram for reverb (or delay) ducking.

Another useful facility is the sample and hold LFO, a modulation source derived from the old analogue synths. Like any other LFO, the source has a variable frequency, but instead of a repeating waveform, you get a series of random voltage steps, which produce interesting sounds if they're used to control filter frequencies, and instead of a continuous filter sweep, you get regular steps but at random frequencies — at high filter resonances, this can sound very effective. Other less obvious tricks include using the sample and hold waveform to trigger an autopan (sound jumps to random pan positions), or you could use the input envelope follower to control the pan, so that as the signals get louder, they move further across the soundstage.

GETTING FANCY

The real trick to combining effects is to think through what you want to achieve, and then draw out a block diagram on paper that will let you achieve it. Then you'll have to work within the limitations of your effects processor to get as near to it as you can. Most of the time you'll have a fair idea of what the result is going to be, but when you start creating complicated feedback loops, the outcome is less predictable. For example, most pitch-shifters include a delay and feedback facility, so if you set up a pitch shift, add a 200ms delay, then feed some of the output back to the input, each repeat will be shifted further than the preceding one by the same amount, until it finally spirals into inaudibility. Imagine, too, the further complexity you can introduce by putting one effect in the feedback loop of another, or by cross-feeding signal feedback paths between the two arms of a parallel chain. Very soon you enter the world of chaos, where even the slightest parameter change brings about a huge change in the overall effect. To be fair, very few people experiment to this extent, but if you explore some of the more off-the-wall presets that inhabit your factory patches section, you can learn a lot about the less obvious ways to combine effects. Even if you don't feel up to creating your own from scratch, you should be able to load up a factory sound you like, then identify the most important parameters you need to tweak to customise it to your own needs.

Next month I'll be looking at ways to use MIDI control to make effects even more interesting.



Driving it home

INSTALLING A NEW PC HARD DRIVE

Huge disk drives are becoming the norm for PC musicians, but there's more to installing them than plugging in and turning on. MARTIN WALKER talks you through the hard part...

Adding a second hard disk to your PC is normally a fairly easy operation; and for anyone indulging in hard disk recording it can make day-to-day operations a lot easier. A separate fast hard drive dedicated to music data can easily be defragmented on a regular basis, and you can back it up without all the rigmarole of having to choose the appropriate set of data from among a sea of application and system files. Also, if you opt for a removable drive, you may find it easier to keep tabs on several different projects at any one time.

The complications start if you decide to buy a faster or bigger hard disk to replace your existing drive. Although you can retain the old one for additional storage, you'll get a far more significant improvement in system performance if you use the new faster drive to boot up and run your main system files. If you remove the old drive and replace it with the new one, it can be a bit mind-boggling to switch on your machine for the first time, only to discover that your PC doesn't even recognise that you have a hard disk connected. Effectively, you are starting from scratch, since your new drive will be completely blank, and of course you will no longer have Windows 95 to hold your hand with a nice graphical point-and-click environment.

A further complication arises if your new drive is a big one. As anyone who's attempted to install a larger drive than 2Gb will know, there's plenty of fun to be had working round the quirks of the modern PC. For historical reasons (see 'Going For The Big One'), DOS and Windows cannot see a single drive larger than 2Gb unless it's first been partitioned into two or more separate areas (more on this later). Unless you do this, a 4Gb EIDE drive will simply appear as a 2Gb one. Many complete systems are supplied nowadays with 2.5Gb drives as standard, but it's not unknown for them to be delivered with a single partition, which Windows will only see as 2Gb. So for anyone buying huge drives for a PC 8-track recording systems, here is the comprehensive *SOS* guide to hard disk installation...

Figure 1: Don't pull out your old hard drive until you have created (and tested) a floppy startup disk. Once your new hard drive is in position and wired up, you'll need several of the small utility programs on this floppy to format and partition it.

PREPARATION

If you're replacing an existing drive, before you go haring off to pull the old one out, check that you have created a floppy startup disk. Without one of these (or, for long-standing PC users, disk 1 of the set of DOS installation disks), which will contain the vital FDISK and FORMAT utility programs, you will find it impossible to partition and format your hard drive. You can create one from the Add/Remove programs applet in the Control Panel (see Figure 1). Some hard disk packages may include a manual and floppy disk with helpful utilities to guide you through the whole installation process, but if you buy at rock-bottom mail-order prices you'll often be lucky to get more than the bare drive, an invoice, and a jiffy bag.

MASTERS AND SLAVES

If you intend to install more than one drive, you need a way to tell the computer which one contains the Windows 95 operating system, so that the machine can finish booting up to the familiar desktop environment. Modern PCs can support up to four EIDE drives in a single machine (if SCSI is fitted, up to eight SCSI devices can be connected in addition to these). The four EIDE drive connections are called primary master, primary slave, secondary master and secondary slave, and are configured using small 'jumper' connectors on the drive itself. The master device will always get priority over the ▶

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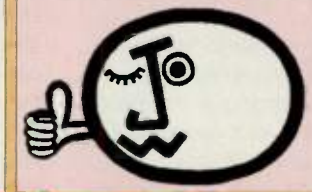

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secondary one when booting. On most modern motherboards, the primary connectors run through the PCI buss, but the secondary ones use the ISA buss, and will therefore have reduced capability.

If you're installing a single new drive to replace the existing one, leave it with the default factory setting of Master. If you're installing a second drive, one drive will need setting to Master and the other to Slave. For the best system performance, set up your fastest drive as primary master, and install the operating system on it. If you have more than two drives, connect the third drive onto the secondary buss as secondary master, and a fourth one as secondary slave.

If you are adding a second drive for music data, and leaving your existing drive as primary master, this master device may also (depending on the model) need a jumper adjustment to let it know that you have connected a slave as well. If you have an ATAPI-specification CD-ROM drive, you can simply attach this to a hard disk connector just as you would a hard drive, leaving it in its default slave setting. This may slow down the associated hard disk speed to that of the CD-ROM drive, though. In most cases, it's better to connect the CD-ROM drive as the secondary master or slave device, leaving both the master and slave connectors of the primary channel for hard-drive use.

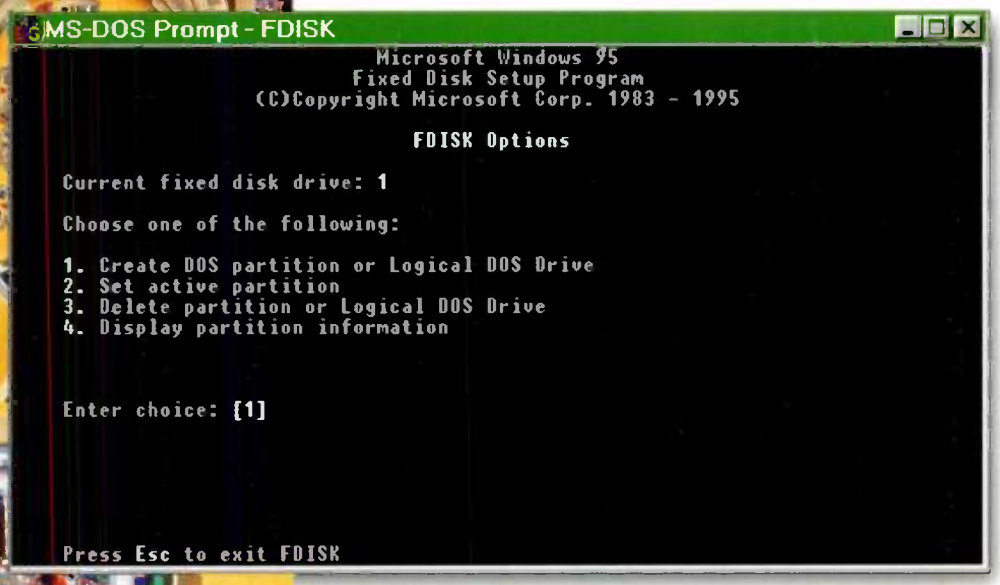

Figure 2: The charming text-only FDISK program, which you will find supplied with DOS or any version of Windows, and which you will need to run to partition your new drive. Your startup disk will also include this file.

PREPARING FOR ACTION

Follow the mechanical installation instructions carefully, paying attention to the correct orientation of ribbon cables (check your existing drive and make some notes on which way round they plug in). Once you've physically attached a new EIDE drive into a spare drive bay, connected the data and power cables, and checked the position of any jumpers, you're ready to re-connect the power. At this stage, your PC will still have no idea that a new device has been attached, and you now need to tell it about your new toy. So enter the BIOS setup routines (normally by pressing the Delete key during the boot process). Most modern BIOS screens have an Auto Detection option on the initial menu screen, which you can select to recognise and configure the new drive automatically. This will find a number of hardware characteristics such as size, number of cylinders, heads and sectors, which then appear on the Standard CMOS Setup screen in the BIOS.

If for some reason this doesn't work, you can enter the correct information by hand. Either select the drive type directly using the figure supplied with the drive itself (if it conforms to one of the 40 or so drive types incorporated into the BIOS), or select Type 47 (also referred to as User type), which will allow you to enter user-defined values. These should be provided with the drive itself, or printed somewhere on the casing — look *before* you bolt it into the darkest recesses of your PC! When you exit the BIOS main screen, save this new information in the CMOS battery-backed-up memory by selecting the appropriate menu option, so that the new drive characteristics will be in place every time you boot up in future. Once the BIOS knows about your drive, it will dump you unceremoniously at the C:/ prompt, now known only to people who remember the bad old pre-Windows days of DOS.

For those lucky owners of a new SCSI drive, if it's simply an additional disk to the main boot EIDE drive, you needn't set up the BIOS as just described — you can move straight on to partitioning. However, if you want to boot from this new SCSI drive, you'll need to enter Type 0 or 'No hard disk installed' in the BIOS, so that the system will look elsewhere for the SCSI one. Apart from that, you'll need to partition and format in exactly the same way, although you may be supplied with specific utilities for SCSI drives. It is

"As anyone who's attempted to install a larger drive than 2Gb will know, there's plenty of fun to be had working round the quirks of the modern PC."

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wise to use these, to ensure that you can take advantage of every feature of your new drive.

PARTITIONING

Whether you're going to be using your new drive for secondary storage, or to replace your current drive for primary use when you boot up the computer, it will first need formatting. The low-level format (also known as the physical format — physically laying down tracks and sectors onto the drive) will have been carried out by the manufacturer during the test process, and modern drives don't need this to be repeated. (Even though some drives allow a so-called low-level format, this is actually a write-read verify process that you can use if you suspect a faulty drive, or you've suffered a boot-sector virus attack.)

The first thing you should do, if you need to, is partition the drive (see the 'Divide & Conquer' box) — either to create a separate data area, to run multiple operating systems, to minimise wasted space, or so that the operating system can see more than the current 2Gb limit using the FAT16 file system. Until recently, the only way to partition was to use the FDISK program supplied with Windows and DOS (or Adaptec's AFDISK for SCSI drives). But there are now several special programs such as *Partition Magic* and *Partition-It*, which have the huge advantage of letting you create new partitions or re-size existing ones without disturbing any existing data (more on this later). The DOS program FDISK is designed to be used on a blank drive, and will write special information to the boot sector of the drive. DOS and Windows can then treat the drive as several smaller 'logical' ones, each with its own unique letter, such as C, D, or E.

The normal all-in-one partition that most people use is a 'primary' partition, and this can contain both an operating system and data. If you need to install multiple operating systems (such as Windows 95 and Windows NT) on the same machine, you'll have to create a primary partition for each. Only one of these can be active at any time (the 'active primary' or 'boot' partition), and this will be used to boot up the operating system. When one primary partition is active, data in another primary one will not be accessible. You can create up to four such primary partitions. If you decide to create a separate partition for data, you will need to create an 'extended' partition. This is often a good idea — a large drive, for all practical purposes, will end up as several smaller, more manageable ones. An extended partition is essentially a container for more logical partitions which can all be used for data; all the logical partitions will be available to the active primary partition. Don't panic if you can't get your head round all this at first. Remember that you're only likely to set up a new drive once — day-to-day operation after this point is easy.

FORMATTING

Once you've done any partitioning, you can use the FORMAT command from your floppy Startup disk to carry out the high-level format that writes the FAT (the system's catalogue of all the files stored on the disk) and directory structure for each partition. This creates a separate 'address book' in each partition for managing files — it's what most people normally understand as 'formatting' a disk. From the A:/ prompt provided by your Startup disk, type 'FORMAT C:'; or, if you intend to boot from this new drive, type 'FORMAT C: /S'. This is assuming that your new device is going to be your primary C: drive. If it's an additional drive, it will probably be the D: drive. *Don't* format the wrong one by mistake! If you're using SCSI drives, the manufacturer will normally provide specific format utilities. After formatting, you're ready to start reading and writing using the new drive.

If you decide to buy a hard disk partitioning utility such as *Partition Magic* or *Partition-It*, both partitioning and formatting can be combined in ▶

GOING FOR THE BIG ONE

Back in the days when 20Mb of hard disk storage were considered a luxury no-one could be blamed for designing a BIOS that could only cope with a maximum of 528 million disk bytes (504Mb). The limitation arose because of the way IDE drives were divided up for use, and when the Pentium arrived, a new scheme was adopted to overcome it. All modern EIDE drives use Logical Block Addressing (LBA). This part of the BIOS code sits between the operating system and the hard disk, intercepting any requests for access to a particular sector on the drive. Modern drives are passed a single index number (0 to about 2,000,000 for a 1Gb drive). Older drives have to be accessed by a combination of cylinder, head and sector numbers (the subdivisions inside the drive), and in this case the LBA in the BIOS translates the numbers appropriately. Any drive larger than 504Mb will either need a BIOS with LBA (and all modern ones feature this) or, failing this, a special software driver provided by the drive manufacturer. This allows you to use drives up to 8.4Gb (subject to the limitations on partition size — see 'Divide & Conquer').

DIVIDE & CONQUER

To organise data on the drive, most small hard disks are formatted as one huge area, which is called a logical drive and given a unique letter, such as C. However, it is perfectly possible to format the drive as several separate partitions, each of which is recognised by the operating system as a separate logical drive, with identifiers such as C, D, and E. For a particular size of partition, there will be an associated basic unit of storage (known as a cluster), made up of a fixed number of disk sectors. With the worst case of a drive between 1 and 2Gb using a single partition, the cluster size will be 32Kb. Since only one file can be stored in a single cluster, a 1Kb file will still occupy a whole cluster, wasting the other 31Kb. It's like a jack plug rattling around in a bass bin! Over a typical 1Gb drive, the total wastage for files that don't completely fill each cluster can be considerable — it's not unusual to find hundreds of megabytes wasted overall. Since the cluster size is proportional to the partition size, the solution is to format the drive into several smaller partitions, each of which will have smaller clusters. Your data will be identical, but the wasted space will be much smaller, letting you reclaim many megabytes of space on your hard disk.

PC operating systems such as Windows 3.1, Windows 95 and Windows NT have largely up to now supported the FAT16 (File Allocation Table) system. As well as being wasteful with the larger cluster sizes it uses with large partitions, FAT16 has the disadvantage of allowing a maximum partition size of only 2Gb. If you have a larger drive, it must be partitioned into two or more logical drives or Windows will simply ignore the remainder. With the introduction of Microsoft's new FAT32 file system (which is part of the latest release of Windows 95), both large cluster sizes and the 2Gb restriction disappear. Unfortunately, this update is only available to other equipment manufacturers (OEM) and is therefore supplied with some new systems, but not to the general public.

FAT32 can handle disks bigger than 2Gb without partitioning, and has been redesigned to waste far less space with small files by having 4Kb clusters. The downside (isn't there always one of these?) is that Windows 95 recognises it, but Windows 3.1 and DOS don't. This may not seem a great loss, but if you ever get a problem with your hard disk, and attempt to boot from your old DOS floppy disks, your hard disk will suddenly disappear. Whoops! Because of this problem, many suppliers are sticking to the FAT16 version, so partitioning is still mandatory for any drive over 2Gb.

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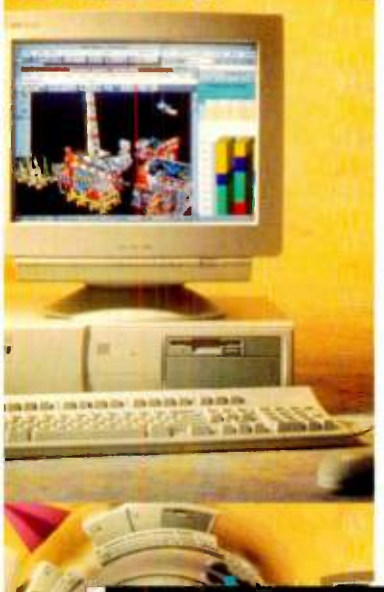

Autoexec.bat - Notepad

File Edit Search Help

```
@ECHO OFF
PROMPT $P$G
PATH C:\WINDOWS;C:\WINDOWS\COMMAND
SET DIRCMD=/O/P
SET TEMP=C:\TEMP
SET TMP=C:\TEMP
SET SOUND=C:\PROGRA~1\CREATIVE\CTSND
SET MIDI=SYNTH:1 MAP:E MODE:0
SET BLASTER=A240 I9 D3 H7 P300 E640 T6
rem - by Windows Setup - c:\WINDOWS\COMMAND\mscdex.exe /d:mscd000
C:\WINDOWS\COMMAND\MODE.COM
mode con codepage prepare=((850) C:\WINDOWS\COMMAND\ega.cpi)
mode con codepage select=850
keyb uk,,C:\WINDOWS\COMMAND\keyboard.sys
```

Config.sys - Notepad

File Edit Search Help

```
DEVICE=C:\WINDOWS\SETVER.EXE
DEVICE=C:\WINDOWS\HIMEM.SYS
DOS=HIGH
device=C:\WINDOWS\COMMAND\cdmke.sys /p:320
device=C:\WINDOWS\COMMAND\display.sys con=(ega,,1)
Country=044,850,C:\WINDOWS\COMMAND\country.sys
```

Figure 3: These are the two files from the hard disk (for my system) whose contents need noting down. In each case I have highlighted the appropriate line. The equivalent two lines from your own files provide the information needed for the updated Startup floppy disk that will provide full CD-ROM support (see the main text for full details).

one easy operation, and you'll have the added benefit of a graphical interface rather than the bland text-only typing of the DOS FDISK and FORMAT utilities. However, the much bigger advantage of the specialist utilities is that, once the operating system and data is all in place, you can create or re-size partitions without disturbing any of it. If you use the DOS utilities to change the partitions on an existing drive, they'll completely wipe your hard disk, giving you a mammoth back-up and re-installation job (see the April issue of *SOS* for my review of *Partition Magic*, in 'Essential Accessories For The PC Musician').

INSTALLING CD-ROM SUPPORT

After all this effort, the only result so far is that you can see your new hard drive; you can't actually do anything very useful with it yet. So now you need to install an operating system, which will let you use the familiar commands, and retreat to the comfort of a graphical environment. The last big fly in the ointment is that Windows 95 comes on CD-ROM, but the CD-ROM drivers are part of Windows. So, without Windows 95, you can't use the CD-ROM to install Windows 95... catch 22! The solution is to install a basic DOS driver (which, fortunately, comes on a floppy disk), so that the CD-ROM is recognised and useable before you install the Windows operating system. At this point in the proceedings, anyone who has mislaid their CD-ROM driver floppy disk may now quietly go and bang their head against a convenient wall. This DOS driver will also be needed if you ever need to access the CD-ROM drive from DOS programs, such as most games. If you leave it permanently installed for occasional DOS use, it will be quietly ignored when Windows 95 is running, but will still occupy some memory, so it's best only loaded when specifically needed.

The simplest solution when you're installing a new hard drive is to create a special Startup floppy disk that contains the two extra files needed for CD-ROM support, along with some slight changes to two small text files, also on the floppy disk. To do this, first create a Startup floppy disk as described earlier, and then make the following modifications. First, copy across the file MSCDEX.EXE (Microsoft CD Extensions), which is normally found in the Windows\Command folder on your hard disk. The second file will be specific to your particular CD-ROM drive, and should already be mentioned in the CONFIG.SYS file currently in the root folder on your hard drive. Open this up in a text editor like Notepad and have a look (see Figure 3). The relevant line (for my system) is highlighted: yours will also contain the letters 'cd' in the filename. Note down the final part of this line (ignoring the Windows\Command bit), as it will be needed shortly. Then find this file on your hard drive, and copy it across to your Startup floppy disk. If there is no mention of this file in your CONFIG.SYS file, you will need to use the CD-ROM driver floppy

TERMINOLOGY UNCHAINED

• **BIOS:** The Basic Input/Output System is the chip that handles communications between the computer and its peripherals. This is the code used when the computer is booting up, before control passes to an operating system such as Windows.

• **CLUSTER:** The smallest unit of storage available for files.

• **FAT:** The File Allocation Table is a small area of the drive used as a catalogue of all existing files stored on the disk. Until recently, most systems used FAT16, but the most recent version of Windows 95 incorporates FAT32 which allows much larger drives to be formatted as a single partition.

• **JUMPER:** A small plastic clip that creates a connection between two adjacent pins on a circuit board. If the two pins do not need connecting, push the jumper onto a single pin, leaving the other end 'floating'. Plug and Play has removed the need for many of these jumpers, as you can now configure many devices automatically using the BIOS and Windows 95.

• **LBA:** Logical Block Addressing is the way that hard drives are accessed by the operating system, and is part of the BIOS.

• **LOGICAL DRIVE:** A drive recognised by the operating system with a unique identifier such as C or D. A single physical drive can act as several logical drives, each with its own identifier.

• **PARTITION:** A section of a hard drive devoted either to a particular operating system or to data alone. Although many drives consist of one large partition recognised by both DOS and Windows, it is possible to have up to four partitions on a single hard drive, each occupied by a different operating system.

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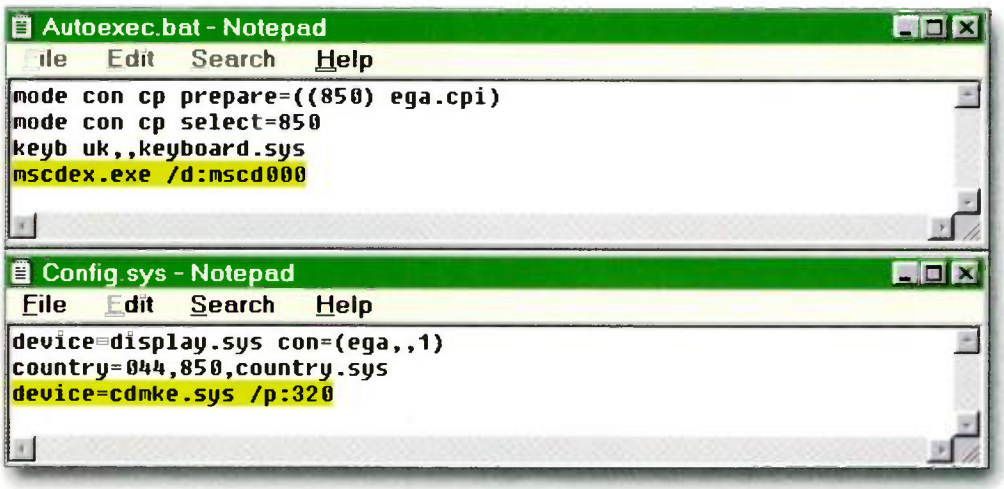

Figure 4: The same two files as in Figure 3 from the Startup floppy disk will be considerably smaller. Yours should look similar to these. The final highlighted line in each file has been added by hand from the information found in Figure 3. Your final edited files for the floppy disk versions should look similar to these. Do NOT change these files on your hard disk — only save these versions onto your Startup floppy disk.

disk that arrived with your CD-ROM drive. Run the install program on it and the appropriate line should then be in your CONFIG.SYS file the next time you look at it.

Now, in Notepad, open the AUTOEXEC.BAT file that you will find in the root folder of your hard drive. You will probably already find the extra line for the MSCDEX.EXE driver that you need for the CD-ROM drive (see Figure 3 again). During setup, Windows 95 'comments' this out (by adding the rem part before the C:\ filename), so that it is not actually loaded (if you want CD-ROM support for DOS games, remove the initial portion of the line up to the C:\ bit). Again, note down exactly the final part of this line. Next, load the slimmed-down AUTOEXEC.BAT file that you will find already on the Startup floppy disk, add an extra line containing the information you have just noted (see Figure 4), and then save this edited file onto the floppy disk. Do the same for the Startup floppy disk CONFIG.SYS file, and then save this one back onto the floppy disk. Remember that it's only the versions on the floppy disk that you change — leave the ones on your hard disk alone. You should now have two files on your floppy disk that look similar to the versions shown in Figure 4. Now, if you place this floppy disk in the drive before rebooting your PC, it should boot up to the A:\ prompt, complete with CD-ROM access. Typing D: (or whichever letter your CD-ROM drive has) will transfer you to that drive, and you can then run programs directly from CD-ROM.

INSTALLING DOS AND WINDOWS

If you have the full version of Windows 95, installation is now simply a matter of running the SETUP program found on the CD-ROM (just type D:\SETUP). If you bought the upgrade from Windows 3.1, then life is rather more interesting. Windows 3.1 must first be installed so that the Windows 95 upgrade can find it before it installs itself over the top. However, on your blank hard drive, to install Windows 3.1 you need a version of DOS in place. Newcomers will probably have their jaws touching the ground by now, but no doubt old-timers will be grinning from ear to ear. Yes, for those who have patiently upgraded at each stage over the years (including me!) the procedure is to install DOS 5, then Windows 3.1, then the Windows 95 upgrade. No doubt the Windows 95 upgrade only looks for a few vital components of Windows 3.1 before proceeding, so that you ought to be able to simply copy these onto your drive and then install the Windows 95 upgrade directly, but, understandably, Microsoft are rather cagey about telling you what

DRIVE A HARD BARGAIN — *DRIVECOPY*

Some bright spark will no doubt already be wondering why you can't initially install the new drive as a secondary one, partition and format it, and then boot up as before using the old drive. You could then copy across the entire contents of your old drive to the new one, switch off, and change the master/slave settings so that the new drive simply replaces the old. This is indeed possible, although it uses a rather involved DOS command line to cope with all the hidden and system files. Enter PowerQuest, makers of *Partition Magic*, mentioned elsewhere in this feature. They have a new utility called *DriveCopy*, which is "the safest, easiest, and most affordable way to copy everything from your old drive to your new drive".

Not only does it copy all of your old disk contents across automatically, it performs the partition and format of the new one as well. The idea is that you install your new larger and faster drive as the 'master' device (*DriveCopy* refers to this as the Target drive), and change the previous drive to 'slave' operation (the Source drive). This will require a jumper change to your existing drive, which has previously been the master. The reason behind this is that most people will want their new faster drive to become the main one.

Once the physical installation is out of the way (and this is nicely covered in the manual), you let the BIOS auto-detect the type of new hard drive. Then switch off the computer and reboot using your standard Startup floppy disk (so far, exactly as discussed in the main text). Now comes the good bit. You replace the Startup disk with the *DriveCopy* disk, and run its program. The entire contents of your old drive now get copied across to the new one, including Windows 95 (or other operating system), and all of your applications and data, without losing a single byte or preference setting. The benefits are that you completely bypass the need to partition or format the new drive, so you can simply wipe all the data from your old drive, then either remove it or leave it as a second storage device. If you are buying the new drive for additional music data only, you won't need *DriveCopy*, but if you're replacing your existing drive, at £29 *DriveCopy* could save you hours of fiddling.

they are. Quite frankly, the easiest thing to do is to buy or borrow a full copy of the Windows 95 CD-ROM (it will probably cost you about £70).

If you received your machine with all its software fully installed, you have now reached the stage of needing all of the original program installation disks — anyone left scratching their head at this stage will now appreciate how the price of their PC managed to be so low. Unscrupulous suppliers load machines with hundreds of pounds' worth of software (all from a single set of original disks), but provide no manuals or original disks. Make sure that you get these when you buy a new system. The supplier may make an extra charge, but it's a lot cheaper than having to buy them all again later. One final point during the Windows 95 installation — if your machine came with software pre-installed, you may find your BIOS still configured to check for boot-sector viruses. If you ever suffer from one of these, it may prevent the hard drive booting up, so many BIOS chips contain code that actively prevents any piece of software writing to the boot sector of your hard drive. Unfortunately, Windows 95 needs to write to the boot sector during installation, and will flag an error with this BIOS feature enabled. You'll need to enter the BIOS features page, and alter the Virus Warning option from 'enabled' to 'disabled'.

Well, if you've hung in there, you should certainly know a lot more about PC hard drives. However, if you are thinking of installing a new drive yourself, don't be alarmed by all the technical stuff I've covered. Most drives should come with easy-to-follow instructions that hold your hand during the process; it's only replacing your primary (boot) drive that complicates the procedure. If you want to cheer yourself up immediately, take a look at the 'DriveCopy' box, where you will find a piece of software that does most of the hard work for you!

SOS

info

£ PowerQuest *Partition Magic 3.0* around £60; PowerQuest *DriveCopy* around £29; both prices include VAT.
T GEM Distribution 01279 822800; Ingram Micro 01908 260160; POW! Distribution 01202 716726.
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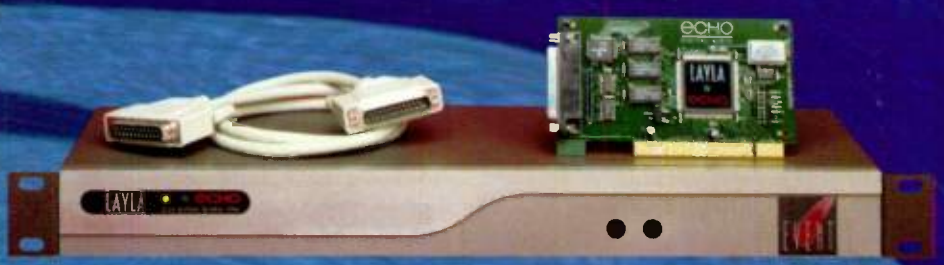

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Key audio systems

SAMPLING CENTRAL

These days, few hi-tech musicians would consider their studio complete without some kind of sampler. PAUL WHITE goes through the basics of these invaluable studio tools, for the benefit of anyone who has yet to sample one...

Sampling from scratch

THE BASICS OF SAMPLING

A great deal of contemporary music relies heavily on sampling, and some producers seem to delight in maintaining a barrier of mystique around the process, but the concept of sampling is really very simple. A sampler is essentially a synthesizer into which you can record your own sounds to use as raw material rather than relying on a set of factory samples or waveforms. If you look at the block diagram of a typical sampler, you'll find that it bears a very close resemblance to those of the original analogue synths. The main difference is that the sampled sound replaces the analogue synth's oscillator. Once a sound has been recorded into the sampler's memory, which uses the same type of RAM (Random Access Memory) as a computer, it may be played back from a keyboard, at any pitch, just like a conventional synthesizer patch.

"Even the most mundane sound can be transformed into something musically useable by shifting it out of its usual pitch range."

In order for a sample to play back at a higher pitch than it was recorded at, the sample must be played back faster, just as when you varispeed a tape — so doubling the playback speed will raise the pitch by one octave and cause the sound to play for only half as long as the original. If you slow down the sample to lower the pitch, the sound will play for correspondingly longer. You've probably already noticed that moving a sound too far from its original pitch makes it sound unnatural — Mickey Mouse vocals are the most obvious example — but sometimes this capacity for strangeness can be used in creative ways.

VOLATILE NATURE

Unlike the permanent ROM-based sounds in synths, samplers store everything in RAM memory: when you turn off your machine, you lose all your sounds. Obviously, some form of permanent sound storage facility is required, otherwise you'd have to sample a new sound every time you switched on; most samplers come with an inbuilt floppy drive for this purpose. Be warned, however, that a floppy disk is really far too small for most serious sampling work — an additional hard drive or removable media drive is a must. Unfortunately, the most common samplers have their own floppy disk format, so you can't duplicate these floppies in your computer's floppy drive or transfer your samples directly to your computer's hard drive.

SAMPLING APPLICATIONS

When samplers first came onto the scene, everyone went around the house blowing over bottles, hitting pans, and doing all kinds of other crazy things to come up with new musical sounds. Even the most mundane sound can be transformed into something musically useable by shifting it out of its usual pitch range. To make these sounds play back as chords, the sampler needs to work polyphonically in the same way as a synthesizer, and just as on any synth, there's a limit to the polyphony.

It wasn't long before sampler users figured out that if they could sample individual notes from instruments, they could also, given enough RAM memory, sample entire musical phrases or whole bars of drum rhythms. Sampling whole chunks of music is the cornerstone of modern dance ▶

EDITING SOFTWARE

If you're going to do a lot of sampling and sample editing, a computer-based sample editing package will make the job much easier than peering into a tiny LCD window. If you have a suitable computer and you don't have one of the samplers that supports a computer monitor directly, an editor is well worth considering. Sample editors are available for both Mac and PC platforms, and Akai have their own *MESA* editor for Mac, with a PC version planned shortly. MIDI may be used to transfer samples between a sampler and a computer, but it's mind-numbingly slow: a system that can transfer samples over SCSI is far more satisfactory.

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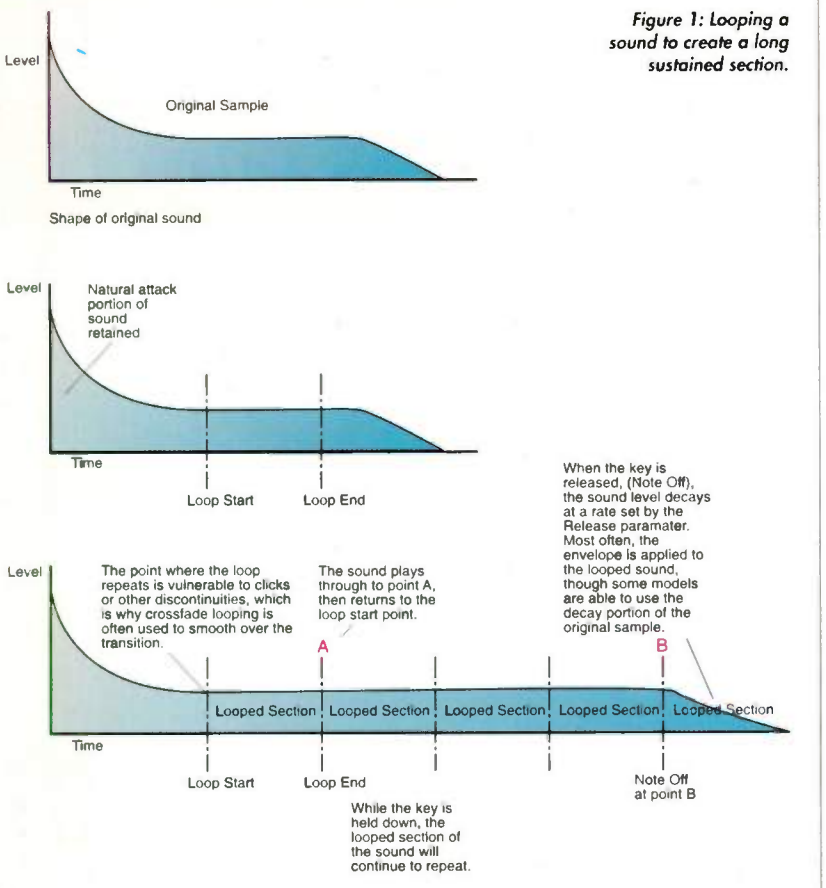


Figure 1: Looping a sound to create a long sustained section.

▶ music construction: the music is often built up from a series of drum loops — the term loop simply refers to a sampled section that can be repeated to form a continuous piece of music. However, you wouldn't normally loop this in the sampler — you'd trigger it once a bar (or whatever the loop length was) from your sequencer, so as to keep the timing accurate (see the 'Drum Loops' box on p.114).

So how much RAM memory does a sampler need? The answer is that it always needs more than you have, but the figure to keep in mind is that a mono sample lasting one minute will require about 5Mb of RAM at the CD sample rate of 44.1kHz. A minute may seem like a long time, but recording stereo samples will halve the available time. What's more, if you use the sampler multitimbrally, the memory will have to hold several sounds at the same time, which further reduces the length of individual sounds. As if that wasn't bad enough, some instruments have to be sampled every few semitones in order to create a set of samples that sounds convincing over the entire keyboard range, and, again, this takes memory. The good news is that RAM is now relatively cheap compared with what it was a year or two back, and most modern samplers let you add regular computer RAM rather than expensive proprietary memory boards. For that reason alone, it's worth filling your sampler to capacity as soon as possible.

"How much RAM memory does a sampler need? The answer is that it always needs more than you have."

Even with a full complement of RAM, you may still find that you need more sampling time, especially when you're using long samples or sets of multisamples in a multitimbral context. If you can make do with a lower audio bandwidth, setting a lower sampling rate will extend the available time; deliberately sampling at a very low sample rate can make sounds quite cheap and 'crunchy', a technique popular with dance-music composers. Some samplers have a re-sampling facility so that you can load a full-bandwidth sample, then get the sampler to create a version using a lower sampling rate.

LOOPING

Sustained musical sounds, such as strings or flutes, don't change character very much after their initial attack, so one way to lengthen these is to find a section of the sound that has a consistent character, then repeat it by looping around it. Instead of sampling the whole duration of the musical note, you simply sample the first few seconds, then use the sampler's editing facilities to create a loop using material from the steady part of the note. Provided the loop points are carefully chosen, you'll end up with a note that plays smoothly for as long as you hold the key down. When the key is released, the sound will decay at a rate set by the sampler's release control, just like a synth. Looping neatly gets around this business of low notes being shorter in duration than high notes due to the different playback speeds. Figure 1 shows how a looped sound looks in graphical form.

CROSSFADE LOOPING

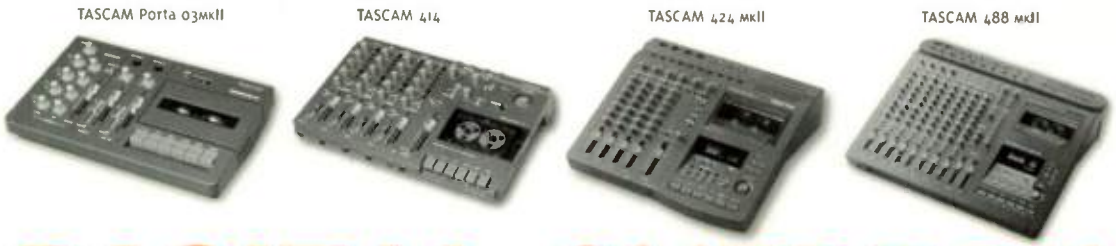
Unfortunately, few real instruments are co-operative enough to produce a totally consistent level and character for very long, so often you'll find that even the most carefully selected loop point is ▶

SAMPLING LEVELS

Sampling is a digital recording process and, just as when you're using a conventional recorder, you have to sample the signals at the highest possible level if you want the best signal-to-noise ratio and the least distortion. However, digital recorders won't tolerate clipping, so use the metering on your sampler very carefully to make sure that the peak signal level is as high as it can be without actually hitting the end stops. If the sound source isn't repeatable, either record it first on analogue tape or use a compressor/limiter on the input.

inspired

TASCAM



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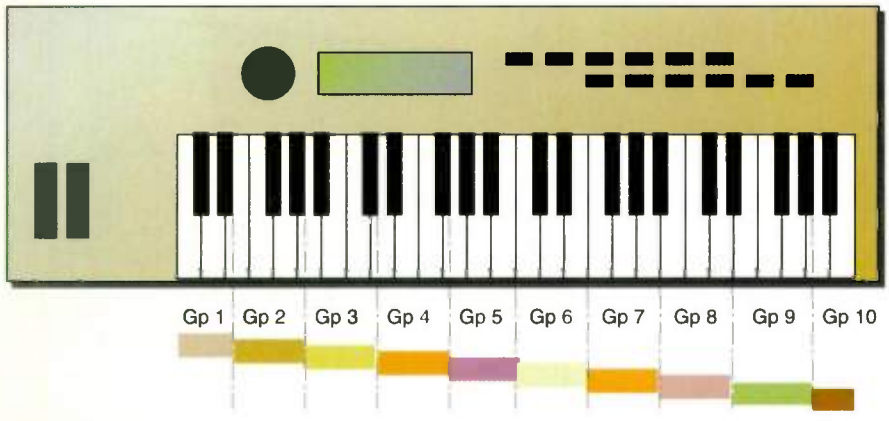
audible as a change of timbre, an abrupt change in level, or even as a click. Clicks are a real problem in situations where you can't get the waveforms either side of the join to match up, so some samplers have the ability to force edits to the nearest zero crossing points — which are those parts of a waveform where it crosses over from being positive to negative or vice versa — but even this doesn't guarantee a click-free loop.



The keyboard is divided into Keygroups, where one sample is pitch shifted to provide all the notes within a Keygroup. In this example, the Keygroups are five semitones wide. The number of multisamples required depends on the characteristics of the instrument being sampled and on the degree of accuracy demanded by the user. Instruments that support velocity cross switching or crossfading may have several samples per keygroup, each of which corresponds to different playing velocities.

Figure 2: Multisamples arranged into keygroups and spread across a controller keyboard.

Fortunately, most serious samplers have a facility called crossfade looping, which can help enormously. Simply put, instead of the end of the loop switching abruptly to the start, the sampler computes a gradual transition by fading out one end of the loop as the other fades in. The sampled data is then modified to reflect these changes and saved as a new version. A crossfade needs to be as short as possible, otherwise the sound during the crossfade may seem unnatural, but it has to be long enough to hide any sudden changes. Decaying sounds are often easier to loop if they're compressed, as this helps keep the level consistent.

Even using compression, you may find that the sound's own natural decay means that you have a different level between the loop start and loop end, and even if you smooth this out with a crossfade, there'll still be an unnatural modulation effect occurring at the rate at which the sample loops. What's more, as you play notes higher up the keyboard, the modulation rate will increase. You might think that creating a much shorter loop will help, but then you find the repeating waveform sounds more electronic than natural. Analogue synth waveforms can be looped in sections as short as a single cycle, but with 'real' sounds, it just doesn't work out. Looping properly is a matter of experience, and if the original sound has any trace of vibrato or other modulation on it, you have to make the loop time a multiple of that rate too, otherwise the modulation becomes irregular. That's why it's best to work with completely dry, unmodulated source material when looping. Once you've tried editing your own samples, you'll realise why commercial sample CD-ROMs are so expensive!

Stereo sounds are also awkward to loop because the waveforms in the two channels are different, and what constitutes a good loop point for one channel may not work so well for the other. Crossfade looping can rescue an otherwise impossible stereo loop, but most of the time a mono sample with stereo effects added during the mix is more practical. Drum loops, which may need to be in stereo, are no problem: you don't loop them in the sampler — you simply trigger them from your sequencer each time they are needed.

ADSR

A looped sample may have the same attack as the original instrument, but the decay portion is replaced by a loop, so an ADSR-type envelope shaper is needed in order that the sampled sound level can be changed over time, in the same way a synth sound can be changed. Different models handle the creation of envelopes in slightly different ways, but the concept remains the same.

The better samplers also include resonant filter sections similar to those found in synthesizers. The filters may be controlled by envelopes, LFOs and so forth, making it possible to create very analogue-like sounds. Indeed, if you start off with looped samples of basic analogue synth waveforms, it's possible to create very authentic analogue synth emulations, and because the samples are only a single waveform long, they take up very little sample memory.

TRIGGERING SAMPLES

There are two main trigger modes for samplers — 'one-shot' trigger mode, where the sample always plays to the end, regardless of whether or not the key that has triggered it remains held down, and the more conventional 're-trigger' mode, whereby the sample goes into its release phase as soon as the key is released. One-shot mode is useful for triggering drum loops and for individual ▶

SAMPLE STORAGE

A sampler's integral 1.44Mb floppy drive will hold around 15 seconds' worth of mono samples, which isn't a lot of use if you have a 32Mb memory. I use a 100Mb Iomega Zip drive on my Akai S2000 and find it suitably fast and quiet, and the cost of both the drives and the blank disks is quite low. Though a higher-capacity medium is arguably more convenient, you risk losing more if a disk becomes corrupted. The same is true of large-capacity hard drives — everything mechanical fails sometime. It might be as well to check with any other musicians or local studios with whom you are likely to collaborate, as it can help to use the same type of storage media.

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drum sounds, whereas re-triggering is used for most conventional instrument sounds. Again, different manufacturers may use slightly different terminology to describe these modes of operation.

MULTI-SAMPLING

Most sounds become quite unnatural when transposed far from their original pitch; this can sometimes be a creative advantage, but usually you want an instrument to sound as realistic as possible, especially pianos and orchestral instruments. The only way to maintain a natural sound is to take several samples of the instrument at different pitches, then use each sample over only a limited part of the keyboard. Ideally, you'd take a fresh sample every semitone, but that would eat up lots of memory and it takes forever to do. In practice, using the same sample over a range of three or four semitones is generally accurate enough even for the most critical sound at higher velocities, and instruments that sound noticeably different in some other way when played loud. In general, instruments tend to sound brighter when they're played louder, and this can be faked to some extent using the sampler's filter linked to MIDI velocity.

SPINNING IN

With cheaper RAM and longer sampling times, it's now practical to sample quite long musical phrases and vocal lines, triggered by a single key press. This allows the sampler to be used for 'spinning in' sections of vocal, a job that used to

"Once you've tried editing your own samples, you'll realise why

DRUM LOOPS

As mentioned elsewhere in this article, you could record a drum part into a sampler, then set the sampler to loop continuously to give you an indefinitely long drum part, but the chances are that it would drift out of sync with your sequencer eventually. A more reliable option is to set the drum part up as a one-shot sample, then trigger it once every bar (or however long the drum sample is)

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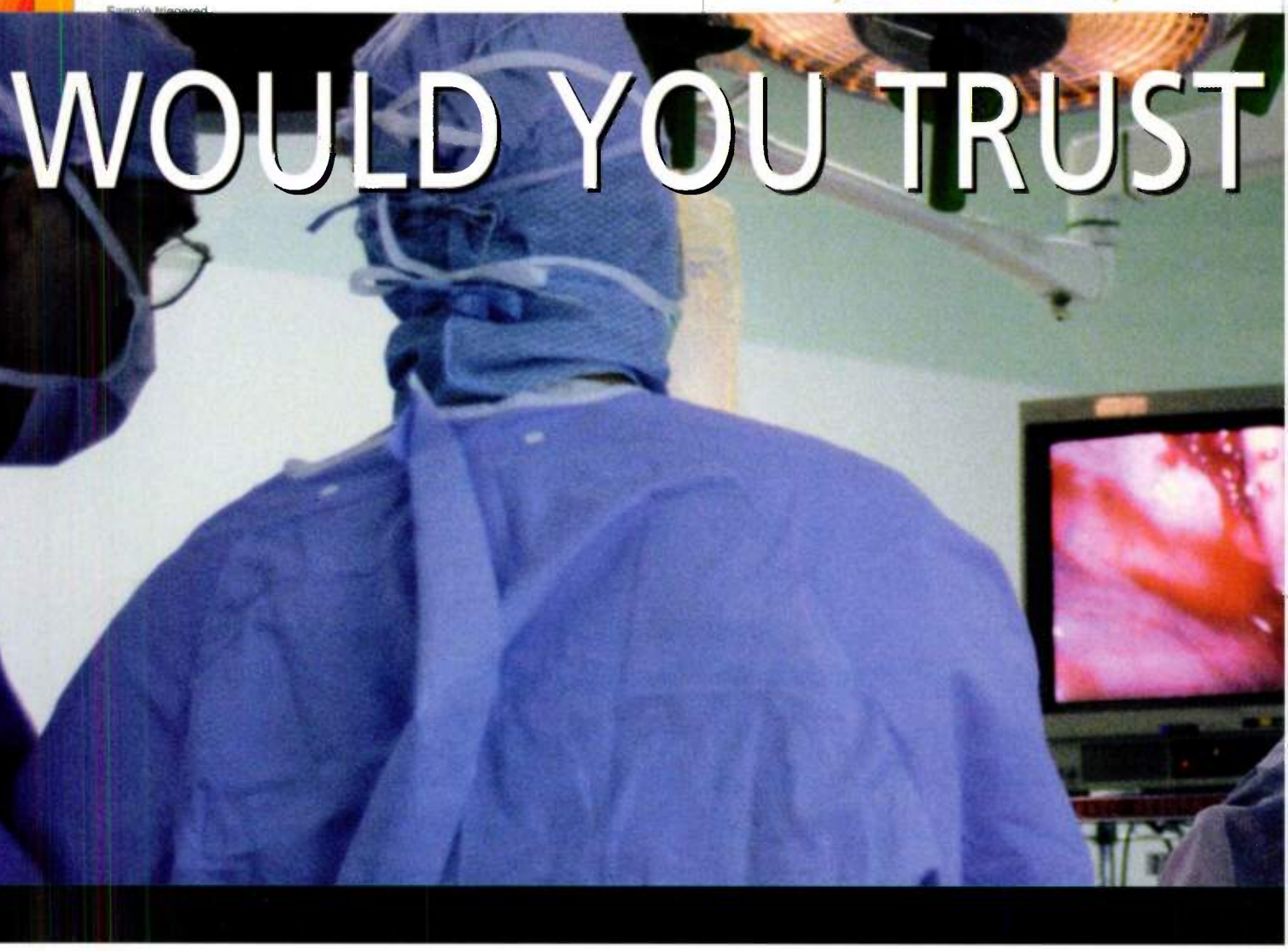

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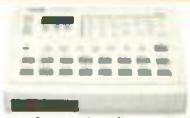

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On some samplers, it is possible to use more than one sample in a keygroup, then either crossfade or switch between them according to MIDI velocity. Crossfading can sound smoother but, because two samples are always playing at the same time, your polyphony is halved. Popular examples of velocity switching include the bass guitar sample, where modest velocities trigger a plucked sample and high velocities trigger a slapped or pulled sample. Other uses include wind instruments that are sampled with an 'overblown' sound at higher velocities, and instruments that sound noticeably different in some other way when played loud. In general, instruments tend to sound brighter when they're played louder, and this can be faked to some extent using the sampler's filter linked to MIDI velocity.

SPINNING IN

With cheaper RAM and longer sampling times, it's now practical to sample quite long musical phrases and vocal lines, triggered by a single key press. This allows the sampler to be used for 'spinning in' sections of vocal, a job that used to be done by trying to start a second tape machine at the right time. For example, you could sample the best chorus from a recording, then trigger it to play for every chorus. Hard disk audio workstations are able to do this rather more easily but, for users working predominantly with tape, the technique can be used at a number of levels, from replacing specific instrumental or vocal sections to assembling a whole song. As a rule, the sampler would be triggered from a sequencer sync'd to tape in order to keep the timing precise. With analogue tape, the speed is liable to drift slightly, so the sampled sections should be kept as short as is practicable.

> "Once you've tried editing your own samples, you'll realise why commercial sample CD-ROMs are so expensive!"

SAMPLING IS EASY?

The process of sampling isn't difficult, but it can be incredibly time-consuming, especially where multisampling or looping is required. Regular instrument sounds are available from sound libraries; though sample CDs and CD-ROMs can be expensive, they relieve you of an enormous amount of work, and when it comes to orchestral sounds, for example, few individual users would have the resources to create these for themselves. CD-ROMs do all the looping and keygrouping work for you, while CDs contain audio samples alone, which you still have to loop and organise into keygroups — so I'd strongly recommend that anyone without a CD-ROM drive gets one as soon as possible. Most library CD-ROMs are supplied in a format suitable for Akai samplers, but current Roland and Emu models will usually read each others' formats without too much trouble. SOS

DRUM LOOPS

As mentioned elsewhere in this article, you could record a drum part into a sampler, then set the sampler to loop continuously to give you an indefinitely long drum part, but the chances are that it would drift out of sync with your sequencer eventually. A more reliable option is to set the drum part up as a one-shot sample, then trigger it once every bar (or however long the drum sample is) from your sequencer. This will ensure the timing doesn't drift, because sync will be established afresh at the start of each bar. The same is true of repeating guitar riffs. Long vocal sections may also be broken down into shorter samples if there are sync problems. Figure 3 illustrates the difference between looping and re-triggering.

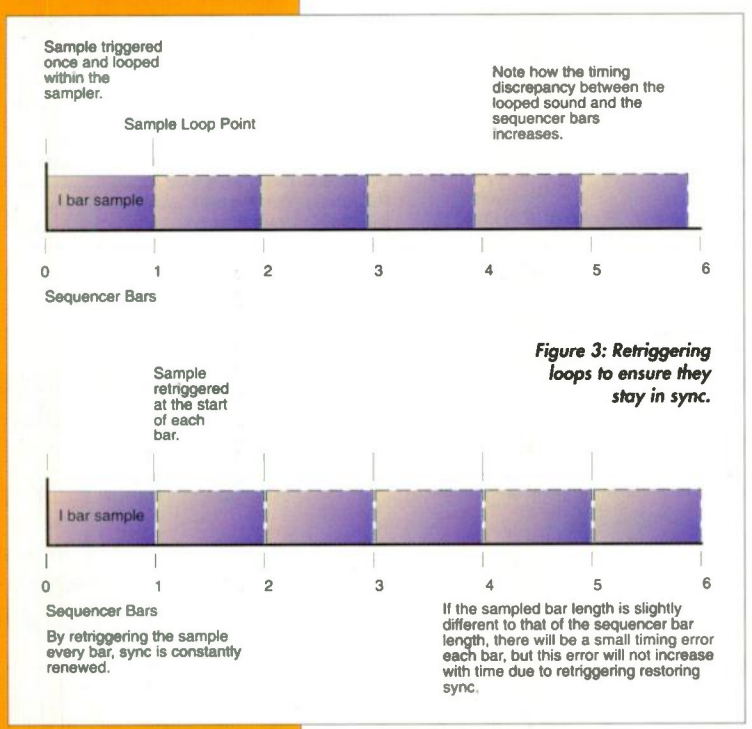

Figure 3: Retriggering loops to ensure they stay in sync.

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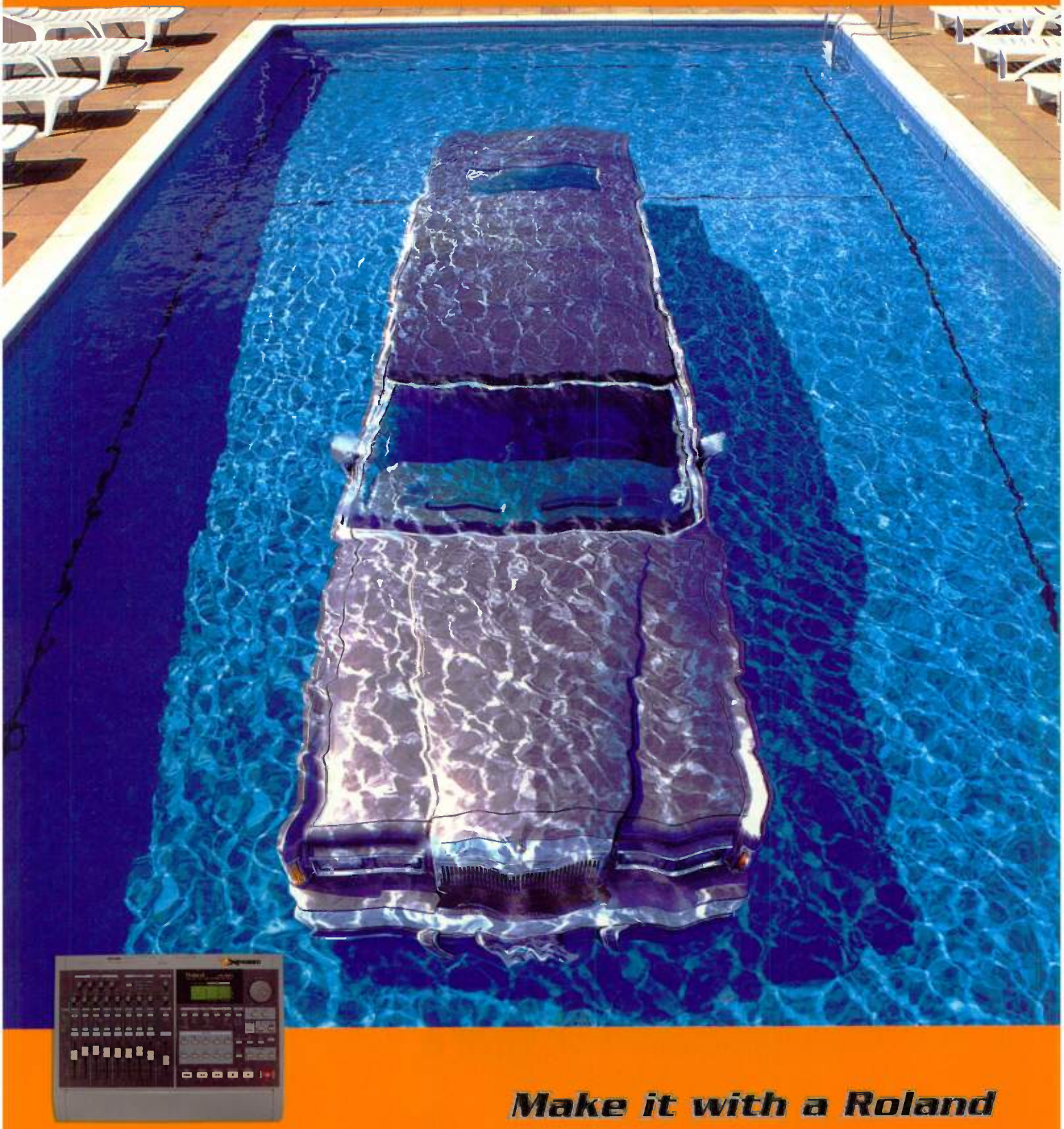

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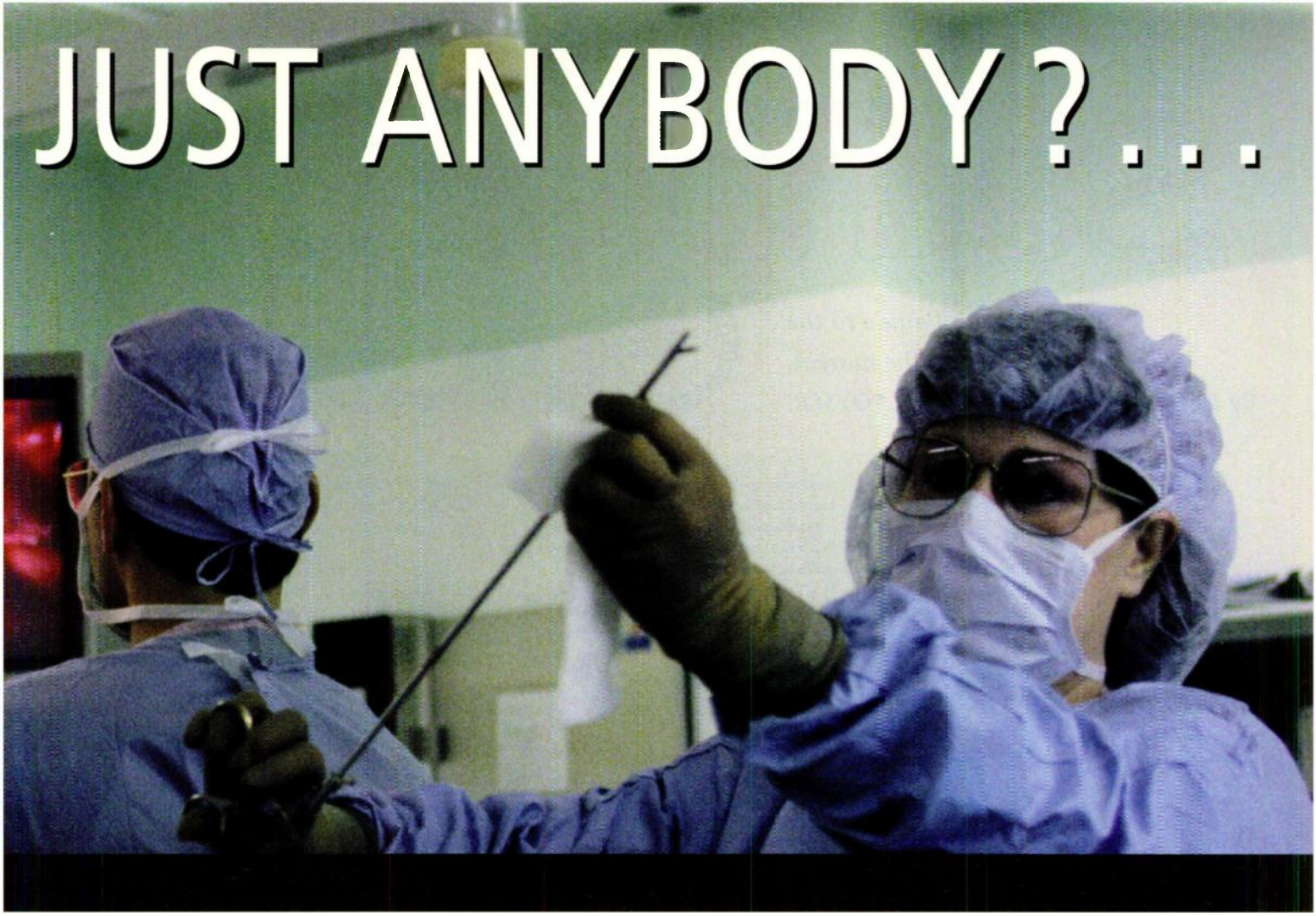

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Sampler Buyer's Guide

SOS's essential guide to the samplers currently on the market.

By DEREK JOHNSON & DEBBIE POYSER.

NOTES TO THE GUIDE

LFO: Low Frequency Oscillator
EG: Envelope Generator
RF: Resonant Filter
VCA: Voltage Controlled Amplifier
VCF: Voltage Controlled Filter
D-to-D: Direct to Disk
Standard/Max RAM: refers to the amount of RAM which comes fitted in a base machine and the maximum amount the machine will host.
Standard/Max outputs: refers to the number of outputs fitted to the base machine and the maximum number of outputs achievable with the addition of an output upgrade.
Max sample time: unless otherwise stated. refers to the maximum mono sample time available with the base machine's standard RAM, at the top sample rate offered by that machine.
Reads other (sample) formats: A = Akai; R = Roland; En = Ensoniq; Em = Emu.
Display: 2x20 LCD = 2-line x 20-character LCD (etc).

Thanks to the staff of the manufacturers and distributors of the products listed in this guide, for their help in its preparation. While the greatest care has been taken to ensure accuracy, no responsibility can be accepted for any errors or omissions.

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Model	S20	Remix 16	S2000	S3000XL	CD3000XL	S3200XL	MPC2000
Price	£499	£749	£999	£1799	£2299	£3499	£1199
SOS Review	July 97	-	Nov 95	Dec 95	Jan 97	-	Apr 97
Format	Desktop	Desktop	2U rack	2U rack	3U rack	3U rack	Desktop
Sample Rates (kHz)	8, 16, 32	8, 16, 32	22.05, 44.1	22.05, 44.1	22.05, 44.1	22.05, 44.1	44.1
Polyphony	8-note	8-note	32-note	32-note	32-note	32-note	32-note
Multitimbrality	16-part	16-part	16-part	16-part	16-part	16-part	32-part
Standard/Max RAM	1Mb/17Mb	2Mb/18Mb	2Mb/64Mb	2Mb/64Mb	8Mb/64Mb	16Mb/64Mb	2Mb/48Mb
Standard/Max outs	Stereo/-	Stereo/-	Stereo/10	10/-	10/-	10 + 2 bal XLR	2/10
Max sample time (standard, top rate)	14S mono	30S mono	22.28S mono	20.8S mono	92.13S mono	178.24S mono	21.9S mono
SCSI	No	Optional	Standard	Standard	Standard	Standard	Standard
Display	4-digit LED	4-digit LED	16x2 LCD	40x8LCD	40x8 LCD	40x8 LCD	40x5 LCD
Synthesis features	No	No	LFOs/EGs/RF	LFOs/EGs/RF	LFOs/EGs/RF	LFOs/EGs/RF	RF/EG
Time Stretch	No	No	Yes	Yes	Yes	Yes	No
Effects	No	No	Optional	Optional	Optional	Standard	Optional
Internal hard drive	No (floppy)	No (floppy)	No (floppy)	Optional	Optional	Optional	No (floppy)
D-to-D recording	No	No	No	Yes	Yes	Yes	No
Reads other formats	No	No	R/Em CD-ROM	R/Em CD-ROM	R/Em CD-ROM	R/Em CD-ROM	ellIX, S750/760, WAV
Flash RAM option	No	No	Yes (max 32Mb)	Yes (max 32Mb)	Yes (max 32Mb)	Yes (max 32Mb)	Yes (16Mb max)
Sample transfer	Limited SDS	Limited SDS	SDS/SMDI	SDS/SMDI	SDS/SMDI	SDS/SMDI	SDS (v1.5)
Sequencer	Notepad	Notepad	SMF playback	SMF playback	SMF playback	SMF playback	Comprehensive
Digital I/O	No	No	Optional	S/PDIF	S/PDIF	S/PDIF	Optional
Support Software	No	No	MESA, free	MESA, free	MESA, free	MESA, free	No

Manufacturer	Emu	Emu	Emu	Ensoniq	Ensoniq	Ensoniq	Kurzweil
Model	E4X	E4X Turbo	E4K	ASRX	ASR10	ASR88	K2000S
Price	£3149	£4409	£3526	£1799	£1799	£2999	£2799
SOS Review	E4X Turbo May 97	May 97	Apr 96	Sept 97	Jan 93	-	Mar 92/Aug 93
Format	3U rack	3U rack	Keyboard	Desktop unit	Keyboard	Keyboard	3U rack/kbd
Sample Rates (kHz)	22.05/2/ 44.1/48	22.05/24/44.1/48	22.05/24/44.1/48	44.1	29.76/44.1	29.76/44.1	29.4/32/44.1/48
Polyphony	64-note	128-note	64-note	32-note	Up to 31-note	Up to 31-note	24-note
Multitimbrality	16-part	16-part	16-part	16-part	8-part	8-part	16-part
Standard/Max RAM	4Mb/128Mb	16Mb/128Mb	4Mb/128Mb	2Mb/34Mb	2Mb/16Mb	16Mb/16Mb	2Mb/64Mb
Standard/Max outs	8/16	8/16	8/-	2/1#	2/8	2/8	6/-
Max sample time (standard, top rate)	48S, mono, 44.1	48S, mono, 44.1	48S, mono, 44.1	20.5S, mono	20.5S, mono	183S, mono	21S, mono
SCSI	Standard	Standard	Standard	Optional	Optional	Standard	Standard
Display	Custom LCD	Custom LCD	Custom LCD	16x2 LCD	22x1 fluorescent	22x1 fluorescent	Custom LCD
Synthesis features	Filters/LFOs/EGs	Filters/LFOs/EGs	Filters/LFOs/EGs	Full synth	Filters/EGs/LFO/noise	Filters/EGs/LFO/noise	Full synth
Time Stretch	Yes	Yes	Yes	No	Yes	Yes	Yes
Effects	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Internal hard drive	540Mb	1Gb	540Mb	No (floppy)	No (floppy)	No (floppy)	Optional
D-to-D recording	No	No	No	No	Yes	Yes	No
Reads other formats	S1000/1100/RS700s	S1000/1100/R S700s	S1000/1100/R S700s	S1000/1100/R (SCSI)/AIFF/WAV	S1000/1100/R/(SCSI)	S1000/1100/R(SCSI)	A/R/En(SCSI)/WAV/AIFF
Flash RAM option	Yes	Yes	Yes	No	No	No	No
Sample transfer	SDS/SMDI	SDS/SMDI	SDS/SMDI	No	No	No	SDS/SMDI
Sequencer	48-track/SMF (v3)	48-track/SMF (v3)	48-track/SMF (v3)	16-track, SMF	8-track	8-track	32-track
Digital I/O	Standard	Standard	Standard	No	Optional	Optional	Standard
Support Software	With v3	With v3	With v3	No	No	No	No

Comments

- **Akai S2000:** EB16 effects board offers distortion, EQ, ring mod, chorus, phase, flange, pitch-shift, rotary, delay, reverb. IB304F filter board also available.
- **Akai S3000XL:** IB304F filter board also available.
- **Akai CD3000XL:** IB304F filter board also available.
- **Akai S3200XL:** EB16 effects board, IB304F filter board, SMPTE reader/generator as standard.
- **Akai MPC2000:** Sequencing/sampling workstation. Accepts optional SMPTE board.
- **Akai MPC3000:** Sequencing/sampling workstation. Accepts monitor output option.
- **Boss SP202 Dr Sample:** Brand new; look for a review soon.
- **Emu ESI4000:** Brand new: look for a review soon.
- **Emu ESI32:** Supports 32/48kHz sample rates with S/PDIF option.
- **Emu e6400:** Expandable to full E4X Turbo spec. Effects board offers reverb, chorus, flange, delay.
- **Emu E-Synth:** Brand new; look for a review soon. Polyphony expandable to 128 notes, multitimbrality expandable to 32 parts.
- **Emu E4X:** Polyphony expandable to 128 notes. Multitimbrality expandable to 32 parts.
- **Emu E4X Turbo:** Multitimbrality expandable to 32 parts. 400Mb of sounds pre-loaded.
- **Emu E4K:** Polyphony expandable to 128 notes; multitimbrality expandable to 32 parts; 76-note keyboard; 400Mb sounds pre-loaded.
- **Ensoniq ASRX:** Workstation combining sampling, synthesis, sequencing and drum pads; 2Mb synth waveforms as standard, upgradeable to 26Mb.
- **Ensoniq ASR10:** Sequencer becomes 16-track when used with external sound source.
- **Ensoniq ASR88:** Two internal CD-ROM drives as standard; weighted 88-note keyboard.
- **Kurzweil K2000S:** Guide refers to K2000 synth with sampling option installed.
- **Kurzweil K2500S:** Guide refers to K2500 synth with sampling option installed.
- **Peavey SXII:** Sampling front-end, ideal partner for Peavey's SP+ sample playback module.
- **Peavey SP+:** Sample playback module designed to work with the SXII.
- **Roland S760:** OP760/1 board provides S/PDIF input plus two S/PDIF stereo outs, video connection, mouse.
- **Yamaha SU10:** data compression squeezes maximum sample time from the (unspecified) RAM.
- **Yamaha A3000:** 32/48kHz sampling rates with optional digital board.

Akai	Boss	Emu	Emu	Emu	Emu
MPC3000	SP202 Dr Sample	ESI4000	ESI32	e6400	E-Synth
£2799	£TBC	£1199	£1069	£2519	£2699
Oct 94	-	-	Jan 95	e64 July 95	-
Desktop unit	Palmtop	2U rack	2U rack	3U rack	3U rack
44.1	3.9/7.8/15.6/31.25	22.05/24/44.1/48	22.05/44.1	22.05/24/44.1/48	22.05/24/44.1/48
32-note	4-voice	64-note	32-note	64-note	64-note
32-part	No	16-part	16-part	16-part	16-part
2Mb/16Mb	Not avail.	4Mb/128Mb	2Mb/32Mb	4Mb/128Mb	4Mb/128Mb
10/-	2/-	4/10	4/10	8/16	8/16
21.9S, mono	33S, mono	48S, mono, 44.1	24S, mono	48S, mono, 44.1	48S, mono, 44.1
Standard	No	Standard	Standard	Standard	Standard
40x8 LCD	3-digit LED	20x4 LCD	20x4 LCD	Custom LCD	Custom LCD
EG/RF	No	RF/VCA/LFO/EGs	RF/VCA/LFO/EGs	Filters/LFOs/EGs	Filters/LFOs/EGs
No	Yes	Yes	Yes	Yes	Yes
Standard	No	Optional	Optional	Optional	Standard
No (floppy)	No	Optional	Optional	Optional	Optional
No	No	No	No	No	No
No	No	S1000 & S1100	S1000 & S1100	S1000/S1100, R S700s	S1000/S1100, R S700s
No	2Mb/4Mb card	No	No	Yes	ROM sounds, RAM option
SDS	No	SDS/SMDI	SDS/SMDI	SDS/SMDI	SDS/SMDI
Comprehensive	No	No	No	48-track/SMF playback (v3)	48-track/SMF playback (v3)
S/PDIF input	No	Optional	Optional	Optional	Standard
No	No	No	No	With v3	With v3

Kurzweil	Peavey	Peavey	Roland	Yamaha	Yamaha
K2500S	SXII	SP+	S760	SU10	A3000
£3725/£4349/£4610	£399	£1169	£1445	£299	£1299
Apr 96	May 92, SX	May 92, SP	Feb 94	Mar 96	July 97
3U rack or 76/88-note kbd	1U rack	1U rack	1U rack	Palmtop	2U rack
29.4, 32, 44.1, 48	12-48	12-48	16/22.05/24/32/44.1/ 48	11.64-44.1	5.5/11/22.05/44.1
48-note	N/A	32-note	24-note	4-note	64-note
16-part	N/A	16-part	16-part	4-part	16-part
2Mb/128Mb	256K/16Mb	2Mb/32Mb	2Mb/32Mb	Not avail.	2Mb/128Mb
10/-	2/-	4/-	4/8	2/2	4/10
21S, mono	5.8S, mono, 44.1	22.67S, mono, 44.1	22.5S, 44.1	19S mono	23.7S mono
2 connectors, standard	Standard	Standard	Standard	No	Standard
Custom LCD	None	20x2 LCD	Custom LCD	Custom LCD	40X2 LCD
Fully-specified synth	None	RF/LFO/EG	RF/EGs/ LFOs	Filter	RF/EG/LFO
Yes	No	No	Yes	No	Yes
Standard	No	Standard	No	No	Standard
Optional	No	No	No (floppy)	No	Optional
No	No	No	No	No	No
A/R/En(SCSI)/WAV/AIFF	No	S1000 (SCSI)	S1000 (SCSI)	No	A/Em/WAV/AIFF
No	No	No	No	No	No
SDS/SMDI	SDS/SMDI	SDS/SMDI	SDS/SMDI	SDS out	SMDI
32-track	No	No	No	Sample sequencer	Sketchpad, SMF
Standard	No	No	Optional	No	Optional
No	No	No	Monitor editing option	No	Wave Editor soon

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Fax: 01245 344002.

Kurzweil:
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Fax: 01462 482997.

Peavey Electronics Ltd, Great Folds Road, Oakley Hay, Corby, Northamptonshire NN18 9ET.
Tel: 01536 461234.
Fax: 01536 747222.

Boss/Roland:
Roland UK Ltd, Atlantic Close, Swansea Enterprise Park, Swansea, West Glamorgan SA7 9FJ.
Tel: Brochure line 01792 515020.
Fax: 01792 799644

Yamaha-Kemble Music (UK),
Sherbourne Drive, Tilbrook, Milton Keynes MK7 8BL.
Tel: Brochure Line 01908 369269.
Fax: 01908 368872.

SAMPLING CENTRAL

A Question of Spec

UNDERSTANDING SAMPLER FEATURES

When it's time to choose a sampler from the many on the market, it helps to know which features are most significant. CRAIG ANDERTON will tell you what you want, what you really really want...

The digital sampler has evolved dramatically in recent years. Borrowing from synthesis, digital recording, computers and digital signal processing, today's sampler is essentially a recording studio in a box.

Synths have even begun to copy samplers, not simply by including sampled sounds, but also by acquiring the ability to load samples and communicate with other devices. Several manufacturers offer sampling add-ons to synths, while others build onboard ROM sounds (just like a synth!) into samplers. Peavey's DPM series started the trend by adding sample RAM (Random Access Memory) and sample editing to a basic sample-playback synth, along with an optional rack box for sampling into the instrument; Korg's T-series synths and Yamaha's SY family included similar features shortly after.

Now synths such as the Korg Trinity offer optional 'flash' RAM for storing samples, the ability to read Akai S1000 samples, a computer interface, ADAT digital interface, and even hard disk recording. So is it a synth, a sampler, or a digital audio workstation? And what about Roland's DJ70 MkII, a version of their flagship S-series sampler optimised specifically for DJ applications, with automatic looping, load-while-playing, and even a scratch dial? The boundaries are indeed blurring.

So let's ditch the definitions, and look at some of the most important features in today's samplers/synthesizers. We'll make sense of the sometimes bewildering options, so you can determine which are most important to your needs. Just remember that most of today's machines are so expandable that if you end up needing a certain feature further down the line, it may be available as an add-on.

FILE COMPATIBILITY

Early samplers could read only their own proprietary sample file format, but more samplers can now read and translate samples from multiple formats. The most common file translations are for Akai and Roland format (although the newer Akai samplers read Emu EIII format, and Kurzweil reads Ensoniq), which allows access to a huge library of quality sounds. Some samplers can read other formats only from a CD-ROM connected to the SCSI port (see next section), while others can translate from floppy disks as well.

Kurzweil's K2500R.

More and more samplers can read WAV files (Windows' native audio format) or AIFF (Mac format). For example, Kurzweil's K2000-series samplers (such as the K2500R, shown left) can read Roland, Akai, and Ensoniq EPS/ASR files and keymaps via SCSI, and Ensoniq and Akai floppies. They can also read/write WAV and AIFF files from/to disk or a SCSI device.

One important point: transferring raw audio is no big deal, but translating the associated synth-like parameters is more difficult — if a sampler processes a sound with resonant filters and you transfer the raw sample to a sampler lacking resonant filters, the final sound will be very different. Translation should convey as much data as possible; for example, Peavey's SP Plus loads complete presets from Akai S1000 CD-ROMs, including samples, keymaps, and all synthesis parameters (filters, envelopes, and so on).

Many samplers still support the MIDI Sample

Akai S3000XL.

Dump Standard (SDS) protocol for transferring digital audio via MIDI, but it's a painfully slow process. (SDS dates from when samples were typically a few hundred kilobytes of memory, not several megabytes). SMDI (SCSI Musical Data Interchange) is a newer protocol for transferring samples over SCSI instead of MIDI, and runs about 50 times faster than SDS.

While we're discussing file compatibility, if the sampler in question features a sequencer, it's helpful to be able to import and export Standard MIDI Files. This lets you create and edit your sequence on a computer-based program rather than using the sampler's limited graphic interface, then load the completed file into the sampler.

SCSI

SCSI (Small Computer System Interface) is a hardware/software protocol for transferring vast amounts of data quickly. If you're serious about sampling, SCSI ports are a must, since they allow you to connect hard drives, CD-ROMs, optical drives and computers to the sampler. With large hard drives becoming cheaper all the time, SCSI gives access to a lot of sounds for very little outlay. SCSI is also required for using SMDI.

RAM EXPANSION

Being able to add more memory allows you to load more and/or longer samples. At 5Mb per minute for 44.1kHz mono digital audio, 16Mb will be enough to fly in a 3-minute vocal, while 128Mb would allow almost 13 minutes of stereo sampling.

Most RAM is volatile, meaning that the samples have to be re-loaded after a power-down. Some samplers provide for battery-backed RAM or EEPROMs ('flash' ROM), so that samples are accessible at all times. Battery-backed and flash RAM tends to be more costly than standard RAM, so the best use of this type of memory would be to keep your 'greatest hits' in battery-backed RAM, and load other samples into standard RAM. Akai's S3000XL (shown above) and S3200XL both accommodate up to 16Mb of flash ROM.

POLYPHONY

With more voices, sustaining notes won't cut off when you play new notes, more notes and sounds are available for multitimbral setups, and crossfades between samples are more realistic because voices aren't 'stolen' when you run out of polyphony. At the low end, 16 notes of polyphony is common, but these days 32 to 64 voices is just about standard (and Emu's E4K can be expanded from 64 voices to a whopping 128 voices).

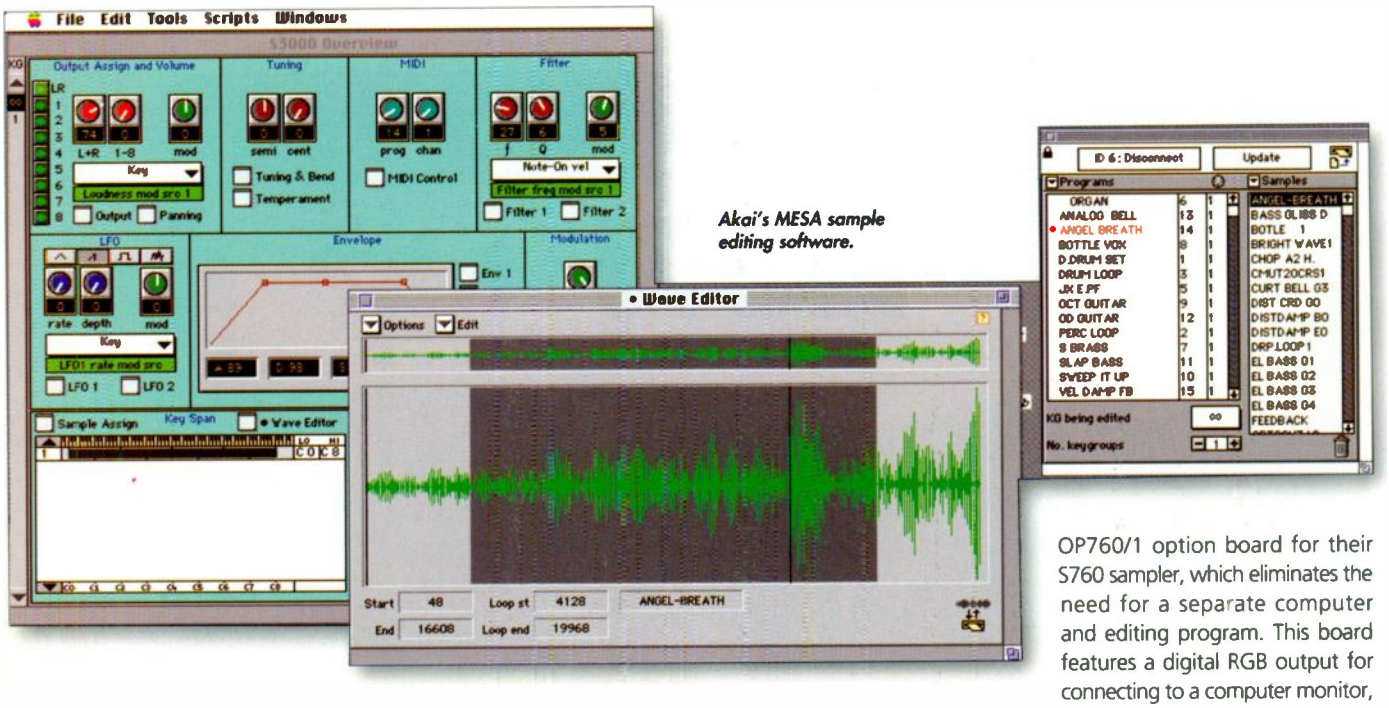
RESONANT FILTERS

Resonant filters are difficult to implement digitally, but many classic analogue synth sounds (essential for today's cutting-edge dance music) rely on resonance. Most newer samplers include resonant filters; one exception is the Ensoniq ASR family, which trades off resonant filters for 'Transwave' technology. This can create not only resonant filter effects but also pulse-width modulation, vocalisations, and other swept effects that have more in common with synths than samplers. Also noteworthy in this area are the Emu E4K's Z-plane filters, which are extremely flexible. ▶

DIGITAL I/O

It's a digital audio world, and in addition to SCSI many samplers now include built-in or optional AES/EBU, S/PDIF, or ADAT interfacing. This has several applications: you can send samples from audio CDs directly into a sampler from a CD player with S/PDIF, take tracks recorded on digital tape or hard disk and move them into the sampler (ideal for flying in vocals or adding background voices), and transfer samples between similarly-equipped samplers.

"With large hard drives becoming cheaper all the time, SCSI gives access to a lot of sounds for very little outlay."



Akai's MESA sample editing software.

GRAPHIC INTERFACE

Although the graphic interfaces on samplers continue to improve (many have oversized LCDs that let you see the waveform, zoom in on loop points, and so on), nothing beats a good computer-based editor such as *Alchemy* or *Peak* for the Mac, or *Sound Forge* or *SampleVision* for the PC. If you're into editing, make sure there's a program available that's compatible with both your sampler and computer. Akai get around the problem of compatible programs by providing the free Mac graphic editing software, *MESA* (shown above), to registered owners of the S2000, S3000XL and S3200XL.

Roland go one step further by offering the OP760/1 option board for their S760 sampler, which eliminates the need for a separate computer and editing program. This board features a digital RGB output for connecting to a computer monitor, and both composite video out and S-video out for connecting to a standard TV. There's also a mouse interface for point-and-click editing.

"Look for the option to resample using the DSP effects."

MULTIPLE OUTPUTS

More outputs simplifies life in the studio, since you can send different instrument sounds to different outputs for external processing and/or mixing. The OP760/1 board mentioned above adds two stereo outputs to the S760's four outputs for a total of eight outs, the Emu E4K and Digidesign's SampleCell II come with eight outs, while the Kurzweil K2vx and Peavey SP Plus have four outs. Ensoniq's ASR samplers have only two outs, though an optional output expander can bring the total up to eight. Akai take the same approach with their S2000 (shown on page 124); to keep costs down there are only two outs, but you can acquire eight additional audio outs and S/PDIF I/O fairly inexpensively. Finally, the Akai S3200XL is the heavyweight on outputs, with two on XLR and 10 quarter-inch unbalanced jack outputs.

SUPPORT SOFTWARE

Check for utility programs that make your job easier. For example, Alesis include *Sound Bridge* with their synths; this program can transfer sounds from your computer to PCMCIA cards. Stuffing a card into the synth is an incredibly fast way to load new sounds, and avoids the hassles of SCSI and other types of transfers.

Roland's S760 sampler (below) and OP760/1 expansion board (above).

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Hugh Robjohns - Sound on Sound, February 1997.

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Anthony Timson - Audio Media, February 1997

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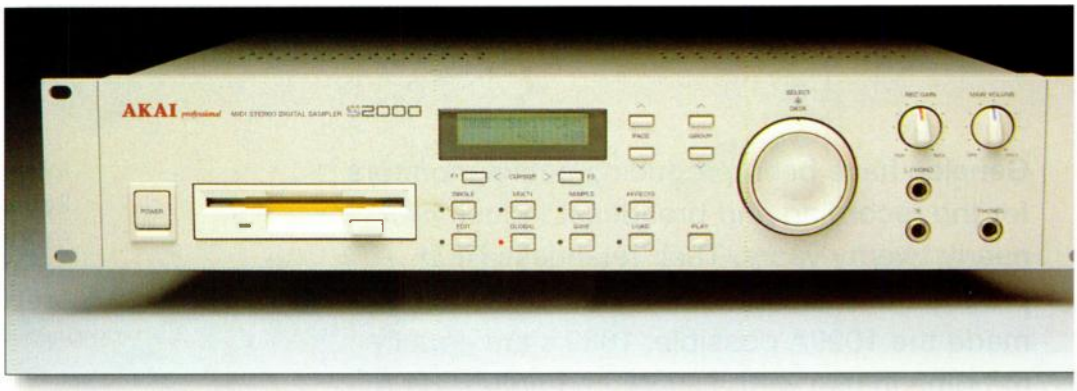


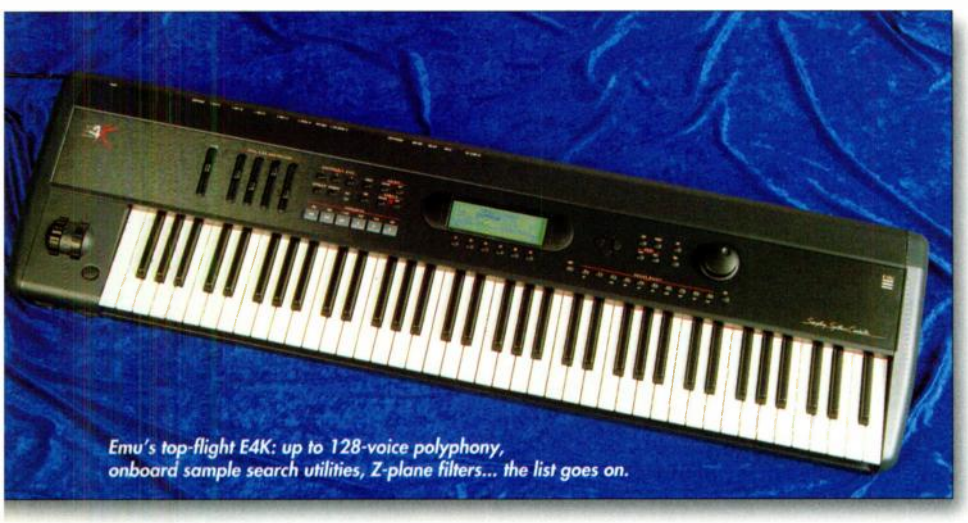
Akai's S2000 is supplied from the factory with just two outputs, but an expansion option is available to give you a further eight outs.

CD-ROMs also come under the heading of support, but just about all samplers these days have substantial, high-quality libraries available, and file compatibility makes even more options available.

FILE MANAGEMENT

With all those megabytes of sound available, you can get lost without some way to find and load sounds. Roland offer a Quick Loading feature for marking samples (such as all those used for a particular project) in advance for instant loading later on. Ensoniq have macros for CD-ROM access, as well as a bank option that assembles the sounds needed to create a bank (including from CD-ROMs), while Kurzweil's Advanced File Management System can search for any object on any SCSI drive and create macros for loading particular setups. The E4K has both a search utility that works just like the 'find' command in a word processor, and a 'SoundSprint' function for quick auditioning and loading of up to 100 favourite presets.

"More outputs simplifies life in the studio, since you can send different instrument sounds to different outputs for external processing and/or mixing."



Emu's top-flight E4K: up to 128-voice polyphony, onboard sample search utilities, Z-plane filters... the list goes on.

HARD DISK RECORDING

So far, HD recording is available with only a few samplers, including the Ensoniq ASR, Akai 3000XL/3200XL, and as an option on the Korg Trinity, but it probably won't be long before we see this facility showing up in more and more samplers. While onboard hard disk recording can't compete with a dedicated computer-based system, it can be very handy when you want some vocals or guitars to go along with sequenced samples.

DSP

This includes standard (and always welcome) effects such as reverb, EQ and chorus, but many samplers go beyond the norm. The Roland S760 (among others) has a time-stretch algorithm for changing a sample's length without changing its pitch, as well as a sample rate conversion routine.

Look for the option to resample using the DSP effects. One way to use this would be if you wanted a tough gated reverb sound on the snare, and room reverb on the rest of the kit. You'd simply resample the snare through the gated reverb, then use the onboard reverb on the kit as a whole. In some cases DSP is an add-on; the reverb card for the Akai S3000XL and S3200XL, for example, is an optional feature.

SAMPLE THIS!

When you go out to sample a sampler, don't forget such factors as the keyboard feel (or if it's a rack you're looking at, how accessible the editing functions are). And, of course, the sound of the unit is the ultimate clincher — although these days samplers are more alike than dissimilar when it comes to sound quality. One quick check is to take a cymbal and transpose it way down (two octaves or so). The smoother and less grainy it is, the better. Also check the filter sweeps for smoothness, and pay attention to controller options such as LFOs and envelopes, as these are crucial for shaping samples into something more animated. SOS

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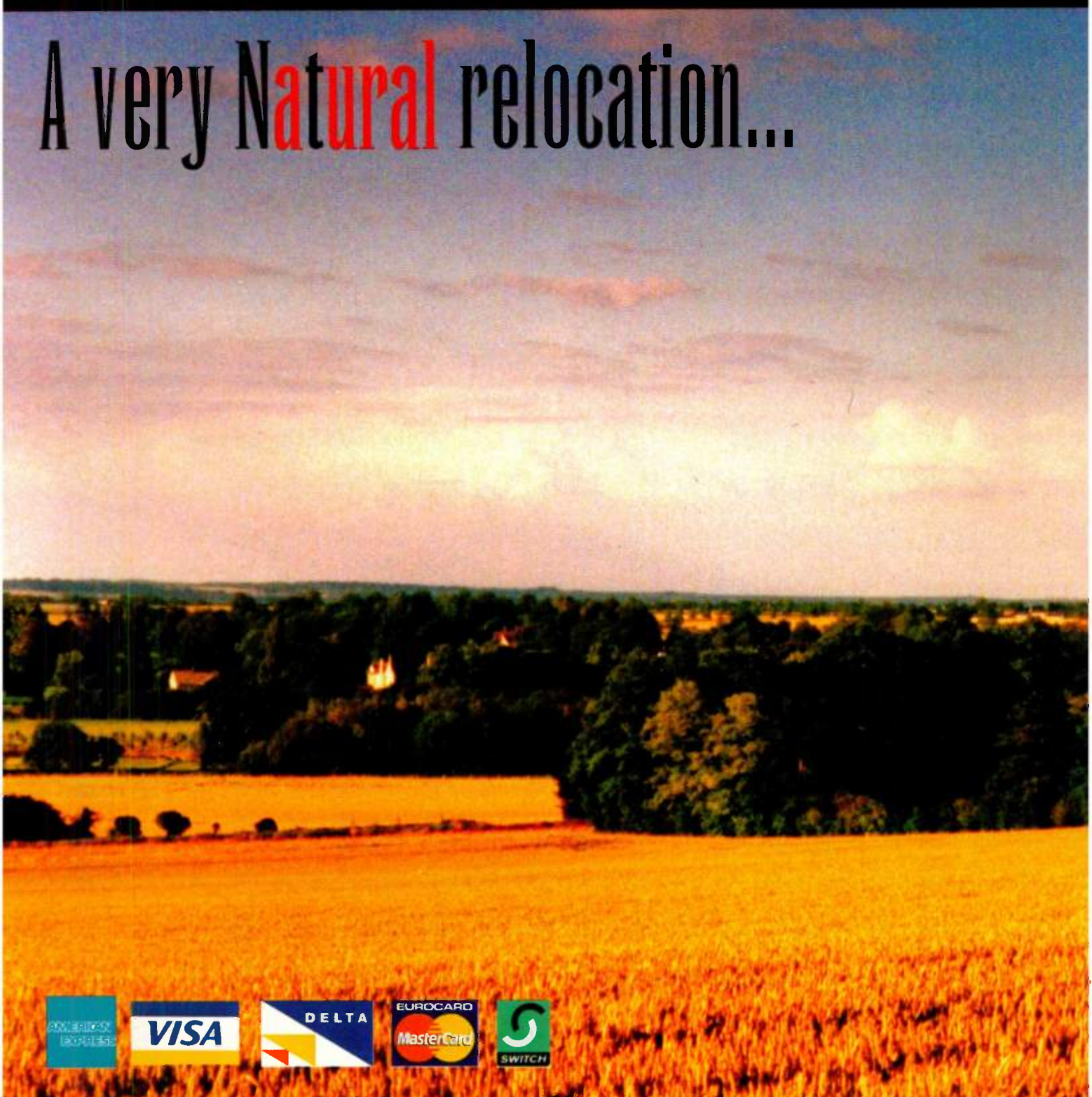

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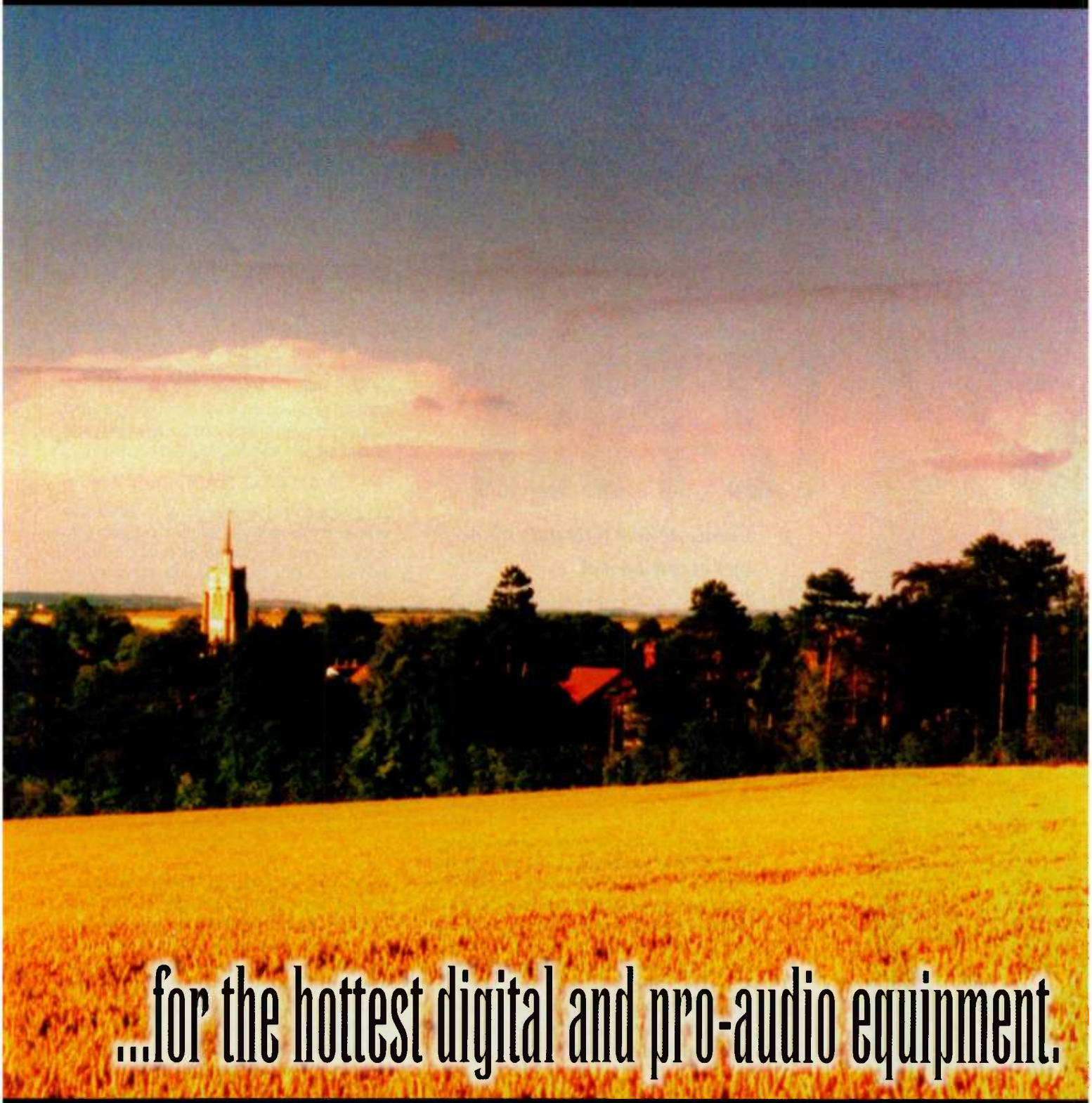

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Sampling Tips 12-Pack

SAMPLING CENTRAL

CRAIG ANDERTON puts all his tips in one basket...

Samplers have a reputation of not being used to their fullest potential — lots of musicians just pop in a piano or strings disk, and leave it at that. And that's a shame, because a sampler is much more than a keyboard instrument: it's a bunch of little digital recorders, each turned on and off by a switch (key). The following 12 tips are designed to inspire you to get just a bit more out of your sampler.

1. CUT & PASTE SOLOS

The assembly of composite solos, where you record multiple takes and mix down the best bits from each take to create an idealised solo, is a task made much easier by samplers. Record multiple takes on tape (analogue or digital), then sample the best sections. Sync the sampler's onboard sequencer to tape, and play back the resulting mix into an open tape track. Granted, assembling a solo this way can be a bit more tedious than with a hard disk system, but you also gain the opportunity to use options like envelopes, filters and LFOs.

2. FIXING OUT-OF-TUNE NOTES

Samplers were born to bend, or they wouldn't have pitch-bend wheels. If a vocal performance is fantastic except for a couple of slightly flat or sharp notes, sample the phrase into the sampler.

For easy fixes, move the pitch-bend wheel manually, in real time, as you bounce over to another track. For more complicated pitch changes, sync a sequencer to the multitrack and 'draw in' the pitch-bend messages, then edit as needed. This also works for generating special effects such as slides.

If you add a lot of pitch-bend, the length of the sample might change. Breaking a vocal down into phrases and editing each one individually generally solves the problem.

3. YES, YOU *CAN* HIT HIGH C!

Well, maybe not quite. But if a note is just a couple of steps above or below your range, sample the nearest note you can sing correctly, and transpose it up or down as needed. Drastic pitch shifts will make vocals sound rather unnatural, but if you're dealing with harmony parts that aren't too far from the lead and mixed somewhat in the background, there should be no problem.

4. THE ULTIMATE VIBRATO

To add vibrato to a signal, sample it, then modulate the pitch with a low-frequency triangle wave (bring it in and out with the mod wheel for expressiveness). Because the LFO waveform is symmetrical, it shortens and lengthens the note by equal and opposite amounts in the process of changing pitch, so the total note length remains unchanged.

5. THE ULTIMATE DDL

Sample the phrase you want to echo, and set the sampler keyboard to play all the same pitch (this mode is used for sound effects and some percussion; refer to your sampler's manual for how to do it). Also set the amplitude envelope for a long release time, and make sure the overall amplitude responds to velocity.

Hitting any key will trigger the phrase, so whenever you want another echo, just hit a key. And no law says you have to emulate a traditional echo unit — try polyrhythmic echoes, or changing the volume levels of different echoes. Since samplers generally let you place different key-ranges at different locations in the stereo field, this also works for cross-channel effects.

6. MAKING BI-DIRECTIONAL LOOPS WORK

When using bi-directional (forward/backward) looping, remember to turn off any 'autofind' function that puts the loop points on zero crossings. If the signal reverses at a zero crossing, a discontinuity in the waveform will probably be produced (upper signal in Figure 1 on p.130). The grey wave in Figure 1 shows what the reversed signal would look like if played right after the original signal). Setting the loop point at a peak, as shown in the lower signal, will create a smoother loop.

7. FUN WITH SAMPLE START MODULATION

A sample is a 'freeze-dried' sound lacking the nuances that occur over time with acoustic instruments, but modulation can help. One trick is to use velocity to increase brightness, but sample start point modulation — a feature that affects where in the sample playback begins — can be equally, if not ▶

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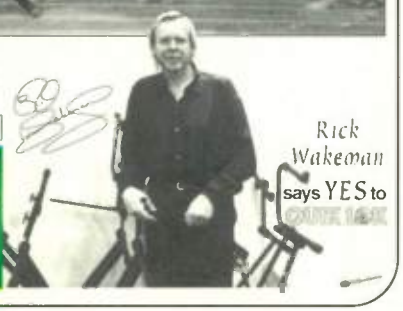

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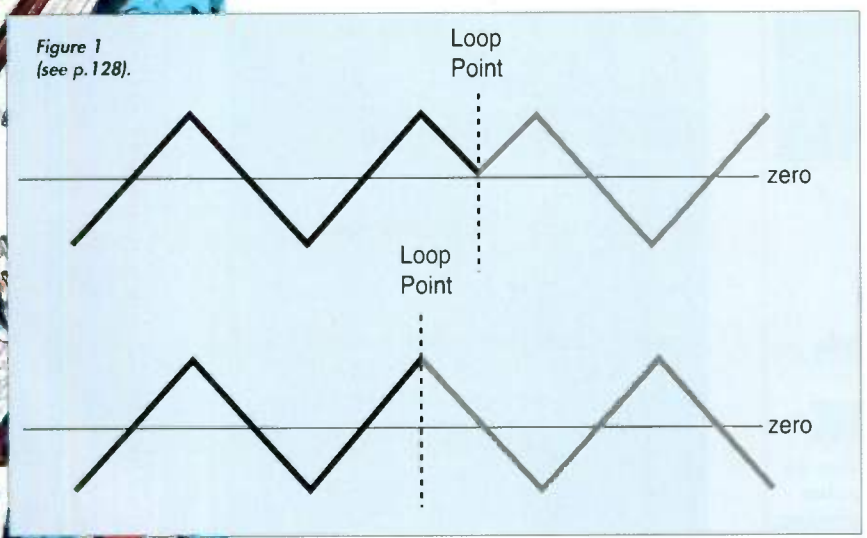
Sampling Tips 12-Pack

▶ more, effective. If you start a sample just after the attack and add negative velocity modulation, the harder you play the closer the start point moves toward the beginning, thus picking up more of the attack. Try this with acoustic guitar, for much more dynamic picking effects. Note that most envelopes can be modulated by velocity as well.

Another use for sample start point alteration is to create stereo from mono. Copy the mono sample, pan it to the opposite channel compared to the original signal, and change the start point of one of the samples until you hear a distinct stereo spread. Caution: you should also play this back in mono to check for cancellations; if the sound gets thinner, increase or reduce the start time difference until it sounds right.

The final sample start tip assumes you're recording a vocalist into a multitrack, and unfortunately, there's a 'pop' at the beginning of an otherwise flawless phrase. Sample the phrase (sync the sampler to the multitrack so that you don't have to worry about punching in at the right time later on), and use the truncation parameter to move the start point a bit further into the sample, past the pop. Lay the sampled track over the original track, and the problem is solved. (An amplitude envelope change could also solve this problem.)

Figure 1 (see p.128).



8. PRACTICE MAKES PERFECT

If you want to loop part of a song (a solo or chorus, perhaps) for practising, record that section into a sampler (use a low sample rate to provide more recording time) and loop away. If you're using digital or analogue tape, this saves a lot of head wear compared to using the recorder's 'block repeat' or rehearsal mode.

9. OUT OF BOUNDS

Transposing samples out of their normal ranges can create an entirely new sound. Transpose slap bass up a couple of octaves for a meaty clavinet sound (ie. for even better results, layer it with a real clavinet), or transpose a snare right down (and add lots of filtering) for a distant cannon or thunder sound. Transposing a sample to its highest pitch will often provide ring modulator-like effects due to aliasing.

10. TRIMMING RHYTHMIC LOOPS

Rhythmic loops you may want to use from Sample CDs aren't always at exactly the right tempo to sync up with other loops you want to include. However, as long as the loop you need to change uses non-pitched material (say, drums) you can lengthen the loop by bending pitch down somewhat, or shorten the loop by bending pitch up. This will often give better-sounding loops than when using computer-based time compression/expansion programs.

> "You never know when you might want to sample something, so if you have a spare aux send, route it to your sampler's input."

11. THE LOOPMEISTER

If you can translate audio files between different samplers, you can use one sampler's capabilities to process samples created on a different machine, or modified with a particular program (assuming, that is, you have access to more than one sampler!). For example, most sample editing programs allow only for forward looping or crossfade looping, but Ensoniq's samplers offer a variety of loop processing options (backwards/forwards, reverse, 'bow tie', and so on) that process the samples to make the loop points far less obvious. As one example of how to use inter-machine transfers, I was once trying to loop a string section on a Peavey DPM3. The *Alchemy* sample editing program did a pretty good job, but the loop point was still fairly obvious. So I sent the sample to an Ensoniq EPS16 Plus, used its looping capabilities to create a perfect loop, bounced the sample back to *Alchemy*, then exported it to the DPM3. Of course, because all this was in the digital domain there was no audible deterioration.

12. CATCHING THE BUSS

If you have a spare aux send, route it to your sampler's input. You never know when you might want to sample something, and if the buss is already routed, all you have to do is turn up the appropriate aux send control and set levels. Happy sampling!

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Going for a Spin

GETTING THE MOST FROM YOUR SAMPLE CDS & CD-ROMS

Get those sample CDs rotating, and hold on to your hi-hats: PAUL FARRER is talking about a revolution...

There can't be many sampler owners who haven't got at least a couple of sample CDs in their collection, and with new and exciting releases coming out all the time, the runaway success of the sample CD market looks set to continue for quite a few years. Of course, cost is a major factor in deciding the number of CDs and CD-ROMs the average musician or studio can buy; with this in mind I've put together a few hints and tips that could help you to pick the disc and format that's best for you, and — perhaps more importantly — explain how to maximise the use of the hot batch of brand new sounds that have just arrived in the post and you are aching to get into your sampler, if you could only rip open the shrink-wrap packaging with your teeth fast enough...

WRITE OR ROM?

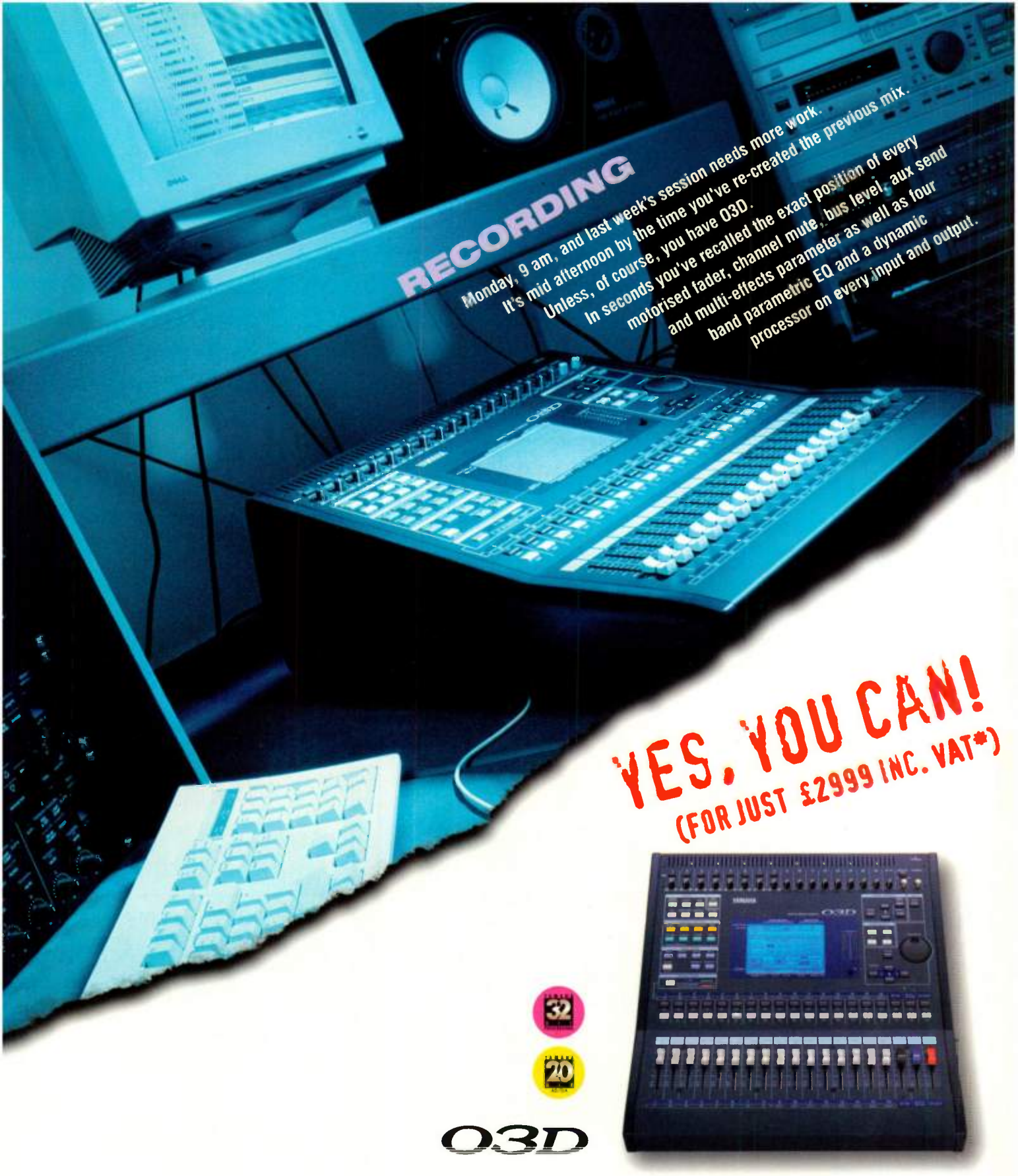
Sample CDs come in a number of different formats and it's important to know which format type will be best suited to your budget and your studio setup before you buy. The first and most obvious way of presenting sample material is, of course, as standard audio recorded directly onto a conventional compact disc, which can be played in any CD player. This is the most basic (and therefore the cheapest) way of presenting sounds on a sample CD and nearly all releases support this format. It allows quick access to all the tracks, and it's an excellent way to audition sounds before you fire them into your sampler. On the downside, you do have to do all the sampling, editing, looping and programming of the sounds yourself. If you're sampling complex choir or string multisamples, this can be a real pig to get right and often requires an in-depth knowledge of your chosen sampler platform and the patience of a particularly patient saint. Some sample CDs consist of longer drum loops or instrument grooves (sample blocks that rarely need crossfading or multisampling, but you get fewer of them), and these are often easier to deal with in audio format than, say, a CD's worth of complex orchestral or piano samples.

But by far the most efficient and popular way of presenting sampled sounds is the CD-ROM. Just like a computer CD-ROM, this stores all the sounds — as well as programmed data, loop points, crossfades, and preset names — as digital information which can be fed directly to your sampler via SCSI. Once your CD-ROM is in your sampler's SCSI chain, it can be thought of as another independent (read-only) hard drive. Loading up a preset or group of presets from a CD-ROM is an extremely quick and easy procedure and, of course, gives you all the sounds you need edited, named, assigned to the appropriate keys and ready to play straight away. My guess is that, with the huge improvements already made in the field of sampling large amounts of data, the future of sound sources will be via the CD-ROM, and prices will fall accordingly. This brings us neatly to CD-ROMs' biggest drawback, which is their relatively high price; many ROMs retail at around the £150 mark, as opposed to their audio equivalents at around £60. Of course this has to be weighed against the huge advantage that sample CD-ROMs bring you. Where else could you get a full symphony orchestra to perform on your track for less than half the price of a basic effects unit?

But just as audio CDs have their strengths and weaknesses, so do CD-ROMs. For instance, a CD release stuffed full of hundreds of different drum loops could be seen as a waste of CD-ROM space, as you'll discard most of the loops as you audition them, selecting only your favourite few — and, let's face it, sampling and editing a one-bar drum loop is not the most difficult thing in the world. In contrast, it would be hard to match the level of programming that has gone into products such as East West's *Ultimate Piano Collection* or some of the vastly complex multisampled orchestral CDs, so it's a good idea to find out a little bit about the kind of sounds you are likely to get on a sample ▶

CD-ROM COMPATIBILITY

CD-ROMs come in a number of different platform formats depending on your sampler, the main ones being Akai, Roland and Emu. Although recently manufacturers have started seeing sense and are making their samplers cross-compatible (so they can read CD-ROMs made for other manufacturers' machines), in practice you may well encounter some slight niggling difficulties when importing, say, an Akai sample CD into an Emu machine. Mostly this can take the form of silly little things such as the pitch-bend ranges being different for certain sounds, or the attack times being slightly slower or faster than you remember. Considering the vast differences in sampling architectures involved this is perhaps understandable, but it's worth remembering that even if your sampler claims to be XYZ-compatible you may need to do a spot of fine-tuning of the imported programs or presets before you feel completely happy with them.



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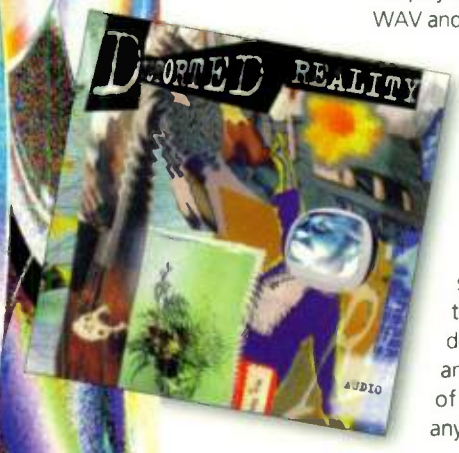
GETTING THE MOST FROM YOUR SAMPLE CDS & CD-ROMS



▶ CD release before choosing the format and making your investment.

The other main format, which is becoming increasingly popular particularly in the budget section of the market, is the Mixed Mode CD-ROM. As its name suggests, this format contains both conventional audio recordings and sample data stored so it can be accessed via SCSI. These days a common mixture of the two can be found, for instance, in the 'Creative Essentials' library from Time & Space, where, as well as audio files that can be auditioned and sampled from any CD player, the raw sample blocks are presented as WAV and AIFF files so they can be accessed directly by a PC or Mac. (See the 'Circular Argument' box for more information.)

MAXIMISING YOUR SAMPLES

For many of us, relationships with our sample CDs may not extend further than a daily uphill battle to try and get our samplers to sound at least something like the demo on track 1 of the CD did. But it doesn't have to be like this. Just as with any really good synthesizer with a duff set of factory presets (Emu Morpheus, anyone...?), the real trick is to inject your own style into the sounds; use sample CDs less as a preset-bashing exercise and more as a platform for experimentation. The most interesting, and sometimes awe-inspiring, CDs are generally the ones that have a distinct air of pushing the limits of their technology into new and unknown territories. Take Spectrasonics' *Distorted Reality*, or *Cuckooland* from Zero-G — similar in approach, they each possess a real spirit of taking established

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LEGAL STUFF

If you've read the small print on the back of any sample CD you've purchased, you'll notice that you have (in legal terms) bought the CD on which the sounds are stored, and purchased a licence to use the sounds in a commercial release, but do not officially own any of the sounds on the disc. This allows you to use the samples in conjunction with other sound sources on singles, albums, soundtracks, adverts and whatever, but does not allow you to re-release the sounds on their own or as part of another sample CD. It's fairly straightforward and common-sense really, but as always there are a couple of flies in the ointment. Among the plethora of sample CDs released each year, there can just occasionally be differences in the CD producers' requirements. For example, I once reviewed a sample CD that asked you to send two cassette copies of your completed music for them to listen to before you released a product using their sounds. Other CDs simply ask (and sometimes insist) that you credit samples when they're used in a commercial release. Many users might feel that having to post additional copies of your music around the place is a bit much when you've already forked out the readies for the sounds, but the question of sample creditation is, some people might feel, still something of a grey area. I'm sure nobody really minds crediting the use of a certain set of samples, particularly if they feature heavily in your recording, and you might feel (quite rightly) that it's the proper thing to do to nod your head in the direction of a creative team who have helped your music in some way, but it's worth reading the small print on the back of the CD to check whether this is an absolute condition of the licence or not. In any event your sample CD supplier will, I'm sure, be more than happy to answer any questions you might have about this.

sound sources such as analogue synthesizers or ambient effects and using these as a starting point for serious sonic mutilation, time-stretching, and clever effects ideas. This 'open-minded' approach works for any sample CD sound source. Don't instantly assume that the sounds you'll end up using in your track will be anything like the CDs you sample from — keep in mind the vast number of effects options available with even the humblest sampler. Here are a few examples...

• Instead of loading up an entire program of string or choir multisamples, why not just look at a single sample? What might it sound like an octave higher, or lower, and what happens when you play around with its ADSR envelopes? Could that single cello sound with the sharp attack work nicely as a grindy techno bass noise? Or could you drop it by a few octaves, add a long release time and use it as an underscore for the next series of *The X-Files*?

> "One of the most enlightening experiences is to watch someone else work with the same sounds and approach things from a completely different point of view."

• If your sampler allows you to play with any resonant filters, what effect might these have on the overall sound? This is a particularly common effect used on dance drum loops, for instance, where the same sample is assigned to a number ▶

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AUDIO CD

pros

- Cheap.
- Large number of available releases.
- Quick and easy auditioning of sounds.
- Compatible with every possible sampling format!

cons

- Can be very time-consuming and fiddly to sample and store large numbers of sounds.
- Requires a good knowledge of your sampler's workings to get the most from an audio sample CD.

CD-ROM

pros

- Quick and easy access to all sounds.
- Less time spent sampling (therefore more time spent playing).
- Can give your songs an instantly 'professional' touch.
- Often contain more sounds than audio CDs.

cons

- More expensive.
- No chance to audition sounds without loading them.
- Don't always encourage the end user to experiment as much as they could.

MIXED-MODE CD

pros

- Often the same price as audio CDs (sometimes even cheaper!).
- Can be the best of both worlds, offering both audio and ROM data.
- Good for auditioning sounds on a regular CD player before you load up the samples.

cons

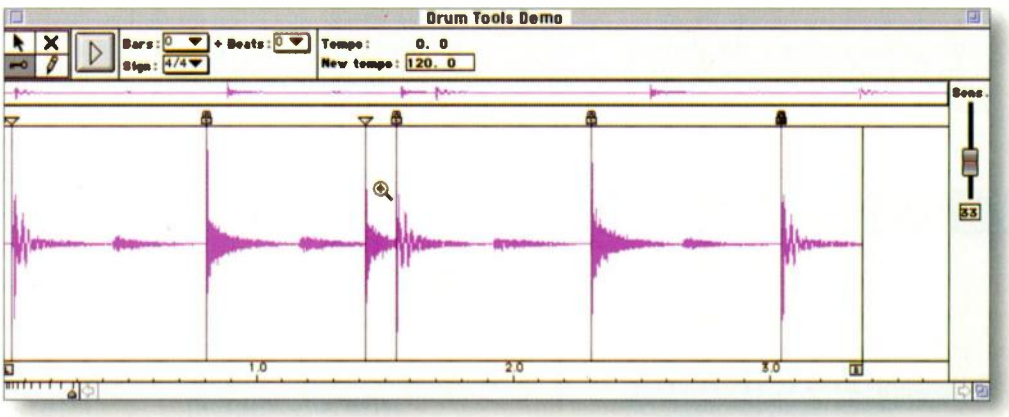
- Having to fit both file types on a single disc can mean less samples.
- Although nearly all popular sampler formats can be catered for on a mixed mode release, WAV and AIFF are the most common these days, which is not to everyone's taste.

▶ of different keys, each with a slightly more open filter setting than the last, restricting the top end of the sound. The effect is of a drum loop starting as a sort of distant low-fi grinding noise; each time it cycles round it becomes louder and more defined, until the sample is playing back at full bandwidth in all its glory. A great trick and a doddle to program.

• Everyone gets stuck in creative ruts, and one of the most enlightening experiences is to watch someone else work with the same sounds and approach things from a completely different point of view. Although sequencers and samplers don't normally allow more than one person to work on them at a time, musical collaboration is perhaps more relevant now than it ever was. So invite a like-minded individual over for an afternoon of playing with your sample CDs and see which sounds they find most interesting.

• With experimentation in mind, don't be afraid to really go to town with external effects processing — maybe even re-sampling the same sounds with additional effects. You'll need an additional hard drive to store your new versions of sounds, but you'll be surprised at just how much life you can breathe into even the dullest drum loop or bass groove if you beef up the EQ, add some compression, chorus, and even perhaps a touch of distortion, mix it to DAT and re-record it as a new sample.

"Use sample CDs less as a preset-bashing exercise and more as a platform for experimentation."



• Why not try re-grooving old samples? Software packages such as Steinberg's *ReCycle* can be a big help, but fairly simple cut-and-paste editing within your sampler can give you the constituent beats of a loop, which you can then re-program with a completely new feel, tempo or groove. Once you're happy with the loops, drop them down to DAT (or similar), with a suitable effect if need be, and resample them as single one- or two-bar loops.

• Don't be afraid to mix and match your samples. Releases that offer you groove tracks complete with drums, bass and keyboards are often more flexible than you might think. Don't assume that the sax solo from track 2, for instance, won't sound great over the drum and bass line from track 24!

There's no doubt that as sampling becomes a bigger and more influential part of our musical lives we will see more and more sounds released in the sample CD format. Some manufacturers even provide downloadable sounds from their pages on the Internet — when the first Akai S900 came out (not so long ago), this was still well within the boundaries of science fiction. No-one knows what the sound market will be like in 10 or even five years' time, but it's a fair bet that at least two things will remain consistent: firstly, there will undoubtedly still be a strong demand for good-quality, user-friendly, inspiring sounds; and secondly, whatever form these sounds take, you can be sure they'll come your way wrapped up so tightly in shrink-wrapped plastic covers that you'll need to don your best set of Microsoft Platinum-Coated Cyber Dentures just to get into them... SOS

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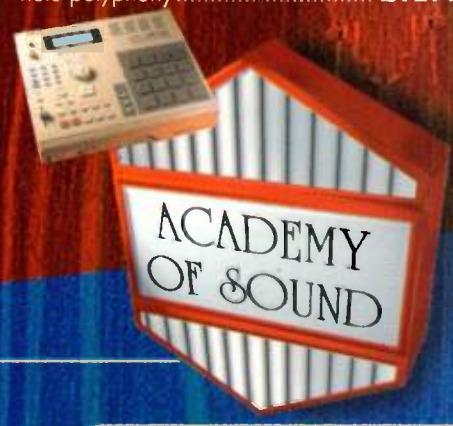

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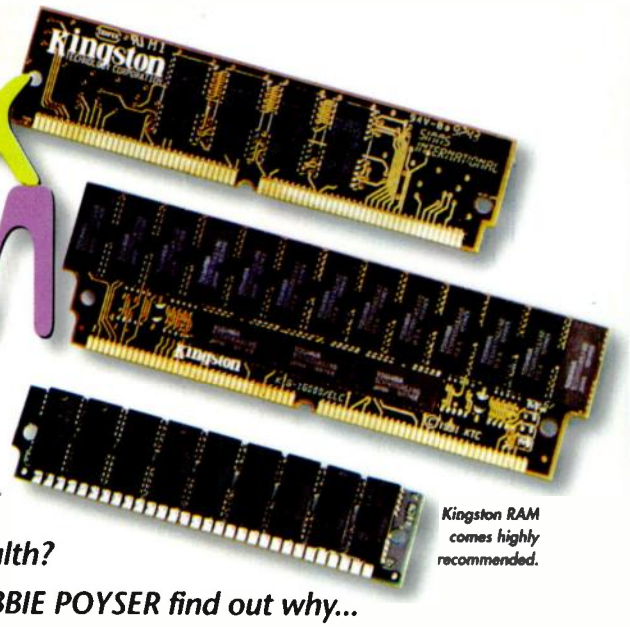
High Risk RAM

A SAMPLE MEMORY HEALTH WARNING



Kingston RAM comes highly recommended.

Did you know that upgrading your sampler's memory could seriously damage its health? DEREK JOHNSON & DEBBIE POYSER find out why...

Not so long ago, upgrading your sampler's RAM meant buying an official memory expansion from the manufacturer. In recent years, though, we've seen the introduction of samplers designed to use standard SIMMs (Single In-line Memory Modules). It's a move which has pleased most of us — after all, SIMMs are cheaper than custom memory boards, and we're free to shop around for the best price when we want extra RAM.

However, this very freedom is causing a problem: most of us believe that a SIMM's a SIMM, and that the main things to bear in mind when buying them are price and access time. But some service centres are seeing what amounts to a plague of sampler damage attributable to low-quality RAM. We spoke to Mike Swain, of leading service centre Panic Music, about the situation, first asking him where the bad RAM is coming from.

"Mostly from suppliers in the Far East. Unscrupulous companies are buying up factory rejects and seconds from the major manufacturers, stripping the manufacturer's name off and just putting a part number on the device. These devices would quite possibly work in PCs: if one or two cells are dead or the chips aren't up to spec and are pulling too much power, generally PC boards can handle it. But with samplers, the question of speed and access time for memory is very important. Badly specified RAM can cause data corruption and, at its worst, failure of the main board — because RAM might be drawing too much current, everything overheats, from the main board to the SIMMs themselves. It could literally write off the main board. If a musician puts bad memory in a machine it may work initially, but after a few hours the problems start. You could be right in the middle of a session and find that you've lost everything, because the memory has failed. This problem is surprisingly widespread: we probably see between 10 and 20 samplers a month with bad SIMMs problems. In the old days, taking Akai as an example, an 8Mb memory board for an S3000 was £500, because they were custom memory boards, but every one was tested. Now the doors have been opened for poor-quality memory to be fitted in samplers.

"I can't understand why people spend thousands of pounds on a sampler, and then hunt around for the cheapest, nastiest SIMMs. I don't think end users understand that memory is the *heart* of the sampler, and if they've got bad or slow memory, they'll get sample corruption and memory failure. And the price difference between bad and good SIMMs is only £15-£20. Manufacturers can't control what people put in their machines — they can only make recommendations. In a lot of cases, manufacturers are getting bad press where it's not their fault."

Fortunately, the average musician can avoid the kind of RAM which can cause these problems, by choosing a retailer carefully. Mike says that the culprits are "mainly computer shops, although some music shops are also supplying cheap SIMMs, because they don't realise there's a potential problem.

"Always go to a reputable supplier for RAM," he advises. "Look for one of the major memory suppliers. Don't go to cheapo computer stores, and if you buy from a music store, look at who the RAM manufacturer is. There are a number of manufacturers — Kingston and Goldstar, for example — who make good memory. All suppliers of quality memory give a lifetime warranty, because they're buying from reputable sources, and they're testing the devices themselves before selling them on to the end user."

Thanks to Mike Swain of Panic Music (01954 231348) for his help.

SAMPLING CENTRAL

THE GOOD GUYS

Here are a few manufacturers of guaranteed SIMMs, although your sampler manufacturer will also recommend others. Emu's web site (http://www.emu.com) has a particularly good list.

- **Americanino**
- **Goldstar**
- **Kingston**
- **SIMMs International**

BEAT STATIC

Mike also revealed that Panic are seeing a lot of static damage to samplers, "as a result of electrostatic precautions not being taken by people while installing SIMMs and other upgrades. It's not just users: some dealers are also guilty. The most significant problem is failure of the DMA (Direct Memory Access) controller. Although we can't be 100% sure it's static damage, the circumstances most certainly point to it — unexpanded machines never have DMA controller problems, and every machine we've seen with DMA controller problems has had extra memory or boards user-fitted."

Obviously, no-one wants to see their sampler affected in this way, so we asked Mike what we can all do to guard against static damage.

"The manufacturers all provide warnings that electrostatic precautions must be taken. Make sure you're working on a table that's not covered in a synthetic material which might generate static. Before you remove any covers or handle the SIMM chip itself, make sure you've discharged any electrostatic charges you may have in your body — potentially several thousand volts — by grabbing hold of an earth: a water pipe or a tap or something. Ideally, SIMMs should only be changed in an anti-static environment, with the machine on an earthed anti-static pad, and the user wearing a grounded earth strap. Earth straps are cheap, and are sometimes included with quality memory. It's so important: the DSP chip that handles memory on most current samplers can cost £200 to replace, and electrostatic damage can destroy it. This has been the case in a number of situations, and because we can't prove it 100%, the manufacturers are picking up the tab for repairs under warranty. It's a major concern of all the manufacturers: the only way around it would be to supply machines fully loaded with RAM, which would make samplers more expensive.

"The static problem obviously arises when you're installing any upgrade boards, into synths and digital audio recorders as well as into samplers. You must take the same precautions."

We wondered whether musicians should get upgrades installed by their dealer. Mike only partly agrees:

"Actually, some shops don't understand the problem either. It's OK for shops with service departments, but even then I know one or two instances where big retailers are installing upgrades on the shop counter! We had one customer who was absolutely horrified: his machine was opened on the counter of a major hi-tech retailer, and all the SIMMs were tipped out loose. The staff were just shuffling though them like a pack of cards!"

SAMPLING CENTRAL

the soft touch

You've got a sampler, you've got a sample CD — but you haven't got any music yet. CRAIG ANDERTON chases down useful software that can help you bridge the gap, and passes on some hints and tips for effective sample CD use.

TURNING SAMPLE CDS INTO MUSIC

A lot of people still don't quite understand the concept behind sample CDs. If you can already play an instrument, why do you need other people's licks and/or sounds?

What makes sample CDs so useful is not that they can generate a canned composition 'out of the box' — although that's one attraction. More importantly, just as a great guitar sound, clever lyric, or innovative synth patch can be an inspiration, so can a sample CD. It's a short step from hearing a hot drum loop and being excited by it, to wanting to get the loop into a sampler and add sounds on top of it. In the process, you can often create a tune during the initial rush of inspiration, because at the very least, you won't need to program or record a drum part — just loop one.

Although today's samplers are widely used for assembling bits of audio into the equivalent of an audio collage, their other main function is emulative synthesis. Sample CDs can provide orchestras, drum sets, vintage synths, ethnic instruments, and other hard-to-record sounds. But lifting loops and sounds is only the start — the true test is how you combine these to make music.

Some sample CDs contain audio only, some are CD-ROMs for loading sounds directly into your sampler from a CD-ROM drive, and some are mixed-mode. Audio versions are less expensive and easier to audition, but a CD-ROM saves you hours — maybe even days or weeks — of programming time.

AUDITIONING THE CD

Sample CDs are organised in different ways. Some are 'construction kits' of related, easy-to-loop riffs that you mix and match to create a composition; others have phrases that are not necessarily loops, but can be combined with other phrases to make ambient washes, or overlaid as 'solos' on top of more loop-oriented material. Still others contain individual samples of specific instruments (piano, drums, gamelan, rock guitar, and so on), while many CDs combine looped riffs and the individual samples that make up the loops. This makes it easy to customise the loops by adding additional elements. ▶

Figure 1: Opcode's AudioShop is a great way to audition audio CDs on the Mac, and it even does some editing.

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Derek Johnson - Sound On Sound May '97.

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If you need to get your hands on some top quality dance sounds on a budget, look no further than Quasimidi's Technox. All sounds can be edited via the LCD display and two front panel dials, which are also used for sound selection - sounds are divided into groups to make it easy to find the one you want. 16 part multitimbral and always 24 note polyphonic with built in effects, it makes a perfect addition to an existing MIDI setup, but is comprehensive enough to use on its own, and the superb arpeggiator means you'll never get bored!

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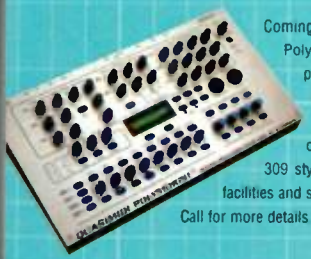

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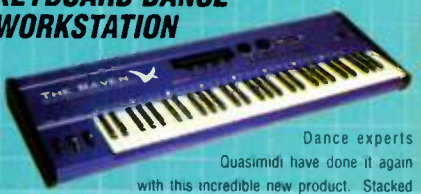

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TURNING SAMPLE CDS INTO MUSIC

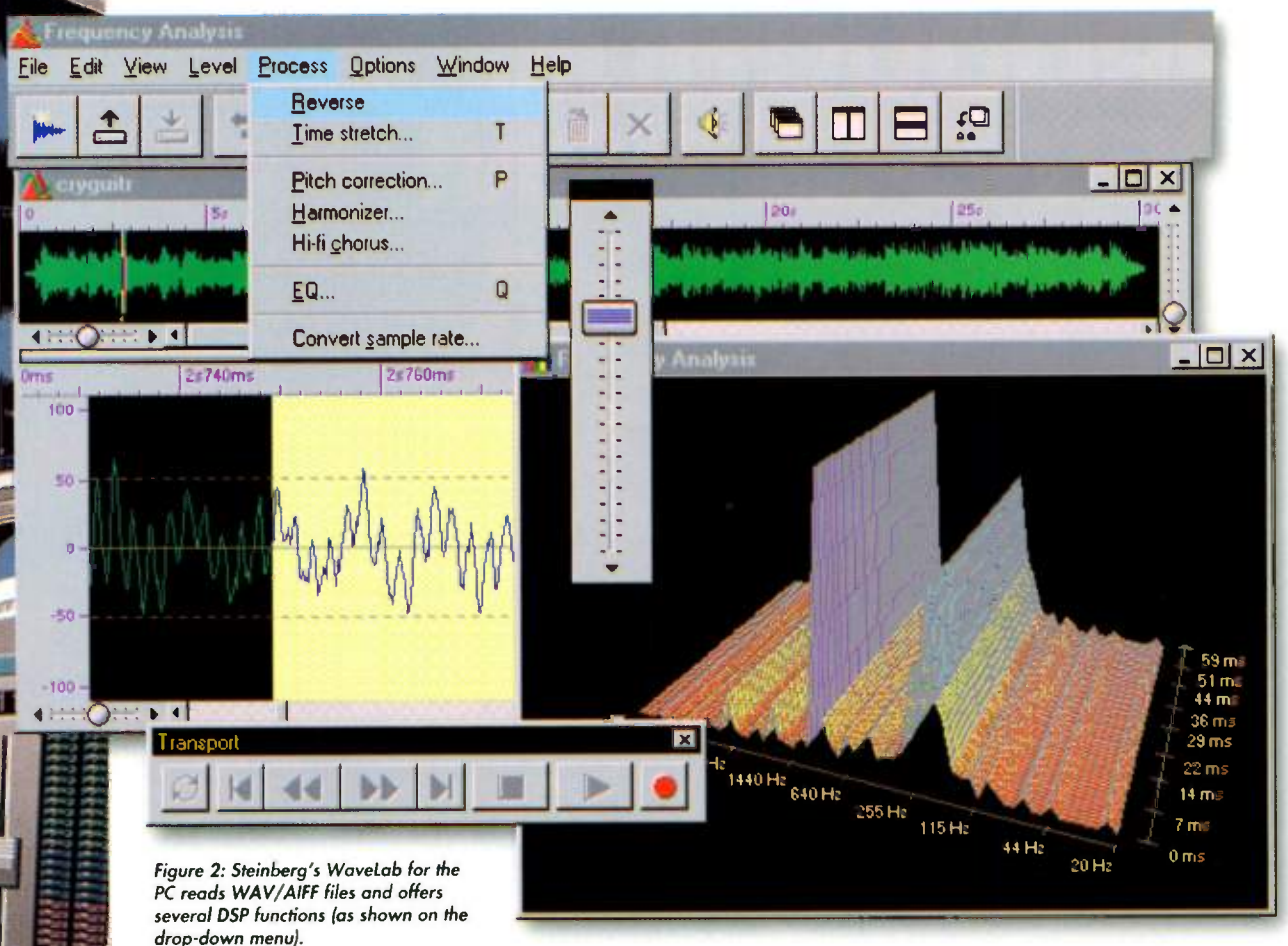

Figure 2: Steinberg's WaveLab for the PC reads WAV/AIFF files and offers several DSP functions (as shown on the drop-down menu).

Begin by auditioning the CD to choose a collection of possible sounds, and take notes. Computer programs that play audio CDs from your CD-ROM drive (see Figure 1, on p.142) can usually build playlists of particular tracks you want to sample, so that you can audition and record them in the desired order.

SOFT OPTIONS

You can, of course, record samples from sample CDs directly into your sampler, or use a compatible CD-ROM, but another option is to transfer your desired samples to a computer for editing, then send them to the sampler. There's lots of software around to help you with this.

The standard Mac audio format is AIFF and for the PC it's WAV (however, OS/2 Warp can play AIFF files using the media player — just click on the file's icon). CDs using a native file format are easiest to use: pop 'em in the CD-ROM drive, drag the files over, and import them into your sample editing program. To convert formats on the Mac, *Sound Designer*, *Alchemy*, *WaveConvert*, and BIAS *Peak* can all import and export WAV and AIFF files. For the PC, *Sound Forge* and *WaveLab* can import AIFF (although when exporting, change the file type to AIFF on the Mac, using *ResEdit* or *Disktop*). PC shareware translation programs include *SOX: v1.0 Sound Exchange* and *Wave-To* for Windows.

To record from audio CDs with a Mac, check out utilities such as *CD Studio* or *SoundEdit 16* (v2), which can grab data from an audio CD and perform file conversion. For the PC, most soundcards have bundled software that can record from CDs, but beware — traditional soundcards don't record digitally from the CD, so expect some noise, distortion, and DC offset. If you're a cross-platform kinda samplist, *Disc-to-Disk* is an audio-grabbing utility available in both Mac and PC versions.

If your computer has a digital I/O card such as CardD Plus or MultiWav Pro, a CD player with an S/PDIF digital out can squirt audio directly into typical digital audio editing programs via such a card.

SAMPLE MASSAGE THERAPY

Once the samples are in the computer, you can customise them before transmitting them to the sampler — you might want to EQ, truncate, or time-compress or -expand to match tempo with a different loop. Digital audio editors (see Figure 2 above) and sample editors provide a graphic window on digital audio; most digital audio editors read WAV or AIFF as their main formats and save to and from the computer only, whereas sample editors can also communicate with samplers hooked up through SCSI or MIDI.

For the Mac, older versions of *Sound Designer* support older samplers, but the current version communicates only with Digidesign's own SampleCell. However, its sibling program, *Turbosynth*, is a cross between a sampler and

SAMPLES & SHAREWARE

You can download AIFF/WAV samples and shareware programs from "Craig Anderton's Sound, Studio, and Stage" on AOL (keyword SSS) and other MIDI forums on AOL, CompuServe, Prodigy, and GEnie.

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▶ lets you read, write, format, and copy Ensoniq disks on your PC (a shareware reader is also available).

Someday, utilities such as these will not be necessary; many newer samplers can now read WAV and/or AIFF files directly from DOS or Mac disks, and this trend is increasing. Another option is one already embraced by Alesis — build a PCMCIA card slot into a synth, and transfer samples from your computer to a card (they bundle *Sound Bridge* software with their synths to do this). Unplug the card from the computer, plug it into the sampler, and load megabytes of samples in a few milliseconds.

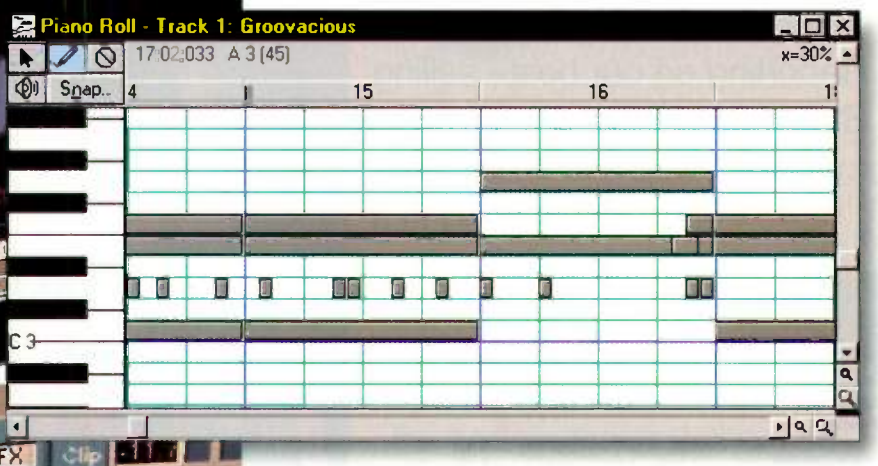

Figure 4: A Cakewalk sequence where each note triggers a different loop. The short notes re-trigger loops to add percussive effects. In this case the loop has a decay time, so the effect is very dense and complex as new loops play over decaying loops.

MAKING THE MUSIC

A key technique in making heavily sample-orientated music is 'pattern looping'. For the uninitiated, you map long, looped samples — for example, a 2-measure drum pattern — into your sampler along with bass riffs, drum variations and solo samples (vocal sounds, guitar licks, FX, and so on). You then bring different loops and solo sounds in and out with the keyboard to create a finished composition.

Looping the sample itself is problematic, because even the slightest timing difference between loops will cause them to lose sync eventually. Generally, loops are triggered by a sequencer (see Figure 4). For example, to extend a 2-bar loop to eight bars, you simply send a new MIDI note every two bars, so that as soon as the loop stops playing, it's retriggered. Most sample CD documentation correlates sample length to tempo so that you can set the sequencer to the proper tempo.

Sometimes you'll want to use loops at a different tempo than the original recording; there are several potential ways of doing this. For example, the *Def House* CD-ROM (available from East West, 0800 393027) assigns each loop so that playing G1 gives a tempo of 110bpm, A1 gives 111, and so on, in 1bpm increments up to B5 (140bpm). On the other hand, discs by E-Lab (the *X-Static Goldmine* series, for example, available from Time & Space, 01837 841100) record loops at tempos that are exactly half a step apart (112, 119, 126, and so on). Transposing the 112bpm loop up a semitone changes its tempo to 119; a whole tone takes it to 126bpm. This lets you mix and match otherwise incompatible loops, although the pitch changes a bit (you can't have everything).

Mapping samples on the keyboard is a personal matter. For 'live' mixes, I prefer to layer all the sounds across the keyboard on one channel, assign each loop to its own note, and create a mix just by playing. If you're writing at a sequencer, consider placing each loop on its own channel and track for more flexible arranging.

There's also plenty of tweaking you can do with a sampler. For really dense sounds, set up the envelope for each sample to a 'repeat' or 'finish' mode (also called 'loop in release') and set the sample to keep repeating (or copy it to itself to double the length) so that you can just touch a key and get a long, decaying phrase. Every time you send another MIDI note-on, another layer is added to what's already playing.

Don't forget the sampler's onboard effects either. Distortion works well on drum parts, and transposing slow loops up in pitch can not only speed them up, but change the timbre. Perhaps the most valuable process is time compression and expansion. This can change loop length without changing pitch, and often also change pitch without changing length. If you want to use a 137bpm loop with a 140bpm loop, you'll really appreciate this feature. Other sampler facilities which could come in handy include the normalisation function, which can increase a signal's level; most samplers can vary the volume for individual MIDI channels.

EMULATIVE SAMPLING

Sometimes you'll use your sampler to create powerful instrument sounds — a rich sampled grand piano, perhaps, or a string section. Adding realism is a whole other topic, but here are a few tips.

- Don't just change dynamics with level; also change the filter for a brighter sound with higher velocities. Modulating the sample start point can be very effective too — at low velocities, start further into the sample to bypass the attack, then program higher velocities to modulate the start point negatively, so it plays through more of the attack. Try this with any percussive instrument, including melodic ones like guitar.
- Use a volume pedal to control overall dynamics rather than trying to do it all from the keyboard.
- Use pressure to add pitch-bend to guitar patches, or vibrato to wind patches.
- Use appropriate signal processing. Send guitar patches through a guitar amp, or at least add some overdrive or compression.
- For vibrato, learn how to shake the pitch wheel ▶

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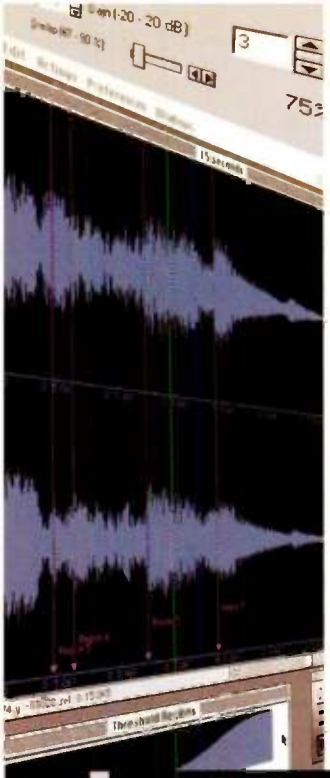

TURNING SAMPLE CDS INTO MUSIC

manually instead of using the canned triangle wave vibrato. Guitarists use their fingers — so can you.

- Most samplers also have synthesizer-style processing options: filters, envelopes, LFOs, and so on. Use these to shape your sound, and don't be afraid to layer synthesized and sampled sounds — the results can be striking (to convince yourself, layer an FM harp sound with a sampled one).
- Use samples recorded with different dynamics and correlate them to velocity, preferably by crossfading between the samples so that there isn't an obvious dividing line. (Drummers take note: the Peavey SP has a special mode for triggering multiple drum hits at different velocities within a single sample, thus speeding response time and cutting down on polyphony demands.) Overlapping samples and crossfading in the overlap region can help smooth out the transition points between multi-samples.

GETTING CREATIVE

All over the world, people who might normally have a difficult time playing music are using sample CDs and creating strikingly original forms of music, mostly centered around various mutant strains of dance music. In the process, the sampler goes from its original roots as an imitator of sounds to a creator of sounds, and even entire compositions. Today's samplers are enjoying a popularity that's rivalling the synthesizer itself, in large part because of stabilising RAM prices and the appropriation of mass-market computer technology (including CD-ROMs, SCSI ports and file translation programs). The tools are there, the sounds are there, and the music is there: go out and get creative! SOS

SOFTWARE AVAILABILITY

• *Sound Designer/Sound Designer II*
A Digidesign UK, Avid Technology Ltd, Westside Complex, Pinewood Studios, Iver Heath, Pinewood, Bucks SL0 0NH.
T 01753 653322.
F 01753 654999.

• *Alchemy*
A Arbiter Music Technology, Wilberforce Road, London NW9 6AX.
T 0181 202 1199.
F 0181 202 7076.
E arbiter@cix.compulink.co.uk
W http://www.demon.co.uk/arbiter

• *Peak*
A SCV, 6-24 Southgate Road, London N1 3JJ.
T 0171 923 1892.
F 0171 241 3644.

• *CD Studio*
A Gallery Software, via Unity Audio Limited, Upper Wheeler House, Colliers End, Hertfordshire, SG11 1ET.
T 01920 822890.
F 01920 822892.
E sales@unityaudio.co.uk
W http://www.unityaudio.co.uk

• *SoundEdit 16* (v2)
A Computers Unlimited, The Technology Park, Colindeep Lane, London NW9 6DU.
T 0181 200 8282.
E sales@unlimited.com
W http://www.unlimited.com

• *Turbosynth*
A Digidesign, see above.

• *Infinity*
A Unity Audio, see above.

• Tom Erbe's Mac shareware *SoundHack*
W Available on the Internet at ftp://music.calarts.edu/pub/SoundHack/
W http://shoko.calarts.edu/~tre/SndHckDoc/ (for documentation)

• *StudioVision Pro*
A SCV London, see above.

• *Digital Performer*
A MusicTrack, 19a High Street, Shefford, Bedfordshire SG17 5DD.
T 01462 812010.
F 01462 814010.
E 100415.2665@compuserve.com
W http://www.motu.com

• *TransferStation*
A Interval Music Systems, 12335 Santa Monica Blvd #244, LA, CA 90025.
T 001 310 478 3956.
F 001 310 478 5791.
W http://www.imuse.com

• *Sound Forge*
A MCMXCIX, 9 Hatton Street, London NW8 8PL.
T 0171 723 7221.
F 0171 723 8150.
W Sonic Foundry: http://www.sfoundry.com

• Steinberg *WaveLab*
A Harman Audio, Borehamwood Industrial Park, Rowley Lane, Borehamwood, Hertfordshire WD6 5PZ.
T 0181 207 5050.
F 0181 207 4572.

• *ResEdit*
A Available from Apple. If you have Internet access, try http://www.apple.com

• *SOX: v1.0 Sound Exchange* (shareware)
W ftp://oak.oakland.edu/pub/simtelnet/msdos/sound

• *SampleVision*
A Et Cetera Distribution, Valley House, 2 Bradwood Court, St Crispin Way, Haslingdon, Lancashire BB4 4PW.
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F 01706 222989.
W http://www.etcetera.co.uk

• *Samplitude Pro* and *Samplitude Studio*
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F 01525 383228.
W http://www.evolution.co.uk

• *Cool Edit*
A Syntrillium Software, PO Box 62255, Phoenix, Arizona 85082-2255, USA.
T 001 602 941 4237.
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W http://www.syntrillium.com/

• *Fast Eddie*
A LizardTech, 911 East Pike, Suite 231, Seattle, WA 98122.
T 001 206 320 9969.
F 001 206 320 0989.
W http://www.lizardtech.com/fe.html

• *EdDitor*
A Et Cetera, see above.

• *Awave* (shareware)
W Download from: http://www.nada.kth.se/~f93-maj/fmjsoft.html

• *EPS Disk*
W Available, with many other utilities, from a site well worth visiting by any Ensoniq user: http://oak.oakland.edu/pub/eps

• *Ensoniq Diskette Manager*
A Giebler Enterprises, 26 Crestview Drive, Phoenixville, PA 19460 USA.
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DESERT ISLAND DISCS

SAMPLE SHOP'S GOLDEN GREATS

We asked our regular sample CD reviewers to tell us which CD gems they'd like to be stranded with on a desert island (with mains power and a sampler, naturally). PAUL WHITE, PAUL FARRER & WILF SMARTIES plunder the Sample Shop archives for sampling treasure...

Ambient Volume 1

Ian Boddy is one of sampling's true innovators and this release (one of Time & Space's earliest) set the standard for others to follow. Despite quite a few similar products having been released since, *Ambient* continues to hold its own, and even after all this time the pads and textures still sound as fresh and exciting as they did when it first came out. An extremely versatile release suitable for techno, soundtrack, relaxation or just plain weird music that is a glowing testament to Ian's love of all things analogue and his attention to detail in effects processing. If you can still find one for sale anywhere, snap it up immediately — you won't regret it! *Paul Farrer*

Coldcut's Kleptomania

Maybe this doesn't stand out from the crowd so much any more, but when it was released five years ago it blew my tiny mind. Compared with the competition — Masterbits *Old Gold Synth* tone collections and the like — it was dynamite. Instead of presenting boring multi-sample sets, this release featured sounds carefully culled from a massive and well-researched record collection, lovingly assembled over a period of years. With old-school jazz and soul drum-loops, voice hits, classic stabs and breaks, here was an early and vital insight into the raw material of the dance producer. Only Pascal Gabriel, from the same AMG stable, came close, though I got the impression that his influences and sources were distributed over a much shorter time-span. Often with remix CDs you get the feeling that the best has been kept back, but More & Co. laid their hearts (and sample cupboard) bare. Slurpy beats, witty soundbites, funky as hell. This is one for the art museum — if you have an original copy keep it safe. *Wilf Smarties*

Cuckooland Volume 1: Unhinged

This is a truly wondrous home-grown product that simply defies explanation and has only been rivalled so far by its astonishing follow-up, *Ghost in the Machine*. Taking the form of multiple 30-second atmospheric soundscapes, both of these CDs will take you on a rare and sometimes terrifying trip around the darker corners of your sampler. *Unhinged* is the strangest, most sinister and downright bizarre collection of loops and textures you'll ever have heard, sounding like a dangerously insane man left alone to play with a ton of hot studio gear, a couple of big buckets of illegal substances and half a dozen top-flight Lexicons. Weird? You ain't heard nothing yet! *Paul Farrer*

Distorted Reality

This disc is a masterpiece of creative programming and has a wonderfully dynamic, textural feel. There are ambient pads, powerful drones, and lots

of heavily processed synth sounds that work well in a number of different contexts, from ambient and trance to film scores. I'm also impressed by how little memory most of these sample programs take up, so if you want to use your sampler multitimbrally you probably won't run out of RAM. If you have samples for all the conventional instruments, this is a must-have first step for exploring the rest. A kind of audio *Twilight Zone*, but with better plots! *Paul White*

Ecstatic Acid Bytes

Seldom in the history of sampling CDs can so many (3000) samples have been created for so few pounds (around 20). This 1993 release from Pure Technology utilises both left and right channels simultaneously, to provide a huge library of samples, all taken at C, each with a slightly different setting on an analogue synth (probably an SH101 or TB303). So simple. Of course, sorting out the wheat from the chaff takes time. I found that randomly selecting a few noises was as good a way as any of getting something out of *EAB* without sending yourself round the bend. *Wilf Smarties*

Funk Guitar

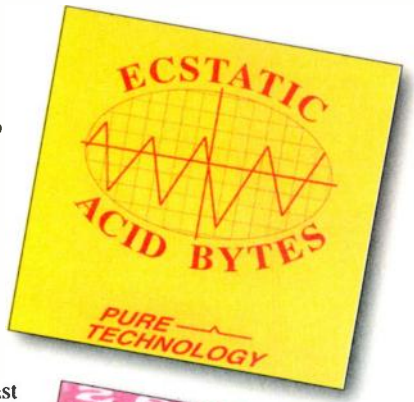
Vlad Naslas is the man who produced this, the first and best of a short series of bass and guitar CDs and CD-ROMs. The content is predominantly old-fashioned soul guitar licks, hits and tones, and the surprising thing is how authentically the sound captures the mood of '70s funk records. The guitars and amps used are classics, and therefore the extra vintage quality must come from the man himself (playing) and the engineering. Licks tend to be short, simple and pretty adaptable. So many of these 'player' sample CDs tend to be full of either overblown virtuoso mini-performances or clichés repeated over every imaginable key and/or tempo. In sharp contrast, *Funk Guitar* is eminently and immediately useable. And just when you thought it was safe to get out the Johnny Guitar Watson albums, Vlad throws in more than a few futuristic funk surprises. *Wilf Smarties*

Hallelujah

This is a wonderfully useable release from Germany, featuring the human voice in a huge number of styles and forms — everything from full classical choirs to Ragga-rap vocals, Gregorian chanting to solo female operatic oohs and ahhs. Gathered from around the world and presented in a sensible, and user-friendly format, this disc is a real gem amongst any sample CD collection. The recording quality is superb and the eclectic mix of voice samples will bring a smile to even the most conservative samplist's face, all the way through to the ensemble of Eastern European nuns singing in four-part harmony! Simply splendid. *Paul Farrer*

Heart of Asia

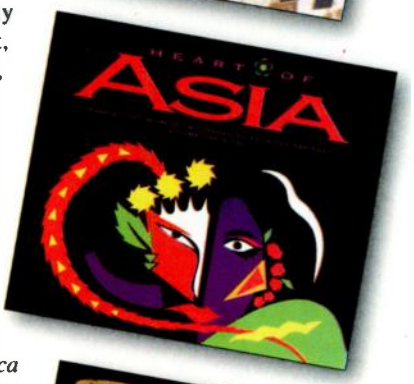
Try to imagine a year-long, all-expenses-paid trip around India and the Far East, recording as many exotic instruments and unusual vocals as you can find. To accompany you on this dream trip is a team of highly skilled sound recordists armed with all the latest hi-tech recording gear. Then imagine someone meticulously editing and presenting this titanic amount of material across two awe-inspiring CDs. The flutes, voices, drums, sitars, kotos, and sound effects almost drip from the speakers, and if you've watched any nature or travel programmes in the last year or two, the chances are you've heard many of these sounds already! *Paul Farrer*



Heart of Africa Volume 1

Cut from the same cloth as *Heart of Asia*, this disc takes the same idea (find an entire continent and sample it!) and presents the results in one of the most awe-inspiring and creatively successful ethnic sample CD releases of the decade. From the immense choir multisamples to single vocalists, from simple finger pianos all the way up to entire tribal drumming ensembles, this release delivers, and then some. The sound quality is generally fabulous (apart from a few choirs with an unfortunate amount of reverb), the layout sensible and the results almost frighteningly authentic. The kind of sounds that inspired Paul Simon's *Graceland* album can now be yours for less than the train fare to Aberdeen! A serious product and serious value for money. *Paul Farrer*

Presented as a two-disc CD-ROM set, *Heart of Africa Volume 1* is a very nicely recorded collection of African instrument, vocal, ensemble and ambience sounds, arranged both as single-shot segments and multisampled instruments. Particularly interesting is the breadth of percussion sounds, including excellent examples of the usual thumb pianos, though there are also evocative flutes, tribal chants and lots of other 'way cool' stuff. Whether you need to create an authentic African atmosphere or simply want to add a few ethnic sounds to your music, *Heart of Africa Volume 1* provides a buffet of tasty sonic morsels that will have you nibbling away until you're stuffed. *Paul White*



Jungle Warfare

This was the first, and is the best jungle CD I've had to review to date. It took some time for a full-price jungle CD to emerge — the market had been there for over a year before it began to be satisfied. Fortunately *Jungle Warfare* was not playing catch-up when released — in fact the beats were on a par with some of the most technically adept and artistically interesting stuff going down at the time. Even now this CD has not entirely lost the power to excite. The first nine tracks each have four or five very long drum patterns with variations and fills. This makes for a ▶

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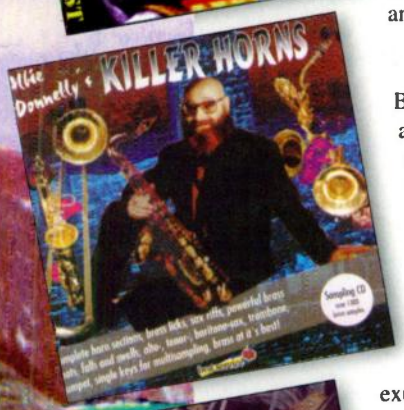

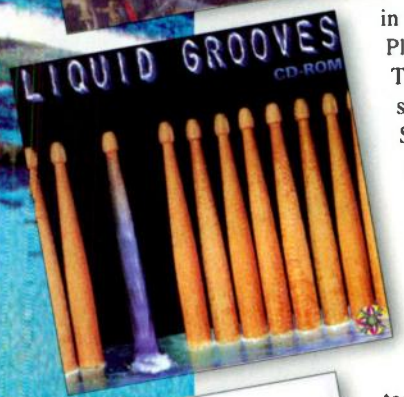

▶ good listen, but you'll need plenty of RAM and good editing tools, or a load of patience to map out keygroups of 1-bar snippets. Fortunately the next 20-odd tracks have oven-ready 4-bar loops, around 200 in all. 'Programmed' loops include reversed samples, gates, hard flange effects, vinyl soundbites, and drum and percussion hits of all calibres, both analogue and digital. Where loops are vastly speeded-up versions of old faves, new kick drums have been seamlessly added to keep the bottom end intact. All the other elements you'd expect from a workstation are there — basses, tones, chords, effects, percussion loops, and drum hits. *Wilf Smarties*

Killer Horns

Best Service, the people behind this release, are a German outfit with attitude who've produced a whole library of mostly creditable sample CDs. Their metier is really synthesizers, but for some reason this brass section CD is a real standout. The 1300 hits, tones and runs, both ensemble and unison, presented by ZZ Top refugee Albie Donnelly's outfit, are really top class, in tone, recording quality and playing. (The latter is particularly exuberant.) Judging by his red beard and name, Albie is a fellow Scot. Now we Scots have been reknowned for blowing our own trumpet for years (Witness the Dundee Horns and Average White Band, for example) and Albie is no exception, except that he blows a sax. Recorded in a tight but live acoustic, this brass section will add life to your compositions — if you can make room for them! *Wilf Smarties*

KLB2: Kicking Lunatic Beats 2

I was first made aware of Keith Le Blanc in the mid '80s by certain deeply hip clients of Planet, my old 24-track studio in Edinburgh. Tackhead's music was based on screeching, stuttering techno beats, inorganic and alien. Sequencer and sample based, surely? Not the sort of music to take on the road? Wrong. Live the band were killer, playing music beyond just about every imaginable limit. Tackhead returned to Edinburgh several times, where they found an aware and appreciative following. Just before a concert, in Calton Studios, I remember watching Keith perform a particularly good drum and technology solo. He was knocking out hip-hop beats to die for, interlaced with pad-triggered mad and bad samples, with precision and taste. An hour-long performance combined masterly artistic judgement with inhuman speed and precision. The cognoscenti cheered. Forget boring drum solos — this was the future talking. Planet had been a sampling hotbed since the early '80s, yet what Keith was doing really opened our minds. Ten years after, with the release of *KLB2*, has the master moved on? The answer is — no, but we've just about caught up. And yes, *KLB2* IS better than *KLB1*. *Wilf Smarties*

Liquid Grooves

"Too long have we suffered the mediocrity of the bog-standard drum loop!" seemed to have been the battle cry of the good people at Spectrasonics when they first hit upon the idea of producing a drumming sample CD with a difference (and this time they actually meant it!). This most soulful, laid-back and downright funky collection of new and exciting percussion rhythms ever to be committed to disc focuses its attention almost entirely on flowing, ethno-ambient percussion loops and grooves, with majestic use of the Korg Wavedrum, amongst other instruments, and extremely intelligent and inspiring effects processing. It all adds up to a release that stands head and shoulders above the competition. Eric Persing has (as so often in the past) created a sound collection of astonishing and unique beauty which seems to make so many other CDs seem flat and one-dimensional. In a word: sublime. *Paul Farrer*

Give Eric Persing the task of coming up with an album of drum loops, and the last thing he'll give you is a 'me too' disk of tired old beats and rhythms. In this two-disc set, he's put together a huge collection of drum loops which combine a laid-back feel with processing that's outrageous and subtle at the same time. Loops with and without pitched content are included, and both conventional and ethnic percussion is combined with Korg's Wavedrum and other esoteric contributions in one of the most extraordinary, yet musically appealing, groove collections available. In addition to the loops, you also get sets of kit sounds so that you can build your own rhythms. This collection does for rhythm what *Distorted Reality* did for pad and synth sounds. Put the two together and watch the sparks fly! *Paul White*

Peter Siedlaczek

You could pick one out of several stunningly good classical sample CDs by this man, who gets tremendous value for money by employing some of the best choirs and orchestras the Eastern Bloc has to offer, and booking them into world-class auditoria. Teaching ensembles to perform samples rather than familiar pieces of music must have been amusing, but the results are invariably breathtakingly good, being wonderfully recorded and executed. The naivety of the performers is absolutely charming. They perform tone clusters, unison tones, phonetic stabs, and lots more, with humour and exuberance, and without the slightest hint of irony. You probably couldn't get Western session players and singers to perform with such freshness, even if you could afford to book them.

The material is aimed more at the soundtrack than the pop market, though I would have thought that here is a great opportunity for startling ▶

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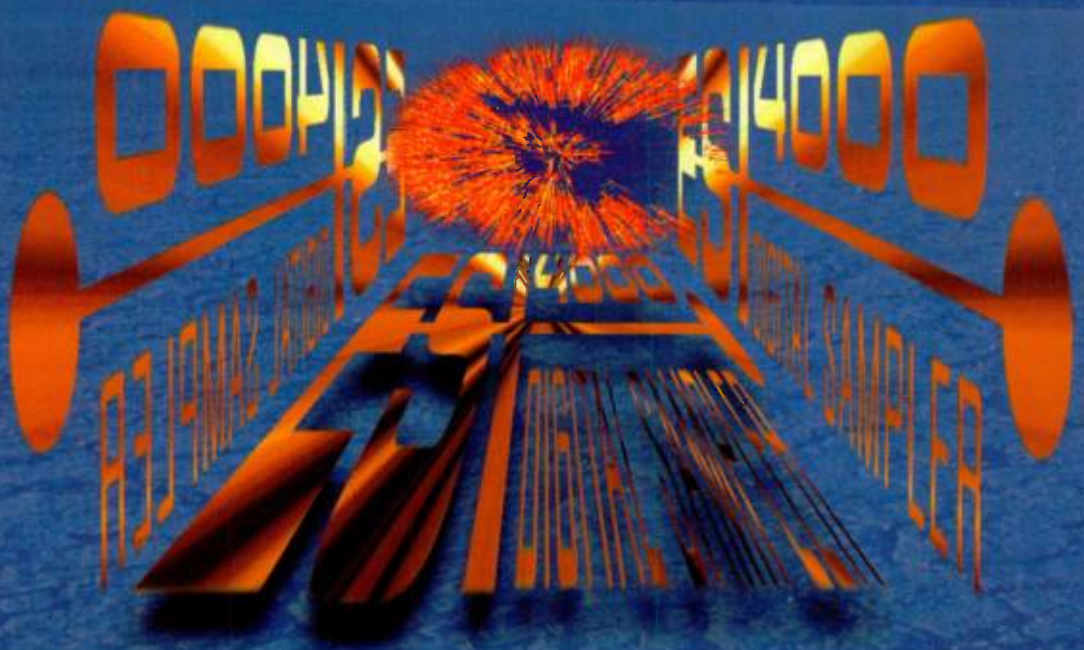

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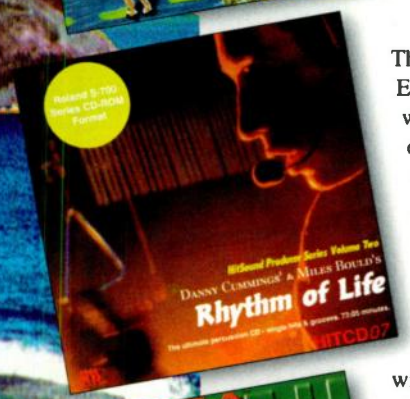

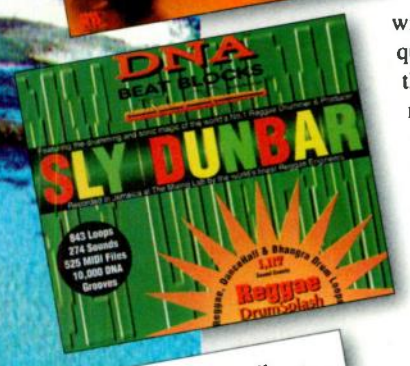

▶ ambient chill-out music. Frankly, there's nothing on the market to even remotely compare with Peter's work. *Orchestral Colours*, with its cadences, swoops and runs, and *Classical Choir*, with hordes of men and women singing in unison, are my personal favourites, though I haven't seen or heard the former for over a year, since lending it to Paul Farrer for a film score he was working on. Will somebody ask him to send it back? *Wilf Smarties*

Peter Siedlaczek's Orchestra

For less than £200 you can get your hands on one of the finest collections of string samples ever released on a single CD-ROM in the sub-£1000 market. A full symphony orchestra is presented as a series of rich and complex multisamples, and Spiccato and sustained string playing styles are featured, as well as a huge number of full orchestral stabs, atmospheres, hits, runs and glissandos. The mixture of gritty realism and sonic smoothness has never been bettered in this price range, and although often memory-hungry, the CD-ROM also contains lower-bandwidth and mono alternatives. Sampling heaven on toast! *Paul Farrer*

Peter Siedlaczek's Advanced Orchestra

This set of five CD-ROMs (Solo Strings, String Ensembles, Brass, Woodwind and Percussion) was, without doubt, one of the sample CD events of recent years, comprising an in-depth and meticulous study of every individual instrument and instrumental section in the orchestra. Startling multisamples are crossfaded and edited to perfection, with a vast number of trills, glissandos, mordents and swells. Tons of instrumental variations in vibrato and dynamics are featured, all with gloriously detailed and full-bodied sound quality. In a release of this size and complexity there will always be places where some users might feel too much attention has been paid to certain areas and not enough to others, but any criticism pales next to the sheer musicality and usefulness of this set, which offers absolute realism mixed with clever programming and intelligent arrangement. *Advanced Orchestra* is, quite simply, breathtaking. *Paul Farrer*

Peter Siedlaczek's Orchestral Colours

This is yet another winner from the man they call Peter Unpronounceable (*actually it's Sid-ala-check — Ed*). With a heavy emphasis on short orchestral phrases in four key signatures — namely: C, D#, F#, and A — this CD-ROM is both a joy to listen to and a doddle to use. Although there are a good number of more 'threatening' phrases, the overall feel here is one of confident and optimistic orchestral arrangement. The sparkling quality of the full orchestra shines through in all the samples and can make even the humblest sequenced track sound good enough to accompany the next Jane Austen TV mini-series. Stunning. *Paul Farrer*

Psychic Horns

Despite its limited UK release, and the rather disappointing quality of some other discs in the Q-Up Arts series, this CD-ROM collection of brass multisamples, hits and runs is still a jaw-dropping addition to any samplist's sonic armoury. A full brass section is arranged and performed by some of LA's hottest session players, resulting in sounds that positively burn from the speakers! Although the riffs are a little limited in their tight focus on contemporary pop-jazz, the swells, hits, stabs and falls will be turning up in your tracks for years to come. Paul Farrer

Smoov Grooves

The artist formerly known as Squiggle kindly allowed his rhythm section out of the studio for a couple of months to work on a sample CD, and look what they came up with! A collection of loops and groove tracks, deconstructed into their constituent parts, featuring drum, bass, keyboards, brass, guitar and effects. This is high-octane funk of the highest order, marvellously understated, expertly performed and deliriously cool. If you can't make a toe-tapping funk classic out of the material provided here, you're not only in the wrong business but probably on the wrong planet too. *Paul Farrer*

Rhythm of Life

Danny Cumming and Miles Bould have produced a quality percussion CD here. Relatively few patterns have been extensively exploited, through lots of live bars of playing with all the natural variation that entails. Recorded to digital multitrack with excellent engineering, crosstalk between instruments is negligible, which means that a 'solo' track can be sampled clean. Playing is excellent throughout, recording quality is pristine, and a good selection of single hits at various dynamics is presented at the end for the serious samplist who is into velocity-switching and other such activities. As I said at the time — a connoisseur's product. *Wilf Smarties*

Sly Dunbar Reggae Drumsplash

Sly Dunbar is, of course, a legend, and the dancehall and reggae styles on offer here are simply not available anywhere else. I am reminded from the sleeve that the CD features 843 loops, 274 sounds, 525 MIDI files and 10,000 DNA grooves. I have of course checked them all out, 10,000 grooves having taken only about the best part of 1995 to get through — NOT. Just sample and enjoy. *Wilf Smarties*

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SAMPLE SHOP'S GOLDEN GREATS

▶ presented as infinitely complex and yet convincing multisamples on this CD-ROM, with recordings made of every single key at a number of different played velocities. Seriously memory-hungry (samplers with less than around 20Mb need not apply) and seriously realistic: I defy anyone to tell the difference between the soft 'Steinway C' preset and the real thing. For piano sounds I've yet to hear better. This disc is an absolute classic. *Paul Farrer*

The title says it all, and the product lives up to its promise. Several of the world's best pianos have been rigorously multisampled at a number of velocities to produce what must be the most thorough piano CD-ROM yet made. Because of the amount of multisampling and velocity switching used, some of these sample programs are huge, and those without full RAM slots may have to settle for using just half a keyboard's worth of notes. The most compact complete piano runs to around 16Mb, with the biggest and best requiring two fully stuffed 32Mb samplers, one for the high-velocity notes and one for the low-velocity notes. If you can handle the huge memory requirement, this disk really is the ultimate in piano sounds. *Paul White*

X-Static Goldmine

Various formats with an X in their titles have been released by the ever-expanding Swedish e-lab corporation (formerly known as Polestar Magnetics — a more enigmatic and enduring name in my opinion). The original *X-Static Goldmine* was the first out-and-out rave CD to hit the mat. Not only were the samples bang in tune with the dancefloor, but you got about

Heart Of Africa Volume 1: "The sounds that inspired Paul Simon's *Graceland* can now be yours for less than the train fare to Aberdeen."

three times as many of them as were offered by other products on the market. This double CD had 3023 samples in all, an incredible number to audition. Nonetheless, listening through seldom got boring. Rough, tough, and ready to roast some eardrums, what the set lacked in fidelity it more than made up for in attitude. Tons of loops were roughly cut from vinyl and presented 16 to a track; loads of harsh rave synth tones came as a bonus. After the success of *XSG* came *XL1*, *XL1+*, *XSG2*, and so on. These were (and are) all very good products, but top marks must still go to the original for breaking the mould. *Wilf Smarties*

Zero-G Datafiles 1, 2 & 3

Not many sample CDs had 909s and drum loops when these three were first released. Now largely superseded, the *Datafiles* were essential sources in the early days. With no real outstanding character of their own, Ed Stratton's collection of samples (about 1000, all in glorious mono, per CD) nonetheless proved an excellent workhorse dance station (or should that be a dancehorse workstation?). I believe the *Datafiles* are now available in various condensed and compilation formats, including PC, at low cost, and they're still worth picking up. *Wilf Smarties*

SOS

PRICES & CONTACTS

- ***AMBIENT VOLUME 1***

Time & Space: Audio CD £59.95; CD-ROM £99.

- ***COLDCUT'S KLEPTOMANIA***

Time & Space: Audio CD £59.95.

- ***CUCKOOLAND VOLUME 1: UNHINGED***

Time & Space: Audio CD £59.95.

- ***DISTORTED REALITY***

Time & Space: Audio CD £59.95; CD-ROM £119.

- ***ECSTATIC ACID BYTES***

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- ***FUNK GUITAR***

Time & Space: Audio CD £59.95;
Akai S1000 CD-ROM £99; S3000 CD-ROM £29.95.

- ***HALLELUJAH***

Time & Space: Audio CD £59.95; Akai CD-ROM £99.

- ***HEART OF AFRICA VOLUME 1***

Time & Space: 2 Audio CD set £79.95;
CD-ROM £179.

- ***HEART OF ASIA***

Time & Space: 2 Audio CD set £79.95;
2 CD-ROM set £249.

- ***JUNGLE WARFARE***

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- ***KILLER HORNS***

Time & Space: Audio CD £59.95; CD-ROM £149.

- ***KLB2: KICKING LUNATIC BEATS 2***

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- ***PETER SIEDLACZEK'S ORCHESTRAL COLOURS***

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- ***PSYCHIC HORNS***

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Roland-format CD-ROM £149.

- ***SLY DUNBAR'S REGGAE DRUMSPLASH***

East West: Audio CD plus floppy disk £59.95.

- ***SMOOV GROOVES***

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- ***X-STATIC GOLDMINE***

Time & Space: Volumes 1-4 available on audio CD at £59.95 each; volumes 1-3 available on Akai-format CD-ROM at £99 each.

- ***ZERO-G DATAFILES 1, 2 & 3***

Time & Space: Audio CDs of volumes 2&3 still available at £9.95 each (clearance); all three volumes together on CD-ROM for £39.95.

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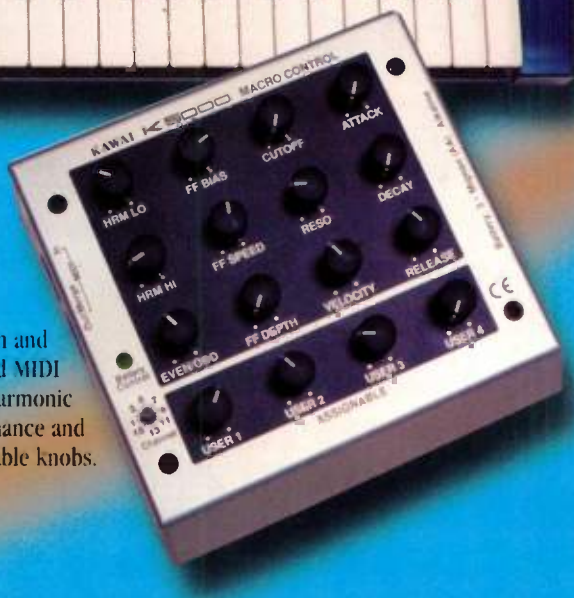

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- 5 (that's five) types of Resonant Filter (2 filters per voice)
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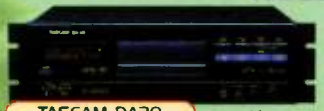
Tascam DA20



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TASCAM DA20

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Fostex D5 Professional

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TASCAM DA30mk2

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NEW REV500

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sample shopping

SAMPLE SHOP CD REVIEW INDEX 1992-1997

Over the past five years, our Sample Shop reviewers have appraised over 200 sample CDs. TOM FLINT was the man lumbered with the arduous task of cataloguing every one, complete with SOS ratings...

TITLE	ISSUE	SCORE
3D Sound Drum Sample CD 1	Jun 92	-
A Poke In The Ear With A Sharp Stick	Feb 97	4
Abracatabla	Jun 96	4
Akai Sample Library Vol 1-4	Jun 96	3
Albie Donnelly's Killer Horns	**Oct 93**	**5**
Ali Baba And The 40 Ravers	Jan 97	3
Alpha Dance	**Apr 94**	**5&4**
Ambient (Zero G MC2)	Nov 92	3.5
Analogue Dreams	Sep 95	4
Analogue To Digital	Sep 93	4
Analogue To Digital 2	Sep 94	4
Armando Borg's Percussion Incognito	**Oct 93**	**5**
Astro Glide 202	May 94	4
B3: Barbara Dennerlein	Jun 93	4.5
Bass Legends	Oct 95	4&3
Beats 'N' The Hood	Apr 96	4
Bernard Purdie's Rhythm Central	Dec 93	2
Big Bad Sound	**Oct 96**	**5**
Bizarre Planet	Aug 92	3
Black II Black Vol 1	Nov 94	4.5
Black II Black Vol 2	Feb 95	4 3/4
Bob Clearmountain Drums II	Nov 93	4
Bolder Sounds Vol 1: Eclectic	Sep 96	3
Brass Super Section	Oct 94	3.5
Burning Grooves	Dec 96	4
Carmichael's Crunchy Nut Drum Loops	Aug 96	3
Charlie Morgan Master Drums	Aug 93	3.5
Charlie Morgan Master Drums 2	Apr 95	4
Climax Collection Vol 3 (Guitars)	May 93	3.5
Climax Collection Vol 5 (Violins)	May 93	4
Climax Collection Vol 7: Bass	Mar 94	3
Climax Collection Vol 6: Sax	Jul 93	4.5
Clockwork	Jan 93	3
CREATIVE ESSENTIALS		
Vols 1-10	May 96	4
• Upfront Lead Guitar	Nov 96	4
• Synth Bass Loops	Nov 96	5
• Live Bass Grooves	Nov 96	3
• Bass Separates	Nov 96	4
• Drum And Percussion Tools	Nov 96	3
• Vintage Keyboards	Nov 96	3
• Dance Drums	Nov 96	4
• Jungle Frenzy	Nov 96	4
• Reggae Connection	Nov 96	4
• Woodwind And Brass	Mar 97	4.5
• Orchestral Flavours	Mar 97	4.5
• String Textures	Mar 97	4
• Voices Of Africa	Mar 97	4
• Ethnic Flavours	Mar 97	4
• World Class Break	Mar 97	3.5
• Funk Construction	Mar 97	3
• Techno Prisoners	Mar 97	3.5
• Hip Hop & Swing Breakdown	Mar 97	4
• House & Garage Construction	Mar 97	4.5

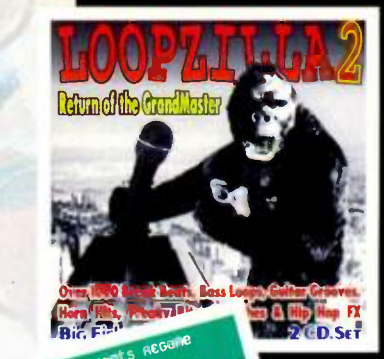
TITLE	ISSUE	SCORE
Cuckooland Vol 1	Sep 96	4
Cuckooland Vol 2	Apr 97	4
Dance Industrial II	**Jan 94**	**5**
Dangerous CD Company Danger 1	Sep 92	3.5
Datafile CD-ROM	Aug 94	3
Datafile 3	Jun 92	4
Dance Industrial	Aug 92	3.5
Diffusion Of Useful Noise	Apr 97	3.5
Digital Kitchen's Mind Control	Jul 96	4
Distorted Reality	**Apr 96**	**5**
DJ Food Volume 4	Dec 93	4
DJ Toolz Breakbeats And Grooves Vol 2	Feb 94	4
Double Platinum Drums	Jun 97	4
Dance/Industrial	Sep 94	3
Ecstatic Acid Bytes	**Jul 94**	**5**
Ethnic	Feb 93	4
Ethnic 2	Mar 95	4
Eurotech	**Feb 96**	**5**
First Among Sequels: Remix II	Dec 94	4
Flamenco Sounds	Jul 96	4
Freekee Jack Swing	Jul 95	4
Funky Ass Loops	**Apr 95**	**5**
Funk Bass	**Dec 96**	**5**
Funk Bass: Zero-G	Mar 95	3
Funky Drums From Heaven	Jul 93	3 3/4
Funky Drums From Hell	**Feb 93**	**5**
Funky Element MC 1	Oct 92	3.5
Funk Guitar	Jan 93	4.5
Funky Rhythms You Can't Live Without	Jun 95	4
Gigapack Vol 1	Jan 95	4
Gigapack Vol 2	Nov 95	3
Global Trance Mission	**Apr 94**	**5**
Groove Construction	Jun 93	3 3/4
Heart Of Africa Vol 1	Mar 96	4
Heart Of Asia	**May 95**	**5**
Hallelujah	**Aug 94**	**5**
Hyperdance	Oct 94	3.5
Ian Boddy: Zero G Ambient Vol 2	**Jan 94**	**5**
Interface Dance	Feb 96	3
JJ Jeczalik's Art Of Sampling	Mar 93	4
Jungle Joose	Aug 95	4
Jungle Warfare	**Dec 95**	**5**
Junk Percussion	Oct 96	4
Keith Le Blanc's Kickin' Lunatic Beats	**Dec 93**	**5**
Keith Le Blanc's Kickin' Lunatic Beats 2	**Nov 96**	**5**
Korg Palette	Jan 95	4
La Riot 3	**Sep 95**	**5**
LF-Oids Vol 1: Bassline Loops	Apr 95	4
Liquid Grooves	**Jun 97**	**5**
Liquid Guitar	Mar 97	3
Looping	Sep 92	3
Loop Classics	Aug 92	3
Loopisms 1 & 2	Jun 94	3&4
Loopisms 3	Jul 94	4

TITLE	ISSUE	SCORE
Loopisms 4	May 95	4
Loopisms 5	Aug 95	4
Loopisms 6	May 96	3
Loopisms Dance Zone	Jun 96	3
Loopzilla 2	**Oct 96**	**5**
Main Bass Course	Mar 96	3
Masterbits B3 Organ: The Legend	Feb 94	3
Megabass Remix	Apr 93	4.5
Megamidi Dance Series Vol 1 & 2	Jan 93	2&1
Methods Of Mayhem	Apr 96	4
Mix 1 & 2 (Zero-G)	Dec 92	-
Mo' Funky Elements	**Mar 94**	**5**
Modern Synths And Dance	Jan 96	4
Music Suite Vol1: Ethnic Percussion	Nov 92	3.5
New World Order Journey 1	Sep 96	4
New World Order Journey 2	Oct 96	3.5
New York City Drumworks	Oct 95	3
New York City Percussionworks	May 97	4
Ninja Tune Jazz Breaks Vol 3: DJ Food	Nov 92	4
Ninja Tunes DJ Food Jazz Brakes 1&2	Dec 92	3.5
Norman Cook's Skip To My Loops	Dec 92	4
On A Jazz Tip	Mar 96	4
PC Dance Tools	Jun 97	4.5
Paul Hardcastle's The Wizard	Mar 93	2
Percussion Power Vol 1	May 93	2.5
Percussion Slam	Dec 96	4

Peter Siedlaczek Orchestral Library	**Sep 92**	**5**
PETER SIEDLACZEK ADVANCED ORCHESTRA		
• Volume: 1 String Ensembles	**May 97**	**5**
• Volume: 2 Solo Strings	May 97	4
• Volume: 3 Woodwind	**May 97**	**5**
• Volume: 4 Brass And Effects	**May 97**	**5**
• Volume: 5 Percussion And Harp	May 97	4
Peter Siedlaczek Classical Choir	**Nov 93**	**5**
Peter Siedlaczek Orchestral Colours	**Feb 95**	**5**
Phantom Horns	**Jun 95**	**5**
Phat And Phunky	**Oct 95**	**5**
Philip Wolfe Rock Keyboards Vol 1	Jan 97	3.5
Polestar Magnetics Drum Tools	Jun 95	4
Polestar Magnetics XL1	Aug 93	4.5
Polestar Magnetics XL1+	**Mar 94**	**5**
Pop, Rock, R&B: Vol 1	Nov 95	3
Prosonus Drum Loops Vol 1	Apr 93	3.5
Psychotronic Sounds Of Neuronium	May 94	3
Rhythm Of Life	Dec 94	4
Robots And Computers	May 96	4
Rock History Drum Loops Vol 1	Feb 97	4

TITLE	ISSUE	SCORE
Ross's Rising Funk	May 94	4.5
Sample Material	**Aug 96**	**5**
Samplography	Nov 92	4.5
Sampleware Vol 1	Feb 94	4
Sampling Sound System Vol 4: House	June 97	4
Science Fiction	Sep 92	1
Sound Collection	Sep 92	3
Sly Dunbar's Reggae Drumsplash	**Jun 94**	**5**
Smoov Grooves	**Feb 97**	**5**
Sound Effects: Action/Adventure	Aug 96	3
Sounds Of Sumatra	Nov 95	4
Steve Gadd Drumscores	Jan 96	3
Steve Stevens Guitar Sample Collection	Apr 95	4
Supreme Beats Vols 1-5	Jan 96	4
Swinging	Aug 96	3
Symphonic Adventures	Jun 96	4
Synclavier Sampler Library	July 96	4
Syntonic Generator	Apr 97	1
Techno Toolbox	Dec 95	4
Technotrance	Sep 93	3
Tekno Industrial	Sep 95	3
That Jungle Flavour	Sep 96	4
The Bass Appetiser	**Jul 95**	**5**
The Best Drum Sample CD Ever	Oct 94	4.5
The Best Of Everything: Vol 1	Aug 96	4
The Cosmos	Aug 95	2
The Definitive Percussion Sampler	Feb 97	3
The Drum Doctor's Drums 2: Ross Garfield	Nov 96	3
The Funky Drummer: Clyde Stubblefield	Jul 93	4.5
The Ultimate Piano Collection Vols 1-3	**Apr 96**	**5**
The X-Static Goldmine	Jul 92	4
Travelogue: Out Of Africa 1	Oct 96	3
Uberschall: Special Sound Effects Vol 1	Oct 93	4
Uberschall World Party 3	Oct 93	3
Ultra Freakin Bass Vol 2	Jan 97	3
Vince Clarke: Lucky Bastard	Nov 93	3
Vindaloops	Mar 95	4.5
Vinylistics	Mar 96	3
Voice Spectral	Feb 93	3
Workstation 1	May 95	3
Workstation 2	Jul 95	3
Workstation 3	Feb 96	3
World Colours	**Dec 95**	**5**
X-Files Of House	Apr 97	4
X-Static Goldmine 1	**Mar 96**	**5**
X-Static Goldmine 2	Feb 95	4
X-Static Goldmine 3	Jul 96	3
X-Static Goldmine 4	Dec 96	5
XX Large	May 95	4
XX Large: The Killer	**Aug 95**	**5**
XX-Large: The Killer 2	**Jun 97**	**5**

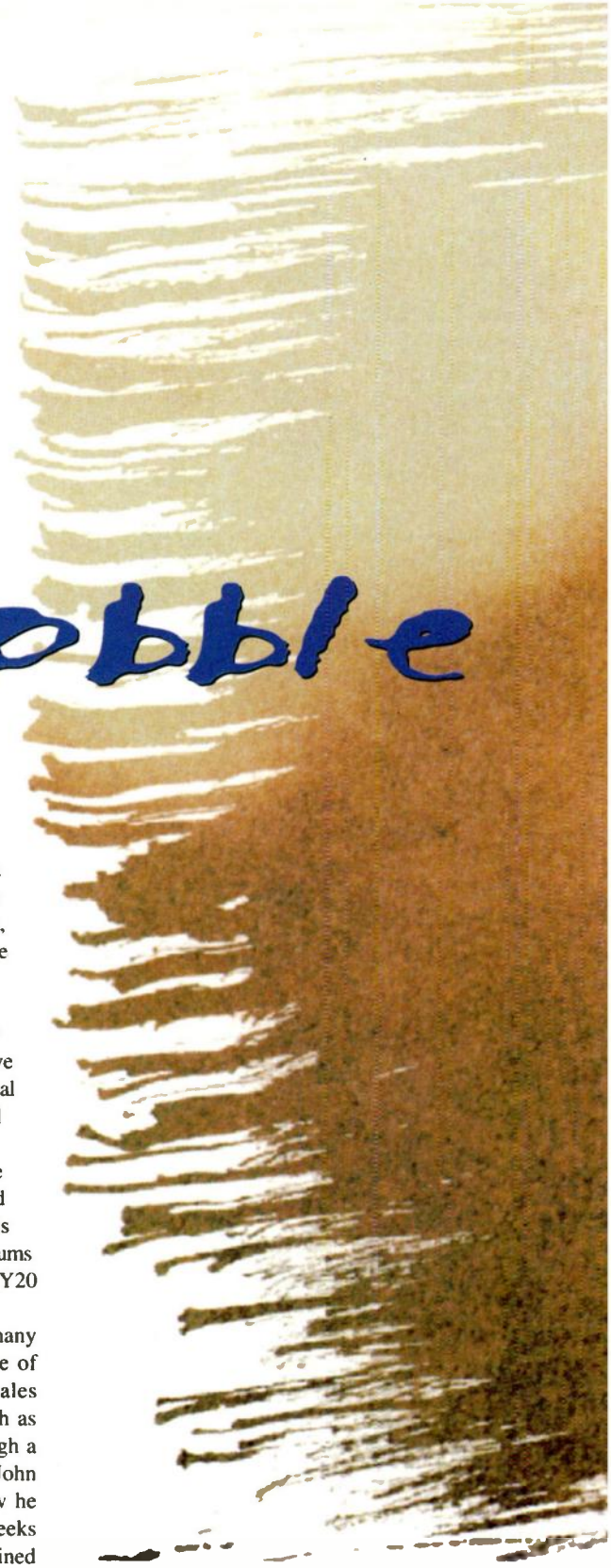
Note: entries in bold text received a rating of five stars when they were reviewed.



Punk, bass player, pioneer, mystic... PAUL TINGEN meets a musician who lives life at breakneck speed, and isn't afraid of the dark.

Jah Wobble

BURNING BRIGHT



Few people could more appropriately be called a walking contradiction. The man was once a major proponent of the punk movement; but today he's known as one of the pioneers of world music, and he's recently written several orchestral pieces, one of which was performed by the Liverpool Philharmonic. He was once an extremely angry young man who got up many people's noses with his nihilistic, destructive attitude; today he's one of the most respected and liked characters in the music industry, a positive, constructive man who likes to talk about sacred music and spiritual transformation. He was once a working-class lad from the East End of London who didn't think much of his own musical talent, and ended up dropping out of music to become a train driver on the London Underground. Today he's graduated to the music industry's aristocracy, his collaborative favours sought by the likes of Brian Eno, Björk, The Orb, Massive Attack, Mick Hucknall, Sinead O'Connor, Primal Scream, The Shamen, Pharaoh Sanders, Bill Laswell, Bernie Worrell and The Dubliners' Ronnie Drew. And in the recording studio he refuses to deal hands-on with digital and computer technology, avoiding what he calls "MIDI hell", yet he writes an astonishing six albums a year in his kitchen on the tiny Yamaha QY20 sequencer.

Jah Wobble is the man's name, and to many people it doesn't only conjure up a bundle of contradictions, but also many legendary tales eagerly told in pubs around London — such as how he acquired his musician's name through a slurred mispronunciation of his real name, John Wardle, by a drunken Sid Vicious. Or how he taught himself to play bass guitar in a few weeks by picking up Vicious's bass, immediately joined Johnny Lydon's Public Image Limited at the tender age of 20, in 1978, and went on to stamp a mighty musical mark on the band with his muscular bass-style. Or how he was sacked within weeks from every job he tried his hand at as a teenager because of his belligerent attitude. Or how he made a habit of insulting or beating up people during the first half of the '80s, when he was under the spell of drink and drugs. Or how he was sacked from London Underground for screaming obscenities over the intercom (this is untrue, he says). Or how his descent into the underworld of the Underground tested and purified him and caused a resurrection of Biblical proportions, when he returned to the daylight as a messiah of world music (this story is way over the top, though it holds some grains of truth).

Given this reputation, you're bound to approach Jah Wobble with some trepidation, but the press officer of his brand new record company, 30 Hertz Records, assures me that Wobble is "a very nice, unassuming man", and this proves to be an apt description of the Wobble I meet in an East London recording studio. It's called Intimate Studios, and in it Wobble, his regular engineer Mark Ferda, and assistant engineer Cai Murphy are working on a

brilliant reggae-influenced song that will be on the forthcoming album *Journey To The Soul*, expected to be released this autumn. Wobble isn't only "nice and unassuming", but also charming and passionate; hardly ever lost for words, he speaks very fast in a Cockney drawl, switching constantly between matters musical, mystical and technical. *Journey To The Soul*, he explains, will be his first album of songs since 1994's *Take Me To God*:

"After doing songs for a long time, that format can become really tiring. Since 1994 I have wanted to stretch a little bit, doing instrumental music or music with spoken words. Music is a really flowing, abstract form. It's pure spirit moving, and I wanted to make some music without the interference and definitions of form that spring from singing."

SPEED

Wobble's musical output had already been extremely eclectic on the five albums he made before *Take Me To God*. After leaving PIL in 1980, he released three solo albums in the first half of the '80s, *Betrayal*, *Snake Charmer*, and *Psalms*: the crude, dark, but adventurous music on these albums ▶

confirmed that his contributions to PIL had been crucial, and broke him out of the punk ghetto and into a rock mainstream audience. The period 1986 to 1988 was when Wobble dropped out of the music industry, working as a taxi driver and for the London Underground. His 1989 comeback album, *Without Judgement*, introduced the world music and mystical themes for which he is now so well known. *Rising Above Bedlam* (1991) developed these themes even further, and was hailed by various music magazines as a masterpiece. *Take Me To God* was in a similar vein, and featured the talents of Baaba Maal, Dolores O'Riordan, Natacha Atlas and Gavin Friday; *The Guardian* called it "gorgeously imaginative". Wobble then increased his output, embarking on a series of experimental albums, the first of which were *Spinner* (1995), a dark and moody ambient/dub collaboration with Brian Eno and the instrumental *Heaven & Earth* (1995), which featured Bill Laswell, and instruments and musicians from Thailand, Iraq and China.

Jah Wobble in his home studio, 30 Hertz.

Island Records, who had released *Take Me To God* and *Heaven & Earth*, apparently started to grow tired of Wobble's excursions into uncommercial terrain, and accused him of trying to sabotage his own success. Wobble wasn't impressed with their ideas of what constituted a music career, and released his acclaimed *The Inspiration Of William Blake* (1996) — which featured him reciting Blake's poetry — on the small All Saints Records label, in collaboration with the record company that he was setting up, 30 Hertz Records. The same year saw the first genuine 30 Hertz release, *The Celtic Poets*. It was another record centred on the spoken word, with Dubliner Ronnie Drew's gravelly voice fiercely reciting Celtic poetry over a backing that included instruments as varied as pipes, crumhorn, sitar, pi-saw (a Thai flute), ku-cheng (a Chinese harp), khene (a low-pitched Thai wind instrument) and shakuhachi — hardly a Celtic ensemble, but then authenticity never was high on Wobble's list of priorities. And now 30 Hertz Records are planning to release Wobble's orchestral piece *Requiem*, which features classical voices, plus the aforementioned *Journey To The Soul*, which will not only include some songs, but may also contain the orchestral piece called *The River*, that Wobble wrote for the Liverpool Philharmonic. And, believe it or not, in the middle of all this frantic activity, Wobble still finds time to do the odd remix for various artists — most recently for a Mick Hucknall track.

It's an incredible amount of releases, topics, information and different types of music to come to grips with, and trying to disentangle it all isn't made easier by Wobble's tendency to jump from subject to subject with the agility with which a mountain goat jumps from rock to rock. During the interview he asserts several times that speed is of the essence to him, and eloquently demonstrates this with the way he speaks, words tumbling out of him at a breakneck pace.

"People keep saying to me that I can't release six albums or so in a year. But I can't stand that process of one album or less a year and then touring. It's too slow for me. I'm on a roll creatively at the moment and I want things moving very fast. Five or six albums a year seems about right, and they're all long, about an hour each. I just sit in my kitchen with one of my three Yamaha QY20 sequencers, a notepad and a pair of small speakers, and write lots of music. Do I have problems with quality control, like Prince? No, not at all, because I know that the stuff I'm doing at the moment is good. I feel that since *Take Me To God* the quality of my output has been consistently high. It's exactly right, and I'm just totally on it. This might not be the case next year: I might feel that I need to slow down a bit, I might start to make mistakes. But at the moment I have no doubts. It's just flowing."

> "I was halfway through working on my *Psalms* album, and realised that if I didn't stop drinking, I'd die."

CATHARTIC

Wobble appears to have found himself, and the critical acclaim that has greeted every one of his releases during the '90s suggests that music, and an audience, have found him as well. It's all a far cry from the confused days of the early '80s, when a post-PIL Wobble made life very difficult for himself and everybody around him by descending into a daze of drugs and booze.

"I had no career plans before I joined PIL," he

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WRH

Jah Wobble

reminisces. "I didn't know what the fuck I was going to do with my life. I loved music, but I never thought I'd become a professional musician: that seemed totally out of my league. You had more chance of becoming the captain of the QE2. Then punk came along and suddenly it was OK to have a go, and I discovered that I had a talent for bass playing. I never liked punk music, I thought it was absolute shit, but I'll never slag that period off, because it got me into music. However, there was a collective anger that was never going to go anywhere, and that burnt itself out. We were a very angry generation. I look on us now as little orphans, all dressed in black, and I must say that I still feel a bit drawn in that dark way."

"You'll find that people who are on a path of sorts are often very angry and unhappy, and that's why they try to find solutions to their inner problems and inner conflicts. You don't want to get stuck in anger and darkness, like some of these people who today still walk around with a punk state of mind and wear punk clothes. Darkness that's cathartic and leads somewhere is great, but when it becomes a thing in itself, it becomes evil, stagnant, because there's no movement there. I became conscious of my spiritual journey in 1986, when I stopped drinking alcohol. I had a terrible drinking problem and I was halfway through working on my *Psalms* album, and realised that if I didn't stop drinking, I'd die. I woke up at five in the afternoon every day, I was stinking dirty, and I'd lost a lot of self-esteem. It was really a choice of, do I want to die, or do I want to live and show a little balls and stand on my own two feet and take responsibility for my life? I was also completely fed up with the music business, which just seemed completely shallow and fake. I was burnt out and wanted an ordinary everyday life. "

"So I finished *Psalms*, dropped out of the music industry and ended up working for London Underground. It was one of the best experiences of my life, totally exciting. I went to work at the times when I normally would come back from the night clubs, and I loved it. When I was a teenager I was sacked from every job that I did, but this was the first job I resigned from, and I can to this day still get a good reference from them. It gave me my self-esteem back. I didn't think I'd get back into music again, but I started to listen to music again, especially Salif Keita's *Soro*, and that inspired me. Then percussionist Neville Murray asked me whether I

> "I want things moving very fast. Five or six albums a year seems about right."

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was up for something, and so we started a band together, and gradually it became like starting all over again. But the music industry wasn't exactly cheering on the sidelines at my return, and it took a while for things to start to happen again. I was still working as a taxi driver until 1991, three years after I'd left the underground. And it wasn't like I was then really bad and had now suddenly become really good. It was more a question of opening up, and I still have good and bad inside of me. Good and bad, dark and light always come together. There's this incredible, continuous coming into being that goes on when dark comes into light. William Blake understood that. Miles Davis understood that."

MAGIC

In his sleeve notes to *The Inspiration Of William Blake*, Wobble writes that life is about "a perfect balance between heaven and earth, good and evil, man and woman, yin and yang, two archetypal forces moving against each other and yet in harmony. Both are separate and yet contain each other. Neither can live without the other and therefore nor could human life." One could add to this: 'nor could music'. During our conversation, Wobble and I agree that New Age music is so insufferable and flat because it tries to be all light, and that darkness is an essential ingredient of music.

> "Darkness that's cathartic and leads somewhere is great, but when it becomes a thing in itself, it becomes evil, stagnant, because there's no movement there."

or any work of art, because it's a prerequisite for creating depth and shade and form. In his music of the '90s Wobble has been incorporating an amazing array of shades and colours, drawing influences from the Far East as much as from Africa, the Middle East and North and South America. He sees no problems with such stylistic diversity:

"There are only two types of music, sacred and secular, and my natural inclination is towards the sacred and the ritualistic. It's why I picked up on world music, because in Western rock everything is so homogenised — there's a lack of colour and a lack of meaning there. The roots of my interest in world music probably come from the reggae music I used to listen to as a teenager, and then I learnt how all the musics of the world have lots of things in common. North-African music relates to ▶

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Jah Wobble

European music, which relates to American music. And Indian and Irish music, sitars and bagpipes, both work with drones and overtones; pentatonic melodies can be found all over the world."

Nevertheless, Wobble's albums sometimes sound like an ethnomusicologist's wet dream, with a bewildering variety of styles thrown together. Wobble manages to hold all these disparate colours and sounds together with the unique and instantly recognisable sound of his bass guitar. It rumbles deep and low and dangerous, supplying much of the music with necessary darkness and depth. Mixed way upfront, and with influences of dub and dance very evident, Wobble's bass has more a melodic than a harmonic function. Back in the late '70s, when Wobble was still playing with PIL, *Melody Maker* were already noting that he was capable of playing "some of the most awesome and original bass lines in modern music". Wobble elaborates...

"I just knew how you made bass lines. They went around in circles and I played them really simply, and it was great to play the same line for two hours at a time. Through this I got into listening to resonances. People think bass lines are just about repetition, but I learnt that the more you play, the more you also pick up on the resonances and overtones of the players around you, and that relates very much to the phrasing on the bass and the notes you play. To me, this makes the difference between a good and a bad bass player. A good bass player can hear the overtones in, say, the toms, and connect that to his bass line. So you're picking these things up in your playing, and that can be really magical."

The word 'magical' crops up more than once while Wobble is talking about music, and he asserts that it's a quality he's become more aware of since he started to walk the spiritual path consciously after coming off alcohol in 1986.

"Since then I understand music much better, on one level. There are two main worlds, the world of relativity and the absolute world. In the world of relativity I have a better understanding of music, but there's also something I still totally don't understand about music. Music is a very demanding mistress, and it's dangerous when you start thinking that you understand her. You always have to be humble enough to be able to forget everything you thought you knew. You have to let the music dictate to you where you're going. Miles Davis talked a lot about listening, about letting the music guide you, whereas the Western tendency is to try to control and dominate things. But when you're open you can expect the miraculous from music. And this openness is a technique of the mind. I know people sometimes think that it's incredibly clever what I'm doing on the bass guitar, but I'm just being open to hearing the resonances that are already there, and that may suggest a note that's outside of the chord. And that one note in there is the one that creates the magic."

Top left: Roland's Jupiter 8 analogue polysynth and Korg's more recent 01/W share stand space in the Wobble home studio.

Below left: all racked up, with the Akai S1000 sampler, Tascam DA30 II DAT, Lexicon Alex effects, Alesis Quadraverb, MOTU MIDI Express MIDI interface, Alesis ADAT digital 8-track, JL Cooper DataMaster, and Digidesign Pro Tools hardware.

STERILE

But where once all Wobble's musical magic was created on the bass, nowadays much of it is called into being when he sits on his own at his kitchen table with a Yamaha QY20 sequencer and two little powered speakers. It's somehow amusing to imagine ▶

WORKING WITH WOBBLE

"I've been working with Wobble since 1989, says his regular engineer Mark Ferda. "Before that I was a producer, and I hated it. I was either looking for jobs, or I was having to beef up egos in the recording studio. When I met Wobble, that was it: it was a perfect musical partnership. I play keyboards in his band, engineer and program, and also help run the record company, 30 Hertz. Music pours out of Wobble; he gets bored when I mix, because he can't write music. He writes everything on his QY20, and I'll dump all the MIDI data into the Macintosh, on which I use Emagic's *Logic Audio* and Digidesign Session 8, and we then work in a combination of formats, usually 24-track analogue, no Dolby, with Session 8. Recently we've used the Radar hard disk recorder instead of the analogue tape machine — it's quicker and quieter — but I still prefer to move things around in the Mac. The Session 8 has also become our main sampler, which we use to create drum loops and sequences.

"We also have a home studio, 30 Hertz Studio, which features a Mackie desk, a Mac with *Logic Audio* and Session 8, a Jupiter 6, DX7, Korg 01/W, Yamaha CS01, Akai S1000, and three QY20 sequencers. That's pretty much it. [*See the picture caption for a full list.*] We used to work a lot at Greenhouse Studios, because they had a fantastic Neve desk, which Wobble and I loved. But then the studio burnt down, and they replaced the Neve with an SSL. Wobble hates the sound of the SSL, so we relocated to Intimate Studios here, where they have this incredible mixing desk, the Harrison Series 12. It's a digitally controlled analogue desk that's mostly used in film, and this is the only one used for music mixing in the UK. It has full instant recall and a very warm sound. I love its ability to switch between different songs very quickly. The Neve sounded slightly better, and the Harrison takes a little while to learn, but it's a brilliant desk."

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Jah Wobble

this tall, mighty, spiritually-driven ex-punk doing his trade on a tiny little machine the size of a video tape. Wobble recalls that he encountered the QY20 for the first time a little over two years ago, and that the whole of *Heaven & Earth, Requiem, The River* and much of the William Blake album were written on it. Only *The Celtic Poets* was conceived without the help of the QY20. He elaborates on what's clearly a favourite topic: "Everybody knows that I don't give a fuck about what bass guitar I use or what studio equipment I use or what other equipment I use. But when I saw the QY20 I thought 'Mmm, that's small', and it sounded quite good. I started mucking around with it and got really addicted to it. It's fantastic and it has a really great reggae horn section which I love. My QY20 has become my musical sketchpad, and I write all my things in there without even going into song mode. I just stay in pattern mode, and once I'm done, Mark Ferda transfers it straight into the *Logic Audio* software that we have on the Mac. It's a bit embarrassing to have a prototype sequencer at this stage in my career, but I love it, and some of the sounds actually end up on my albums."

Wobble admits with a mixture of pride and shame that he actually has three QY20 sequencers. His liking for them has a simple reason:

"I'm totally low tech. I hate setting up or programming sequencers, or working with computers. It's like MIDI hell to me. That's why I prefer to play everything live into the QY20; I don't quantise at all any more. In the past I used things like the Roland CR78 drum machine, the first analogue drum box with the wooden cover. I like analogue drum machines. They might be cheesy, but they definitely had their own sound, and there was some sort of mystery to them. Whereas the Linn had much too clean and pompous a sound for me, and contributed to making the '80s a terrible time for music. I also used to work on a Portastudio, working out the skeletal structure of my pieces, taking care not to go into too much detail, otherwise you get that the-demo-has-more-spirit-than-the-final-recording syndrome. So I was looking out for a sequencer that was very simple and very easy to learn and which allowed me to get my basic ideas down very quickly, without going into too much detail. The QY20 is ideal for that. People think I'm bullshitting them when I talk to them about the QY20, but I'm serious."

Photo: Piers Allardyce

Two of Wobble's three Yamaha QY20s perch on the studio's Mackie mixing desk.

Wobble is also serious about his aversion to the underworld of 'MIDI hell'. Given that his music involves the application of huge amounts of computers, MIDI, and digital recording gear, he explains, his way of staying in music heaven is to use the talents of engineer, programmer and keyboard player Mark Ferda, who has been assisting him since 1989.

"Without Mark I would be fucked. He's brilliant, because I work manically fast, and I'll come into the studio with six hours of stuff on the little QY20, and he'll load it into the Mac and process it all. I made a decision a few years ago to not go too far into technology and engineering. I think that's a mistake many people make. I used to have a Brennel 8-track tape recorder in the '80s, and a little drum machine and a little bit of outboard, and I knew how to work that, and that was how far I wanted to go into technology. I come from the generation that grew up before the digital explosion, when everything was still very logical and easy to understand. But now it's a pain in the ass to keep up with just knowing about all the new formats and technologies that come out, let alone knowing how to work with them. Now there's Zip drives and this and that and I start feeling 'Jesus Christ, I need an intensive update'. All this new technology is supposed to be helping me get some music together, but with all this fucking talk of disks and systems, it's all become so sterile, it's like the world of graphic design or something."

TWILIGHT

Despite his dislike of the hi-tech complications of the late-20th-century recording studio, Wobble acknowledges that it's actually this very technology that allows him to do what he likes most: work fast, frighteningly fast.

"I want to get my ideas down, right now. I can't wait. It's painful for me to be in the studio, it's like giving birth. I want to get the music out of me as quickly as I can, because it's such a strain to wait. I'm totally impatient. So the important thing for me is the people that I'm working with, and that they can work whatever equipment we use very fast. But I couldn't have made all this stuff the last few years without all the new technology. I could never have written *The River* and the *Requiem* so quickly if it hadn't been for the QY20, and the possibility of transferring the MIDI data into the Macintosh and *Audio Logic*, which Mark runs via Session 8. And we've recently used the Otari Radar hard disk recorder, and it's pretty fast too. I hate being held up by technology so much that if I'm not working with Mark, I'll work totally analogue, because I do not want to be fucking about with people who don't know how to get the digital stuff working. A lot of people are quite slow working

with digital and MIDI equipment. I've been on quite a few sessions with other people when you're waiting for five hours because things don't sync up properly or something else isn't quite right, and that can be very frustrating. People get tied up with technology and formats and the simplicity gets lost: what's lacking is good music and good ideas and good approaches. We have enough formats as it is."

By contrast, what Wobble clearly doesn't think we have enough of is his music. Compare his six releases during 1995-97, and his aim to release five or six CDs per year, with the output of that other pioneering champion of world music, Peter Gabriel, and you wonder whether they're actually inhabiting the same world. But it's not just modern technology that allows Wobble to be so prolific; he wrote, recorded, and mixed *The Celtic Poets* in 16 days, without help from his ubiquitous QY20.

"I made some keyboard and percussion loops and got Jaki Liebezeit [*the ex-Can drummer, and a long-time collaborator*] in to play against that, then wrote parts for other players, which were recorded one by one. They were all older players who knew what they were doing, and so you can work very quickly. The CD starts with a dramatic opener about the Great Famine, written by Shane MacGowan. It's called 'The Dunes' and it's very, very heavy. You'll notice on the *Celtic Poets* album and on the Blake album that there are very few moments where there's a rhythm in the music behind the spoken words. I don't like breaking up the rhythms of the words and making them fit the rhythm of the music, as in rap. It's tiring for people to listen to. I like to keep the poem's rhythm. So the backing is going to have to be plaintive. But you don't want something sentimental, you don't want to convey the feeling of someone who has lost their pet budgie or cat, so you avoid minor keys and you have something between major and minor, something modal. Again, it's the area between dark and light that interests me."

And so, a decade after his return from all manner of nocturnal,

> "In Western rock everything is so homogenised — there's a lack of colour and a lack of meaning there."

Underground and dark worlds, Wobble now inhabits a mythical, magical musical world somewhere in a twilight where he can safely explore both light and darkness, without risking falling into some abyss again. It may seem odd that a man who's lived in East London for most of his life has become a champion of world music and spiritual awareness, but Wobble quietly and eloquently solves this seeming contradiction by declaring London a magical world city.

"I very much identify with Blake, who lived almost his whole life in London. He was one in a long line of Cockney mystics, and a lot of his spiritual visions were tied up with London. It's my city and it's a very special, deep, subtle city. There are references to London on the *Celtic Poets* as well, and to the Thames. All rivers are holy, and the Thames is my river. London was once a Celtic city, and I'm of Irish descent, so all these things weave together. All cultures, whether Celtic, or English, or Buddhist, or Aboriginal, or Mongolian, or Indian, represent eternal truths that are very ancient, but still very alive today." SOS

The X Factor

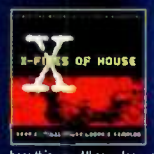
from e-LAB: Dance Samples at the Cutting Edge

X-FILES OF JUNGLE
Another in the new X-Files series from E-LAB in Sweden (makers of the X-Static Goldmine series).
X-FILES of JUNGLE features Drum'N'Bass & Jungle LOOPS & SAMPLES.
These Rollercoaster beats will set off your system like nothing else. Super-Fast beats for anyone looking for the underground sound of Jungle or Drum'N'Bass. Loops, Samples, FX - they're all in there. Please call to check availability - scheduled release date of this HOT new title is August '97. Audio CD: £59.95

XTORTION 1
Warning! Only for the headStrong! Are You ready for an Adrenalin Push ? Are You ready to be kicked by the hardest Loops & samples ever ? Pounding, Fast, Hard Techno/ Gabber/ Jungle /Industrial Loops that Bring the hell out of Your Braincells like nothing ever did before. Rough Pounding Kicks, Hysterical Transformed Vocals, SuperDistorted Heavy Synth Loops & Tones/Pads, Metallic Crunching Guitar Loops - the list is endless. Only buy it if You have the Guts to create harder stuff than Prodigy or OneInchNails. Otherwise stay away !!!! Xtortion is a Killer's Nightmare. (Release date: August '97). Audio CD: £59.95

X-FILES OF TECHNO
NEW! - and in stock NOW: Another unmissable CD from the makers of the X-Static Goldmine series.
X-Files of Techno features ACID/ HARDCORE/ TEKNO LOOPS & SAMPLES the styles which have been dominating Europe's underground scene for Years. The TR909, TR808, TR303 are all in there - Distorting like crazy. These are the hard beats of the Tru Underground Charts that set the Trends which others need to follow. Created by a succesful Producer of this underground rave phenomenon. Audio CD: £59.95

SYNTHASIA 1
Welcome to FUNALOG and SYNTHASIA ONE. Analog dance / Remix sounds & samples (no drum loops, only samples). The perfect complement to all E-Lab's dance loop CD's. Analog dance samples made for Dance Producers by Dance Producers. Many dance loop CDs lack good clean, solid & deep synth sounds. This CD will solve your problem of finding the right fun & inspiring analogue synth sample. •Tones •FX •Basslines •Arpeggios •Chords & lots more, from new-time the Nordlead to vintage (the phat Prophet 5). Also: TB 303, TR 909, JUNO 106, JUPITER 8, KORG POLY 6, DEEPMEDI M6, & many more. Over 1100 CLUB-samples! Audio CD: £59.95



X-FILES OF HOUSE
This one's a Goldmine of Deep & Progressive House loops & samples. To give you an idea the loops and samples are in the style and mood of Armand van Helden, Tod Terry, or Deep Dish. These loops & samples will make your Hair Stand Out - pure joy! You won't be able to stop moving your feet when you hear this one. All samples provided with variations so you can create your own deep house tune instantly - perfect for injecting The new York club sound into your music - the sound of people like "Masters at Work". OVER 1000 PHAT LOOPS AND SAMPLES. Audio CD: £59.95

SYNTHASIA 2: Back2Bass
"Back2Bass" is the FOUNDATION for all kinds of Club Music (House, Techno, Dub, Soul, HipHop - You name them. You're bound to find a Bass that fits Your Track. Many Samala CD's miss this important part of Club-Music but now this CD is here to help. Stop fiddling with inferior bass samples - instead get the real thing. Includes all kinds of Phat Bass tones & Loops - both single sampled & multi-sampled. To mention a few, equipment used includes SH101, Prophet 5, Matrix 12, CS70, Oscar, K2000, MKS 50, Jupiter 8 and many many more. (Release date: August '97). Audio CD: £59.95

STRICTLY 12-INCH
This classic from E-Lab features Dance/Remix/House LOOPS & DRUMS. WHAT VINYLISTICS IS FOR HIPHOP, THIS CD IS FOR DANCE.
The idea is similar: Loops, with variations, together with separate hits. This is a Remix CD for anyone in the need for good STOMPING House & Garage Loops. Very much 'DJ sounding', & produced by a Remix Dj team. If You want the sound of the dancefloor - get this one. All Loops have been tested for reaction on the floor! Audio CD: £59.95

STRICTLY R'n'B
NEW! Prepare yourself 4 NU Classic Soulbreaks: 800+ X-Clusive Swing & Soul loops & samples (no instruments - only loops & hits). Black traxx from the sons of Soul. Swingbeat & Hiphop loops all with variations plus the component drum samples. A very black-sounding CD, perfect for anyone in need of phat/slow Rumpshaker beats. Like 'Vinylistics', but with a more slick R'n'B touch. Styles range from Hiphop's rougher side to the slicker sound of 90's soul. From the same DJ who produced "Strictly 12-inch", this loop CD must be on top of your list! A great mixture of slo & groovy loops (60-100 BPM). Are you ready 2 make some slick blakk traxx?! Audio CD: £59.95

VINYLISTICS 1
From DJ/Producer PHAT FABE (Neneh Cherry, Shaba Ranks, Cherno, Tityo etc) HOT Loops & samples from Jungle, breakbeat/techno to R&B and hiphop. Extended variations of many loops make this CD great for club DJs, and provide the opportunity to create smaller custom loops. The loops have a vinyl quality about them. An optional floppy disk is also available featuring the MIDI-files of the loops (specify Atari/PC or Mac). REVIEW: *"A real bargain... a CD that any r&b/ hiphop/ soul producer will be pleased to own."* (The Mix', UK). Audio CD: £59.95. Akai CD-ROM: £99.00

VINYLISTICS 2
The best-selling sequel from DJ/Producer PHAT FABE (Neneh Cherry, Shaba Ranks, Cherno, Tityo etc). Incredible loops and samples in styles ranging from Jungle, breakbeat/techno to R & B and hiphop. Once again, the extended variations of many of the loops make this CD superb for club DJs as they provide the opportunity to create custom loops by cutting out small portions of the main loop. Phat Fabe has put together another stunning collection. REVIEW: *"A real bargain... the range in kit sounds can't be faulted... everything from squeaky clean to rough and raw."* (The Mix'). Audio CD: £59.95

X-STATIC GOLDMINE 1
The original dance production mega-collection, re-released by popular demand & completely reworked by creator Erik Svahn. FEATURES OVER 4000 SAMPLES & LOOPS! - an unbelievable resource. One of the most raved about & largest collections of dance samples & loops ever released. And the AKAI S1000 CD-ROM version is the same price! REVIEW: *"One of the most astonishing value-for-money purchases in recent years... This is a great purchase for the first-time sample CD buyer... In the pound per sample challenge, nothing else comes close."* (Sound on Sound, UK). Audio CD: £59.95. Akai CD-ROM: £59.95

X-STATIC GOLDMINE 2
A journey from the JB's to Snoop, from East Coast to West Coast, a steady stream of phat loops, Grooves & ol' Skool Funk Samples. Deep Bass Tones & Grooves, Funky Guitar Riffs, old Clavinets, Dusty Rhodes & Organs, Horny Horns & Sexes, Cheesy Synths, Jazzy Flutes, Vinyl FX, Rolls, Fills, Drums & Perc. - OVER 1500 HOT SAMPLES, (over 3000 on the Akai CD-ROM!). •Optional MIDI-file floppy disk (specify Atari/PC or Mac). *"One of the most complete funk/hip-hop sample discs you can buy."* (Future Music). *"Well composed and exciting... a wonderful resource... Buy this one for its loops - they're tough to beat."* (Keyboard, USA). *"As phat and funky as they come and incredibly plentiful."* (The Mix, UK). Audio CD: £59.95. Akai CD-ROM: £99.00

X-STATIC GOLDMINE 3
A journey into the clubs of the world. House, Tekno, Rave, Garage & Jungle. Over 500 stereo & mono loops - all made to fit with LoopMaps™. Plus over 1000 samples cut from extensive programming & vinyl manipulation •Sub/Synth Basses •Acid tones/loops •Tekno riffs/stabs •Vintage analog seq hooks •Strings •Tekno FX •Perc. & drums •Optional MIDI-file floppy disk (specify Atari/PC or Mac). REVIEW: "Well chosen, in-your-face dance material which you would be well advised not to be without... a collection with plenty of attitude which will not disappoint." (Sound on Sound). Audio CD: £59.95, Akai CD-ROM (over 2000 samples): £99.00

X-STATIC GOLDMINE 4
E-LAB have done it again! Over 1500 Ambient and Chill Out Loops & Samples from the dark side of the Moon. TRIPHOP & CHILL-OUT LOOPS, SPEEDY JUNGLE BEATS & SMOOKIN BASS BOOSTERS, ETHNIC CHANTS & BUBBLE BATH DIDGERIDOOS, WET CHILL OUT CHORDS & XPERI-MENTAL SYNTH VIBES, ANALOGUE SEQ FX & ENO-STATE VECTOR LOOPS, PSYCHADELIC DELAYS & DUB-ECHOES, AMBIENT BIRDS & JUNGLE WEATHER, SPOOK FX AND LOTS MORE! *"I will say this just once: GO OUT & BUY THIS ONE!... Absolutely brilliant."* (Musiker Magazine, Sweden) Audio CD: £59.95

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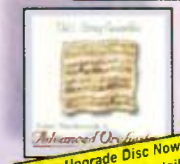

ADVANCED ORCHESTRA

Produced by PETER SIEDLACZEK. A complex yet compact and user-friendly sound library setting new standards for symphonic samples. • 5 CD-ROMs or audio CDs • 5455 samples of all instrument groups. Numerous characteristics distinguish this library from others (too many details to mention here - read the full story in our new free catalogue!).

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Vol 1 - String Ensembles. Vol 2 - Solo Strings. Vol 3 - Woodwinds. Vol 4 - Brass & Effects. Vol 5 - Percussion & Harp. Each Volume: Audio: £59.95 / ROM: £149.00. Or purchase the whole ROM set for only £599. (Choose AKAI or ROLAND for the CD-ROM version).

XX-LARGE THE KILLER VOLUME 2

This is the sequel to the triple-5-star-rated XX-LARGE THE KILLER, and it includes over 1000 accurately tuned new drumloops from 120 to 165 BPM and many more hot killer samples.

XX-LARGE THE KILLER has been one of our best sellers and rightly so - now Best Service have pulled out all the stops to bring you a sequel that once again truly deserves the title KILLER. All we can say is: miss it at your peril.

Audio 2-CD Set only £59.95. Akai/EMU, Roland or SampleCell CD-ROM (500Mb): Only £99.00

X-FX NEW! What is the essence of the dramatic sound design in blockbusting movies like Terminator, X-Files, Star Trek & Jurassic Park? What makes high quality Multimedia applications, computer games or award-winning feature films, animations & commercials sound so cool? X-FX has Over 900 high quality, hard-to-get and exclusively new designed special sound FX like pneumatic and electric doors, explosions & gunshots, big machines, switches, blasts, aggressive metallic screams, hits and impacts & perfectly controllable realistic atmospheres. A big engine sound construction kit has been added for mixing realistic jet-fly and battle scenes. & special subsonic sounds give you absolute control over the deep frequency range to create dramatic ambiences. Created by one of the top European design studios, you can be sure that X-FX is made by professionals for professionals. Audio CD: £69.95. Akai CD-ROM: £119.00

A.M.G. (England)

STEVE WHITE: "ON THE BEATEN TRACK"

NEW FROM AMG! Steve's worked with Difford & Tilbrook, The Style Council, Galliano, James Taylor Quartet, Young Disciples, Working Week, Carleen Anderson, and Paul Weller. His work has been a major influence on the embryonic London Acid Jazz, and British R&B and Jazz scenes. Everything about this CD - the grooves, samples, and production - illustrates why Steve White won 'Making Music' magazine's Best Drummer poll and, of the 8 categories available in the prestigious 'Rhythm' magazine's poll for 1997, he won two and came 2nd in two. The release of Paul Weller's latest LP 'Heavy Soul' will ensure Steve retains his position amongst the foremost drummers in the UK. Audio CD: £59.95

PASCAL's BONGO MASSIVE

Rhythm of Life Vol. 4 is a 2-CD set from Pascal Benadjaoud, the top percussionist whose credits include Stereo MCs, Bob Marley, Lisa B, Gypsy Kings etc. Also well known on the UK club scene, he's worked with top UK DJs like Paul Oakenfold & Danny Rampling, often adding live percussion to their mixes. Features long(ish) grooves with various mixes accompanied by solo patterns and hits. Lots of tight, inspirational performances to explore. All in all this is another high quality and useful collection from AMG that's sure to become another classic. This CD has received truly FANTASTIC reviews in all the music press. Audio CD: £59.95

FREE WHEN YOU BUY AN A.M.G. CD*

The brand new AMG demo CD "Promotion" - a riveting collection of samples from many AMG products, including: Black II Black Killer Vocals, Keith Le Blanc II, Karma Chopra, Tony Mason Smokin, Abracatabla, Pascal's Bongo Massive, Tim Farriss, DJ Papa Large (Hot & Sweaty House Cuts), and Blackbeat. Plus! - lots of exclusive samples that don't appear anywhere else from: Black II Black, Terminalhead, Sample & Hold, David Ruffy's Drums II, and others. This is a huge and valuable collection of pro samples and it's FREE when you buy an AMG sample CD. (*Offer limited to one per household, while stocks last.)

Zero-G (England)

NEW

PRODUCT OF THE MONTH

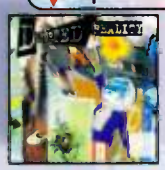
FIELDS OF MOTION

Volume 3 in the 'Altered States' Series from Zero-G is a stunningly innovative CD that utilises raw and organic sources for the creation of rhythms and soundscapes which will appeal to everyone looking for a creative edge. Loops are accompanied by the individual components allowing infinite variation, plus lots of exciting single hits and ambiences. All material is 100% original, gathered from unlikely sources such as theme parks, factories and industrial sites. Fields of Motion is for the kind of samplist who hungers for inspiration to take their music into the 21st century. N.B. THE CD-ROM VERSION COMES WITH THE AUDIO VERSION BUNDLED FREE!!

REVIEW: *"A truly unique product which takes a brave (and wholly successful) step towards providing a good fusion of dance and industrial styles of music... the selection of usable sample material will keep even the sampling die hards busy until Christmas.....fantastic range and depth... innovative and unusual... new and exciting sonic sculptures... a rich seam of dance floor and jungle influence... a scorching collection of "happening" dance loops... The layout of both the discs and the sleeve notes couldn't be more logical... a vast resource of 'technical' sounds to provide that elusive sparkle to your percussion tracks... In short: Pure metallic, steam-driven wonderment. ***** Five Stars"* (Sound on Sound).

Available NOW! CD-Audio: £59.95.
Akai S-1000 CD-ROM 2-disc set (includes audio CD): £119.00.

Spectrasonics (USA)



DISTORTED REALITY

Cutting Edge Textures, FX and Loops from the labs of top Hollywood sound designers and techno-heads. From 3D atmos transformed via Harmonic Morphing, to incendiary fuzz mutations. Trance-inducing ambiences, loops, enormous modular drones and astonishing timbral contortions - an essential resource for the producer, composer, or sound designer in search of the magic noise. *"If you're making any kind of edge music, this is a library YOU MUST HEAR... gorgeous curtains of sound... will get your listeners' blood pumping... For the progressively minded this disc is a feast. 5 stars out of 5 in every category"* (Keyboard, USA). A spine-tingling sample collection. Audio CD: £59.95. CD-ROM: £119.00

LIQUID GROOVES

Grooves that have existed only in your imagination. Fluid rhythms forged by a synthesis of propelling live drum grooves and unusual, organic percussion loops performed by some of L.A.'s most creative session players. Unique sonic textures! State-of-the-art instruments such as Korg Wavedrum™. The full-blown CD-ROM version (organised to make mixing & matching effortless) includes a wider selection of grooves & killer Wavedrum™ single hits. The liquid concept is two-fold: Sparse "hand-played" grooves that feel great, combined with focus on uncharted sonic territory. Another inspiring & unique library from Eric Persing to reinforce Spectrasonics' reputation as second to none. Audio CD: £59.95. CD-ROM: £119.00

Zero-G (England)

CUCKOOLAND VOL.2 'GHOST IN THE MACHINE'

'Ghost in the Machine' is the second title in the Zero-G 'Altered States' Series, and the second title by the Cuckooland team. It delivers everything you'd expect and more from this innovative and highly acclaimed production team! Dark & menacing mind-altering ambiences, heavenly pads, extraordinary arpeggiations..... this CD is packed full of some of the most amazing textures & effects ever created. Lie back, shut your eyes, and let the ghost take control..... *"Very bizarre... a multitude of creative possibilities... you can't get much scarier than this monster"* (The Mix). Audio CD: £59.95.

JUNGLE WARFARE

NEW! Volumes 2 & 3! If you need Jungle these 3 CDs from ZERO-G are simply unmissable. Each CD features a MASSIVE set of: • Loops • Rolls & fills • Perc Kits • Pads & Chords • Bass • FX • Vocals. Volume 1 is one of our all time best selling sample CDs. Vols. 2 & 3 are even BETTER! REVIEWS of Volume1: *"Excellent fidelity, balance & punch, & variation in feel & sound... there's no serious competition. Rated 5 stars out of 5 ☆☆☆☆☆"* (Sound on Sound). *"Kicking grooves... a wide range of styles... highly useful... AS UP-FRONT AS YOU CAN GET."* (The Mix). *"Jungle Warfare gives you just about everything you need to survive in the remix rain forest."* (KEYBOARD, USA). CD-Audio: £59.95 each. Special offer for limited period only: Get Vols 2 & 3 together for only £99.00 - AVAILABLE NOW!

A.M.G. (England)

NEW

BLACK II BLACK KILLER VOCALS VOLUME 3!

AVAILABLE NOW!

Yet another 2-CD package of almost 2000 vocals from McIntosh & Charles - this is the third and final part of this five-star international smash hit series. CD 1 features hooks in a similar vein to volumes 1 and 2. CD2 runs for almost an hour, and features 'Percussion vocals', Vocal Fills, a DJ section, Ragga section, and a section of advanced chords. SO DON'T MISS THE THIRD AND FINAL PART OF THE BIGGEST AND BEST VOCAL COLLECTION EVER RELEASED! Audio CD: £59.95

Sounds Good (Sweden)

METHODS OF MAYHEM

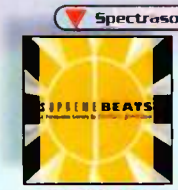
Brutal & sweet sampling for Industrial/ Intelligent Techno, Goth Techno or anything in need of an Experimental Edge. Uniquely twisted, bizarre and savage stuff. Drum-, Bass-, Synth-, FX-, Vocoder-, Feedback- & Noise-loops. Grinding Guitar Riffs & Feedback. An Analog Heaven with Synth FXs, Sweeps, Zaps, Basses, Drum & Perc Sounds etc. All programmed on vintage equipment and treated without any mercy. Creepy & Cheesy Sound FX, Music FX & Voices. Over 1000 samples. A unique collection. Loops are in set tempos that match other Sounds Good titles. Audio CD: £59.95

NEW WORLD ORDER 1 & 2

Journey # 1: Fantastic Collection of Ethnic & Percussion loops, Tribal Rhythms, Ritual, Djembe, Talking Drums, Calypso, Reggae, Haitian Voodoo, Afro-Cuban, Latin Funk, Tabla Loops, Indian Ensemble, Rhythms from Japan, Ireland, Texas & New Orleans. Journey # 2: Extensive performances on a multitude of acoustic Instruments from all over the World. Loads of seldom heard Folk/Historical Instruments, plus vocals. Loops, Riffs, Slides, Chords, Scales etc. All sounds are original recordings.

Audio CDs: £59.95 each. CD-ROM (Akai): £149 each.

Spectrasonics (USA)



SUPREME BEATS

The most comprehensive library of percussion grooves & instruments ever developed, featuring percussionists from all over the world. This highly acclaimed library is now available on 2 CD-ROMs:

1: AFRICAN/ CONTEMPORARY, &
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African/Contemporary CD-ROM: £119.00. World/Dance CD-ROM: £119.00. Audio CDs 1 to 4 (boxed set): £199.00. Audio CD 5 (NEW!): £59.95. (CD-ROM versions include all the sounds from Vols 1-5 audio CDs).

Zero-G (England)

VOCAL XTC

Brand NEW and EXTREMELY HOT dance vocal sample collection from ZERO-G (UK), performed by some of the hottest session singers from the UK! Totally original and professional vocal samples for all your music productions, including: Gospel choir, Ad-Libs, Melodies, Harmonies, and Backing Vocals. Styles featurd include: Dance, R'n'B, Soul, Rock, and Indie. Both Male and Female singers. The unique vocals on this Brand New release cover a wide spectrum of application and are destined to appear in many a chart record in the near future. Release date: August 1997. CD-Audio: £59.95

SAXOPHONE LEGACY

Performed by Sonny Simmons. Volume 1 in the NEW Zero-G Jazz Quartet Series - the next best thing to having the world's greatest jazz musicians come to play on your session. Here are thirty-one performances covering eleven styles of music - nearly seventy minutes of riffs and improvisations by one of the true masters of the alto saxophone. All of the performances on this CD are 100% original & copyright clean. Styles features include: • LATIN • FOLK • BLUES • R&B • REGGAE • ROCK'N ROLL • FUNK • HARD ROCK • JAZZ • HOUSE • ACID JAZZ.

Available from end of July'97. Audio CD: £59.95.

A.M.G. (England)

NEW

TERMINALHEAD: UNDERFIRE Vols. 1 & 2 (AMG). Futurefunk - current & inspiring. "There are no rules. No BPMs. No keys. Only the need to push the boundaries of perception into ways of creating music for tomorrow that fully embrace all technologies. This material is totally unique". • Drum Loops & Chops - distorted, filtered and phat. (Warning - some of these sounds are REALLY hard) • Synth Riffs/ Sounds/ Sequences created using old analogue boxes • Funky Hard Chops - hard as nails, but smooth as silk • Dub FX • Pascal Benadjaoud Percussion grooves • Trippy Oddness • Guitar FX • Synth FX • A collection of filter sweeps and beautiful organic moments. All samples are specially recorded. Two Audio CDs: £59.95 each.

NEW! BLACK II BLACK Vol. 3 (AMG). Steve McIntosh & Joe Charles have done it again! Another mindblowing set of kickin' R+B samples. All the loops, Vocals, Brass lines, & Drum hits specially recorded. The series features: Reggae, Ragga, Swing, Jazz house, Euro house, Mad house, Slo jamz, Rap, Guitar licks, Bass lines, Garage, Disco, and more. REVIEWS for Vols. 1 & 2 said: *"Monstrously funky, soulful rhythm loops... highly recommended for teachers of contemporary arranging"* (Keyboard, USA). *"☆☆☆☆☆ 3/4"* (Sound on Sound). Volume 3 is even BETTER! Audio CDs : £59.95 each volume, or Akai CD-ROMs : £149 each volume. Vol.3 release date: Sept'97.

Big Fish Audio (USA)

LOOPZILLA 3

The third in the Loopzilla series from BIG FISH AUDIO (USA) is here! Again it's a huge 2-disc audio CD Set.

It's been twelve months in the making but the wait is over!

Now Loopzilla 3 busts out of the cage with 140 minutes of brand new drums, guitar, bass, rhodes, vocals, horns, turntable wizadry and much much more.

From mad hard Hip Hop Funk to silky Hip Hop Soul - it's the quality that makes all the difference. Featuring the veterans of Loopzilla 1 & 2 plus new talent from Boo Ya Tribe and The Dazz Band. Get your groove on with Loopzilla 3. Two-CD-Set. only £69.95

FREAKY JAZZY FUNKY

From Rich Mendelson, the five-star producer of Phat & Phunky and Dance Industrial, comes the new standard in construction kits. Rich assembled the East Coast's premiere session talent and contributed his own amazing production and programming skills to make this set his best yet. With the included midi-file disk, it's a breeze for the producer to customize the loops and swap sample elements. Exploring the funky side of dance music, Freaky Jazzy Funky is the set to beat for 1997 and with three CDs and a Midi file floppy disk, this collection has to be one of the industry's best value products! The best ears at T+S rate it a total winner. Triple-CD-Set (Audio): Only £79.95

Ilio Ents. (USA)

DOUBLE PLATINUM ROCK PIANO

Finally, a piano that doesn't require tons of EQ, compression and effects to be heard. The one & only true Rock piano disc, with all of the natural brightness and depth you need to speak through your tracks. The piano is a rare and famous vintage Steinway B, custom rebuilt & maintained strictly for studio recording. Its contribution to Rock history is etched in stone (incl. multi-platinum records from Elton John & Tom Petty to Carl Perkins and Johnny Cash). Chromatically sampled (all 88 keys), three velocities, looped & non-looped, up to 64 MB banks. The best two-fisted piano sound in the world captured on one easy-to-use CD-ROM. *"The best piano sample I've ever heard. This is really great!"* – Matt Rollings, legendary US session keyboardist. CD-ROM £99.00. (Choose from: • Roland •AKAI/EMU/ASR •SampleCell •Kurzweil)

SYNCLAVIER LIBRARY (AUDIO)

The five-CD-ROM Synclavier Library from Ilio (USA) has been compiled into two audio CDs containing over 2000 samples.

VOLUME 1: "ESSENTIAL" covers Electric and Acoustic Guitars, Electric Pianos, Synths, and Drums & Percussion.

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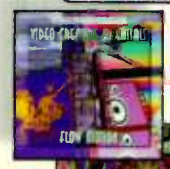

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ZOOM STUDIO 1201 MULTI-EFFECTS PROCESSOR

PAUL WHITE finds that Zoom's entry-level, sub-£100 effects box has hidden depths.

I still remember my first digital reverberation unit — it arrived in the early '80s, it sported four mono-only presets, and it sounded like a physical model of a Nissen hut, but it was still an object of wonder. In those days, 8-track open-reel was the height of home recording opulence, and a good machine plus a decent mixer would cost about the same as a small car. Now we have desktop audio with MIDI, automation, effects, and Beavis and Butthead screensavers, all for little more than the cost of a respectable mountain bike. Continuing in the 'more for less' tradition, Zoom have just come out with a digital effects unit for under £100, yet it's no toy — the 1201 is a rackmount stereo processor with 44.1kHz sampling, 18-bit oversampling converters and an on-board repertoire of 363 preset effects and effect combinations, each of which has one adjustable main parameter. There's no MIDI, no programming and virtually no manual. Everything you need to know comes in an 8-page pamphlet plus a patch list, only four pages of which deal with the actual operation of the machine.

In addition to the usual reverb, modulation, pitch-shift and delay effects, there are also more contemporary processes for grunging up vocals or samples, ring modulation for torturing over-polite sounds, and even an 18-band vocoder. In view of the very attractive price, I'll turn a blind eye (or should that be a deaf ear?) to the Karaoke setting, designed to allow you to transpose backing tracks and eliminate vocals from a record.

Presented as a fairly conventional 1U rack processor, the 1201 is powered by the inevitable external PSU — though at least it's included in the price. Cost has been kept down by not painting the rear panel, so the socket legending is engraved into the plated steel, which makes it quite impossible to see except under very favourable lighting conditions. At this price, however, I'm prepared to rub some wax pencil into the indentations and live with it! The unit has stereo ins and outs on quarter-inch jacks, plus a further jack for an optional bypass footswitch — good news for live performers.

The front-panel control section follows the familiar format, whereby one rotary switch is used to select the 11 effects types and another is used to select 11 variations on those effects. A three-position slide switch then provides three different banks of effects types — hence the rather weird number of presets. Conventional knobs are used for setting the input, mix and output levels, and the input metering is taken care of by a single dual-colour LED that glows green in normal conditions and turns red when the input jack is seeing too much of a good thing. All the effect types for the first bank are printed around the control, while the remaining two banks are printed out below the Zoom logo for quick reference. A further knob allows either the reverb decay (in the case of straight reverb effects) or other key effect parameter to be controlled, and this varies depending on what preset is called up.

"Given the sub-£100 price, the effects quality is extraordinary."

ZOOMING IN

Bank A is comprised entirely of reverbs, though a few contain an element of panning to provide movement. The patches are roughly grouped into Halls, Rooms, Plates, Vocal, Ambience, Dimension (these are the panning reverbs, along with some mono-to-stereo simulation patches), Percussion, Ensemble, Power, Gate and Reverse. Each type has 11 variants selected by the Character/Variants knob, and the Adjust control regulates the reverb decay time.

Bank B is concerned mainly with delay and modulation treatments, and the effect pairs separated by a '/' sign on the front panel are true dual effects, where each input feeds a separate stereo effect. The effect stereo outs are, of course, summed at the outputs. Modulation effects are mainly chorus and flanging, often in combination with a series-connected reverb.

Bank C is where the terrain gets a little less familiar, though it starts off reassuringly enough with pitch-shifting in 11 steps, from mild detuning, through thirds, fourths and fifths, to a full octave above or below the source pitch. Next come phasers and tremolo/pan effects, but then things get more interesting, with a delay that has pitch-shifting in the feedback loop for those spiralling arpeggios. Auto Filter is an envelope-sensitive resonant filter idea for creating techno or analogue synth-style effects, where the Variation switch selects different types of resonance and sweep direction. Ring modulation is next in line, and comes with a built-in delay, plus feedback to help you really capitalise on the weirdness. The Adjust switch sets the modulation frequency, but as ring modulation produces sum and difference frequencies while suppressing the

Processor

fundamental, don't expect the results to be particularly melodic.

Unusually for an effects box, let alone one of this price, there's a whole section devoted to making signals sound lo-fi, presumably for use in dance and similar related music styles. Here we're treated to telephone impressions, AM radio, record surface noise, and noisy delays. I don't know about you, but I've still got some old effects boxes that manage all this without ever intending to! Vocal distortion is the thrust of the next section, and offers three different distortion types, either dry or combined with modulation and delay. Then, all of a sudden, we're back on safer ground with a Rotary speaker simulation, including variable overdrive, before the Vocoder rears its head. This can be used on its own or with chorus and/or distortion, and you can have 18- or 10-band vocoding where the instrument or carrier signal goes into the left input and an amplified mic (the modulator) goes into the right. There are slow- and fast-attack versions of this effect.

Finally comes Karaoke, which not only shifts the pitch of a record by up to +/- five semitones, but also attempts to remove the vocal track by a combination of phase cancellation and filtering. This is not to be encouraged!

PERFORMANCE

Why is it that the people who build these things just can't seem to get it into their heads that knobs attached to rotary switches need a marker line down the side of the knob, not just across the top? That minor criticism aside, this unit is just about as much fun as you can have with your clothes on. As you might expect, all the standard effects work well enough (getting a good delay or chorus sound shouldn't really challenge the designers), but the reverbs are also surprisingly good, with clearly defined types and characters. Considering that any budget unit is limited in the amount of processing power it can throw at a reverb algorithm, the 1201 manages to produce the full spectrum of reverb types, including some quite convincing short ambience treatments for that 'busking in an empty classroom' feel.

The presence of resonant filters is novel on such a cost-effective unit, and though there isn't a lot of variety, they work well and produce a useable range of sweep and modulated filter effects. Similarly, the ring modulator is a great bonus, and unlike some units, which try to fake the effect by modulating filters or VCAs, this one sounds thoroughly convincing, from Dalek voices through to cosmic static. I also found the vocal distortion treatments more useful than I initially thought I would, especially as some also seem to include an element of filtering. Those old enough to remember King Crimson's first album can have great fun replicating the vocal sound for '21st Century Schizoid Man'!

The lo-fi effects are a bit of a mixed bag, with some sounding really authentic, while others sound just like filtered noise added to the original sound. The record surface noise is reasonably good, as are some of the lo-fi echoes, but as a self-confessed member of the old school recording fraternity, I can't quite bring myself to use them! The vocoder is altogether better and has a few nice variations, though there's a fine line between giving it enough mic level and overloading it. Perhaps using this effect with a compressed mic signal might produce more controllable results.

SUMMARY

Though preset-based units are sometimes frustratingly intractable when you want to modify an effect slightly, they do offer the benefit of immediacy, and with 363 presets, there's plenty to chew on. Given the sub-£100 price, the effects quality is extraordinary, and though the spec sheet pointedly omits any noise figures, I didn't find noise a problem. The reverbs are both good and varied, the 'vanilla' effects based on delay and modulation are flexible enough for most routine jobs, and the more off-the-wall effects are quite inspiring, with the vocoder section being particularly good. Indeed, it would be worth the asking price just for the vocoder. The lo-fi and distorted treatments are going to appeal to the dance music maestros more than most other users, and out of respect for what really is a remarkable bargain, I'm not even going to attempt to describe the Karaoke function. This unit is so much fun to play with that it's worth buying one even if you don't think you need one! SOS

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pros & cons

ZOOM 1202 £100

pros
- Incredibly cheap.
- Good selection of effects, both conventional and more adventurous.
- Vocoder is particularly good.

cons
- No knob line markers.
- Virtually invisible rear-panel legend.
- No — I can't complain about the external PSU at this price!

summary
This is the most entry-level of entry-level units as far as price is concerned, but the effects are so useable, and to such a generally high standard, that I can envisage a lot of serious musicians buying one.

SOUND ON SOUND

"This unit is just about as much fun as you can have with your clothes on."

RED GIANT?

CLAVIA NORD LEAD 2 VIRTUAL ANALOGUE SYNTH

Clavia's little red devil bought its Swedish creators a fair measure of fame and fortune on its release almost two years ago. But times have changed, and the Nord 2 now has many more competitors in the virtual analogue stakes. PAUL NAGLE leads from the front...

For the best part of two years, the Nord Lead set the standard as the polyphonic virtual analogue to beat. Using computer modelling techniques rather than unreliable analogue components, Swedish company Clavia repackaged the retro sound and interface of classic synthesizers and scored a surprise hit. After having been caught napping, the competition turned the full force of its attention to knobs, virtual sawteeth and squelchy filters, so will the Nord's successor, the imaginatively named Nord Lead 2, be as big a hit as its illustrious parent?

Since the new Nord is essentially a logical progression from the earlier model, I recommend a quick thumb through May 1995's *SOS* to bring everything back to mind. The December 1996 issue examined the 2.0 software upgrade, plus a welcome hardware add-on in the form of an 8-voice expansion module (for an extra £350). This boosted the Nord's rather meagre 4-note polyphony to a more useable, layerable 12 notes. Before we start, I guess I should point out that the software features offered in the original Nord Lead 2.0 upgrade (the notch filter, response to aftertouch, random arpeggiator modes, 10 analogue drum kits, organ and Prophet performances) are present as standard in the new instrument. Since we've had a version 2.0 already, maybe a different name for the new instrument (Nord Poly? Nordopoly?) would have made things less confusing. Anyway, since the Nord 2 has both hardware and software improvements, a further upgrade for owners of the original Nord would seem unlikely.

NORD NECESSITIES

The Nord Lead 2 has 16 notes of polyphony, is 4-part multitimbral, and has four separately addressable outputs. To all intents and purposes, this gives you the functionality of four 'old' Nord Leads at the original selling price. Solidly constructed, and with green LEDs, push-buttons, (smallish) knobs and the now-familiar friendly red metal casing, Clavia's new baby looks superb. Some cosmetic panel improvements have been made, and controls for the new features have been added. On the back panel, as well as the four audio outputs, there are connectors for switched and continuous control pedals, plus MIDI In and Out. I was disappointed that there was no MIDI Thru — a synthesizer at this price should provide all the basics — but on the plus side its power supply is internal (although, switching into picky mode, I'd have preferred a standard detachable — and replaceable — mains lead rather than the fixed one). The small, 3-character display is cryptic by today's standards, but mostly you can ignore it and just use the knobs and switches.

SOUNDS

After a little exploring, my first reaction was that the Nord 2 sounded more 'DCO' than 'VCO'. The oscillators are clean and clear, with little evidence of the random fluctuations to which analogue oscillators are susceptible. It occurred to me that, apart from the square wave with its variable pulse width, these waves could just as easily be samples (OK, OK, samples are 'out', models are 'in'). Fortunately, the traditional 'thickening' tricks we all know and love (oscillator detuning, pulse width modulation, unison mode, vibrato, and so on) soon warm things up nicely, and when you switch in two or more layers, the sound swells to impressively plump proportions. The factory sounds contain mostly the kinds of things you'd expect, with a few surprises here and there. Of the 99 single patches, only 40 are user-programmable. In addition, there are 100 layered performances, which would be

fine except that they cannot be overwritten. You can edit them as you wish, but there's no way to store them internally — for this you'll need an optional PCMCIA card, on which you can store 100 performances, 297 patches in three banks, and 30 percussion locations. You can save performances as SysEx into a sequencer, but this is a poor substitute for adequate internal storage. Some skilful programming is in evidence in these performances, especially the atmospheric 'F0 Jungle' (very playable), 'F4 Acc Guitar' (delightful), 'E5-7 Voices 1-3' (powerful) — the list goes on. The previous review dealt in depth with the organs, Prophets and drum sounds so all I'll add is that few of them set my world alight, but some were handy as starting off points. The best discovery about the performance mode is that it neatly sidesteps the age-old problem which arises when different performances refer to the same patch. Each performance effectively takes its own copy of that patch and leaves the original untouched — spot on! One niggle, however, is the lack of an edit buffer or compare feature. If you edit a patch but aren't sure where to store it, you'd better get into the habit of keeping a few free locations to use as parking spots — once you select a new patch, your edits are gone.

ARCHITECTURE AND MORALITY

Layering is perhaps the Nord's strongest feature and results in its most powerful sounds. A maximum of four layers can be created, but using just a couple of patches simultaneously still leaves an ample eight notes of polyphony. Using four oscillators per note, however, certainly produces those thick, phasey, swooshy analogue effects. Some form of velocity layering would have been handy, but with a little ingenuity you can use the morph function to achieve something quite similar (more on this later). Layers may be routed individually to each output, or used as two pseudo-stereo pairs. In Unison mode, two voices are allocated per note, and a preset stereo effect kicks in. Using unison with the monophonic setting assigns four voices to each note, for some pretty big solos — and if you're still not impressed, try grunging things up with oscillator sync! The synth does not respond to MIDI pan control (CC10), which is a shame, but otherwise all the options you need are available for routing different patches to different external treatments.

The Nord Lead 2 introduces a sine wave alongside the saw, square and triangle waves of VCO1 — not exactly ground-breaking, but useful ▶

pros & cons

CLAVIA NORD LEAD 2
£1495

pros
- 16-note polyphony.
- 4-part multitimbral with four outputs.
- Intuitive and accessible.
- Great MIDI spec.

cons
- Only 40 internal user patch memories and no internal means of storing performances (except via PCMCIA cards).
- Keyboard incapable of sending aftertouch.
- Quite expensive.
- No effects.

summary
Not a major step ahead for synthesis; instead the Nord Lead 2 packs in more of what people liked about the original. Improved polyphony and outputs make it an ideal analogue workhorse for studio or stage.

SOUND ON SOUND

"The Nord is handsomely equipped in the MIDI department, its knobs and switches sending and responding to 40 dedicated controllers."

▶ for the Nord's implementation of Frequency Modulation (FM). It's not FM in the DX7 sense (phew!), having but a single operator and carrier, but the results are interesting enough to make exploration worthwhile — you *can* do more than just Fender Rhodes impressions. The ring modulator is also a welcome addition to the sonic toolbox, providing an assortment of atonal bell-like textures and strange effects. Unusually, the noise waveform is now available for oscillator sync, resulting in some decidedly spikey, un-analogue sounds as it slaves to the frequency of VCO1. The tone can be drastically altered using VCO2's semitone control, and is a welcome diversion from the realm of purely analogue sounds.

Morphing, as implemented on the Nord, is a means of changing between two values of any of the continuous knobs, via velocity or the mod wheel. This feature can totally transform a sound, by changing many parameters at once, or can be used to add subtle variations, if subtle is your bag. Controlling the VCA gain in this way is the only practical method of assigning velocity to overall output level — crude, but it works. Another treat appears in the form of the external velocity control for the morph function, which takes the data from another MIDI channel and applies it to the current patch. Better still, both the filter and/or amplifier envelopes can be triggered in the same way, producing a host of groovy rhythmic possibilities.

A subtractive synth stands or falls by the qualities of its filter, and I found the Nord's to be very good, if a little polite — its resonance seems to lack that wild excess of self-oscillation we all love. Five filter types are available: 12dB and 24dB low-pass, high-pass, band-pass, and notch with low-pass. The cutoff frequency knob sweeps evenly, providing a wide palette of traditional electronic timbres. Turning resonance to maximum robs a little too much bass end for my taste but the notch filter is a pleasing exception, allowing some pretty solid resonant twangs to be produced. A new Distortion switch adds a preset dirtiness which sounds a little like filter overload — ideal for solos and basses. Keyboard tracking of the filter has a button and two green LEDs with tracking options of none, 1/3, 2/3 and full — a marked improvement over the original. Ideally, though, this should have been another knob, preferably with positive and negative tracking.

Two LFOs take care of modulation duties, with LFO2 doubling as the rate control for the arpeggiator. LFO1 is the more complex, with five waveforms (including two kinds of random) and a single level for all modulation destinations. Both LFOs can be sync'ed to MIDI clock. The arpeggiator is fun but basic, and with several layers churning away madly it can soon appear more complex than it actually is. The modes available are up, down, up/down, and random, with a hold function activated by the shift key. Echo mode is a simple but very effective MIDI delay line which generates some unique effects if used in conjunction with velocity morphing. Of course, it does consume polyphony — something to watch if you're operating multitimbrally. Naturally, the arpeggiator can send its notes out via MIDI. Incidentally, the Nord is handsomely equipped in the MIDI department, its knobs and switches sending and responding to 40 dedicated controllers. That's controllers — the things you can draw and edit in *Cubase* — and not SysEx.

"Layering is perhaps the Nord's strongest feature and results in its most powerful sounds."

CONCLUSION

I think the original Nord design suited the purpose of a lead synth very well, with its short keyboard and left-handed control layout. I'm not sure that this

WHAT A PERFORMANCE: NORD KEY FACTS

The Nord Lead 2's 4-octave keyboard (unchanged from the original Nord) won't satisfy everybody, but it does keep the instrument compact. My main grumble is not its length but the fact that, although it responds to aftertouch over MIDI, the Nord's keyboard is quite incapable of sending it. Other reviewers have complained about this in the past, but to no avail. You do, however, have the option of buying the Nord in rack format and using a keyboard of your choice. Performance features include keyboard splits and layers, the handy octave-shift buttons, unison, mono or poly switches, portamento, the cool thin mod wheel, and the even cooler pitch-bender, which is quite possibly the best method of pitch control I've come across in years. A gentle rocking motion induces a natural vibrato, while a wider movement gives traditional pitch-bend.

translates quite so well to 16-note poly status — it might have been better to spread out the control panel in the same way Roland have with the JP8000. The Nord is no longer the only virtual analogue out there — Yamaha, Roland, Quasimidi and Access, amongst others, all have designs on the number one spot, and each has tricks of their own to tempt us. Judged as if it were four 'old' Nords, the MkII seems good value, especially when you consider the extras — such as the four outputs, syncable noise and ring modulator — thrown in. With 16 notes of polyphony to play with, the layering facility quickly opens the way to monster sounds which are nevertheless immediately accessible.

For me, there are a few minor irritations that just don't add up on such an expensive synthesizer. For a start, after shelling out £1500, you shouldn't then need to buy a PCMCIA card just to store your layered or multitimbral performances. I could live without an LCD and a 5-octave keyboard, but the fact that the Nord 2 keyboard doesn't transmit aftertouch *would* rule it out for me. I suppose the final straw is the lack of effects. I don't see any argument in favour of this omission in these enlightened times and, indeed, the competing virtual analogues include effects and some means of controlling them as part of a performance, so why not Clavia too? Since many people swear by their Nords, it's probably safe to assume that there's something weird about me that explains why my affection for it didn't blossom into undying love. In his recent tour, that maestro of the electronic keyboard Jean-Michel Jarre made a special effort to show off his Nord, so you'll be in good company when you check out the Nord 2. SOS

The Nord Lead 2's rear panel, including PCMCIA slot.

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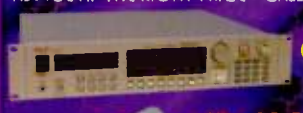

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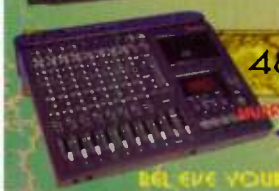

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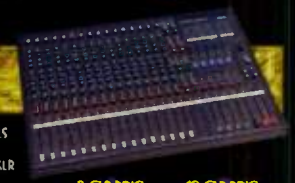

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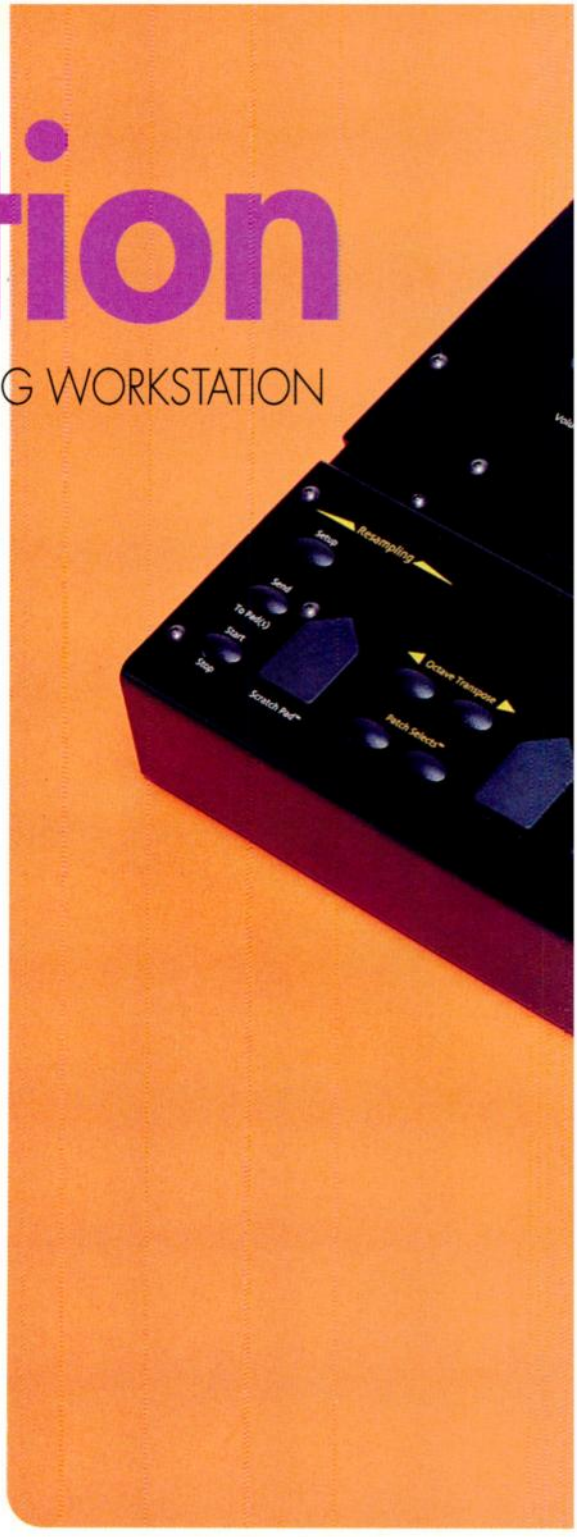
play station

ENSONIQ ASRX SAMPLING WORKSTATION

Using a separate sampler, sequencer, synth and drum machine? With the new Ensoniq ASRX you could take just one box into the studio. CHRIS CARTER just samples and goes...



Ensoniq have made a brave move with this hybrid sampler, because in deciding to enter the Akai-dominated sampling workstation market they could have come unstuck rather than coming up trumps. Although products such as the Korg Trinity and Roland DJ70 MkII share a few features and concepts with the ASRX, it's the Akai MPC2000 (see *SOS* April '97) that is its most direct competitor. However, although the MPC2000 may be more highly specified in the sampling department, it doesn't offer the ASRX's built-in ROM sounds, effects as standard, or resampling. If you're looking for a sampling drum machine, check out the MPC; if you're looking for a sampling workstation, read on...

X-RAY SPECS

The Ensoniq ASRX is a pro-specification 16-bit stereo sampler/resampler, with built-in MR synthesizer, multi-effects, 18dB resonant filters, 32-voice polyphony, a multitimbral, 16-track MIDI sequencer, 14 real-time performance pads, 2Mb of RAM and a floppy disk drive. The unit can be expanded with a further 26Mb of ROM voices and 32Mb of RAM, and an optional expander board offers an additional eight assignable audio outputs and a SCSI facility.

Although described by Ensoniq as a portable unit, the ASRX is a substantial beast, in terms of both its build quality and its size. The pressed steel casing measures about 17 x 13 x 4 (inches) and, apart from a couple of slightly flimsy protruding controls on the back, looks and feels as if it were built for life on the road. The expansive front panel is divided into two sections and contains a small, backlit, 2-line x 20-character LCD and 40 or so controls. In the upper section is a volume control and two continuously variable knobs labelled Parameter/Sound Type and Value/Sound Name. The Parameter knob is for scrolling through sound banks (using the 'SoundFinder' feature — see 'SoundFinder' box) and browsing parameter pages. The Value control is used to scroll through sound names (within sound banks) and to change parameter values. Unfortunately, there are no +/- incremental buttons for fine-tuning values, nor any way of making large parameter leaps, which means that a lot of knob-twiddling is the order of the day.

Some of the 21 small oval push-buttons have useful built-in LEDs, and many of them perform multiple functions — some can call up a parameter page when you double-click on them, as you would using a mouse with a computer, and repeatedly clicking causes some of the buttons to scroll through parameter pages, so that you don't have to use the parameter knob. Both these methods take a little getting used to, but do open the way to some useful and speedy programming shortcuts. The lower half of the front panel contains the sampling section, transpose and Patch Select buttons (see 'Patch It Up' box), and 14 velocity-sensitive pads.

On the rear panel are jack sockets for left and right audio inputs and outputs, a stereo headphone socket, a dual footswitch socket, MIDI In/Out/Thru connectors, an input-level control, a mic/line input selector switch, and a couple of blank panels waiting for the various upgrade options.

THE SOUND OF WAVES

In operation the ASRX follows most sampler, synth and sequencer conventions and, apart from a few quirks and idiosyncrasies, is fairly straightforward to use. One of these quirks is the lack of a battery-backed system, patch or performance

pros & cons

ENSONIQ ASRX £1199

pros

- Resampling.
- Tons of features.
- Fast and easy to use.
- Expressive filters.
- Responsive pads.
- Sturdy construction.
- Expandability.
- AIFF, WAV, MIDI file and DOS compatibility.
- Can save large samples across multiple floppy disks.
- Good value for money.

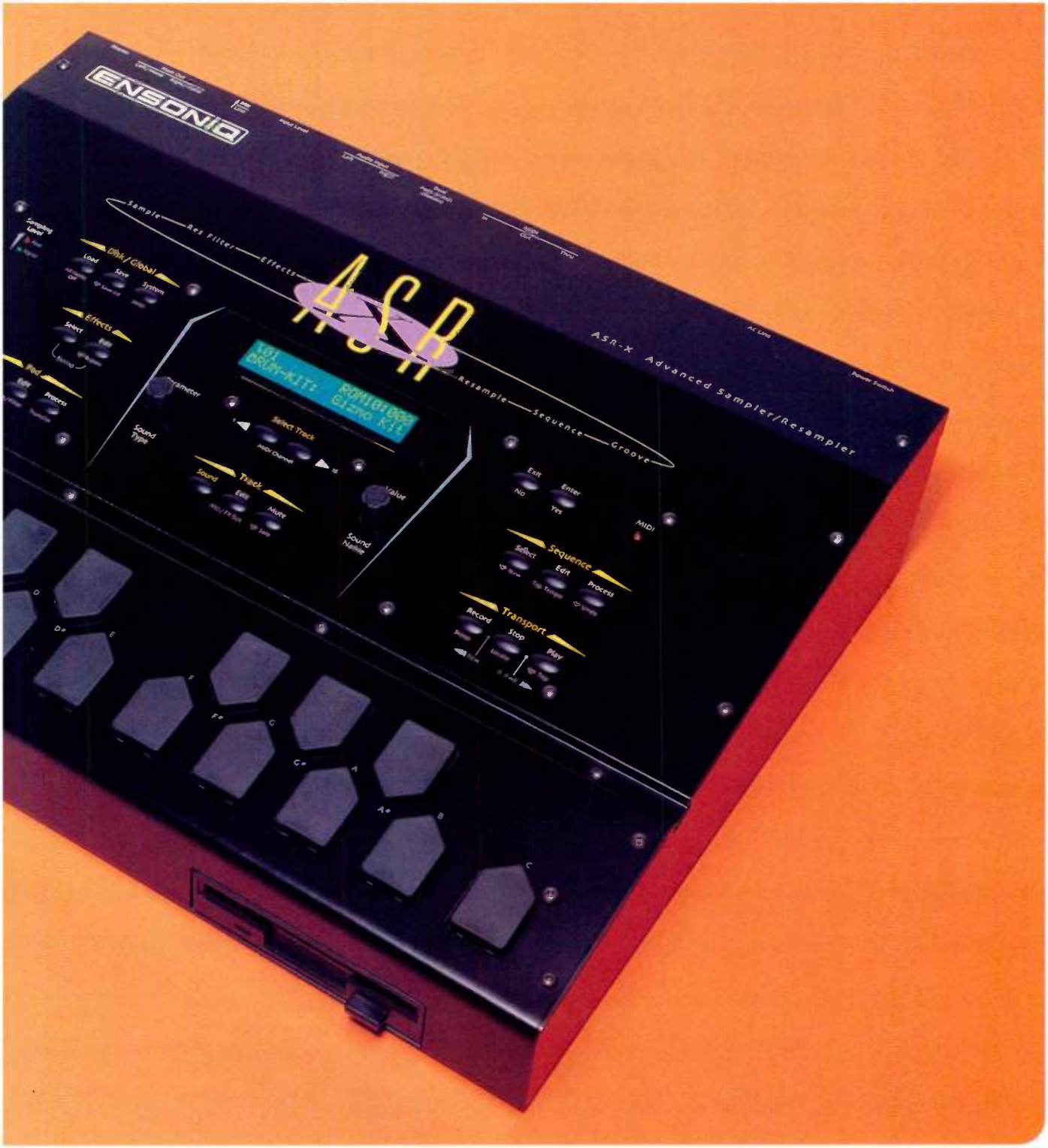
cons

- Volatile system RAM.
- Small LCD.
- Not enough dedicated sequencer buttons.
- Base unit needs more RAM and ROM voices.
- ROM sounds and kits a little uninspiring.
- No play while load.
- Slow disk drive.
- Can't read Akai disks.

summary

A fully featured sampling workstation with a great sound, a versatile sequencer, pro effects, responsive pads and straightforward operation. The internal ROM presets are a little uninspiring and the 2Mb RAM is measly, but what sets the ASRX apart from the competition is the resampling feature, which, with enough RAM, makes the machine a joy to use.

SOUND ON SOUND



memory, which means that a stash of floppies should always be close to hand, for quick saving of any edits.

Raw samples and ROM voices in the ASRX are called Waves, while programmes or performances containing them are, a little confusingly, called either Kit Sounds or Standard Sounds. Standard Sounds are made up of a maximum of 16 layers of individual mono or stereo waves spread chromatically across the front-panel pads. A Standard Sound can be used for anything melodic — from synth, bass, guitar or samples, through to highly complex evolving pads or sound effects. Bear in mind, though, that preset ROM Sounds using a lot of layers steal notes from the total 32-note polyphony. Kit Sounds utilise a structure where each note, from B1 to D7, can play an entirely different mono or stereo wave. You could have a mixture of 64 percussion sounds, sample loops, Standard Sounds or even other Kit Sounds programmed onto individual pads or MIDI notes.

There are half a dozen or so drum kits in ROM, and while they're pretty high in quality they aren't particularly outstanding — a bit too 'rock and roll' for my liking — and as this is a dance-orientated, 'groove' instrument, I feel a little effort should have been put into providing more colourful kits.

ON THE RIGHT TRACK

Central to the operation of the ASRX is the concept of Tracks. These are actually sequencer tracks (with Track 1 tied to MIDI channel 1, Track 2 to MIDI channel 2, and so on), and there are always 16 active Tracks, no more and no less, even if you haven't recorded anything.

To listen to or record a Sound or Kit, you first choose a track, using the dedicated Track Select buttons below the LCD. You then scroll through the ▶

Ensoniq ASRX

FEATURES

- ASR stereo sampler with 44.1kHz sampling rate.
- MR synthesizer, with 128 preset ROM voices.
- 16-track MIDI sequencer.
- 24-bit effects, Insert and Global.
- 32-note polyphony.
- 16-part multitimbrality.
- 14 velocity-sensitive pads.
- 18dB resonant filters.
- 20-bit A/D converters.
- 2-line x 20-character LCD.
- 2Mb onboard RAM.
- DOS-compatible disk drive.
- Saves AIFF and loads AIFF and WAV audio files.
- Saves/loads Standard MIDI Files.
- Ensoniq audio sample CD and demo disk included.

▶ ROM voices, using the SoundType and SoundName knobs and the SoundFinder feature. In this mode, the display always shows the Track number and the Kit/Sound playing, and the sequencer bar and beat numbers. And while the pads will only play and record the currently selected Kit/Sound, you can play and record Kits/Sounds on other, non-visible Tracks over MIDI. Using the Track Select and SoundFinder functions it's possible to jump from track to track changing Sounds and Kits very quickly, until you're happy with the setup — easy-peasy so far.

Once you've chosen a Sound, you can tweak and adjust it using the Track Edit button. The pages revealed by this button contain 40 or so editing parameters, such as volume, pan, effects routing, octave shift, VCF, ADSR, LFO and portamento. These parameters either override or offset the original programmed Kit/Sound settings, depending on how the Track Parameter function is set; many of the parameters can also be controlled by an external MIDI source and subsequently recorded into a sequencer track.

PATCH IT UP

Next to the performance pads are a couple of innocuous buttons labelled Patch Selects. Existing Ensoniq users will already know all about these buttons, as they've been appearing on Ensoniq products since the first EPS sampler from way back; thoughtfully, the ASRX can also read Patch Selects layers from the existing range of MR Wave Expansion boards. If you don't know what they do, here's a brief outline.

Pressing different combinations of these buttons (left down, right down, both down) can introduce up to four variations to many of the ROM Sound presets that have been programmed, with two or more layers. In the default state the buttons are momentary and only affect the Sound while held down, but they can also be programmed to latch on until pressed again.

For example, the ASRX preset 'ROM09:017 Squared Off' is a ROM sample of a couple of synth square waves with a touch of detuning. Pressing the left Patch Selects button introduces a pleasant overtone, while pressing the right button superimposes a velocity-sensitive resonant VCF. Pressing both buttons turns the sound into all the above, with the VCF being modulated by a sample-and-hold LFO signal. Some of the ROM Sounds use quite extreme variations, occasionally introducing completely different sounds, while others utilise the buttons to select which effects buss a sound is sent to. When used with Kit Sounds, the buttons normally reverse a wave or introduce a filter effect. A nice additional feature is that in Track mode the Patch Selects layers become editable, MIDI controllable and recordable via the sequencer. It's surprising how expressive a couple of oval buttons can be!

TAKE NOTES

While the ASRX's sequencer may not be as versatile as a computer sequencing program, it's no slouch. All the usual suspects are here, plus a few surprises you wouldn't normally expect in a hardware unit. Up to 128 sequences can be loaded (memory permitting), and sequences can be saved as standard MIDI files to DOS-format floppy, for loading into most PC, Mac and ST sequencer packages. The sequencer has a resolution of 384ppqn (pulses per quarter note) and several recording modes:

- Replace mode erases any previously recorded material.
- Add is the default mode, and combines new material with previous material.
- Step mode is for non-real-time recording.
- Track Mix mode allows you to record real-time Track Volume and Track Pan changes.
- Final Mix mode is for recording Sequence Volume and Sequence Tempo changes.

The Regions feature lets you define a section of a currently selected sequence for various uses — as an auto punch in/out region, for example, or as a section you want to copy, erase or play back. Everyday tools include programmble Tempo and Time Signature, Undo, Copy Track, Append, Replace, Merge, Erase Track, Erase Notes, Erase MIDI Controllers, Scoop (for removing individual notes) and Quantise. The Quantise function is very comprehensive and has enough features to cover most situations, with parameters including Strength, Swing, Random, Shift, Note Range, and Min/Max Deviation. You can apply varying quantise amounts, and Ensoniq include their own Delta Quantisation, a method of analysing the space between notes for a less strict and more rhythmic approach. You can also choose from a list of quantise templates, including Strict, Tight, Random, Swing and Humanise, or save and load your own custom templates.

The only real let-down here is the sequencer

EFFECTS ALGORITHMS

INSERT EFFECTS
- Parametric EQ
- Hall Reverb
- Large Room
- Small Room
- Large Plate
- Small Plate
- NonLinReverb1
- NonLinReverb2
- Gated Reverb
- Stereo Chorus
- 8-VoiceChorus
- Reverb-Chorus
- Reverb-Flanger
- Reverb-Phaser
- Chorus-Reverb
- Flanger-Reverb
- Phaser-Reverb
- EQ-Reverb
- Spinner-Reverb
- DDL-Chorus
- DDL-Flanger
- DDL-Phaser
- DDL-EQ
- Multi-Tap DDL
- Distortion-Chorus
- Distortion-Flanger
- Distortion-Phaser
- Distortion-Auto Wah
- ResonantVCF-DDL
- Distortion-VCF-DDL
- Pitch Detuner
- Chatter Box
- Formant Morph
- Rotary Speaker
- Tunable Speaker
- Guitar Amp
- Distortion-DDL-Trem
- Comp-Dist-DDL
- EQ-Comp-Gate
- EQ-Chorus-DDL

GLOBAL EFFECTS
- Smooth Plate
- Large Hall
- Small Hall
- Big Room
- Small Room
- Reflections
- Bright
- Huge Place

controls — or lack of them. The transport controls (Record, Stop and Play) also double as Rew and FFWD *and* Locate, Scoop and Top (return to zero). To record, you have to press Record and Play together, which is OK, but to rewind involves pressing Record and Stop. This isn't so good, particularly if the lights are low (on stage?); in fact, because the buttons are small and black on black, I accidentally dropped into record on more than one occasion. The fact that the Play button is also used for return to zero (you have to double-click on it) and fast forward (you have to hold down Stop and Play together) can be confusing. A dual footswitch can be connected and configured to trigger Record, Start/Stop and other sequencer functions, but it's not an ideal solution.

I don't really understand why these controls have been so poorly implemented, but on the whole the sequencer is very easy to use.

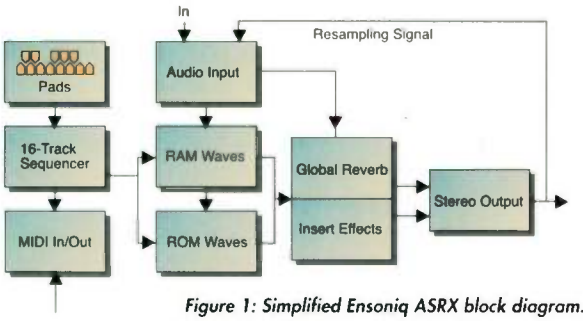


Figure 1: Simplified Ensoniq ASRX block diagram.

Creating a new track from scratch is very easy — just two button presses — and recording and playing back couldn't be simpler. You can scroll through various Kits and Sounds while playing back sequences, to try out different ideas, but unfortunately not in Record mode. Editing sequences is a bit tricky, because of the small display, but if you have access to a computer you could load your work into a that for extra tweaking and then load the work back into the ASRX. With space for 128 sequences, you can work on songs and ideas *ad infinitum* — just don't forget to keep saving your work!

WELCOME TO THE HOUSE OF WHACKS

To be honest, I was surprised at how quickly I came to rely on the performance pads for entering notes into the sequencer, and in fact the pads become pretty essential once you do any serious work on the ASRX, because although they sound and look a bit clunky they are in fact quite responsive and allow you to work out ideas, rhythm patterns, basslines and basic melodies very quickly. However, because the pads only cover a physical range of 13 notes, C to C (with a transposable range of five octaves, using the transpose buttons) things can get awkward if you plan on entering a lot of chords or playing delicate, fast or full-length keyboard runs, in which case a MIDI keyboard is best kept connected and nearby. Also,

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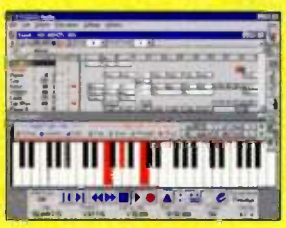

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while the pads have probably been designed primarily for entering rhythms patterns, I'm not sure they would stand up to being whacked with drum sticks — well, not too hard anyway.

The response of each pad can be edited to suit your personal playing style, or the style of the music involved. This means that you can build up a collection of favourite custom kits for different projects, songs or even different users. However, in order to edit the pads, you must first convert a Kit from ROM to RAM. The Kit can be an existing one or you can convert the 'Silence' Kit (which contains nothing) as the basis for a completely new custom kit of your own. If you begin editing a Kit without copying it to RAM, the LCD asks: 'Make a RAM Kit from [for example]: ROM10:004 Rock Kit?'. Pressing the Yes/Enter button is usually the way forward, and a copy is placed into RAM. You can now alter velocity, pan, tuning and FX buss assignment for each pad or MIDI note, and when you tap a pad (using the Transpose buttons to cover the full five octaves if necessary) the display changes to show which sound is selected for that pad. You can scroll though the 128 ROM Sounds (or more, if you have an MR-EXP board fitted) or any RAM samples, adapting the Kit to suit your needs. The edited Kit now appears under a new category, called USER-SND, in the SoundFinder list, and can be renamed or used within other Kits and Standard Sounds. The ROM banks contain six slightly lacklustre drum kits and one GM kit, and the manual provides Ensoniq and GM drum maps to help when adapting ROM kits or making your own from scratch. This methodology is pretty fast and straightforward, but I think Ensoniq could have included a few more kits in ROM.

SOUNDFINDER

SoundFinder is a database of all the sounds in the ASRX. It allows you to view and search for sounds in various ways, using the SoundType and SoundName control knobs. Basic classification categories include instrument type or family, location in memory, ROM or RAM number and alphabetical order. It's also possible to rename, re-categorise and set your own criteria for inclusion in a list. The SoundFinder really comes into its own when one of the MR-EX expansion boards is fitted, and makes it very easy to find a particular type of sound relatively quickly.

EXPANSION OPTIONS

- ROM expandable to 26Mb using MR-EXP Wave Expansion Board (£299 including VAT).
- X8 Audio Output Expander (£199 including VAT).
- SP5 SCSI Interface (£199 including VAT).
- RAM expandable to 34Mb using one 72-pin SIMM socket.

SCRATCHING THE PAD

The ASRX's sampling section (derived from the higher-specified Ensoniq ASR10 and ASR88 samplers) is tucked away in the bottom left-hand corner of the front panel and only reveals itself via three buttons: Setup, SendToPad, Start/Stop, and a dedicated velocity-sensitive pad called the Scratch Pad.

To prepare for sampling, you press the Setup button repeatedly, and this causes the display to scroll through all the sampling options. (Alternatively, you can scroll using the parameter knob.) The sampling pages allow you to configure sampling time, set a pre-trigger level, sampling trigger (manual, MIDI or audio), input source, mono or stereo sampling, and view the input level meter. Input Source options are Input Dry, Input+Insert, Input+Main Out and Main Out only. The first three options are for sampling external sounds; with the last two, the ASRX enters resampling territory by sampling its own output (more on this in a moment). When you're sampling from an external source, you set levels with the help of two LEDs on the front panel, and/or the Input Meter page. Once the parameters are set, and assuming that there's an audio source connected to the rear jack sockets (although if you are resampling this isn't strictly necessary), it's just a matter of hitting the sampling Start/Stop button, and it's chocks away...

You can stop sampling at any time by pressing the Start/Stop button or, if you've pre-set a sampling time, just wait until sampling has finished. The sample is now temporarily available on the Scratch Pad button (until you sample something else), and the display reads 'Send To Pads?'. What you do now depends on the type of sound you've sampled. If your sample is a loop or a percussion sound, you'll tap one or more of the pads of the currently selected RAM Kit and your wave will be copied to that pad, becoming part of the Kit. Alternatively, you can select a new RAM Kit (or an empty Kit) at any time and press the SendToPad button, which brings up the 'Send To Pads?' dialogue again. However, if your sample needs to be spread chromatically across all the pads (or MIDI notes), you press the Track Sound button, dial up the 'Custom' category on the display and select your sample, which now appears as a Standard Sound. All new samples are automatically named SMPL_001, SMPL_002 and so on, and placed in the Custom category as Standard Sounds, but they can be renamed at any time.

Ensoniq have wisely made the ASRX's resampling feature the default sampling mode, which means

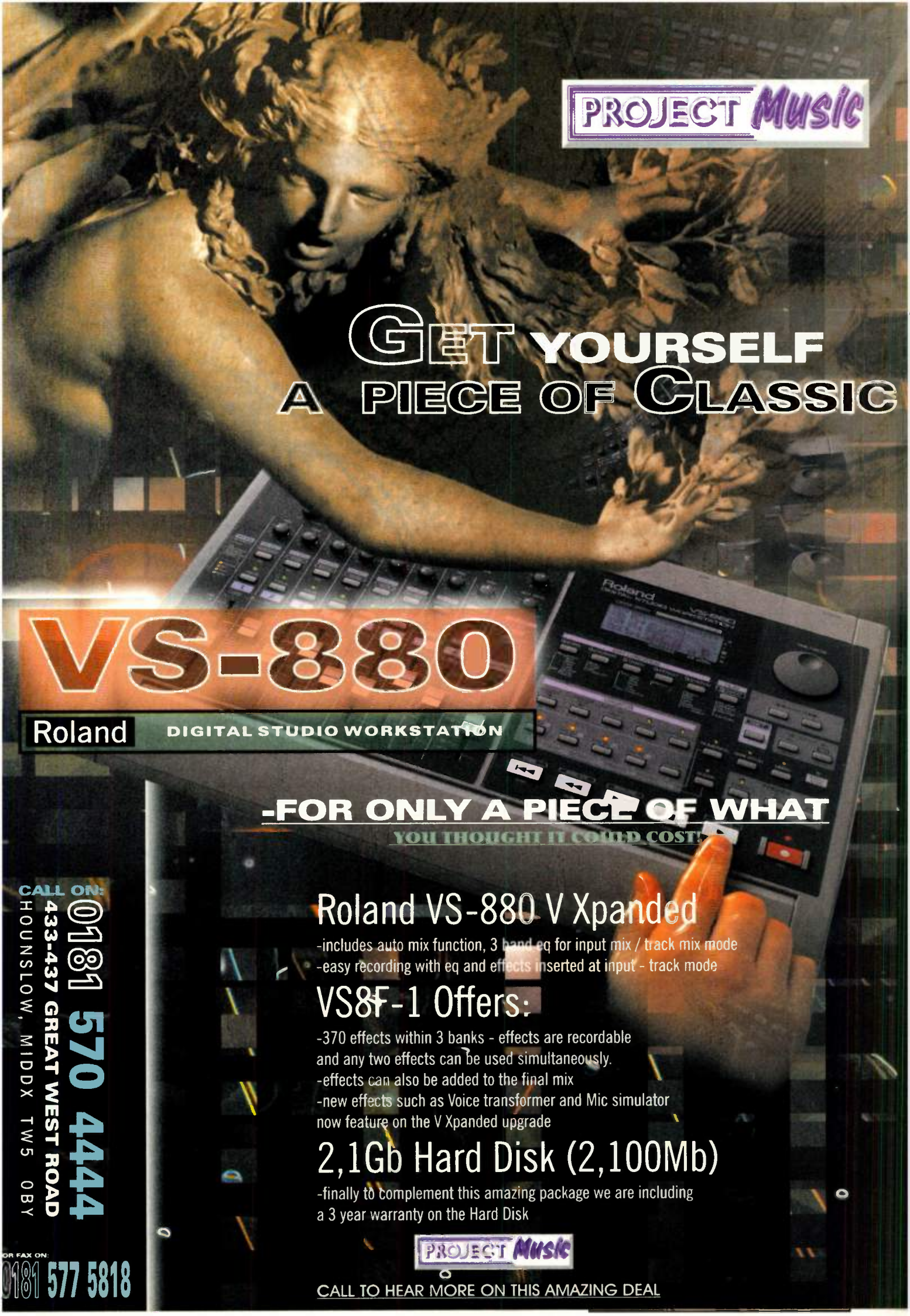
URBAN DANCE PROJECT EXPANSION BOARD

Although there are other MR-EXP Wave expansion boards available, and more in the pipeline, the 24Mb MR-EXP3 Urban Dance Project board was supplied with the review ASRX, and it's a stonker! It contains over 500 sounds and 400 waves, some splendid drum kits (including 40 or so GM Kits), sample loops, grooves, layered pads, hits, basses, synths and sound effects. As you can imagine, with this many sounds I couldn't begin to list them, but I must say that this is an outstanding collection of superb and essential dance sounds. A recommended purchase for any ASRX owner.

SAVE & PROSPER

As I briefly mentioned elsewhere, the ASRX doesn't have a battery-backed system RAM; instead the user must save any edited work, no matter how small or trivial, to floppy disk before turning the ASRX off. On the positive side, however, it has a standard, DOS-format, high-density disk drive and quite happily uses DOS disks formatted on PCs or Macs. What this means in real terms is that any new samples, Sounds, Kits, effects, sequences or changes to the system setup are placed into temporary RAM categories. From the DISK/SAVE pages, you have the option of using SYSTEMSETUP, to save MIDI channels, sampling settings, metronome level and various system settings; ALL-SESSION, to save everything in RAM, including Kits, Sounds, sample setup, sequences and system); or ALL-SOUNDS, to save all RAM samples, including those copied from ROM as part of a Kit. You can also save individual sequences as MIDI files and samples as AIFF files, both of which can be loaded into and read by many PC or Mac programs. A useful feature is that the ASRX will also load standard PC-type WAV audio files, although it does convert them to AIFF when loading and saving.

When saving a session, the ASRX is very helpful and performs a little check-up routine before informing you exactly how many floppy disks you will need to save your work onto. If there are any particularly long samples, it will divide them up across as many disks as necessary and then reconstruct the samples when you reload them. The fact that system and performance data isn't retained at power-down isn't the end of the world, but it does slow things down a bit, particularly when you're using the fairly slow floppy disk drive. You can save your preferred system setup to floppy as an auto boot disk, but unfortunately the ASRX won't auto-load Sounds, Kits and samples. A solution for the forgetful RAM problem would be for Ensoniq to give the ASRX a non-volatile system RAM. In the meantime, though, investing in the optional SCSI upgrade and something like a Zip drive would be the best bet, and would considerably speed up saving and loading, particularly if you have more than the base memory installed.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has no modulators at all (except that operator 6 can modulate itself, thanks to the feedback loop) and is actually more like additive synthesis (next month's topic of investigation) in that it just mixes together the sine wave audio output of all six operators, a bit like drawbars on an organ. Algorithm 31 is little better, with one modulator tacked on to carrier 5 like an afterthought. If you are scared of getting lost in over-complicated modulation paths, I suggest you start your experimentation with algorithms 31 or 32. The more adventurous among you should dive straight in on the triple modulation loop of algorithm 4.

Yamaha TX802.

By the way, not all the operators featured in an algorithm are necessarily being used. Firstly, whenever you are in Voice Edit Mode on the DX, you will see what looks like a 6-bit binary number in the upper half of the display. This actually shows the status for each operator (1 for On, 0 for Off). These can be toggled using the first six of the 32 green switches on the right-hand side of the machine. Clearly, if a carrier or modulator is switched off, its sound (in the case of carriers) or effect (in the case of modulators) will not be heard.

Secondly, if the modulation depth of a particular modulator is set to zero, its effect will also not be heard. To check this, first use the Operator Select switch to step through to the operator you want to check. The various parameters for controlling the modulation amount (initial depth, envelope, velocity, aftertouch, LFO, and so on) will then all be available under their respective switches to the right.

REAL-TIME TIMBRE CHANGE

Without going into more detail than we have room for here, this last sentence has quietly summed up one of the real strengths of Yamaha's FM synthesis implementation, and also explains why it had such a massive impact on the synth market of the mid-'80s. Up until then, most analogue synths had not been velocity sensitive, and those that were tended to be very expensive. The Prophet T8 first shipped around the same time as the DX7 (some two years after it was first shown), and its eight (admittedly very big) voices set one back a not-so-cool £5000, compared to the DX7's much less wallet-savaging release price of £1549. Even when a manufacturer managed to produce a more cost-effective machine, the limited number of voices was still a problem — at the same Frankfurt show where I first saw the DX7, Siel launched the velocity-sensitive Opera 6 for slightly less money, but as its name implies, it still only had six voices.

Not only did the DX have 16 voices (the first affordable synth with more voices than people have fingers), but on each, velocity and aftertouch could be routed to control some or all frequency modulation depths. This brought pianists (many of whom had sneered at the limited polyphony and real-time expression of synths for years) flocking in droves to hand over their hard-earned for a DX, particularly those jazz players for whom a chord is not a chord unless it has a dozen notes on top of those in the straight major or minor triad.

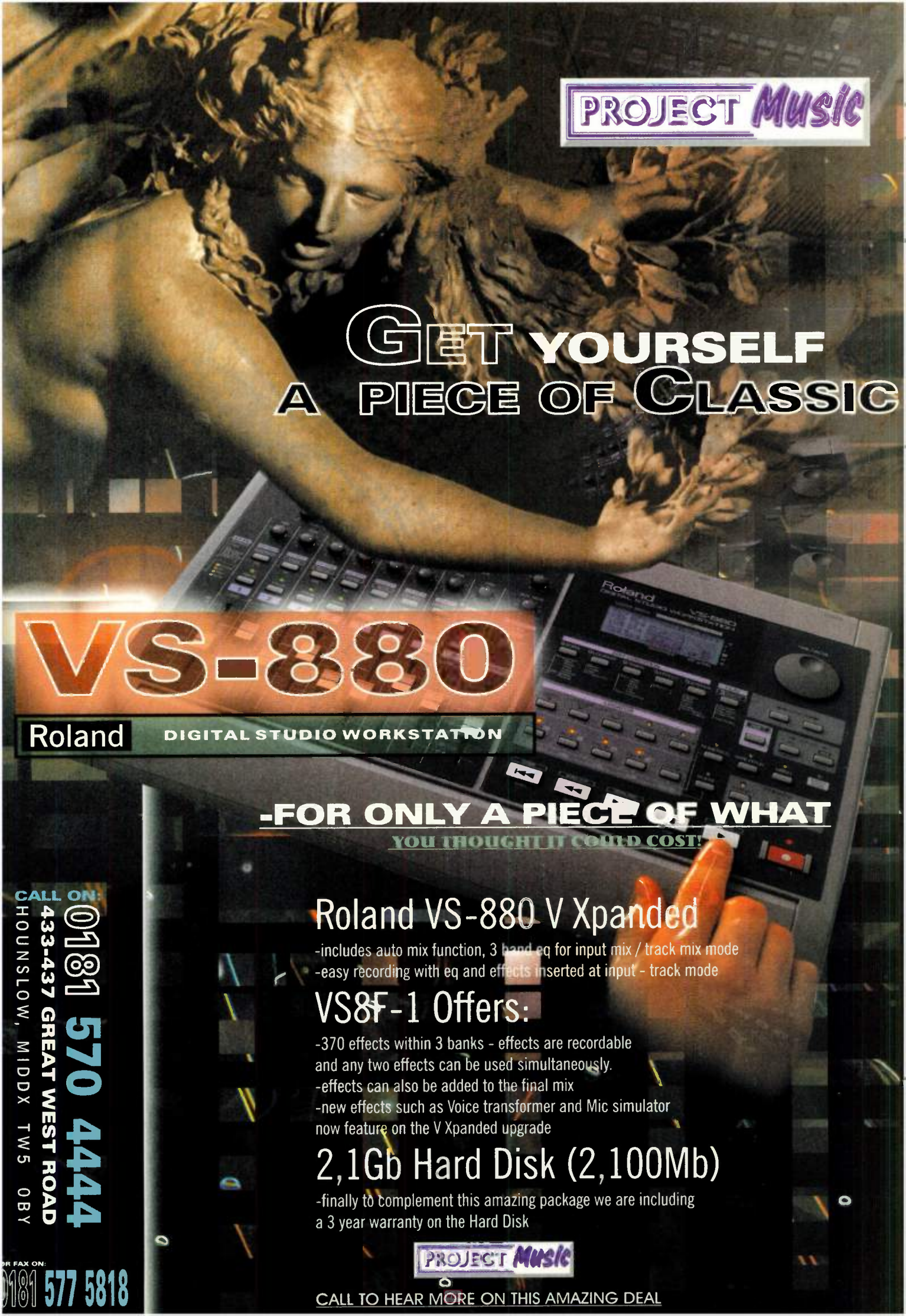
Suddenly, voices on a synth could change quite radically, depending on how hard you hit them and whether you leant on the note afterwards. This meant that you could keep your left hand (previously needed to push the mod wheel up every time you wanted a bit of vibrato or other form of expression) free to play basslines or a further five/six notes of jazz harmony (or, as we classical types like to refer to it, dissonance!). Previously, polyphonic synthesis had been an exclusive club, firstly thanks to its price, and secondly because you had needed to learn new ways to introduce expression into your playing. Suddenly, you could use all the techniques learnt in those years of piano lessons without modification.

WHICH FM SYNTH IS BEST? — A PERSONAL VIEW

Personally, I had very little time for FM when it was 'cock of the roost'; the ubiquitous electric pianos (almost entirely, but not quite *unlike* a Rhodes or Wurlitzer) and tinkly bells got on my nerves, and I shivered for the lack of analogue warmth. My favourite joke at the time is unprintable here, but my second favourite was "How do you get a good sound out of a DX7?" "Run a steam roller over it, and sample the resulting noise." After a while, however, I mellowed, and was finally seduced by the sheer available polyphony of Yamaha's TX816, where you could be positively wasteful with voices when making up great big sonic layers sumptuous enough to eat (doing the same thing with MIDI'ed analogue sounds was the sonic equivalent of Death By Chocolate). Those who can't find or afford this splendid beast of a rack might want to look for the TX802, which allowed the same amount of layering, but without the embarassing luxury of retaining 16-note polyphony at all times (so that the more you layered, the less notes you could play). The DX7 MkII did little for me (although I loved the Liberace-style silver-and-gold look of the centennial version) but at least you could layer two sounds at once.

If you want single DX timbres, but warmed up through chorus de-tuning, try and find a DX7 fitted with the excellent DX-MAX from the inspired Dan Armandy of Grenoble. Hundreds of these third-party retrofits were sold through Argents in the late '80s, so you should be able to track one down for little more than the cost of a straight DX7. You can switch the DX into 8-note polyphony with two voices per note, or even 4-note polyphony with four voices per note and then detune these layered voices. It warms everything up a treat, and has the added advantage of cutting down on the scope for jazz chord voicings!

Yamaha's SY-series of synths contained, to my mind, the ultimate implementation of FM, as it combined the expressivity of FM with the accuracy and realism of PCM samples and then put all of this through effects to warm everything up (just listen to that 'Valkyrie' preset), so when the SY99 let me load in the TX16W sample library I spent months creating for Yamaha in a basement in Conduit Street, I was in seventh heaven. If ever there was a synth that puts the case for FM synthesis, the SY99 is it. Don't be frightened of its complexity or initial coldness. Get stuck in and get expressive. But do go steady with how many notes you sound at once, or you could end up playing jazz (and you wouldn't want that now, would you?).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LOW FLYING OSCILLATORS

I've always been a fan of LFOs; they're an often-neglected element in the arsenal of parts used to influence electronically produced sound. From soft vibrato to hard-edged trills, from a sweeping pan to a super-fast arpeggio, somewhere along the line there's an LFO. And I like the LFOs in the ASRX a lot. The Kit Sounds,

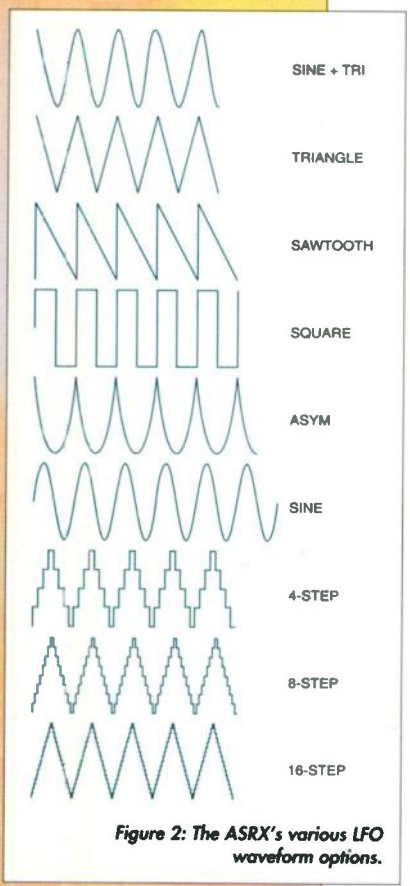


Figure 2: The ASRX's various LFO waveform options.

Standard Sounds and Effects each use very comprehensive and complex LFOs, with various waveforms available, some quite unusual, for a wide range of modulation possibilities (see diagram). All the LFOs have stepped or quantised waveforms specifically for synchronising to the internal sequencer or external MIDI clock signals. The LFO Rate and Rate Modulation can be modulated by other LFOs, S&H, Env 1-3, velocity, pitch, mod wheel and various MIDI controllers. The stepped LFO waveforms can produce nice arpeggio effects, while the LFO Sync quantising is adjustable from whole note to 32nd-note triplets, useful for syncopated modulations. I've only scratched the surface of the many parameters available for editing the LFOs, but I hope I've given you a taste of what is possible.

▶ that it's very quick and easy to use, as you don't need to do much (if any) fiddling around to set it up. Anything can be resampled — sequencer or MIDI controlled, Kits, Sounds and samples, live pad playing, external audio (plus effects), the master stereo output (plus effects), external audio *and* the master stereo output together (plus effects, of course!). I know it's a cliché, but the only limit to what you resample is your imagination and the amount of installed memory.

Also, if you find yourself exceeding the 32-note polyphony, or need more effects, you can resample as you go, freeing up complex rhythm tracks, or dense pad sounds. If you have enough memory (and I think 16Mb would be the absolute minimum), it's quite possible to resample a whole song, complete with effects and in stereo. You can then place the sample in a Kit and treat it as you would any other sample or loop, processing and manipulating it. You could then resample it again, adding to it and mutating it until the original is quite unrecognisable. A major bonus here is that because everything is carried out in the digital domain there are no levels to worry about and no noticeable degradation of the resampled audio — unless you're using distortion effects, that is. This is sampling at its most fun. Note that you can't resample at lower sample rates to save memory; you have to use the Reduce Sample Bits function for this (see next section).

SAMPLE EDITING

Sample editing is fairly rudimentary but, as a result, quite straightforward. There are eight sample pages, allowing you to determine such things as sample/loop direction, and providing the facility to make coarse and fine adjustments to sample and loop start and end points. You also get a few Sample Process options: Truncate Length, Normalise Gain, Scale Loudness, Invert Sample Data, Copy Sample To Pads and Reduce Sample Bits. This last one is great for grungy sounds, and works in 1-bit steps, all the way down to 1-bit resolution, if needed. But sorry — there are no fancy waveforms and editing graphics here; everything is performed numerically or by ear, and there's no sign of crossfade looping or time-stretching.

As you would expect, sample trimming and looping can be a slow and frustrating process, with no visual feedback to speak of. But once you're happy with the basic raw sample, there are plenty of sound-shaping tools to play with. These so-called Pad Parameters include volume, pan, tuning, effects routing, a 3-pole, 18dB resonant filter, a VCF + envelope generator, a VCA + envelope generator, a pitch envelope generator, an LFO/modulation section, portamento and MIDI modulation. The filters and modulation options are particularly good, and there's enough here to mangle a sample out of all recognition.

INSERT YOUR EFFECT HERE

The effects banks in the ASRX utilise the 24-bit ESP2 chip, the same used in Ensoniq MR synths. Two effects are available per sequence — insert effect and global reverb — and any or all of the 16 Tracks can be routed to these effects busses. If the X8 output expander is fitted, an additional four busses are available. These feed four pairs of stereo outputs and can be used to send Sounds and Kits to external effects units or mixer channels. The insert effect buss can use one of the 40 listed effect algorithms but the global reverb buss can only select from eight specific reverb effects (see 'Effects Algorithms' box). This may not offer the overkill approach of some samplers and workstations, but the ASRX does provide a considerable number of editable parameters per effect, with most having at least 20 to 30 editable values. To get around the problem of excessive page scrolling and knob-twiddling with this many parameters, Ensoniq have included some very useful presets for each effect. For instance, the plain-sounding 'Formant Morph' effect has eight presets, ranging from 'Vel Vocoder' (a very convincing voice box sound) to 'Synced Saws' (which sounds like someone with a cold saying "bye bye bye..."). Alternatively, the presets can be used as starting points for a new effect of your own and can be manually overridden. Looking at the list, you'd assume that the maximum number of insert effects available would be three, as in the EQ-CHORUS-DDL chain; however, the effects list doesn't give the full story. For example, the DIST-DDL-TREM effect has 31 editable parameters and 10 preset algorithms, and contains a high-pass filter, voltage-controlled harmonic distortion, a VCF, 3-band EQ, a delay and an LFO — and great it sounds, too. As you'd expect with 24-bit processing, all the effects are noise-free and professional-sounding, with some very musical distortions and filters, and lush, wide choruses. The formant filters are exceptionally good, and can turn a bland loop or pad into an altogether different animal. The global reverbs are very natural (and American) sounding, with none of that metallic ring you often get with Japanese effects; they could easily stand shoulder-to-shoulder with most mid-priced dedicated effects units. In addition, each Insert effect provides a set of parameters to allow you to manipulate it in real time over MIDI. To achieve

"... this machine is a great compositional tool, and its wealth of features and size make it ideal for a home or project studio."

this, a sequencer Track can be assigned as an Insert Effect Control Track, and an Effect Modulation Destination and a Modulation Source can be programmed. Any effects changes are then recorded, along with MIDI note information, into the chosen sequencer track. This is a useful feature for introducing even more expression into an already expressive instrument, particularly when used with the resampling function.

THE ULTIMATE GROOVE MACHINE?

Since this is an instrument that Ensoniq are advertising as the 'Ultimate Groove Machine', where are those essential looping tools such as a loop bpm calculator, or features such as 'Beats Mode' and 'Beat Change' found on the dinky Akai S20 and gargantuan Yamaha A3000 samplers, which calculate, then stretch or squeeze sample loops to a set bpm value? There is a rather feeble Tap Tempo button, but it's too unpredictable to be of any real use. With a bit of luck, these omissions can be remedied in future software revisions.

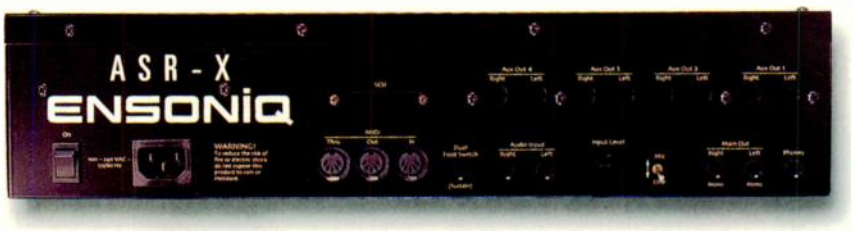
There were definitely times with the ASRX when I longed for a decent-sized display and a few more dedicated function buttons. For live use, the small lettering and 'black buttons on black background' colour scheme is well dodgy — you'll definitely need a torch or gooseneck lamp at the ready. I like sampling on the ASRX — it's easy, it's fast and it sounds good — but quite why the input-level control has been placed on the rear panel is a total mystery. This is a sampler, for goodness' sake! Whoever heard of putting the one control that stands between it and the outside world in such an impractical position? If you were using the ASRX live, I also think the input-level control and the mic/line switch (both on the rear) would be vulnerable to being snapped off by some dozy roadie.

But these are just my own petty moans, and I'm not trying to put anyone off, because the ASRX is a monster of a machine, in the nicest possible way, and would make a good choice for live work, being sturdy and compact and a lot easier to transport around than a separate sampler, synth, sequencer and effects unit. You could even dispense with your Octapad and keyboard, if you didn't mind using your fingers to tap out rhythms and you didn't anticipate needing to play opposite ends of a 5-octave keyboard at the same time. Being both easy to use and decent sounding makes this machine a great compositional tool, and its wealth of features and size also make it ideal for a home or project studio. Although the individual sections may not have the bells and whistles of dedicated units, they are integrated in such a way that the ASRX can be used without recourse to any other equipment (except an amp and speakers) to produce some very polished and professional-sounding arrangements.

WAVING GOODBYE

If you bought a separate sampler, synth, sequencer and effects unit, not to mention the pads, the cost would definitely be much higher than an ASRX. But here's where things get a little wobbly, because separates would probably be slightly higher specified, particularly in respect of the ROM voices, which are few and a little uninspiring by current standards. The superb (optional) Urban Dance Project Wave Expansion board should really be included in the price, not least because the ASRX is supposed to be a dance 'Groove Machine'. And since the installed RAM is shared by the system, synth, sequencer *and* sampler, why is there only 2Mb? When I raised this with Key Audio (the distributor) even they admitted that this left little memory for any serious resampling.

So what's the verdict? Well, I have to own up to having a bloody good time reviewing the ASRX and, apart from a few pretty small reservations, can definitely recommend it. If you can budget for the MR-EXP-3 Wave Expansion board and additional memory, buy one and enjoy. SOS



The ASRX's rear panel.

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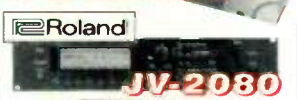

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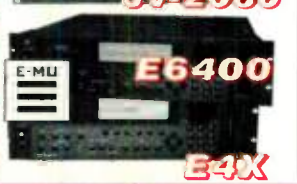

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Synth School

PART 3: DIGITAL SYNTHESIS — FM, PD & VPM

Having completed his study of analogue synthesis last month, PAUL WIFFEN takes a look at FM and its related digital synthesis types, which rocked the synth world throughout the 1980s.

Incredible as it now seems, 10 years ago, Frequency Modulation (or FM) synthesis ruled the world — well, the musical world at least. Having already sold a phenomenal number of FM-driven DX7s, Yamaha were in the process of creating cheaper and cheaper FM synths (with increasingly large model numbers) so that even the most impoverished musos could have their own. A couple of years after this, Yamaha launched their (in my opinion) best-ever synths with the hybrid SY series, which combined 16 FM voices with 16 PCM sample-based voices. My treasured SY99 is actually my favourite Yamaha product of all time (for reasons which will become clear elsewhere — see the 'Which FM Synth Is Best?' box).

These days, from a synth player or programmer's point of view, you could almost be forgiven for thinking that FM had never existed, and that Yamaha had discreetly drawn a curtain over that whole period of synth history (they dropped FM from the SY85 a few years back, and then quietly discontinued the synth itself); in short, the profile of FM keyboard synths on the market is at an all-time low. But, in fact, FM *synthesis* is more widespread than ever; hidden in the bowels of every IBM-compatible computer now being sold is a miniature FM synth. Back in the days when PCM-based synthesis (or wavetable synthesis, as the computer industry incorrectly refer to it) was still too expensive to put on soundcards, Yamaha sold their FM technology to Creative Labs as the sonic engine on the original SoundBlaster, in the form of the OPL chip. Due to the phenomenal success of this soundcard and its descendants, the OPL chip is now part of the ubiquitous SoundBlaster spec which games and other multimedia applications alike use for their sonic accompaniment. So every SoundBlaster-compatible card now produced has to have the OPL chip (even if it also features a high-quality PCM sample-based synth as well) — and these days you can't sell a PC without a SoundBlaster card built in. This means that there are actually more FM synthesizers out there than ever, although they no longer sport Yamaha's unique combination of brown and green, nor the label DX. In fact, the huge numbers of FM synths sold in the '80s has probably now been eclipsed by the number included in the PCs that have been sold worldwide!

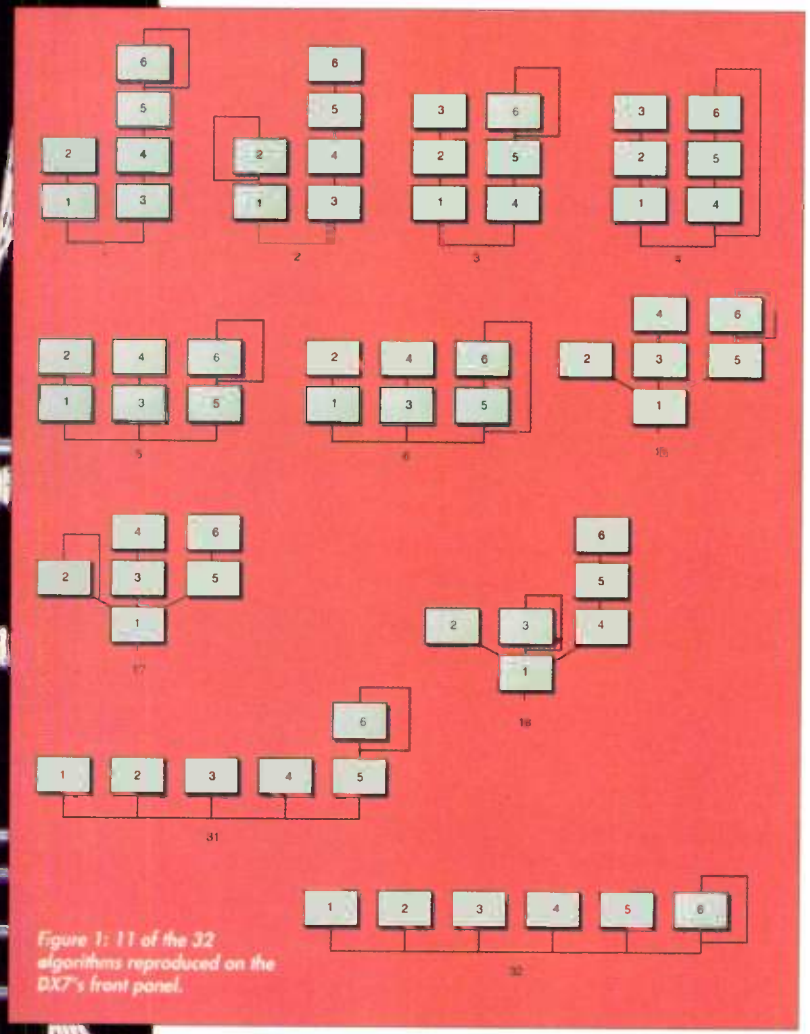


Figure 1: 11 of the 32 algorithms reproduced on the DX7's front panel.

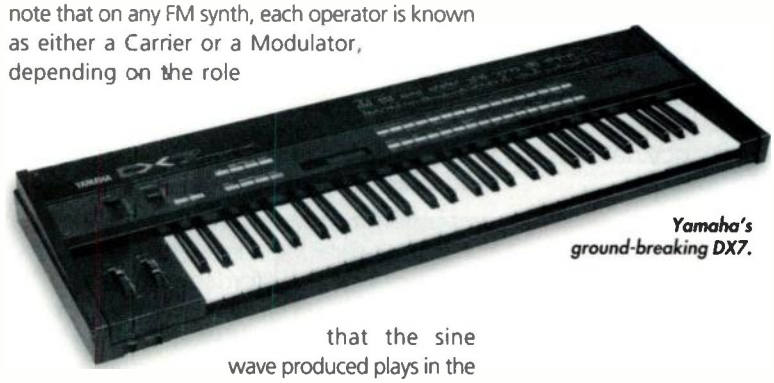
CAPITAL FM

As the FM sound engines on PC soundcards use a less sophisticated version of FM, we will concentrate on the implementation of FM first made available on Yamaha's DX7 (and their much more expensive DX1). If you are serious about using FM in your sonic arsenal, try to get your hands on an FM machine with the same implementation as this, because the scope of what you can achieve with the less complex implementation, sonically speaking, is rather more limited. In addition to the thousands of DX7s out there (including 1988's DX7 MkII), there are also TX802 and TX816 racks, SY77 & SY99 workstations, all now going second-hand for a fraction of their original asking price, and all with the 'more evolved' version of FM. This implementation is generally referred to as 6-operator FM (as opposed to 4-operator FM on the

DXs with higher model numbers and, of course, their OPL chip descendants in PC soundcards). Straight away, we've run into our first piece of FM-related jargon; operator. However, there is no need to worry about this, as when I tell you that all operators do is produce sine waves, you will (hopefully) recognise them from the previous two parts of this series as being closely akin to the oscillators in an analogue synth. What's different in FM synthesis is the way these sine-wave generators interact to create sounds.

So, why are they called operators? The answer lies in history... Unlike analogue synthesis, which was developed and refined in parallel by several different individuals and companies over some years (Bob Moog of Moog Electronics, Dave Cockerell of EMS, Dave Smith of Sequential Circuits, and Dave Rossem of Emu, to name but a few), FM has a much more singular parentage. In the early '80s, a team at Stanford University in California, led by Dr John Chowning, discovered a pure synthesis application for Frequency Modulation, which had been in use as a high-quality audio broadcast transmission system for some years. The new form of synthesis allowed the creation of sounds which had previously been beyond the ability of most analogue synths (for example, reasonably realistic brass, electric piano, and bell sounds, as well as other 'metallic-sounding' timbres); and so, emphasising this particular strong point of the new discovery, Chowning shopped FM synthesis around several manufacturers, and, after a few refusals from American companies (who must have later felt like the man at Decca who turned down the Beatles), signed an exclusive agreement with Yamaha for them to develop the new method and bring it to the market. As a result, Chowning and Yamaha were able to develop their own jargon, and decided that operator, rather than oscillator, was the term for them. Actually, it wasn't a bad decision, as it meant that nobody expected to use operators in the same way as oscillators on an analogue synth.

So, how does FM synthesis use operators to create sound? (Warning: more incoming jargon, albeit slightly more familiar!) Firstly, it is important to note that on any FM synth, each operator is known as either a Carrier or a Modulator, depending on the role that the sine wave produced plays in the creation of your FM sound. Those of you who know something about the way radio transmissions work may recognise the terms Carrier and Modulator. In broadcasting, it was discovered that if you modulated the frequency of a waveform instead of its amplitude (as in the earlier method of radio broadcasting, Amplitude Modulation, or AM), you could encode more audio information more accurately for transmission, which resulted in better reception, and a greater bandwidth and dynamic range. Those of you reading this in the Shires will be capable of listening to Mr Branson's fine radio station in hissy old AM (if you haven't given up on it because it's too much like listening down an old telephone), while us Greater London types have it in ▶



Yamaha's ground-breaking DX7.

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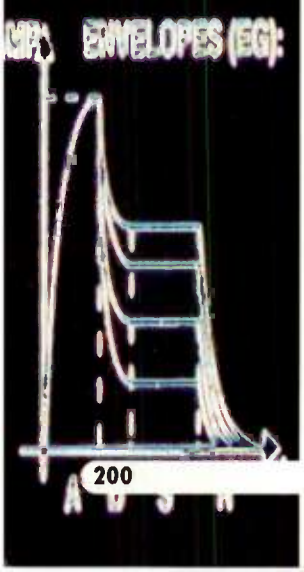

1987's DX7 MkII.

▶ glorious FM stereo (although I can assure you that Michael Bolton's bleatings do sound worse on FM). The frequency of the carrier, in the case of Virgin Radio FM, is 105.8 MHz (ie. what you tune your radio to — or away from if Mr Bolton is playing) and that of the modulator varies according to the audio signal being transmitted. When we then tune into an FM radio signal, the carrier signal is taken out and we listen to the modulator.

However, in FM synthesis, it is the carrier we listen to (although with the effect of the modulator still present). In other words, we are actually interested in the interaction of the carrier and modulator, rather than using one as a means to get the other from A to B.

In fact, those of you who remember the difference between audio oscillators and low-frequency oscillators (LFOs) from the first two parts of this series should now be able to understand exactly the relationship between the carrier and modulator. A carrier is like an audio oscillator; its modulated output is sent to the mixer and thence to the speakers. The modulator is more like an LFO. You don't actually hear it, but you *do* hear the effect it has on the carrier.

The main difference between the modulator and an analogue synth's LFO is the speed of operation. As implied in its name, an LFO operates at low frequencies, nearly always below the audio range. There is no such restriction placed on a modulator; it may operate at frequencies considerably higher than audio, within the audio range, or below it. In this respect, the way it is used is similar to the way analogue synth oscillators can be employed to create ring modulator-style effects, where you set up one oscillator to modulate the pitch of another (this was covered in more detail at the end of the last instalment in this series). The frequencies produced by this analogue cross-modulation are ideal for bell-type sounds and other metallic timbres — exactly the timbres which FM later became famous for. This is no big surprise when you consider that pitch is merely the musical way of referring to frequency.

So, what's the difference between cross-modulation as practised on an analogue synth and the frequency modulation in the Chowning/Yamaha implementation? Well, to start with, FM operators can only ever produce sine waves, unlike an analogue oscillator. At first, this may seem a bit limiting when you remember that a sine wave only produces a fundamental frequency, but in fact the interaction of just two sine waves can produce incredibly complex timbres. This is because in FM, you don't simply mix two frequencies. Frequency Modulation actually produces multiple frequencies based on the sum *and* the difference of the original frequencies. The greater the modulation depth, the louder these new frequencies are in relation to the original frequency of the carrier. When you also consider that in Yamaha's FM, modulated carriers can be further modulated or themselves used as modulators, you should see that it is possible to quickly build up large numbers of frequencies in harmonically-related and/or harmonically-unrelated series. In general, the former will give the purer tones, and the latter the more complex, more enharmonic sounds, until all at last becomes noise if the relationships get too complex.

This also explains why 6-operator FM is more versatile than its lesser, 4-operator relative. If you think about it, there are so many more ways you can configure six operators as carriers, modulators, modulated carriers, carrying modulators, re-modulated modulators, and so on, than you can four. This brings us neatly to the pretty pictures screen-printed on the front panel of the DX7 (or on illuminated displays if you are the proud owner of a DX1), which tell you how the operators are currently configured. These configurations are known (jargon alert!) as Algorithms.

SLAVE TO THE ALGORITHM

On modular analogue synths, you could create your own audio signal routings, allowing you to plumb the most bizarre signal paths together. Most analogue synth manufacturers preferred to set the possible paths in stone to some extent, so that you didn't end up with routings which produced no noise or led to the direst rackets (both of which tended to trigger lots of calls to modular manufacturers complaining of "broken" machines). Yamaha saw this problem coming a mile off, and quite sensibly chose to limit how the six available operators on the DX1 and DX7 could be hooked together, permitting only those algorithms liable to produce the most musical results, and thus giving the end user reasonable flexibility without the suffering. 6-operator FM offered 32 algorithms (its 4-operator junior had just eight — another plus point for 6-operator FM). Most DX owners complained that the synths were too complicated, but can you imagine the complexity if all routings had been freely user-definable? Or what the user interface would have been like? The mind boggles!

The conventions Yamaha use in the diagrams of these algorithms are fairly simple once they are explained. Whilst we do not have the room to reproduce the layout of all 32 algorithms in this article, 11 are pictured in Figure 1, on the first page of this article, as examples, which will allow you to visualise some of the ways DX operators can be arranged.

Algorithms are 'read' from top to bottom, and the operators on the bottom row of any algorithm are the carriers. These are what actually produce the sound you hear coming from the machine, mixed

FM WITHOUT A YAMAHA SYNTH

A little-known fact these days is that you can experiment with FM-style programming if you own an Oberheim analogue synth of the right vintage. Both the seminal Xpander and the herculean Matrix 12 offer FM-style oscillator cross-modulation, and have the added flexibility of being able to use waveforms other than simple sines as both carrier and modulator. So, although the Oberheim version of FM is, strictly speaking, only 2-operator (ie. the two oscillators), you can arrive at very complex sounds like bells and tuned percussion very quickly, because of the additional harmonic content in the 'operator' waveforms which produce a very complex harmonic spectrum when cross-modulated. If you are looking to mix and match synthesis types, you could do far worse than acquire one of these vintage analogue synths (designed by Marcus Ryle and Michel Dodoïc, now of Alesis fame). They sound excellent and are incredibly versatile — and the Matrix 12 is also one of the few analogue synths to be truly multitimbral.

The only company still producing synthesizers which can make sounds along FM lines is Korg, whose version of FM, VPM (or Variable Phase Modulation) features both in the highly successful Prophecy monosynth and, for those of a more polyphonic and multitimbral frame of mind, the brand-new Z1 (the subject of Gordon Reid's exclusive *SOS* preview last month, and due for a full *SOS* investigation in the very near future).

Both machines use the (by now) familar terminology of carrier and modulator and, like the Oberheim versions, only have two oscillators, but these can be set to produce all the available waveforms, not just sine waves. Once again, this gives you a shortcut to the more complex timbres which would be created with several levels of modulation in Yamaha's FM implementation, although it does reduce the sheer width of sounds you can create, because you don't have the choice of different algorithms.

It would be fair to say I think that whilst Yamaha's FM offers as much programming potential as a big modular analogue system (German synthesis specialists Jellinghaus once made a DX7 remote programmer which had a physical knob for every DX parameter; it covered about an acre), what Oberheim and Korg's versions offer is more akin to what a hard-wired analogue synth can produce. Nevertheless, you can still obtain all the staple sounds (that means the bells, electric pianos, tuned percussion and metallic sounds which made FM famous). However, if you mean to dig *really* deep and lose yourself like an explorer in the jungle of FM, there really is no substitute for Yamaha's 6-operator implementation. Just don't forget to tell someone where you are going and when you expect to be back, or you may never be seen again!

Korg's Prophecy keeps the FM flag flying to an extent with its VPM synthesis — effectively 2-operator FM.

together like the signals from analogue oscillators before they enter their synth's filter. Anything above the bottom row is a modulator, and the lines joining them to the carriers show which is modulating which. You will see from Figure 1 that in many of the first few algorithms, one carrier is being modulated by two or even three modulators. In the final 16 algorithms on the DX7 (numbers 17 to 32), one modulator is able to modulate several carriers. Of course, some algorithms (numbers 3 and 4, for example) have a third row on top, and this is where you find the modulators modulating modulators (stay awake at the back there, please). Algorithms 1, 2 and 16 (in the diagram) even have a fourth level to re-modulate a modulated modulator. In case I have failed to lose you so far, I must also mention that each algorithm has an feedback loop somewhere, with which one or several operators can be set to modulate itself/themselves. As an example of the latter type, take a look at algorithm numbers 6 and 4 (again, see Figure 1) where a chain of two and three operators respectively are fed back on themselves).

I hope you can now see that the algorithm selected has the most fundamental role to play in terms of the sound the DX produces. Randomly switching the algorithm on any of the preset sounds will soon convince you of this. In fact, if you are not careful, you can end up removing all the FM from your sound!

DX IN NOT-ALL-FM HORROR SHOCK

Now it's time to let you in on a big secret. Some of the algorithms on a DX7 have hardly any FM in them at all, which you might feel is a bit like finding out the Pope is not Catholic after all. Algorithm 32 ▶

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has no modulators at all (except that operator 6 can modulate itself, thanks to the feedback loop) and is actually more like additive synthesis (next month's topic of investigation) in that it just mixes together the sine wave audio output of all six operators, a bit like drawbars on an organ. Algorithm 31 is little better, with one modulator tacked on to carrier 5 like an afterthought. If you are scared of getting lost in over-complicated modulation paths, I suggest you start your experimentation with algorithms 31 or 32. The more adventurous among you should dive straight in on the triple modulation loop of algorithm 4.

Yamaha TX802.

By the way, not all the operators featured in an algorithm are necessarily being used. Firstly, whenever you are in Voice Edit Mode on the DX, you will see what looks like a 6-bit binary number in the upper half of the display. This actually shows the status for each operator (1 for On, 0 for Off). These can be toggled using the first six of the 32 green switches on the right-hand side of the machine. Clearly, if a carrier or modulator is switched off, its sound (in the case of carriers) or effect (in the case of modulators) will not be heard.

Secondly, if the modulation depth of a particular modulator is set to zero, its effect will also not be heard. To check this, first use the Operator Select switch to step through to the operator you want to check. The various parameters for controlling the modulation amount (initial depth, envelope, velocity, aftertouch, LFO, and so on) will then all be available under their respective switches to the right.

REAL-TIME TIMBRE CHANGE

Without going into more detail than we have room for here, this last sentence has quietly summed up one of the real strengths of Yamaha's FM synthesis implementation, and also explains why it had such a massive impact on the synth market of the mid-'80s. Up until then, most analogue synths had not been velocity sensitive, and those that were tended to be very expensive. The Prophet T8 first shipped around the same time as the DX7 (some two years after it was first shown), and its eight (admittedly very big) voices set one back a not-so-cool £5000, compared to the DX7's much less wallet-savaging release price of £1549. Even when a manufacturer managed to produce a more cost-effective machine, the limited number of voices was still a problem — at the same Frankfurt show where I first saw the DX7, Siel launched the velocity-sensitive Opera 6 for slightly less money, but as its name implies, it still only had six voices.

Not only did the DX have 16 voices (the first affordable synth with more voices than people have fingers), but on each, velocity and aftertouch could be routed to control some or all frequency modulation depths. This brought pianists (many of whom had sneered at the limited polyphony and real-time expression of synths for years) flocking in droves to hand over their hard-earned for a DX, particularly those jazz players for whom a chord is not a chord unless it has a dozen notes on top of those in the straight major or minor triad.

Suddenly, voices on a synth could change quite radically, depending on how hard you hit them and whether you leant on the note afterwards. This meant that you could keep your left hand (previously needed to push the mod wheel up every time you wanted a bit of vibrato or other form of expression) free to play basslines or a further five/six notes of jazz harmony (or, as we classical types like to refer to it, dissonance!). Previously, polyphonic synthesis had been an exclusive club, firstly thanks to its price, and secondly because you had needed to learn new ways to introduce expression into your playing. Suddenly, you could use all the techniques learnt in those years of piano lessons without modification.

WHICH FM SYNTH IS BEST? — A PERSONAL VIEW

Personally, I had very little time for FM when it was 'cock of the roost'; the ubiquitous electric pianos (almost entirely, but not quite *unlike* a Rhodes or Wurlitzer) and tinkly bells got on my nerves, and I shivered for the lack of analogue warmth. My favourite joke at the time is unprintable here, but my second favourite was "How do you get a good sound out of a DX7?" "Run a steam roller over it, and sample the resulting noise." After a while, however, I mellowed, and was finally seduced by the sheer available polyphony of Yamaha's TX816, where you could be positively wasteful with voices when making up great big sonic layers sumptuous enough to eat (doing the same thing with MIDI'ed analogue sounds was the sonic equivalent of Death By Chocolate). Those who can't find or afford this splendid beast of a rack might want to look for the TX802, which allowed the same amount of layering, but without the embarassing luxury of retaining 16-note polyphony at all times (so that the more you layered, the less notes you could play). The DX7 MkII did little for me (although I loved the Liberace-style silver-and-gold look of the centennial version) but at least you could layer two sounds at once.

If you want single DX timbres, but warmed up through chorus de-tuning, try and find a DX7 fitted with the excellent DX-MAX from the inspired Dan Armandy of Grenoble. Hundreds of these third-party retrofits were sold through Argents in the late '80s, so you should be able to track one down for little more than the cost of a straight DX7. You can switch the DX into 8-note polyphony with two voices per note, or even 4-note polyphony with four voices per note and then detune these layered voices. It warms everything up a treat, and has the added advantage of cutting down on the scope for jazz chord voicings!

Yamaha's SY-series of synths contained, to my mind, the ultimate implementation of FM, as it combined the expressivity of FM with the accuracy and realism of PCM samples and then put all of this through effects to warm everything up (just listen to that 'Valkyrie' preset), so when the SY99 let me load in the TX16W sample library I spent months creating for Yamaha in a basement in Conduit Street, I was in seventh heaven. If ever there was a synth that puts the case for FM synthesis, the SY99 is it. Don't be frightened of its complexity or initial coldness. Get stuck in and get expressive. But do go steady with how many notes you sound at once, or you could end up playing jazz (and you wouldn't want that now, would you?).

The sustain pedal could even be used unsparingly, as you had enough notes to ring on while you flourished up and down the keyboard (so to speak). Suddenly, all the real players wanted a DX7 — or a DX1, if they had money to burn.

Meanwhile, die-hard synthesists were still reeling from the shock. Of course, the drawback was that even the most experienced analogue programmer had to learn how to program a DX from scratch, and for many, unfamiliar terms like operator, feedback and algorithm proved a hefty culture shock. Fortunately, there were a couple of familiar terms amongst the alien parameters on the front panel.

IT'S OK — FM HAS LFOs & EGs TOO

Certainly, when *my* eyes first fell on the DX's front-panel EG label, I breathed a sigh of relief. OK, so the DX had no filters, but at least it had envelope generators... and an LFO as well. Phew. Everything I had previously learnt about analogue synthesis had *not* gone out of the window. In your first close encounters with FM, I suggest you keep this thought in mind, as FM synthesis can seem like another universe after the familiarity of analogue, particularly when the envelopes don't seem to have the familiar Attack, Decay, Sustain and Release phases. We will look at how DX envelopes work, but first let's look at the altogether more familiar use of the LFO. The DX7's LFO parameters, Wave, Speed and Delay, should be self-explanatory (what waveform you want, how fast it cycles and when it comes in), and PMD and AMD are just abbreviations for pitch modulation depth (vibrato) and amplitude modulation depth (tremolo). Of course, if the operator to which these two are applied is a modulator, the audible effect will not be vibrato and tremolo, but instead a variation in the modulation frequency or depth, the end result of which will be changes in the harmonic content

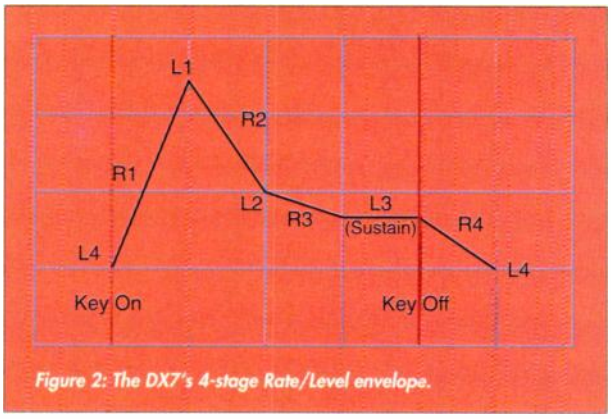

Figure 2: The DX7's 4-stage Rate/Level envelope.

of your sound. Despite these differences, the DX7's LFO section will be fairly familiar territory to the average analogue programmer. If you have access to a DX7, try setting up fairly radical LFO modulations (for radical read unmusical) on operators 2, 4 and 6, with algorithm 32 selected (where all six operators are behaving as unmodulated carriers), and then switch to algorithm 5 or 6; you will be surprised at how much more interesting (and musical) the timbre will suddenly become as these wild audio sweeps are converted into *frequency* modulations. Switching algorithms really is the fastest way to sonically, rather than intellectually, appreciate the relationship between carrier and modulator. As you get more proficient, you can try using the more radical algorithms, like numbers 16, 17 or 18.

PUSHING THE ENVELOPE — RATES & LEVELS

A similar technique can be applied as you find your way around the DX's initially unfamilar envelopes. These allow a greater degree of fine-tuning of the operator level than the simple analogue ADSR type, but they are fundamentally the same. If it helps at first, try thinking of a carrier's EG as an amplifier envelope which changes the volume in real time (because that's what it is), and a modulator's EG as a filter envelope which changes the harmonic

"Yamaha's SY-series of synths contained, to my mind, the ultimate implementation of FM..."

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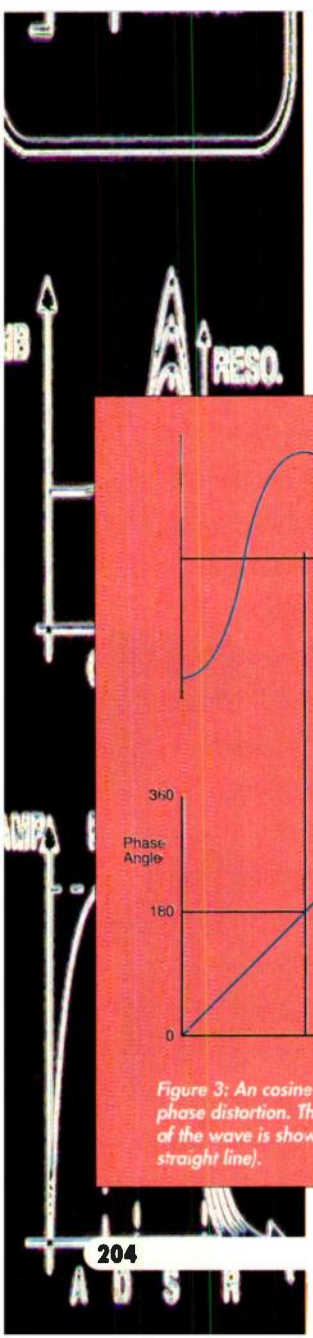

content over time (because that is the closest analogy). It is by increasing the level of the modulator with its envelope that you can simulate the changes in brightness which occur in real plucked or blown sounds.

The way to approach rate/level envelopes is to see them as a customisable ADSR for the DIY enthusiast. The level is the point at which each segment of the envelope changes to the next and the rate is the time it takes to make this transition. Yamaha thoughtfully provided a diagram of the envelope on the front panel to the left of the algorithms (see Figure 2 on the previous page), and if you take a look at this, you should see straight away that rate 1 and level 1 provide the equivalent of the ADSR's Attack phase. The only difference is that the attack does not necessarily have to go to the maximum level available, as with an ADSR. By making level 2 higher than level 1, you can have a secondary attack phase, whereas making it lower would put you into a more conventional decay situation (sorry if this is starting to sound like strategic military jargon!). The third phase of the envelope can be another increasing or decreasing segment, depending on whether level 3 is higher or lower than level 2. Care must be taken with level 3, however, as it is also the sustain level — that is, once this level has been reached, you're stuck with it until the key is released. Rate 4 gives you the equivalent of an ADSR's release time, but again this need not necessarily go to zero (just as rate 1 need not necessarily go to maximum). This is ideal on a modulator if you want to keep the harmonic complexity as your sound fades out, but be careful when using this on a carrier, or the note may go on forever (or until you change the sound, at least!).

Don't expect to master FM synthesis as quickly as you did analogue. If using analogue synthesis is like learning Spanish, with a simple structure and warm to the ear, then FM is more like German or Russian, complicated and often harsh-sounding (anyone spotted what I studied at university yet?). Some people *never* feel confident that they know what parameter changes to make with FM, and just busk it, or give up altogether. But don't be put off. Investing time pays dividends with FM, and it is possible to achieve an expressivity rare in the world of synthesis, especially if you are a jazz player and need to create the sort of sounds that don't over-fill the frequency spectrum when you play a dozen notes at once. Some people I know claim that they are still getting new sounds from FM (although when I've heard them, 'new' is perhaps a little strong). Techno/industrialist enthusiasts will love some of the metallic 'klangs' you can produce, and it is the only type of synthesis to appeal to bell-ringers (pun intended).

Those of you whose appetite for knowledge has been whetted by this all-too-brief resumé of Yamaha's FM can find much more detail, programming advice and exhaustive analysis in my colleague Martin Russ' series on FM programming which ran from May to October 1988 in the pages of this fine publication. There are also many fine books on the subject, including the excellent tome by Howard Massey, *The Complete DX7*. Those of you who like a more surreal approach should try the alternative DX7 manual from Rittor Music, translated rather literally from the Japanese (if it's still available) which features several pages on operators which produce a POOOH sound and a section on what happens to a 'tickled' operator when it is being 'tickled' by the 'tickler' (presumably the carrier modulated by the modulator). I was reduced to tears of laughter by this Ken Dodd approach to FM synthesis.

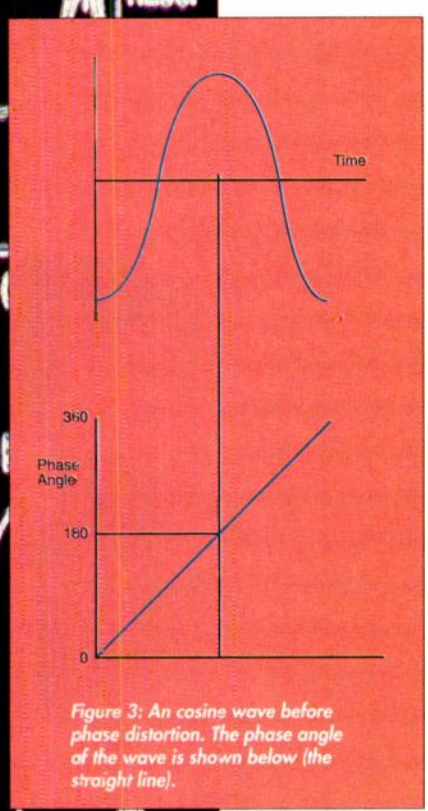

Figure 3: An cosine wave before phase distortion. The phase angle of the wave is shown below (the straight line).

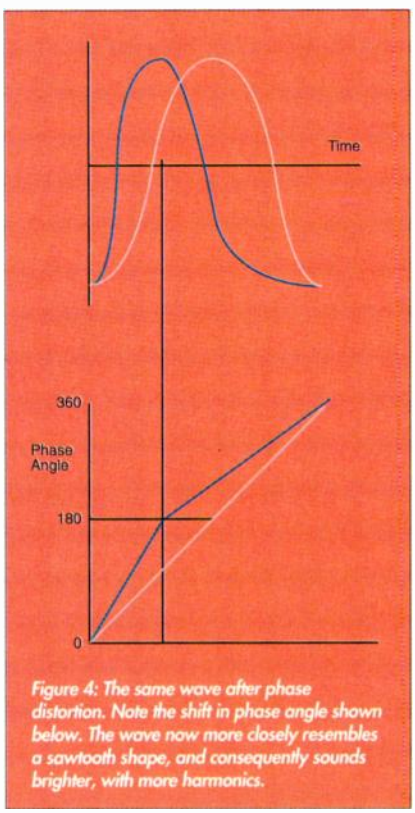

Figure 4: The same wave after phase distortion. Note the shift in phase angle shown below. The wave now more closely resembles a sawtooth shape, and consequently sounds brighter, with more harmonics.

CASIO, PD & THE CZ RANGE

For several years, Yamaha had the digital synthesis field all to themselves, until competition came from the most unlikely source. I can still remember driving round the North Circular Road to Casio (yes, they of digital watch, calculator and VL-TONE fame), wondering what I had done to so upset the Editor of a certain now-long-deceased hi-tech music and recording publication that he would send me on a punitive mission to look at a Casio mini-keyboard. I came away a total Casio CZ-series convert, due in no small part to the enthusiasm of Richard Young, who persuaded me to 'listen without prejudice' to the CZ101 and its grown-up equivalent, the CZ1000. What I heard was reminiscent of FM in its clarity and expressivity, but it had the warmth I felt the DX lacked (I was fairly anti-FM at the time). I ended up writing a book with Dave Crombie on the CZ range and the Phase Distortion (or PD) system it used, and I still use IPD sounds (the later, advanced version of Phase Distortion) in my Casio PG MIDI

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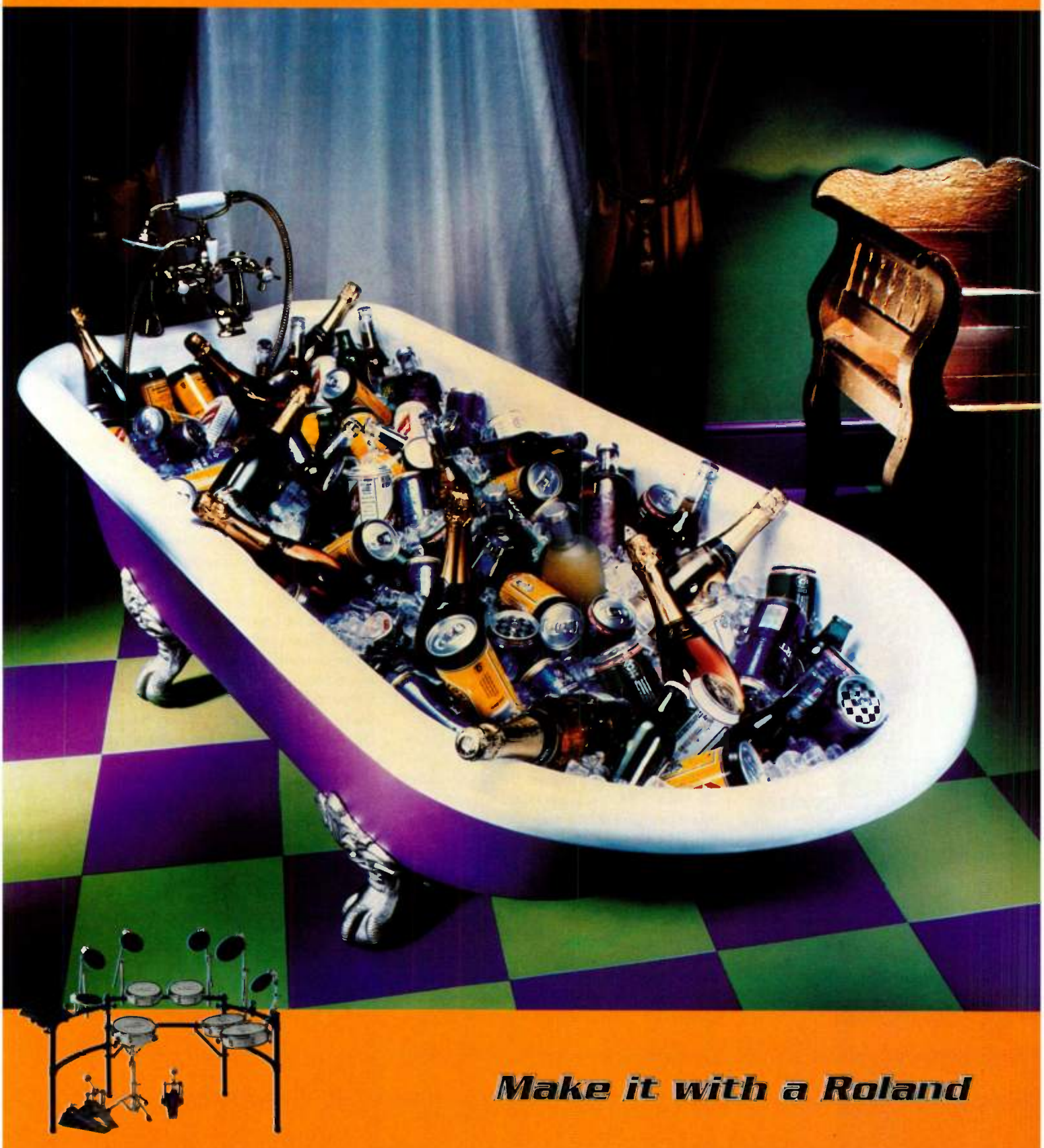

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There is not a huge amount of room left in this slot to explore Phase Distortion fully, but as it's much simpler in structure than FM, we can have a brief look at the principles behind it. Like FM, it eschews the use of subtractive techniques such as filtering, preferring to create its harmonic complexity and real-time timbral changes with a mathematical process which makes complex sounds by altering simpler waveforms (although not quite as simple as plain old sine waves, as in Yamaha's FM). This is not done by using one waveform to modulate another, as in Yamaha's synths, but rather by changing the speed at which the waveform is read out within the duration of each individual cycle. This has the effect of distorting the phase of the waveform (hence the name) and thereby changing its shape and harmonic content. The greater the amount by which the speed is shifted, the more the waveform changes shape, and the more complex the resulting harmonic content.

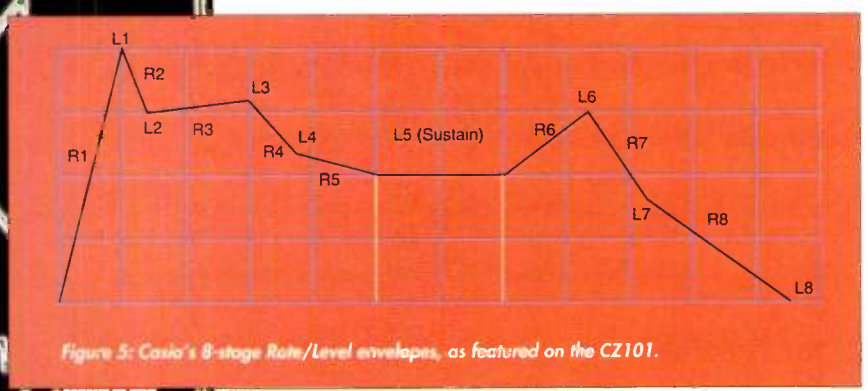

Figure 5: Casio's 8-stage Rate/Level envelopes, as featured on the CZ101.

There is actually a wider range of raw waveforms on offer for Phase Distortion than in analogue synthesis; there are the old favourites like Square, Sawtooth and Pulse, but also some hybrid forms like double sine, saw pulse and three different resonant waveforms. You can also combine these to produce more complex harmonic structures before you even begin distorting the phase. However, to try and help you understand PD a little better, we will look at what happens to a cosine wave when its phase is distorted (don't worry about the fact that it's a cosine wave — this is simply a sine wave starting from a different point in its cycle, and doesn't actually sound any different). If you look at Figure 3 on the previous page, you will see the cosine waveshape and the corresponding phase angle throughout its cycle.

If we now speed up the readout of this waveform in the first half of the cycle, making a steeper phase angle gradient, and then slow down the readout in the second half, so that the total cycle time does not change (this keeps the pitch constant), the cosine wave will be altered as shown in Figure 4. As you can see, the whole waveshape leans forward, producing a much more complicated set of harmonics than just the fundamental contained in the original cosine. Of course, the wider the variation in the readout speed, the bigger the kink put in the phase angle graph, and the more radical the harmonic content.

By using an envelope to control the amount of phase distortion (Casio refer to this as the DCW ENV, the Digitally Controlled Waveform envelope), you can achieve the kind of real-time harmonic synthesis changes which all synths must have if they're to produce something more interesting to the ear than organ sounds. As you will see immediately from Figure 5, left, the envelopes Casio used have double the number of Rate and Level components found in Yamaha's FM envelopes (8 instead of 4), but the same basic principles apply, with level 5 being the Sustain component (the one which is maintained while the key is held down). As well as the envelope controlling the Phase Distortion, there are also the DCO ENV for pitch and the DCA ENV for volume.

The main advantage of PD synthesis over FM for the would-be programmer is the fact that much of the terminology and many of the concepts are closer to traditional analogue synthesis. In fact, if you think of the DCW envelope as akin to the filter envelope on an analogue machine, you will be knocking out your own sounds in no time. However, the principal advantage of PD to the listener is that the sounds have a much warmer quality, without resorting to the kind of chorus detuning of the TX816 or DX-MAX, or the combination with PCM sounds and effects of Yamaha's SY series. But PD's success in the mid-'80s was probably due more to the fact that the CZ synths were amongst the first to have a proper implementation of multitimbral operation via MIDI Mono Mode; you could actually trigger different timbres on different MIDI Channels. This led Vince Clarke to use half-a-dozen CZ101s hooked up to an old UMI sequencer on the BBC Micro in his late-'80s setup (before he went right back to analogue stuff triggered from a Roland MC4 at the turn of the '90s).

Vince Clarke in the mid-'80s with his rack of CZ101s.

Casio followed up the success of the CZ models with the VZ range, expanding PD into IPD (Interactive Phase Distortion), which increased the expressivity available through aftertouch and velocity. Although there were far fewer VZ synths made, I would thoroughly recommend them if you are looking for the most developed implementation of Phase Distortion. Those of you wanting to make your way further into the subject can read more in Phil South's two-part *SOS* article which ran in the July and August 1987 issues, or even in the book Dave Crombie and I wrote, which rejoiced in the wonderfully imaginative title *The Casio CZ Book* (if you can still find it).

Having looked at the forms of synthesis based on more complex mathematical operations this month, you may be relieved to hear that next time I will be concentrating on simple addition (so you can put those wet towels and bottles of aspirin away now). We will be looking at the way additive synthesis builds up complex timbres, and will examine the dominance of another Japanese company, namely Kawai, in this field. Till then, happy modulating (or tickling)!

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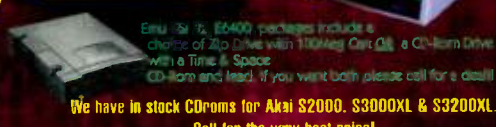

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Trick or Treat?

ALLEN & HEATH MIXWIZARD 20:8:2 MIXER

After a spell away from project studio consoles, Allen & Heath return with a magical new contender. MARTIN WALKER conjures up some thoughts on the WZ20:8:2.

Allen & Heath must have a big cauldron. Only a few months ago, the new MixWizard range was launched with the arrival of the WZ16:2, which, as its name suggests, is a 16:2 mixer primarily intended for stereo recording, front of house, on-stage sub-mixing, or fixed auditorium sound systems. (I reviewed this for our sister title *Sound On Stage*, June '97 issue, so if you think it would be suitable for you, phone the *SOS* mail order department for a back issue.) The unit under review here has a more advanced spec for 8-track use, with eight mono mic/line channels, six stereo line channels, and eight mono tape channels, giving a total of 28 inputs at mixdown. This will be most *SOS* readers' first sighting of the range, so a bit of background information is in order...

So many small mixers vie for attention in the marketplace that the only ones that really get noticed are those offering something genuinely different. In the case of the MixWizard range, its main claim to fame is that, despite its low price-point, it features six independent aux sends, and an advanced EQ section with *two* swept mid controls. These certainly make it stand out from the crowd. The range also shares some of its features and components with the much higher-priced GL4000 series of live desks, and, like them, it's designed and built in Britain.

JUST IN CASE

Both models in the MixWizard series have the same basic casing — a cool ocean-blue steel 10U rack unit whose front panel has integral 'ears' for maximum strength. It features what Allen & Heath call the quick-change connector (QCC) system, which is a variant on the Mackie rotating patchbay pod. This has two positions, allowing the input/output socket panel to be placed either behind the mixer (normally used when rack mounting, so it is 'inside' the rack), or at right angles to the front panel as a supporting leg (for desktop use). On the desktop, the front panel is angled at 15 degrees from horizontal. Changing between the two positions is very easy, with only a single screw each side of the mixer to be removed before you can swivel it to the new position and pop the same two screws back again. It would have been useful to have an additional position for desktop use with the sockets ending up at the front, extending the front panel, but Allen & Heath say that this would have involved "exposing the innards".

As always, design decisions have to be made, and giving the Wizards a smaller footprint means that they've both ended up with longer legs (in desktop mode, their maximum height

LISTEN HERE

However good the spec the most important thing is what the unit sounds like. Allen & Heath make a play of their Minimum Signal Path (MSP) structure. Any audio signal will change slightly when sent through electronic circuitry, or even passed down a wire or through a plug-and-socket connection. Many of these changes are so small that the human ear will not detect them, but they are cumulative: after the signal has passed through an entire mixer, it will always have degraded slightly. You can improve transparency for the audio signal not only by using wide-band low-noise amplifiers, but also, as long as the remaining circuitry is not compromised, by removing any components directly in the signal path that are not needed, such as DC blocking capacitors between amplifiers where the design can be tweaked to remove the DC offset.

Whatever the theory, both of the MixWizard mixers I have reviewed have had a very detailed sound, which enables you to hear subtle details in the mix. Hearing the same music through the same well-known system with just one component changed can be a revealing experience. Allen & Heath do seem to have succeeded in designing a mixer with a transparent sound, but which has the advantage of allowing you to change the sound in a radical way if you need to. The EQ does take a little more thought to use, but allows a much wider range of sounds to emerge at the other end. Although you can create speaker-blowing combinations of 30dB cut and boost at spectrum extremes, you can also use the EQ in subtle ways — the 'small dip here, tiny hump there' approach. The only slight downside is that the wide frequency swings available on the two mid sweeps may make accurately re-creating previous EQ settings just that little bit more difficult.

is 7.5 inches). However, with a mixer of this size it's not too difficult to lean over for re-patching, and if you need to do this regularly a separate patchbay might be in order anyway.

The rugged nature of the WZ20:8:2 is further revealed by the fact that each rotary control is individually bolted to the front panel, which ensures that they all have a smooth action. The alternative is to let only the spindles of the pots protrude through holes in the front panel — this can result in stiffness, scraping, loose wobbly controls, or, in bad cases, all of these! The main reason that Allen & Heath can (and must) bolt the controls individually is that each channel is on a separate circuit board. This is good news indeed, as it makes servicing (at some very remote time in the future, you hope) far easier. Finally, since this is such a contentious issue I'll not make you wait until later to find out — the case does have room for a built-in power supply, so there's no wall-wart to lose.

TEARING OFF A STRIP

The first eight channel strips are intended for mic/line use (although they come in very useful later for mixdown purposes). Before we start at the top of the controls, it's worth mentioning a neat twist with the input sockets. As you might expect, both balanced XLR and balanced TRS jack sockets are provided, but rather than tying the XLR to mic duty, and the jack to line purposes, Allen & Heath have sensibly allowed both sockets to serve for either. The only distinction between them is that the XLR is also wired for 48V phantom operation. This means that you can plug in a mic- or line-level signal using balanced or unbalanced XLR cables, or balanced or unbalanced jack leads, which should result in fewer people having to resort to using in-line adapters to plug in rogue equipment.

As always, a pad heads up the channel strip — in this case 30dB. The rotary Gain control ranges from 60 to 20dB (pad out), and 30 to -10dB (pad in). At this point, an Insert emerges on the back panel with ▶

pros & cons

ALLEN & HEATH WZ20:8:2

£960

pros

- Versatile 4-band EQ.
- Six separate sends.
- Transparent wide-band sound.
- Excellent value.

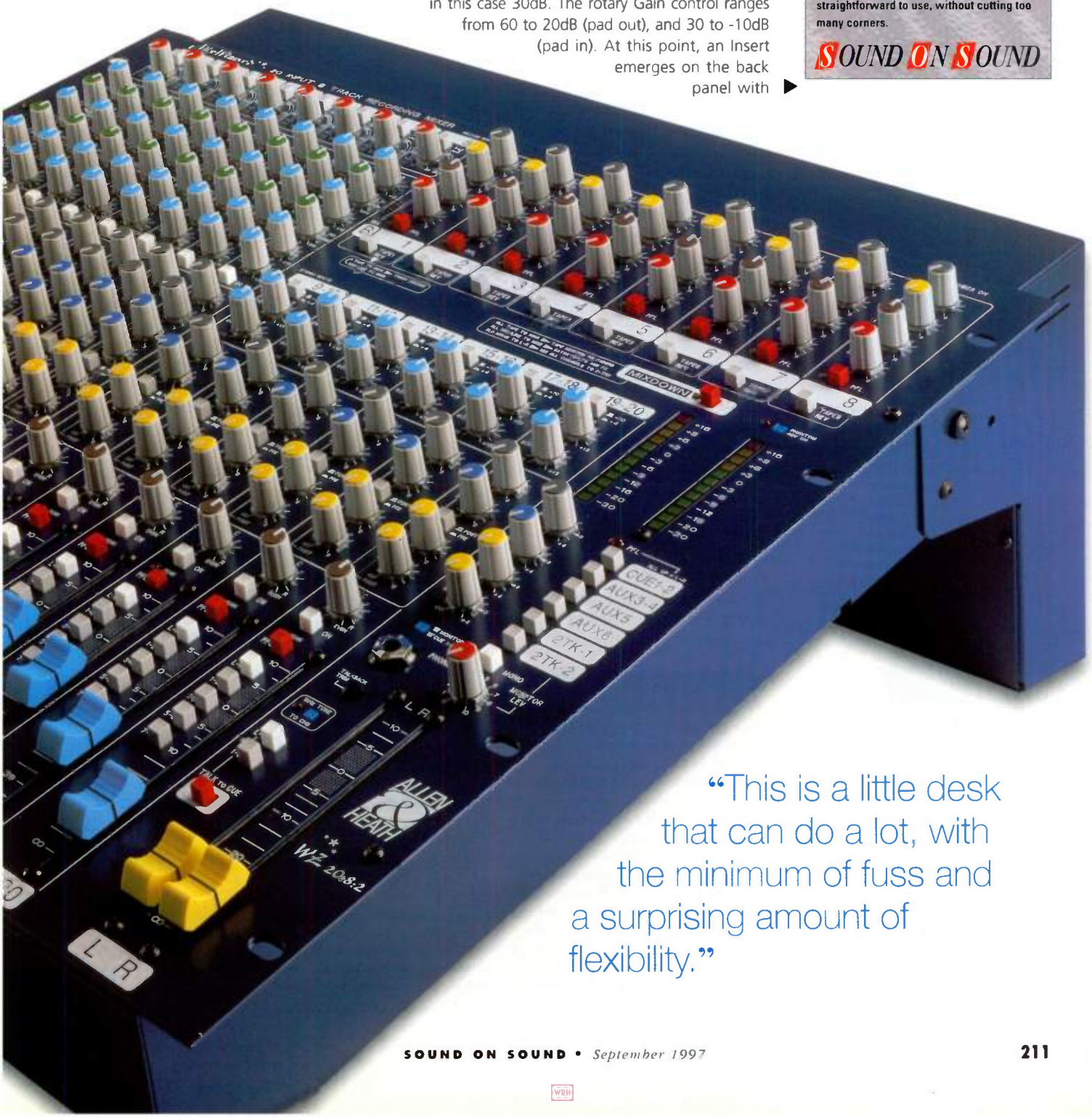
cons

- No group faders or meters.
- Poor visibility of fader markings on mono channels.
- Phones and monitor outputs use same level control.

summary

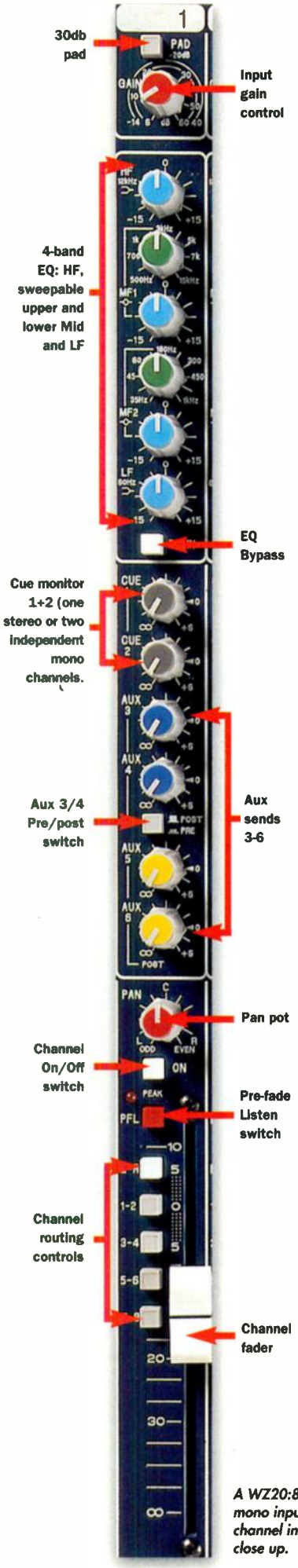
A lot of mixer for your money, and ideal for basic 8-track setups (unless you have the hands of a gorilla). Sound quality is excellent, and the overall design is straightforward to use, without cutting too many corners.

SOUND ON SOUND



"This is a little desk that can do a lot, with the minimum of fuss and a surprising amount of flexibility."

Allen & Heath WZ20:8:2



A WZ20:8:2 mono input channel in close up.

▶ the standard TRS (Tip, Ring, Sleeve) arrangement, at 0dBu level. The next section contains the EQ, and here there are two small changes from the 16:2 model, which put the 20:8:2 more into studio territory. The 100Hz 'rumble' filter of the live model disappears, but at the bottom of the EQ section an additional EQ In/Out switch appears instead — for comparison purposes this is a godsend. The basic LF and HF shelving controls are tuned to 60Hz and 12kHz, which nowadays are fairly standard frequencies, providing plenty of control without ever becoming unduly harsh. The mid controls are in two sweepable sections. The higher one (MF1) has a frequency range of 500Hz to 15kHz (with a central position of 3kHz), and the lower one (MF2) goes from 1kHz right down to 35Hz (the central value is 180Hz). These two, in conjunction with the LF and HF, provide a versatile system that can be creative or corrective. All four bands have a ±15dB range. Although the mids have a fairly low quoted Q of 1.9 (about one-octave bandwidth), this is still sufficiently narrow to 'dial in' to the most active part of a sound.

Below the EQ section are no less than six Aux sends, although Allen & Heath refer to the first two as Cue 1 and Cue 2, as they are pre-fader, and will often be used for foldback purposes. Aux 3 and 4 are switchable pre- or post-fader as a pair, and Aux 5 and 6 are dedicated post-fader sends. The bottom section of the strip comprises Pan, a channel on/off button, a latching PFL switch, a peak LED that comes on 5dB below clipping (and which doubles as a PFL indicator), and a full 100mm fader, which has a smooth, low-friction travel. To the left of the channel fader are five routing buttons: L-R, 1-2, 3-4, 5-6, and 7-8.

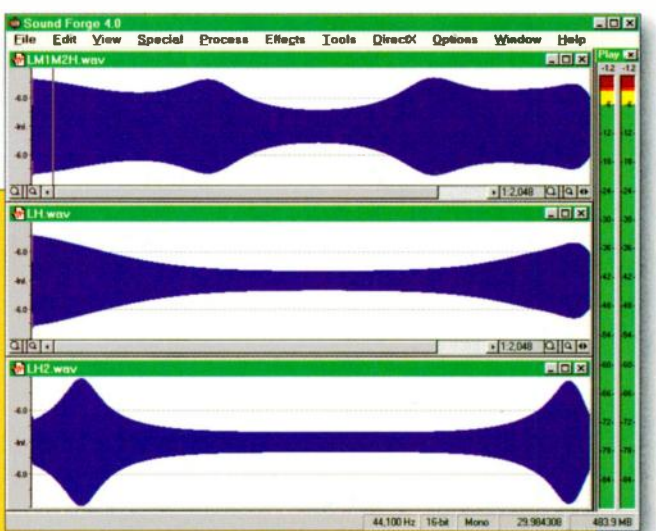
THE BEST OF THE REST

The six stereo channels (channels 9-20) are rather simplified by comparison. A pair of unbalanced jack inputs is provided, with the left one doubling for mono purposes if needed. After a switched -10/+4 sensitivity switch comes a basic 2-band EQ, providing the same turnovers of 60Hz and 12kHz as the mono channels. The Aux sends provide a neat twist — Cues 1 and 2 are combined onto a single control, providing a stereo feed, although this won't reflect any setting of the Pan control other than 'central', since it's earlier in the circuit. Aux 3 and 4 are also combined into a single control, with a pre-post switch; Aux 5 and Aux 6 are separate controls. The final fader and panpot section is exactly the same as for the mono channels.

Above the stereo channels are the eight Tape Returns, and these are fairly simple, featuring a combined Cue 1-2 control (this time post-pan), an Aux 6 send, Pan, and a Rotary level control and associated PFL switch. At the bottom of this area, each Tape Return has a Tape Rev switch, which swaps the tape return signal with the equivalently numbered mono channel (post Gain/pre Insert). This allows the signal coming off tape to be sent through the more complex 4-band EQ and six sends of the main channel strip, while the mono input signal is re-routed to the simplified controls provided by the Tape Return section. Below the Tape Returns is the Mixdown switch — this globally overrides the individual Tape Rev switches, as well as automatically routing all eight tape signals to L-R outputs, and bypassing the Channel On switches. This gives an easy way to reconfigure the desk, and saves having to re-route all eight channels by hand — a neat time-saving feature.

The Output Master and Monitor section is fairly simple. From the top down, there's a recessed switch (use a biro), providing global 48V phantom power for the mono channels, followed by a single pair of 12-segment LED ladder array meters. These default to showing L-R signal level, but can also monitor PFL (pressing any channel PFL button illuminates a large red LED as well as the small one next to the appropriate PFL button). There are also six buttons with top-down priority. Next most important to PFL is Cue 1-2, then Aux 3-4, followed by Aux 5, Aux 6, 2Tk-1, and 2Tk-2. The last two monitor the signals coming from two supported stereo recorders, whose inputs are also connected to the L-R busses (see the 'What's Around The Back?' box). ▶

GETTING THE HUMP



As a little experiment, I plotted a few EQ frequency responses using *Sound Forge* and a PC soundcard to show just what is possible with the WZ20:8:2's EQ section. The upper plot shows the response with LF at +15dB, MF1 at 180Hz and +9dB, MF2 at 3kHz and +12dB, and finally HF at +15dB (the classic four-hump tone-control curve of a typical EQ). The middle trace shows the same settings for LF and HF, but with both mid controls put 'out of circuit', by setting them to 0dB. The lower trace shows one example of what you can do with the EQ, by turning MF1 up to its highest 15kHz, and MF2 down to its lowest 35Hz, with both LF and HF at 0dB. As you can see, both bass and treble response curves show completely different shapes to the middle plot. Using all four bands in combination, far more versatility is possible.

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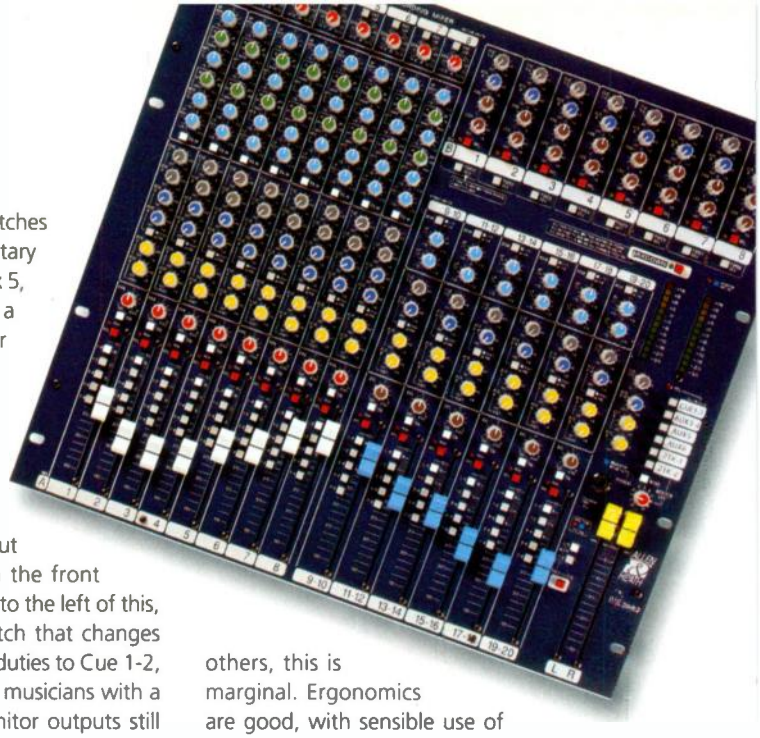
Allen & Heath WZ20:8:2



> "The mono channels have excellent EQ and are one of the main selling features of this desk."

To the left of the monitor switches are the Aux Masters — four rotary controls for Cue 1-2, Aux 3-4, Aux 5, and Aux 6. Beneath these is a mono button (always useful for checking mixes), and a rotary Monitor Level control, which feeds both headphone and monitor outputs. I preferred the separate level controls for phones and monitor found on the WZ16:2 model, but there's only so much space on the front panel. The Phones socket itself is to the left of this, and there's also a recessed switch that changes phones from normal monitoring duties to Cue 1-2, which is a useful way to provide musicians with a stereo cue signal while the monitor outputs still listen to the main mix. Finally, there's a small clutch of controls for Talkback purposes — a screwdriver-adjusted level-trim rotary control, and an L-R slate button that lets you talk to your stereo recorder machine for ident purposes. A 1-8 slate performs the same function for your 8-track machine, and the Talk to Cue button connects the mic to the Cue 1-2 mix (in all cases, the main monitor mix is attenuated to prevent feedback). The final button is another recessed one, and this provides a 1kHz tone that's routed to channel 8 (pre-insert) — by doing this, rather than sending it direct to the L-R outputs, you can route it to any Aux send or any of the output channels, for a comprehensive line-up.

TESTING 20, 8, 2

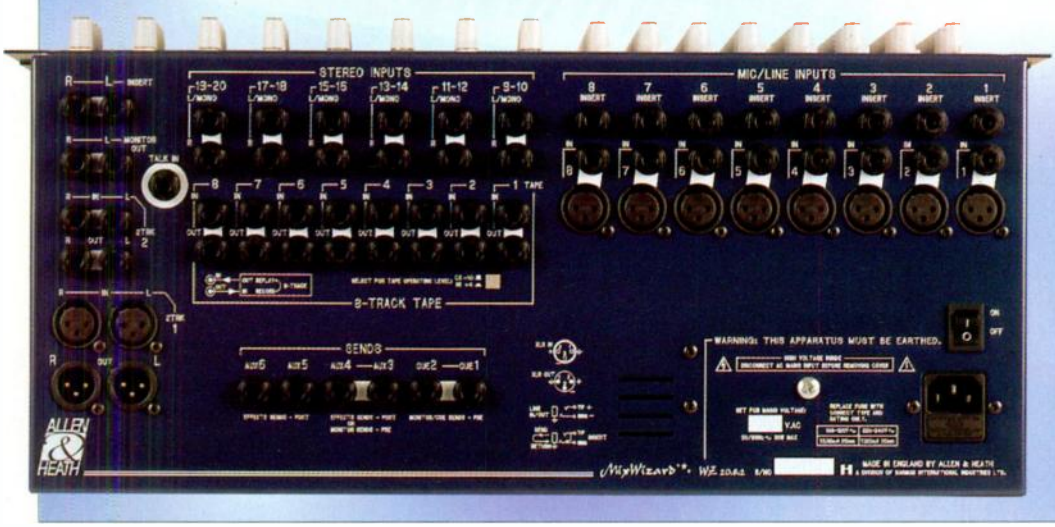
All the controls are smooth and positive (one of the benefits of bolting each rotary to the front panel is a consistent feel), and the long-throw faders work very nicely — although the stereo channels do seem to have slightly more mechanical resistance than the others, this is marginal. Ergonomics are good, with sensible use of knob colours and clear pointer indications, but one of the difficulties of cramming such a lot of mixer into a 19-inch rack width is that everything ends up so close together. Although the mono channel spacing (about an inch) is the same as on the WZ16:2 stereo desk, with the added routing buttons in place two things happen. First, the fader markings between -10 and +10dB end up obscured by the fader caps themselves; which makes it tricky to position the faders accurately around the 0dB setting. Second, with two adjacent faders set at typical 0dB positions, it's difficult to reach the buttons between them unless you have slim fingers. My hands are not large, but only my two smallest fingers were narrow enough to operate the buttons in this situation. This problem does not arise with the stereo channels, as the spacing here is 1.25 inches — even an extra quarter of an inch makes a lot of difference!

The mono channels have excellent EQ (see the 'Listen Here' box and the screenshot), and are one of the main selling features of this desk. I also

WHAT'S ROUND THE BACK?

On the rear panel, the first eight channels have both XLR and TRS jack input sockets, as detailed in the main text, along with an Insert, also on a TRS jack at 0dBu level. Phantom power is switchable on a global basis for the XLR inputs. The stereo inputs are on twin mono jack sockets (unbalanced), with the Left channel also doubling, as usual, for a mono input. The 8-track Tape Inputs and Outputs are again on jacks: the inputs are unbalanced, with a useful global back panel switch that selects between -10/+4 levels, and the outputs are impedance balanced, wired to TRS jacks. The Aux sends (including Cue 1 and 2) emerge on impedance-balanced TRS jacks at -2dBu (about 600mV RMS), which I presume is a compromise between -10 and +4 levels, allowing connection to a wider range of devices.

Two sets of L-R connections are provided for stereo recorders. The first, '2TK-1', has balanced XLR connectors at +4dBu level: a pair of male ones for outputs, and a female pair for the inputs. The second set is labelled '2TK-2', and these are on TRS jacks at -10dBV (the outputs are balanced, but the inputs are only impedance balanced). A further pair of TRS jacks provides the L and R outputs with an insert point at -2dBu. The Talkback input (mono jack socket) is suitable for dynamic mics, and its sensitivity can be adjusted by a front-panel trim control, from -50 to -20dBu. Finally, on the back panel, the built-in mains power supply has an IEC socket, and a small on/off toggle switch.



liked the fact that the stereo channels, although they have greatly simplified EQ, keep the same 60Hz and 12kHz turnover frequencies. So many manufacturers change to coarser frequencies such as 100Hz and 10kHz; while this gives more radical control, it can often end up sounding harsh by comparison. I did find the Cue 1/2 system a little confusing, since it's obviously intended as a single stereo Cue with both the Tape Returns (post-Pan) and the Stereo inputs (pre-Pan). However, it still appears as two separate controls for the mono channels, which makes setting up foldback a little more thought-provoking.

CONCLUSIONS

The extra £160 on top of the WZ16:2's price gives you an extra eight inputs, 8-buss routing, a 1kHz line-up oscillator, and talkback, as well as the Mixdown button, which allows every multitrack channel to be automatically re-routed to a full 4-band EQ channel strip. Having 28 inputs available in total makes this a very useful mixer for many recording setups, with, arguably, the right balance between mono and stereo channels — even with eight tracks recorded, you still have enough stereo inputs to hear a clutch of synths and effects units, during both recording and mixdown. Although there are no metering or faders for the 8-track outputs, most people will have their eyes firmly glued to their ADAT (or equivalent) meters, since digital recording is so unforgiving of overload.

> "Having 28 inputs available makes this a very useful mixer for many recording setups..."

This is a little desk that can do a lot, with the minimum of fuss and a surprising amount of flexibility. You couldn't cram much more into a standard rack width and still operate it comfortably, and if you want this much mixer to fit in a rack, the Wizard 20:8:2 is well worth a look. It's excellent value for money, and should suit many musicians' requirements. SOS

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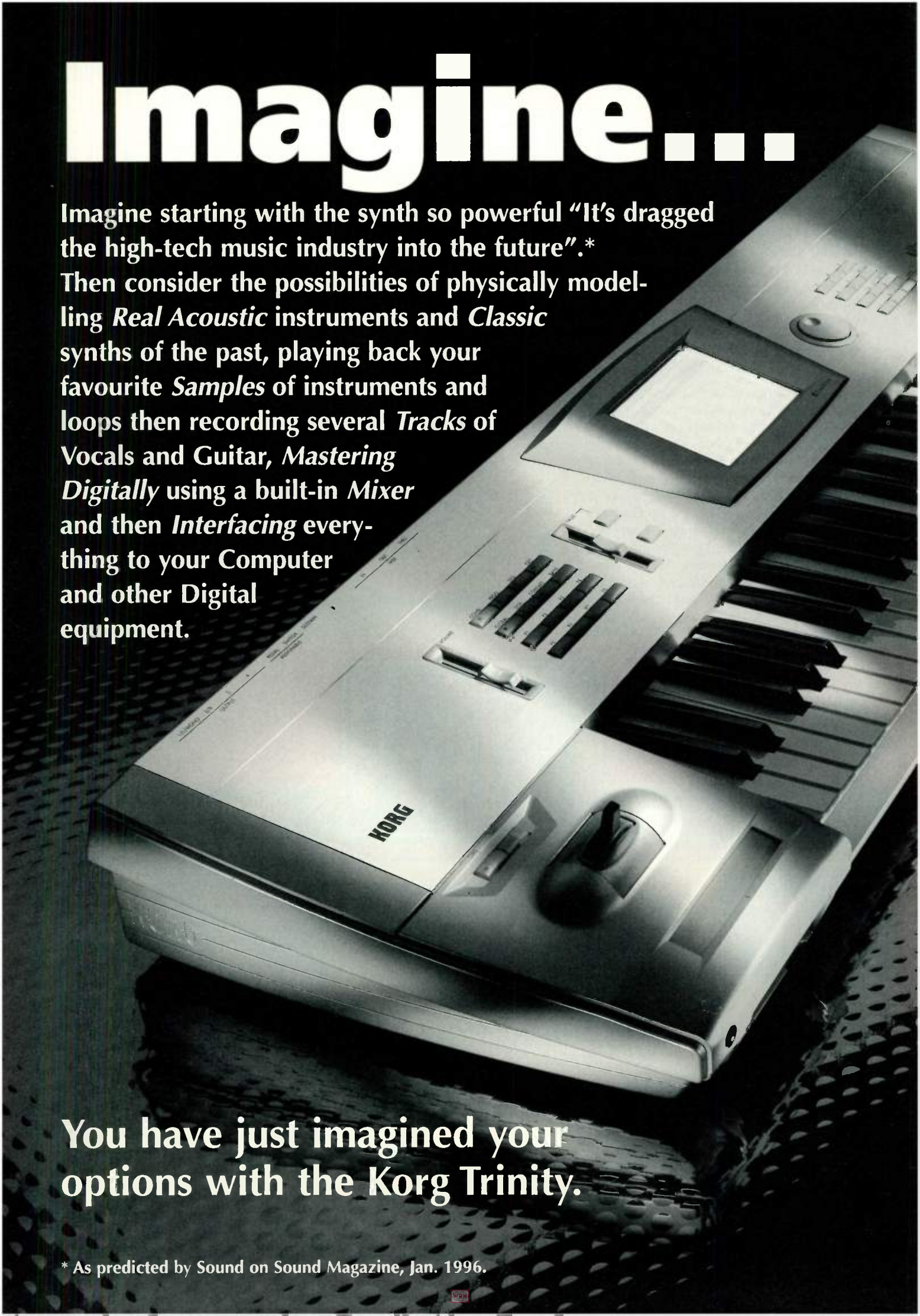
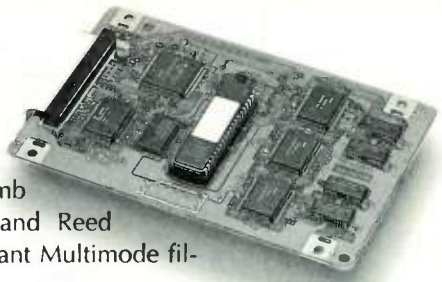


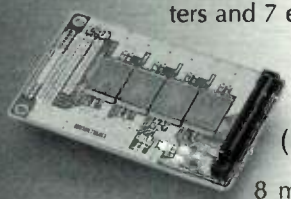
You have just imagined your options with the Korg Trinity.

* As predicted by Sound on Sound Magazine, Jan. 1996.

Solo TRI Option



This is a complete Prophecy sound engine. Analogue, Ring, Cross, Sync, VPM and Comb synthesis plus Picked, Horn and Reed physical modelling. Two Resonant Multimode filters and 7 extra effects.

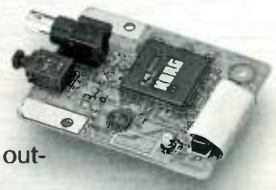


PBS TRI Option

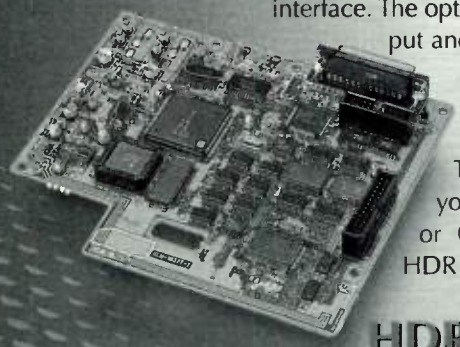
(Playback sampler)

8 megabytes of memory that allows you to load samples in KORG or AKAI S1000 format. Being Flash ROM means that samples are not lost when power is disconnected. Adding this board also adds 2 extra banks of Programs and Combinations and adds 64 extra program locations to the Solo Board Bank if fitted.

Digital I/O TRI Option



This enables you to connect Trinity digitally to any device with an ADAT Format digital interface. The option features an ADAT Digital output and a Wordclock input.

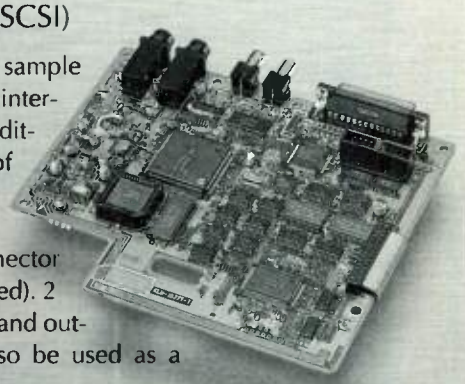


SCSI TRI Option

This board adds a SCSI port to the Trinity enabling you to connect the Trinity to an external hard drive or CD ROM drive. (This option is included in the HDR TRI Option.)

HDR TRI Option

(Hard Disk Recorder with SCSI)



16 bit Hard Disk Recorder @ 48K sample rate. Synchronised to the Trinity's internal Sequencer. Non-destructive editing and automated control of Volume, Panning, EQs and effects sends. 2 track record and 4 track playback. SCSI connector for external hard drive (not supplied). 2 analogue inputs and SPDIF input and output. The SPDIF interface can also be used as a Backup Utility.

Trinity Pro 76 note

Trinity ProX 88 note weighted action

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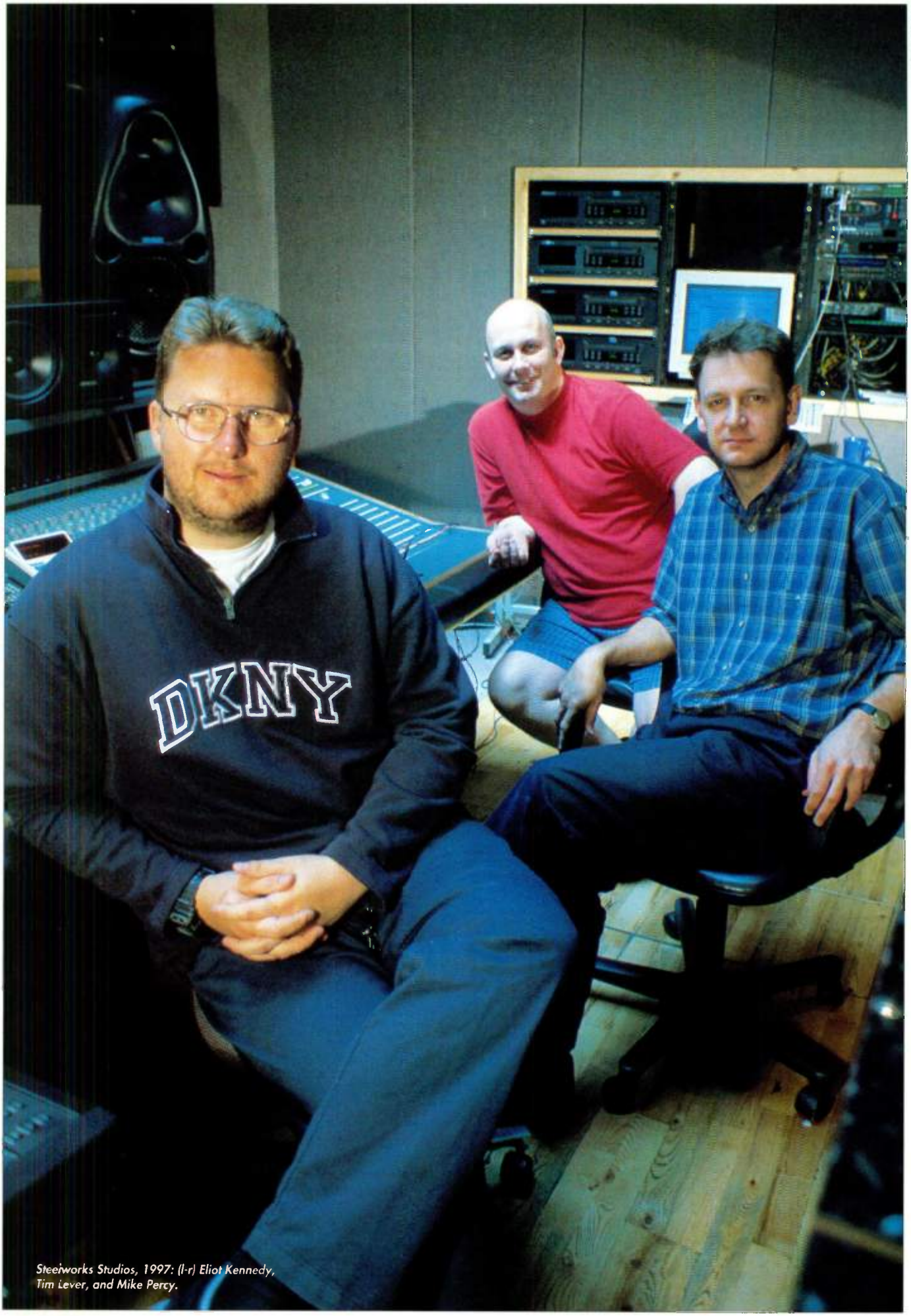

Photo: Nigel Humberstone

Steelworks Studios, 1997: (l-r) Eliot Kennedy, Tim Lever, and Mike Percy.

man of steel

ELIOT KENNEDY • STEELWORKS

Eliot Kennedy has carved out a highly successful career for himself as a hi-tech producer and songwriter for a wave of groups at the 'teen sensation' end of the pop market, all without leaving Sheffield. NIGEL HUMBERSTONE finds out how he did it.

With a couple of Number One hits under his belt — the Spice Girls' 'Say You'll Be There' and Take That's 'Everything Changes' — Eliot Kennedy is a renowned producer with an international reputation. Despite his tremendous success, Eliot has remained in his home town of Sheffield, initially producing and writing in a home studio on the outskirts of the city. When the need to expand his studio became acute, he still resisted the pull of the capital, moving his equipment into the professional environment of what was once FON studios, in the heart of Sheffield. In fact, in taking over the vacant and liquidated studio complex, Eliot pooled his resources with two London-based producers, Tim Lever and Mike Percy (now his studio and production partners), and as a result of this move Tim and Mike actually closed their studio on the outskirts of London to move up to Sheffield! Together, the three of them reckon there are very few of the teeny pop stars that they haven't produced during the last five years.

"We used to work on the same projects purely by accident," recalls Eliot; "people like Pauline Henry, Dannii Minogue and Higher Ground. But we got together properly through working on *The Journey* [the album by 'boy band' 911]: I started it at my house, then Tim and Mike got involved and at first we commuted between my place and their studio."

Six singles have now been taken from 911's album, and the production trio's workload shows no signs of diminishing. Together, they've shaped the old FON studio (now called Steelworks) into what can be termed their 'production line' facility. Certain items of FON's old equipment have been kept (the classic Eventide Harmoniser, EMS Vocoder and Urei 1176LN compressors), but the Amek Mozart console has been replaced with a 40-channel version of the same desk, and structural changes have done away with the redundant multitrack, machine and cutting rooms, incorporating the space into a second programming suite/studio designed by electro-acoustic specialist Andrew Parry.

Now that Eliot has transferred his home studio equipment into the existing second studio, upgrading his Soundcraft Spirit 24 to a 32-channel Ghost and adding new Absolute 4P monitors and a Korg XP master keyboard, Steelworks comprises three fully compatible facilities with Apple Macs, Emagic *Logic Audio* and Audiowerk8 I/O cards, and 24 tracks of ADAT.

"The majority of what I do is vocals and arranging," explains Eliot, "even though we do swap and change. I'll get a track going, but Tim might also be working on the same track in his room doing a load of keyboard and drum programming. And Mike, in the main control room, will be mixing the track that we've just finished; we'll just have to pass the ADAT tapes through. In an album situation you can turn things round very quickly. Last week we had 911 in for the weekend and we got through seven tracks in three days — and that was just using two rooms.

"We've got so much work on that we've got a backlog — there's 10 or 11 mixes to do just to bring us up to date with our production schedule. That's simply because there was a period of three or four weeks when we moved in and we weren't working together properly — so all that time I was stacking songs up. Luckily I'm going to America for a month [*to work with Burt Bacharach*] so that will give Tim and Mike a chance to come up to date."

SHEFFIELD VIBE

Being in Sheffield's cultural industries quarter, Steelworks cannot help but absorb some of the creative vibrancy that the area is renowned for.

"To be honest, it's refreshing to get away from the London music scene," admits Tim. "I think that, in 10 years of producing records in London, only five percent of our acts were actually from London. So it wasn't that relevant us being based there. The vibe in this studio is about 500 times better than it was before; because it's a multi-studio complex, there's always someone here. Yesterday there was a band in Eliot's room and we were doing a track in the main room, so I just went through and asked the guitarist if he wanted to do a quick session."

"It doesn't matter what you're doing," says Eliot, "because you're all working towards the same thing. Maybe you'll get some horn players in and they're in two studios doing two different sessions. So everywhere's buzzing and exciting. One of the things I liked about working at my house was that people would enjoy coming over to play, not just because they were being paid to play, but because it was a good crack. I wasn't sure if that would continue here, but it has. More importantly, with Tim and Mike being here as well, they've got to know everybody that I know on the local music scene. We've got local session musicians who come in regularly, and it's more important to me that they're comfortable with the whole process. They come in, have a bit of lunch and stop around as long as necessary."

For Tim, the new studio and environment even have a touch of classic recording traditions.

"What I like about it is that we've nearly got to the stage of having a house band like Motown — and I really like that idea. In the Motown studio they had the drum kit set up permanently with all the same microphones. You get such a good

▶

Photo: Nigel Humberstone

Eliot Kennedy's setup at Steelworks, including (rack, top left, top to bottom) Aphex Aural Exciter Type C, Alesis Midiverb II, Alesis Quadraverb, Lexicon Alex, and Alesis Midiverb IV, Axxeman guitar effects. Eliot's Soundcraft Ghost mixer, Spirit Absolute 4P monitors, Tascam DA30 DAT and collection of Drawmer processors (DL441, 1960 and M500) are also visible.

▶ relationship with the musicians that they come to know what you're after. You only have to hum it to them — actually, yesterday we got a kazoo out and said 'This is what we want!'"

A LITTLE HISTORY

"I always wanted to be a musician," says Eliot, "but never had the wish to be a performer." He began writing songs at 13, along with his brother, using two Wasp synths, a portable studio and a Roland Drumatix drum machine.

"I started a band at school, entered the TSB Rock School competition and came third, but what I wanted was to write and get into studio work."

Through apprentice engineering at weekends and after work at Blank Tape studio in Sheffield, Eliot learnt how to operate studio equipment, then went to Spain for a year. On his return, he was involved in a car crash, and the insurance pay-off allowed him to buy some gear and start up on the Enterprise Allowance Scheme as a freelance engineer. The varied studio work ultimately led him into production work and programming.

"In 1990 I started working with a couple of songwriters in Sheffield under the name 5 Boys and it all started coming together — I'd found an outlet for my songwriting as well as being able to do the production side."

After about two years of constant demo'ing with different artists, Eliot met with Lulu through his new manager, and produced the hit 'Independence'. That led onto other projects, such as a Pauline Henry album, Dannii Minogue's 'This Is The Way', and Kenny Thomas' 'Destiny'. Then came a phone call from RCA asking if he wanted to make a record with Take That.

"We went down to London for a meeting, and they played us a tape and said 'Pick a song'. On the demo tape were 'Pray' and 'Wasting My Time', which we chose because I thought I could create more of an effect by incorporating live musicians. ▶

ELIOT KENNEDY — SELECTED GEAR

SYNTHS/KEYBOARDS

• Emu Planet Phatt
"I've used the guitar samples on just about everything I've done in the last two months. I use it for getting loads of things that I would normally have used the sampler for, like getting little snatches of sounds. And of course you don't have to worry about copyright. All the grooves are useful for when you're writing."

• Emu Morpheus
• Emu UltraProteus

• Emu Vintage Keys
"This has some great analogue patches, and I also like the Hammond sounds. I've also been able to get into it and program a lot of my own stuff."

Photo: Nigel Humberstone

• Korg M1R
• Korg Trinity ProX
• Novation BassStation
• Roland JV1080

• Yamaha TX7
"I've got two of these DX7 modules, which again I've got permanently set to one sound: it's like a Rhodes piano. And they're both the same sound, but one has a higher frequency filter open and the other is slightly detuned. I pan them left and right to create this fantastic Rhodes sound that seems to move."

• Yamaha TX81Z
"The TX81Z is always set to one sound, which I adore, a bass sound called 'Lately Bass'. It's a factory preset that I've tweaked slightly, but it's fantastic — a classic dancefloor bass sound. It's like one of those bass sounds that Babyface always uses."

DRUM MACHINE

• Alesis D4
"Because it's got some fantastic percussion sounds. Things like the cymbals and hi-hats — once you've put them in the back of a track or behind a loop they sound great."

SAMPLER

• Akai S3000XL (32Mb)
"I'm not one of those people who have lots of sample CDs — I'd rather build my own sounds up over a period of time, creating drum and percussion loops with drummers that I've hired. What sounds like a lifted sample is in fact a carefully constructed and multi-layered loop, including crowd atmosphere, scratching and various drum sounds."

COMPUTERS/SOFTWARE

• Apple Power Mac 8100 running Emagic *Logic Audio* & Audiowerk8 I/O card

• Atari Megafile 30 running *Creator 3.1*
"I'm going to have to keep this, because the hard disk is just full of my career."

RECORDING

• Alesis ADAT (x3) plus BRC
• Alesis Midiverb II effects
• Alesis Midiverb IV effects
• Axxeman guitar effects
• Drawmer 1960 compressor
• Drawmer DL441 quad compressor
• Drawmer M500 stereo processor
• Lexicon Alex effects
• Spirit Absolute 4P active monitors

• Soundcraft Ghost 32 mixer
"The EQ is brilliant. I was a bit sceptical at first because I'd got so used to my old Spirit 24, but this is fantastic — loads of options. It also sounds really loud, and so punchy that I have to watch that my output levels are not too high. I can do something in here, take it through to the main room and it sounds like a record, it's so close to being a master, which makes my job a lot easier."

• Tascam DA30 DAT

More of Eliot's gear at Steelworks, including (top to bottom) an Alesis D4, Emu Planet Phatt, Akai S3000XL, Yamaha TX81Z, Emu Morpheus, UltraProteus and Emu Vintage Keys, Roland JV1080.

WRH

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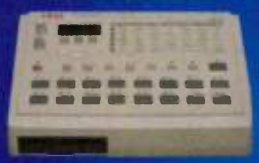

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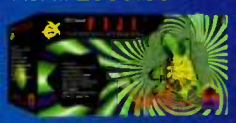

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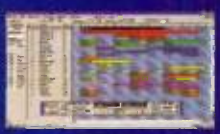

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Roland Tgmidi (ATARI)	£79.00	Yamaha W7	£899.00 (NEW)
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BVs A SPECIALITY

Vocals are an Eliot Kennedy speciality — especially backing vocals, or 'BVs' as he calls them.

"What I do is multitrack onto the ADAT, balance the levels and harmonies through the desk, sample a stereo mix and place it, and then re-record it back to ADAT via the Drawmer 1960 compressor, which gives real warmth and a slight compression that really gets the backing vocals sitting nicely in the track."

▶ So I put a band together, using mainly Sheffield musicians, then delivered the song — and Gary [*Barlow*] asked if I wanted to produce another one.

"I got on really well with 'the boys'," recalls Eliot, "mainly because we're all about the same age and have similar interests in music. Then I got a phone call from my publisher, saying 'Gary wants to co-write, do you want to do it?' The next day he was over, and 20 minutes later, in the kitchen, we wrote 'Everything Changes'. Gary came along with the title, we sat down and I put 'but you' in brackets. After a couple of hours, we had the whole structure and song — so it was a very quick process."

Eliot's aim has been to work with different people all the time, rather than one writer. As a result, he has broadened his base as a producer. His R'n'B style has also led him to America, where he was called to work with MJJ Records (Michael Jackson's label) — writing for Rebe Jackson, 3T, Brownstone and other acts on the label.

WORD GAMES

As an aid to lyric-writing, Eliot has a small collection of reference books sitting on the shelf (see the photograph, right) .

"I don't actually use them very often, but every now and then if you're stuck, the quotations are useful. Maybe you'll be trying to say something, so you look up phrases in that area and someone's said it much better than you're able to, so all you do then is make it work for your song. The rhyming dictionary is just invaluable — it's like the Bible for lyricists."

> "You can't lie to kids, so when there's a new act on they either like it or they don't."

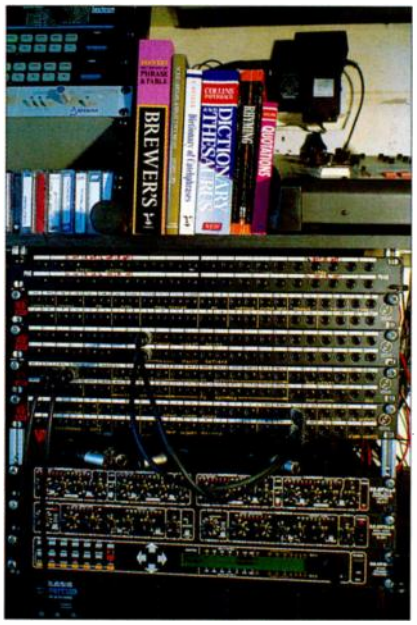

Photo: Nigel Humberstone

Eliot's 'invaluable' reference material for lyric writing. There's also a vintage Roland TR808 drum machine on the right.

Abbreviations and titles are also a constant source of inspiration.

"I work a lot from titles. Titles inspire me to think of a direction; if it's one of those really hip titles — like with Kavana, one of the titles was 'MFEO' — everyone who hears the song asks what it means, which is what we want. 'MFEO' means 'made for each other' and the whole song is about the title. Another song we've written is called 'The Swing', and it's about being young — when you're hanging out you're actually swinging. I like creating hooky phrases.

"Funnily enough, with our own new act, these three girls from Nottingham called Blush, we've done a title track called 'Blush' and the whole concept of the project is future funk: disco music but really spacey. Futuristic but accessible. So Blush is a P-Funky disco tune about the whole concept of being a Blush girl or Blush babe, being young and among a group of friends who want to be pop stars."

But doesn't he find it difficult relating to a teenage market?

"It can be, but at the same time there's a lot of bullshit that goes with it. You hear an A&R man talking about marketing and all the rest of it, but if you just go to any of the *Mizz* or *Smash Hits* roadshows, you can look at the kids and see what ▶

STEELWORKS MAIN STUDIO

SYNTHS
- Emu Proformance piano module
- Korg Trinity Plus
- Oberheim Matrix 1000
- Roland MKS50
- Roland Super JV1080
- Waldorf Pulse
- Yamaha TX7

SAMPLER
- Akai S3200

COMPUTERS/SOFTWARE
- Mac clone 200MHz 604E running Emagic *Logic Audio*/Audiowerk8 I/O card

RECORDING
- Alesis ADAT 8-track (x4)
- Alesis Midiverb IV effects
- Amek Mozart 40-channel mixer (with 32 Rupert Neve EQ strips, 8 stereo)
- BBE 4428 Sonic Maximiser
- Bel digital delay
- dbx 120XDS bass enhancer
- Digitech Studio Vocalist
- Drawmer 1960 compressor
- Drawmer DL221 comp/lim (x3)
- Drawmer DS201 gate (x6)
- EMS 1000 Vocoder
- Eventide 8910 Harmoniser
- Fatar Studio 900 master keyboard
- Genelec 1022B main monitors
- Genelec 91031A nearfield monitors
- Lexicon 224 reverb
- Lexicon PCM90 reverb
- Marshall JMP1 valve preamp
- MOTU MTP AV synchroniser
- Roland SDE3000A delay
- Sony D7 delay
- Sony R7 (x2) reverb
- Sony M7 modulator
- SPL SX2 (prototype Vitalizer)
- Symetrix 544 expander gate
- Syquest EZ drive
- Tascam DA30 MkII DAT
- TC Electronics Finalizer mastering processor
- TC Electronics M5000 effects
- Urei 1176LN compressors (x2)
- Yamaha SPX990 reverb
- Yamaha REV5 reverb (x2)

The recording area in Steelworks' main studio, featuring the Mac clone running Logic, the Korg Trinity Plus, and four ADAT XTs.

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Roland JD800	£130	£48.70
Roland RD600	£170	£63.70
Roland XP80	£139	£52.33
Korg Prophecy	£79	£29.62
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Yamaha MU80	£55	£20.62
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Yamaha VL70	£50	£18.70
Yamaha SU10	£30	£11.20
Yamaha RY20	£38	£14.20
Yamaha QY700	£99	£37.50
Emu Planet Phat	£96	£35.95
Emu Carnival	£99	£37.50
Novation Drum Station	£50	£16.83
Novation Bass Station	£40	£14.95
Korg NS264	£60	£22.29
Korg X50 Module	£50	£18.84
Korg X5 Module	£39	£14.83
Waldorf Pulse	£60	£22.45
Waldorf Pulse Plus	£69	£26.08
Akai Vintage Synth	£30	£11.25

DIGITAL RECORDING

	Deposit	Per Month
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Roland VS880	£149	£56.08
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Fostex D80	£129	£48.75
Fostex DMT8VL	£99	£37.50
Fostex XR7	£49	£18.75
Fostex XR5	£39	£15
Fostex D5 Dat player	£87	£32.83
Tascam 564	£109	£41.25
Tascam 424 Mark II	£53	£19.83
Tascam 414	£35	£13.08
Yamaha MD4 Mini disk	£90	£33.70
Yamaha MT4X	£49	£18.75
Alesis Adat	£249	£93.75
Roland VS880!	£235	£88.49
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SAMPLERS

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Akai MPC200	£119	£45
Emu E6400	£235	£88.49
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Yamaha A300	£129	£48.58

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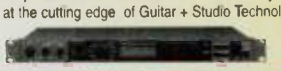

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they're into. You can't lie to kids, so when there's a new act on they either like it or they don't. They don't have to tell you why they don't like it — they just don't buy it. You can tell by their reactions what works and what doesn't."

RADIO GAGA

When it comes to making pop tracks 'radio friendly', a different approach to arranging and production is required, and Eliot is well placed to elaborate on some of the essential points.

"Take the Sean McGuire single 'We Can Make It Right', for example. The song had a double verse, and immediately I knew that the radio mix should only have one, so that you get to the chorus quicker. What I consider a radio mix is something that'll allow the DJ to talk over the intro, by which point I want to be able to hear the chorus — what this song's about. So my radio mixes start with, say, four bars of groove or instrumentation and then build up to the chorus or backing vocals from the chorus, so you immediately get the hook. Then once you're into the song, just keep it concise and punchy.

"There is also a different reference to EQ when I'm doing a radio mix — generally it'll be brighter, and I'll want the mix to sound wide. Radio compression is very severe, it has to be, so if you deliver a song that's already been treated then it's going to sound better. With a PA [*personal appearance*] mix, I'll mix it as a 7-inch with the vocals and then take the lead vocal out so that I know it's going to sit right. Another thing I might do is raise the level of the backing vocals, just to give the track some more dynamics. As a rule I deliver instrumentals as well, along with an album version, which will be the full length with double verse, and might have an instrumental verse and extended fade."

MR BEAN — THE MOVIE

A recent project that Eliot has been involved with is the Boyzone track 'A Picture Of You', the theme for the new Mr Bean movie *Bean*, made by Working Title Films.

"Doing the Boyzone track for the Mr Bean soundtrack was one of the hardest things I've ever done in my life because there was such a strict brief from the film people. They said that they needed a song that had no love interest, in fact no gender reference whatsoever, but it had to be a story about the film. But from Boyzone's perspective the track had to be a love song! Eventually we found a way — and it looks as though it's going to be a massive record."

Among countless other projects on the go, Eliot is working with Kenny Thomas, Shiva, Blush and another new act called Six Pack. But despite his hectic schedule, he obviously thrives on the variety and diversity of the work.

"That's the great thing about it. If I was working on just one project for a period of three months, I'd be stale. But, because every two days the product changes, it's refreshing. To be honest, I don't enjoy doing more than four or five tracks on an album — for one thing, you start repeating yourself. With Take That I did 'Everything Changes', the Beatles medley, 'Wasting My Time', and 'Whatever You Do To Me', along with the backing vocal arrangement on 'Relight My Fire' — and after that I thought 'Well, what do you do now with Take That?' You've covered all the live aspect, you've done the disco/pop angle, and I really felt we'd achieved something on that album. I don't want to be known as a producer with a certain sound — instead you go to Eliot Kennedy because of what he does to a record."

Among all this, Eliot doesn't appear to crave the recognition of his involvement with chart-topping acts.

"I'm quite cool about that — I don't mind, simply because I want to get on with my life. I'm going to be a Dad soon and the idea of not being able to spend time with my baby scares me to death. I like the idea of coming to work, working sensible hours, going home and still having a life." SOS

STAR-MAKER MACHINERY

"One of the main areas that we've become known for is development," explains Tim Lever. "With 911, we'd basically made the album before they signed a deal because we had that much confidence in it. There were a million boy bands around, but we thought that they were the most likely. We made the album for nothing, essentially, which allowed the management to create a vibe by putting out a couple of singles first and then sign a deal with hits under their belts. Having a facility like this gives us the confidence to go out and do things like that."

"We're prepared to put the effort behind an act that we believe in, without the cash up front," professes Eliot. "It's a good philosophy and I can sleep well at nights knowing that we're doing the best that we can. Then when you do eventually get your wages through royalties, it's an excellent feeling because you've believed in that project and it's become successful. 911 are pop stars now because we believed in doing it."

SPICED OUT

When I first met Eliot Kennedy during the summer of 1995, he was working from his home studio on the outskirts of Sheffield, consolidating his success with Take That, and the names scrawled on his wall chart included both the great and the unknown: Dannii Minogue, Sean McGuire, Danny Campbell, Jadie, B-yond, Kavana, Lulu, Kenny Thomas, Rebe Jackson, 3T, Intastella, Pauline Henry, Kim Appleby, Melanie Williams — and a group of five girls who were then but a twinkle in the nation's eye: the Spice Girls.

I must admit that I didn't take too much notice, but Eliot was so enthusiastic about these five adventurous girls who had stayed at his house while they demo'd and recorded in his front room, that I couldn't help but think that something great was going to become of them. Their worldwide success has been so enormous that even Eliot describes the scheduling of studio time for the next album as a logistical nightmare.

"Trying to allocate the time is unreal — they're either doing the script, in make-up, on set or doing interviews for their movie. There's not a moment to record the next album."

The Nolans (shurely shome mistake? — Ed).

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bigger on the inside

YAMAHA QY70 MUSIC SEQUENCER

Back in 1991, Yamaha released the QY10 — a video cassette-sized case containing a simple battery-powered 8-track sequencer and a crude sound generator. With its ability to let you compose music anywhere, this musical notepad was immediately popular, and started off a whole series of similarly sized portable music-makers. In 1994, they combined the ideas from their QY22 with the much older and well-loved QX series of hardware sequencers, and came up with the QY300 — a full-sized, and very powerful, 'keyboardless' workstation. More recently, the even better-equipped QY700 has become Yamaha's flagship hardware sequencer — see Paul Wiffen's excellent review in the November 1996 issue of *Sound On Sound* for more details.

Yamaha always innovate. Having redefined the word 'sequencer' so that it meant a combination of a hardware sequencer and a sound generator, they've now taken the QY700 and squashed it into as small a case as possible. That, more or less, is exactly what the QY70 is — a smaller version of the QY700, albeit with a little trimming of specifications here and there. Paul's review concentrated on the 'pure' sequencer functions of the QY700, so here I'll also attempt to discuss some of the more unusual functions of its smaller cousin — its arranging and composing tools.

DON'T BE FOOLED

The QY70 is small. About the same size as two video cassettes, or a hefty paperback. Because of the limited capabilities of the previous members of the QY series, especially the 'fun-but-fiddly' QY8, you might assume that this is just an expanded QY22. To overcome this preconception, take a close look at the specification box elsewhere in this review. Despite appearances, the QY70 is no toy. It's a serious music-making machine. And it's so much fun to use that many hi-tech musicians will surely find it hard to resist, so beware when you take one for a test drive!

As with all 'WalkStations', the QY70 is actually three different pieces of equipment interlinked in the same box. Two of them are probably familiar to most hi-tech musicians: the sequencer and the sound generator. But the third is normally associated with domestic 'fun' keyboards rather than serious professional equipment: an auto-accompaniment generator. Before you turn the page in disgust, it's worth noting that Yamaha have taken a lot of trouble over making the accompaniment section work as more of a general-purpose tool than for merely playing back hackneyed and dull preset songs.

SEQUENCER

In isolation, the sequencer is a 20-song, 16-track, 32,000-event capacity model with the now usual battery backup so that you don't lose all of your work when you power it down. Alongside the expected real- and step-time recording modes, there's a 'Multi' mode, which allows you to capture multiple MIDI channels at once, rather than one at a time. If you were sceptical about the power lurking inside the QY70, here is your first tangible indication that this is something out of the ordinary. But then the 480ppqn (pulses per quarter note) resolution is more in line with a top-notch computer-based sequencer as well! Scrolling event lists with user-settable view filters are also present, and the only niggle is the lack of a piano-roll view for us graphics-dependents — you'll have to buy the QY700 for that.

No Yamaha sequencer would be complete without a 'Job' menu, and the QY70 adds a few very useful additional facilities to the ordinary Copy, Transpose, Modify and Erase jobs. How about a job that flams chords, or one that sorts the notes in a chord so that they are either in highest-to-lowest, or lowest-to-highest order in the event list? A cynic might say that this is because the pico (it is too small to describe as 'micro') keyboard scanning rate is so slow that chords need quantising or flamming afterwards because you can't play them correctly. Personally, I think anything that lets me manipulate events other than by tediously moving them by hand has to be a good move. There's also a job that 'expands' the accompaniment information into tracks, so you can edit it to suit your own preferences — of which more later.

Despite the small size (and lack of back-lighting), on the main 'Song' screen, eight tracks can be shown, and the display can indicate the activity on the track with a five-segment 'meter', as well as showing which tracks are empty, and the mute/solo status (see screen on p.230). There's the usual 'Mixer' view, showing which sound is allocated to which track, the pan position, and volume. A 'Play Effects' screen also enables control of the Effects Thru, the use of any of the 100 groove templates on selected tracks, and the adjustment of the effect of the template on timing or velocity. There's also a screen for setting up the three DSP effects processors, which allows precise placement of effects because of its mix of global and 'insertion' effects routing — again, this is very much the norm on current Yamaha equipment. For drum tracks, there is a screen which allows individual drums to

pros & cons

YAMAHA QY70 £449

pros
- Compact and portable.
- Powerful composing and arranging tool.
- Musical notepad with accompaniment.
- Software support included.
- Cursor-driven operation.
- Software supplied.

cons
- No backlight for display.
- Small display.
- Limited sound editing.
- External power supply.

summary
A deceptively capable workstation-like device, comprising a powerful sequencer, sophisticated auto-accompaniment and a GM/XG expander.

SOUND ON SOUND

be replaced by alternative drum sounds.

The sequencer has the familiar 'tape transport'-type buttons that you associate with a sequencer, but also has the ability to set a 'jump' location for the 'Stop' button or 'Top' button to return to. Almost all of the major operations are either assigned to buttons, or are controlled by moving a cursor around the screen — it's only some of the editing and job functions that require the use of the menu button and the associated soft-keys. As with any piece of equipment, it can take a while for your fingers to become familiar with using it, but the ergonomic design (it just snuggles into your hands!), consistency and intuitive operations meant that I managed quite well even before I read the manual.

SOUNDS

The QY70 is GM compatible, but it also uses Yamaha's own XG extensions, which provide for extra sounds and more detailed real-time control over those sounds. As usual with any sample replay-based synthesizer, the best sounds are those which use two sounds in parallel, but this also eats up polyphony.

Whilst the QY70 doesn't boast the most earth-shattering sounds I've ever heard, its GM sounds are fine, and the XG extension sounds include some very nice additions. For composing and arranging, the selection is good, and the familiar grouping of sounds, plus their variations, makes it easy to find a specific timbre.

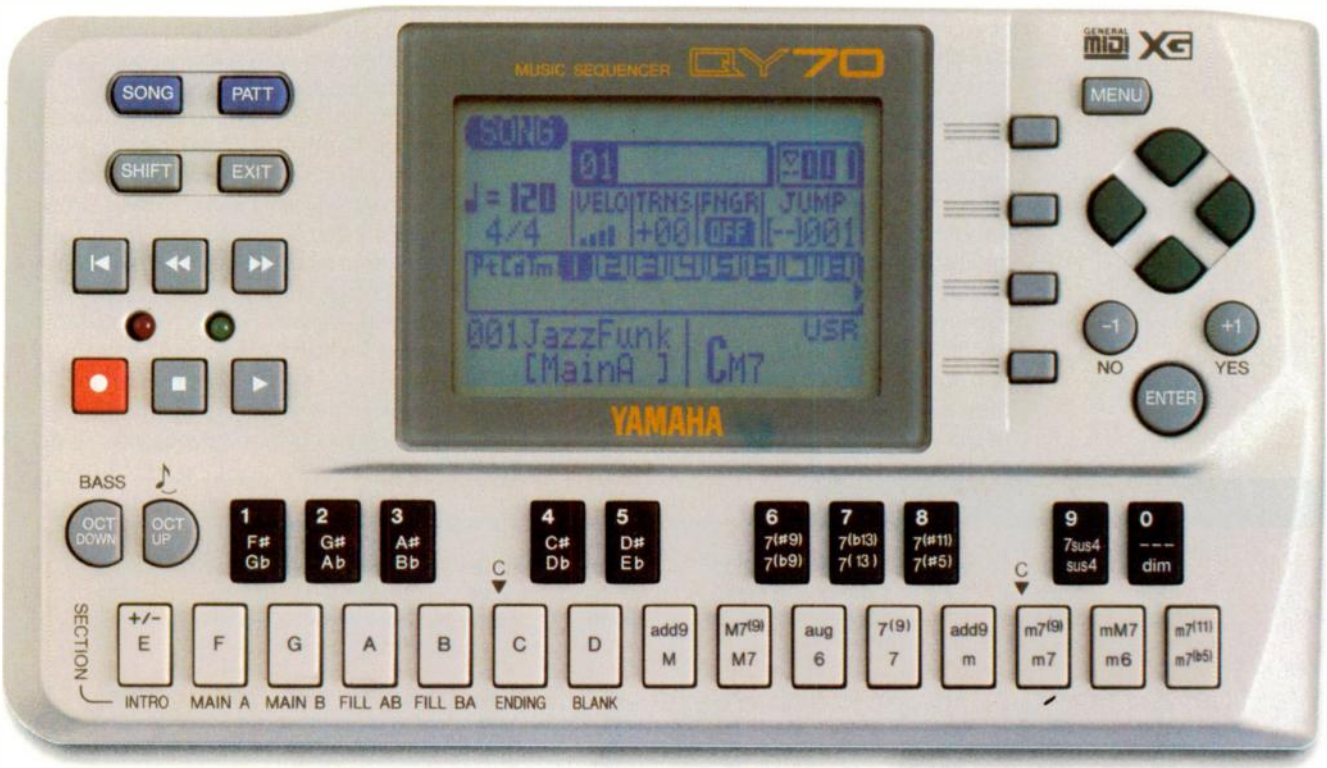
One thing you definitely don't expect to find on a portable music-making machine is sound editing. With only six parameters the editing is primitive, but it enables effective changes to be made to the timbres. The available controls are: Pitch Bend range; Filter Cutoff and Resonance; Attack, Decay and Release for the envelope. All of these follow the now-standard Yamaha convention of being alterable away from a default setting, which allows changes to be made intuitively, and then easily undone if required. Although it's only window-dressing, I thought that the change of filter response and envelope shape was a nice graphics touch.

The output volume into my standard 'Walkman' headphones was good, but an unexpected bonus was the mini stereo-jack-to-twin-phone converter lead which was supplied. If you've ever tried to hook anything with a mini stereo headphone jack into the rest of a studio environment, you'll know that this is a valuable accessory.

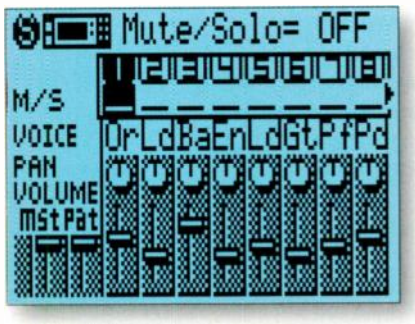
AUTO

If, like me, you normally avoid anything with even a hint of automatic accompaniment, on the grounds that it is too 'home organ'-like, the QY70's extensive facilities may not initially appear that attractive. But Yamaha have taken the trouble to include enough user customisation to make the accompaniment a useful feature rather than something which you will never use. In fact, the QY70 may well turn out to be an indispensable ideas generator.

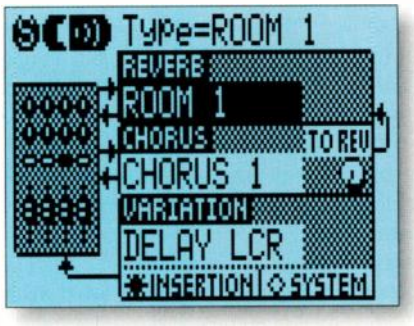
The key to understanding how the auto features work is the hierarchical structure of the accompaniments. At the highest level is a Style. There are 128 of these, with room for 64 user Styles as well. The Styles cover the usual drum-machine clichés, although there are rather more 'world' and unashamedly 'current' types than is usual. Styles come in six different sections: Intro, Main A, Fill AB, Main B, Fill BA and Ending. At the most basic, you can string a song together by choosing a Style, then placing these sections in sequence. The individual sections occupy eight tracks (separate from the 16 sequencer tracks), and each of these section groups is known as a Pattern. There's nothing to stop you mixing and matching Patterns from different Styles in a Song. Deeper still, the tracks in a Pattern are made up of individual Phrases. There are over 4000 ▶



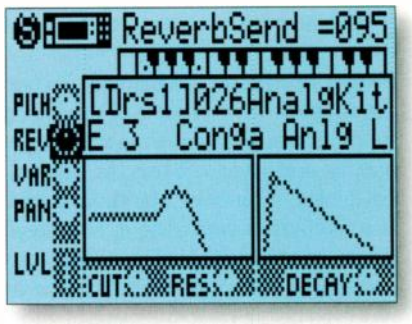
Yamaha QY70



Song Edit screen.



Song Effects Edit screen.



Drum Edit screen.

of these in the QY70, and they're little snippets of useful basslines, drum patterns, chord arpeggios, and so on. You can choose the playback speed, time signature and other parameters, and you're free to put any Phrase into a track.

You can record your own Phrases (in C major, of course, otherwise the auto-accompaniment harmonisation goes awry!), combine these into Patterns, and even make your own Styles — but there are plenty to be going on with if you don't want to produce your own. The Pattern screens provide mixing console-type control over the Pattern tracks, with pan, volume, muting, soloing and effects. The one thing you can't do is change the instrumentation of the preset Phrases — although you can copy them into a sequencer track and then tweak them.

But the most important element of the auto-accompaniment is back in the Song sequencer. There are three extra tracks — Pattern, Chord and Tempo — and these allow you to control the Style and the Pattern or Phrases which play at any time in the song. The Pattern track sets the Style and the accompaniment section, while the Chord track lets you set the chord and accompanying bass note. There are 26 types of chord, including one which allows you to disable the auto-harmonisation. Blocking out a song with chords and sections is quick and easy, and it's surprising how fragments of familiar songs crop up when you start working this way.

Constructing a fake sheet for a song isn't usually that onerous, but the QY70 also includes a very neat feature called Chord Template, which provides 99 sets of chord sequences, plus one user-definable one. There are Templates intended for Ballads, Pops and Blues, a set of jazz-orientated ones which use tension chords, and a set called 'Cliché' which are exactly that — instant clichéd chord sequences. I defy anyone to choose a Style, set a Cliché Chord Template in force, and then not want to sing or play along with it. Again, there's nothing to stop you producing your own chord sequences — the

COMPARISON

Here's a table which shows the other QYs, plus a couple of competitors.

Model	QY10	QY20	QR10	QY8	QY22	QY70	QY300	QY700	Roland PMA5	Korg i5m
Released	1991	1993	1993	1994	1995	1997	1994	1996	1996	1996
Reviewed	May 91	Jan 93	-	Sep 94	Nov 95	Sep 97	Aug 94	Nov 96	Aug 96	-
SEQUENCER										
Songs	8	20	100	20	20	20	10	20	20	10
User tracks	4	4	1	4	4	16	16	32	4	8
Backing tracks	4	4	1	4	4	8	9	16	4	8
Polyphony	32	28	28	28	28	32	64	64	28	32
Events	6000	28000	-	6400	28000	32000	53000	110000	21000	40000
Resolution (ppqn)	96	96	96	24	96	480	96	480	96	-
Sections	1	6	6	6	6	6	8	8	6	8
User phrases	-	-	-	-	-	64/style	100	99/style	-	4
Preset phrases	-	-	-	-	-	4167	3093	3876	-	72
User patterns	24	100	10	-	100	48/style	-	-	200	64
Preset patterns	76	600	90	300	600	768	800	-	600	128
SOUND GENERATOR										
Instrument sounds	30	100	71	40	128	519	128	480	306	384
Drum sounds	26	8 kits	60	58	8 kits	20 kits	8 kits	11 kits	16 kits	16 kits
GM/XG	-	GM-ish	-	GM-ish	GM	GM/XG	GM	GM/XG	GM/GS	GM
Sound Editing	-	-	-	-	-	Yes	-	Yes	-	-
Polyphony	28	28	28	28	28	32	28	64	28	32
Multitimbrality	8	16	6	16	16	24	24	32	16	16
Effects	-	-	-	-	-	3 DSPs	1 DSP	3 DSPs	2 DSPs	2 DSPs
MIDI	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/I/O/O	I/O	I/I/O/T
Storage	MIDI	MIDI	MIDI	MIDI	MIDI	MIDI	Floppy	Floppy	MIDI	Floppy
Computer I/F	-	-	-	-	-	Mac/PC	-	-	Mac/PC	-
Price	249	399	249	225	479	449	899	999	449	899

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DOCUMENTATION & SOFTWARE

The 246-page A5 manual is reasonable, but not particularly inspired. The 68-page 'List' book gives you some idea of the complexity of the sounds, drums, patterns, phrases, and MIDI implementation details. But the most innovative manual is the one for the *QY Data Filer*, a piece of software which is included with the QY70 package. Over the years, Yamaha have gradually ramped up their software support, and with recent products like the AN1x the software has been available from the Yamaha web site as soon as the equipment has been released. With the *QY Data Filer*, this practice has taken the next step, because now the Mac/PC storage utility software is provided with the equipment. You can move QY or MIDI File data back and forth between your computer and the QY70, which means that the lack of a disk drive is far less significant. Having dedicated software means that you don't have to mess about with recording SysEx data into a sequencer, or waiting for a module for a generic editor. Full marks to Yamaha for including software with the QY70.

SPECIFICATIONS

SEQUENCER
- 20 songs
- 32,000-event capacity
- 32-note polyphony
- 480ppqn resolution
- 16 sequencer tracks
- 8 pattern phrase tracks
- 6 sections: Intro; Main A; Main B; Fill AB; Fill BA; Ending
- 768 preset patterns
- 384 user patterns (64 per section)
- 4,167 preset phrases
- 48 user phrases per style
- 26 chord types
- 99 chord progressions
- Groove quantisation
- Drum mapping
- Multi-channel recording

SOUND GENERATOR
- S&S (AWM2)
- 32-note polyphonic
- 24-part multitimbral
- 519 instrumental sounds
- 20 drum kits
- 3 DSP effects

- 25-key pico-keyboard
- MIDI In and Out
- Stereo mini-jack output
- Computer connector (Mac or PC)
- Six AA batteries or mains adaptor

▶ preset chord templates are just a neat way of providing something else to play with and perhaps inspiring a song. I can see immediate applications for Eurovision Song Contest hopefuls.

CONCLUSION

I'm not normally given to playing around with auto-accompaniment devices, but the ability to delve deep into the component phrases, plus the 'instant' gratification of those chord templates, makes this one of the first automatics I've felt really comfortable with. In the past, I've always felt that you couldn't control things enough; with the QY70 you may find the task of programming a complete style from scratch a challenge, but at least you're in charge.

There's a lot to fit onto the display, with only a limited number of buttons, and this does mean that some of the ease of use of the QY700 is lost. But at half the price, and with only slightly diminished specifications, the QY70 is a marvellous piece of hi-tech gadgetry. And don't be misled ito thinking it's a toy: this is a very useable piece of creative equipment — especially when you consider the cost of a piece of sequencer software, the computer to run it on, and a GM/XG sound generator to make the sounds. Given the considerably more limited functionality of previous members of the QY70 family, the new addition looks more and more like a bargain purchase.

When I looked at the QY8, I could see that it had some scope for being misused and cajoled into generating some ideas, but it was mostly a sophisticated piece of amusement. The QY300 looked much more like a serious composition tool, but you would need to make it the centre of a studio, and the display was not ideal for that. The QY70 feels much more like a useful addition to a studio that is based around a computer, where it is used as an ideas generator and musical notepad — but it could also be the centre of a budget home studio setup. With the QY70 and 700, the 'WalkStation' finally comes of age. A very difficult act to follow, and maybe even a potential classic. SOS

Info

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HIP TO BE SQUARED

OBERHEIM/VISCOUNT OB3² TONEWHEEL ORGAN MODULE

In 1995, Oberheim released the OB3, a little-known drawbar organ module, subsequently eclipsed by Hammond and Roland's advanced electronic tonewheel organ emulations. Now Oberheim have teamed up with Italian organ specialists Viscount to produce the enhanced OB3². NICK MAGNUS squares the difference...

The Oberheim OB3 squared (OB3²) follows hot on the heels of the Hammond XM1/XMc1 (reviewed *SOS* May 97) in a bid to satisfy those looking for the famous vintage tonewheel organ sound in a rackmounting format. Both the XM1 and the OB3², unlike the standard 19-inch rack modules to which we are by now all accustomed, offer the benefit of physical, hardware drawbars that can be manipulated in real time whilst playing, or used to create various registrations to store within user memories. The principal differences between the Oberheim and the Hammond are twofold:

(1) Whereas the Hammond XM comes as two separate items (the sound module and a remote drawbar unit), the Oberheim takes an all-in-one approach; it's a single unit resembling the sawn-off left-hand control panel of a keyboard-based organ, such as a Hammond XB2, Korg CX3, or Roland VK7.

(2) The Hammond offers extensive editing of many parameters, while the Oberheim offers 'take-it-as-it-comes' features — parameters available for editing are kept to a minimum. If that sounds disparaging, it is not meant to be — a real Hammond organ has no means of customising

certain features, and as such the design of the OB3^2 can be regarded as more faithful to the original Hammond.

The OB3^2 is in fact Oberheim's second product of this type — as the name OB3^2 suggests, there was a previous model called the OB3 (released late 1995, reviewed *SOS* March 1996.) The newer OB3^2 offers significantly improved functionality, and dramatically improved sound. The panel legending displays the words 'Viscount joint venture' so it doesn't take much to deduce that Oberheim sought Viscount's not inconsiderable organ-building experience to assist in the voicing of the OB3^2.

CONSTRUCTION & LAYOUT

The OB3^2 is solidly built and reassuringly heavy — hence it's unlikely to be pulled from the top of your master keyboard by the weight of its own connecting cables. The livery is unmistakably Oberheim, featuring the famous logo and black legending on a white background — no low-lighting visibility problems here. The 'keyboard off-cut' appearance is enhanced by the polished wooden end cheeks, and the overall effect is very stylish.

To the left of the drawbars are six rotary knobs that cover treble/bass EQ, master level/overdrive and effect selection/level, and below those is one larger knob to select vibrato type. In front of the drawbars are 22 rectangular LED-embedded buttons that deal with selecting presets, user patches, percussion settings, vibrato assignment, the rotary effect and MIDI functions. Rounding off the hardware tour, the rear panel has stereo and headphone outputs, MIDI In, Out, and Thru sockets, a master tuning pot, three footpedal jacks for overall volume, rotary fast/slow speed selection, and one to alternate between the currently selected preset or live drawbars. Last on the list are the power switch, power cable anchor and a 10.5-volt input from the wall-wart power supply.

LET'S SEE WHAT'S OUT THERE

The OB3^2 operates in one of three MIDI reception modes: Monotimbral (Upper, Lower and Bass sounds all on the base MIDI channel); Duotimbral (Upper on base channel and Lower on base channel +1); or Tritimbral (as duo mode but with the addition of Bass tone on Base channel +2).

On powering up, the OB3^2 presents itself in the mode in which it was last left. The manual states that the six user memories have been pre-programmed at the factory — though on the review model, these locations were actually empty. No problem — the OB3^2 is, in the main, very self-explanatory, so I pressed the Drawbars button and pulled out a mittful of bars. The sound that came up was as close to that of a Hammond XB2 or XM1 as makes no difference — a promising start. To verify this, I set up the same drawbar registration on my beloved XB2, and indeed the comparison held up — a double-blind test would most likely yield no better than 50/50 results.

Having made a drawbar registration, saving it is a simply matter of holding the drawbar button down while pressing one of the six memory location buttons — and that's it.

IN A SPIN

Those of you who have bravely waded through my previous 'ersatz Hammond' reviews may well be expecting the usual hyper-critical assessment of the built-in rotary speaker effect. So, here it is... and it's great. The effect benefits from use of the stereo outs, with plenty of depth and swirl at the slow speed, and a satisfying throb when running at full speed. Editing parameters such as upper/lower horn balance and stereo separation are not available, but the basic rotary settings have been judiciously chosen, which is just as well — as mentioned earlier, editing is kept to a minimum on the OB3^2. However, Oberheim have provided the means to alter the acceleration/deceleration times between slow and fast settings. This is done using MIDI control change messages. Slow to fast time is varied using controller number 12, while fast to slow falls under the command of controller 13. This appears to work fine, and these parameters are variable over a wide range. The chosen settings are also retained at power-off, so your favourite ▶

SQUARING THE DIFFERENCE — OB3^2 & OB3 COMPARED

	OB3^2	OB3
Outputs	stereo	mono
Power supply	wall-wart	fixed lead
Rotary effect editable	rise/fall times	no
Reverb/delay effects	yes	no
Vibrato types	6	3
EQ (global)	Hi & Lo	no
Multitimbrality	3 parts	monotimbral
Presets accessible from panel	6 Up, 5 Lo, 1 Bass	6
User programmable presets	yes	no
Total number of presets	12	6
Panel functions TX/RX via SysEx	yes	no
SysEx bulk dump	yes	no
Variable keyclick amount	always 'on'	on/off

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'mass' of Leslie is available to you next time you play the OB3². Controller 14 is supposed to provide MIDI selection of fast/slow speeds, but here (as with other occasions mentioned later) I suspect the MIDI implementation of the OB3² is not yet complete; controller 14 values which are below 64 select the slow speed, as expected, but a value of 127 only manages to crank up the effect to about half of full speed. Hopefully Oberheim will rectify this fault before long.

REVERB AND DELAY EFFECTS

Five types of reverb/delay effect are provided on the OB3², selected via a rotary switch on the panel. These are Delay, Spring, Plate, Room and Hall. Of these five, only the delay is editable. As in the case of the Rotary effect, these edits are performed using control change messages. Unfortunately, the owners' manual is rather at odds with the truth; it states that Delay Depth (which I take to mean level) is varied with controller number 91, which seemed to do nothing at all on the review unit. As it happens, reverb/delay level can be set manually with the dedicated pot on the OB3²'s panel. The manual also states that Delay Feedback (ie. number of repeats) is altered by controller 102. The reality is that controller 102 alters the delay time, not the feedback amount. Experimentation revealed that feedback amount is actually governed by controller number 103 — a fact not documented in the manual. Once again, these settings are retained on power-off.

The four reverb algorithms are fixed, but perfectly pleasant and useable. The Hall algorithm is considerably louder than the other three, so you may need to adjust the effect balance when switching from one to the other.

The OB3² also receives pitch-bend messages, but only with a fixed range of +/-1 semitone — a curious restriction. Two semitones would be a more logical, useful choice for a fixed value. I'm sure some irrefutable logic was applied to arrive at that executive decision!

OVERDRIVE

Situated alongside the master level control, the Overdrive effect is intended to simulate the valve distortion of an overdriven Leslie cabinet. So far, I've been awarding the OB3² high marks in all other departments for authenticity. In the case of the overdrive, the marking echoes the comment regularly written at the foot of my school Maths homework: '3 out of 10 — see me'. This particular overdrive effect suffers from the same problem that's found in a number of other organ-based instruments: that is, it sounds like muddy filtered white noise layered over the organ sound, rather than producing the pleasing, growly interference of valve distortion. The timbre of the OB3² overdrive stays constant, regardless of the pitch played, which is, again, something that would not occur with a real Hammond. The only occasion when the effect becomes vaguely believable is when low octaves or octave/fifth combinations are played — and even then the 'muddy white noise' quality is relentlessly present.

This presents a problem (if the overdrive is important to you) in that it comes before the rotary effect. This is as it should be, but if you want an overdriven rotary sound, you are stuck with the overdrive effect provided by the OB3². This would not be such a stumbling block if Oberheim had followed the example of the XB2 and the old Korg CX3. Both of these provided a pre-rotary send/return jack, meaning that you could output the signal to a suitable external distortion device, and back into the instrument to be 'Leslied'.

I don't wish to seem unreasonably critical over this point, but (as previously mentioned in the XM1 review) there are plenty of half-decent digital (and analogue) overdrive representations to be found amongst the many effects units on the market. Sadly, it's probably way too late in the day to suggest that Oberheim do a little extra research into redesigning this effect — it's really the only sonically negative aspect of the OB3².

VIBRATO & PERCUSSION

The vibrato section is very straightforward — vibrato can be assigned to either or both of the upper/lower manuals, and the classic Hammond choice of three 'V' settings (plain pitch vibrato) and three 'C' settings (the throbby type) are provided. They are fair representations of the effects they seek to emulate.

The percussion is available only to the upper manual, and is in the traditional Hammond format

pros & cons

OBERHEIM OB3² £700

pros

- Great tonewheel sound; competes well with the best of the current market.
- Very good Leslie simulation.
- Three-part multitimbral.
- Extremely easy to use.
- Sturdy, chunky construction — looks very stylish.
- All controls (barring EQ) are transmitted/received via MIDI.
- Instant hardware access to drawbar settings and performance controls, unlike 19-inch rackmount-type modules.

cons

- Overdrive disappointing considering the otherwise excellent sound.
- Limited editing available for some parameters.
- Percussion, Vibrato and Rotary on/off status not saved within a program.
- No pre-rotary send/return jack for outputting signal to valve preamp.
- No custom drawbar settings available for lower manual sounds.
- No global transpose (or octave shift for lower manual).
- Owners' manual misleading in parts.

summary

A quantum leap, both sonically and operationally, from the original OB3. Not the cheapest dedicated organ module, but great for those who seek an authentic sound plus hands-on control of drawbar settings. If you can forgo some of the minutiae of editing available on more expensive units, this instrument should satisfy most, if not all of your requirements.

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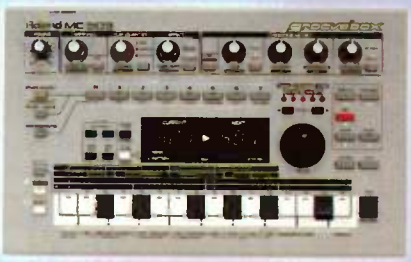

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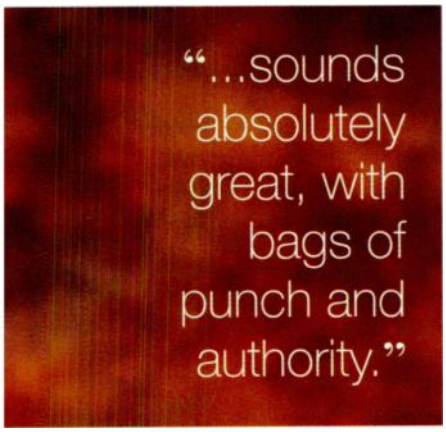
OBERHEIM OB3² & HAMMOND XM1 COMPARED

	OB3²	XM1
Stereo outs	yes	yes
Phones	yes	yes
Send/return jacks	no	no
11-pin Leslie connector	no	yes
Rotary effect editable	rise/fall times	detailed
Rotary edits storable	on power-off	yes
Reverb/delay effects	both	reverbs only
Rotary cabinet simulations	1	10 user
Effects editable	Delay only	no
Effect edits storable	on power-off	no
Overdrive level/status storable	no	no
EQ (global)	Hi & Lo	Hi & Lo
Multitimbrality	3-part	3-part
Patches accessible from panel	6 Up, 5 Lo, 1 Bass	128 scrolling
Total number of patches	12	128
Panel functions TX/RX via SysEx	all except EQ	limited
SysEx bulk dump	yes	yes
External control pedal inputs	3	2
Patch naming	no	yes
2nd/3rd perc. available together	no	yes
Velocity sensitive percussion	no	yes
Percussion triggering	Single	Single/Multi
Drawbars 'live' for patch editing	'drawbar' mode only	yes
Customisable drawbar wraparound	no	yes
Variable keyclick amount	no	yes
Variable percussion levels	soft/normal only	fully variable
Variable percussion envelopes	slow/fast only	fully variable
Variable organ sound A/R envelope	no	yes

▶ of 2nd harmonic, 3rd harmonic, normal/soft and fast/slow. The 2nd and 3rd harmonics are mutually exclusive — you can only have one or the other, a restriction the OB3² has in common with Roland's new VK7, whereas the Hammond XM1 and XB organs allow both together. Tonally, the OB3² percussion is spot on, having the lovely 'ponging' marimba-like quality of a real Hammond.

Sadly missing (but not too critical) is the facility to vary the level of keyclick, or spit, that characterises the dirty key contacts of a vintage organ. The spit is certainly present, but at a fixed level. However, you can take consolation from the fact that changing this sonic artefact on a genuine Hammond would require alternate applications of Coca-Cola and Servisol to achieve the same control.

On a similar note to the above point, it should be mentioned that some other more expensive units allow detailed editing of parameters such as percussion decay time, keyclick level, rotary horn balance, vibrato speeds, and more. The OB3² foregoes these luxuries (presumably to hit a target price) but whether it was the intention or not, it ironically makes the OB3² more faithful to the real thing, as none of those editing options are possible on a pukka Hammond, nor are the percussion, vibrato, or rotary settings storable in a user memory. It's all up to the player to set them going when required — and so it is with the OB3². However, it should be added that the OB3² has the added advantage (over the pukka item) of sending out all such performance manoeuvres, including drawbar movements, as SysEx messages to be recorded as part of a MIDI sequence. This is another of the major improvements over the original OB3, which had no MIDI Out socket at all.



LOWER AND BASS SOUNDS

So far, I've dealt primarily with the upper manual and drawbars. The lower manual sounds consist of five fixed presets (much like the reverse-coloured key presets on a B3 or C3) which cannot be changed. These presets can either be accessed via MIDI on the base channel +1 (in Duotimbral mode), or from a master keyboard played below the designated split point (in Monotimbral mode). The split point between upper and lower sounds can be set, with a maximum upper range of C4 for the lower tone (again, the manual's instructions for doing this were at odds with the behaviour of the review model). Incidentally, Oberheim use the same MIDI note name/number convention as Roland — but why must manufacturers differ over this basic point?

The Bass preset is a single fixed tone, as on a Hammond L100, and can also be given its own split point, with the caveat that it cannot exceed the upper range of the lower manual.

I made certain comments earlier about the possibly incomplete nature of the OB3²'s MIDI implementation. In addition to the curious behaviour (or non-behaviour) of a few of the MIDI controller functions, try as I might I could not set the OB's base MIDI channel to anything other than channel 1. I followed the manual's instructions to the letter, and even improvised a bit when that failed, but channel 1 (and its sub-channels) seemed to be it for the present.

CONCLUSION

OK, the OB3² lacks some of the editing finesse and features of machines such as the Hammond XM1 or the mighty Roland VK7, but the bottom line is (and very importantly) that it sounds absolutely great, with bags of punch and authority. There is real-time hardware control of all the major performance functions, and all this comes in a good-looking, compact unit. Despite my own reservations concerning the overdrive (in common with the XM1), I think many people will be pleasantly surprised at how good this instrument sounds. It's also around £400 cheaper than Hammond's XM1/XMc1 package. In short, if the absence of detailed editing and the limited number of user memories doesn't bother you, I recommend giving the OB3² a serious listen. SOS

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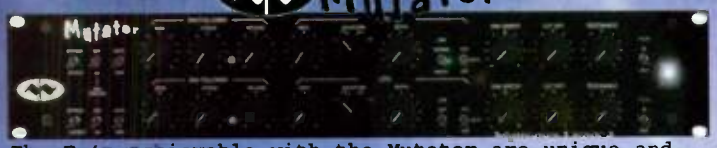

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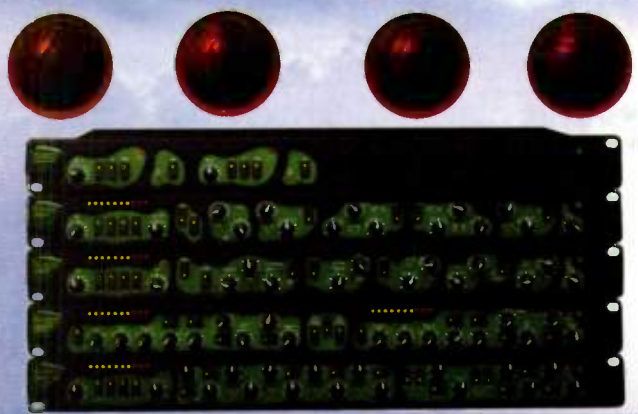

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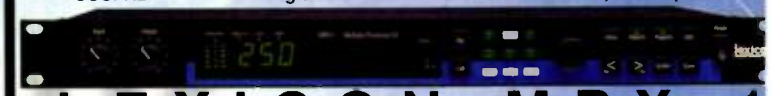

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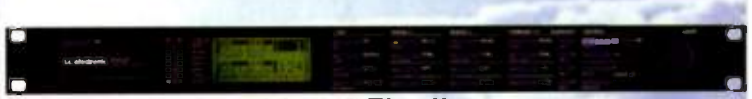

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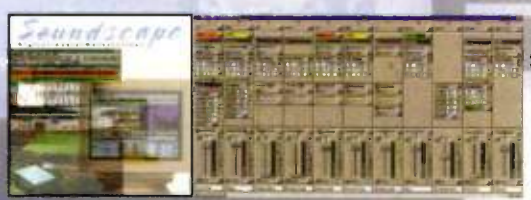

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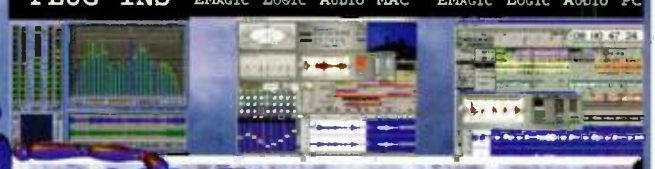

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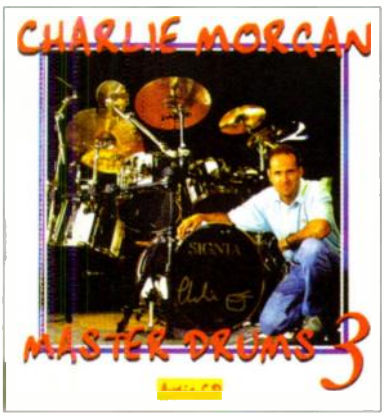

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With so many computer-generated rhythms about, however well programmed they may be, a real player with real drums can always inject that certain something extra. If nothing else, the sound of a real kit captured in stereo will exhibit the resonances and interaction that is always missing from a collection of individual sampled sounds. Charlie Morgan's *Master Drums 3* follows in the footsteps of its predecessors by providing just this — a real drummer playing a real kit. This third volume is inspired by world music, but still using Charlie's favoured Premier drums and Paiste cymbals. Rhythms are attributed to Nigeria, Jamaica, South Africa, India and Pakistan, Morocco, Zimbabwe, and Senegal, as well as a couple from the USA (military press rolls and Texas country!). Some of the descriptions are somewhat imaginative (pattern 5 is described as 'Walking tall though the Serengeti. Giraffe pace.'), but music is meant to be fun, isn't it?

The sounds themselves are eminently useable, with all of the 33 main patterns presented as complete performances: one bar of intro, five bars of groove, a one-bar fill, two bars of alternate groove, a second fill, two bars of groove, third fill, two bars of groove and an end bar. Each of these performances is followed by a couple of edited one-bar grooves from the pattern. Given the amount of variation that occurs within each performance, the inventive samplist ought to be able to extract additional loops by starting at other points within a bar. The tracks are grouped into tempos from 70bpm, through 80, 85, 90, 100, 105, 110, and 115, to 120bpm, with generally three or four performances at each tempo. Each of the 33 main patterns is recorded dry (tracks 1 to 33) but ambient versions are included as tracks 39 to 71. These do not have gratuitous reverb slapped on, but incorporate more room ambience by mixing in more distant mics. Both the dry and ambient versions are very clean recordings — although a tiny bit of hum and hiss can be heard if you listen on cans, I would defy anyone to hear it in the context of a mix. The ambient versions have enough of the room included to allow them to be used on tracks as they are, without any further effects, and I'm sure that this is the intention.

If you intend to plunder this CD for a wide variety of rock-based world rhythms, the only thing that I feel duty-bound to remind you is that although these loops are inspired by world music, they're all played on a standard rock kit — if you need the sound of ethnic log drums then look elsewhere. As an extra, tracks 34 to 38 are the 'Mongo Loops', and these provide a selection of dry recorded pre-edited loops (29 in total) which range from 90 to 138bpm. Again, these are of good quality, but are unashamedly rock-based, and they are certainly worth having as useful extras. This CD almost slipped through the net, with so many arriving in the *SOS* offices on such a regular basis, but sounds such as these don't suffer from a short shelf life. It may have been out for some months, but a classic like this doesn't date that easily. *Martin Walker*

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SAMPLING SOUND SYSTEM VOL 4: BRUSHED

(MIXED MODE CD/AKAI CD-ROM)

Fleetwood Mac's *Rumours* album cost nearly seven million dollars to make and they still manage to sell copies of that for 12 quid, so why, you may ask, are sample CDs so expensive? Good question, and one that East West and Sounds Good are hoping to answer with their new budget range of mixed-mode sample CDs.

The Sampling Sound System (see other reviews in June and July's Sample Shop) has been put together with the idea of providing less sample material on a single disc, but for roughly a third of the price of conventional audio sampling CDs. All of the discs in the series come as either mixed-mode CDs (featuring Audio, WAV and AIFF files) or as dedicated Akai CD-ROMS.

Volume three, *Brushed*, is very much along the same sort of lines as volume 1, *Popped* (reviewed back in July), and is part of the 'Drum Tools' section of the library. As the name suggests, the brushed drum kit is the primary instrument throughout the performance of all the drum loops; there's also a small collection of single drum samples at the end of the disc. The 24 audio tracks are split into two main categories: 'Beat Components' are the familiar full drum kit loops, usually lasting between one and four bars; 'Snare Grooves' is an interesting idea where each loop contains only a bass drum or the snare playing the groove, or both, with each instrument panned hard left and right respectively. This enables you to add your own levels of effect, EQ or compression. Of course, you'll also have to add any other percussive elements you need, such as hi-hats, but it does allow you a little more freedom with regard to the overall sound of the bass and snare.

This is actually a good thing, because you may find you need to work quite hard with some of the samples — unfortunately, the overall quality of the sounds is not as high as you might have heard on other drumming CDs. Admittedly, there is a really gritty feel to many of the samples, and Portishead fans will no doubt revel in the sometimes wonderfully grungy drum sounds, but during some of the jazzy shuffle loops and pop-

funk drumming (which are all very accurately performed), I found myself wishing the sound quality was cleaner and better defined.

There are a good number of rhythmic variations including fills and rolls, and the general layout of the loops within the disc is logical enough; the tempo sets start at 70bpm and move up in 10bpm chunks to 120.

Okay, at this price (a snip at only £19.95) maybe we shouldn't expect too much variety or too many samples. I'll award an extra star for the

low cost and logical layout, but in such a crowded area of the marketplace, any drumming CD really should try to stick its neck out creatively to stand up to the massive competition. While *Brushed* offers good playing, a fair range of sounds and a very attractive price tag, the occasionally 'boxy' sound quality and low number of loops might, unfortunately, consign this otherwise worthwhile release to the 'Cheap' pile. *Paul Farrer*

SAMPLING SOUND SYSTEM VOL 6: COUNTRY

(MIXED MODE CD/AKAI CD-ROM)

Volume six of the Sampling Sound System, *Country*, is the same as the other CDs in the series in that it comes with about half an hour of audio material sharing the disc space with PC-readable WAV files and AIFF format samples for the Mac.

Banjo, pedal steel, mandolin, bass, acoustic and electric guitars and acoustic drum loops are the principal instruments featured on this release. The CD is split up into five main sections according to tempo. The first section is at 70bpm and begins with 12 acoustic guitar riffs and licks of between one and two bars in length in the keys of A, C, D and G. Next come the electric guitars, and the phrases and licks fit nicely over the acoustic parts, played in the same order as on the track before. After that it's the turn of the pedal steel to perform its 12 riffs in the same order, so mixing and matching the constituent parts together is not as big a chore as it might at first seem. This pattern is repeated for all the other instruments on the disc, so you could say that this release has 12 'virtual songs' featuring all the instruments in one form or another. Each song has four chordal parts presented at 70, 80, 90, 100 and 120bpm.

Stylistically, the disc covers a good number of familiar country music genres, heavily influenced by twangy bluegrass but also with more folksy and country ballad textures. The playing is of a good standard, but occasionally I had to battle with some of the brighter instruments (particularly the pedal steel) when sampling them, as the top end tended to distort very easily at even the lower monitoring levels. The drumming is very authentic and appropriate to the country music setting, but, to my ears, the kit didn't sound quite as bright or as crisp as I have come to expect from most sample CDs these days. One of the best things about this release for me, however, has to be the interesting and unusual tones of the banjo and mandolin; instruments often neglected by sample CD producers. These days, it's good to hear a set of excitingly performed and produced samples that will doubtless be cropping up in jingles for processed Southern-fried chicken products before the year is out!

In conclusion, at only £20 each, all the discs in the library are quite good value for money and *Country* is no exception. There's a definite slant towards the entry-level user, and the layout of the CD is logical enough to encourage first-time samplists to delve further into the world of sample CDs. Despite niggles about audio quality in places and the relatively small number of samples you actually get, this is a flexible and, perhaps more importantly, fun CD to work with. *Paul Farrer*

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Continuing their excellent series of sample CDs with a distinct air of sonic weirdness, Time & Space have added to the likes of *Cuckooland* and *Ghost In The Machine* with *Fields Of Motion*, volume four in their 'Altered States' series. Setting aside any pretence of polite-sounding pads or gentle funky loops, producer Mark Pickup (his real name, apparently) has clearly been spending hours and hours trapped down a very deep mine shaft, or stuck in the bowels of a large iron works, with his DAT machine, sampling and recording all manner of bangs, clonks, mechanical fizzes and clicks. To say that this CD has a hard-edged industrial feel to it would be a bit like saying that Ferrari have made a couple of OK cars over the years. The real beauty of this release, however, is not the fantastic range or depth of the recorded material

(although that in itself would probably make a fine SFX CD), but the innovative and unusual way that this disc takes these raw building blocks and stretches, mutilates and morphs the sounds into new and exciting sonic sculptures.

Using the sound of a nail gun, or a steam-driven turbine as a bass drum, or what sounds like a bag of spanners being thrown into a concrete mixer for hi-hats might not be everyone's first choice, but *Fields Of Motion* offers all of these kinds of sounds and then has the audacity to make it sound as if the industrial-sized water boiler has been an established part of the studio percussion section for years. Fused with all this mechanical madness is a rich seam of dancefloor and jungle influence, giving you a scorching collection of happening dance loops ranging from 60-208bpm.

This release comes in both audio and CD-ROM formats, and unlike some other sample CDs gives you exactly the same amount of recorded sample data on both. Also thrown into the deal is a disc containing all the loops as MIDI files. The layout of both the discs and the sleeve notes couldn't be more logical: you get a complete loop (lasting anything between 15 and 30 seconds) followed by all the constituent samples presented on their own, without any unnecessary effects. Of course, in the toss-up between audio and CD-ROM formats, the same old arguments for both still apply, but using the MIDI file disc with the ROM version of *Fields Of Motion* is an absolute doddle, and gives the whole thing a good feeling of interactivity — if I was forced to sample every single noise beforehand, edit them and assign them to the correct keys, it would all have been considerably less fun. Time & Space are, of course, aware of this and are offering the CD-ROM version for the slightly lower price of £119 (which also includes a free copy of the audio CD version for auditioning purposes); the audio version on its own still retails at the familiar price of £59.95.

Whichever format you choose, several things are clear. Firstly, this is a truly unique product which takes a brave (and wholly successful) step towards providing a good fusion of dance and industrial styles of music. Secondly, the selection of useable sample material, although extremely specialised, will keep even the sampling diehards busy until Christmas. Finally, with a vast resource of 'technical' sounds such as these at your ▶

fingertips, you won't have the bother of hiring a gas-powered pump-action wire-brushed garden strimmer to give that elusive sparkle to your percussion tracks in the future. In short; pure metallic steam-driven wonderment. *Paul Farrer*

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TERMINALHEAD: UNDERFIRE VOLUME 1

AUDIO CD

Never buy a used car from a friend, goes the perceived wisdom. Well, I did, and it has served me well. But what do you do when your house sound engineer and producer comes up with a product of his own and requests a release? How can you turn him down?

Lee Groves has appeared on the credits of many AMG sample CDs, including (most pertinently to this product) a co-production with

Keith Le Blanc on *Kickin' Lunatic Beats*. Now he has persuaded Matt at AMG to take a chance with his own band, a post-Tackhead hard-as-nails live-plus-technology outfit who have yet to prove themselves. Terminalhead, Tackhead... even the names are ringers — just how deep does this influence go?

Volume 1 opens with a demo — well, more of an album track really. A 303-esque bass line playing busy sixteenths sets the tone for some pretty decent hip-hop beats played live and probably then sampled. Overlays of junglist and techno ornamentation and fills help build the beat. After a decent interval come space chords which provide light relief from the busy and incessant rhythm. Then more bass and drums, more chords, more bass and drums — this tune is beginning to run out of ideas.

Tracks 2-10 contain live drumming samples by 'Pete'. Hip-hop, lively, sometimes distorted, mono, often with heavy use of EQ sweep. Put bluntly, the playing is fine, but it's not magical, and it's not Keith Le Blanc.

From track 11 onwards we are first regaled with rhythmically gated sounds including, but not limited to, found dialogue and music, guitar chops, short-wave radio, vocals and synth. Rhythmic gating is such an old-hat effect that it's easy to overlook when you're twiddling about with the latest morphing and modelling synths. However, this is one basic dance trick you should *never* forget.

The Synth Riff section includes crunch and power, rhythm and effect, and atmosphere, but never much in the way of melody, making for pretty useable samples. Greg's compact guitar section comprises distorted funky rhythms, chops and fills. Quite noisy, tons of energy, heavy on the wah-wah, and probably good value in the right tune.

The Dub section left me cold. I'm afraid the application of echo is not the only element in a genre that is as elusive as it is exquisite. Stick to what you know, boys.

The Pascal Banadjaoud percussion sections include studio-mashed patterns as well as straight bongos (dry as well as horribly wet), and darbuka (again, EQ-swept, with gated reverb, and dubbed up and straight) — for the uninitiated, a darbuka sounds like someone playing timbales with their hands. Swept and straight shakers and tambourine, half-speed stuff, clean bongos, more congas and darbuka complete this section. Next up comes a short-wave section with radio interference, coded signals and barely audible foreign stations. Then there are more synth and guitar effects, before the CD plays out with analogue pads and sweeps.

It's not fair to dismiss Terminalhead as a Tackhead clone, but with a name like that, and wearing their influence so heavily on their sleeve, it's tempting. Sample-wise, the drums were, for me, the least impressive part of this CD, and I wasn't too impressed with the dub element either. However, the guitars, non-dub effects (especially gates), some of the percussion, and the short-wave stuff were all creditable. In fact, marry these sections with the drumming of Keith Le Blanc from another AMG title and you might have something. Incidentally, Volume 2 is also available, and its format is like Volume 1's, with drums, effects, guitars, radio section and so on. I haven't heard it, but expect more of the same. *Wilf Smarties*

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MIKE HIGHAM

An expert at hard disk recording and editing, Mike Higham has developed his career alongside Digidesign's Pro Tools. SAM MOLINEAUX talks to an engineer who's on the fast track...

I first met Mike Higham at Digidesign HQ in Northern California's Silicon Valley. As a dedicated user of their Pro Tools hard disk recording system, he was giving an impromptu interview with a group of representatives from Apple, demonstrating how their computers were being used at the professional end of music-making. Having worked with Pro Tools right from its outset, Mike is one of its most informed users and has maintained a close relationship with Digidesign during the last four years, first as assistant to producer Trevor Horn, and more recently as an independent Pro Tools editor.

Despite his presence in California, Mike is, in fact, a Brit. Managed by Sarm Productions, he's normally based in London, but it's a testimony to his widening reputation that he regularly finds himself working on both sides of the pond. At just 26 years of age, he's already notched up an impressive array of credits: artists such as Tina Turner, Rod Stewart, Tom Jones, Seal, Genesis, the Moody Blues, Boyzone, the Pretenders, and many more have benefited from his hard disk recording and editing skills over the past few years.

His visit this time round is to work with producer Ed Buller at San Francisco's famous Plant recording studios, on a debut album by newly signed US band Velour. A short ferry ride across the bay from the city, at the northern edge of the continental-style town of Sausalito, the Plant has played host to the cream of the San Francisco scene over the years — Journey, Metallica and Sammy Hagar, to name just a few of its regular clients — but on my Sunday visit, the place was the embodiment of calm. As we sat in the control room surrounded by state-of-the-art recording gear and the biggest modular Moog I've ever seen in my life, Mike began to tell me the enviable tale of his accelerated career path.

LUCKY BREAK

Having learnt classical piano at school, Mike went on to take music 'A' level at the progressive Dartington College Of Arts in Devon where, as a boarder, he first started developing an interest in electronic music-making. What started out as a pastime swiftly turned into a passion, and before long he'd set up a small studio in his dormitory, any thoughts of a career as a pianist dispelled by this new focus for his musical attentions. On completing his 'A' levels, he decided to remain in further education, enrolling on a three-year Music Technology degree course at Guildhall University, London. It was a brand-new course, so he was able to steer his own way through it to a large extent.

"I studied sequencing, and using computers to record classical music — a little bit practical but incorporating all the technology that was available. Then I saw hard disk recording coming out, where you could record and manipulate stuff, and it was right up my street," he explains. "When I'd finished the course and got my degree I thought 'How am I going to put this to use?'. I'd always loved the work of Trevor Horn so I wrote to him and asked him for a job. He just happened to be looking for an assistant who'd look after all his computers, and that's where I started."

As I gawp in disbelief, Mike is quick to point out that he's well aware that the gods were smiling on him that day.

"It was an incredible break, the luckiest break in my life, and I'm indebted to Trevor because he completely put me on the map.

"I remember, really early on, we were working on Seal's second album and one day a keyboard player couldn't turn up for the session. There was a piano part in the middle eight of one song and I didn't know whether to say anything. In the end I tentatively said 'Shall I play that?', and I did. I was completely fazed out by it; three months after finishing university I got the chance to play on a major Seal record. What a beginning!"

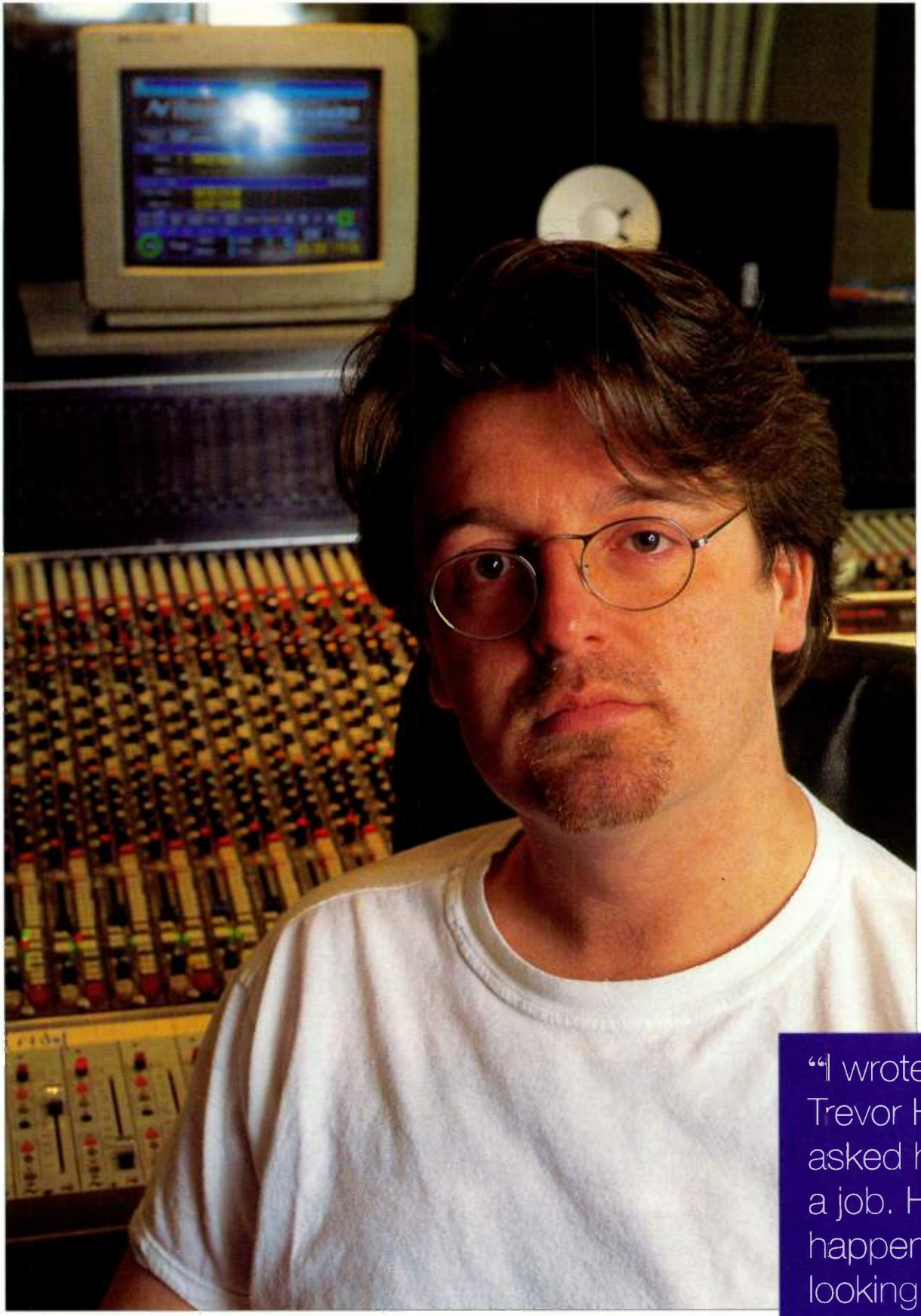
FIRST PROJECTS

Going straight in as Horn's assistant meant skipping over the conventional runner, tape op, assistant engineer route, but becoming a sound engineer in the traditional sense was never Mike's main focus. In very much the same way as he'd carved his own path through a new degree course, he set about developing the relatively new role of a hard disk recording specialist — a role that has become more established in recent years.

"I'm definitely not a sound engineer: I don't sit at a mixing desk all day and I wouldn't know precisely where to put the microphones to get the best sound," he explains. "I never started off making the tea, hoping to be an engineer — I was fine about doing that, but I wanted to incorporate some of my playing and creativity. I saw hard disk recording as the ideal way to be creative."

So back in 1993, just as the first version of Pro Tools was being replaced by the upgraded Pro Tools II, Mike was involved in some of the earliest commercial experiments with the new medium of multitrack hard disk recording. He tells me about some of his early projects, the very first being Seal's second album (confusingly titled *Seal* — the same as his first)...

"We used Pro Tools II a lot on that, mostly for tightening up the drums — we were after a really metronomic feel — but there was one song which changed key and they'd had to re-record the orchestra part at Angel. We were able to use the first take, pitch-shift the whole orchestra, and then fuse it with the new take to double it up, all in Pro Tools



> "I wrote to Trevor Horn and asked him for a job. He just happened to be looking for an assistant, and that's where I started."

— we were amazed that it actually worked!

"After *Seal* I worked on the Tom Jones track 'If I Only Knew', the one where Tom does a rap in the middle. That was fun: I did a lot of keyboard playing on that, and a lot of the drum programming. We got the Stereo MCs' drummer in to do a drum loop and just whacked it into Pro Tools and looped it up. We had a hybrid going, a live drummer and programmed stuff, so we could chop up the real drummer's sounds and put them across a multitrack. Normally with a sample you just have a stereo pair, but we were using maybe eight or ten tracks, which gave us the ability to change the level of the snare relative to the kick and the overheads relative to the room ambience, and so forth. It wasn't the first time anybody had done it, so I don't think we were breaking any new ground, but it was a good mix and it was a really good song — I think it reached number nine in the charts.

"Then there were a whole bunch of individual things, such as a Shane McGowan and Sinead O'Connor duet for the film *Circle Of Friends*.

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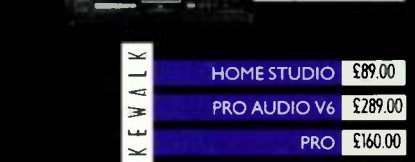

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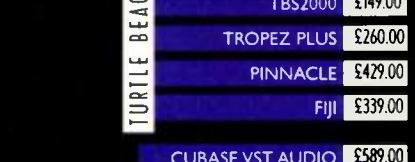

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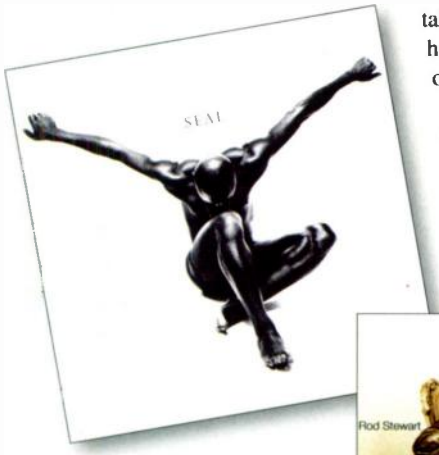
That just involved moving vocals, swapping verses around — it's done all the time now — but it was useful because we could get all the information from the performers, put it in the computer, and work on the arrangement elsewhere without wasting costly studio time. Sometimes Trevor would give me the more tedious stuff such as de-essing vocals; you can do that with outboard gear, but because you can automate the faders really quickly with Pro Tools, you can just duck the level of the 's' much quicker — so that might take a couple of hours, but I could go back to his house and work on that while he was working on something else in the studio."

When Digidesign released Pro Tools III, the capabilities and scope of multitrack hard disk recording and editing were vastly expanded. Mike remembers making a conscious decision to really explore its potential to the fullest. The project that afforded him this challenge was Rod Stewart's 1995 album *Spanner In The Works*.



Seal's second album, the first project Mike worked on, and Rod Stewart's Spanner In The Works, the first album on which Mike used Pro Tools III.

"That whole album was done in Los Angeles: we had two Pro Tools systems, one at Trevor's house and one at Rod Stewart's house. Rod's quite a private person and doesn't like being in the studio where people are always coming and going, so they had a huge portable recording studio at his house, and the recording was done in his summer house. Back at Trevor's house, Steve MacMillan, the engineer, was putting it all together; he'd give us a stereo mix which we'd load into the computer, and every day between five and seven Trevor and I would take the music up to Rod's house and let him sing over it. We had a vocal booth set up in his summer house and he'd sing in there; we'd bang it into the computer and then go back to the studio, put it together, and finally put it onto tape. With Trevor producing, I recorded about 60% of the vocals of that album — all directly into the computer.

"I can remember a few hairy moments. One time I hadn't set the directory properly in the Mac and, instead of recording to the external drive, I was recording to the internal drive on the actual computer. When we got back to Trevor's after that session, I plugged the hard drive in to back it up and there was nothing there. We both looked at each other in horror," he remembers. "I got back into the car and drove like a maniac to Rod's house — I was terrified — but when I got there all the audio files were there and safe in the internal drive. I was very relieved."

As to whether there was any manipulation of the vocal line, Mike says definitely not. "Nothing at all: it was really good. Rod's a very good singer."

GOING IT ALONE

Soon after that project, in response to increasing offers from other artists and producers, Mike decided to go freelance. Still managed by Sarm Productions and often finding himself employed on a freelance basis by his former boss Trevor Horn, he divides his time these days between the larger London studios, such as Sarm West, Olympic, and the Townhouse, as well as regularly travelling to studios in Europe and the US. His tools of the trade are his Apple Macintosh computer, Pro Tools III hardware and software, and various hard disks and backup drives (see the 'Mike's System' box for a more precise description) which he claims he can get at least half of on a plane with him as hand luggage!

Some of the more diverse projects he's been involved with since going it alone have come from the London club the Ministry Of Sound, for whom he's worked with DJs such as Masters At Work and CJ Macintosh on the club's last seven compilation albums. The one that brings back the most vivid memories is the album *AWOL* (*A Way Of Life*):

"The Ministry Of Sound wanted to release a live album, so they recorded one of the club nights where

HARD DISK RECORDING VS TAPE

As the costs of computer hardware and high-capacity re-recordable storage media continue to fall, and as manufacturers like Digidesign and their third-party developers provide the means by which traditional studio tasks can be undertaken in less time and with greater sophistication, the whole area of hard disk recording is becoming more and more relevant to the professional recording industry. So much so that Mike is convinced that hard disk recording will supersede both analogue and digital tape-recording in the not-too-distant future.

"I'd say within four or five years. For a start, hard disk systems are portable — you can go anywhere to work. They're also cheaper — you can be working at a small studio, on not much of a budget, and you can get far better results because the quality's so good. You don't have to worry about a tape machine not being serviced; you know what you're dealing with. It's faster, of course: even with digital tape you have the rewind time, which, if an artist has an idea in their head, is really frustrating — they just want to bang it out. With the new Pro Tools software (version 4) you can loop-record, so every time it loops round, a singer, say, can keep on singing until they've got the take they want. It's non-destructive, so you can always go back to a previous take — that can happen a lot in the studio, especially with harmony vocals, where someone may be trying to work out a line. It's the same with drop-ins: if you make a mistake you can get back what you've just 'wiped'. If you mess up a drop-in on tape you're stuck: you can't do anything about it.

"I can see why people feel safe with tape, because you can touch it. You can't touch this. But in the same way as you can lose stuff that's on a hard disk, you can tear a piece of multitrack tape or lose it, or whatever. The important thing with this is backing stuff up very regularly; although admittedly there's still the possibility that a file will get corrupted. I think tape will still be around, but more as a backup."

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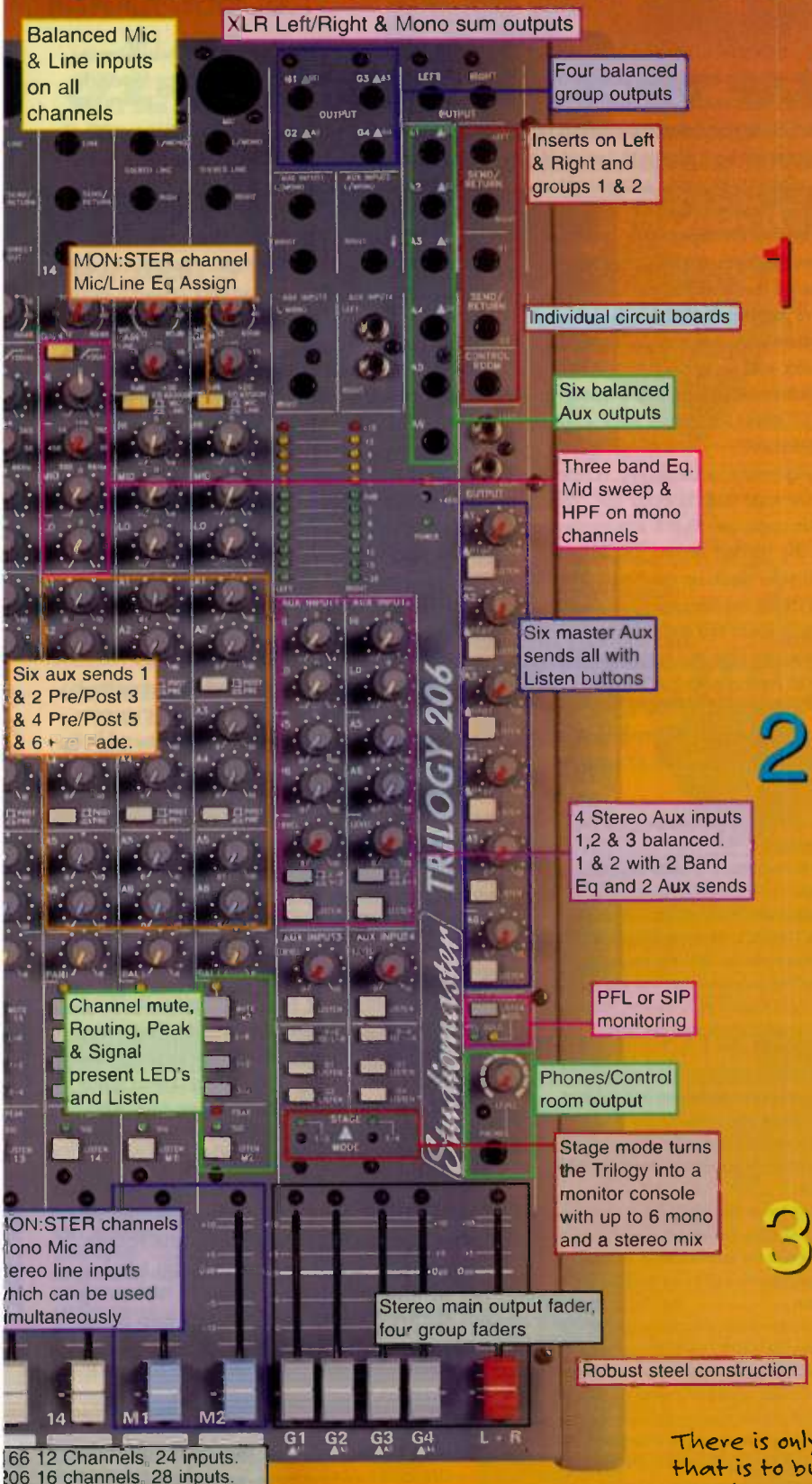
TRILOGY



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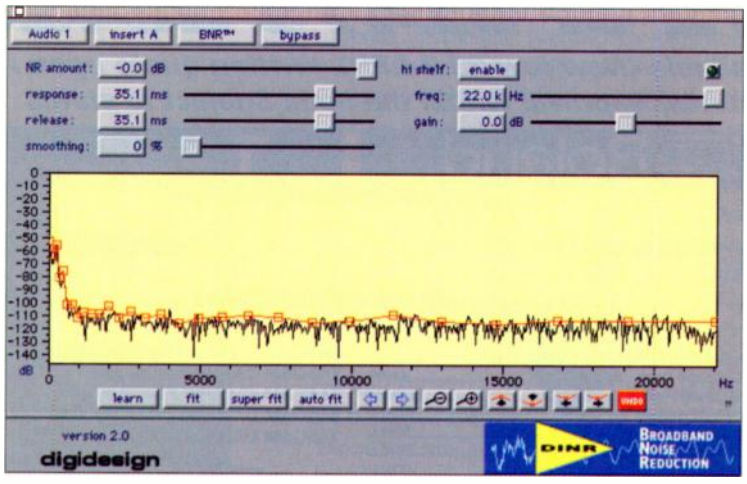

Mike's favourite plug-in: Digidesign's DINR running under Pro Tools.

"All of that was really easy. I created a reference by recording a click track, and then put in tempo changes and recorded it into Pro Tools. The click track then shows up as visual waveforms which as it slows down, for example, get wider apart — so I could line up points in the music or sound effects with the click to get the timing right. Then I could just synchronise it up to the video and play it all back perfectly in time with the film."

HAPPY ACCIDENTS

One of the criticisms of hard disk recording, indeed of modern recording techniques in general, is that these days virtually everything can be corrected 'in the mix', whereas older technology forced artists and recording engineers to make creative decisions at the time of recording, often resulting in 'happy accidents'. With a little imagination, however, Pro Tools can be incredibly creative, far more than just a tool to correct shortcomings — as Mike has discovered on several occasions.

"Say you've got a buzz on a guitar and you want to get rid of the buzz but not the guitar: if you were to EQ the buzz out, you'd lose some of the guitar sound. But with *DINR* you can take a little bit of the buzz and the computer will learn it, then you can process the sound file so it'll only remove the buzz, leaving the guitar sound intact," he explains. "I was working on the track 'Fly Like An Eagle' with Seal just before Christmas — we were using real drums and programmed drums, chopping them around in Pro Tools, and at the same time working on the vocal. I remember there was a noise that Seal had made and I was trying to get rid of it using *DINR*, but quite by accident I went the opposite way. It sounded kind of cool and Seal thought it was brilliant, so we worked on it by distorting it even further, taking the character of his voice and kind of synthesizing it, all in *DINR*. It was only a half-second sound but, incorporated within the drums, it made a rhythmical loop and we used that as part of the drum track. So things like that can happen.

"I'm not going to sit here pretending to know exactly what *DINR* does, but if you can twiddle around with noises and get something really good that everybody likes, then that's great. It may mean using it in totally the opposite way to how it's meant to be used, but that's all part of it. I'm sure as time goes on we'll find even more ways to be creative with this medium."

I wondered if there are ever times when an artist disputes the way their performance has been changed. Mike:

"A lot of the time the artists I work with, especially vocalists, will sit with me at the computer. If they like the performance but maybe it goes a little flat, then they'll suggest I tune it, or move a word slightly if it's a little off the beat. It's great to be able to do that. The only problems I've had are with drummers, because you might move phrases or put them rock-solidly in time and then you have to explain that it didn't work as it was. It's hard for a drummer to always know the arrangement of a song; if they do a take or a fill that's really good you might want to move it to the first chorus, or whatever — they can get a little bit sensitive, but not always."

Mike insists that he's not in the business of making hit records for mediocre performers, and the quality of the artists he's worked with is ample proof of this. Indeed, in many cases — particularly when he's working with vocalists — he has very little to do other than the actual recording and the occasional tuning or copy-and-pasting of a note or a phrase. On his most recent project with US band Velour, however, he had the chance to play around a little more than usual:

"Ed [*Buller, of Suede and Pulp fame*] wanted to get a double-tracked sound on the lead vocal and the backing vocals, so the lead singer, Harley, just

WILDEST DREAMS

Interestingly, if you buy Tina Turner's *Wildest Dreams* in the US you'll find a certain Barry White providing backing vocals on the title track, but if you happen to purchase your copy in Europe, not only has he shed half of his body weight and changed his complexion, but he also has an entirely different voice. In fact, Antonio Banderas' vocal was used for the European version of the song, neatly slotted into the space previously occupied by Barry White's. To further complicate matters, neither singer was available when the recording sessions were being held in London: Barry White was recorded in Las Vegas and Antonio Banderas in Los Angeles, and the results were sent by ISDN over to the UK.

"We just flew Barry's vocal over the top of the track and I mixed it all in Pro Tools. When we did the version for Europe, we used exactly the same track but just replaced the voice; it meant we didn't have to re-record any of the track and the record company were quite happy because it kept the costs down," Mike explains. "No-one had to get on a plane: the whole thing was done between computers using an ISDN link."

His role on the album mostly involved tweaking the vocals, moving the odd word, and copying parts but, one evening in the middle of mixing the single 'Silent Wings', Trevor Horn and mixing engineer Steve Fitzmaurice decided they needed a guest vocalist to round out the track:

"Trevor phoned up Sting, who agreed to come down after he'd finished his dinner! As we were in the middle of a mixing session all the faders were at the right level, and even though it was automated it would have been a real pain to turn the mix computer off and start recording vocals at that stage. So what we did was lock my computer up to the multitrack so it was running the mix. We set up a nice signal path through some good mic amps, and when Sting came in, we recorded his takes straight into the computer and then just flew it back over to the Sony 48-track [*a PCM3348*], and carried on mixing the track. The whole thing took less than an hour. If we hadn't had Pro Tools we'd have had to make up a slave, a condensed version of the track, and gone to another studio to record it, so it saved a lot of time and effort.

"Sting was really amazing: he didn't know the song, just came down and sung it straight off. When you record in Pro Tools the takes show up as different colours, and he'd be saying 'Can I just sing a little bit of the purple one again and then replace that other bit with the green one' — of course we thought this was really funny, but it was interesting that he soon latched on to how easy it is to use."

needed to sing two good takes, and I was able to match the voices up using *VocALign*. It saved him from wearing his voice out trying to sing exactly how he'd sung it the first time," he explains. "I made the backing vocals very tight, big block chords that sounded really nice and thick."

On the guitar part, Mike used Pro Tools to create huge distorted 'chords' made up of eight identical notes, for what he describes as a 'Nine Inch Nails effect'.

"The guitarist played the same note a few times and I tracked it up to make a big thick sound. Then I placed it throughout the track. It's no different to the tricks that were done in the past with tape, but rather than having to do eight separate guitar takes on tape, you can just do one note into the computer, and just copy and paste really quickly, to build up the guitar performance.

"The drums were also a major part of what I was doing. They wanted to go for a real American tight-sounding record, so I was using Pro Tools a lot on the drum part, almost making him sound like a machine. But that was okay — the drummer knew we were doing that to him, and he didn't mind.

"One thing that's got to be said: never can you make a bad performance good. I never use Pro Tools to substitute people; you've got to get a good performance out of them in the first place."

FUTURE PLANS

As the interview winds to a close, Mike glances at his watch and realises we've over-run. He's got to get to the airport to fly back to London, where later in the week he'll be starting work on a new Eric Clapton album with Simon Climie. Following that, he'll be back on the West Coast to work on a major Trevor Horn, Lol Creme, Anne Dudley and Art Of Noise collaboration. After that, he's unsure of what's coming next: when asked, he replies, "I'd love to do more film stuff, definitely. And I'd love to work with Bowie!" Somehow, I imagine, he probably will. SOS

"I never use Pro Tools to substitute people; you've got to get a good performance out of them in the first place."

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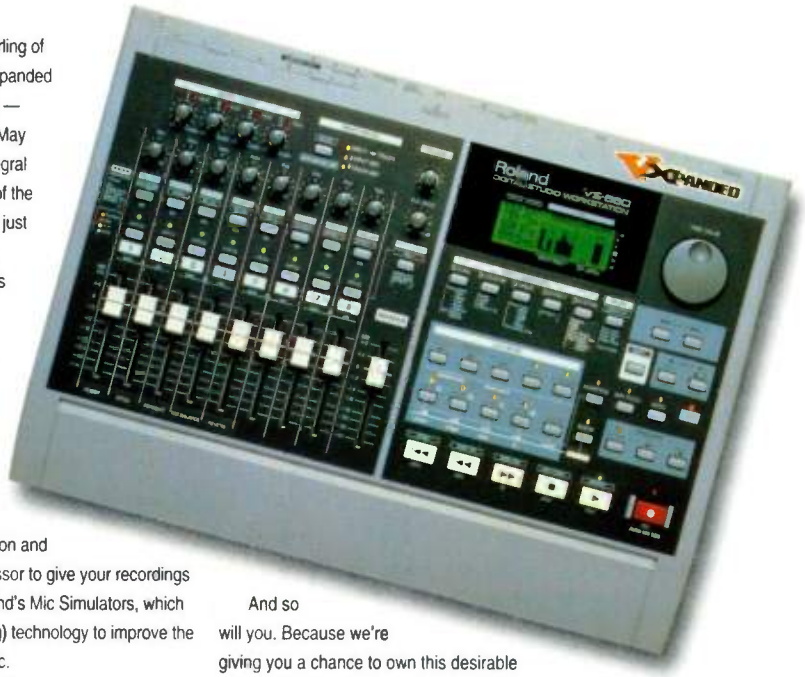

The VS880 digital multitrack was the darling of small studios everywhere, and the V-Xpanded version made a good thing even better — remember our glowing review back in May '97? "With its automated mixdown, integral effects and virtual tracks, the whole philosophy of the VS880 is liberating, recalling the days when you just switched on a tape deck, hit Record and made music," enthused *SOS*'s Paul Nagle. He loved its virtual tracks, which let you try out alternate mixes and different takes, and the addition of two more tracks of uncompressed audio to the V-Xpanded machine, bringing the total to six.

We raved about the 10 new effects on its digital effects card — including a Voice Transformer for hours of happy role-playing and gender-bending (with real-time pitch and formant characteristics), a Robot Voice option and Space Chorus for sci-fi fans, and a Lo-Fi Processor to give your recordings a touch of grunge. We were impressed by Roland's Mic Simulators, which use COSM (Composite Object Sound Modelling) technology to improve the tonal qualities of even the cheapest, nastiest mic.

And we loved the automated mixdown: the VS880 will let you record real-time MIDI mixes along with your audio data, up to 12,000 events per song. "The VS880 was already a superb studio tool; the new V-Xpanded machine has even more going for it," we said. Oh yes, we really liked it.

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All we want you to do, as ever, is answer a few easy questions and then stun us with your wit, charm, and brevity. Be quirky. Be alliterative. Be pertinent. Be original. But keep it short. And don't forget to post it — it must reach us by **Friday 7 November.**

the small print

1. Only one entry per person is permitted. 2. Employees of SOS Publications Ltd and Roland, and their immediate families, are ineligible for entry. 3. No cash alternative is available in lieu of the stated prize. 4. The competition organisers reserve the right to change the specification of the prize offered. 5. The judges' decision is final and legally binding, and no correspondence will be entered into. 6. No other correspondence is to be included with competition entries. 7. Please ensure that you give your DAYTIME telephone number on your entry form. 8. Prizewinners must be prepared to make themselves available in the event that the competition organisers wish to make a personal presentation.

QUESTIONS

How does the VS880 increase recording time on a hard disk?

a. By recording on both sides of the tape at once ☐
b. With compression routines ☐
c. By missing out all the repeated notes ☐

What does the VS880's Voice Transformer effect do?

a. It makes you sound intelligent ☐
b. It translates song lyrics into French or German ☐
c. It changes the pitch of your voice ☐

What does COSM stand for?

a. Composite Object Sound Modelling ☐
b. Completely Objective Sonic Mutation ☐
c. Comparatively Odious Sadistic Measures ☐

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Roland VS880 Competition

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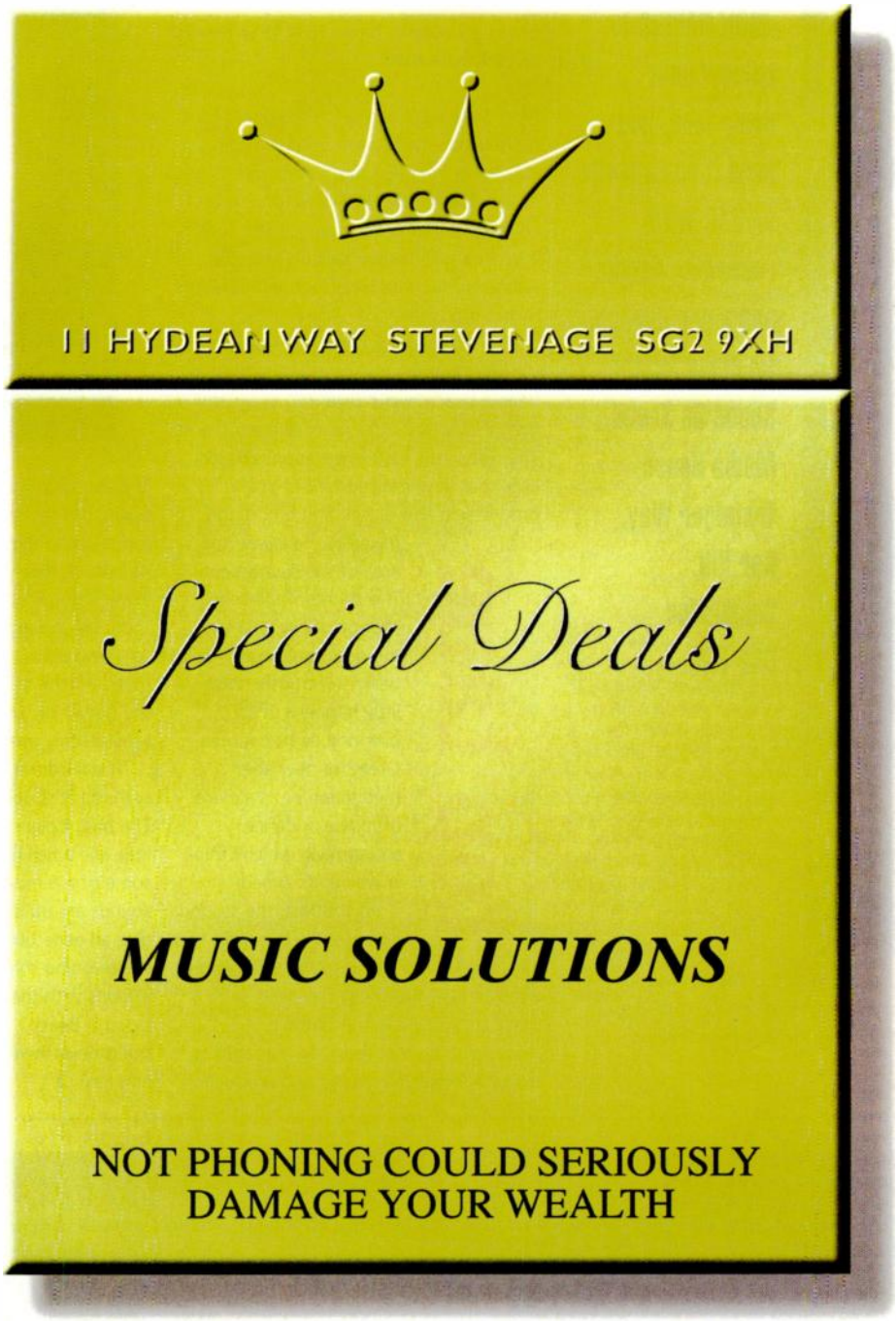

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MARK RAFE

Recording Venue: Home.
Recording Equipment: Tascam Porta 05 portastudio, Korg M1 workstation.

Mark Rafe has been recording music for himself since 1992 with quite a lot of success in the press, both local and national, but little fiscal reward, I expect — some things never change! This tape is a concept production called *Seascapes*, with instrumentals based around different recordings of the sea.

The opening composition, entitled 'Ocean', features the sound of surf on a pebble beach and is balanced in the mix in such a way that it contains all the top end. The rest of the instrumentation is based around a slow-moving four-chord progression and is dark and broodingly mixed in the lower-mid area of the soundscape. The sound of the sea changes — heavier surf, the occasional crashing wave — but otherwise little happens in an overlong eight minutes. Great for new age meditation or as a piece of movie or dance soundtrack, which I think is where it's aimed.

In contrast, the second composition is a short two minutes, possibly trying to echo its title, 'Northern Tempest', with a quick storm. This composition is disappointing: it never really manages to evoke a tempest in sound and production. The sounds of waves breaking are used again, but the sense of their power is lost because they have no real bass end. As before, this is left to the heavier lower string voices of the synth, but even these are lacking, as it seems that anything below about 70Hz has been rolled off the recording. Consequently the power of 'Tempest' is never really satisfactorily evoked.

The third track is a better recording, with many sounds suggestive of the sea. The bright piano is equalised to sound a little like a bell ringing on a buoy, and some of the more atmospheric Korg M1 sounds are utilised in the lower range to give an eerie quality of deep sea and ocean-going ships to the piece. This seems at odds with the title 'Small Waves Break Upon A Beach'
but is nevertheless a decent recording and mix. ❑

INFLUENTIAL

Recording Venue: Home.
Recording Equipment: Mac Quadra 650 with Digidesign Session 8, Emagic's *Logic Audio 2.1* software, Micropolis 1.7Gb AV drive, Mackie 1604 mixer, Behringer Composer compressor, Alesis Quadraverb Plus effects, Shure SM58 mic, Audio Technica AT4033 mic, Aiwa DAT.

London-based Influential conceived this recording project as a "getting-to-know-you relationship with *Logic Audio* and Session 8". The results of this rapid learning exercise play back with some confidence, so the lads have obviously got to grips with the technology, and they can play well too!

The four songs are fairly middle-of-the-road in the rock sense; judging by the block vocals, the band draw heavily on America for influences. Having said that, all the vocals are excellent, from the no-holds-barred rock of 'Greater Love', delivered with assurance by lead vocalist Mick White, to the gritty style of the Bill Withers classic 'Ain't No Sunshine'. The backing vocals are also worthy of mention, well arranged and performed by Mick, Ian and Craig. It's impossible to tell, but *Logic Audio*'s copying power was probably utilised for the block vocal sounds, to track, cut and paste the choruses so that only one take was needed for the chorus.

All the songs are well recorded, and combine rock and synthesised sounds in the style of '80s dance rock, but there's a tip of the hat to '90s dance on the more soul-orientated tracks. For example, a very fat bass synth on the final 'Don't Call It Love', complete with Detroit strings, would have been better supported by a modern, drier drum sound instead of the standard rock fare. The thrashing hi-hat, big snare and over-used crash cymbals seem somehow out of place on this production, but it could only be a matter of fashionable taste. Again, though, there's a gated guitar chord at the end of the previous rocker, 'Sensitive', which could easily have been lifted and made more of to give that song a '90s production.

Given the ease with which the songs flow and the production works, I'd guess that the musicians involved have been on the scene in a professional capacity for some time. The songs are all of releasable standard, and the choice of effects, the balance and clarity of the mix and, above all, the musical performances are all well above par. Occasionally things grate, such as during the string entry to 'Ain't No Sunshine', where the Proteus sampled strings need mixing with some analogue synthesized strings to warm them up a little. Otherwise the whole thing just needs a boot into the '90s. ❑

THE PRAYER

Recording Venue: Home.
Recording Equipment: Roland VS880 digital multitrack with VS8F1 effects board, Mackie 1402VLZ mixer, Technics hi-fi amp, Wilmslow Audio SPL1 monitors, Aiwa DAT, Atari running C-Lab *Creator*, Lexicon Alex effects, Alesis Quadraverb effects and 3630 compressor, Behringer Ultrafex enhancer, AKG C1000S mic, Tech 21 Sansamp guitar amp simulator.

The Prayer have been gigging the material on this tape for some time, and actually made a video of a gig so that they could verify and recreate the parts in a studio context. Because of the way they work live, much of the material was already on MIDI file, so it was simply a case of re-working and producing what they had. To this end, the MIDI Clock signal directly generated by the VS880 was used to synchronise the Atari, eliminating the need for a sync code track.

Moving from analogue recording to the VS880 enabled The Prayer to take advantage of the sub-mixing capabilities of the new recorder. By making use of the virtual track system, the band were able to bounce tracks with no problem, monitoring the entire mix at the same time. They were also able to redo any sub-mixes that were not up to scratch, because they hadn't deleted the original tracks. Given their equipment list and instrumentation, this sub-mixing capability was undoubtedly used for vocals and guitars more than anything else.

This is borne out by the large production sound of the opening number: plenty of guitar parts and a big backing vocal sound. Listening to the opening acoustic guitar chords of track 1, I can't help noticing that there's a little boom on the lower G, which could have been taken out with some LF shelving cut of a few decibels. With a parametric, of course, you could target the booming note itself — it's around 100Hz, so a narrow Q and a cut of a few decibels will zap the offending note. I also notice that there's quite a lot of effect on the vocal. A slapback delay and a room reverb recess the voice to the back of the mix where it sounds stark, which suits the lyric, but I think the same atmosphere could have been created with less of the effect in the mix.

The second song is a bit of a rocker; here the guitar suffers the effects of digital recording. Basically, the sound is OK, but there's that crunch and lack of warmth as the upper mids are enhanced or faithfully reproduced (dependent on your own particular bias) and the bass end is a little thin. It often helps to do a test run with digital recording to check if the sound you're putting in is the sound you're getting back. Just in the same way that engineers compensated for analogue by loading the treble EQ, I think you'll find that with some digital recorders you have to listen out for the upper mids and bass, and equalise accordingly if necessary. Given that a lot of the sounds being recorded by The Prayer are digital anyway, the combination of digital sound sources and recorder is working against them, so extra care is needed in the choice of sounds. The latest valve technology can often help to warm things up and, as it becomes available to the semi-pro market, is probably a good bet for guitar-based bands as well as those with digital synth sources. ❑

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CHARLEY STREET

Recording Venue: 21 Dayz recording studio, Oxfordshire.
Recording Equipment: 16-track ADAT with BRC, Studiomaster P7 32-channel desk, Alesis Quadraverb Plus and GT and Zoom 9001 effects, 486 PC running *Cubase* software, Alesis 3630 compressors, Sony DTC690 DAT, Tannoy PBM6.5 and Peavey HYSIS 1 monitors, Shure SM58 and AKG C3000 mics.

Charley Street are based in Bicester and, immediately after forming, decided to record a CD album before they'd even gigged. This can sometimes be a mistake if the songs are not tried and tested in front of a live audience, but it also could just be that the band are experienced enough to know what does and doesn't work in a song.

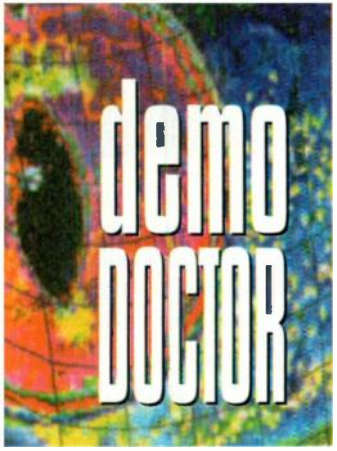
On a CD album by an unknown band, the first song has to really do the biz, otherwise you're sunk. It's therefore quite a good measure of how the band feel about themselves. Slow songs only come off if they're extremely well executed, but show that the band have a lot of confidence, and quite often mean that the rest of the album will have a fair sprinkling of slow-burners. Most bands tend to go for the quick hit to make an impact, and Charley Street are no exception. Thank God they've avoided the atmospheric build-up to the first track that most people seem to use on their CDs, and gone straight for it!

The opening song is well-crafted guitar-based pop with some Hammond organ (courtesy of an Emu Vintage Keys module, I think), a nice line in harmony vocals, catchy melodies and melodic guitar breaks. Fairly standard fare, then, but lyrically a cut above the average, with some good vocal performances.

In terms of production, the transfer to CD hasn't been kind to the guitar sounds, which are pretty brittle in the upper-mid area. As an owner of ADATs and a guitarist myself, I know that you have to work a little harder to get a good sound using this digital medium. This usually involves more attention to the lower-mid and bass end of the guitar sound and avoidance of over-equalisation in the upper mids — especially if you're transferring to CD. This might sound odd, but it's my experience that CDs rarely sound like your DAT, even if they've come off the same hard disk in the form of digital data!

As a result, the fourth track of the CD, with a warmer overall mix, has the best overall sound, even though the bass end is muddied by having too much kick drum sent to the reverb. On the other tracks, there are some mix improvements that could have been made. For instance, on track five the brass is sunk in the mix for two reasons: firstly there's no top part in the horn arrangement to give it definition, and secondly the lower mid needs to be cut in the brass section and the upper mids sharpened, to allow the brass to sit over the other instrumentation.

Still, a band who write a love song with the lines "Don't come any nearer, you smell of fags and beer and you're wearing some of last night's clothes" can get away with a lot. Especially as they also write songs as easy to cover as the ones on this album! ❑



QUICKIES

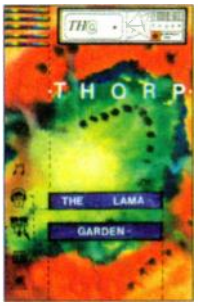
WILLOW: Willow's tape is a mixture of melodic and progressive rock which features prominent guitar in the mix, somewhat at the expense of the other instrumentation. The bass guitar, for example, is completely out of the picture and consequently the mix lacks any drive or energy. This is possibly because the band don't seem to have a bass guitarist and are making do with keyboards — a big mistake, which makes the recording incomplete.

The band are quite heavily influenced by bands like It Bites and can obviously play exceptionally well, with some nice arrangements and chordal voicings on both guitar and keyboards. Jamie Valentine is an exceptionally talented guitarist, drawing heavily on influences from both the prog rock and jazz rock worlds. Unfortunately, he's trying to play this music in the wrong country — he should perhaps try and audition for bands in America or on the continent, where such technically proficient playing is more appreciated.

SELF PITY: This band have the youthful vitality of the Buzzcocks and the Undertones when they were just starting up. The recording is

pretty good too, considering that they've crammed the whole band — live drums too — onto a cassette multitracker. The guitars are suitably buzzy, and block chords with distortion provide that well-known and loved 'wall of guitar' sound. Three-chord tricks abound, with exuberant reverbed vocals and simple melodies all sitting over dry drums, guitar and bass. Even though this was recorded a while ago, I think they'll look back fondly on this demo, which actually comes very close to the spirit and sound of the original recordings of the punk era!

THORP: Derby-based Thorp have produced a tape called *The Lama Garden* with three tracks entitled 'Circle 1', 'Circle 2' and 'Circle 3'. This doesn't really give a lot away, but after a good listen I can reveal that the tape is instrumental synthesised music, verging on the ambient. The relaxed string sounds and use of rhythmic echo on the more percussive elements give the tape a mellow air that is aided by its somewhat low bandwidth. This could just be down to the cassette, but there didn't seem to be that much going on above 8kHz — some shelving boost in the high-frequency end of the audio spectrum would not go amiss. Whether the compositions actually sustain the long arrangements is also open to question: there are two here that run for over seven minutes without a great deal of change. Of the three compositions, the second, more upbeat 'Circle 2' is the most interesting, but I would question the low mix of the kick drum on a track as dance-orientated as this one. A louder kick would have resulted in much more impact.

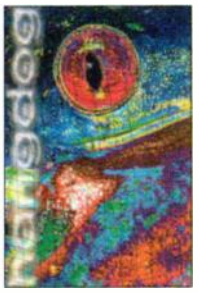


GERRY MC CONNELL: Gerry is a piano teacher from Cork in the Irish Republic who has been bitten by the sequencing bug. Finding that he can arrange and orchestrate to his heart's content using his trusty Atari and some decent sound modules, Gerry has produced material which he calls 'soundtrack stuff'. The digital nature of the sound sources is immediately apparent on a recording that is clear but lacks some warmth in the bass end. My suggestion to Gerry would be to first look at the filters of the bass sound and attempt to reduce the rasp there first (if it's unwanted). If this is unsuccessful, then perhaps he could try some EQ on the bass with a little rolloff at around 4kHz. Some subtle modulation would also help reduce the digital aggression of certain bass sounds. As a taster of several different styles the tape is fine, but it suffers from a lack of production style effects in places. For example, the brass sound on the last rock and roll track is a bit dry, and there are other sounds on the tape that would benefit from a touch of reverb. Perhaps the next step is a small desk and effects unit — that is, if he hasn't bought one by now!

STEPHEN SPROAT: Stephen's demo was recorded at the professional Chapel Lane Studio in Herefordshire, and has a fairly smooth sound that suits the MOR material. I would take issue with the level of the hi-hats, which are rather overpowering on the cassette and prevent some instrumental detail from shining through. Acoustic guitar, piano, drums and copious use of strings (especially cello) give the first song a Paul McCartney production feel. Stephen's vocals sit well in the mix, but some backing vocals in the first song would have been nice (they work well in the second song) and

there are some slightly dodgy moments in the tuning, usually when there's a move to a bridge section in the somewhat conventional arrangements. All in all, the tape demos the songs OK, but as a production, the mixes lack punch because the drums just tick over in the background (cymbals excepted) and the bass guitar, which should be providing the energy, is barely audible.

HANGDOG: Derek Marsden and Terry Engelbrecht recorded this tape in a bedroom studio and are therefore worried about the quality of the recording. This doesn't always add up — especially in their case, where they've done a good job of arranging and mixing using *Cakewalk Pro Audio* for PC. The warm bass end proves that it can be done on hard disk recording, but my bet is that the bass was aided by the



use of the Zoom 9120 valve DSP and the laudable tactic of miking it up through an amp for various tracks! As for the arranging, good jazz and jungle beats have been used throughout, embellished by industrial synth and sampled sounds, often treated to reverb to recess them in the mix. This is a recording that could easily have fallen into the trap of being harsh in the upper mids if care hadn't been taken to make sure that this didn't happen. In fact, you get a well-balanced sound with some energy and aggression in those frequencies, and it never grates on the ear. The sub bass has also been mixed well — the temptation is so often to make it too loud, but on this tape it never overshoots, and gives exactly the weight required to the production.

HAKAN TUNA: The unusual name is actually of Turkish origin although Hakan is a Londoner born and bred. All the songs are in Turkish and English — a first for Demo Doctor, I think. Hakan goes on to write that he is currently recording an album for a Turkish record company, which goes some way to explaining the choice of language. The songs are pop with a strong leaning towards the dance market — especially in the choice of vocal melodies. On the sonic side, the overall sound suffers from being hard in the mid frequencies: a substantial cut at 800Hz did wonders for all the

mixes. It seems to me that many of the sounds have been over-equalised on the recording, and this is contributing to the general hardness of the mix. It's so easy once you equalise upper mid into one sound to fall into the trap of then trying to match it with the next sound you overdub. If some sort of comparison is required, the third track is a significant improvement on the first two. ❑

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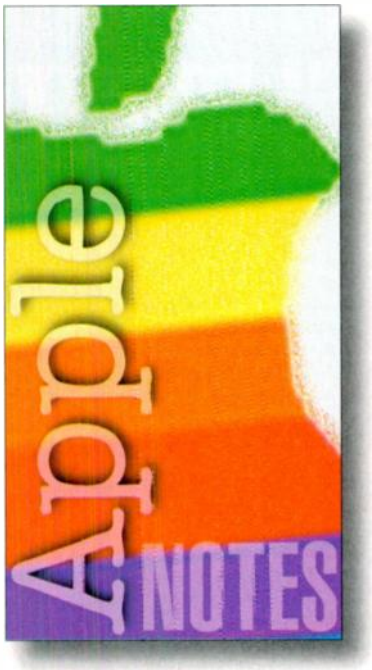

Version 8 of the Mac operating system is ready to roll, and MARTIN RUSS is the man with the facts and figures...

On 22 July 1997, Apple officially announced the launch of Mac OS 8, calling it "the most significant Mac OS upgrade since 1984". Mac OS 8 is intended to provide improved user perception, integrated Internet capability, advanced multimedia features, and the obligatory improvements to stability and performance. In other words, it should look better (the new 'Platinum' look is Apple-speak for grey), incorporate a browser into the desktop, have additional QuickTime audio, video and MIDI features, and should run faster and crash less often. These are encouraging words.

Mac OS 8 is also the next step along the path which will eventually give us the 'next-generation' dual Mac/NextStep-derived operating system called Rhapsody. But it's worth noting that the focus is very definitely on Power-PC native software, and that some of the features may not be available for 680x0 Macs — the casualties of System 7.6 will not be the last. Mac OS 8 will run on all 68040 and PowerPC processor-based Mac OS-compatible computers. But 68030-based systems, including those with PowerPC upgrade cards, are not supported at all. Mac OS 8 also supports the Common Hardware Reference Platform (CHRP) standard, although currently only prototype CHRP computers are available. Mac OS 8 will require at least 12Mb of physical RAM — and with less than 20Mb of physical RAM the virtual memory must be turned on and set to at least 20Mb. A UK-localised version of Mac OS 8 should be available before October.

The multi-threaded, PowerPC-native Finder will enable faster, multitasking operations such as copying files while simultaneously performing other operations, but then how often have you ever needed to do this sort of thing — and what is it going to do to the real-time operation of your music software? We also face yet another new Help system, this time based around hypertext. Where the Windows Help system has stayed more or less the same (with minor incremental enhancements) for some years, the Mac's Help seems to undergo major revisions with each new system. I've extracted all of my current System 7.5.5's Apple Guide files and consigned them to the wastebasket, so I remain to be convinced about the new 'Info Center' supplementary Help system.

Although Mac OS 8 aims to make the Internet easy to set up and use, integrating *Netscape Navigator 3.01* and *Microsoft Internet Explorer 3.01* into the Mac's desktop with the same depth as *Internet Explorer 4.0* on the PC is going to be a challenge, because *IE 4 is* the Desktop in Windows. So innovations like the Personal Net Finder, which provides a Finder-like listing of shared files and folders on a Mac OS computer to anyone connecting to it, may well "extend the capabilities of Mac OS file-sharing over Internet-standard protocols to anyone, on any platform, with a browser" — but this is no longer leading-edge technology: it's 'me too' technology.

Mac OS 8 will include the QuickTime Media Layer (QTML) technologies: QuickTime 2.5 with MPEG software decompression (on Power-PCs); QuickTime VR 2.0; associated graphics extensions such as QuickDraw 3D 1.5; and QuickDraw GX. This is all consolidation rather than anything new.

Try as I might to find the silver lining in this, Mac OS 8 looks rather too much like yet another System 7.5, System 7.6 bug-fix, rework and repackaging, albeit this time with a new appearance. Although this brings in much-needed money to Apple each time, I'm not seeing compelling reasons to upgrade. Or at least, until I buy a piece of software that requires an operating system update, I have no major reason to take the plunge. But with some digital audio programs already requiring 7.6.1, the writing may well be on the wall for my only recently upgraded 7.5.5 system. Perhaps the recent upheavals at Apple are making me cynical, but this does not feel like the same Apple that I've evangelised about for the last 10 years. There again, there's plenty happening in MIDI and audio on the Mac to distract me! Why worry about temporary glitches in Apple's fortunes when there's music and money to be made?

The Mac OS 8 information web site (address above).

ON THE NET

- **MAC OS 8 INFORMATION:** http://www.macos.apple.com/macos8/
- **EXCITE INTERNET INFORMATION:** http://livepage.apple.com
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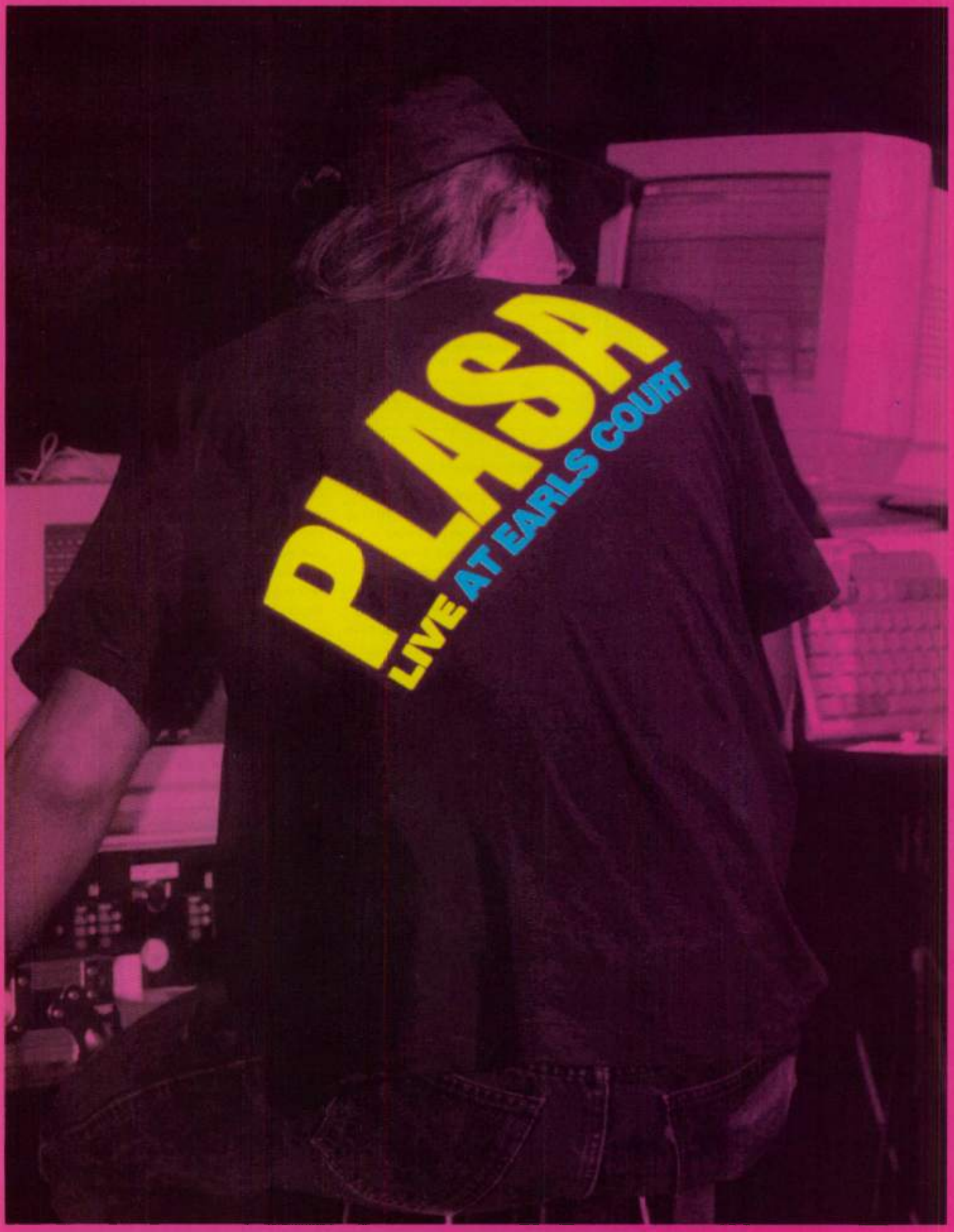
APPLE NEWS IN BRIEF

• POWERBOOK 1400

New PowerBook 1400 series models will include a 166MHz 603e processor version, as well as larger disk drives (up to 2Gb), bigger L2 caches (128K) and faster CD-ROMs (8x).

• ULTRA-LIGHT POWERBOOK

Although it has been available in Japan since May, the PowerBook 2400c may finally get released in the rest of the world. The result of a collaboration between Apple and IBM Japan, the high-end PCI-based PowerBook 2400c has a 180MHz 603e processor, 256K level 2 cache, 16Mb RAM, 1.3Gb IDE hard drive, 10.4-inch (diagonal) active-matrix diagonal colour display, two PCI card slots, built-in audio and 16-bit stereo sound recording and playback; and built-in ports for 16-bit video out, ADB, SCSI, Serial, and FDD connectors. It measures 10.5 x 8.4 x 1.9 inches, and weighs just 4.4 pounds.



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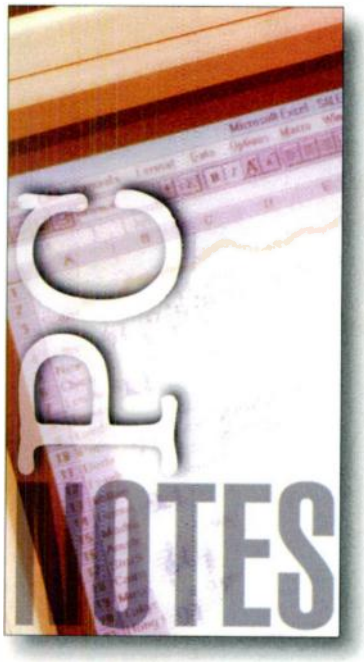


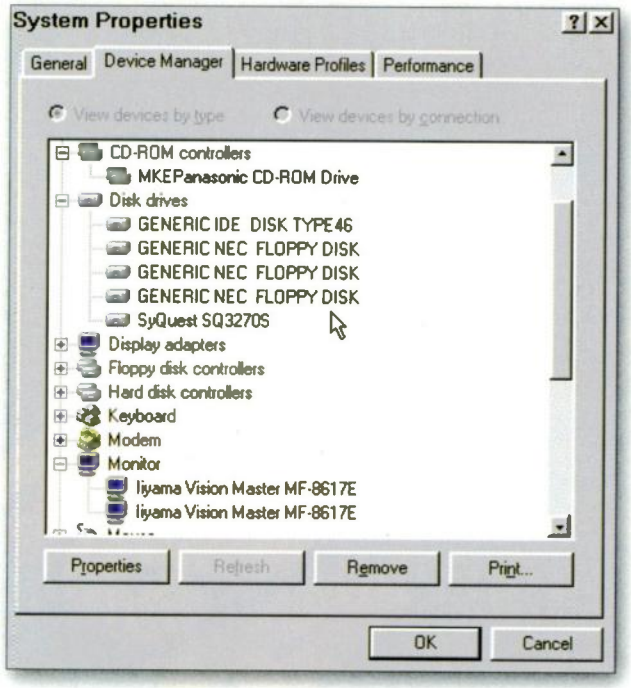


Figure 1: Even in the midst of a crash, I wiped the sweat from my brow and grabbed this screen to show you how bizarre things can get in PCs. Notice that my single floppy drive is holding a party with some imaginary friends, and my PC seems to have managed that clever Mac trick of supporting two monitors simultaneously. Don't believe a word of it. Time to re-install Windows 95, methinks!

If the worst happened, and your PC lost its memory, you could quickly recreate the same settings again. Couldn't you? MARTIN WALKER takes an inventory.

We all do it — nodding wisely when telling other people to always make backups, but rarely getting round to doing it ourselves. Two events this month highlighted a very important fact — anyone who still hasn't got records of all of their hardware settings is sitting on a time bomb. Let me explain. (Are you sitting comfortably?) It all started after I downloaded an update to Adaptec's EZ-SCSI 4 from their web site (the new version is 4.01b, and this can be found at http://websvr1.adaptec.com/support/). When I ran the executable update file, it installed fine, but when I re-booted the computer I received some cryptic message about a 'Windows protection error' and Windows 95 refused to load any further. Using Safe mode (see 'A Guide To PC Crash Recovery' in May '97's *SOS*) showed that something strange had happened. I now supposedly had three floppy disk drives, two monitors and two sets of serial and parallel ports (see Figure 1), and all of my disk drives were working under DOS compatibility mode, which basically meant that something had been corrupted (or an incorrect version of a file was interfering with something else). To cut a long story short, I eventually had to completely re-install Windows 95 (the whole episode lasted about four hours, but the actual re-install only took about 20 minutes). I hasten to add that the Adaptec update installed fine next time round, and my original problem may have been due to some other updated files.

Two hours after I had solved my problem, I received a call from fellow *SOS* contributor Paul Ward, who also had a sorry tale to tell. He had also installed Adaptec EZ-SCSI a few days previously, as well as some Iomega utilities for his new Jaz drive. However, he had decided to use the Adaptec utilities, and so was carefully following instructions to remove the final few references for the old Iomega ones from the Registry (notice those dark warning clouds on the horizon?). All was going fine until he clicked OK to delete all the references below the one he actually wanted to delete. In a flash, not only did the required single entry disappear, but also a whole host of others that were vital to his system. We talked through the possibilities, and tried several routes to restoring previously backed up versions of the Registry (well done, Paul), and finally managed to come across a backup made using *Norton Utilities*, saved a week or two earlier, but reasonably current, which saved the day.

However, after trying the easy options (and before finally discovering the Norton files spread across several floppy and hard drive folders), I did suggest re-installing Windows 95, as this would have taken far less time overall, and probably been more thorough. The big problem, and the difference between my crash and his, is that although we both had many manual tweaks to our hardware settings (including several in his case to enable his Fiji soundcard to work with other hardware), Paul had no hard copy of the settings that finally worked. Although reinstalling Windows 95 would have been fairly easy, the thought of possibly having to rework all of his previous alterations to the IRQ, DMA and I/O address settings, to return to his working system, gave him a nasty feeling of the cold sweaty kind.

Hence the main subject of this month's PC Notes — how to easily produce hard copy (on pieces of recycled rain forest) for all of your hardware devices, which should make a complete re-install a comparative breeze. If you do ever need to re-install Windows 95, and find that any settings previously changed by hand have returned to default values, then all you have to do is dig out your printouts, dive into Device Manager and alter these settings to the ones that you know worked before. Then reboot and sit back with a satisfied smile on your face. Here's how to do it.

The first stage is to print out all your BIOS settings. Even if you never alter them yourself, they are stored in non-volatile RAM (which retains its contents even after the power is switched off).

TINY TIPS

Many people never use the Find utility provided with Windows 95, but it can be very useful. I often use it to show me every MIDI file on my hard disk (wherever they are hiding); to search for any files containing a particular word; or, more often than not, to find every file written that day. This can often highlight files updated by other applications, and is also very useful when you saved something an hour ago, but can't remember what name you gave it. Unfortunately, the Date Modified tab in Find doesn't allow you to enter 'Find all files created or modified during the previous 0 days', and entering 1 day will find files altered yesterday as well as today. The trick is to use the 'between' selection. The second entry here defaults to today's date (for example 14/07/97), so all you do is to enter the same today's date in the first box, so that the full selection reads 'between 14/07/97 and 14/07/97'. Clicking on the Find Now button will collate every file changed so far that day. This certainly beats trawling through your hard disk looking for a stray file using Explorer!

Finally, a couple of really tiny tips that not everybody may have come across yet. If you dislike how the Recycle bin fills up with files that you really do want to delete, simply hold down the shift key when deleting files — they will actually be deleted, rather than being sent to the Recycle Bin. Secondly, if you want to refresh the view in Explorer (maybe you've just popped in a different CD-ROM), just press the F5 key.

It is not unknown for a stray glitch to wipe out some or all of these. If you ever turn on your PC to be greeted by the message 'Invalid configuration. Run Setup or press F1 to continue', and then on pressing F1 you see 'Invalid drive specification', don't panic. Thankfully, utility programs such as those from the Norton stable allow you to save the contents of your CMOS memory, and can restore them if this scenario ever happens to you. However, if you have the settings to hand, it only takes 5 or 10 minutes to type them in again. The alternative may require a brand new anorak, as well as replacement undergarments.

OK — let's get started. Boot up your machine, and when you see the message 'Press DEL to enter SETUP' or something similar, do just that. The main selection screen contains no data, but each of its options will take you to a single text screen of information. The main ones that you need to copy are: Standard CMOS Setup, Advanced (or BIOS Features) Setup, Chipset Features, Power Management, PnP/PCI Configuration, and finally Integrated Peripherals. Six pages in all, holding the sum total of all basic hardware settings, many of which will have been tweaked by the manufacturer for best overall performance (don't dabble unless you really know what you are doing). Now for the easy bit. Switch on your printer and then, for each page, press the 'Print Scrn' key (above the cursor keys). A neatly formatted printout then appears, occupying about half a sheet of A4 — you can go to a second screen and press the key again, giving you two screens of printout per side of A4. Easy, eh?

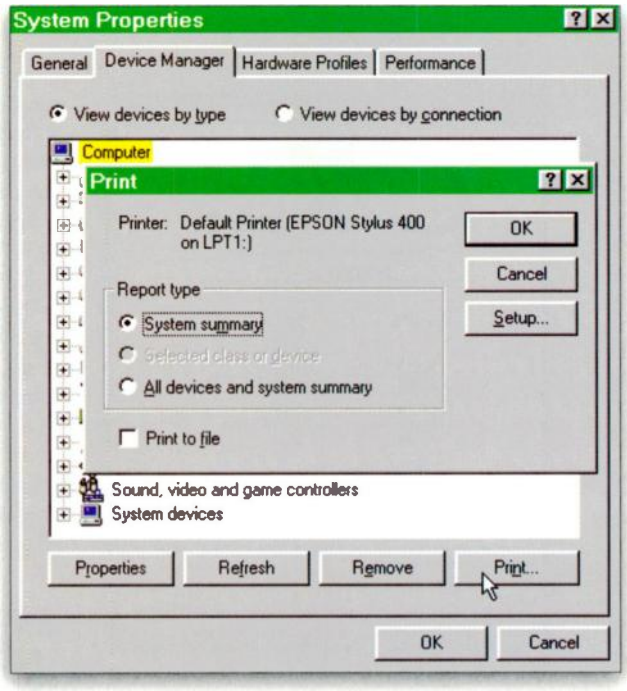


Figure 2: Printing out a complete set of Windows 95 hardware settings is as simple as clicking on this Print button, and then on OK in the box that appears next. The summary report on my machine occupied two A4 sheets.

Having completed this, exit the BIOS (you don't need to Save, as no values have been changed, so answer 'No' to this question) and then allow Windows 95 to finish booting. Go into Control Panel, then System Device Manager. Underneath the main part of the window are four buttons. Leaving 'Computer' highlighted in the Device Manager window, click on the rightmost button, Print (see Figure 2). Choose Summary, then click on the OK button, and a neatly formatted readout of all current Windows 95 hardware settings is yours for ever. The 'All devices and system summary' option also includes details of every driver known to the system, and ran to 11 pages for my PC. I suspect that the summary alone at two pages will contain sufficient information for most people.

The only remaining settings are any for devices that are still using Windows 3.1 drivers, such as old soundcards. The settings for these can be found in Control Panel, Multimedia, Advanced. Click on the appropriate driver, and then look at Settings. An old-fashioned pen and paper will be required here. After your efforts, you will be rewarded with a full set of resource information for your machine. *Et voilà!* Even if you upgrade from an AWE32 soundcard to the AWE64 Gold, as I did recently, you avoid having to repeat any resource shuffling, since you still have a record of the settings that worked previously, and can re-enter them with a smile on your face.

XGEDIT 95

If you have a Yamaha XG synth, or one of the XG soundcards, and haven't visited the Yamaha web site recently, you're in for a treat. There's now a host of tools, utilities, tip files, *Cubase* Mixermaps, and *Logic* Environment pages, as well as specific XG support for other machines such as the Mac and Archimedes. Have a look at http://www. yamaha.co.uk/ html/h_softwr.htm. While browsing, I used the link through to Gary Gregson's home page, to see whether he had managed to make any more improvements to the already excellent XGedit. Ten minutes later I was the proud owner of a downloaded copy of the new XGedit 95 (registered users of previous versions get the Save function, new users get this when they register). The first thing I noticed (after the new heavy metal colour scheme) is that the time it takes to download a complete data bank to my DB50XG is much shorter. There are numerous small improvements: remembering the most recent files and screen position between sessions, the ability to reverse the previous up/down knob movement (feels far more natural to me), and selection of whether a new file is automatically downloaded to the synth immediately after loading. The MIDI port setup has now been safely tucked away in a small separate window to make way for extra options in the Master Module, which help you select various options when you're producing stand-alone XG files containing SysEx data. There's now specific MU10 support, in addition to the existing support for the MU80, MU50, DB50XG, SW60XG, and basic XG Level 1.

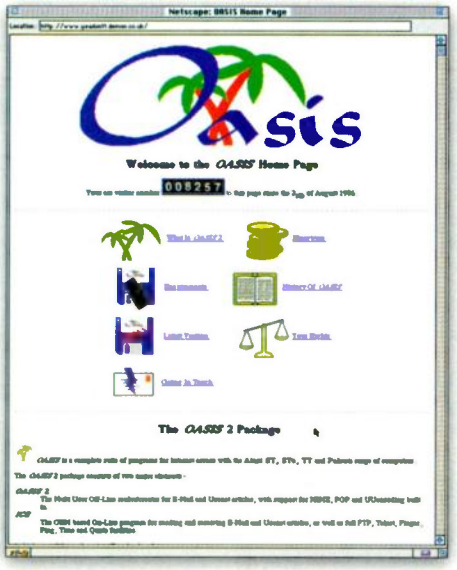
However, possibly the most useful change is the new cascading menu system for choosing sounds. Left-clicking on a sound name brings up a sorted set of every available sound from the complete range of banks (see screenshot). Right-clicking does the same thing, but sorted by bank. This will save hours of tedious scrolling. If you're reading this, Gary, can I suggest two small additions in your search for perfection? An option to select your own colour scheme would be useful (my monitor brightness needed turning up for this one). Also, to help all those people who used to cycle through different sounds while playing back a MIDI file, it would be great to have an Auto Audition option, giving you a way to try out different sounds in context without losing your place in those huge but wonderful cascading menu lists.

Figure 3: XGedit 95 — a major re-write featuring go-faster Windows 95 and NT 32-bit code, as well as mean and moody graphics.

There's still loads of software and support emerging for the venerable Atari — including packages which let you get 'netted'. DEREK JOHNSON elaborates.

I registered my copy of *Schoenberg*, the serial composition tool, this month. The latest full version (v3) really does give you some serious possibilities. The software is still challenging, but it's easier to get predictable results, and create music that isn't necessarily 12-tone in nature. Other new features include a MIDI File save option, parts playable on all 16 MIDI channels, and General MIDI support via a separate screen. That was £5 well spent! Author Gareth Jones is working on v5, which will include even more playback modes, including triplet multiplier and echo modes, the ability to create multi-part compositions using different combinations of tone rows, and drop-down menus.

Gareth also sent me copies of some of his other software, which you can find in most libraries. *Picture Music* creates music from low-resolution colour pictures: you select which four areas of the picture you want to convert, and the program scans those areas and turns each colour into a different MIDI note. Music can be saved as MIDI files in the latest version (v3), which also provides GM support. *ST Muse* generates musical output from combinations of binary counters, shift registers, and random elements, controlled from a graphical interface, and *MIDI Mouse Music* is a "fun program" that turns your mouse into a MIDI instrument. I also have copies of *Psycho-MIDI*, *Psycho-Script* and *Psycho-Fractal*, cut-down versions of a full program called *Psycho-Movie*. *Psycho-MIDI* colour-modulates low-res pictures using MIDI commands, generating psychedelic effects; *Psycho-Script* is similar, but without MIDI control; and *Psycho-Fractal* is a run-only demo of the *Psycho-Movie* package.



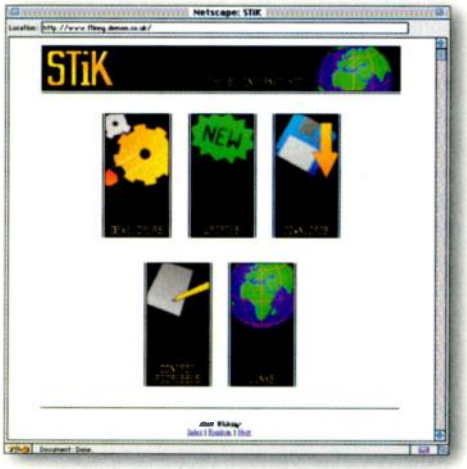
Oasis home page.

NET GAINS

It won't have escaped your notice that much of the software mentioned in this column can be found on the Internet. If you're curious about using your antique platform to gain access to this modern phenomenon, you're in luck. Microsoft and Netscape are unlikely to be producing ST/Falcon versions of their *Explorer* and *Navigator* software any time soon, but pretty well everything you can do on a Mac or PC you can do on your Atari, using software written and supported by enthusiasts. Apart from the software, you'll obviously need a modem and an Internet account, and you might find you'll need a hard drive and 4Mb of RAM, if you haven't already got them. Here's a list of some popular Internet software for the Atari:

- *CAB* (Crystal Atari Browser): a popular, sophisticated web browser.
- *STiK* (ST Internet Kit): handles the routing of data between the connection to your Internet service provider and whatever Internet software — email, ftp or web-browsing clients — you have running on your computer. I understand that current versions connect via SLIP, with PPP coming soon.
- *MG FTP*: a graphic FTP package.
- *STiK IRC*: lets you connect to an IRC server and indulge in Internet Relay Chat — the computer equivalent of CB radio.
- *Oasis*: a shareware suite of programs which currently offers email, FTP, Telnet and more, with a fully graphic web browser due soon.

Luckily this software, and more, is available from public domain libraries, along with utilities that make light work of installation and configuration. In fact, Floppyshop (they of the music and MIDI pack I've mentioned recently) also do a comms starter pack consisting of six disks which give you all you need to get on the Internet, access bulletin boards or send faxes from your computer. The pack costs just £8 plus postage. (Floppyshop, PO Box 273, Aberdeen AB15 8GJ. Credit card orders 01224 312756. Fax 01224 586208. Email sdelaney@steil.wintermute.co.uk.). Once you're on-line, you can download the latest versions of this software from Benelux Atari specialists MABN Computer Hardware's web page (http://www.xs4all.nl/~mabn/).



STiK home page.

GOING PUBLIC

I've just received a copy of Goodman's *Atari Reference Guide*, an 88-page, loose-leaf, illustrated listing of the masses of PD and shareware software in the Goodman's library. You can bind it however you like, and any additions or changes can be easily slotted in. The comms section is good, including some of the software mentioned above. On the music front, there's the legendary Henry Cosh sequencer, the companion disks to Martin Russ's *Adventures in MIDIland* 1990/91 *SOS* series, sundry SysEx utilities, and synth editors (for Korg M1, Casio VZ-series, Korg 03R/W and others). Demos of the Electronic Cow series of programs are available, so if you want to try *Sound Chip Synth* or *MIDI Arpeggiator* before you buy, start here. An *Atari Reference Guide* subscription costs £15 a year in the UK (£20 Europe, £30 other countries), and for this you'll get new pages automatically, special offers, and two free standard catalogue disks when you subscribe. Contact Goodman's, 16 Conrad Close, Meir Hay, Longton, Stoke-on-Trent, Staffs ST3 1SW. (Tel: 01782 335650. Fax: 01782 316132).

While browsing the web in search of ST-related internet information, I was reminded of another PD library: LAPD's web page has a full catalogue (with a few bits of downloadable software) at http://www.lapd.demon.co.uk/. You can contact them in the traditional manner at LAPD, PO Box 2, Heanor, Derbyshire DE75 7YP, telephone or fax 01773 761944/605010.

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KEYBOARDS

AKAI SG01V, vintage sound module as new, home use only, £150. ☎ Andy 01405 761872 (evenings).

AKAI MX1000, mother keyboard and piano board, 76-note weighted action, four MIDI outs, assignable controllers, editable velocity curves, £750. ☎ Dan 0171 4904923.

ALESIS QS6, immaculate condition with case, £450; Roland SPD8 Octapad with built-in sounds, £300; Novation BassStation, four months old, £200, all home use only. ☎ 01224 582507.

ALESIS QS6, plus Techno-Dance card; Yamaha W7 with dance and vintage boards plus sound disks, both boxed as new, no reasonable offers refused. ☎ Ian 01207 509866.

ALESIS QUADRASYNTH, mint, extra sounds on disk, £600 or swap for Q57. ☎ Kevin 01291 628652.

ALESIS QUADRASYNTH, 76-note keyboard, boxed, manuals, in excellent condition, home use only, £520; Novation BassStation rack, mint, boxed, still under warranty, £260; Philip Rees MIDI 2-Merge, £50, MIDI through 10, £25. ☎ 0181 964 0631.

BOSS DR SYNTH, GM sound module, £100; Akai SO1 sampler, £300; Behringer Ultrafex II, hardly used, £120. ☎ Dave 01227 463373.

CASIO CZ1, MIDI, £200; Yamaha RX8 drum machine, no manual hence £50; Yamaha PSR480, £200; possible swap CZ1 or PSR480 for Yamaha QY22 or both for Yamaha PSQR16. ☎ Robin 01305 785675.

CASIO CZ1000, 49 keys, MIDI, 4-part multitimbral, bank of sounds and pitch-bend, manual, £90 ono. ☎ 01285 640806.

CASIO CZ1000, digital synth, MIDI, PSU and manual, £110 ono. ☎ 01749 840115.

CASIO CZ3000, five octaves, full-size keys, 16-voice, 8-part, multi, boxed with manual, £175 or swap for Akai SG01V. ☎ 01509 267926.

CASIO CZ5000, 8-part multitimbral, £220; Boss DR660, 808/909 sounds, £200; Alesis MMT8 sequencer, £150; wanted: cheap Atari STE running Logic/Notator, cheap BassStation keyboard. ☎ Steve 01905 381437 evenings.

CLAVIA NORD LEAD V2, 12 voice, two cards, £1100; Arp Odyssey 2800, £800; Studiotech Vocalist, £850; Mutronics Mutator plus MIDI, £700; Boss SE50, £150; Korg Prophecy, £500, all boxed. ☎ Paul 01224 574603.

ELKA MK88 II, master keyboard, flightcase, 88 fully weighted keys, manual, mint condition, £750 ono. ☎ Max 0141 357 5309.

EMU ORBIT, boxed as new, £499, no offers, buyer collects. ☎ Azad 01633 271878 or 01495 774555.

EMU PROTEUS 1, sound module; classic Proteus sounds, 16-part multitimbral, six outputs, good condition, boxed, manual, £190 no offers. ☎ Martin 01244 376446 (evenings).

EMU VINTAGE KEYS, £475; Boss DR660, £225, Bass Station keyboard, £300, Tascam 424, £250; Art S.E. Multiverb, £200; Atari Falcon,1Mb, SVGA monitor, Cubase V.3, £350. ☎ 01634 723673.

EMU VINTAGE KEYS, immaculate and boxed with manuals, £550; Roland SR-JV80-02 orchestral board, £150; Boss DR660 drum machine, £200; Korg DW6000, £150. ☎ Darren 01375 677332.

EMU ORBIT, as new, boxed with manuals, £550. ☎ 0171 286 5049.

ENSONIQ TS12, keyboard with disks, on-board sequencer, good condition, £975. ☎ 0181 905 4370.

ENSONIQ TS12, 76-note weighted action, GM, mint, manuals, boxed, £1000, Roland RD250S stage piano, £350. ☎ Peter 01202 827118.

GEM PIANO EXPANDER, brand new, boxed, £400, no offers. ☎ 01604 581663.

HAMMOND B200, portable with Sharma 3200 2-channel cabinet and Autouari 64 drum machine, £1150, Yamaha PS6100 full-size keyboard, MIDI, stand, pedals, £375. ☎ John 0370 592115 (Norfolk).

HOHNER CLAVINET E7, good condition, home use only, needs new spring on topmost key, £300. ☎ 0171 652 1801.

KAWAI K1R, with manuals and RAM card, £150 ono; Roland R5 drum machine, £120 ono; Roland PC200 MkII, £60 ono. ☎ Peter 01704 872169.

KAWAI K5, 16-part multitimbral, part-analogue synthesizer, 126 editable harmonics per sound, £385. ☎ Carl 0161 925 0047.

KAWAI MDK61 MkII, master keyboard, 5-octave, only one MIDI out, boxed as new, £160; Akai IB303T SMPTE board for samplers, £100; Yamaha DX100 synth, £75. ☎ Paul 01536 761014.

KORG 03R/W home use only, with manuals, extra soundcards, £350. ☎ Rob 01394 285883.

KORG 05R/W, with serial cable plus MIDI cable and hundreds of extra sounds on disk for the PC, £220. ☎ Craig 01846 754621 (morning).

KORG I3, immaculate condition, never gigged, flightcase, manuals, style disks, £900. ☎ Ross 01903 770376.

KORG WAVESTATION SR, mint condition with manuals, £400 ono ☎ 01902 653355.

KORG M1, carrying case, mostly home use; rare Mega RAM cartridge plus video, £585 ☎ 01379 783415.(Suffolk).

KORG M1, very good condition, £490; Roland D50, £375; Lexicon LXP1, £225; Midiverb 3, £150; Midiverb 2, £100; Studiomaster IMP1 16-channel MIDI-mutes, £125, 12U rack trolley, £150; La Fleur tenor sax, £375; Quadraverb £185. ☎ 01273 382 694.

KORG MS10, monophonic synthesizer, complete with manuals and patch cords, little used in excellent condition, £170 (must be seen). ☎ 01473 890821 (Ipswich).

KORG MS10, £200; Atari ST, 1Mb, monitor, £200; Roland TR626 drum machine, £100; two flightcase trunks, £60 each; Yamaha NS10 monitors, £200. ☎ Karl 01202 526034.

KORG 01R, £595; Kawai K4R, £249; JV1080 session board, £149; Yamaha RX5, £195; TR707, £105; Wavestation EX plus cards, £675, all with manuals. ☎ 01708 250846.

KORG 01W FX soundcards, orchestral and ethnic, great sounds only, £100 for both. ☎ 01295 812095.

KORG M3R, £250; Emu Proteus, 1XR, £250; Casio VZ8M, £120, Roland MT32, £100. ☎ Paul 01570 493440.

KORG PROPHECY, new, £580, FAT Freebase, £150; Zoom 1202 multi-effects, new, £60. ☎ Grant 0171 686 4180 (any time).

KORG TRINITY PLUS, 16-track workstation with Prophecy board, excellent condition, boxed with original disks and new operating system, £1290. ☎ 01249 443295.

KORG X3, £750; Yamaha MT8X, £700; Lexicon Vortex, £170, Atari 520ST, £50; all boxed, as new, with manuals, home use only. ☎ Gareth 01327 263731.

KURZWEIL 2500S, 76-note, 32Mb of RAM, sample option, 28Mb ROM, 600 sounds, SCSI, full digital I/O Syquest Flyer, four months old, home use only, mint, £2,999. ☎ 01767 651077.

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MOOG PRODIGY, in mint condition, boxed since new, reluctant sale, £350 ono. ☎ Bill 0181 213 8370.

MOOG MINIMOOG, Kenton Pro 1, £995; Fatar 2001, flightcase, £1050; SY77, Steinberg Editor/Librarian, £750; Atari 1040STFM, Notator, Cubase, printer, £300; Matrix 1000, Access Programmer, Software editor/librarian, £650. ☎ 0181 449 9160.

OBERHEIM MATRIX 1000, £260; JL Cooper PPS100 SMPTE-MTC syncroniser, £220; two Korg M3R/M1 voice and PCM cards, £35 each; Shure SM58 £50; two sampling CDs, £15 each. ☎ Martin 0151 628 8150.

OSCAR MIDI SYNTH, excellent condition, home use only, £800 ono. ☎ Graham 01803 867204 (Devon).

QUASIMIDI QUASAR, the original dance rack, 303, 808, 909 sounds, resonant filters, six outputs, still under guarantee, mint condition, boxed with manual, £499 ono. ☎ Adam 0116 267 1715.

ROLAND AXIS, remote round-the-neck keyboard supplied with floor mount controller/sustain pedal, one lead carries power and MIDI, good condition, £250 ono. ☎ Ged 01773 828379.

ROLAND D70, with flightcase, £500; Roland U110 sound module, £175; C Audio RA1000 power amp, £300. ☎ Bob 0976 161004.

ROLAND JD800, the multitimbral synth to have, loads of knobs and sliders, home use only, one careful owner, £1295. ☎ 01480 466274 (Cambs).

ROLAND U20, RS, PCM pro keyboard, in very good condition with sound disks and a flightcase, £320 ono. ☎ Chris 01536 724763.

ROLAND D10, multitimbral LA synth, £299; Alesis MMT8 multitrack sequencer, £129; both units in immaculate condition and boxed with manuals, home use only. ☎ Richard 0181 395 4796.

ROLAND D110, multitimbral sound module, £150. ☎ Andy 01992 560341.

ROLAND D110, as new, £180; Roland A880 MIDI patchbay, £135; Sequential Prophet 600 with flightcase, mint condition, £600. ☎ 0181 390 2700.

ROLAND D50, good condition with manuals and four ROM soundcards, £400 ono. ☎ Gary 01905 22584 (evening).

ROLAND JX1, immaculate condition, £175. ☎ Andrew 0181 2401247.

ROLAND JX8P, £200; Roland Jupiter 6 with dual stand, £695; Roland D110 with card, disks, rack and patchbay, £150. Guy 01268 295192/01268 544099 (day/night).

ROLAND JX10, £390; Akai SG01V, £170; Casio DA7, £350; Spirit folkalite, £120; QX5 sequencer, £90; Kawai K1, £140. ☎ James 01523 172676.

ROLAND JP8000, MC303, brand new, boxed, swap P/EX analogue synth; drum machine (working or not); other new gear to sell/swap. ☎ Kevin 01353 663613.

ROLAND SUPER JV1080, boxed with manuals, immaculate condition, £800 ono. ☎ 01222 456628 (after 5pm).

ROLAND JV80 pro synth, can be expanded with any 1080 card, good condition, £395. ☎ 0113 255 6069 (Leeds).

ROLAND JV1000, £900; Absolute Zero's, £150, Mass 150 amp, £195; SU10 sampler, £190; Atari Mega1, £200; Fostex X26 4-track recorder, £130; Mackie 1202 mixer, £175; analogue reverb, £100. ☎ 01455 631278.

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ROLAND JUNO 60, JSQ60 sequencer flightcase, £330 ono; Boss DR660 drum machine 808/909 kits, £210 ono; PSION 3A, 2Mb, 4Mb Flash ROM case, £340 ono, all excellent condition. ☎ John 01964 624067.

ROLAND JUNO 106, £385; Korg MS20, £385, Yamaha TG500, boxed £390, Peavey DPMV3 rack, great filters, £275, Alesis QS6, £475; Casio CZ1000, £95, D110, £125. ☎ 01261 815707.

ROLAND JUPITER 6, top condition, MIDI upgrade, £715. ☎ 01274 878626/0802 853020.

ROLAND JUPITER 8, MIDI groove IV, one of three rare versions, excellent condition, £999. ☎ 01455 619312/0468 206105.

ROLAND SYSTEM 100, 101-102, SH09, CSQ600, Juno 6, S10, Wasp; Korg M1; Basstation rack; Atari ST mono monitor, Amiga 500. ☎ Chris 0116 236 6057.

ROLAND MKS30 with PG200 and two memory cards and manual, £395; Roland SH09, £180; Korg Polysix, £250. All in good condition. ☎ 01243 830697.

ROLAND MKS70, super JX analogue synth module with PG800 programmer, 12 voice, full MIDI spec, programmer tweaks recordable via system exclusive, good condition, boxed with manuals plus one cartridge, £650. ☎ Andy 0410 505705. (Luton).

ROLAND SC33, sound canvas, GM and GS sound module, £150. ☎ Keith 0161 7475372.

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ROLAND PC200, controller keyboard, £110; Korg P3 piano module plus two cards, £125, Ensoniq SQR module, £300; Yamaha TX812 plus Atari disk, £175, all boxed with manuals. ☎ 01232 849092.

SEQUENTIAL SIXTRACK, rich analogue, onboard sequencer, £325 ono. ☎ 01524 811282.

YAMAHA AN1X, two months old, one of two given by Yamaha, mint condition, £700; Roland Super JX10, full-size keyboard, six outs, mint condition, £500. ☎ Mark 01952 273862.

YAMAHA PF2000 88 weighted keys; 76 voices 2-track recorder, extra cartridges, £550 ono; Yamaha SY22 synth, £300; stand £15, both in great condition. ☎ Robert 01707 376497.

YAMAHA DX21, synth, mint condition with stand and manual, £170; Technics SXEN2 organ, perfect condition including stool, £800 ono. ☎ 0161 9280533 (Manchester).

YAMAHA DX7, classical digital synth, excellent condition, includes manual, £200. ☎ Rob 0181 8583002.

YAMAHA DX7S, Classic FM synth with cartridge, £350 ono. ☎ 01244 301566.

YAMAHA V50 WORKSTATION, DX sounds, 8-track sequencer, drum unit, disk drive, aftertouch keys, 32 effects, £350 ono. ☎ Tim 01727 838970.

ROLAND SC55, sound canvas, as new condition with remote control, manual and hands-on software editor for Atari, £70. ☎ 0181 6560434.

YAMAHA PDP100, 76-key digital piano, 128 AWM voices, 99 rhythms, excellent condition, £699. ☎ 0171 8434410 (Croydon).

YAMAHA SY22, plus stand and extra voices in sysex format, £315 ovno; also, DX7 voice ROM; can fax details or demo. ☎ 01707 376497 (anytime).

YAMAHA SY35, keyboard synth, 128 voices and 8-part multitimbral, manuals, £299. ☎ Norbert 0171 4022241.

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YAMAHA SY85, immaculate condition, hard case, manuals, sample library, home use only, £750 ono. ☎ 01761 471297.

YAMAHA SY85, sample memory upgrade, 8Mb, £90 and 2Mb, £30. ☎ Chris 01606 554871.

YAMAHA MU50, excellent condition with manuals, £250; two 30-pin 16Mb Simms, ideal for samplers, £130 or£70 each. ☎ Nick 0114 2726433. (After 7pm).

YAMAHA CS1x, control synth, 16-part multitimbral, arpeggiator, real-time editing, boxed with manuals, £425 ono. Emile 01252 371188.

YAMAHA CS1x, excellent condition, boxed, manuals, £450. ☎ Russell 01737 775190/01293 7736697 (day/evening).

YAMAHA TX816 £700; Moog Taurus II bass pedals, £400; Yamaha Rev7 plus remote, £500. ☎ Mike 01942 204800 (Wigan).

YAMAHA TX812, classic FM synth module, Ibanez digital reverb/delay rack-mount module with MIDI control, £200 or will split, £150 or £50 respectively. ☎ 01702 616961.

RECORDING

ACOUSTIC 3312 monitors, horn tweeters, 5-inch mid, 12-inch woofer, max 125w, little use, original price £1760, quick sale at £800. ☎ Jon 0958 440664 (Ilford).

ALESIS ADAT V3.4, 450 hours, £1300; Korg 01W, £750; Kurzweil micro piano, £300, all as new and boxed. ☎ 01364 661420 (Devon).

ALESIS ADAT XT, Mackie 1604 VLZ 8-track digital recorder, 16:4, 3-months old, loom included. £2000. ☎ 01442 878370.

ALESIS MONITOR 1 speakers with Alesis RA100 power amp, excellent condition, hardly ever used, £400. ☎ Chris 01708 855495 (Essex).

ALESIS MIDIVERB 4, £190; Roland SX700, £250; GX700, £250; Boss DD5 delay pedal, £70; Yamaha FX900, £250, Marshall JFX1, £250. ☎ 0121 422 9605.

ALESIS QUADRAVERB PLUS, £200; Yamaha SPX90, £200; Roland DEP3, £180, all with manuals. ☎ 01553 617497.

ALESIS QUADRAVERB PLUS, £200; Gordon Giltrap Session Award pedal, used once, £75; Control 7 Digitech MIDI control pedal used once £75. ☎ 01242 603595.

Boxed and sealed, £110; Yamaha DB50XG, £100. ☎ 0966 151616.

AKAI MG14D, proffesional 12-track recorder, seperate sync, amazing sound quality, auto-locator, home use only, boxed, £795. ☎ 0181 5172118.

AKAI MG14D plus ML14 remote auto locator, 12-audio tracks and two sync tracks, £1000. ☎ 01803 866991.

AKG C414EB, two of them, one AKG 900E, offers, three DT100s, £70 each. ☎ Pete 01340 820426.

ALLEN & HEATH, Saber 32:16:24 mixer, with automated mutes, serious 16-buss desk, in good condition, £3900. ☎ 01252 710244.

AMEK ANGELA, Tascam 16-track and 2-track, Tannoy FSM monitors; Quad amps; loads of outboard and mics, lots more will split. ☎ 0161 736 1168.

BEHRINGER ULTRAFEX II, hardly used, £120; Akai SO1 sampler, £300; Boss DR synth GM sound module, £100. ☎ Dave or Steve 01227 463373.

BEHRINGER EURODESK, 24:8:2 24, 48 inputs on mixdown, comprehensive Roland EQ, 3-weeks old, immaculate and boxed, £1300, consider swap for VS880. ☎ 0958 607578.

BELL DBX TYPE, noise reduction gives digital quality to noisy analogue machines, 24-channels in three rack units of 8, £150 per rack. ☎ 01482 448767.

BOSS SX700 multi-effects, six months old, boxed, mint, £275; Macintosh IIci 5/40 cache upgrade 13-inch colour monitor, extended keyboard mouse, spare 40Mb hard-drive, leads, £265. ☎ 01752 562343.

BOSS BX16, 16-channel mixer, two aux, £250, 150w 3-way monitor speakers, £95; Jupiter 6, £799; Various drum synths, SD59; SD200; SD55, DVMX; SR88; TS305; CR68. ☎ Tom 01372 745494.

CASIO DA7, DAT, rechargable batteries and power supply. Offers welcome ☎ Steve 01273 565754.

COMPLETE 6-TRACK tape studio with 12:6:2 mixing desk, Sansui MR6 tape and MX12 mixing desk, £450, either buyer collects or arrange carriage. ☎ 01305 785675 (evening).

DCC 170 potable recorder, comes complete with all cables, books and 8x 60-minute tapes, £170 including post. ☎ 0031 703875855.

DBX 120 XP, subharmonic synthesizer, boxed, new and unused, genuine reason for sale, £150 ono. ☎ 0161 4569836.

FOSTEX D80, hard disk recorder, £925 ono; Roland D110, £175 ono;Yamaha QX3 sequencer, £225; Tama Granstar Drum kit, £650; Korg DS8 synthesizer, £350; Yamaha GC2020B II compressor, £225; Sony DTC 790 DAT, £425. ☎ 01274 817317.

FOSTEX E16, with remote, £1600. ☎ 01223 234850.

FOSTEX DCM100 plus Mixtab X2, 16-channel stereo inputs, full midi control, scene memory. Mint condition. ☎ Darren 01225 469532.

FOSTEX E16, 16-track analogue multitrack tape recorder with cover, loom and adjustable trolley, home use only, £1250 ono. ☎ Matt 0181 6706578.

FOSTEX R8, plus remote extension, £495; JBL control 5, plus studio monitors, boxed as new, £275; Sony DTC 750 DAT player, £295, Smartsync Synchronizer, £35. ☎ 01708 764439.

FOSTEX R8, 8-track reel to reel analogue recorder, remote extension and 20 tape reels, mint condition, £510. ☎ Matt 0115 9691845.

FOSTEX 450, mixer, 8:4:2, 100mm faders, two au, eight mic/line, excellent condition, £300 ono. ☎Rob 01509 261 590.

FOSTEX 280, 4-track, boxed with manual, £250; Korg poly, 61, synth with case and manual, £200; J.L. Cooper PPS100 MIDI SMPTE sync, £175. ☎ 01943 873896.

FOSTEX 380S, 4/8-track cassette recorder, top of the range, 8-months old, hardly used, £400 no offers. ☎ 01380 830019.

FOSTEX 812 desk, 12:8:4, four aux sends, 3-band EQ, two sweeps, 1HF shelving, excellent condition, £350 ono. ☎ 0121 449 7229.

FOSTEX 2016, 16-channel line mixer, 2U-high, £90. ☎ 01236 433238.

KORG 168RC, digital mixer, 16 ADAT digital ins/outs, eight analogue inputs, built-in effects, brand new and unused, £1350. ☎ Chris 0181 7484631.

LA AUDIO GCX2 compressor, as new, £130. ☎ Mathew 0181 7718310.

LA AUDIO GCX2, used once, as new, £110. ☎ 0181 4054801.

MACKIE CR1604 excellent condition 16-channel mixer, complete with Rotopod, rack ears, manual and box, £600. ☎ 01354 695239.

MISSION 733 studio monitors, excellent sounds and condition with receipt and manual, £250 ono. ☎ Graham 01423 771440.

OTARI MX5050 3, 0.5-inch 8-track recorder, flat transport, upright VDUs, remote and with IEC equalisation, all connectors balanced XLR, connector loom available, £1000. ☎ Jason 0181 2117240.

PHILIPS PCC300 DCC deck, with manuals, remote and 3cassettes, good condition but not working, hence £50 or cassettes only for £10. ☎ 01933 678608.

PHONIC PCL3200 stereo compressor, limiter, gate, very good condition, little used, boxed, manual, £140; Wanted, cheap external SCSI device tape sync device. ☎ 01904 653573 (York).

RECORDING STUDIO, for sale, including 32-voice Pro Tools and loads of analogue gear, original investment, £145,000, the lot for £30,000 plus VAT. Chris Thomas SW9 97E.

ROLAND SRV330, dimentional space reverb, £600. Boss SX700 multi-FX, £290; Waldorf pulse, £400, all in perfect condition with boxes and manuals, home studio use only. ☎ John 01778 347673 (Peterborough).

SAMSON MIXER, 22:2, £250, Trantec radio mic, £120, Artiste GM600 amp, £100, Aiwa DAT recorder, XDS1100, as new £350. ☎ Ian 0121 3511734.

SANSUI MR66 6-track cassette recorder, dbx, 50% more tracks than your average 4-track, great condition, just serviced, sounds great, £350. ☎ 01354 695239.

SECK 18:8:2, £600; Soundtracs PCMIDI-24 desk, £2200, BBE422A enhancer, £180; Mixer stand and bridge, £150; patchbays, looms, Dolby, SNR and other outboard. ☎ Carl 01223 236108.

SECK MIXER, 18:8:2, mint condition and home use only. ☎ Robert 01572 770038 (After 7PM).

SONY TCD D7, portable DAT player, mint condition with box and leather case, hardly used, £425. ☎ Darren 01612368705.

SOUNDTRACS 16:8:16, mixing desk, split format, up to 34-channels on mixdown, excellent condition, great sounds, only, £425 ono. ☎ Laurie 01522 530605 (lincoln).

SPIRIT ABSOLUTE 2, great sounding monitors, barely used, £199, sale due to re-locating. ☎01727 869949.

SPIRIT FOLIO, notepad, eight input mixer, hardly used, boxed with manual plus PSU, £110; Roland TR626 drum machine, eight outputs, MIDI, excellent condition, boxed, £85. ☎ Simon 01422 886980.

STUDIOMASTER DIAMOND, 16:2 mixer, 3-band EQ, mic and jack inputs on all channels, aux returns and sends, £240. ☎ Jason 01442 832592.

STUDIOMASTER MIXDOWN Gold, 16:8:16, 34 inputs on mixdown, MIDI-mutes, manual, as new £650 ono. Roland A880 MIDI patchbay, 8-in and 8-out, £250 ono. ☎ Mike 0161 7409438.

STUDIOMASTER MIXDOWN Gold 16:8:16, fully pro features, MIDI-muting, 34-track mixdown, flightcase, £850 ono. ☎ Chris 0181 2999800 (daytime).

STUDIO RESEARCH 12:2, mixer, 12-mono balanced inputs on XLR and TRS jack, gain, 3-band EQ, two effects sends, peak LED and pan, 13-segment LED peak meters, headphone socket, internal power supply, metal case, £180. ☎ Matt 01865 725862.

SOUNDCRAFT 600, 8-buss desk, fully pro patchbay, meter bridge, stand, superb condition, £1500; D80 hard disk recorder, as new, £900 ono; PPG wave synth, £600. ☎ 0181 7423440.

SOUNDCRAFT SPIRIT, auto 24-channel desk 56 inputs on mixdown, with official Steinberg automation software, excellent condition, £1800. ☎ 01302 360767.

SOUNDCRAFT FOLIO 12:2 mixer in new condition, boxed, £150. ☎ 01744 758883.

SOUNDCRAFT SPIRIT STUDIO, 32 channel mixer, parametric EQ, 64 inputs, XLR line direct inserts on every channel, home use only, mint, £1800. ☎ 0151 4886794.

TAC SCORPION, mixing desk, 34:8:16:2, eight aux's great 4-band EQ, very solid, little home use, well maintained. Offers. ☎ Ian 0181 5567888.

TASCAM DA20, hardly used, £500; Alesis RA100 and monitor one speakers, £550, all boxed as new. ☎ 01904 624992.

TASCAM DA30, pro DAT, £495; Yamaha SPX990, £395; Yamaha Rev7, £295; Yamaha NS10M, £165; Korg DRU3000, dual remote control effects, £150; Tascam 688, £595, everything mint. ☎ 01226 790541.

TASCAM PORTA 07, as new, only a few hours use, complete with box, manual and power suppl, £210 ono. ☎ 01604 844936 (Northampton).

TASCAM 424, 4-track portastudio, perfect condition, boxed with manual, £315 ono. ☎ 01484 311620.

TASCAM 488, recorder/mixer plus Fostex NN06 6-track sub-mixer providing 14-channel studio studio system, home use, boxed, manual, excellent condition, £425 ono. ☎ Rob 0116 2510405/01162761242 (day/evening).

TASCAM 488 MKII, 8-track portastudio, 1-year o'd, DBX, phantom power, mic inputs, autopunch, boxed and manuals, immaculate condition, £550 ono. ☎ 01749 840115.

TASCAM M216 MIXER, 16:4:2, 4-subgroups, midsweep, 8-track in with manuals, £250 ono. ☎ 01453 548136. (Gloucester).

TASCAM M2600, 24:8, boxed as new, eight months old, £1550. ☎ Andy 0117 9754107.

TEAC A3300-ST open-reel tape deck, twin track stereo 15/7.5-inch IPS, 10.5-inch reels, in good condition, £275. ☎ 01865 765683 (Oxford).

TASCAM TSR8, boxed, manual, remote, £625; Tascam 32:2B, manual, remote, £325; Sony DTC55ES, boxed, manual, remote, £250;Roland SRE555 rack tape echo, £395; Boss CS3 pedal, £35; XR1 X300 SMPTE, £110. ☎ 0114 2757757 (Sheffield).

TASCAM DA20 rackmount DAT recorder, home use only, boxed with manual, tapes and remote control, £520. ☎ 01392 426014.

TECHNICS STEREO, 12-band EQ, £60; Akai stereo 7-band EQ, £50; ClapTrap percussion unit, £75. ☎ 01553 617497.

XRI SYSTEMS XR03, MIDI-SMPTE synchroniser with box and manuals, £100. ☎ o1223 234850.

YAMAHA DMP7, fully automated digital mixer, moving faders, latest ROM update, mint condition, £500. ☎ Tony 01784 481871.

YAMAHA YMC10, tape to midi converter for syncing tape and MIDI gear, perfect working order. £70. ☎ 01224 594720.

YAMAHA NS10, monitors, £180; Basstation Rack, £220; Kenton Pro2, C/Gate, MIDI interface, £120; Yamaha EMP 700 X/FX with £220; Alesis Midiverb II, £85; Microverb III, £95. ☎ 0151 3530394.

YAMAHA PROMIX 01, home use only, £1000 ono;Opcode studio 3, £75 ono; Boss DR660 drum machine, £150; Macman MIDI interface, £45. ☎ Andy 0161 3956/0973 735449.

YAMAHA 02R, digitally auomated mixing desk, excellent condition, boxed with manuals, £4300; Akai S3000XL, £1300; Roland JD990, £650; JV2080, £1050. ☎ 0181 800 1040 (evening).

YAMAHA RM800, 16-channel mixing desk, 40 inputs on mixdown, 3-band EQ, midsweep 8-bus, four aux sends and returns, £600 ono. ☎ Steve 01757 701130.

SAMPLERS

AKAI SO1, expanded, excellent condition with manual and Akai sound library, £350. ☎Allan 01484 602611 (Huddersfield).

AKAI SO1 with 2Mb RAM, never gigged, manual, system disks, boxed, £350. ☎ Ross 01903 770376.

AKAI S1000, 10Mb, 10 outputs, £900 ono. ☎ 01708 704927.

AKAI S2800, 2Mb internal effects, 32 voice polyphony, expansion slots, SCSI lead, manual, library and boxed, £600. ☎ 0802 955039.

AKAI S3200, with cartridge drive, £1890; Ensoniq VFXSD with ROM cartridge, £330; Roland SC88, £295; Atari ST with Cubase, no monitor, £295 or £2745 for all. ☎ Rob 01489 790596.

AKAI CD3000I, analogue inputs fully expanded to 16Mb, plus 500Mb hard drive, packed full of

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samples, and many sample CD-ROMs, boxed as new, home use only, £1995 ovno. ☎ Jason. 01663 732569.

AKAI MPC2000, sampler, sequencer and drum machine, comes with 18Mb of RAM, only £900, no offers, possible swop for Yamaha AN1X. ☎ 01709 880379.

AKAI S950, fully expanded RAM plus SCSI interface and manuals, disks, excellent condition, £525. ☎ 0181 3499661.

AKAI S3000, perfect condition, home use only, manuals and original packaging, SCSI expansion card, built-in effects, 10 outputs, huge sound library, only £1295. ☎ Rob 0973 658033.

CASIO FZ10M, sampler, 2Mb, eight outputs, rackmount version, analogue filters, massive library and user manual, £395 ono. ☎ Steve 0171 3597355 or 0171 688 0309.

CHEETAH SX16, sampler version, 3.0 software, eight ouputs, library, perfect condition, £250. ☎ Dominic 0121 6334742/01494 562714.

EMU EMAX II, rack with 4Mb, 8-outs, SCSI, resonant filters, mint, boxed, £600; Replay 16, sampler for Atari, MIDI-dump standard editor, boxed, £55. ☎ 01752 562343.

EMAX SE, sampler-keyboard, manual, library, £300; Roland P330 piano £120. ☎ 0161 8489756.

EMU E64, 10Mb RAM, 540Mb HD, library CD-ROMs, mint, boxed, £1700. ☎ Alan 0171 7330201.

EMU EIV, supenor sampler, 128 voices, 40Mb, 2000Mb hard disk, Apple CD-ROM, boxed with manuals, mint, £2700 including delivery; Orbit 1/2, mint, £550 including delivery. ☎ John 31402532029 (Holland).

EMU ESI 32, home use only, excellent condition, 2Mb version, £680. ☎ 0181 9236068.

EMU E4K, 64Mb chip, 2-months old, boxed, EOS3 free from supplier when it arrives, £2900 ono; JP6, mint MIDI update, £575. ☎ Andy 01291 430704.

ENSONIQ EPS Keyboard sampler, sequencer, workstation, full memory, expanded SCSI and output expander with 10 outs. Massive library, 275 fully catalogued disks, £450, DAC Syquest drive and disks, £375. ☎ 0171 5151587.

ROLAND DJ70, £450, Kenton Pro4, £345; Roland Vintage synth board, £100; Notator Logic V2.0, £100; Alesis MMT8 sequencer £75. ☎ 0181 6928129.

ROLAND DJ70 MK II, S760 spec, sampling workstation upgrade to 18Mb, three months old, under guarantee, Time & Space Jungle CD, £850. ☎ Rob 0171 6257362.

ROLAND MKS100, rackmount sampler, extensive editing, arpeggiator, disk drive, multitimbral, £235 including disk libraries, Korg M3R module, classic M1 sounds C/W cards, £370. ☎ 01179 496369.

ROLAND S10, sampler, loads of discs, manual, Casio CZ101, manual, patch books, PSU, SCI, Drumtraks, all in great condition, offers. ☎ 0151 6450074 or 01517022738.

ROLAND S750 SAMPLER, 10Mb memory, mono monitor, mouse, home-use only, perfect working order, £1200. ☎ Mark 0181 8472135.

ROLAND S760, 32Mb CD-ROM drive (8X) plus library £1250. ☎ 0171 5158632.

ROLAND W30, sampler/keyboard/workstation, eight outs, resonant filters, boxed, manual, £575 ono. ☎ Jude 01524 844394.

ROLAND W30, sampling workstation, excellent condition, stacks of disks, manuals, £625. ☎ Dave 0191 4218893.

DRUM MACHINES

AKAI XE8 MODULE, two cards, mint, £100; Korg KPR 77 analogue drums, £90; PC Cubase Lite, £20; Kawai R100 & Chip, huge MIDI spec, £180; Yamaha FB01, £75, Wanted, a Juno 7, £150. ☎ 0121 622 2743.

AKAI MPC2000, sampling sequencer/ drum machine, 32Mb, eight full outputs, offers. ☎ Paul 0181 6772266.

EMU SP12, turbo sampling drum machine, eight outputs, excellent sequencer, realtime editing, manual, £800. ☎ Ian 01432 760613 (Hereford).

NOVATION DRUM STATION, eight outputs, 808 and 909 sounds, why pay more for either, £295. ☎ Sam 01225 483808.

ROLAND SPD II, 64 kits, 256 sounds, 8-pads, effects and trigger interface, £450. ☎ 01244 382815.

ROLAND MBD1, bass & drums, one month old, 28-note polyphonic , 8-part multitimbral, cost £400 new, will accept £270 ono. ☎ Marcos 01342 718316.

ROLAND TR606, in very good condition, with carry case and PSU, £110. ☎ 01432 760613 (after 4pm).

ROLAND TR707, in very good condition with a hard case and manual. ☎ Liz 0141 9594417.

ROLAND TR808, good as new, £550 ono; 3-tier A-frame keyboard stand, two months old, £100. ☎ 0131 5546266.

ROLAND TR909, £700; TB303, Juno 106, MKS50, MKS70, £400, Oberheim xpander, £850; Matrix 12, £1150, EMU SP1200, £700; Prophet 5 £800, Prophet T8, £1300, A440, £700, everything mint. ☎ Maxm 0181 7714720.

ROLAND R8M module plus two cards; great Roland sounds, £420. ☎ After 6pm 01482 708836.

ROLAND R8, eight outputs, as used by Underworld, Prodigy, box and manuals, £300. ☎ 01227 262771.

ROLAND TD7, very good condition, boxed, manual, receipt, nine inputs, one careful owner, £350 ono. ☎ Dave 01865 432712.

YAMAHA RX5, manual, cartridge, £195; Drumtracks SC drum machine, manual, £175; Roland OP8 CV/DCB unit £45; various synth discs, cards, K4 rack synth and card, £235. ☎ 01708 250846.

YAMAHA DD12, eight playable pads in one unit, footswitch for bass-drum, £60. ☎ Mick. 0191 4261307.

YAMAHA DTX Pro Mark 2, complete professional dual zone digital drum kit, new and still in box with warrantee, and new Yamaha bass drum pedal, £1695. ☎ Dan 01493 331882 or 33441.

SEQUENCERS

AKAI ASQ10, if you require the sequencing from the Akai MPC range call ☎ 01482 210603 (Hull).

AKAI MPC 3000, MIDI productions centre, as new with disks, £1499. ☎ 0191 2850818.

QUASIMIDI STYLEDRIVE with Commander built-in floppy drive. Plays and records MIDI files, SysEx, 5-part auto-arranger plus hundreds of extra styles. You can even roll your own styles. Costs over £900, sell for £400 ono. ☎ 01255 821039.

ROLAND MC300, including manual and flightcase, excellent condition, £180 ono. ☎ Keith 01908 615298 (Milton Keynes).

ROLAND MC303, groovebox, mint condition with box and instructions, nine months old, only £400 ono. ☎ 01707 654303.

ROLAND MC303, £450, 2Mb of RAM for S1000, £50; Fostex stereo 10-band graphic equalizer, £50; Korg M1, £350. ☎ 01753 643 886.

ROLAND MC303, boxed, as new, manuals, still under warranty, £400. ☎ Ian 01904 766971 (York).

ROLAND MC303, seven months old, still under guarantee, aprox 20-hours use, mint condition, boxed with manuals, £450. ☎ Jed 01744 28708 (Merseyside).

ROLAND MC303 groovebox, mint, boxed, £400. ☎ 01902 337228.

ROLAND TB303, £700; Oberheim DMX drum machine, £400; Juno 106, £450. ☎ 01222 483190.

ROLAND TB303 in very good condition, £700 ono. ☎ Simon 01792 429717.or 0402 804190.

ROLAND TB303, in good condition with a retro-fit and manual. Offers. ☎ Jon 0113 2783173 (Leeds).

ROLAND TB303, plus Kenton Pro solo sync box, £600, Two SL1210 turntables, plus a 10 channel mixer with 16 second sampler, £800. ☎ Steve 01785 212601.

ROLAND TB303, manual, carry case, adaptor, perfect condition, decent offers; EMU EMAXII, 4Mb, keyboard vesion, still boxed with manual, offers. ☎ Simon 0976 901343/0171 2267724.

ROLAND TB303, mint, £750; Seck 18.8.2 desk £475, Akai S2800, 10Mb, £950; Alesis Midiverb 2, £80, Zoom 1202 FX unit, £80. ☎ Chris 01785 819929 (Staffs).

ROLAND TR909, with MC cartridge, near mint condition, £875. ☎ 01902 657223.

ROLAND MV30, extended sound-cards, new hard-drive, £250. ☎ 01753 852996.

ROLAND TR909, just serviced, no box, mint £1125; Yamaha RY30, three outputs, built-in sound edit facility and two extra sound cards, £280; Korg G3 stereo multi effects unit, £120; all home use only. ☎ 01132040135.

YAMAHA QY22 MIDI work station, with power supply boxed and in immaculate condition; £300 or swap with Korg M1 plus £100 paid. ☎ Tim 0181 6920179.

YAMAHA QY700, as new, £600; Roland A33 keyboard £250, both boxed with manuals. ☎ 01909 566695.

COMPUTERS/SOFTWARE

APPLE MAC POWERBOOK, 5300c, powerpc, 100mHz, 32Mb RAM, 1G HD; Global Village Platinum Pro PCMCIA modem card, Vision, Galaxy, Masterax Pro 6, Studio Vision, Encore, Cubase, Performer, 5000 MIDI files and much more £1600. ☎ Dan 01493 331882 or 330441.

APPLE MAC 660AV, 12/500/CD accelerated to 33mHz, comp/S video in/out, 16-bit stereo audio in/out including unopened, unregistered Microsoft Office 4.2, no mouse or keyboard. Very good condition and boxed, £500 ono. ☎ 01553 617497.

APPLE MAC PERFORMA, 600/8/80/CD monitor, mouse, keyboard,Cubase; Audiomedia II, Sound Designer II, £650 ono; Tascam 488 8-track portastudio, £500, Korg S3 drums plus SMPTE, £300. ☎ Chris 01296 386043.

APPLE MAC PPC, 7100/80, 14-inch mon-keyboard, 24GIG CD, VST, Recycle, Hypersm and waves plug-ins, £1300 ono; Yamaha CVSID Hammond C3 simulatio, £140, custom-rack/front 8U top takes, Mackie 1604 plus rear removal, £140. ☎ Mick 0113 2469254 (evening).

APPLE POWER BOOK 150 4/250 with battery and SCSI adapter, £400. ☎ Paul 01633 614343.

APPLE MAC LCII, 6Mb/80Mb, keyboard, mouse, boxed, manuals, system 7, in very good condition,, will throw in shabby monitor for free, £250; Wanted, cheap external SCSI drive. ☎ Mark 01904 653573 (York).

APPLE QUADRA 800, 32Mb RAM, manuals, disks, as new, boxed, no keyboard or monitor; Sound Designer II, V2.8, Office 4.2, Norton utilities, SAM, Apple CD-ROM drive, offers. ☎ Ian 0181 5567888.

APPLE COLOUR STYLEWRITER, 1200, 720dpi black and white printer still under guarantee, boxed with manuals, £60; Styletracks auto-accompaniment software for the Atari, plus Papyrus word processor, True Paint, Diamond Edge and Ease, all for only £50. ☎ Norbert 0171 4022241.

APPLE 5400TV, 12Mb £325; Falcon 14Mb, 120Mb HDD, audio MDDS, monitor, £250; FDI £75; MD4, £50; MT32, £35; Mixers, 12:2, £30; 16.2, £60, Atari ST 4Mb, £130. ☎ 0161 4049066.

ATARI RESOLUTION, emulator, converts any TV or monitor into high resolution, complete with instructions, £15. ☎ George 0181 7859862.

ATARI 4Mb, SM125 monitor, citizen 124D printer, Cubase V3, KCS V3, other excellent software, £300 ono. ☎ Robert 01772 784788.

ATARI MEGA 4, Hi-res monitor, 60Mb hard drive, mouse, built-in MIDI switcher plus three extra MIDI outs, giving 64 MIDI channels, cubase, games galore, extra floppy drive, £350. ☎ 01981 580118.

ATARI 2.5Mb, STFM, replay 16 cartridge; Breakthru V1.2 sequencer, very good condition, sequencer/sampler package, £200. ☎ 01705 342454.

ATARI STFM, 1Mb, Atari STE, 4Mb, DNE monitor, mice, trackball, music software, games, £160 ono. ☎ 01684 893698/0402 181543.

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TEXAS INSTRUMENTS 486DX4/100, 8Mb RAM, 520Mb HDD, TFT screen, FAX Modem, soundcard, SCSI interface, Cannon inkjet printer, loads of software including Microsoft Office Pro. ☎ Tony 0113 2169743/0410 430920.

TURTLE BEACH PINNACLE SOUNDCARD with digital I/O, with a kurzweil synth engine and sample store, brand new and still sealed, £400. ☎ Mark 0171 2491426.

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WANTED

ALESIS, drum module D4 or DMS. ☎ 01227 265214.

AMIGA sequencing software wanted, music X, camoflage internet downloads or shareware, anything but Tracker type progs. ☎ Dave 01243 864596.

CAKEWALK V6 upgrade from V5 or full V6, also other music related sofware especially noise reduction de-clicking. ☎ George 01582 488326.

C-LAB/ATARI FALCON, at least 500Mb removable drive, FDB Emagic Logic or Cubase, will pay £750 for good condition. ☎ 01748 825481.

CASIO RAM CARD, RA100, for the CT range of keyboards, there must be some out there! Cash warting. ☎ Colin 01480 810353 (evening).

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HHB BIT BOX CD-R optimiser wanted or similar unit for auto identing CD-Rs from DAT, or CD with sample rate converter. ☎ Dave 01819818795.

KORG M1 manual wanted. ☎ Jake 01179 636476.

KORG PS51, sampling keyboard, must be in good condition. ☎ Leroy 01283 564888.

MAPLIN 4600 synth patch sheets and operators manual; R.A Penfold book on how to build your own synth. ☎ 01623 517224.

MIDI CODE, time sync,any make, for use with sequencer and multitrack, cash warting for best offer. ☎ Dale 01703 364022.

ROLAND E-70 RAM CARD, also cards for ROLAND R8 drum machine. ☎ Phil 01524 811282.

ROLAND VS880, with large hard drive and effects board, must be in excellent condition. ☎ Steve 01429 222517.

SAMPLER, SYNTH, TB303, mixer, FX, modules, most things considered for home studio; analogue, digital, Prophecy, Roland, TR909, Emu, Yamaha, cash warting. ☎ 01252 655283.

SCHEMATICS FOR Evans SE810 Super-Echo and Sound City Concord guitar amplifier. Can anyone help? ☎ Laurie 01522 530605 (Lincoln).

SHARP GF8989 cassette player, the old model. ☎ Scott 0113 2449710/0976 418690.

SONY MINI DISC, need any original-issue blank, will offer two new ones. ☎ Andrew 01604 844130.

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YAMAHA W7, workstation, I have a 3-month old Yamaha CS1x plus Atari STE and sequencing software, want to swap? ☎ 01484 304862.

MISCELLANEOUS

AVO MARK3, valve tester, one in excellent condition and one tatty, £300 for both units; Roland RE201 space echo, £250; Gibson 1986 Les Paul Junior, £500. ☎ Andy 01222 493528.

A FRAME, three tier keyboard stand, comes with holdall bag, made by ultimate two months old, immaculated, two months old, £100 ono. ☎ 0131 5546266.

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JBL M-SERIES PA SPEAKERS, in very good condition, £450 each ono; Yamaha P2700 professional power amp, 350w per channel, mint, £500; Yamaha 16-2 mixer, mint, boxed, £350 ono. ☎ Jonathan 0181 693387.

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KAT MALLET, percussion instrument, four octaves; Korg synth manuals. ☎ Bill 0116 271 8099 (Leicester).

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LUDWIG DRUMKIT, black, immaculate, 4-top toms, floortom, bassdrum, Ludwig heavy-duty cymbal, hi-hat, stand, superb recording kit, £875, consider PX valve compressor/equaliser or recording equipment. ☎ 01482 448767.

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PEAVEY HISYS4, PA cabs, 2x15-inch with horn, excellent condition, hardly used with cable, £750 for the pair. ☎ William 01623 843366 (Notts).

PEAVEY HISY5, three speakers in very good condition, £750 ono. ☎ Mat 0181 3000 5334 (evening).

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ROBBY THE ROBOT from Forbidden Planet, 16-inch tall, highly detailed, talks original movie soundtrack with blinking light in the chest, Ultimate Technol ☎ Jamie 01434 321727.

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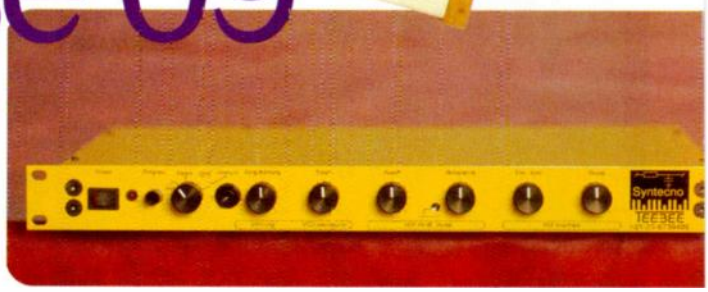
win

Jomox Xbase 09 drum machine or Syntecno TeeBee TB303 clone



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QUESTIONS

1. From which country do XBase 09 manufacturers Jomox hail?

a. Holland ☐
b. Germany ☐
c. Denmark ☐
d. Lilliput ☐

2. In default mode, how many steps are on offer in an XBase 09 rhythm pattern?

a. 16 ☐
b. a succulent ham and cheese baton ☐
c. coffee, white, no sugar ☐
d. cheers Tom ☐

3. Syntecno's TeeBee is named in honour of which famous bass synth/sequencer?

a. Octave CAT ☐
b. Oktav DOG ☐
c. Octavia OSTRICH ☐
d. Roland TB303 Bassline ☐

4. On which late-'70s analogue synth did the TeeBee's Ring waveform originate?

a. Korg MS20 ☐
b. EDP Wasp ☐
c. EDP Gnat ☐
d. EEK Daddy-longlegs ☐

TIE-BREAKER

TeeBee or not TeeBee, wrote Shakespeare (*nearly — Ed*); that is the question. But what's the answer? Provide a response, in less than 30 words.

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Post your entryto: SOS Jomox/Syntecno competition, *Sound On Sound*, Media House, Trafalgar Way, Bar Hill, Cambridge CB3 8SQ.

Jomox/Syntecno Competition

You know the story. You're into dance music. You lust after an Roland TB303 Bassline and TR909 drum machine; the sounds on those sample CDs just aren't good enough. But with the original machines in short supply, and the price of those that *are* around nudging the stratosphere, the chances of getting both at a reasonable price is pretty low. Fortunately for you, companies like Berlin-based Jomox and Holland's Syntecno now exist, bringing you modern versions of these classic Roland devices at a more down-to-earth price. Jomox's XBase 09 drum machine (reviewed in *SOS* June '97) offers the classic TR-style 16-step pattern programming interface (with a choice of real- or step-time entry), and fully tunable bass, snare, and hi-hat sounds, which can be tweaked in real time from the sea of knobs on the front panel while the machine is in full rhythmic flow. The sounds, which are produced by a combination of analogue and digital technology, were described by *SOS*'s reviewer Chris Carter as "so much like the original [TR909] that it's scary!". Best of all, the XBase 09's comprehensive MIDI facilities (Chris Carter: "one of the best implementations of MIDI I've seen on a drum machine") allows all such real-time tweaks to be recorded to a sequencer as MIDI controller information for faithful playback later. All in all, the XBase 09 represents the perfect marriage of the original TR909 interface and sounds with '90s know-how.

Syntecno's eye-catching TeeBee is, as its name suggests, one Dutch company's take on the TB303 concept, and features the same 18dB, 2-pole filter as the original Bassline, as well as a similar oscillator (the TeeBee offers an additional Ring waveform, which comes from Korg's MS20 analogue synth).

As with the XBase 09, the TeeBee's knob-ridden user interface encourages a high degree of real-time interaction with the sounds you create; tuning, filter cutoff, resonance, filter envelope, and decay time are adjustable from the five main controls on the front panel. The MIDI spec also allows sequencer storage of all real-time parameter tweaks as MIDI controller data, as well as MIDI control of the slide and accent parameters (most important for realistic TB303 emulation). As if all that weren't enough, the TeeBee can also behave as a MIDI-CV or MIDI-DIN Sync interface for connection to pre-MIDI equipment, with four Volt-per-octave or Hertz-per-volt CV/Gate outputs and a Sync 24 socket on the rear panel.

After all the fuss we've made about these two units, you won't be terribly surprised to learn that *SOS*, in conjunction with Global Distribution, is giving away both a TeeBee and an XBase 09 this month. To win one of these two great prizes, all you have to do is wrap your brain around the fiendishly complex questions below and produce some answers, complete the tie-breaker in a witty — or even amusing — manner, then post your finely-honed *meisterwerk* to the *SOS* office (see address at the bottom of the page) to arrive before **Friday October 3rd 1997**, the closing date.

the small print

1. Only one entry per person is permitted. 2. Employees of SOS Publications Ltd, The Global Distribution Group and their immediate families are ineligible for entry. 3. No cash alternative is available in lieu of the stated prize. 4. The competition organisers reserve the right to change the specification of the prize offered. 5. The judges' decision is final and legally binding, and no correspondence will be entered into. 6. No other correspondence is to be included with competition entries. 7. Please ensure that you give your DAYTIME telephone number on your entry form. 8. Prizewinners must be prepared to make themselves available in the event that the competition organisers wish to make a personal presentation.

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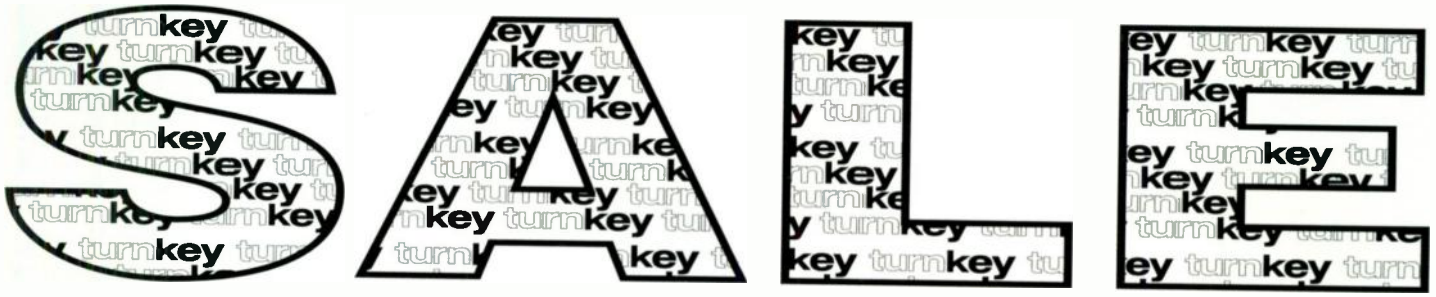

THE TURNKEY MIDNIGHT SALE IS BACK

We're clearing the shelves in preparation for massive expansion of our Charing Cross Road premises. If you'll ever need one of the items listed here, you'll never find it this cheap again.

THIS IS NOT A WIND UP... THESE PRICES ARE REAL !!!!!!!!!!!!!!!

Commences 7.00pm 'til Midnight Thursday 11th September and then if there is anything left, through till the end of the month. The items shown are just a selection, many more bargains available on the night. - many are below half the original R.R.P. Most items are ex-demo, some S/H and some new. Very heavily discounted products are probably in need of some attention. All items sold as seen.

Item / Description	£RRP	£Sale
Sony DTC1000es Dat Recorder	£ 899	£ 1
Sony DTC55es Dat Recorder	£ 599	£ 1
Sony TCD D10p Portable Dat	£ 3,114	£ 1
Art Fxr Elite Programmable	£ 249	£ 2
Sony Hrgp5 Multi Fx	£ 499	£ 3
Yamaha Mt44d Multitrack	£ 118	£ 3
Sony DTC750 Dat Machine	£ 599	£ 5
Kawai-Q80ex Sequencer	£ 649	£ 5
Passport Producer Software	£ 500	£ 29
Shure SM58 Dynamic Microphone	£ 129	£ 79
Roland ORI S760 Expansion	£ 330	£ 149
Behringer Composer	£ 249	£149
Steinberg Cubase 3.0 Audio Sequencer	£ 329	£229
Ensoniq SQ1 Keyboard	£ 799	£ 299
Audio Tech 4033 Mic + Shockmount	£ 599	£ 299
C-Audio St400 Power Amplifier	£ 699	£ 299
Akai-Remix 16 Performance Sampler	£ 869	£ 399
Roland MC303 Groove Box	£ 549	£399
Yamaha PF85 Digital Piano	£ 949	£ 499
Quasimidi Quasar Synth Module	£ 869	£ 499
Emu Orbit	£ 569	£ 599
Emu Planet Phatt Synth Module	£ 869	£ 599
Yamaha AN1X	£ 899	£699
Roland JV1080	£ 999	£699
Emu-6100 E3xp Standard	£ 1,234	£ 699
Apple Macintosh5300	£ 2,399	£ 999
Fostex D90 Hard Disk Recorder	£ 1,499	£ 1,099
Manley Reference Tube Mic	£ 2,144	£ 1,299
Akai S3000XL		£1,299

2 Tracks

Sony DTC1000es Dat Recorder	£ 899	£ 1
Sony DTC55es Dat Recorder	£ 599	£ 1
Sony TCD D10p Portable Dat	£ 3,114	£ 1
Sony DTC750 Dat Machine	£ 599	£ 5
Teac PD135 CD Player	£ 67	£ 19
Teac V375 Cassette Deck	£ 99	£ 29
Vestax CD07 Single CD Pla	£ 399	£ 129
Phillips Portable Dcc Deck	£ 250	£ 149
Sony Tcdd7 Portable Dat	£ 450	£ 299
Casio Da-7 Dat Recorder	£ 899	£ 599
Tascam 122 Mk 3 Cassette	£ 999	£ 599
Marantz CDR615 CD Recorder	£ 1,639	£ 1,599

Computer Music

Jl Cooper Macnexus Midi I	£ 99	£ 1
Voyetra Digital Orch. Upg	£ 70	£ 1
Kawai-Q80ex Sequencer	£ 649	£ 5
Midiquest Amiga Editor	£ 220	£ 5
Roland Vsc550w Virt Sound Canvas	£ 79	£ 5
PG Music Atari New Orleans Pianist	£ 50	£ 9
PG Music Atari Ragtime Pianist	£ 50	£ 9
PG Music Mac Jazz Pianist	£ 50	£ 9
Pgmusic Christmas Pianist	£ 50	£ 9
Voyetra Productivity Pack	£ 80	£ 15
Passport Producer Software	£ 500	£ 29
Voyetra Discovering Music	£ 80	£ 29
Emagic Mac Sound Diver	£ 179	£ 49
Motu Mac Performer	£ 349	£ 49
Opcode Mac Vision Software	£ 234	£ 49
Voyetra 2 In 2 Out Midi C	£ 100	£ 49
Cakewalk Pro Sequencer	£ 199	£ 69
Passport Music At For Pc	£ 129	£ 69
Turtle Beach Tbs 2000 Car	£ 175	£ 99
Voyetra 2 In 2 Out Midi Card	£ 250	£ 99
Steinberg Pc Cubasis Audio	£ 199	£ 129
Sound Forge Xp Sample Editor	£ 150	£ 149
Steinberg Denoiser Mac	£ 300	£ 149
Sekd Samplitude Studio	£ 400	£ 199
Apple 16" Monitor	£ 499	£ 249
Motu Pc Miditimepiece2	£ 699	£ 299
Apple Macintosh 6200	£ 999	£ 499
Opcode Studio 5lx Interface	£ 939	£ 649
Apple Macintosh5300	£ 2399	£ 999

D.J.

Kam GM25 DJ Scratch Mixer	£ 75	£ 29
Kam GMX2 DJ Scratch Mixer	£ 90	£ 29
Kam GM25se Commando DJ Mixer	£ 80	£ 35
Kam GMX250 DJ Scratch Mixer	£ 87	£ 35
Kam GM40 DJ Mixer	£ 99	£ 39
Citronic Battle Mixer	£ 99	£ 39
Gemini PMX7 Trickmaster M	£ 79	£ 49
Kam GM50 DJ Mixer	£ 149	£ 49
Kam GM30tx DJ Scratch Mixer	£ 145	£ 59
Citronic Sm250gs Mixer	£ 299	£ 69
MTX Mx50 Mixer	£ 219	£ 69
Vestax PMC05t DJ Mixer	£ 229	£ 69
Gemini Pdm7024 Sampling M	£ 351	£ 99
Gemini PMX3001 DJ Mixer	£ 246	£ 99
Vestax PMC15sl DJ Mixer	£ 599	£ 299
Vestax PMC20sl DJ Mixer	£ 875	£ 369

Keyboards

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Yamaha SY85/TG500 12k Exp	£ 130	£ 29
Yamaha MFC01 Midi Foot Controller	£ 88	£ 49
Fatar Studio61 Keyboard	£ 199	£ 69
Fatar CMS61 Controller Keyboard	£ 280	£ 99
Yamaha KX5 Remote Keyboard	£ 176	£ 149
Novation Bass Station Kbd	£ 349	£ 199
Roland Ax1 Remote Kbd	£ 399	£ 199
Ensoniq SQ1 Keyboard	£ 799	£ 299
Korg I5S Synth	£ 1,099	£ 399
Yamaha PF85 Digital Piano	£ 949	£ 499
Viscount Classico 50	£ 1,099	£ 499
Fatar Studio 900 Flight Case	£ 850	£ 549
Fatar Studio 1100 Flight Case	£ 1,100	£ 599
Technics WSA1 Synthesizer	£ 2,399	£ 599
Korg IX300 Keyboard	£ 1,199	£ 699
Viscount Sv080 Bl Hg Pian	£ 1,216	£ 699
Fatar Studio 2001 Flight	£ 1,500	£ 799
Technics Sxpx201/M Digi P	£ 1,200	£ 799
Technics Sxkn3000 Keyboard	£ 2,500	£ 999
Technics Sxpx203/M Digi P	£ 1,500	£ 999

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Beyer Tgx60 Vocal Mic	£ 234	£ 69
Nady 650 Mic Transmitter	£ 200	£ 99
Shure Beta 56a Microphone	£ 176	£ 99
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Shure Sm12acn Mic	£ 246	£ 129
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Nady Wirelessmic Sys	£ 400	£ 249
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Audio Tech 4033 Mic + Shockmount	£ 599	£ 299
Shure Vp88 Microphone	£ 999	£ 499
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P&R Audio 40way Mono P/Ba	£ 65	£ 19
Audioworks Sound - Midi S	£ 100	£ 29
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Samson Mixpad 9 Mini Mixer	£ 199	£ 99
Studiomaster Diamond Club	£ 338	£ 129
Yamaha Mv422 Mixer	£ 290	£ 129
Soundcraft Lm01 Wireless	£ 299	£ 149
Yamaha MV1602 Mixer	£ 431	£ 199
Peavey XRD680 Rack Pwd Mixer	£ 579	£ 249
Soundcraft Folio 18:2 Mixer	£ 551	£ 249
Yamaha Mx12/4 4 Buss Mixer	£ 399	£ 249
Soundcraft Folio 20/4/2 Mixer	£ 1,232	£ 499
Soundcraft Spirit Lc16 Mixer	£ 1,840"	£ 599
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Studiomaster Powerhouse 1	£ 1,235	£ 699
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Dynamix Powered Monitor	£ 249	£ 69
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Yamaha Speaker Systems	£ 159	£ 69
Yamaha Ystm15 Active Speakers	£ 69	£ 69
Arbiter Karaoke CD Blaste	£ 170	£ 99
Rogers Lsi Monitors (Pair)	£ 149	£ 99
Alesis Point 7 Monitors	£ 249	£ 129
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Carver Tfm15cb Power Amp	£ 489	£ 199
Waldorf Emes White Montr	£ 579	£ 199
Yamaha Studio Monitor Speaker	£ 268	£ 199
Samson Servo500power Amp	£ 399	£ 249
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Waldorf Emes Red Montr	£ 939	£ 269
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Tascam Basic Remote Control	£ 129	£ 49
Sony Pcm800 Sync Board	£ 541	£ 299
Tascam A38 8 Track	£ 306	£ 399
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Alesis Adat 8 Track Digital Recorder	£ 2,499	£ 1,199
Emu Darwin W / 1 Gbyte Dr	£ 3,399	£ 1,399
Fostex CX8 (Adat Xt Clone)	£ 2,999	£ 1,499
Alesis Adat Xt 8 Track Recorder	£ 2,999	£ 1,599
Sony Pcm800 8 Track Recorder	£ 3,999	£ 2,499

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Art Fxr Elite Programmable	£ 249	£ 2
Sony Hrgp5 Multi Fx	£ 499	£ 3
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Trace Elliot Gp7sm Pre Am	£ 199	£ 99
Viscount EFX10 Prog Multi Fx	£ 249	£ 99
Dod 844 Quad Noise Gate	£ 270	£ 119
Aphex 4 Channel Gate	£ 399	£ 149
Behringer XR2400 Autoquad	£ 399	£ 149
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Yamaha Guitar Effect Processor	£ 399	£ 249
Manley Pultec Midfreq Tube Compr	£ 1,246	£ 399

P.A.

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Fender Lx1506 Mixamp	£ 380	£ 199
Fender Sr4150p	£ 0	£ 199
Marshall Pa Mixer Amp + F	£ 603	£ 249
C-Audio Ra1001 Power Amp	£ 1,048	£ 269
Fender Sr6300p Power Mixer	£ 510	£ 269
Yamaha EMX640 PA Mixer Head	£ 499	£ 299
Fender-Sr650p	£ 399	£ 299
JBL Tr125 PA Spkr	£ 799	£ 499
C-Audio St400	£ 699	£ 299
JBL Mr822 Pa Speakers	£ 699	£ 369
C-Audio St600	£ 899	£ 399
C-Audio Ra3001	£ 1,347	£ 649
Soundcraft Powered PA Mixer	£ 1,381	£ 599

Portastudios

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Fostex 380s Deluxe Four Tracker	£ 799	£ 399
Yamaha 8trk Cassette Recorder	£ 999	£ 499

Sampling

Emu Emaxii 2 Meg Chips	£ 199	£ 5
Esi32 V2 Upgrade	£ 37	£ 10
Ensoniq Asr10/88 Output E	£ 175	£ 29
Emu E4 Midi Option Card 1	£ 159	£ 49
Roland ORI S760 Expansion	£ 330	£ 149
Akai So1 Sampler	£ 470	£ 299
Akai-Remix 16 Performance Sampler	£ 869	£ 399
Roland Td7 Triggering Snd	£ 630	£ 399
Emu-6100 E3xp Standard	£ 1,234	£ 699
Emu 64 Voice Sampler	£ 2,650	£ 1,499
Emu E4 128 Note Poly Sampler	£ 3,499	£ 1,899

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Peavey Spectrum Organ Mod	£ 359	£ 199
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Products are sold on a strictly first-come first-served basis. Personal callers on the evening of July 11th will take precedence. The first received telephone, fax or mail order (which must include full payment + £9.99 P&P) will be held until Monday 15th September and then only cashed if the item is still available. The item (or your cheque if your are unsuccessful) will be sent to you to arrive within 14 days (cheque clearance allowing)

The bigger the reduction, the more likely it is that the item will be sold on the night of the 11th. Please don't waste your time enquiring about the £1 items !

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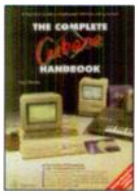

by Udo Weyers

After a short break, the definitive Steinberg Cubase Handbook is back in print. This new edition is once again filled with real world applications and down to earth explanations of how to use all the powerful features offered by Cubase in all its many forms. The book is now relevant to all three platforms (Atari, Mac and PC), and the main attraction of the revised text is its focus on Cubase Score. The Complete Cubase Handbook is a not-to-be missed purchase for users of Steinberg's highly popular software.

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by Paul White

This highly informative book by SOS's own Editor demystifies the techniques used by professionals in the recording of contemporary music. It reveals how to make full creative use of all manner of studio effects and signal processors. These techniques can be utilised both in the home and commercial studio. The book concludes with an invaluable section on master tape formats and an overview of the various processes and vinyl records.

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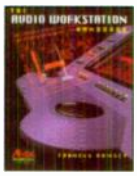

By Francis Rumsey

This book has been written for all those needing to understand digital audio and the associated technologies used in these workstations. The fields of professional audio and multimedia production are converging, resulting in a need for audio engineers to learn about computer networks, file transfer, MIDI and digital video. Those involved in the computer industry need a greater understanding of high quality audio.

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TECH TERMS - A Practical Dictionary for Audio and Music Production

by George Petersen and Steve Oppenheimer

This is a concise collection of definitions of electronic music and recording terms, 300 words and phrases are given quick accurate definitions in plain English. So if you're new to recording, synths, samplers and MIDI, this book could be a big help in getting your mind into the terminology.

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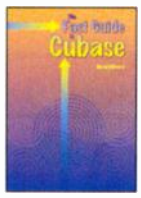
THE FAST GUIDE TO CUBASE



By Simon Millward

This book aims to provide a quick and readable introduction to Cubase, saving you the trouble of wading through the bulky user manual. All platforms are covered — PC, Atari and Mac — with useful tutorials, 'smart moves', glossary and index. There should be something in this book for everyone whether you're a beginner or established user, and all the program's essential elements are outlined, including the Arrange window, the Inspector, Key, List and Drum Edit, Quantise, Synchronisation, Master Track, the MIDI Effect Processor and special chapters on Score and Logical Edit.

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By Paul White

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By Martin Russ

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HOW TO SET UP A HOME RECORDING STUDIO

By David Mellor

If you are thinking of setting up a home studio, a project studio or a DJ studio, this book is the place to start. It takes a highly practical 'nuts and bolts' type of aproach to help you produce an efficient and productive studio. It covers soundproofing, keeping the sound in and the noise out, acoustics, studio layout, and studio equipment, and advice on the kit you are likely to need. The book ends with an invaluable questions and answers section, a glossary of terms and a list of contacts.

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HOT TIPS FOR THE HOME RECORDING STUDIO

by Hank Linderman

Learn how to lay down music the way you want it to sound, with advice for getting the best from your mixer, multitrack compressor etc. Discover tricks and what traps to avoid, unlock the mysteries of timecode, prevent noise problems. Packed with sound advice.

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SAMPLERS

WHAT'S A SAMPLER?

By Freff

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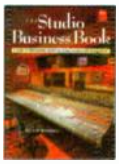

by Jim Mandell

This is a rarity: a book dealing solely with the business side of the recording industry. No mic placement or working with MIDI but simply good sound advice on running your studio as a going concern. While the bias is definitely American, much of the advice and tips can easily be translated into useable techniques on this side of the Atlantic.

CODE B351 **£24.95**
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ALL YOU NEED TO KNOW ABOUT THE MUSIC BUSINESS

by Donald S Passman

This book is a must: the author manages a portfolio of high profile clients and teaches music business law at the University of Southern California, and has produced a clear overview of the music business. He starts at the beginning of your career with advice on choosing a manager, lawyer and agent, and moves through getting a record deal, songwriting and music publishing and finishes with details of copyright, mechanical royalties, songwriter deals, films and more. An exhaustive and entertaining read. 416 Pages.

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THE COMPOSER'S GUIDE TO MUSIC PUBLISHING (2nd Edition)

Written & compiled by Annie Gunning

This book has been produced by the Association of Professional Composers and examines the business of musical copyright and music publishing from the composer's point of view. It aims to educate composers of all kinds of music in the operation of the music publishing business to help them obtain, negotiate and benefit from publishing agreements and avoid expensive mistakes. Apart from publishing, the book also covers copyright legislation, performing and mechanical rights, the royalty administration societies, music in film, broadcasting, theatre and ballet and commissioning agreements. There is also advice for composers setting up their own publishing companies. An exhaustive and useful book.

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THE WHITE BOOK INTERNATIONAL PRODUCTION DIRECTORY 1997

This is the latest edition of the essential source of contacts for artists, performers, venues, services and facilities associated with music, concerts, shows, festivals, film, TV, video, conferences, exhibitions and corporate hospitality - there's even a comprehensive international section. The layout is logical and an index makes fact finding an easy task - altogether an indispensable 864 pages. The new editor once again comes with a complementary copy of The Little White Book, which distils the contents of the larger volume to a pocket-sized list of names and phone numbers.

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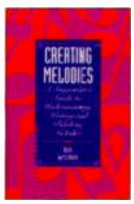

by Dick Weissman

Learn how to create memorable melodies, from love ballads to film scores and jingles. Using lots of examples of popular songs and styles by top-name musicians, Weissman covers the full range of melody writing. Learn how to marry music to lyrics, relate rhythm to the message of your song, react and write musical notation, write instrumentals for films, TV, commercials and theatre, and put together a demo tape.

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by Jon F Eiche

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NEW

by Jeffrey Rona

A recently expanded edition of a popular book. The new edition contains a comprehensive rundown of all areas of MIDI with helpful explanations of System Exclusive, using computers, troubleshooting and new explanations of the General MIDI standard.

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THE MIDI FILES

By Rob Young

This book comes from Prentice Hall and aims to help you get the most out of your MIDI system, by providing loads of tips on programming realistic instrument and rhythm parts, using sequencers to create advanced effects. Basic MIDI concepts are covered, along with advice on setting up a MIDI-based home studio. More advanced discussions cover specific types of MIDI messages and what you can achieve with them. All the techniques in the book are illustrated on a supplied floppy disk.

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MUSIC TECHNOLOGY REFERENCE BOOK

by Peter Buick & Vic Lennard

Written by Peter Buick and Vic Lennard (author of SOS's Atari Notes column), this book offers information at your fingertips and is an indispensable reference source for the musician or sound professional in the recording, broadcast, live, video, computer, multimedia, post production and theatre industries. It includes comprehensive MIDI spec, General MIDI, MTC, MSC, and SysEx information. It also includes charts, check lists, useful hints, tips, and ideas, plus a glossary, list of contacts and a comprehensive indexed, it is also organised into convenient sections. 150 Pages.

CODE B305 **£12.95**

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MAKING THE MOST OF MIDI

By Paul Overaa

This is a MIDI book unlike any other. It explains the fundamentals of MIDI and MIDI sequencing for the beginner, and it goes much further, dealing with issues that will be of help to more established users. Advice on MIDI fault finding, help for musicians using sequencers with live bands, MIDI messages and MIDI files, plus programming material. So if you are a keen first time user or a MIDI veteran, there will be something in this book to interest you.

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A BEGINNERS GUIDE TO MIDI

by RA Penfold

The title says it all: all aspects of MIDI are explained, and many common beginner's problems are discussed.

CODE B287 **£4.95**

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MIDI SURVIVAL GUIDE

by Vic Lennard

Whether you're a beginner or a seasoned pro, the 'MIDI Survival Guide' shows you the way. No maths, no MIDI theory - just practical advice on starting up, setting up and ending up with a working MIDI system. Contains over 40 cabling diagrams, and how to connect synths, sound modules, sequencers, drum machines and multitracks; how to budget and buy secondhand, using switch, thru and merger boxes, transfer songs between different sequencers, get the best out of general MIDI, and understand MIDI implementation charts.

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SYNTHESIZERS

THE A-Z OF ANALOGUE SYNTHS PART ONE: A-M / PART TWO: N-Z

by Peter Forrest

Complete rundown of all the major analogue synths and keyboards ever made, spread across two books. Each is a testament to the massive amount of research and effort put in by the author. Featuring pocket company histories and detailed data on the instruments produced, each book provides a comprehensive overview of the qualities of various instruments; charts and tables assess second hand values and maintenance levels necessary to keep a given instrument playable as well as such intangibles as sound quality, collectability and user interface. Includes colour photos of many classic instruments.

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VINTAGE SYNTHESIZERS

By Mark Vail

This well-illustrated, 300 page book covers synth history, interviews with designers and overviews of important instruments. Mark Vail's book could be the most entertaining and useful synth book yet – check out the definitive history of the Minimoog, complete with pre-production designers' sketches. While not strictly a buyers' guide, there is a comprehensive section to sourcing, valuing, upgrading and servicing classic instruments.

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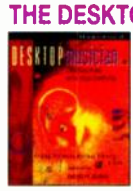

By David M Rubin

A comprehensive guide to MIDI and audio on PC and Macintosh computers. Purchasers are provided with a CD-ROM full of MIDI software demos to get them going, and the text – over 400 pages of it – covers all aspects of music and computers, from first concepts to advanced arrangement techniques.

CODE B335 **£27.95**

Postage: UK £3.95, Europe £7.50, R.O.W. £14.50

MUSICAL APPLICATIONS OF THE ATARI ST's

by R A Penfold

Includes a general introduction to MIDI, a handful of MIDI add-on circuits (Thru box, MIDI switcher and so on), plus a collection of programs, in Fast BASIC, that allows you to use the ST's internal sound generator and create little MIDI applications.

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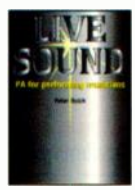
LIVE SOUND

LIVE SOUND



Peter Buick has produced a book written for live sound engineers and gigging musicians with practical applications and real life scenarios very much in mind. The whole ambit of live sound engineering is addressed, including the equipment used and how to get the most out of it, the problems you will confront and how to fix them, and various other related subjects such as safety, feedback, as well as automation and MIDI in the live sound field.

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LIVE SOUND MIXING

by Duncan R Fry

This is a hands on, friendly introduction to all aspects of mixing live. It hails from Australia, and is an SOS Bookshop exclusive. The author is an experienced live sound engineer and has packed his book with loads of information, diagrams and hints to take you from basic principles through to trouble shooting when things go wrong.

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SOS Videos

EMAGIC

THE EMAGIC LOGIC TUTORIAL VIDEO

Produced by Emagic themselves, this video once again sees Tim Walter in the tutor's chair. This takes you through the first steps of getting the software up and running, and covers virtually all the controls you'll need. This video is valid for all versions of Logic, whether being run on an ST, Mac or PC. Presentation is rather intriguing, with a mobile camera that helps to hold the interest more than the average training video and some interesting graphics that aid comprehension and help to quickly find specific tutorials and bits inside tutorials. Contents as follows:

- Tutorial 1: The Arrange window and basic sequencing
- Tutorial 2: Playback parameters & Toolbox
- Tutorial 3: Controlling MIDI data flow
- Tutorial 4: Manipulating sequence data
- Tutorial 5: Moving around in Logic
- Tutorial 6: Windows and key commands
- Tutorial 7: More sequencing
- Tutorial 8: Score
- Tutorial 9: Looking at the Event List
- Tutorial 10: Editing the Event List
- Tutorial 11: Using the Environment
- Tutorial 12: The best of the rest (HyperEdit, Matrix Editor, Cycle Mode and more).

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In association with Roland UK & Roland Corp USA

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MACKIE ULTRA MIX VIDEO

This highly informative video for the Ultramix automation system, clearly demonstrates how to set up and use Ultramix's many time-saving features to get the best from your system. The cost of the video may be redeemed against the purchase price of an Ultramix system, making the video a good way to try before you buy!

CODE V066 **£9.99**

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CUBASE

STEINBERG CUBASE

This manual is presented by Chris West, Steinberg expert. It's very much a practical, 'get up and running' video, showing the novice user exactly how to install and begin using Cubase, whether they're running the program on an ST, Mac or PC computer – there's even a basic background on using the computers themselves! All of Cubase's controls are shown, explained and demonstrated in depth. Once you're familiar with the basic controls, Chris takes you slowly through recording your first session, followed by overviews of the various edit screens. It's rather like having an expert tutorial that you can run again and again in the comfort of your home, until you can use Cubase like a true pro.
Topics covered include; the main screen, customising names and outputs, copying and pasting between arrangements, MIDI filter, cycle mode recording, the tool box, all edit screens.

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Run time: 1hour 30 minutes Format: VHS (PAL)
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SYNTHESIZERS

ROLAND XP-80 NEW

In association with Roland UK & Roland Corp USA

You will have the knowledge of an experienced Product Specialist permanently available in your own home when you purchase this essential video. It enables you to quickly grasp the knowledge of the many functions, and how to use your newly acquired knowledge. The video also incorporates Labyrinths unique Video Index System VIS TM, which uses a combination of permanently on screen Time Code together with a Contents Listing.

CODE V073 **£19.99**

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ROLAND XP-50

This XP-50 video owners manual is produced by Roland Corporation US and covers all the major features of the instrument in detail. This is an application based video that provides many examples of how your new found knowledge can be applied. Just a few of the 30 separate topic areas covered are: Effects, Choosing Sounds, Loading a Song, Loop Recording, Copying a Track to Pattern, Making an RPS Set, Track Editing, Multitrack Recording, Patch Editing, Creating Splits & Layers in a Patch.

CODE V063 **£24.99**

Running time: 63 minutes
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Roland's amazing JV-1080 synthesizer module is covered in detail in this informative video. Presented by Tim Walter the video the video guides you through the basics, and leads you painlessly onto the advanced features. The video even shows you how to fit the expansion boards & gives demonstrations of some of the wonderful sounds they contain. Once again this video has been produced in association with Roland UK & USA to ensure that everything it contains is accurate, and relevant to the new and more experienced users alike.

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EMAGIC

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VOICE TRAINING

VOCAL WORKOUT Video

by Sam West

Singers of varying abilities will find this video a great aid in assisting their vocal efforts. It begins by explaining the principles of voice production. Breath control excercises plus general vocal techniques are all explained and visually demonstrated. All the exercises are written out in an accompanying booklet, with piano accompaniment.

VIDEO CODE V067 **£22.95**

Running time approx 59 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

VOICE BUILDING Cassette/CD

by Sam West

Although geared towards singers of varying abilities, voices and styles, the contents of this recording are often challenging even to the professional singer! The video (code V067) goes into more technical detail, whereas the CD or Cassette concentrate on more intensive practising. First of all the exercises are sung, in various keys and then with musical accompaniment and melody line, so you can concentrate more on your voice while practising (karaoke style). Vocal exercises can be boring, but this studio recording has been produced and presented to a very high standard, with interesting musical accompaniments to the exercises.

CASSETTE CODE MC001 **£7.95**

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Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

SOS CDs

SHOWCASE INTERNATIONAL MUSIC DATABASE 1997 NEW

This product combines the comprehensiveness of the music industry's top directory, the *Showcase International Music Book*, with the added power of computer searches. It contains all the companies and all the artists listed in the book. If you are on the internet you can jump straight to companies web-sites and you can also keep the data up to date by downloading regular Database Updates from the Showcase Publications Ltd web-site.
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This well presented video explains how to set up and operate a simple cassette-based multitrack home studio. It clarifies all the basic terminology and demonstrates the recording of a song from beginning to end, covering how to record guitars, keyboards, vocals and drum machines; which microphones to choose; how to patch in effects units and use them well; what makes a good arrangement; what makes a good mix; plus what to master on to and why.
Full of professional tips and clear examples, this superb video offers the musician with no recording experience a fast route to successful operation of a simple home studio.

CODE V005 **£24.95**

Running time: 1 hour 10 minutes

LEVEL TWO

This is, in our opinion, the best ever guide to the equipment and skills needed to produce high quality results from a home studio.
Full of clear examples and graphic information, the video majors on effects and how to use them well. It also covers the do's and don'ts of track bouncing; microphones and mic techniques for different applications; getting the most out of multi effects units; plus an analysis of guitar effects with top session guitarist Milton MacDonald and an enlightening interview with ace producer Alan Parsons. *Writer/ presenter Julian Colbeck packs the programme with professional tips, allowing musicians of all kinds to get the most out of their home studio.*

CODE V006 **£24.95**

Running time: 1 hour 45 minutes

LEVEL THREE

This video is packed with information and professional tips on advanced MIDI applications in the home studio, including interfacing with sequencers, which sync code is best for which application and why. Hit producer Martyn Phillips (Erasure, London Beat) discusses modern recording techniques, and top programmer Paul Wiffen examines the opportunities and benefits offered by hard disk recording. It offers practical advice on sampling - how to save time and tracks; plus professional tips on advanced arranging and mixing techniques, including spectrum mixing.

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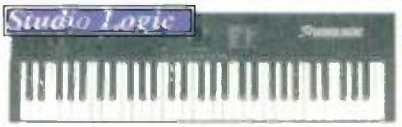

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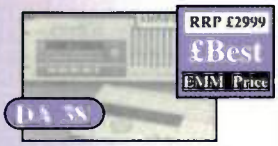

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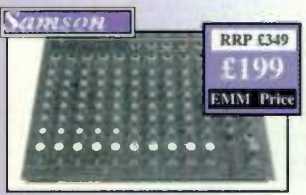

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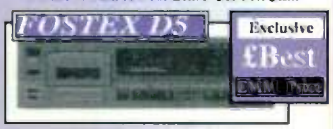

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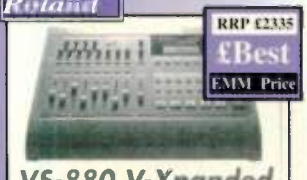

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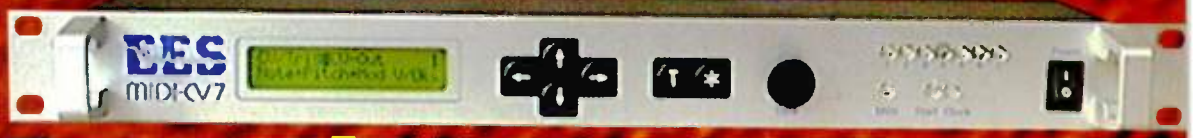

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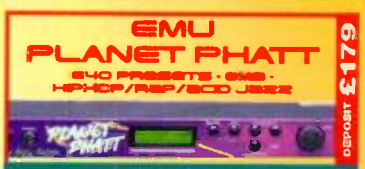
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Sounding Off

Engineers still wet behind the ears who do a Tyson (chew off your ear) about their extensive knowledge of audio — BIG GEORGE WEBLEY hates 'em. He states his case...

Frankly, I'm sick to death of my own company in my studio. I've heard all my own jokes, I don't impress myself with my dazzling mastery of studio techniques any more and, most importantly, I can't stand the taste of my own coffee. So why is it that I cringe at the thought of booking myself into a recording studio which has three times the amount of gear that I've got, at a ridiculously low hourly rate?

The reason is simple: newly qualified engineers.

The standard of in-house engineers has changed beyond all recognition over the last decade. Whereas engineers used to spend the first two or three years of their working lives as tape ops, sweeping up studio floors and making coffee when they weren't nipping to the shops, these days every studio seems to employ a graduate from an audio school of excellence. Now I'm not saying they don't know the name of the inventor of EQ and the quantisation rates of every groove parameter in sequential history: they do. The trouble is that they never miss the chance of telling you. When I go into a studio and pay hard currency to have someone plug my modules into their patchbay and DI the congas, I don't want to hear their opinion on a new gizmo which has been reviewed in this magazine. I can read it for myself (and as anyone who reads the equipment reviews in this magazine knows, they are comprehensive, accurate, and not a matter for discussion, especially when you're paying 50p a minute).

In the studio's social structure, engineers are servants, producers are where the buck stops, artists always want more of themselves in the headphones and the payer of the bill is God. That doesn't mean engineers are there to be abused (some of my best friends are engineers...), but it also doesn't mean they're there to show their comprehensive knowledge of advanced sequencing or explain the concept of nearfield monitoring, unless asked to do so. Engineers are there to organise the best and most efficient means of recording what you want recorded, the way you want it recorded, and make coffee (if there isn't a tape op available).

Good engineers, like any other professionals in the business, are distinguished by the calibre of their work and the way they conduct themselves, not by the fact that they have done a two-year course. Nothing counts like experience, and experience is gained by keeping ears open, minds alert and mouths shut, unless it's a good joke or the offer of a cup of coffee. What a heartless bastard I sound — as if I care: I'm paying. If I work with a good engineer, who voices their opinion when it's called for and not whenever they can tell you what they know (in theory), I find myself going back to that studio time and time again. I'll even follow a particular engineer to their new place of work, if it's in my price range.

Most of the good engineers I've worked with have gone on to become either one of the £750-a-day elite, or fully fledged record producers, or, in one case, the head of Sony's remastering studio in Hollywood, California (a long way from the £5-an-hour 4-track demo studio in Stourbridge a dozen years ago). These days he works with the likes of Michael Jackson, Bruce Springsteen and Neil Diamond — and it's not because he's eager to tell whoever's booking time in the studio about how he once routed a gated flanger through a compressor to trigger the limiter, but because he's cool. He does his job (brilliantly but modestly) and only makes suggestions if they'll produce a better result. These days he doesn't have to make coffee — his assistant has that important responsibility — but he is prepared to work to the client's timetable. This is a business that everyone wants to be part of, and if you're in it you must make sacrifices. If the session has to start at midnight because the artist wants to get that certain 'pissed-up late-night vibe' into their music, that's what they're paying for. Try telling Keith Richards it would be better if the session started at midday and he'd probably shoot you. Similarly, if the session needs to be done in three hours, there's no point miking up every individual tom-tom above and below because that's the way you were taught. I want an engineer to be my flexible friend, not my theoretical enemy.

In the old days, when a pop single was seven inches of black plastic containing one song per side, EMI's Abbey Road had a system where engineers wore grey lab coats and producers wore white ones (it was something to do with engineers doing wax masters which could stain clothing but didn't show up on grey that much). Producers never plugged a microphone in or linked up the echo room; that was the engineer's job. The engineer never had an opinion on whether the bongos needed spring reverb; that was left to the men in white coats to decide. It might sound like an Ealing comedy, but at least we had a film industry in those days.

I'm not against students making good, or people who have something to offer getting on — we all have to start somewhere. But Quincy Jones didn't become Count Basie's arranger on the Frank Sinatra sessions by telling Ray Charles how to play piano when he was in his band as a 15-year-old. He simply played killer trumpet and made the occasional apt suggestion and Ray Charles saw his talent for himself. The rest, as they say, is history.

If the future of the industry is in the quality of its training, it might be worth saying in the curriculum that even if the client is a big-headed, talentless, loud-mouthed moron, the last thing I'll want to put up with in the studio is an engineer (with a certificate on which the ink is barely dry) telling me the best way to get my job done. By the way, strong, white with one sugar, but no sugar if it's tea. SOS

If you'd like to air your views in this column, please send your ideas to: Sounding Off, Sound On Sound, Media House, Trafalgar Way, Bar Hill, Cambridge CB3 8SQ. Any comments on the contents of previous columns are also welcome, and should be sent to the Editor at the same address.

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