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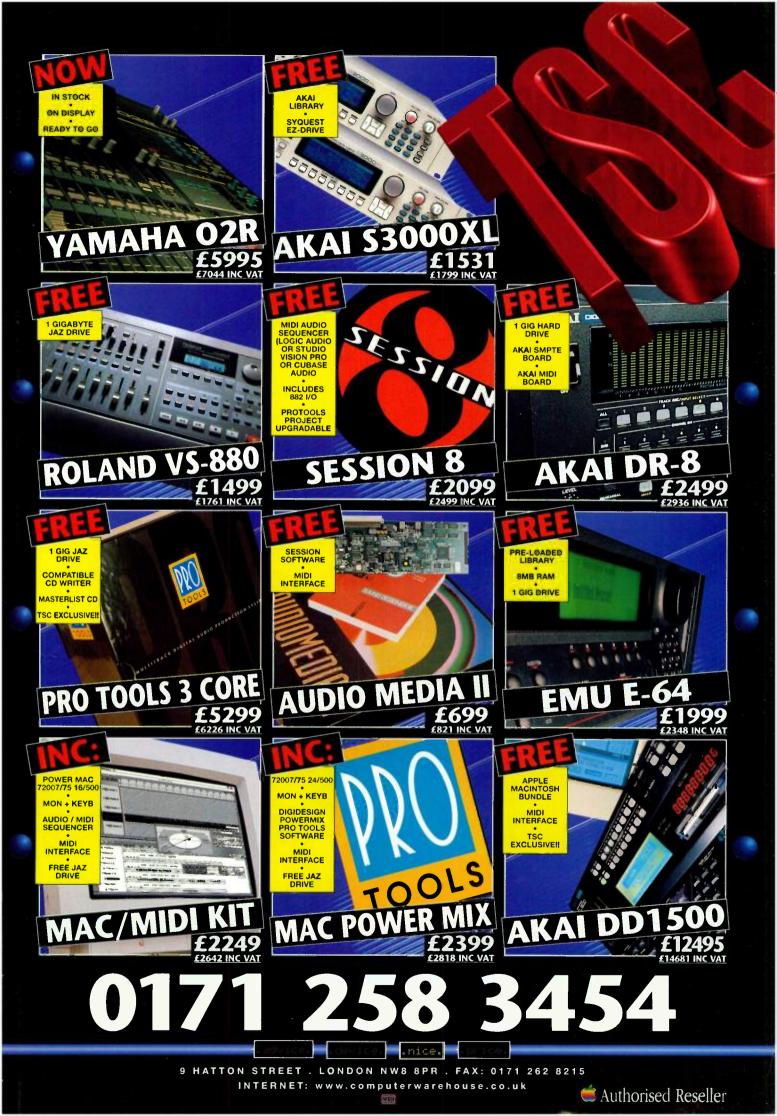
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he trouble with this job is that you live in a temporal displacement zone - it's barely March, yet here I am writing the June Leader which, thanks to some temporal wormhole at the printing plant, you get to read in the middle of May. Perhaps that explains my apparent (oh. OK, real), confusion when people phone me up and expect me to interact with them in real time rather than in SOS-displaced time. From my perspective, your next

when I restarted the Mac yet again with the Extensions switched off. Obviously - I thought - a system fault, and as I'd recently switched to System 7.5, that was clearly --- I thought again --- to blame, so I set about reinstalling it. Unfortunately, something interrupted the installation process, and seriously corrupted my hard drive at the same time! I use Norton Utilities during such disasters, but that was installed on the hard drive that had died, and I hadn't created a Startup disk to work with my Quadra.

> Bloodied but unbowed, I used the Mac Tools disk to boot up the computer, and then installed my old system 7.1 software on a convenient Syquest drive I had lying

issue of the magazine is my previous issue, which all adds up to jet lag of cosmic proportions, especially when somebody asks me about something I wrote a couple of months back.

Of course, the rest of the SOS staff live in the same time bubble, so we can all communicate with each other, but corresponding with anybody on the outside can really screw up the body clock big time. What's more, most of the material that's due to appear in your next issue (our last issue) has been worked on for a month or two previously, and while this might not make any significant difference to your life, it might explain why, in response to some seemingly simple question (like what year is this, or do you happen to know the name of the the planet you're currently inhabiting), all you get back is a glassy stare of incomprehension.

Naturally, all this is just an excuse for my previous leader photograph, which clearly showed the compound effects of jet lag, studio lag and SOS lag. Happily, that photograph has now been banished to the archives and replaced by an alternative. This provides a tenuous link to a recent experience I had, which was almost certainly caused by trying to do real-time work while my brain was in a different time zone.

I was setting up to do some MIDI work in the studio recently, when I discovered that my MIDI interface wasn't outputting any MIDI data. The interface's green LED came on, signifying that it was talking to my Mac - but no data. After switching everything off and back on again, and restarting my sequencer, nothing had changed. Undaunted. I re-installed my sequencer software, but still no luck - and things didn't improve



from that. Then I installed Norton Utilities on the Syquest, and used that to sort out the problem on my internal drive. If anyone deserves a Nobel Peace Prize more than Mother Teresa, it's Peter Norton! And so it was that after two hours of

around, and started up

intensively frustrating hacking, the Mac was back on line - but the MIDI interface was still dead!

In desperation, I went round the back of the Mac and waggled the serial port connectors and lo. MIDI issued forth like manna from heaven. This whole fiasco was down to the fact that, despite a poor connection, the MIDI interface was still flashing a green LED to tell me it was communicating with the computer. What the green LED didn't tell me was that that not all pins on the serial connector were making proper contact!

The moral of this tale is twofold: first, gear doesn't always work, even in the future timezone SOS operates in - and more seriously, you should check the obvious before you start ripping your system apart to find a fault. even though all the indications might suggest that the obvious is obviously not to blame. They don't call it Sod's Law for nothing!

Paul White Editor

SOUND ON SOUND

Media House, Burrel Road, St. Ives Cambridgeshire PE17 4LE.

Telephone

01480 461244 Facsimile 01480 492422

Email CompuServe 100517,1113 Internet 108517.1113@compaserve.com

Editor Assistant Editor Production Editor Technical Editor Editorial Birector

Man Rell Magnus Schofield Dave Lockwood lan Gilby

Paul White

Advertisement Manager Robert Cottee **Classified Sales Manager** Patrick Shelley Production Manager At Production & Design Sealer Besigner **Classified Production**

Shaun Barrett Andy Brookes Clare Hotland Andy Baldwin

Publisher Ian Gilby Financial Manager Patricia Urwin Administration Lisa Thompson Sally Thompson Mali Brdar

Photography Lwing Reeson BTP Bursau Sound Design Colour Scanning C.L. Enterprises Ltd Colour Briningting

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Forget what you know about digital multieffects processors, the new Alesis MidiVerb 4 has rewritten the book. While the competition has been chasing the standards set by three generations of MidiVerbs, our engineers were researching ways to integrate the form and function of digital reverb way beyond anybody else's imagination...or capabilities. It makes the MidiVerb 4 the cleanest, quietest, richest sounding and, yes, the smartest machine of its kind. Here's how...

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Sound Technology plc Letchworth Point, Letchworth, Hertfordshire, SG6 1ND Tel: 01462 480000 Fax: 01462 480800 Cascade mode allows the output of channel 1 to feed the input of channel 2 in any of 7 dual channel configurations. A large custom backlit LCD, data entry wheel and clearly labeled buttons comprise the front end of MidiVerb 4's fast, intuitive user interface. Four parameters are shown simultaneously and there's even screen help prompts to put you at ease if there's ever a programming question. You can tweak one of the superb 128 preset or 128 user programs, or start from scratch and get the sound you need in no time.

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MidiVerb 4 is based on a classic theme, but it's new in every way. And as always with MidiVerb, the best part is the price. See your Alesis Dealer.



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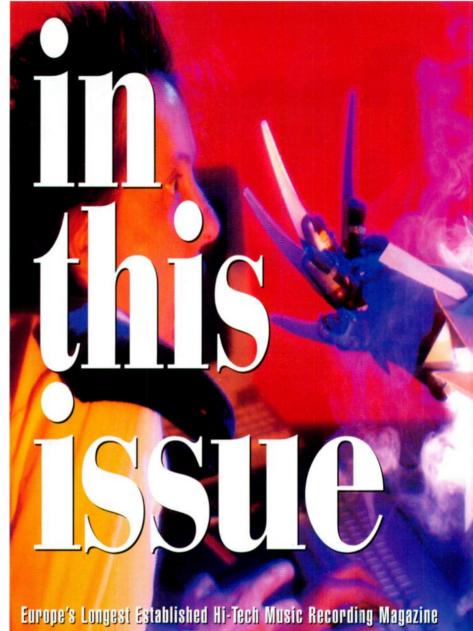
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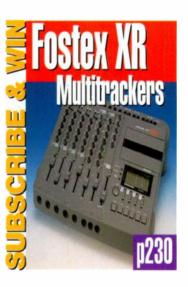
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Derek Johnson & Debbie Poyser deliver more leading edge news from the hi-tech music and recording world.



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Performance artist Nick Rothwell finds the multimedia revolution passing him by.

Crossalk

Send your letters, tips and comments to: The Editor, Sound On Sound, Media House, St Ives, Cambridgeshire, PE17 4LE. Or email us — from CompuServe on 100517,1113 or from outside CompuServe, on 100517.1113@compuserve.com

IF YOU CAN'T STAND THE HEAT...

As a musician and supporter of Friends Of The Earth and Greenpeace, may I draw what I consider to be an important issue to the attention of music shop retailers and their customers.

Modern music is highly dependent upon electricity. When entering and browsing around a music shop, I am constantly amazed to find so many items of musical equipment (amps, keyboards, effects units, multitrack recorders, mixers and all varieties of outboard gear) permanently switched on or powered up. I consider this to be a huge waste of electricity and the earth's finite resources. In summer, the heat created by these devices is so great that electrical fans are then switched on to combat the problem — a further waste of resources. It is also my opinion that an item of equipment cannot be sold as 'new' if it has been continually running for extended periods of time. This accounts for valve wear on the tape machines and heat build-up, and its related damaging effects on outboard equipment and effects processors.

Another observation is that coloured spotlights might make the equipment look 'pretty' and

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tempting, but again, are unnecessary, as most of us are blessed with quite adequate eyesight and imagination.

I hope this letter may be printed and that it will encourage those in the music retail business to conserve energy, resulting in less overhead costs and, more importantly, safeguarding the environment. I also encourage customers to urge their local music shops to implement some of these simple, energy-saving measures. Thanks. Francis John Hall Staffordshire.

Editor Paul White writes: We too think like 10 ourselves environmentally aware, and in the case of shops full of switched-on gear in the middle of summer, I can only agree that this is a waste of energy. However, there is more to the story than that. One reason for leaving gear switched on all the time is that reliability is reduced (in the case of solid-state equipment, at any rate) by repeated switching on and off. As things warm up and cool down, they are subject to thermal stressing, and this is believed to be one of the major causes of chip and

transistor failure. Indeed, some universities leave major pieces of electronic gear on all night, and at weekends, simply to extend the life of the equipment. On the other hand, I agree that tube gear and anything with moving parts should be left off until needed, as leaving them on will cause unnecessary wear.

On the environmental issue, the problem is probably less serious in the UK than in hotter climates, as most British premises need heating most of the year. A lot of shops rely on electrical heating, and it doesn't matter if the heat comes from a radiator or from a mixing console, the same amount of energy is expended. The same is true of 'lowenergy' light bulbs; I have about a dozen of these in my home, and as far as I can tell, the only way they save energy is by giving out buggerall light compared with what the blurb on the box claims! Again, if the heating must be on, then why not use conventional light bulbs, which will contribute to the house heating in the usual way - and actually let you read without going blind? In the meantime, if anyone has invented a 'green' stove that runs on junk mail, please let me know - that could really cut my energy bills!

VS880 — OR VS440?

Assistant Editor Matt Bell writes: Following a phone call by Mike Best to Paul White, we received the next letter, which essentially voiced in written form the concerns Mike had expressed on the phone. Intrigued, we asked Roland UK to comment, and they responded by fax. Both letters are reproduced below.

In recent months, I have been contemplating the move to an 8track hard disk recording system. Due to its price, I jumped at the Roland VS880, with its promise of 8-track CD-quality digital recording, a digital 14-track mixer and dual stereo effects for under £2000 (excluding hard drive). Be warned, though!

Working on the assumption that 1Gb is roughly 1000Mb, with all calculations using the industry standard sampling rate of 44.1kHz, and acknowledging that a minute of mono sampling equates to approximately 5Mb of RAM, we MSI202 VLZ 12-CH • MSI402-VLZ 14-CH • COLLECT 'EM • TRADE 'EM WITH YOUR FRIENDS

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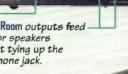
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Crosstalk

can quite easily work out that the number of mono minutes on a disk drive equals its size in megabytes, divided by the number of megabytes needed per minute — or in this case, 200. So, 200 minutes of 1-track recording will fit on a 1Gb disk. Still with me?

This is what Roland said about the VS880 in Mastering mode, but what wasn't clear was that a maximum of only *four* tracks are available on the VS880 when it is in this mode — a very important bit of information that isn't divulged until after you've bought one. Isn't this supposedly an *eight*-track recorder?

One step down the ladder from 'Mastering Mode' is 'Multitrack 1 Mode', which lets users record up to the quoted time of 406 minutes on 1 track, or roughly double the 'Mastering' space. Roland have somehow managed to get double the time available on the same 1Gb disk, squashing the normal data by 50%, but now (amazingly) allowing the full eight tracks. Data compression must be used, either in a way similar to that used on PC Diskdoubler, or using the 'what you can't hear you won't miss' solution. If the latter is the case, then this machine is clearly not CD-quality, as the audible differences between the competing CD/DAT and DCC/MD formats are well documented [see, for example, the letter 'Compressing The Truth', published in Crosstalk in SOS September '95, and my reply - Edl.

My point is this - why are Roland selling their VS880 as a CD-quality digital recorder with 64 recordable tracks, when this clearly isn't the case? They also state that modes other than Mastering are suitable for 'doing lots of track bouncing'. But I bought the machine on the understanding that it was an 8-track CD-quality machine — to record vocals and acoustic guitar for my band's songs at the highest possible quality, with all other instrumentation running 'live' from a computer synchronised to Cubase, and with the ability to mix everything to DAT digitally

While I am one of the first to



agree that the machine is amazing for the money, I am really annoyed with Roland for their apparent campaign of misinformation. Several people I have spoken to on the phone, including my supplier and SOS's Paul White, were surprised at this 'omission'. My gripe is not with the reviewers or resellers, as I feel they weren't to blame. They didn't know.

All Roland's Technical Line could suggest was that I use 'Multitrack 2' mode (of inferior quality to 'Mastering' mode, by their own admission) to get 8-track recording. This made me fall about laughing! I'd be very interested to hear Roland's side of this matter. Mike Best

London

Thank you for giving us the opportunity to reply to Mr Best's letter

The VS880 is designed to counter two major problems with existing hard disk systems. Most such systems are not very portable, especially those relying on a computer, and the recording media have tended to be expensive, requiring large hard drives with fast access times to record the data. Mr Best's time calculations show this side very well.

To counter the latter problem, we are employing our own data reduction technology. This allows more data to be recorded onto the media, and also allows us to offer drives such as IDE or ZIP drives, which have relatively slow access times. It would not be possible to record eight tracks at 16-bit linear onto such a drive, therefore we have deliberately limited this option to four tracks.

Mr Best's letter does not make clear whether he has run listening tests between Master mode and Multi 1 & 2, but I would suggest to him that he does so. I would be surprised if he notices much difference between Master (4track) and Multi 1 (8-track). Even with Multi 2, there is very little quality loss, but your recording time is 2.5 times greater than that available in Master mode.

Roland's proprietary R-DAC system is unlike any data compression system currently used in audio products. Most compression formats are 'frequency domain' systems - in other words, they break the audio signal down into frequency bands, and discard those they find least important (a bit simplistic, I know, but otherwise this could could turn into a major article!). The quality of such a system is therefore dependent on the algorithm used to make these judgements. Listeners often complain about subjective 'weaknesses' in complex audio signals that have been processed in this way.

Roland's R-DAC system, in contrast, works in the *time* domain, where no frequencies are singled out and removed. This not only gives a superior performance on complex audio signals (rather than merely on test tones), but also does not damage the stereo field. Such a system also allows high-resolution editing of audio, without having to go through a complex decoding and encoding procedure.

Roland has never sought to mislead our customers in any way with regard to the number of tracks available in Master mode. We are happy to mention the change down to four tracks in our public demonstrations, and did also inform all our dealers through our extensive product training courses. The owner's manual also makes this point clear.

We are justly proud of the VS880, and believe that we have a ground-breaking product at a very competitive price. I am very pleased that Mr Best finds the VS880 "amazing for the money", and hope that having tested the audio quality of Multi 1, he will agree that quality is not compromised. Dave Marshall Roland UK

Editor Paul White comments:

While the Roland VS880 manual does mention a 4-track mastering mode, it doesn't specifically state that data compression is used in the best (or indeed any) of the three 8-track modes - although making calculations based on the recording time indicates that this must indeed be the case. However, speaking subjectively, I think the best 8-track mode sounds very clean, with no obvious side effects from the data compression used. In fact the amount of data compression in 'best' mode (which has been explained to us since I wrote my VS880 review) is quite modest when compared with the fourtimes compression used in consumer systems - and the principle of compression, as Dave Marshall points out above, is also quite different. The modes offering longer recording times do show a noticeable loss in overall quality, as expected. but nevertheless remain quite usable for specific applications.

Perhaps the main cause for concern over data compression comes from reports on consumer formats such as DCC and Minidisc, where some listeners feel that subtle ambient detail, such as that in the decay tails of reverbs, is compromised. In a multitrack situation, adding reverb after recording should avoid this effect.

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don't so much cut, as fade very quickly. There are no thumps and no clicks.

You'll hear nothing untoward from ProMic either, Ghost's microphone preamplifier boasts a better



gain to noise performance than you'd expect on consoles costing many times more.

We could go on, but to appreciate fully the ergonomic and audio integrity of Ghost you need to see and hear one in the flesh.

So call +44 (0)1707 665000 to find out more.



HARMAN INTERNATIONAL INDUSTRIES LTD., CRANBORNE HOUSE, CRANBORNE RD., POTTERS BAR, HERTS, EN6 3JN, ENGLAND. TEL: +44 (0)1707 665000 FAX: +44 (0)1707 660482



By Derek Johnson & Debbie Poyser

n a world dominated by black and grey 1U rack-mounting boxes, it comes as a refreshing change to tell you about Focusrite's Gaudi-esque Green range of signal processors. A picture speaks a thousand words, so have a good look: the custom moulding really does give these new units a distinctive feel. And it's not just the cosmetics that Focusrite are revolutionising. In a deliberate move away from the 'high quality = high price' equation, the company have designed a range of processors that maintain the company's reputation for quality,

> CUSCIES but at a price point Creen na

> > accessible to those of

us who aren't

with professional

talking bargain

budgets. We're not

basement quite yet,

but at £825 including VAT for the Green 1 dual

maintaining professional studios owner. In fact, Focusrite's publicity material for the new range makes special mention of using the Green range with digital multitrack at the Alesis ADAT and Tascam DA88 level.

Visual innovation and affordable (for Focusrite) price aside, what does the Green range have to offer? • The Green 1 dual mic preamp offers two identical stages with variable gain from +10dB to +60dB, 48V phantom power, 75Hz high-pass filter, mute switch with external control, and a peak overload LED. • The Green 2 Focus EQ is a single-channel unit with six stages of Focusrite EQ: high-pass filter, low-pass filter, low-mid parametric, high-mid parametric, low shelving (with bell switch) and high

> shelving (with bell switch). There are three separate input stages, with individual connectors: mic XLR, line XLR and balanced jack, optimised for guitar.

Last of all are the true VU response LED bargraph, output fader and peak overload LED.

• Green 3, the Voicebox, again offers a single channel, with a high-quality microphone stage (identical to that found on the Green 1), three stages of Focusrite EQ (mid parametric, low shelving and high shelving), a multifunction dynamics section (compressor, de-esser and noise reducing expander), output fader and a peak overload LED.

Focusrite Audio Engineering Ltd, Unit 2, Bourne End Business Centre, Cores End Road, Bourne End, Bucks SL& SAS. O1628 819456. O1628 819443.



e have the results of three competitions to announce this month — at last we have a picture of the elusive Steven McCormick of Glasgow, winner of last September's competition to win a C-Lab Falcon-based digital recording setup. Steven (shown above receiving his prize from Paul Wiffen of Digital Media, C-Lab's UK distributor) netted a Falcon Mk II computer and a copy of Steinberg's *Cubase Audio*. He said he was delighted, as the win



mic preamp, £939 including VAT for the Green 2

Focusrite have brought their technology within the

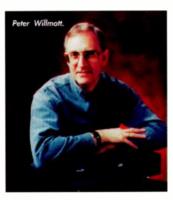
grasp of the dedicated amateur and semi-pro studio

Focus EQ and £1006 for the Green 3 Voicebox,

Paul Wiffen (left) and Steven McCormick (right).

meant he could at last record and edit his guitar parts in the same way as his MIDI backing tracks. His old Atari isn't on the scrapheap, either - he has passed it on to his girlfriend. Many thanks to C-Lab (0049 40 69 44 000) for the Falcon Mk II, to Digital Awareness (0181 597 2513) for the colour monitor, and to Harman (0181 207 5050) for the copy of Cubase Audio. Lastly, many thanks to Kenny, manager of Sound Control Edinburgh (where the presentation took place) and Dino, who took the picture!

Next, there are the two lucky subscribers who won the Philips DCC recorder 'Subscribe & Win' competition which ran in SOS from November last year until January's issue. The second prize, a Philips portable DCC 170, was won by Mr Frank Bohm of Lancashire, while the first prize, the DCC 730, was won by double-bass player Peter Willmott of Cheshire (pictured below), who declared: "as I already own a DAT machine, it has been most interesting to compare the DCC's sound quality. I think the DCC's warmer tone will suit my current new age output very well". Thanks to UK distributor SRTL (01243 379834)



for the prizes.

Last but not least, and as promised last month, comes the draw for February's prize — the Akai S3000 with built-in EB16 effects board. This competition was flooded with entries, confirming that the reason just



Sam Smith

42% of the SOS readership own samplers (according to last year's reader survey) is that the other 58% are waiting to win one in a competition! Well, if you're not Sam Smith of Northamptonshire, you'll have to shell out for one now. Sam is shown above clearly displaying his joy at having been picked as the fortunate winner. Many thanks to Akai UK (0181 897 6388) for Sam's prizes, and for the CD-ROM they threw in for free! As usual, there'll be more winners next month. It could be you, you know...

SOS can be reached on CompuServe; our e-mail address is 100517,1113. Our full Internet address is 100517.1113@compuserve.com.



udio 96, the APRS (Assocation of Professional Recording Studios) exhibition, is set for the 19th-21st June this year, and will take place in the National Hall at Olympia. This year's show will see a number of new feature and demonstration areas, including: an area devoted to High Density Mastering; a Project Studio area fitted with equipment from Stirling Audio, and featuring live demos by record producers; a Post Production Studio, showcasing a selection of systems and techniques; and a New Media area, where Abbey Road will highlight the systems used in their new Interactive Studios.

The successful briefings and workshop programme will again be run, featuring lively interactive sessions with a strong hands-on element, plus discussions of advanced topical technical issues, including multimedia and digital developments. *Sound On Sound* and the Gateway School of Recording and Music Technology are to co-host a presentation entitled 'Hints & Tips for Project Studios', and multimedia specialist Paul Gilby of Co-Activ presents 'Sound for Multimedia: Formats, Standards and Techniques', with the help of Gateway's Mike Pratt and Dave Ward. Contact the APRS at the address below for more information.

A APRS Ltd, 2 Windsor Square, Silver Street, Reading, Berkshire RG1 2TH.
T 01734 756218.
F 01734 756216.
E info@aprs.co.uk
W http://www.aprs.co.uk

Quantegy: they've got it



ast year, after a 'long and fruitful partnership', the Ampex Corporation decided to divest itself of its media division, and the Ampex Recording Media Corporation was put up for sale. The

190

sale was completed in November of 1995, and the Ampex media division became Quantegy Inc. Quantegy now manufacture and sell recording media under their own and the familiar Ampex brand names —

the company is also the new sponsor of Demo Doctor and will be providing prizes for the 'Top Tape' every month. Along with professional recording media for broadcasters, Quantegy also produce tape for the rest of us: Ampex DA8, available in 30, 60 and 113 minute lengths for Tascam's DA88 digital multitrack; Ampex DD8 8mm data cartridges; and Ampex CD-Rs, available in 63 and 74 minute lengths.

Note also the new Quantegy Web site: it's full of product information and nifty old pictures of vintage tape recorders.

 Quantegy Evropa Ltd, Unit 3 Commerce Park, Brunel Road, Theole, Berks RG7 4AB.
 01734 302240.

- E 01734 302235.
- W http://www.quantegy.com/

That's the Spirit

Spirit Folio Notepad.

Th

e briefly mentioned new products from Spirit in our Frankfurt show report last month, but how we have pictures! Which is a good enough reason to bring you a more detailed item about Spirit's new monitors and compact mixer.

The Folio Notepad is a cute and curvy package, the smallest in the Spirit range, and the most affordable, at £199. Despite its miniature nature, the Folio still provides:

- 10 inputs in total.
- Four mic inputs featuring studio-quality mic preamps with 50dB of gain range.
- 2-band EQ on every mono input.
 Post-fade aux send on every
- input.
- Dedicated stereo effects return.
- Global 48V phantom power.
- Switchable RIAA preamps for turntables on stereo inputs.
- 2-track return.

On the monitor front, Spirit introduce two new models. The Absolute 4P is described as a professional active nearfield monitor incorporating bi-amplification (both transducers driven by individual

Keeping score with TURNKEY seminar

urnkey are holding a completely free computer notation seminar on Wednesday 12th June at their London store. Several notation packages will be highlighted, including *Sibelius 7* v3.0 for Acorn RISC PC; *Encore* v4.0, *Finale* v3.0 and *Cubase Score 3.0* for PC and Mac; and power amps delivering 100W RMS to the woofer and 50W to the tweeter). The amps feature full thermal protection and an intelligent driver system to provide maximum undistorted acoustic output. The Absolute Zero, adorned with fetching red drivers, is a compact nearfield

system that, say Spirit, "performs and sounds like a large studio monitor system." Its drivers are designed to squeeze maximum performance from the cabinet size, so that bass response remains "unrestricted," even at high listening levels. Prices on the 4Ps and Zeros have yet to be fixed, but they are expected to be around £200 for the Zeros and between £650 and £750 for the 4Ps (per pair and



The new Spirit Absolute 4P monitors...



...and the new Absolute Zeros.

including VAT in both cases). Look out for reviews of all the above as soon as we can get hold of them.

- A Spirit by Soundcraft, Cranborne House, Cranborne Industriai Estate, Cranborne Road, Potters Bar, Herts EN6 3JN.
 O1707 665000.
- E 01707 665461.

Personal Composer for PC. Guest speakers from software developers Sibelius, Passport, Steinberg and Coda, and PC music specialists Et Cetera, will be answering questions. The seminar starts at 6.30pm — just contact Richard Fincher at Turnkey for a ticket.

 Turnkey, 114-116 Charing Cross Road, London WC2H ODT.
 0171 379 5148.
 0171 379 0093.



Northern music retailing chain Dawsons Music Ltd have won an exclusive UK agency for Kurzweil's new K2VX synth. For three months, Dawson's will be the only place you can buy this new instrument; the company are also providing 1500 free K2500 sounds on disk, as well as offering interest-free credit. Dawsons Music

01925 245422.

June 1996 is the UK's first ever National Music Festival. Thousands of events are expected to take place throughout June. To coincide with the Euro '96 football championships, musical events are being planned for the eight cities hosting matches -London, Birmingham, Nottingham, Manchester, Sheffield, Leeds, Liverpool, and Newcastle. However, the rest of the country won't be left out there are event co-ordinators for all areas of the UK. The organisers of the Festival need to hear from anyone organising, or thinking of organising, an event for June; even the smallest event can be registered (for a cost of £6). In return, your event will be promoted by the organisers, who also offer advice on sponsorship, grants, acquiring acts, and event facilities.

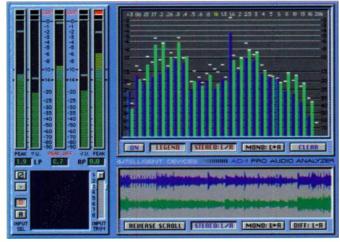
 A National Music Festival, Avon House, 360 Oxford Street, London W1N 9HA.
 T 0171 491 0044.
 F 0171 491 9366.

Blur, Cranberries and Pretenders producer Stephen Street has bought an Otari Radar hard disk recorder from Stirling Audio. Street plans to use the 16-track system on a number of projects, including the new Blur album, under way now. Radar systems have also gone to Trevor Horn and The Strongroom.

T 0171 624 6000.

une's Audio '96 show (details elsewhere in the news pages this issue) sees the first public outing of newlyformed audio distribution company Unity Audio page 36 this month). There's also a Dynaudio launch at the show, in the shape of the new PPM20 active nearfield monitor. Other products on the Unity stand will include the Earthworks

UNITY comes together a



Intelligent Devices' Pro Audio Analyser, now available from Unity Audio.

Ltd. On stand 115 at the show you'll be able to see Unity's debut lines, including the Dynaudio Acoustics range of monitors (see the review of the Dynaudio BM5s and BM10s on

Audio 96

TC30K omnidirectional mic, designed by a new company formed by dbx founder David Blackmer; the Vac Rac modular valve system (two chassis which can be fitted with the TMP1 tube mic preamp, TLM1 tube limiter, TEQ1 valve EQ, and TII 1 DI unit, all with distinctive '50s styling); and various Digidesign plug-ins, including Arboretum's *Hyperprism, Intelligent Devices'* ProAudio Analyser, and the GRM Tools real-time effects software for Digidesign systems.

 A Unity Audio Ltd, Upper Wheel House, Colliers End, Herts SG11 1ET.
 T 01920 822890.
 F 01920 822892.

Connection with

K org have released the latest in their line of options for the Trinity music

workstations. The Alesis Digital I/O Interface (£199) allows the connection of the Trinity to any device equipped with an Alesis Digital I/O, so that the Trinity can transfer audio digitally. The new interface board is also ideal when using the Trinity with Korg's new Soundlink system.

SoundLink DRS (Digital Recording System) is a new line of integrated audio products designed to provide digital, automated, component-based recording facilities at "breakthrough" prices though at the time of going to press we couldn't ascertain just how breakthrough the prices will be. More details on that as soon as we can get them. The range so far consists of:

The 168RC recording console, a fully digital 16:8:2 device equipped with two ADAT optical inputs, eight analogue inputs with 18-bit A/D converters, two internal effects processors and full console automation.
 The DRS1212 I/O PCI Multi-channel Audio Interface with Dack II. This system features OSC's

Interface with *Deck II*. This system features OSC's *Deck* hard disk recording software plus an interface with 12 inputs and 12 outputs (two analogue I/Os, an S/PDIF I/O and an 8-channel ADAT optical I/O). Also part of the range are the RM8 reference

Korg's new Alesis Digital I/O interface for the Trinity workstation.

monitors, magnetically shielded to eliminate interference with computers and video monitors, and the companion RMA 240 monitor amplifier, which produces 120W per side into 8Ω and can be bridged.

Finally, there's the Pandora personal multi-effects processor, mentioned briefly in last month's Frankfurt show report. Though it's truly pocketsized, the Pandora offers 60 high-quality effects variations, including compression, distortion, overdrive, wah, pitch-shifting and reverb. Paul White reviews it on page 30 this month, and there's more spec in our comprehensive Effects Buyers' Guide, starting on page 40.

 Korg UK Ltd, 9 Newmarket Court, Kingston, Milton Keynes MK10 0AU.
 1 01908 857100.

F 01908 857199.

Source of worsbip and even "on location". Notepad's use of bigb quality components and sbort signal patb mean it sounds cleaner than many class of professional"

Here are some of the uses you could put Notepad to.

MULTIMEDIA

consoles.

Recording and playback of nume using a FC hotest with sperce source card

THE FACTS

Folio Notepad is a compact DAT-quality 10 input stereo mixer that is flexible enough to be used in a wide variety of applications, either as the main mixer in small configurations or as

a submixer in larger setups.

Unlike many small mixers, Notepad is no toy. It incorporates tried and trusted circuit designs and components used on our flagship mixing desks. Notepad packs many of the features normally reserved for larger consoles: 4 mono mic/line inputs with high quality preamps, 48V phantom power and 2-band EQ; 2 stereo inputs with switchable RIAA allowing direct connection of turntables; post-fade effects send and stereo return; separate Mix and Monitor outputs...and much more.

JUX RRP

At Spirit, sound quality is paramount and Notepad is no exception. But don't just listen to us – visit your Spirit dealer, listen to Notepad and judge for yourself.

RECORDING TO MULTITRACK

tracks at one page tracks at one page instruments to some side if they are assured for the they are have bard if and make to record it as make to record it as a make to record

MALE TRACK

By Soundcraft

H A Harman International Company

Notepad

Please send me more information on Folio Notepad

Address: .	 	 	

What will you use Notepad for?

Name

E SIZ

What magazines do read?_____

SOS

Please send me a FREE copy of the Folio Applications Guide written by pro-audio journalist Paul White on how to get the best from your mixer

Spirit by Soundcraft™, Harman International Industries Ltd., Cranborne House, Cranborne Industrial Estate, Cranborne Rd, Potters Bar, Herts EN6 3JN, England. Tel: +44 (0)1707 665000. Fax: +44 (0)1707 665461.

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





Raper & Wayman are offering a useful training opportunity to purchasers of the Yamaha 02R digital mixer: anyone who buys an 02R from Raper & Wayman will be offered a free half-day of personal tuition to help them make the most of their new purchase. If half a day isn't enough, or if a customer would like up to three additional people to attend the training session, R&W are happy to oblige for a small extra fee.

Sony Broadcast & Professional have opened a new information centre, whose job is to provide literature and information regarding Sony pro products. Sony Broadcast & Professional Information Centre, PO Box SL2550, 804 Oxford Avenue, Slough, Berks SL1 4BL. O990 331122. O990 142480.

Musicians and other entertainment workers might be interested in a free leaflet published by The Health & Safety Executive, giving health and safety information for freelancers in the broadcast media and performing arts. The leaflet (Facts for Freelances: Heath and safety in broadcasting and the performing arts - Ref IND(G)217L) aims to provide clear advice about responsibilities for health and safety, as well as indicating where freelancers can go for help when they are unsure about the requirements of health and safety law.

 A HSE Books, PO Box 1999, Sudbury, Suffolk CO10 6FS.
 1 01787 881165.
 01787 313995. ore sad news on the crime front comes from Adrenalin Studios of Sheffield, who were deprived of a long list of gear on the 29th of February this year by ingenious burglars who appear to have got in through the studio roof! The missing equipment is as follows, and a reward is offered for information leading to its return:

AMS RMX16 reverb: BSS guad gates; dbx DS263 gates; Drawmer 1961 EQ, Ouad gates, 221 gates, and a Drawmer multitracker: Klark Teknik DN360 and DN27 gates: Lexicon 224XL, PCM70 and PCM50 reverbs; Yamaha REV5, two REV7s, SPX90 Mkll and SPX1000 effects, Q1031 graphic and RX11 drum machine: a Power Mac 7100. Pro Tools III, Digidesign 882 interface. Micropolis 1Gb drive; Neumann mics including two U87s, one U47, one KM64 and one TLM170; AKG mics (a 414EB, 414ULS, two 535s, and two 451s); an Electrovoice RE20 mic; a Beyer M88 and two Shure SM7 mics; a Zoom 9050 guitar effects unit, an ART guitar effects unit and a Marantz CD52 Mkll CD player.

Please contact Adrenalin on 0114 278 7767 if you have any information, however trivial, about the theft. Studio owner Mark Cartawick would also be happy to hear from any dealers who can help him to

exactly replace the items which were stolen — he's having trouble tracking down replacements for some of the older gear.

Also unfortunate this month is reader Greg Assing, who had his Kurzweil K2500R (serial number 479 504 00796) stolen on Wednesday 10th April. Please call him on 0171 281 3020 if you know anything at all that might help.

CAUGHT IN The `net

SURFIN' SAFARI

The Electronic Music Foundation in New York has announced the launch of their World Wide Web site. The new site aims to give musicians, listeners and subscribers immedate access to a full range of information and services concerned with electronic music. You'll be able to gain access to an extensive database of worldwide gigs and events, CDs, bulletin board and a bookstore (which also offers video tapes and CD-ROMs). If you're hunting for information or releases by obscure composers and performers on obscure labels, this could be a good starting point. The address to enter is shown below.

W http://www.emf.org

MEDIASPEC FOR ONLINE DIGITAL

Digidesign dealer MediaSpec UK has a new Web site, which provides a comprehensive catalogue of Pro Tools and other digital audio- and video-

Beyer go direct to digital



everdynamic chose the recent 100th AES convention in Copenhagen to launch what they claim is the world's first digital studio mic — the MCD100. No longer will you need to insert several stages of analogue electronics between the mic and the digital mixer: the completely selfcontained MCD100 removes the need for preamplification and analogue-to-digital conversion, as it connects directly to a digital mixer via its 20-bit convertor. The new mic's preamp is adjustable up to a maximum sound pressure level of 150dB in 10dB steps, and cable lengths of up to 300 metres can be achieved without loss of audio signal, due to digital transmission.

Note also that Beyerdynamic have moved house, to larger premises. The new facility (shown left) quadruples warehouse and administration space, as well as adding showroom and conference facilities.

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



related products. Free product support and technical information is also available on-line, and MediaSpec will be giving away free software in monthly promotions and competitions. Just head on down to the Web address below.

http://www.mediaspec.co.uk

ALL ABOUT ANALOGUE

Analogue Solutions, suppliers of analogue synths, drum machines, modifications and MIDI converters, now have their own Web site which features information, prices, sounds and pictures. Point your browser at the site below.

http://www.channel.co. uk/analogues

DRAWMER DO IT ON THE NET

Well-known studio processor manufacturers Drawmer have opened a Web site. Check it out for full product information and distributor and UK dealer listings. w http://www.produdio.co. wk/drowmer.htm

ROCK OPERA

Uluru is an Internet-based 'multicultural cyberopera' by Austrian-Swiss composer Robert Bachmann. Inspired by Ayers Rock in Australia (Urulu is the rock's aboriginal name), the work is available on line for anyone to listen to or participate in. Although the basic raw material was composed and prepared by Bachmann and performed by the Philharmonic and the London Voices at Abbey Road, the work is very much an ongoing thing, with



Robert Bachmann.

contributions expected from those who view it. The Web site currently holds a lot of data — picture, audio files, video files and so on — and this is growing as the piece evolves. Everyone who can download the basic software is invited to contribute, modifying and recreating the basic material as they wish.

💹 http://www.orbitex.ch/uluru

HAPPY BIRTHDAY TURNKEY WEBSITEI

Hi-tech retailer Turnkey have just passed the first anniversary of setting up their World Wide Web site. Launched in May last year, the site is now being upgraded with many improvements coming as a result of customer suggestions — and will include links to other music-related sites, secure credit card transactions, interactive credit page for personal finance quotes, downloadable free demo versions of software, and Netscape 2.0enhanced features.

http://www.demon.co. uk/turnkey/

NEW DANCE E-ZINE

If dance is your thing, focus your Web browser on *Fused*, a new online magazine dedicated to dub, chill-out, downbeats, drums 'n' bass, house, techno, ambient and all the other little sub-sets of cool that are out there.

W http://www.fused.com

DIGIDESIGN ONLINE

Another hi-tech company gets a presence on the Web with the launch of Digidesign's new Web site. The new site provides tech support (including email links to real people!), product information and compatibility, an FTP site to download patches, upgrades and utilities, FAQ lists, and downloadable QuickTime Movies (called TechFlix) designed to help users with system configuration and troubleshooting. The site will also provide links to Avid, **Digidesign Development Partners'** sites and other sites related to digital audio.

http://www.digidesign.com

SITE FOR SOUND

If sound effects are your thing, Bits & Pieces are providing the Web site for you. The site contains full track listings of all 12 of their currently available CDs (distributed by Canford Audio, 0191 415 0205) and provides details of their custom sound effects service.

W http://www.users.dircon. co.uk/~bits/

Good vibrations all around

heremins seem to be catching on in a big way, and with the release of a pocket-sized version from Longwave Instruments, these oddball instruments are now within almost anyone's reach. Longwave's miniature UK-built Theremin



costs just £99 including postage, and has an output jack for plugging into a hi-fi or amplifier. In an intriguing footnote, Longwave mention that a "Theremin to control your computer" is coming soon — watch this space!

We told you last month that the Big Briar Theremin, designed in the USA by synth legend Bob Moog's company, is being distributed in the UK by Nottingham's Second Gear. However, we didn't have a photo of it, and now we do! Second Gear also tell us that they're selling the Mastering the Theremin instructional video, which provides a grounding in the correct playing technique. So anyone interested in this strange, 'hands-off' instrument, which contributed so much to music by the Beach Boys ('Good Vibrations') and Led Zeppelin, can now see it in action on video, for around £14. The deluxe Big Briar Theremin itself costs £269 in kit form, which also includes the video, a



Clara Rockmore (Theremin virtuoso) CD, and a booklet written by Bob Moog himself. For an extra £30, Second Gear will assemble the kit for you and finish it in any colour you like!

 Longwave Instruments, 23 Ashley Lone, Hordle, Lymington, Hampshire SO41 0GB.
 01425 610849.
 01425 615299.

 A Second Gear, 2nd Floor, Business Centre, Forest Mills, Highurst Street, Nottingham NG7 3QA.
 O115 978 0582.
 O115 978 0582.

WRH



Professional flightcase specialists Autopia Vanguip have supplied Dire Straits' Mark Knopfler with cases for his forthcoming tour. Autopia Vanquip will also be soon moving house to new, larger offices (25,000 square feet thereof, to be precise). T 01633 873118.

A new range of analogue tape decks that minimise background hiss should be on sale just about now - largely because of technology developed for DCC (Digital Compact Cassette). New Scientist magazine reports that the thin-film magneto-resistive heads developed specially for DCC by Matsushita and Philips have been adapted for use in analogue tape decks, where their ability to very closely track the tape surface means that they can pick up a strong signal even from old or damaged recordings. This means that the signal needs less amplification, and so there's less background hiss. The new decks are the Technics RS AZ6 and RS AZ7, and they're expected to cost less than £300.

Training sessions can be conducted at R&W's own demo rooms, or at the customer's own site. Contact Colin Bird at the address below for more details. 0181 800 8288.

Straight & Narrow Recordings have released a new jungle breakbeat sample collection called Jungle Inception. Available on both CD (£40) or DAT (£30), this collection provides breaks never heard on any other jungle compilation.

A Straight & Narrow, Unit 252, Stratford Workshops, Burford Road, Stratford, London F15 2SP. T 0181 534 6329.

Malcolm Toft Associates report sales of their Series 980 mixing desk to Courtyard Studios in Oxford, managers of Supergrass, and to Radiohead. Both desks feature 32 inputs and 24 subgroups. T 01252 318700.

Ghost Le: minus the **I**

S oundcraft have guickly followed the

Frankfurt launch of their new Ghost 8-buss mixing console with the announcement of a new family member, the Ghost Le. The original Ghost is equipped with a full MIDI Mute system and machine control facilities, but there has apparently been a lot of demand for just the desk, sans muting. This is where the Le comes in. Otherwise, the desk is identical: 4-band EQ with parametric mids, 10 aux send busses (including two stereo sends), individually-switched phantom power,



phase reverse and a brand new low-noise mic amp. The moving-fader Ghost, utilising Soundcraft's C3 automation system, is also due soon.

- A Harman International Industries Ltd. Cranborne House, Cranborne, Potters Bar, Herts EN6 3JN. 01707 665000.
- 01707 660482.

DUCATIO CORN N

THEY'VE GOT THE POWER

Acton, London W3 7SD.

SCHOOL'S IN FOR SUMMER

0181 749 3131.

F 0181 740 8422.

The Power House, home of Drumtech, Basstech and the Guitar Institute, have expanded into vocal and keyboard training. Keyboard Tech and Vocal Tech are now recruiting students for places on a one-year, full-time diploma, starting in April and September, and a two-year, grant-funded Dip HE course which starts in October, in association with Thames Valley University. Part-time and private tuition to suit all abilities is also available. The Power House, 74 Stanley Gardens,

If you fancy upgrading your skills or learning about

recording or music technology over the summer,

drop the Guildhall School of Music a line. The

Guildhall Summer School this year includes two

introductory music technology weekend courses

(July 13-14 and July 20-21) and two recording

engineering courses (July 15-19 and July 22-26). In

addition, a four-day Technology for Teachers course is running from July 22-25, which is

designed specifically for teachers in secondary and

further education; the course covers the material

in the music technology weekend courses, plus

material of further relevance to GCSE, A Level and

BTEC. There is also a range of jazz and singing

courses; contact the school for details.

Guildhall School of Music and Drama.

Borbican, London EC2Y 8DT.

T 01702 714733.

Heather Swain, Manager, Guildhall Summer School,

SCHOOL'S IN FOR SUMMER: PART DEUX

East Anglian readers who can't make it to London,

but like the idea of whiling away some of their

summer vacation on a hi-tech course, should take

a look at Anglia Polytechnic University's summer

school, which features a music and technology

element. Music & Technology is a traditional electro-acoustic music course, and aims to give students an introduction to the use of technology in music composition. Using keyboard workstations, students will learn to apply the principles of acoustics and sequencing. The major activity of the course is the preparation of an original composition.

Anglia Polytechnic University, Central Campus, Victoria Road South, Chelmsford, Essex CM1 1LL. 01245 493131. Ť F 01245 495243.

MAKING THE GRADE

The London College Of Music is proud to announce that it has produced the first set of national grade exams for music technology in the UK. There are three levels of exam: Transitional, Intermediate and Advanced. These have been translated into Introductory, GCSE, and Advanced level gualifications, equivalent to Grades 3, 5 and 8. Those preparing for Music GCSEs, A-levels, or any other course may find that the new grades contribute to the music technology component of their courses. For a syllabus and details of exam centres nearest you, contact the college's exam department on the number below.

0181 231 2364. F 0181 231 2433.

WEEKEND BREAK WITH SONE AUDIO

Sone Audio Training are offering a range of weekend-long, hands-on training courses designed for those who wish to further their knowledge of recording and music technology. All aspects of the recording chain, from mics to mastering, will be covered. The course is supported by Soundcraft and uses facilities provided by the London College of Music, and Thames Valley University.

A Sone Audio Training, Down to Earth Centre, Broadway, London E15 1NG. T 0181 534 6605.





Fans of Manuel Gottsching and Ash Ra Tempel may want to reserve 200DM for The Private Tapes, a six-CD collection of unreleased material. The collection was due out this month (May), and costs (including postage) 212DM to Europe, or 223DM to America, Australia and Asia. The CDs are also available separately for 35DM each (postage is 8DM Europe/15DM rest of the world for one or two CDs). A Mario Schonwalder,

Postbox 450274, D-12172 Berlin, Germany.

SCI Ltd have released five interactive CD-ROMs aimed at guitar and piano tuition. The titles include Blues Guitar, Jazz Guitar, Rock Guitar and Blues Piano. Each course has simultaneous display of video with advanced playback controls featuring a full backing band and demo solos, plus musical notation where necessary, and text. The guitar titles also feature a library of chords, scales and arpeggios, plus a guitar tuner. SCI's CD-ROMs can be found in record stores nationwide, retailing for £34.99 each.

T Sales Curve International 0171 585 3308.

Akai UK are hosting a free demo night on Friday 31st May at The Ministry Of Sound, starting at 9pm. The XL range of S-series samplers, SG modules, and the new Remix 16 DJ sampler will be on display, with Akai staff answering queries. Later, DJ Paul Dakeyne (aka Tinman) will perform a 2-hour set with the Remix 16. Tickets are available from the hotline below.

The next day, Paul is demoing the Remix 16 at Barnet's Dance Village from 1-5pm; call Ray Edwards on 0181 440 3440 for details. Akai ticket hotline

0181 897 7588.



t looks like you can't keep a good platform down: C-Lab's new Falcon Mk X (announced at Frankfurt in March) offers the same built-in MIDI capabilities and multi-channel audio operation of its predecessor, but adds the facility to install a wide range of



internal extras, including S/PDIF or ADAT digital interfaces, RAM expansion to 14.3Mb, 1Gb or 2Gb internal hard drive, removable drives, accelerator cards, and so on. The Falcon 68030-based Mk X will work with Atari Mega ST or Mega STe keyboards (the Mk X-AT allows you to use a PC keyboard), and it can be used with standard SVGA, RGB or ST monitors.

Existing C-Lab Falcon Mk I and Mk II owners can rehouse their machine in an Mk X case, and even Atari Falcon 030 owners can upgrade to full Mk X functionality.

- A Digital Media Ltd, GFM Factory, Le Bourg, Forest, Guernsey, CI GY8 OAW.
- 1 01422 340875.
- 0181 656 2442.
- I digit_aware@cix.compulink.co.uk
- W http://www.digital-media.co.uk



helps the user to understand the building blocks used in physical modelling synthesis. Extra instrument voices have largely been available only from Yamaha until now: Visual Editor means that it's a realistic proposition to create your own instrument voices, even for acoustic instruments that only

sual Editor

Seeing is believing with

amaha continue their tradition of free product support software with the release of Visual Editor for the VL series of Virtual Acoustics instruments. Recognising that fully using the power of the VL1/1m and VL7 can be difficult, given the number of editing parameters available, Visual Editor provides a graphic environment using clear icons and parameter descriptions. An online message box gradually fills with text explaining what parameters have been edited, and how the voice is constructed, depending on the user's edits. The text provides an immediate reference and also

exist in your imagination!

You'll need to have version 2 operating system installed in your VL1/1m or VL7, and an Apple Mac running System 7 or higher, as the software doesn't currently run on the PC. Contact Yamaha for further info and a free brochure on Visual Editor.

- Yamaha-Kemble Music (UK) Ltd, Sherbourne Drive, Tilbrook, Milton Keynes MK7 88L.
- Product info line 01908 369269.
- **1** 01908 368872.



Up to 40 minutes" of true 8 track recording time
 Five 'virtual reels' per hard drive
 Direct stereo digital in/out to any combination of tracks
 Master or Slave operation via MTC & optical Word Clock
 MOVE feature in addition to CUT, COPY & PASTE
 99 times auto-edit repeat for easy chorus assembly
 Now up to 64 tempo/time signatures changes per reel

Digital Recording & Mixing was never meant to be this easy!

The beauty of highly portable, all-in-one multitrackers is that they offer the possibility to record almost anywhere.

Sounds great in theory, but when you try to add sequenced keyboard parts to that nifty acoustic guitar riff you recorded using the natural reverb of your mate's bathroom, it all comes apart.

Not so with the clever DMT-8. Having a built-in metronome with II signature types, full tempo control and Midi clock output with Song Position Pointer means 'location' recordings can be perfectly matched to a sequencer at a later date.

All you have to do is play in time.

It's just one example of Fostex's unique insight into what musicians want from their multitrackers. And the DMT-8 is packed with many more. 8 tracks of CD quality (I6-bit, 44.IkHz) recording direct to a hard disk with non-destructive editing and without 'cost cutting' compression is one.

An in-line mixer with close-focus EQ, and an incredible 22 inputs in remix is another. And in a package which operates and 'feels' like a

conventional tape machine.

Surely digital multitrack recording and mixing was never meant to be as easy as this?

NON DESTRUCTIVE EDITING

Backing vocals great on the first chorus but a bit shaky in the second? Why waste time recording them again? With simple copy and paste editing you can take those great vocals on chorus I and paste them over the less than perfect ones in chorus 2

THE DMT-8 AND MIDI The DMT-8 is ready for total integration into your Midi studio It's all there. Midi Time Code output (with up to 6 hours of offset time between ABS and MTC). Midi Machine Control (control the transport direct from your software sequencer), non-linear editing based on MTC or Midi clock and algher the event 'synchronisation of recorded CD-quality audio to sequenced Midi using the built-in tempo map

DIGITAL TO DIGITAL MASTERING TO DAT

By connecting a DAT recorder to the optical S PDIf output you can digitally master your recordings ensuring the highest possible quality



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FOSTEX

AUXILIARIES 2 AUX sends Dual-function rotary pots fader main input to be selected as send source **ROUTING** Each channel can be routed to Groups //2 or 3/4 LEVELS

High quality 60mm fader controls the channel level



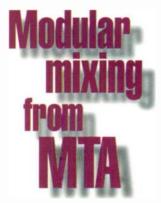
BRY

EI,499 MAT INCLUDING 540MB HARD DISK FOR 12.5 MINS NON-COMPRESSED 8 TRACK RECORDING

L-8

8 Track Digital Recording





alcolm Toft Associates has launched a novel approach to modular mixing. Rather than offering a base desk with input modules bolted on later, the Intermix range splits a mixer horizontally, so that you buy the inputs, faders, pan pots, aux sends and so on separately, assembling the mixer you want, laid out in the configuration you want. There is a demand for such flexibility: designer Malcolm Toft notes that "film dubbing engineers apparently prefer to have EQ at the bottom of a channel, so that they can concentrate on the musicians' headphone mix".

There are seven main rackmounting components in the Interlink range, each based on circuitry from existing MTA consoles: 16 channels of mic/line preamps (£998); 16 channels of 4-band full sweep EQ (£1175); 16 channels of 8-way aux sends (£704); 16 channels of routing, panning and faders to 16 groups (£939); 16 channels of group faders and tape returns (£821); a master control unit (£821); and a universal power supply (£270). Each unit has balanced inputs and outputs on guarter-inch jacks, apart from the mic/line unit (which has balanced XLR inputs) and the master unit (which has balanced XLR outputs for the master mix, monitor and studio playback outputs).

Right about now, you'll be wondering how it all fits together: a series of 'Interlink' connectors duplicates all the inputs, outputs, busses and power line, and when a few cables are connected, the independent units become a completely integrated mixing system. You're not just limited to 16 inputs and 16 groups: the Interlink system allows your mixer to grow to 64 inputs, each with 4-band EQ and eight aux sends, plus 16-buss operation and 32-track monitoring. In addition, individual modules could be added to existing desks. For example, the eight-way aux send block could be



A possible Intermix configuration, comprising 16 channels of mic/line preamps (top) linked to 16 channels of EQ (centre) and 16 channels of routing, panning, and faders (bottom).

patched into any mixer's insert points; similarly, any desk's EQ could be upgraded by patching in the 4-band, fully swept EQ block via insert points. The modular approach means that upgrading is easy — simply connect new modules when they become available. Plans are already afoot for 16 channels of compression/limiting/noise gating that can be patched anywhere in the signal chain, or used as a stand-alone processor.

 Malcolm Toft Associates Ltd, The Old Farmhouse, Ash Hill Road, Ash, Hants GU12 6AD.
 O1252 318700.
 O1252 345704.

F 01252 345546.

If you want to look at equipment we'll send you some brochures...

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If you'd prefer to **listen** and evaluate a wide range of products by strict A/B comparison there is currently only one option.

Turnkey's revamped and enlarged demo

facilities feature what we believe to be the world's largest digital comparator systems for pro audio* and the only one of its type in the U.K.

Over 70 effects processors are available for instantaneous A/B via relay switching, eliminating the repatching time which makes good comparisons so difficult. 16 pairs of studio monitors, 10 power amps, 16 mixing consoles and around 30 sources and recorders from DATs, CDs, HDRs and Multitracks are on the same matrix so you can instantly configure complete systems.

Take 8 bus consoles - hundreds are bought each year on recommendation. Bearing in mind the sums involved it's hard to believe that the opportunity to properly compare the various brands for EQ and noise has not previously been offered.

We've taken the same innovative approach to demonstrating all our products from CD Rom samples to analog synthesizers.

Most dealers will tell you which products best suit your needs. Only one can show you.



One side of the switcher-equipped recording room.



Compare 6 mics. by recording simultaneously to ADAT.



o-Tools III and Soundcraft DC2020 in Studio



Huge range across Mac, PC and Acorn platforms.

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The leading manufacturer of this equipment tells us that the Turnkey systems are the largest ever supplied worldwide.

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- Pristine audio quality throughout
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- **Comprehensive MIDI muting** MMC, jog/shuttle, track arming and synchronization built-in
- 16, 24, 32 channel versions
- Up to 120 inputs at mixdown

STOP PRESS

New even cheaper 24 and 32 channel 'LE' versions now available without MIDI inputting and Machine Control.

musicians make and record music. Record advances used to pay for studio time, but now its for an artist's home studio utilising digital 8 track and a compact

The Ghost, though, is more than a project console; you only have to look at the features to see this. Soundcraft continues to break new ground in analogue console manufacture bringing fully professional facilities: 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. In fact the only comparison with a project console you could

make is the price, which starts from £3,500. Call now to reserve yours, or to arrange a demonstration.





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Yamaha 02R

4 band parametric

eg and dynamics for

every input and 2

comprehensive onboard fx processors

with a range of reverbs.

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The fully digital 40 input 8 bus console

with total automation and moving faders.

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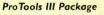
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New ProTools III software options

PowerMix[™] allows you to use the ProTools software on your

PowerPC with no additional hardware or with an AudioMedia II and Session 8 system.



- 7100/80 8/350 c/w keyboard
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Audio Media III A new PCI card giving



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ProTools Project



an affordable price the Pro Tools software and Project Audio Card gives 8 tracks of simultaneous record/playback and



ProTools functionality at

either analogue or digital ila



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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 h

Red

Although Waldorf are not associated with Focusrite in any way, we cannot deny that this Wave is red

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Waldorf Wave

We now offer a new custom range of Wave synthesizers with 76-note keyboards in four colour options - standard

blue, red (as shown), Sahara and black. Totally unique sound.

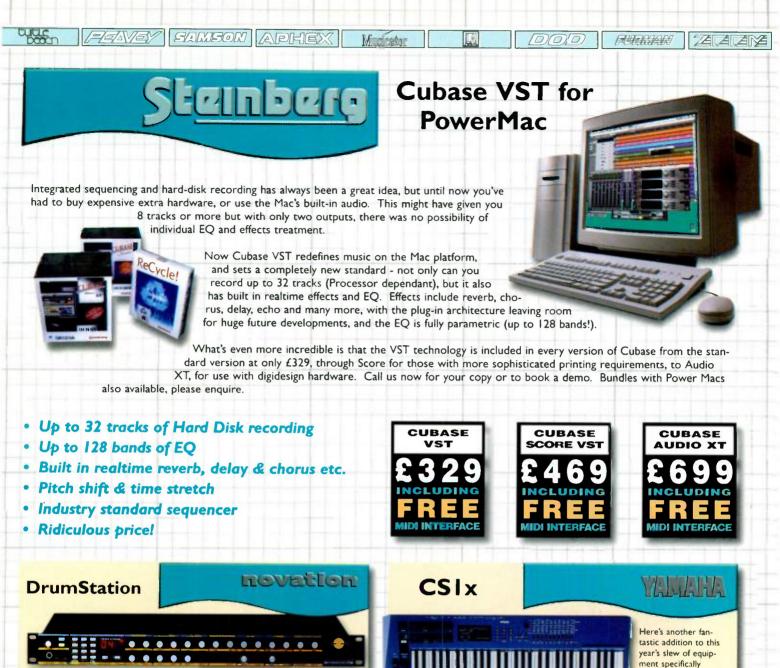


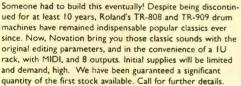
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Supports the full









Reno Portable CD-Rom Drive

WIDIAVISION

Are you making full use of your sampler? There are now a huge range of CD ROM discs stacked full of library available for virtually any sampler on the market. Each disc can hold up to 650 meg (the equivalent of about 500 HD floppies) and what's more, all the patch data has already been programmed!

The Reno CD ROM drive works with nearly all samplers (please check compatibility when ordering) as well as Mac and PC. Most CD ROM drives can play autio CD's but convince concerning of a computer set of the same set of the

play audio CD's, but require special software on a computer to do so. The Reno though has integral buttons for playback and track search etc, and can even be run off batteries for use as a portable CD player (headphones included). We have managed to secure a guantity of these at a huge discount - order now while stocks last!



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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!

the CS1x also has 128 special performance sounds especially

sounds great too! As well as 480 XG format voices and 11 different drum kits.



designed for dance music. Not only

does it look great, it



In the production of modern valve audio equipment, the success of TLA equipment has been unrivalled, from the best selling compressor (shown here), to the full blown valve mixer. For those of you who don't quite need

the full functionality of the existing range, the new 1U high Indigo range has been designed specifically for your needs. Superb warm and fat valve signal processors at an affordable price. Models include a compressor, EQ, mic amp and overdrive unit. Entire range on demo at Turnkey for direct A/B comparison.



the all in one EC monitoring solution

Stadiomaciae Treatmotors

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26



ALIBSIS

Shalmorater

- Metal dome speakers
- Active bi-amplified design
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- Superb freauency response

A recent addition to the range, the 1092A active subwoofer turns any of the smaller Genelecs into a full-range monitoring system, with frequency response down to 35Hz.

Genelec has become the leading name in Studio Monitoring, and wth good reason. Their packaging of speaker, amp and crossover in one box not only makes them affordable, but means



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that all the components are perfectly matched, to make efficient and fabulous sounding monitors.

At Turnkey (one of only a handful of deaers nationwide) we have all the range that would fit in to our studio on permanent demonstration (and in stock!) and demos of larger pairs are easily arranged. Audition some Genelecs today and we guarantee you'll be impressed - why compromise on monitoring?





Roland

VS880 Digital

BUNDLE

BUNDLE

2149





PROland



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. Check one out today!



Norkstation BUNDLE PRICE It's an 8 track recorder (each with an additional 8 virtual tracks) and a 14ch digital

mixer complete with automation. An additional fx board can be added for

under £350 giving RSS and SE70 type effects. The VS880 supports an internal IDE but we recommend an external SCSI drive for better performance and value.

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

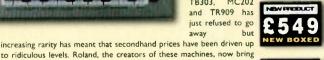
dance music solution, and believe us, it sounds the business! Initial

supplies will be very limited, order now to avoid disappointment!

Roland

MC303 Groovebox

The enduring popularity of the TB303, MC202 and TR909 has just refused to go away increasing rarity has meant that secondhand prices have been driven up



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FOSIEX

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DEDSS

If 8 tracks aren't enough for you - don't worry ! Multiple D80's can be linked together to provide as many tracks as you want, and they can even be slaved to a DMT8 to expand an existing system !

modular hard disk recording comes of age

Carafio-technica

The DMT8 has revolutionised the 8 track recording market, providing an all in one solution to hard disk recording. Now the introduction of the D80 shows that Fostex have only just started!

Bange!!!

The D80 is a 3U rackmount unit, with 8 individual inouts and outputs, a removable front panel which doubles as a remote and meterbridge, and a removable 850 meg hard drive. It slaves to

- SUNNOULUNER

Midi Machine Control, as well as being able to act as a master, all with no track loss, and has SPDIF digital ins and outs to allow backup to a standard DAT machine and direct digital recording. Easy to use editing allows cut, copy and repeat pasting across multiple tracks. Surely this is the replacement for 8 track tape machines that everyone has been waiting for !

- 8 separate analogue inputs and outputs
- SPDIF digital I/O for back-up and digital recording
- Up to 40 minutes of full 8 track recording
- Multiple units can be linked for unlimited tracks
- Uses removable caddy IDE drives



Fostex CX8 New High Speed ADAT

The CX8 is built for Fostex by Alesis and is basically exactly the same machine as the new high speed ADAT XT. The only differences are the colour and the D-Sub (rather than EDAC) connector on the rear panel.

The new design features a die-cast chassis and as completely redesigned transport, which rewinds and fast-forwards four times as quickly as the old machines. Also BRC style editing can be performed from the front panel with two machines.

Turnkey are the exclusive U.K. suppliers of this machine, and are therefore able to bring it to you at an unbeatable price.

Why pay more?

- Totally interchangeable with ADAT XT
- New 4 times speed transport design

174

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ES Sound Modules Keyboards ROLAND £1,800 OFF !

Musicator



EXCLUSIVE DEAL OF THE YEAR 11 Whilst we've always been well known for bringing you asclusive deals at knock-down prices, this is definitely the deal of the year!

Without doubt the most powerful commercially available synthesizers ever made, the Yamaha VL series have brought the first major breakthrough in synthesis technology since the advent of FM. Not only dtabbut Yamaha's implementation of Physical Modelling zives the most breachtsahagh realises a costate immutations vehilable as well as functualing powerful lead and bass synth sound?

as were as inductival powerni insu and uses yrinn tooling hyrical modelling takes a complexity offlerent sporach to sound reproduction than any premious method. Ruber than begin with interable samples or a timple oscillator, entremely powerhil DSP chips timulate in real time distancestrictics of real instruments such as tubalisting length, damping, absorbtion, lip/bow pressure, threat characteristics cognizing and many others. Once the basic (0 r not so basic 1) cound has been created, is can then be passed through a powerkill moletimode filter section with resonance, harmonic enhancer, impulse expander, resonance, harmonic enhancer, impulse expander, resonance and field parametric EQ with key-scaling abilities.

Finally, a 32 bit effects section based on Yamaha's top of the line SPR1000 unit provides up to 3 simultaneous effects processors.capable of flanging, pitch-shifting, neverb, delay, distortion etc.

If acoustic simulations aren't your thing, then imagine the virtually limitless patents of synthesis sounds the VL series can produce. In fact we have commissioned top programmers as Yamaha's RAD department to produce a "Dance and Techno" isound serv which wirk giving away with the units (these load via the built-in 3.5" disk drive).

The VL-Im is a 3U 19' rackmount UNE to doubte the VL7 is a monophonic. The VL7 is a monophonic, to craw keyboard with velocity and afterouch sensitivity, and const solutide the breath controller and expression peaks

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Bers selling & track portaan. brooght to you at term better Jurnikey features Band QC, separate can mit, du EGD insert-points, dib' noise reduction, metri-points, dib's noise reduction, metri-points,

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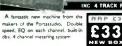
turnkey 0

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The MicroPiano is the most highly on the market, featuring Kurzweil true stere samples - 32 note pol suffer from note-stealing and the keyboard sounds and strings make situations. Built in effects include very high quality reverb me there's no need to the up anoth effects unit. Strictly limit quantities at this price mean th topcks won't skat long. Order too	y regarded piano module I's breathtakingty realistic yphony means you won't we wide range of other is it useful in many other ing RRP 2550 her er example a state of the state of the state of the state of the state wide range of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state o	Based o much m timbral polypho Having really convert 1080 sy palette built-in
- you won't be disappointed ! NOVATION BAS	NEW BOXED	value f with Musical pan, re individu units, g
If you need to get into analog synt Bass Station rack or kieyboard its mere toy! Two oscillators, pulse LFO's and knobs that send our HII information make this a versait sound creation tool, capable of wide range of bass sounds ar effects. The Ideal addition to a HIDI serup!	ths on a budget, then the for you. But this is no a width modulation, two DI FROM ONLY and	The W includir multi-ti up to 4 etc unique

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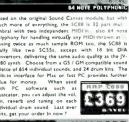
NEW, USED & EX DEMO Fostex 3805 Fostex DHT8 Fostex XR3 Fostex XR5 Fostex XR7 Roland V5880 Roland V58F1 Tascam 424 Tascam 424HK2 £.499 Tascam 484 £.699 Tascam 488HK1 £.995 Tascam 488HK1 £.995 Tascam 400HK2 £.199 Tascam PORTAD7 £.249 Yamaha MTS0 £.279 Yamaha MTBX £.799





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£339





ng resi 16 timbrality and 6 minutes 64 different waves, concerning bass, a sound ⁶ Also availab totally SPECIA basis, please enquire-ve tried this, you won't w £1199 go back



programming complexity that anything else in its range. Add to the the fact that editing any parameter sends out a MIDI controller and yo have a fantastic all round performe. NEW PRODUCT 2599 parand you performer

BOSS **DR 660** THE BEST EVER OR. RHYTHM

THE BEST EVER OR. NAYTMA BOSS have been smalling Dr. Rhyther drum machines since the arty subject. combining value for money and esse-dition of the success of the DR-350 Mt2, but offers 16 bit velocity and therecould sensitive paid. 4 separate outs (unheard-of at this proce), and 255 drum tounds including the best of TR805 1909. The 660 site boasts the human feet control first bitzdouced on the R8 witch allows velocity to control a real-time crosside between itserfal waveforms (for example, whereabouts the tymbia) are main ditable, witch hindwidual effectuate control for each drum tound.





There's no doubt that the Ober-heim Marca 1000 and Vialdor MicroWare deliver poverful availog sounds. However, when it comes to programming your own sounds, top producers have tended to go for older synth lake the Mismoog and Super lippiter, because their knobs and silders make for asy creation of new sounds. The Access porgrammer gives you the best of both worlds - now you can fredy apperment with your models analog synth using the tame indiver analog synth using the tame indiver front pavel and bester sild. reacts porgrammer every reveak of a parameter into your sequencer.



MATRIX 1000 EXCLUSIVE Now almost 10 years old, and still sounding as fresh as the day it was released. The Martin 1000 it estentibily a Matrin-6 in a rack - 6 note polyphomic. 2 oscializors par-vorce, true analog VCF fitters with 8 mode. Matrix N° modulation with 20 sources and 32 destinations, raw gutty analog sounds. Why 1000? The 1000 primets were generated by Matrix6 owners worldwide in reponse to a competition to find the bast analog sounds on the planet. You're sure to find the perfect patch analog sounds to create a true moniter! Fully editable withDIM.ac, Crop Atarl editor (available for only (49)

£369

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Pandora Korg

Guitar Multi-effects Processor

PAUL WHITE nervously opens Pandora's box — and realises that instead of being the mythical source of demons and sorrows, it's just Korg's new compact guitar multi-effects processor...

andora is a very simple multieffects unit aimed primarily at the guitarist who does a spot of home recording. Perhaps her most outstanding feature is her size, which is akin to a modest TV remote control. Powered either by twin AA cells (around eight hours operation) or an optional AC adaptor, Pandora is unusually styled with no printed legend whatsoever other than the

TOPIE WORKS

Korg Toneworks logo. The nine front panel buttons are embossed with relevant icons, and a tiny custom LCD display shows you which effects are active, what patch is currently in use, and in edit mode, what the parameter values and options are.

INSIDE THE BOX

Pandora has just 20 memory locations, all of which are filled with factory patches, and all of which may be overwritten or edited. There are 60 effect variations from which to choose, usually with just one editable parameter. Up to four effects, plus noise reduction, can be chained within a patch, and to make home practice more fun, an onboard tuner and metronome are included. A stereo mini-jack aux input lets

you mix a backing track with your playing for practice, and there's a bypass button at the end of the case.

The mono input is a high-impedance, quarter-inch jack, making it suitable for guitar, or the effects send of a multitracker or mixer. There's no input gain control, though, so you have to get your level right at source. The output is a stereo, quarterinch jack for use with headphones or as a stereo feed to a mixer. A Walkman-style slide switch on the side of the case selects Off, Play or Edit mode, and the front panel buttons allow you to step through the effect types and adjust the parameters.

In Edit mode, eight 'blocks' are visible on the display: Drive, Tone, Mod, Amb (short for Ambience), Level, NR (noise reduction), Rename, and a symbol which stands for the Cabinet Resonator (see below). The currently selected block blinks, and the effect type currently used by that

block is shown in the centre of the screen, with its numerical value directly below.

Drive provides a choice of 13 settings, ranging from clean compression through mild blues to downright nasty. This is followed by a simple 2-band EQ in the Tone section. Mod offers 24 possible processes including

chorus, flange, vibrato, pan, autowah and four variations of random, sample and hold filter-type effects. Amb is where you find delay, reverb and pitch-shifting, as well as some pitch-shift/delay combinations. Unfortunately, the reverbs and pitch effects take up a lot of processing power, so you can't use them at the same time as the modulation effects.

The Cabinet Resonator is a type of amp simulator circuit, and four different versions are on offer, including one very resonant, peaky variant. Each patch can be named with up to six characters, and each has an independent noise reduction setting and output level.

IN USE

Because there are so many different effects to choose from, Pandora's overall flexibility is rather more than you might imagine. It's probably fair to say, though, that the only

KORG PANDORA

PROS

- Very, very easy to use. • Surprisingly large range of effects.
- · Believable, if not entirely natural guitar sounds

CONS

- Very limited editing.
- · Using reverb or pitch shift precludes the use of the modulation section.

SUMMARY

Pandora is a 'no-trouble' box best suited to guitarists making home demos.

non-guitar playing users likely to choose Pandora are those who want to create guitar-like sounds from their lead synths. You can still use the reverb and modulation effects with keyboards, vocals, and so on, but if this is all you want to do, there are probably more cost-effective ways of spending your money.

I've played with a few effects units over the past few years and to me, this little monster sounds not unlike some of the simpler Zoom boxes. The guitar sounds are big and lively, but not entirely natural, while the modulation effects like to make their presence felt, rather than sitting demurely in the background. The impression is of a very 'produced' sound, which, to be fair, makes it very easy to create a patch that sounds as though it's come off a record. The mod effects and reverbs have a nice stereo spread to them. and the pitch-shifters are useable, albeit with the lumpiness that besets all but the most expensive pitch-shifters.

Ultimately, Pandora is designed for those players who don't want to spend time messing around with effects and who want to DI rather than mic an amp. It's easy to knock up a patch that's 'close enough', and for practice, the headphone outlet allows you to shred metal in the privacy of your own cranium. The only down side is that Pandora could end up down the back of the sofa with all those other remote control boxes! 505

FURTHER INFORMATION E £189 inc VAT. 🚺 Korg UK, 9 Newmarket Court, Kingston, Milton Keynes MK10 OAU. 01908 857100. 01908 857199.

BA



acking vocals without the dropped notes; without the Dtantrums: always in time (and always on time) and truly affordable - for musicians and bands of all levels. DigiTech have brought harmonisation a long way since

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Samson PL2404



4-Buss Line Mixer

Inquisitor-General PAUL WHITE puts Samson on the rack, but finds few guilty secrets.

amson's PL2404 line mixer features 12 stereo input channels, and is designed primarily for use with MIDI instruments that have stereo outputs. Up to 12 stereo instruments can be accommodated by this 4U rack mixer, each with the benefit of 3-band EQ and three aux sends, the first of which is a true stereo send fed from the two sides of the stereo channel. Channels 1 and 3 also have electronically balanced, XLR mic inputs which are accessible via the rear panel - a notion not too far removed from what Mackie did on their 3204 line mixer. The mic trim gain pots are also on the rear panel. Note that the mic inputs don't feature phantom power.

SAMSON PL2404 £549

PROS

- Attractively priced.
- Robust, compact design.
- Good sound quality.
- No annoying external PSU.

CONS

No phantom power on the mic inputs.

SUMMARY

A very straightforward keyboard mixer, ideal for studio submixing where the main mixer has run out of channels. Also suitable for live use. The PL2404 is a 4-buss console, and to keep things compact, the gain controls are all rotary, with the exception of the four group master faders. Routing buttons on each channel select busses 1,2 or 3,4, and if only the first buss pair is being used, the routing buttons double as mute switches. Buttons above the four group faders allow the groups to be independently switched into the stereo mix, for subgrouping purposes.

Though the PL2404 is physically small, it has a lot of very grown-up features, including electronic balancing on all the

main line inputs and main outputs. It also has four stereo aux returns, (wired as unbalanced pairs on TRS jacks). bringing the total number of usable inputs up to 32; each return may be independently routed to either buss pair. In addition to the four buss outputs, there's a main stereo output controlled by a rotary pot, and a control

room output with its own rotary gain control.

Looking at the channels a little more closely, the 3-band EQ is a fixed frequency design, offering up to 15dB of cut or boost at 80Hz and 10kHz, and 12dB of cut or boost at 1kHz. There is no EQ bypass, but the controls all have centre detents. The three aux send controls (one stereo and two mono) are directly below, and the unity gain position is marked at around the two o'clock position. A further 10dB of gain is available at the maximum setting. No master aux send controls are provided, so having effects units with input gain controls (which most do) is a good idea. Channels 1 to 4 (the first two stereo channels) are fitted with insert points, which may be useful when the mic inputs are in use, and the four

busses also have insert points.

In addition to the pan pot, gain pot and previously mentioned routing button, there's a PFL/AFL solo button. AFL or PFL operation can be selected by a switch in the master section; when AFL is selected, the channel signal is solo'd after the fader, so that whatever level is set by the fader is the level you hear. In PFL mode, the signal is solo'd pre-fader, which is the preferred mode when optimising input levels, or for checking the quality of signals that have not yet been brought into the mix. Operating the AFL/PFL buttons affects only the headphone output, not the main, control room or buss outputs.

The master section of this mixer is very simple, with no provision for connecting tape machines, and metering only for the main left/right outputs. Two LEDs in the meter window show the AFL/PFL status, and the headphone output, normally fed from the left/right output, has its own level control.

SUMMARY

In use, the PL2404 proved to be a very competent and quiet mixer, with an EQ section that's surprisingly musical when you consider the limitations inherent in a fixed frequency equaliser. As a straightforward



keyboard mixer it does its job perfectly, and though it hasn't managed to squeeze in as many channels as the similarly sized Mackie 3204, it is a cheaper option if you don't need the extra channels or the stereo tape facility. The only real flaw is the lack of phantom powering, not just for the benefit of those with nice capacitor microphones, but also for the powering of active DI boxes, which are often used as part of a keyboard setup.



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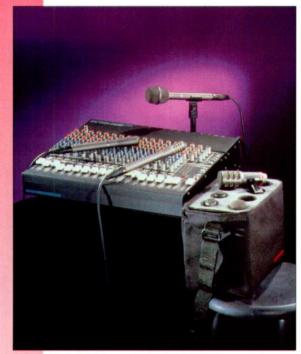
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Audio Technica Six-Pack

Studio Microphone Assortment

Just as Spinal Tap have amplifiers that go up to 11, Audio Technica have six-packs that go up to seven — as PAUL WHITE discovers after counting them twice!

f you have something good, put it in a pack of six and then market it — it works with beer, it works with cola, and now it's the turn of microphones. In Audio Technica's case, their 'six-pack' contains seven microphones, which is a



very positive start! What they've actually done is bundle four different models: the ATM10a, ATM33a, ATM31a (two of each), and a single ATM25. These come complete with standard clip and pouch accessories, plus a heavy-duty canvas bag to keep them all in.

SHUFFLING THE PACK

The ATM10a is an omni-pattern, backelectret microphone with a nominally flat response reaching 20kHz, augmented by a gentle presence rise from around 5 to 8kHz. It may be run from phantom power or from an AA battery, and is suitable for recording acoustic instruments, as a drum overhead, and for similar applications. This mic was reviewed in *SOS* January '96, and was shown to combine excellent value with good all-round performance and an open, detailed sound.

The ATM33a made its SOS debut in the same issue, and is a cardioid microphone of otherwise quite similar specification to the ATM10a. This model is particularly useful for recording acoustic guitars, cymbals and percussion in an environment where the more selective pattern of a cardioid microphone is preferable. Again, it scored very highly both on performance and value. Aimed more at vocal recording, the

ATM31A is another back-electret, cardioid model with the same narrow body as the previous two mics, but with the larger wind basket that you might expect from a vocal mic. Once again, it manages an impressive 30Hz to 20kHz response, and there's a slight presence rise centred at around 6kHz, with a second peak in the 12kHz region. This conspires to give the mic a subjectively natural, open sound with plenty of air and detail at the top end. Again, both battery and phantom power operation is catered for.

Finally comes the small but seriously chunky ATM25, a dynamic microphone designed for work with bass instruments, such as bass guitar amplifiers and kick drums, or on louder brass and woodwind instruments. This model has a hypercardioid pattern and a bass peak at around 80Hz, which is further augmented by the

proximity effect when the mic is used close to the sound source. The quoted response is from 30Hz to 15kHz, and there's a slight mid-range dip, followed by a gentle HF rise — which is a characteristic of several 'classic' kick drum models. Cosmetically, this model reminds me of a small Electrovoice RE20, and it is quite capable of withstanding the high SPLs found inside kick drums or in front of bass amp speakers.

PACK IT IN!

This is actually a very good value kit of microphones; even when priced individually, these models perform far better than their

AUDIO TECHNICA SIX-PACK £840

PROS

- Good value.
- Very good audio performance.
- Sensible range of mics.

CONS

Not too hot as a counting aid!

SUMMARY

An ideal pack of mics for the user wanting to equip a project studio without breaking the bank.

price might suggest. The idea of including three identical pairs in the package is a good one, because it gives you the chance to experiment with stereo recording or put similar mics on two singers or players. Similarly, providing two omni mics is very useful, as most people tend to stick to cardioids through instinct, which means they might never find out how natural and open omnis can sound in the right room. Omnis also make excellent drum overheads.

Providing a choice of battery or phantom power operation for the backelectret models frees users from the constraints of always using a desk with built-in phantom power, and taking the range as a whole, it should be possible to cover every eventuality --- from miking a drum kit to recording vocals and acoustic instruments. The ATM25 could also work well on electric guitar, but you'd need to compare it with something like the ATM33a to see which gives the best sound in your particular environment. As a rule, dynamic mics give more of a British rock guitar sound whereas capacitor mics are favoured by US engineers.

Ultimately, your recordings are only as good as your microphones, and your microphones are only as good as your credit card limit. With this well thought-out pack, you can get professional-sounding results for less outlay than most professionals pay for a single microphone.

FURTHER INFORMATION

- Studio Six-Pack £839.70. Mics can also be purchased individually, at the following prices: ATM10a £119.95; ATM31a £149.95; ATM33a £149.95; ATM25 £174.95. Prices include VAT.
- A Audio Technica, Technica House, Royal London Industrial Estate, Old Lane, Leeds LS11 8AG.
- 0113 277 1441.
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Dynaudio

BM5 & BM10 Nearfield Monitors

PAUL WHITE discovers that Dynaudio's new nearfield monitors show economy of scale, not performance.



ynaudio make loudpeaker drive units for the hi-fi and recording markets, but also have a strong reputation for their own monitoring systems. Until now, their monitors have been priced largely for the pro market, but their new range, of which the BM5 is the smallest, is far more affordable. From what I can see, this has been achieved by using a budget hi-fi style of cabinet construction, where a single sheet of laminated particle board is grooved by machine, and then wrapped around to form the cabinet sides. While this doesn't look quite so nice as a handcrafted cabinet, the sound quality doesn't appear to suffer.

LIVE AT THE SUPERDOME

The BM5 is a traditional, 2-way ported system with a woofer cone just a little over 5.25 inches in diameter (measured at the outside of the rolled surround). The cone is synthetic rather than paper, and sports the distinctive Dynaudio vented dust cap. Handling the top end is a 1-inch tweeter with a soft dome, driven via a neodymium magnetic motor; the dome is protected by means of a rigid wire basket. Considering the small physical size of the woofer, it has a very large (3-inch) voice coil. The speakers are magnetically screened so that they can be used near a computer or TV monitor.

The passive crossover acts at 2.5kHz, which puts it close to the vulnerable midfrequency band, but in practice, this doesn't seem to compromise speech reproduction to any significant extent. Chunky brass terminals in a rear panel recess are used to feed the speakers, and these can accept either bare wires or banana plugs, but there is no provision for bi-wiring. Bass porting is provided by a plastic moulded pipe with a nicely rounded front edge, and foam bungs are supplied to enable the user to damp down the bass response in bass-heavy rooms, or when the speakers are located closer to corners than might be ideal.

Measuring only 11"(H) x 8"(W) x 10"(D), these speakers obviously have a limited frequency response when compared with larger monitors, but they behave quite respectably down to 100Hz or so, before rolling away gracefully. The useful frequency response is quoted as being from 50Hz to 20kHz +/- 3dB, and the maximum quoted SPL is 102dB at around four feet with both speakers driven - adequate for most nearfield work. A power amplifier of between 75 watts and 100 watts per channel should suffice. However, the amplifier should be capable of working down to 3Ω , because most speakers drop below their rated impedance (in this case, 4Ω) at some point.

DYNAUDIO BM5 £493 BM10 £734

- · Detailed, well-balanced sound.
- Good bass extension, especially the BM10s. · Sensibly priced.

CONS

· Slightly flattering top end.

SUMMARY

Both the speakers reviewed would make excellent small studio monitors, though the more costly BM10s obviously have the edge.

THE DYNAUDIO BM10

With only a slightly larger cabinet size of 12"(H) x 9"(W) x 11"(D), the BM10 is a rear-ported design fitted with different drivers to the BM5. The 7-inch bass driver has a 5.5-inch diameter cone, and in this cabinet provides a greater impression of deep bass than you can get from the BM5s. A frequency response figure of -3dB at 50Hz is quoted, the same as for the BM5, but the usable bass appears to go well below this figure.



Comparative tests with the BM5 showed the 10s to have a similar family sound, and the main subjective difference was the more confident bass end — though I felt the top end was a tad smoother too. I could also get quite a bit more level out of them before they sounded as though they were struggling. The paper figure claims 114dB at the mix position, which I'm assuming is four feet away, as for the smaller model. Given that the size difference between the two models is so small, the BM10 would be the model to go for, if your budget can go the extra mile. These really are very good monitors, and not just for nearfield work.

DYNAMIC SOUND

When you take the price and size of these monitors into account, they turn in a very creditable performance. The bass is deeper than you might imagine, yet it doesn't sound woolly. In a small project studio, they stand up quite well as main monitors.

The top end is bright, detailed and quite open, but there is a slight high-frequency lift which makes the speakers sound just a hint forward. Even so, the sound is listenerfriendly, and not nearly so aggressive as many studio monitors. The stereo imaging is also good, with a wide acceptable listening area. It wouldn't take long to get used to these speakers, and I'd have no hesitation in mixing on them. Even at relatively high levels, the when you really push them to the limit that the bass end starts to sound as though it's losing its grip a touch. Definitely worth putting near the top of your shortlist. 505



FURTHER INFORMATION

E BM5 £493.50; BM10 £734. Prices are per pair and include VAT.

- Unity Audio Ltd, Upper Wheeler House, Colliers End, Herts SG11 1ET.
- 01920 822890.
- E 01920 822892.

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Mackie 1402VLZ

12-Channel Mic/Line Mixer

Prefer a Mackie compact mixer with faders? Then the 1402VLZ could be just what you're looking for. PAUL WHITE checks it out.

he 1402VLZ is a generalpurpose mixer suited to simple multitracking, 2- or 4-track live recording, PA or keyboard mixing. Unlike the 1202VLZ (reviewed in February's SOS), the 1402VLZ has faders for all input channels, Control Room output and the main mix. Featuring six



mic/line channels plus four stereo line channels and two stereo aux returns, the 1402VLZ has global phantom power, plus phono connections for a 2-track recorder. Each mic/line input has a switchable 75Hz, 18dB/octave low-cut filter, a gain Trim control and an insert point.

There are two aux sends, and Aux 1

SOCKET TO 'EM

The XLR mic inputs and TSR jack line inputs of the 1402VLZ are all electronically balanced, but the jacks may also be used with unbalanced leads. The aux returns will also accept balanced or unbalanced connections.

The Main and Alt output jacks are balanced, with the Main outputs being duplicated on both jacks and rearpanel XLRs. A mic/normal attenuator button allows the XLRs to be plugged into line-level gear, or into the mic inputs of larger mixers.

To obtain a direct channel output, plug in a mono jack. This will also mute the channel signal. To take a direct feed without muting the channel, plug a mono jack in half way, or make up a lead with a stereo jack where the tip and ring terminals are linked. For convenient connection to semi-pro and domestic recorders, the 2-track tape connections are phonos. may be switched pre- or post-fade via a master control. A fixed frequency, 3-band EQ operates at 12kHz, 2.5kHz and 80Hz, and as with Mackie's original 1604 mixer, the routing comprises Main/Alt switching, which sends the channel signal either to the Main stereo buss or to the Alt stereo buss. If you don't need the Alt outputs, the buttons function as mutes.

The 1402VLZ has an AFL/PFL solo system with flashing master solo LED, and when one or more channels are solo'd, they're heard in isolation over the Control Room/phones output, with their levels shown on the meters. A fader controls the channel gain. The pan and EQ knobs are

centre-detented, as are the aux send/returns, and the pan has a proper, constant volume law.

MASTER CONTROLS

Faders are provided for the main mix and phones/Control Room levels; Aux I master and the two aux returns have knobs. A single button switches Aux I for pre/post operation, and the Solo mode may be switched between AFL and PFL.

Please read this next part very carefully, as I will write it only once! When the 'EFX to Monitor' switch is up, the two aux returns feed the main stereo mix as normal, but when the switch is down, Aux return 2 feeds into Aux send 1, which allows effects to be added to the foldback without adding them to the main mix. The two Aux returns are also normalised, so if you only have a single effects unit, you can plug it into Aux return 1, and it will feed both the aux 1 and 2 returns. If you now switch on 'EFX to Monitor', Aux return 2 will act as an Aux send control for Aux return 1. If just thinking about this gives you a headache, you don't have to use it!

The Control Room/phones source may be any combination of the main mix, the Alt output or the tape return, while the 'Assign to Mix' button routes the tape return and the Alt 3-4 buss signal into the main mix. Two 12-section, LED bargraph meters follow the Control Room source selection, though pressing any Solo button takes priority. There is sufficient headroom for -10dBV and +4dBu operation, and like the 1202VLZ, the meter scale is such that

MACKIE 1402VLZ £549

PROS

- Fader gain control, 3-band EQ and 4-buss routing.
- Clean, tight sound.
- No external PSU.
- First class manual.

CONS

No level controls on Aux 2 or Alt outputs.
No master insert points.

SUMMARY

A well designed all-rounder with a good range of facilities for the price.

0VU = 0dBu rather than +4dBu. The benefit of this method is that you always know the true output level.

OPINIONS

Like all Mackie's smaller mixers, this model is particularly clean-sounding, with the benefits of a serious solo system, 4-buss routing and a decent EQ section. Surface-

BRIEF SPECIFICATION Frequency Response 20Hz to 60kHz (any input to any output) +OdB/-1dB THD @ 1kHz, (measured at +14dB) 0.0025% **Common Mode Rejection** better than (CMR) mic input to insert send -90dB Equivalent Input Noise (150_Ω) -129.5 dBu unweighted Dimensions 356 x 328 x 74mm Weight 4.5kg approx

mount technology has been employed to keep both the size and cost down, and those who were put off Mackie's 1202 or 1202VLZ by the lack of faders need have no such worries here. This type of mixer is no longer unique, but they're not all as stylishly or ergonomically presented as the Mackie 1402VLZ.



E £549 inc VAT.

- Key Audio Systems Ltd, Unit D, Chelford Court, Robjohns Road, Chelmsford CM1 3AG.
 01245 344001.
- F 01245 344001.

XP-80

The <u>new</u> Roland XP-80 music workstation.

With the same synth engine as the XP-50 and JV-1080 Super Synthesizer Module, but with an extended 76 note keyboard, the XP-80 makes the perfect creative writing tool. And the large 320 x 80 full-dot backlit LCD lets you see exactly what you're doing on the powerful MRC Pro sequencer.

Add 42 insert effects, an Arpeggiator synced to MIDI and two pairs of independent stereo outs and you're as self contained as you would wish to be.

Unless, of course, you don't wish to be. In which case the XP-80 is the perfect live instrument. It even has a dedicated 'click out' so your drummer can sync with your sequence.

The Roland XP-80, at home on stage or studiol

For further information on the Roland XP-80 Synthesizer contact: Roland (UK) Ltd, Atlantic Close, Swansea Enterprise Park, Swansea, West Glamorgan SA7 9FJ Tel (01792) 702701

Roland

Expandability...

Like the JV-1080 and XP-50, the XP-80 workstation has four expansion slots for use with any of the nine currently available SR-JV80 expansion boards.

The new SRJV80-09 "Session" Board, for xample, provides the best varsions of essential sounds



for the keyboard professional. The newly developed waveforms include "true stereo" superb grand piano samples, striking multi-sampled brass and string tones, and an assortment of vintage keyboard and contemporary sounds.

Even more, the 206 truly superior waveforms include patches ready to use with the JV-1080, XP-50 or the new XP-80 workstation.



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GUIDE TO BUYING AN EFFECTS PROCESSOR

What would modern Can you imagine to k without distortion? Ambient techno without delays? New age without reverb? Effects are second only in importance to the instruments needed to produce the music in the first place. Over the next nine pages, DEREK JOHNSON and Al

> he world's come a long way since putting a spot of reverb on a track meant getting in the builders to knock up a specially-tiled reverb room. These days, a box the size of a car radio can easily contain the echoing ambience of a cathedral, the intimate atmosphere of a smoky club, or the refined reflections of a concert chamber, plus any number of artificial spaces and outlandish treatments. The modern effects processor is a wonderful thing which most of us take completely for granted, with the power to make or break a recording.

The necessity of effects for the modern musician is reflected in the size of the effects market: there are almost 100 effects processors currently available new in the UK - and that's without counting the profusion of traditional guitar pedal effects such as fuzz and wah pedals. and the many specialist sound reinforcement delay processors available. The sheer number of units offering what appear to be similar facilities may prompt you to ponder on whether quantum mechanics might be a rather more straightforward leisure time activity. But if you keep a reasonably clear idea in your head of your intended purpose and the features you really must have, choosing the right effects processor shouldn't be any more difficult than cracking the Grand Unification Theory in your lunch break ... Just joking, honest.

MULTI-EFFECTS: CHECKING THE SPEC

A guide like the six-page one following this introductory article doesn't tell you everything about a piece of equipment. The facts given for each are simply to allow you to compare effects units across a range of facilities and prices — they can't give an idea of what a unit is like to work with, or how it sounds. It's up to you to check this out.

Let's take a look at the significance to you of the points we chose to highlight in our guide.

OLDIES BUT GOODIES: THE PICK OF THE SECOND-HAND MARKET

The fast turnover of the effects processor market means that there is plenty of choice when it comes to buying second-hand, and recently-discontinued models can often offer almost the same capabilities and sonic quality as the current generation — not surprising when some manufacturers seem to revamp their entire range every six to 12 months. A second-hand digital signal processor is also a good bet on the longevity front: since there are few moving parts, there is little, physically, to go wrong. We can honestly say that, apart from one burnt-out external power supply, we have never had experience

60

40



of a multi-effects processor going wrong. We may be exceptionally lucky, of course...

A quick look through SOS's free ads and dealer advertising reveals an excellent selection of good buys. A particular pair of favourites from the recent past are Boss's SE50 and SE70 — the latter has only recently been discontinued. Both are half-rack units, both feature a vocoder, and both can be used as two independent processors. The SE70 improves on the basic set of effects - compression, flanging, chorus, phaser, delays and reverbs — both in number and in quality. The vocoder is more comprehensive, there are monotracking bass and guitar synths and a vocal remover, and the noise figures have been much improved. Both units are deservedly popular and move quickly when they turn up second-hand, the SE50 for around £220-250 and the SE70 for under £400 (£399 new as a discontinued item from certain retailers).

Another favourite is Kawai's RV4. This unit offers four completely independent effects processors, either

internally linkable or accessible via their separate stereo inputs and outputs. The RV4 also has a pleasing sound and digital ins and outs, making it a good one to look out for. Though quite expensive on its initial release (around £800), the RV4 has been recently available at a number of dealers for something in the vicinity of £400, which is a bargain — but be warned that stocks are finally running rather low.

Other attractively-priced processors spotted in recent SOS Readers's Ads include the ancient Alesis Midifex for £50 (pretty elderly in terms of spec, but if you're on a small budget...); various units from ART, including a ProVerb 200 for £120 and Multiverb LTXs for £90-120; a Digitech DSP16 at £95 (not bad for a preset processor with128 reverb and delay programs, EQ, MIDI, and a 20Hz-16kHz frequency response), and a DSP256 at £180; a Peavey QFX 4x4 — a very capable unit which can be used as four independent processors and originally cost around £900 — for £290; and a Lexicon LXP1 for £220 — a costeffective way to get the Lexicon reverb sound.

Boss SE70.



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BUYING AN EFFECTS PROCESSOR

MAIN EFFECTS (AND VARIETY)

Lots of effect types obviously increases the versatility of your unit, especially if you don't intend to do much of your own programming. Exotic or unusual effects such as vocoding and sampling can give a unit an edge, and processes such as compression can help you to get more use from an expensive unit, especially if you do not have a dedicated studio compressor, for example.

MAXIMUM SIMULTANEOUS EFFECTS

How many effects you can use at the same time has implications for the depth and complexity of your effects treatments. However, if you're strictly a 'bread and butter' reverb/delay/chorus-type person, it isn't going to matter much to you if you can't use 25 effect types at once, and for some processors, limiting the number of effects available at one time allows them to concentrate all their resources on one or two killer treatments.

TRUE STEREO

If you have a processor that is not true stereo, but has stereo inputs, the signals going into the inputs are actually mixed into mono inside the effects unit before being processed. The processed signal, now treated with reverb, flanging and so on, may well *emerge* from the unit in stereo, but any stereo information in the original input signal (for example, the pan positions of the parts in a multitimbral setup from a stereo synth) will have been lost. You can hide this to an extent by using the effects processor's Mix control to mix a certain amount of the original 'dry' (untreated) stereo signal with the treated output, but you'll still have lost a certain amount of true stereo imaging.

This doesn't happen with true stereo effects processors, where a stereo input is treated in stereo all the way through the processor's circuitry. But since studio effects processors are usually patched into the auxiliary send loop of a mixing desk, and few of the affordable mixers on the market offer stereo aux sends (so the effects processor is only treating a mono input signal from the mixer's aux send anyway), true stereo processing may not be that important to you. It comes into its own, however, when patched in-line with a stereo source — the output of a synth, DAT machine or even a mixer, say — or with desks that feature stereo sends.

• MIDI

These days, the ability to change patches remotely over MIDI is pretty much expected. Having said that, certain units listed in the following guide lack MIDI altogether. Not surprisingly, the majority of these are floor-mounted, guitar-orientated devices, although a few of the simpler, low-cost rackmount processors also miss out on MIDI. It all comes down to what you're looking for, and what you want to pay — MIDI usually adds to the cost. If you're doing a lot of MIDI sequencing and would like to be able to change effects smoothly, frequently and automatically in the course of a song, or if you're a stage keyboard player who needs to easily change effects patches to go with each new number, MIDI patch changing would obviously be very useful.

As with synths, increasing numbers of MIDIequipped effects processors also offer the facility to control parameters such as reverb decay time, flange depth or delay feedback in real time, using MIDI continuous controllers. This facility allows you to record subtle or extreme changes of effects into a MIDI sequence for sophisticated effects automation. Some units offer just one or two assignable parameters, but others allow virtually all parameters to be controlled in some way over MIDI.

RESOLUTION OF CONVERTORS

Effects processor specifications usually tell you the 'resolution' of the unit's A/D (Analogue-to-Digital) and D/A (the reverse) converters, measured in 'bits'. A/D and D/A conversion is the process by which real-world audio is first converted into digital information, so it can be

EXTRA! READ ALL ABOUT IT...

Here's a few other features you might like to look out for when choosing your effects processor.

. MIDI SYSEX

42 -- 8 --

Many processors allow you to save your custom effects programs via a MIDI SysEx dump to a computer or MIDI data filer. If a unit has this capability, limited user memories needn't be a problem.

MULTIPLE PROCESSING

Units such as Ensoniq's DP/4+ and Digitech Studio 400 are designed so that it is possible to process more than one signal simultaneously with totally independent effects. In the case of the two units mentioned, up to four signals can be treated at once, but there's an increasing number of processors that

allow you to treat at least two signals at once. Such a facility obviously increases a processor's value for money quotient.

CUSTOM ALGORITHMS & EFFECT CHAINING

Most effects processors restrict you to their choice of effects in a pre-selected order. In recent years, however, a growing number of flexible units give the user the freedom to place effects in any order they like — to create custom effects algorithms from scratch. If you are frustrated by the lack of flexibility

Alesis Q2.

offered by fixed effect routing, hunt out a unit such as Digitech's Studio Quad or the Alesis Q2, which will let you put whatever effects you want wherever you want them in the effects chain — within the limits of the processing power on offer.

HEADPHONE SOCKET

A strange feature to point out, but some effects processors do not actually offer a headphone socket. It may seem obvious, but if your processor is so equipped, then it is always going to be easy to just plug in a guitar or keyboard, put on some headphones and jam with full effects, without having to turn on the whole studio.

• TYPE OF INS AND OUTS

Professionals will look out for professional connectors, such as balanced XLR connectors. While some affordable processors do feature balanced jack sockets, you generally have to climb a little higher up the price tree to get XLR connectors. Another option to look out for is digital connections: the Sony DPSV77 and Alesis

Q2, for example, are soequipped and can thus be easily interfaced with digital recorders and mixing desks, entirely in the digital domain.

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You asked for more power, so we developed the "G" Series. For years, amp designers have pursued Class "G" topology because of the increased efficiency you get from using multiple rails. Previously, these designs suffered from signal glitches, a form of crossover distortion, when the signal switches from rail to rail. Peavey's engineers figured out how to execute a "glitchless" Class "G" amplifier with less than 0.04% distortion at 20 kHz. This was remarkable enough that we were awarded U.S. Pat #5,387,876. 2x400 W @ 4 ohms, 2x600 W @ 2 ohms 40 V/usec slew rate

- Hum & Noise -100 dB below rated power
 Less than 0.030% thd +N 20 Hz to 20 kHz
 Plug in crossover island
- DDTTH speaker system protection
- 10 Hz to 50 kHz power bandwidth
- Damping factor greater than 200 @ 4 ohms 3 EIA rack spaces, 47 lbs.



- 2x600 W @ 4 ohms, 2x900W @ 2 ohms 40 V/ usec slew rate
- Less than 0.040% thd +N 20 Hz to 20 kHz
- Hum & Noise -100 dB below rated power
- Damping factor greater than 300 @ 8 ohms
- Power bandwidth 10 Hz to 40 kHz
- DDTTM speaker system protection
- Dual, two speed fans
- 2 EIA rack spaces, 35 lbs.



But, You Wanted To Pay Less...

You asked for amplifiers that cost less. The CS[®] Series amplifiers were already as cost-effective as we knew how to make them, so we developed the PVTM Series from a blank sheet of paper. We eliminated features that weren't widely used (PL Cans), and trimmed some heft from the heat sinks and transformers for less demanding applications. The result, a new standard in price performance for our customers to enjoy.

- 2x100 W @ 8 ohms 2x130 W @ 4 ohms
- Less than 0.10% thd +N
- Slew rate greater than 20V/usec
- Damping factor greater than 300 @ 8 ohms
- 2 EIA rack spaces, 21 lbs.
- DDTTM speaker system protection





- (£5.50 for Europe, £8.50 for the rest of the world). The order numbers are B315 for Effects and Processing, and B200 for **Recording and Production** Techniques A I
- Craig Anderton's article on buying an effects unit in the October 1994 issue of SOS gives some deeper information on exactly the features you might want to look out for before buying. And for even more info on effects and using them properly, see the following SOS articles:
- 'Effective Treatment: Using effects with keyboards', July 1994.
- 'Delaying Tactics', April 1994. · 'All About Reverb', September 1993.
- 'Recording Techniques Part 14: Effects', January 1991.

BUYING AN EFFECTS PROCESSOR

processed by digital equipment, and then converted back to analogue sound for the benefit of our ears. Sixteen-bit A/D and D/A converters are standard for digital effects these days, though you increasingly see 18- and even 20-bit. The Sony DPSV77 actually has 24-bit A/D converters.

Do these numbers really matter to you? For the average user, probably not. While there is almost to sound good, as the Ensoniq's DP/4+ aptly demonstrates: it's a highly-respected, finesounding processor which finds its way into many pro studios, and yet its sample rate is just 32kHz, which translates to a frequency response of around 15kHz. You might reasonably expect a unit with an upper limit of 15kHz to sound less bright and sparkly than one with a 20kHz upper limit;



Sony DPSV77.

certainly a perceptible difference between the sound quality and noise performance of 16-bit and 20-bit converters, when you're about to stick a hissy old synth through your effects unit, or use it to process a mix from a cassette multitracker, it's probably academic. Indeed, most people were quite happy with effects units with 12-bit converters when that was the affordable norm. If you're working in a more demanding audio environment, you're more likely to feel the benefit of processors with higher-resolution converters. Incidentally, when specifications talk about '24-bit internal processing', this really only affects the speed and efficiency with which processing inside the unit is carried out. You can expect a signal-to-noise ratio of around 90dB from a well-designed professional 26-bit machine. An older 12-bit unit, on the other hand, might just scrape a signal-tonoise ratio in the high 60s of dBs, and will also exhibit a higher level of quantisation distortion. A good 16-bit processor can achieve near-CD sound quality, but the amount of noise and distortion can vary depending on the quality of the converters used and on the circuit implementation in which they are used, which is why some 16-bit processors are notably noisier or dirtier-sounding than others.

SAMPLE RATE & FREQUENCY RESPONSE

Digital audio systems reduce sound to a series of 'snapshots' represented by a binary system of 1s and 0s - you can think of it as the audio equivalent of a cine projector, where successive still pictures create the illusion of movement. The more frames per second, the smoother the movement. In audio terms, the more samples taken per second, the higher the frequency response of the sampled audio. The number of samples taken per second is known as the sample rate, and

however, subjective sound perception is a strange thing, and units with seemingly less-than-ideal frequency responses have proved to be perennial favourites with musicians - Lexicon's classic PCM70 and the more modern Alex and Reflex (with an upper limit of just 15kHz), are three cases in point. The only answer with effects processors is to use your ears.

FACTORY PRESETS & USER MEMORIES

For most people, it's important for their multieffects processor to have lots of factory presets, since these have been programmed by professionals or by the designers of the unit, who are in a great position to know its full capabilities. The presets can give you promising starting points and set you off on tangents for your own programming, and good presets also give you new musical ideas. Nearly everyone who sits down with a new effects unit and their instrument of choice ends up with a handful of new tunes or riffs - so an effects unit can be as much a musical as a studio purchase. The importance of user memories is obvious if you want to experiment with sound creation, though some processors let you dump your custom programs over MIDI. However, the more user memories on board, the merrier. It may be too obvious to state here, but if the spec says 'none' for user memories, the chances are that you can't do too much to the treatments on offer - in other words, you're looking at a largely preset unit.

FOOTSWITCH CONTROL

The addition of footswitch control sockets on effects processors may seem like a throwback, but some onstage musicians (guitarists and keyboard players alike) prefer not to rely on MIDI on stage for the relatively simple tasks of stepping through patches and muting effects. Many



Ensonig DP/4.

measured in Hertz. To cover the entire 20kHz human hearing range, you need a sample rate in excess of 40kHz (hence the 44.1kHz sample rate used in CD manufacture). However, effects don't have to work over the full audio frequency range

processors also provide a volume pedal input (or two), allowing a volume pedal to be assigned to one of a choice of parameters, for a degree of real-time

control without the need for additional MIDI hardware. Even some floor-mounted guitar units which already have integral footswitches provide an extra input for an expression or volume pedal. Obviously, you should know if you need this. Happy hunting! ISOS



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SOUND ON SOUND

SOS's essential guide to all the effects devices currently on the market. By DEREK JOHNSON & DEBBIE POYSER.

NOTES TO THE GUIDE

• PRICE

Prices are all quoted inclusive of VAT.

TYPE

We've tried to indicate where we think each product is primarily aimed — for example, 'Multi' indicates a product designed for general and studio applications, while 'Guitar/Multi' indicates a multi-effects unit optimised for guitarists. Obviously this doesn't mean that you couldn't use a 'Multi' effects unit for processing your guitor, or a guitar-orientated processor on your synth or in the studio! Even floor-mounted units designated 'Guitar' can have other uses.

MAIN EFFECTS

While we have tried to list as

many effects per unit as possible, for reasons of space and clarity we have restricted the effects listing to types. For example, while most processors provide many different varieties of reverb and gated reverb, for the purposes of the guide these are counted as one effect type, 'R' (Reverb). Similarly, 'Di' (Distorion) covers the whole gamut of similar effects including Fuzz, Overdrive, and so on. In some cases, some effect types offered by a particular unit may not be mentioned.

• FOOTSWITCH CONTROL By footswitch control, we mean the provision of either simple on/off footswitch sockets and/or those for connecting volume or expression pedals. In some cases, an optional foot controller from the same manufacturer. • EFFECT ABBREVIATIONS AP = Auto Pan AS = Amp Simulator C = Chorus Com = Compression D = Delay Di = Distortion DS = De-Esser DT = Detune Du = Ducking En = Enhancer EQ = Equalisation Ex = Expander Fi = Filter(s) F = Flange Lim = Limiter Master = Digital Mastering processing

footswitch control is available via

NG = Noise Gate NR = Noise Reduction P = PhasePre = Preamo PS = Pitch Shift Res = Short for Resonator (peculiar to Lexicon processors) R = ReverbRM = Ring Modulation RS = Rotary Speaker S = Sampling SS = Speaker Simulator T = Tremolo V = Vibrato Voc = Vocoder VR = Vocal Remover W-Wah We tried very hard to obtain all the relevant facts for every processor in the guide. However, certain figures for some units

proved impossible to get hold of before going to print. This is indicated by 'Not avail.'. You will also see the term 'N/A' in some places in the guide. This indicates that the fact in question is just Not Applicable to that product — for example, it's not applicable to give a sample rate for a non-digital, valve processor.

Our thanks to the staff of the distributors of the products listed in the guide, without whose help it could not have been completed. Full distributor contoct details are given in the box on page 50. While the greatest care has been taken to ensure accuracy in the preparation of this guide, no responsibility can be accepted for any errors or omissions.

Alesis Microverb 3: Good sounding and easy to use, with plenty of presets but little user editing. Good first reverb, especially if you're not interested in programming.

Alesis Microverb 4: Staying true to the Microverb name with its ease of use, this unit is considerably more flexible than the 3, and ups the spec in several significant areas, not least programmability and user memories.

Alesis Midiverb 4: Quality staple effects coupled with a friendly operating system and informative graphic display make this a safe, value-for-money buy.

Alesis Nanoverb: As-yet-unheard miniature processor, although the spec promises great things at a low price.

Alesis Quadraverb 2: The Rolls-Royce of the Alesis range, again employing the Alesis graphic display for ease of use. You can freely chain up to eight effects blocks in any order, allowing flexible and creative programming. Also features a direct digital connection for the ADAT digital recorder. AMS RMX16: Venerable, ultra-high-quality reverb, as used by Phil Collins to achieve his trademark drum sound. Only rich professionals or working studios need apply... A further 90 user settings can be stored on a separate remote control unit.

AMS SDMX: Pro-quality two-channel digital delay line with pitch shift (up to 26 seconds of delay available for a premium over the base price). Again, it's major-league stuff!

ART Acoustic: New dedicated acoustic guitar

ART DST4: Genuine tube guitar preamp, offering the sounds of vintage tube amps plus modern digital effects.

ART DST 80/80: Same as DST4 with an 80wpc stereo power amp, all in a 2U rack - very convenient. ART DRX 2100: Takes the ART Multiverb Alpha format for effects (see below), and adds a set of analogue dynamic processes such as compression, enhancement, EQ and noise gating.

ART Effects Network: Brand-new processor that claims to offer sound quality to match dedicated high-end reverbs or delays, with the option for multi-effects or dual-channel operation.

ART FXR II: Basic plug-in-and-play processor, majoring on ease of use and plenty of (non-editable) presets.

ART FXR Elite II: Takes the FXR formula, and adds MIDI real-time control, MIDI mapping, programmability and user memories.

ART MR1: Tiny, stripped-down mono reverb, fine as far as it goes — although the cost seems a little high when you consider what's on offer for a similar price from some other manufacturers.

ART Multiverb Alpha SE: Well-specified unit with bags of presets and lots of user memories, plus good performance MIDI features.

ART SGX Nightbass: No-holds-barred, everything-but-thekitchen-sink bass processing for the serious bassist.

ART SGX2000: As above, but optimised for guitarists.

ART Xtreme: Although effects such as delay, flanging and reverb are included, the real point of the Xtreme is distortion par excellence.

Boss GX700: Flexible multi-effects aimed squarely at the guitarist and using Roland's COSM technology to model a collection of vintage amp and speaker cab configurations.

Boss MEB: Traditional pedal board-style guitar multi-effects in a rugged package which also incorporates analogue distortion circuits from five famous Boss compact pedals.

Boss ME8B: An ME8 for bass players! The 'defretter' effect claims to turn any fretted bass into a fretless at the touch of a pedal.

Boss SX700: If the SX700 is to fill the shoes of Boss' legendary

SE70, it's going to have to be pretty good. Features such as 3D panning (using Roland's RSS technology) and a reverb borrowed from the more highly-priced Roland SRV330 are promising signs. Digitech GSP 2101: High-spec guitar multi-effects with genuine tube preamp and flexible effect chaining. Can be upgraded to double the DSP power with the PPC210 expansion card. Also available in an 'artist' version filled with presets programmed by famous guitarists.

Digitech RP6: Funky-looking bright blue guitar processor in traditional floor-mounting package; a cut-down version of the RP10, without MIDI.

Digitech RP10: Super-deluxe pedal-style guitar processor, with good MIDI spec — up to 10 real-time MIDI controllers per patch. Digitech RPM1: Real tube processor which emulates the vintage rotary/Leslie speaker sound; usable by both keyboard and guitar players.

Digitech Studio 400: High-quality studio multi-effects, featuring balanced XLR connectors and two S-DISC processors — that's double the processing power of a Studio Quad (see below).

Digitech Studio Quad: Has four completely independent inputs and outputs, giving the power of two true stereo processors or four independent mono processors, plus the usual array of quality Digitech effects.

Digitech Studio Twin: Digitech's S-DISC processing at the heart of an especially affordable, easy-to-use, true stereo studio unit.

Digitech Valve FX: Shiny, chrome-plated guitar rack processor, combining a preamp with real tube distortion and advanced digital effects — plus full MIDI implementation.

DOD 512: True stereo multi-effects for an exceedingly low price, though there's only two adjustable parameters for each effect or effect combination. However, the total of 480 presets should make up for this slight shortcoming!

DOD FX7: Well-priced, traditional floor-mounted guitar processor with digital effects, an analogue compressor, and distortion.

Manufacturer:	Alesis	Alesis	Alesis	Alesis	Alesis	AMS	AMS	ART	ART
Vodel	Microverts 3	Microverb 4	Midiverb 4	Nanoverb	Quadraverb 2	RMX16	S-DMX	Acoustic	DST4
Price	£199	£299	£ 399	around £160	£649	£5781	£6791	£349	£599
SOS Review		Mar 96	Feb 95	Not yet	Oct 94			-	SCH HINNE
Type	Revero/Dintay	Multi	Niuti	1 Aulti	Multi	Reverb	Digital Delay	Acoustic Guitar	Guitar/Mult/Preamp
Format.	1U rack	1U rack	1U raci	1/3 rack	1U rack	2U rack	2U raci	Floor/Pedal	1U rack
Main Effects	R,D	R,C.F,D,	R,D C,F,	R,C,D,RS,F	R,D,C,F,P,RS,	R,D	D,PS,S	EQ,D,F C,R,PS	DI,EQ,C,F,R,D,PS,DT
		PS, AP, RS	RS, PS, AP		PS,DT,RM,EQ,FI,T				
Simultaneous effects	1	3	3	3	8	1	2	3	3
True Storeo?	No	Yes	Yes	Yes	Yes	No	Yes	No	No
MID/ Patch Changes	No	Yes	Yes	No	Yes	No	No	No	Yel
MDI Param Control	No	res	Yes	No	Yes	No	Yes	No	No
Display	None	3-dg LED	Custom LCD	None	Custom LCD	Custom LED	4-dig LED	None	2-dig LED
Resolution	16-bit	18-bit	18-bit	18-bit	16-bit AD/18-bit DA	Proprietary	Proprietary	16-bit	16-bit
Sample Rate	31 25I H	48i Hz	48kHz	46 875kHz	48kHz	Variable	Variable	Not avail	Not avail
Frequency Response	20H -15 H	40Hz-20 H	20Hz 20kHz	20HL 20kHz	20Hz 20kHz	20Hz-18kHz	20Hz-18kHz	20Hz-16kHz	20Hz 20kHz
Presets Factory/User	256/nore	100/100	128/128	16/none	100/100	9/9 (see notes)	9 user	32/none	48 -d table
Footswitch Control	Yes	Yes	Ye,	No	Yes	No	No	No	Not wail
Inputs/Outputs	2/2	272	2.2	2/2	2/2 + digital	1/2	2/2	1/2	1/2
Distributor	Sound Tech	Sound Tech	Sound Tech	Sound Tech	Sound Tech	AMS Neve	AMS Neve	Key Audio	Key Audio

Manufacturer:	ART	ART	ART	ART	ART	ART	ART	ART
Model	DST 80/80	DRX 2100	Effects Network	FXR II	FXR Elite II	MR1	Multiverb Alpha SE	SGX Nightbass SE
Price	£899	£799	£399	£199	£349	£167	£679	£899
SOS Review	Not yet	Not yet	Not yet	FXR Jan 94	Not yet	Feb 95	Alpha Jan 92	
Туре	Guitar/ Julti/Amp	Guitar/Multi	Multi	Multi	Multi	Reverb	Multi	Bass/Multi
Format	2U rack	1U rack	1U rack	1U rack	1U rack	Mini module	1U rack	2U rack
Main Effects	D,EQ,C,F,	R.D.S.C.F.AP.T.P.	R.D. Others	D,R,F,C,	R,D,F,C,	R	R,D,C,F,	Com, Ex, Di, En, NG, EQ.
	R,D,PS,DT	PS,Com,En,NG,EQ	not an ail	T,AP	AP,T		P,S,PS,T	R.D.F.C.P.T.AP.PS.S
Simultaneous effects	Not avail	14	3	4	4	1	7	Not avail
True Stereo?	No	No	Yes	Yes	Yes	No	Not avail	No
MIDI Patch Change	Yes	Yes	Yes	No	Yes	No	Yes	Yes
VIDI Param Control:	No	Yes	Yers	No	Yes	No	Yes	Yes
Dirpia	2-dig LED	2x16 LC D/3-dig LED	2x16 LCD/2-dig LED	None	3 dig LED	None	2x16 LCD	2x16 LCD, 3-dig LED
Resolution	16-bit?	16-bit	16-bit	16-bit	16-bit	16-bit	16-bit	Not avail
Sample Rate	Not avail	Not avail	Not avail	Not avail	Not avail	Not avail	Not avail	Not avail
Frequency Response	Not avail	20Hz 20kHz	20Hz-20kHz	20Hz-20kHz	20Hz-20kHz	20Hz-20kHz	20Hz-20kHz	Not avail
Presets Factory/User	48, editable	443/200	100/100	255/none	255/255	16/none	404/200	200/430
Footswitch Control	Not a ail	Not avail	No	No	Yes	No	No	Yes
Inputs/Output	1/2	2/2	2/2	2/2	2/2	1/1	2/2	1/2
Distributor	Key Audio	Key Audio	Key Audio	Key Audio	Key Audio	Key Audio	Key Audio	Key Audio

Manufacturer:	ART	ART	Boss	Boss	Boss	Boss	Digitech	Digitech
Model	SGX2000	Xtrem	GX700	ME8	ME8B	SX700	GSP 2101	RP6
Price	£899	£200	£495	£359	£359	£469	£999	£299
SOS Review		-	June 96			Not yet		-
Туре	Guitar/Multi	Guitar	Guitar/Multi	Guitar	Bass	Multi	Guitar/Multi	Guitar
ormat	2U rack	Floor/Pedal	1U raci	Floor/Pedal	Floor/Pedai	1U rack	2U rack	Floor/pedal
Main Effects	Com, E. D., n. NG, EQ,	D.C.D.F.R	Pre,D,R,F,	Com, Di, EQ, PS, C, F, P	Com,EQ,D,C,PS,R,	R,D,C,F,PS,	DI,C,PS,F,T,	C,F,W,P,PS,D,R
	F, C. AP, T. P. R, D. S. PS		C DI PS	T.D.R.AS.W.RM.V	F En, PS, DI, W, RM, V	EQ, AP, Du	AP,P,D,R	SS,D.,EQ,Com
Simultaneous effects	Not avail	3	13	11	8	5	Variable	9
True Stereo?	No	No	No	No	No	Yes	No	No
MIDI Patch Change	Yes	No	Yes	No	No	Yes	Yes	No
IDI Par im Control	Yes	No	Yes	No	No	Yes	Yes	No
D o'aj	2x16LCD I dig LED	None	2×16 LCD	3-dig LED	3-dig LED	2x16 LCD	Custom LCD	3-dig LED
Resolution	Not a a l	16-bit	22-bit AD/18-bit DA	18-bit AD/20-bit DA	22-bit AD/18-bit DA	18-bit	not avail	16-b t
Sample Rate	Not wall	Not a ail	44 1kHz	44 1kHz	44 4kHz	44 1kHz	48kHz	40kHz
Frequency Response	Not avail	20Hz-16kHz	Not avail	Not avail	Not avail	12Hz-20kHz	20Hz-20kHz	20Hz-20kHz
Presets Factory/User	200/475	32/none	100/100	50/50	32/32	128/128	140/100	40/40 .
Footswitch Control	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Inputs/Outputs	1/2	1/2	1/2 + front panel in	1/2	1/2	2/2	1/2	1/2
Distributor	Key Audio	Key Audio	Roland UK	Roland UK	Roland UK	Roland UK	Arb ter	Arbiter

Manufacturer:	Digitech	Digitech	Digitech	Digitech	Digitech	Digitech	DOD	DOD
Vodel	RP10	RPM1	Studio 400	Studio Quad	Studio Twin	Valve FX	512	FX7
Price	£599	£549	£799	£499	£249	£699	£199	£199
SOS Reliew	-	i ot jet	Not yet	Feb 96	Not yet		-	
Туре	Guitar	Rotary Sim	Multi	Multi	Multi	Guitar/Multi	Multi	Guitar
ormat	Floor/pedal	1U rack	2U rack	1U rack	1U rack	1U rack	1U rack	Floor/pedal
Main Effects	DI,W,C,F,R,D,PS	R5,Doppler	Com,EQ,R,D,C,PS, P.F.DT,NR,AP,T	EQ,R,D,C,PS, P,F,DT,NR,AP,T	R,D,C,F,P,EQ,T	Di,EQ,R,P,F, D,C,PS,Com	R,D,C,F,PS, P,T,AP,NR	Com, DI, NG, EQ, D, R, C, F, P, T, DT, PS, W
Simultaneous effects	Not avail	Not and t	8	4	3	9	2	7
True Storeo	No	Yes	Yes	Yes	Yes	No	Yes	No
MIDI Patch Change	Yes	No	Yes	Yes	Yes	Yes	NA	No
MIDI Param Control	Yes	Nb	Yes	Yes	No	Yes	NA	No
Display	2x16 LC D/3 dig LED	None	Custom LCD	Custom LCD	2-dig LED	2×16 LCD/3-dig LED	NA	2-dig LED
Rino ution:	16 b t	N/A	18 bt AD/20-bit DA	18-bit	18-bit AD/20-bit DA	16-b t	16-bit	18-bt AD/16-bt DA
Simple Rit	40 H	N/A	44 11 Hz	44 1 Hz	46 875kHz	40kHz	44 1kHz	No avail
Frequency Response	20H 20 H	20Hz-20Hz	20Hz-20kHz	20Hz-20kHz	20Hz-20kHz	20Hz-20kHz	20Hz-16kHz	20Hz-16kHz
Presets Factory/User	128/128	None	100/100	100/100	99/99	128/128	480/0	30/30
Footsvitch Control	Ye,	Yes	Yes	Yes	No	Yes	NA	Yes
Inplut Output	1/2	2/3	4/4	4/4	2/2	1/2	2/2	1/2
Distributor	Arbiter	Arbiter	Arbiter	Arbiter	Arb ter	Arbiter	Arbiter	Arbiter

Effects Buyer's Guide

Further info

To obtain further information on the products listed in this guide, please contact the product distributors listed in the 'Contacts' box on page 50.



DOD G7: Basically, an FX7 in a rack.

Dynacord DLS223: Respected digital rotary speaker simulator, capable of producing very realistic rotary effects with much scope for user sound customisation — and the 46 editable parameters are all controliable over MIDI.

Dynacord DRP5: Dynacord are known for their high-quality reverb, and the DRP5 is currently the cheapest way of trying this out for yourself.

Dynacord DRP10: Cosmetic differences aside, this unit has a very similar spec to the DRP15, for £30 less. Strangely, the DRP10 offers more multi-effects and more memory locations.



Dynacord DRP15: In true Dynacord style, this unit's strength is its high-quality reverb, which is said by professionals to rival Lexicon's PCM70. The multi-effects programs add to the DRP15's flexibility

Ensonig DP/2: Half the power and all the quality and creativity of the acclaimed DP/4+ (see below). Ensonig DP/4+: Powerful and professional with imaginative presets and lots of flexibility. You get a lot of effects unit for your £1299. Can even be used as four independent effects processors.

Eventide DSP4000: Eventide's top-of-the-range 'ultra harmoniser'. This unit is undoubtedly at professional level, offering considerable flexibility and exceptional pitch-shifting facilities — up to eight simultaneous voices. There's even sampling, with a time compression function and the full gamut of digital ins and outs.

Eventide GTR4000: Guitar-specific version of the DSP4000, featuring foot pedal control, but no digital ins and outs or sampling (though both can be added as an upgrade).

Eventide H3000 D/SE: A pro studio staple unit that's too flexible to sum up in a single sentence! Although it's dizzyingly programmable, almost 600 factory presets provide plenty of options without even programming. One to buy when you get your advance!

Eventide H3000 D/SX: Eventide's entry-level 'ultra harmoniser', retaining all the quality and many of the features of the superdeluxe D/SE version.

Eventide H3500 DFX: Based on the successful H3000, the H3500 offers similar facilities to the D/SE and D/SX, with stereo sampling as standard.

Kog AX30B: Pedal board-style dedicated bass effects processor, with a novel pressure pad which gives expressive dynamic control over parameters such as pitch bend, pedal wah and chorus depth.

Korg AX30G: As AX30B, but with effects optimised for electric auitar.

Korg G1: Screaming red guitar effects with nine different distortion modes, plus a handful of other effects. Its true raison d'être is distortion, however.

Korg G2: Dedicated acoustic guitar effects processor.

Korg G3: If you can't quite stretch to Korg's AX30G, but like Korg's ToneWorks guitar effects, check out this cost-effective alternative.

Korg G4: This dedicated rotary speaker simulator has been acclaimed for its authentic sound and ease of use. It's also the cheapest Leslie simulator around — but lacks MIDI.

Korg Pandora: Ridiculously tiny silver box with space-age styling and more potential than you might think. Aimed at guitarists, but it's so cute that you're likely to want one even if you don't own a guitar

Lexicon Alex: The Alex was Lexicon's first foray into truly affordable reverb processing, and was pretty much universally acclaimed for its pleasing and distinctive reverb character. Still a good bet if you want that Lexicon sound for under £400, but less than £100 extra buys you the Reflex, which is rather more flexible and also has MIDI.

Lexicon Jam Man: This digital echo/sampler/loop recorder was designed as a quirky musical tool rather than a run-of-the-mill studio effects processor — almost a high-tech substitute for a tape loop. It can be great fun to play with and allows the creation of unusual musical effects and on-the-fly samples. Lexicon LXP15 MkII: Flexible multi-effects with the classic Lexicon sound; the next step down from the top-flight PCM80 in the Lexicon hierarchy.

Lexicon PCM80: Successor to the legendary PCM70, which was a studio standard for many years, this unit features many PCM70 favourite programmes plus new effects, which include dynamic spatialisation. Looks set to become another classic

Lexicon PCM90: Whereas the PCM80 is a descendant of technology introduced in the PCM70, the PCM90 is a development of the even more sophisticated 300 and 480L, and is seen by Lexicon as the ideal high-quality companion reverb processor for the multi-effects-laden PCM80

Lexicon Reflex: Probably the most versatile entry-level processor in the Lexicon range, with extra presets and user memories over the Alex, more adjustable parameters per effect and a full dynamic MIDI implementation.

Lexicon Vortex: Innovative device which allows morphing of one effect into another, for interesting and creative processing results. Too flexible and idiosyncratic to fully describe here — see the SOS review (in June '94) for more detail.

Lexicon 300L: Highly professional and versatile effects system with extensive digital and analogue interfacing capabilities. Comes complete with LARC remote controller, but is also available without it at a lower price (that version has an LCD display). If you've got the cash, they've got the power!

Lexicon 480L: Everything you'd expect from a £10,000+ professional processor and far too many facilities to go into here! The ultimate in pro studio effects.

Peavey Addverb III: Well-specified studio unit offering full user algorithm creation, good MIDI spec and up to eight simultaneous effects.

Peavey Bassfex: Dedicated rackmounting bass multi-effects. Peavey Deltafex: Keenly-priced processor with better specthan you'd expect, though there's no MIDI or user memories. Peavey Profex II: Guitar-optimised multi-effects with built-in preamp, good MIDI control capabilities and a RAM cartridge option to add 128 extra presets.

Manufacturer:	DOD	Dynacord	Dynacord	Dynacord	Dynacord	Ensoniq	Ensoniq
Model	G7	DLS223	DRP5	DRP10	DRP15	DP/2	DP/4+
Price	£229	£846	EPOA	£1133 88	£1169.13	£799	£1299
SOS Review		Apr 94	Oct 94		Feb 93	December 95	DP/4 Oct 92
Type	Guitar	Rotary Sim	Multi	Mult	Multi	Multi	Mult
Format.	1U rack	1U rack	1U rack	1U rack	1U rack	1U ra k	2U rack
Main Effects	Com, Di NG, EQ, C,	RS,Room,	R,C F,RS PS	R,D,PS,C,F,	R,D.PS,C,F,	R D,C,F,T,AP,V,PS,Di	R,D,D & AS,RS EQ C V AP F T
	F,P,T,DT,PS,D,R	EQ,Di		P,RS,DI,EQ	P,RS,DI,EQ	AS,EQ,Du,W,Voc,RS	P,PS.Com,En,DS,Du,Voc,VR,F
Simultaneous effects	7	1	2	6	6	8	12
True Stereo ¹	No	No	No	No	No	Yes	Yes
MIDI Patch Change	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MIDI Param Control	Not avail	Yes	Yes	Yes	Yes	Yes	Yes
Display	2x16 LCD	2-dig LED	2x16 LCD/2-dig LED	2x16 LCD/2-dig LED	2x16 LCD/3-dig LED	2x16 LCD/2-dig LED	2x16 LCD/2-dig LED
Resolution	16-bit	16-bit	16-bit	16-bit	16-bit	16-bit	16-bit
Sample Rate	Not avail	43 6kHz	43 6kHz	43.6kHz	43 6kHz	32kHz	32kHz
Frequency Response	20Hz-16kHz	20Hz-20kHz	20Hz-20kHz	20Hz-20kHz	20Hz-20kHz	2Hz-16kHz	2Hz-18kHz
Presets Factory/U er	30/30	15/3	80/20	240/259	100/128	300/300	200/200
Footswitch Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inputs/Outputs	1/2	2/2	2/2	2/2	2/2	2/2 + front panel in	4/4 + front panel in
D tr butor	Arbiter	Shuttlesound	Shuttlesound	Shuttlesound	Shuttle-ound	Sound Tech	Sound T-ch

Manufacturer:	Eventide	Eventide	Eventide	Eventide	Eventide	Korg	Korg	Korg
Model	DSP4000	GTR4000	H3000 D/SE	H3000 D/SX	H3500 D/FX	AX30B	AX30G	G1
Price	£4695	EPOA	£2697	£1992	£3700	£375	£375	£199
SOS Review.	+			-	-		Feb 95	14
Туре	Pro Multi	Guitar/Multi	Multi	Multi	Multi	Bass	Guitar	Guitar
Format	2U rack	2U rack	2U rack	2U rack	2U rack	Floor/Pedal	Floor/Pedal	Floor/Pedal
Main Effects	PS,D,R,EQ	PS,C,F,P,D,R,	PS,R,Voc,Com,	PS,R,D,Com,	PS,D,C,F,R,S,	Com, DI, EQ, C,	Com, DI, W, EQ, AS,	W,DI,EQ,
		EQ, DI, Com, AP	D,C,F,3D,AP	F,T,AP,C		F,D,R,NR	C,F,P,V,T,RM,PS,AP	D,SS,NR
Simultaneous effect	Variable	6	Variable	Variable	Variable	6	7	4
True Stereo?	Yes	Yes	Yes	Yes	Yes	No	No	No
MIDI Patch Change	Yes	Yes	Yes	Yes	Yes	No	No	No
MIDI Param Control	Yes	Yes	Yes	Yes	Yes	No	No	No
Display	Custom LCD	Custom LCD	2×40 LCD	2x40 LCD	2x40 LCD	2x16 LCD/1-dig LED	2x16 LDC/1-dig LED	1 dig LED
Resolution	18-bit	18-bit	16-bit	16-bit	16-bit	18-bit	18-bit	16-bit
Sample Rate:	Variable	Variable	44 1kHz	44.1kHz	44 1kHz	39 0625kHz	39.0625kHz	481 Hz
Frequency Response	5Hz-221 Hz	5Hz-22kHz	5Hz-20kHz	5Hz-20kHz	5Hz-20kHz	20Hz-19kH	20Hz-19kHz	20H -20 H
Preset: Factory/User	500/300	300/300	597/150	295/150	701/150	30/16	50/16	99
Footswitch Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inputs/Outputs	2/2 + digital	2/2	2/2	2/2	2/2	1/2	1/2	1/1
Distributor	ннв	ННВ	HHB	HHB	ННВ	Korg UK	Korg UK	Kara UK

Manufacturer:	Korg	Korg	Korg	Korg	Lexicon	Lexicon	Lexicon	Lexicon	Lexicon
Model	62	G3	G4	Pandora	Alex	Jam Man	LXP15 Mkli	PCM80	PCM90
Price	£299	£199	£299	£189	£389	£399	£979	£2114	£2589
SOS Review			Sept 94	June 96	May 93	Dec 93	May 95	Dec 94	May 96
Туре	Acoustic Guitar	Guitar	Rotary Sim	Guitar/Multi	Multi	Delay/loop sampler	Multi	Multi	Digital Reverb
Format	Floor/Pedal	Floor/Pedal	Floor/Pedal	Mini module	1U rack	1U rack	1U rack	1U rack	1U rack
Man Effects	Lim,EQ,En.C,D,	Com, DI, EQ,	RS	DI,C,F,P,T,AP,	R,D,F,C	D,S	D,R,PS,C,F,	R,D,C,F,EQ	R,Com
	R.Fi 12 str.sim	C,F,R,D,NR		W,FI,PS,D,R,SS			P, AP, V, EQ	AP, Res Spatial	Spatial EQ
Simultaneous effects	7	6	1	6	1	N/A	3	10	1
True Stereo?	No	No	Not avail	No	No	Yes	No	Yes	Yes.
MIDI Patch Change:	No	No	No	No	No	Yes	Yes	Yes	Yes
MIDI Param Control	No	No	No	No	No	Yes	Yes	Yes	Yes
Display:	None	None	None	Custom LCD	2-dig LED	2-dig LED	2 40 LCD	2×20 LCD	2x20100
Resolution:	16-bit	16-bit	16-bit	Not mail	16-b t	16 bit	16-bit	18-bit	18-tot
Sample Rate:	48kHz	481 H.	18kH	32kHz	31 25kHz	31.25kH	31 25kHz	44 1xHp48kH	44.1kHz/48kHz
Frequency Response	20H 20I H	20Hz-17 H	20H 20I H	40H -14 9kHz	20Hz-15kHz	20H 15kH	20H -15kH	10Hz-20kHz	10Hz-20EHz
Presets Factory/User	9/9	9/9	1 uter	20	16/16	N/A	128/128	200/50	250/100
Footswitch Control	Yes	Yes	Yes	No	Yes	YIS	Yas	Yes	Yes
Input /Outputs	1/1	1/2	2/2	1/2	2/2	2/2	2/2	2/2 + digital	2/2 + digital
Dr tributor	Korg UK	Korg UK	Korg UK	Korg UK	Stirling	Stirling	Stirling	Stirling	Stirling

Manufacturer:	Lexicon	Lexicon	Lexicon	Lexicon	Peavey	Peavey	Peavey	Peavey
Model	Reflex	Vortex	300L	480L	Addverb III	Bassfex	Deltafex	Profesil
Price	£469	£469	£5165	£10,569	£TBA	£499	£155	£499
SOS Relie v	Mar 95	Jun 94	-		Not yet		Not yet	
Туре	Multi	See notes	Pro Multi	Pro Multi	Multi	Bass	Multi	Guitar/Multi
Format	1U rack	1U rack	2U rack	3U rack	1U rack	1U rack	1U rack	1U rack
Main Effects	R,D,F,C,Res	RS, AP, C,	R,D,PS,EQ,Com,	R,S,Spat,Master,	DI, PS, NG, EQ, FI,	Com, DI, C, D, PS, R,	R,D,C,P,F	Com, Di, C, D, PS R
		D,V,F	F, AP, Master, Spat	Com, PS, EQ, D, C, F	En,AP,D,C,Com,R	EQ, FI, En, AP, SS, NG		EQ, FLEn, AP, SS, NG
Simultaneous effects	1	See notes	10	10	8	8	2	8
True Stereo?	No	Yes	Yes	Yes	Yes	No	No	No
MIDI Patch Change	Yes	No	Yes	Yes	Yes	Yes	No	Yes
MIDI Param Control	Yes	No	Yes	Yes	Yes	Yes	No	Yes
Display	2-dig LED	2-dig LED	None (LARC)	None (LARC)	1x16 LCD	2×20LCD	None	2x20LCD
Resolution	16-bit	16-bit	16-bit	18-bit	16-bit AD/18-bit DA	16-bit	16-bit	16-bit
Sample Rate	31 25kHz	31 25kHz	44 1kHz/48kHz	44 1kHz/48kHz	44 1kHz	44 11kHz	Not avail	44 1kHz
Frequency Response	20Hz-15kHz	29Hz-14kHz	10hz-21 SkHz	20Hz-20kHz	12Hz-20kHz	15Hz-19kHz	20Hz-11kHz	15Hz-19kHz
Presets Factory/User	16/128	32/32	200/50	165/50	128/128	128/128	16/none	128/128
Footswitch Control	Yes	Yes	No	No	Not avail	Yes	Yes	Yes
Input /Outputs	2/2	2/2	2/2 + digital	2/4 + digital	2/2	1/2	1/2	1/2
Distributor	Stirling	Stirling	Stirling	Stirling	Peavey	Peavey	Peavey	Pearey

SOUND ON SOUND

Peavey SDR 20/20+: Flexible, user-definable effects chaining. plus the option to blow all the processing power of the 20/20+ on a single killer 'ultra' effect. Competent studio workhorse Peavey Tubefex: Genuine tube guitar preamp with guality

digital effects and user algorithm creation. Peavey Valverb: This all-tube reverb and tremolo processor is unashamedly axe-orientated, right down to the shiny chrome facen ite

Roland GP100: The GP100's main focus is the modelling of a variety of viritage amp and speaker combinations using COSM technology, but a wide range of digital effects is also provided

Roland RSS10: Roland's RSS sound space 3D processing becomes more accessible, although at over £2000, it's still not cheap

Roland SDE330: Dedicated high-quality digital delay unit also includes Roland's 3D Spatial Similator sound localisation technology

Roland SDX330: Similar to the SDE330, except that the 3D processing is added to a dedicated modulation processor

Roland SRV330: Roland's 3D technology is here bolted onto a dedicated reverb that is capable of some excellent real and unreal room simulation, the 3D processing is subtle but effective

Sony DPSV77: Impressive-looking newcomer consolidates the best of the well-received but now-discontinued D7, R7, M7 and F7 single effects into a powerful multi-effects unit. Expect this to be good -- look out for an SOS review

Sony HRGP5: Cute half-rack dedicated guitar processor with lots of effects, lots at once, and good sound quality

Sony HRMP5: HRGP5's studio-orientated counterpart, offering similar spec but tailored for general recording applications

TC Electronic M2000 Wizard: Cut-down version of the frighteningly expandable M5000, below.

Same sound, less upgrade options!

TC Electronic M5000: This so-called 'digital audio mainframe is a professional, flexible, software-upgradable system intended by its Danish manufacturers to resist obsolescence. Essentially, it's a chassis capable of hosting a variety of cards to perform virtually any studio effects or processing function - including sampling and digital mastering dynamics

TC Electronic TC1210: Extremely long-lived genuine analogue modulation processor with proven design and popularity with professionals

TC Electronic TC2290: A perennial favourite with pro quitarists this high-quality digital delay offers chorusing and easy-to-use sampling with real-time looping

Viscount EFX10: Though this Italian manufacturer hasn't been a presence on the UK market for long, its products have been noted for their good price-to-performance ratio. A look at the EFX10's entry in the table opposite confirms impressive features for its modest £249 price, though we've yet to hear it. Viscount products are supplied in the UK by three separate distributors. Turnkey Systems, McCormack's Music, and ProMIDI BFP

Viscount EFX3000: Takes the Viscount name upmarket, with a price tag close to £1000 and a range of facilities to rival pro units from more established brands

Yamaha GW10: Solid basic guitar stomp-box type processor with built-in continuous foot controller.

Yamaha GW33: If you've £100 more to spare, the GW33 adds a larger control surface, extra footswitches and more simultaneous effects over the GW10 - but loses the continuous controller pedal

Yamaha GW50: Competent floor-mounted guitar effects unit is made notable, to say the least, by the inclusion of an autoaccompaniment section with 248 preset backing patterns! This could be attractive to the solo club guitar/vocalist

Yamaha Pro R3: Though this professional unit offers a few additional effects, its true purpose is full-on, high-quality reverb Yamaha REV100: At the other end of the scale from the Pro R3. the REV100 is an entry-level, cost-effective unit offering a small but usable selection of effects. Its true stereo nature is nice to see

Tel: 01908 857100.

Fax: 01908 857199

Tel: 0141 332 6644.

Fax: 0141 353 3095.

Tel: 0171 723 7221.

Fax: 0171 262 8215.

Tel: 01536 461234.

Fax: 01536 747222

Blackpool FY2 9AP.

Tel: 01253 345386.

Fax: 01253 406899

RAPER & WAYMAN.

Unit 3, Crusader Estate, 167

ProMIDI BFP.

MCMXCIX.

McCORMACK'S MUSIC,

9 Hatton Street, London NW8 8PR.

PEAVEY ELECTRONICS (UK),

Great Folds Road, Oakley Hay,

Caxton House, Caxton Avenue,

Corby, Northants NN18 9ET

at the price

Yamaha SPX990: Follows up the well-loved SPX90 with a very respectable feature set including 20-bit converters and balanced XLR connectors. One for the serious project or working studio Yamaha SPX1000: There doesn't seem that much to choose between this and the cheaper SPX990, especially given that the 990 has 20-bit converters and more factory and user presets. However, you do get one more simultaneous effect and Yamaha's Y2 digital interface for easy use with other Yamaha digital equipment.

Zoom 1010: Currently the cheapest way of getting into into the Zoom sound, this sub-£200 guitar unit is surprisingly wellendowed, allowing up to six effects at the same time, and has quite an imposing physical presentation.

Zoom 1202: Extremely simple, knob-driven reverb and modulation processor offers loads of presets with limited tweakability (though you can't save your edits) and true stereo operation. Good first general-purpose processor

Zoom 2020: £60 more than the price of the Zoom 1010 gives you a guitar pedal unit with slightly more sophisticated effects and ed ting, plus a stereo output and pitch-shifting

Zoom 3030: For a few more guid again (see above), you can have the 2020's guitar-processing facilities, plus one more simultaneous effect and a nice built-in expression pedal

Zoom 4040: If you're a guitarist looking for a unit with two builtin expression pedals (see 3030, above) and a MIDI Out for controlling external MIDI equipment, the 4040 can oblige

Zoom 9002 Pro: Zoom's tiny guitar strap-mounting processor format caused quite a stir on its release, not least because of an exciting and idiosyncratic sound. On the features front, you wouldn't believe they could fit it all into a unit this size

Zoom 9050: One of Zoom's two remaining general-purpose multi-effects processors, though it still has plenty for the guitarist. On the studio front, it's a good all-rounder, though true stereo would have been nice at this price.

Zoom 7010: Weird-looking but undoubtedly functional guitar processor with a built-in amp and amazing flip-up speaker for easy practising anywhere. Very portable

AMS NEVE.

Billington Road, Burnley, Lancs BB11 5ES. Tel: 01282 457011 Fax: 01282 39542

ARBITER GROUP,

Wilberforce Road. London NW9 6AX Tel: 0181 202 1199 Fax: 0181 202 7076.

HHB COMMUNICATIONS,

73-75 Scrubs Lane, London NW10 6QU Tel: 0181 962 5000. Fax: 0181 962 5050.

KEY AUDIO SYSTEMS,

Robjohns Road, Chelmsford, Essex CM1 3AG. Tel: 01245 344001

Fax: 01245 344002.

KORG UK,

9 Newmarket Court, Kingston, Milton Keynes MK10 0AU

Hermitage Road, Manor House, London N4 1LZ Tel: 0181 800 8288 33 Bath Street, Glasgow G2 1HT. Fax: 0181 809 1515.

ROLAND UK,

Atlantic Close, Swansea Enterprise Park, Swansea, West Glamorgan SA7 9FJ. Tel: 01792 702701. Fax: 01792 310248.

SHUTTLESOUND.

4 The Willows Centre, Wilow Lane, Mitcham, Surrey CR4 4NX. Tel: 0181 646 7114. Fax 0181 640 7583

SONY BROADCAST AND **PROFESSIONAL UK,**

The Heights, Brooklands, Weybridge, Surrey KT13 0XW. Tel: Information Centre 0990 331122 Fax: 0990 143480.

SOUND TECHNOLOGY,

Letchworth Point, Letchworth, Herts SG6 1ND Tel: 01462 480000 Fax: 01462 480800. STIRLING AUDIO,

Kimberley Road, London NW6 7SF Tel: 0171 624 6000. Fax: 0171 372 6370.

TURNKEY,

114-116 Charing Cross Road, London WC2H ODT. Tel: 0171 379 5148. Fax: 0171 379 0093

YAMAHA (UK),

Sherbourne Drive, Tilbrook, Milton Keynes MK7 8BL Tel: Product info line 01908 369269 Fax: 01908 368872

Manufacturer:	Peavey	Peavey	Peavey	Roland	Roland	Roland	Roland	Roland
Model	SDR 20/20+	Tubelles	Valerb	GP105	P\$510	SDE330	\$0X330	SRV330
Price	£18A	£859.95	£295	£799	£2109	£255	1709	£856
SOS Review	SDM 20/20 Apr 93			Not yet	Mar 96	Or1 93	1.1 94	Aug 93
Type:	Multi	Guitar/Multi	Guitar	Guitar/Multi	3D reverb	3D Delay	3D Enander	3D Reverb
Format	1U rack	1U rack	1U rack	1U rack	1U rack	1U rack	1U rack	1U rack
Main Effects	Com, C. D. AP, PS, R,	Pre,R,Di,D,T,En,AP,C	Pre,R,T	Pre,EQ,R,C,	R,D,Doppler	D,PS,EQ	C,RS,EQ,	REQ
	En FI,SS,DI,EQ,NG	NG PS TQ FI, Com 55		D,PS,RM			3D pan	
Simultaneous effects	8	7	2	Not avail.	N/A	MA	W/A	NA
True Stereo7	Yés	No	No	No	Yes	Yes	Yes	Yes
MICH Patch Change	Yes	res	No	Yes	Yes	Yes	Yes	Yes
MDI Param Control	Yes	res	No	Yes	Vel.	Yes	Yes	Yes
Display:	2=20 LCD	2.20100	None	2=16 LCD	2-dig LED	2-17 LCD/3-0 g LCD	2 17 LCD 3-d g LCD	2:17 LCDV3-dig LCD
Resolution	18-bit	Not avail	N/A	18-bit	Not avail	16-bit	15-bit	16-bit
Sample Rate	44.1kHz	44 11 Hz	N/A	44 1kH	Not avail	44.1kHz	44 1kHz	44.11Hz
Frequency Response!	12H-20KH	12Hz 20kH	20Hz-20kHz	20Hz 20kHz	Not avail.	20H7-20kHz	20HI-20kHz	0H-20 H
Presets: Factory/Liser	128/128	128/128	None	200/200	Next a all	100/200	100/200	300/100
Footswitch Control	No	YPS	Yes	Yes	Not avail.	Yes	Yes	Yes
Input/Outputs	2/2	1/2	1/3	1/2 + front panel in	2/2	2/2	2/2	2/2
Distributor	Peavey	Peavey	Pnavey	Roland UK	Roland UK	Roland UK	Roland UK	Roland UK

Manufacturer:	Sony	Sony	Sony	TC Electronic	TC Electronic	TC Electronic	TC Electronic	Viscount
Model	DPS V77	HRGP5	HRMP5	M2000	M5000	TC1210	TC 2290	EFX10
Price	£1404	£552	£552	£1639	from £2814	£1155	£2080	£249
SOS Review	Not yet	14	April 94	14				Not yet
Type:	Multi	GuitaoMulti	Multi	Multi	EX Maintrame	Spatial Enunder	Digital Delay	Mohi
Format:	1U rack	Half-rack	Half-rack	1U rack	2U rack	TU rack	2U rac	Half-rack module
Main Effects	R,D,Lint,Com,En,Fi,T.	Com, DI, EO, V.	EQ.D.F.P.V.T.NG	R PS D EQ DS P	A.C.P5.D (see notes)	Spatial EXC.F	DICFAPS	R.D.C.F.PS.W.
	AS W C F P AP PS V	En W.AS.C.F.P.	AP,R En D. Com	Com, Lm, NG, En			Com, E. NG	P.RS.VR.D. Com
	AM VDC, RS VR NG	T AP AM, PS D R	AS, PS, RM, W, VR					
Simultaneous effects	6	7	4	4	Vanable	2	4	7
True Stereo?	Ye	Not avail	Not avail	Yes	Ye	Yes	No	Yes
MIDI Patch Change	Yes	Yes	Yes	Yes	Yer	No	105	Yes
MID: Param Control	Yes	Yes	Yes	Yes	Yes	No	Ye	Yes
Display:	Custilin LCD	Custom LCD	Curtom LCD	Custom LCD	2140 LED 3-dig LED	None	4x2 + 1x4 d git UE5	2416LCD
Resolution	24-bit AD/20-bit DA	18-bit	18-n :	20-lai:	AC 10-02 CA 10-81	NJ/A	16-01	18-01
Sample Rate	45kHz	48kHz	48 H	44.1kHz	44.1 Hz/48 H:	N/A	Not avail.	44.18,982
Frequency Response	10Hz-22kHz	20Hz-22+Hz	20H -27KH	10H -201.H-	10H-22H	20H - 20H	20H-20 H	10Hz-204Hz
Prevets: Factory/User	198/198	100/100	100/100	250/250	100/100	None	20/79	22/106
Footswitch Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yin
Input /Outputs	2/2 + digital	2/2 + front panel in	2/2 + front panel in	2/2 + digital	see notes	2/2	1/2	2/2
Distributor	Some	Sony	Sony	Raper & Wayman	R&V/	R&V/	R&W	See notes

Manufacturer:	Viscount	Yamaha	Yamaha	Yamaha	Yamaha	Yamaha	Yamaha	Yamaha
Model.	EFX3000	GW/10	GW/33	GW50	Pro R3	REV100	SPX990	5PX1000
Price:	6999	£299	£399	£ 199	£1056	£265	£050	€1385
505 Reven	Not yet	Apr 94			Not	Jul 95	Sep 93	A LOUGH TOUGH
Type:	GuitantAulti	Guitar	Guitar	Guitar	Reverb/Multi	Reverb/Multi	Multi	Multi
Format:	2U rack	Floor/Pedal	Floor/Pedal	Floor/Pedal	2U rack	1U rack	1U rack	1U rack
Main Effects	Com Di, EQ, C, F, PS,	Di,Com,C,PS,	Com, DI, EQ, C.	Com, Di EQ,	R,D,C,F,P5,	R,D,F,C	R,D,F,C,P,PS,AP,	R.D.F.C.P.DI
	P.T.V.W.FI,RM,AP	W, EQ AS DING	AS, D, R NG, W,	C,PS,F,P,R,D	AP, Q,Com		EQ, Com, En, DI, S	TING PS SAP.
	R5,NR,D,R,D5,Lim		F.P.PS DT En					ComEnEQ
Simultaneous effects:	9	4	8	5	1 (see notes)	2	4	5
True Stereo?	Yes	No	No	No	Yes	Yes	Yes	Yes
MIDI Patch Change	Yes	No	No	Yes	Yes	Yes	Yes	Yes
MIDI Param Control	Yes	No	No	No	Yes	No	Yes	Yes
Display:	- Custom LCD	1 dia LED	2-dig LED	Custom LCD/2-dig LED	2x24 LCD/2-dig LED	2-dig LED	2x24 LCD/2-dig LED	2x16 LC D/2 dig LED
Resolution	18-bit	16 bit	16-bit	16-bit	20-bit	16-bit	20-bit	16-bit
Sample Rate	44.1kHz	Not avail	Not avail	Not avail	44.11 Hz	44 1kHz	44 1kHz	44 1kHz
Frequency Response	10Hz-20kHz	Not avail	Not avail	Not avail	20Hz 20LHz	20H -20I H	20H-20kHz	20Hz 20KHz
Presets: Factory/User	\$12, editable	20. editable	25/25	50/50	99/99	99, editable	80/100	40/59
Footswitch Control	Yes	No	Yes	Yes	No	No	Yes	Yes
Inputs/Dutputs	2/2 + front panel in	1/2	1/2	1.2	2/2	2/2	272	2/2 + digital
Distributor:	See notes	Yamaha	Yamaha	Yamaha.	Yamaha	Yamaha	Yamaha	Yamaha

Manufacturer:	Zoom	Zoom	Zoom	Zoom	Zoom	Zoom	Zoom	Zoom
Model	1010	1202	2020	-(?')	4040	9002 Pro	9050	7010
Price:	£169.95	£199.95	£229.95	£209.95	£349.95	1349 95	£532	1299.95
505 Review	5ep 95	Feb 95			40	Dec 90	Apr 94	-
Type:	Guitar	Multi	Guitar	Guitar	Guitar	Guitar	Multi	Guitar
Format:	Floor/Pedal	1U rack	Floor/Pedal	Floor/Pedal	Floor/Pedal	Paim-sized module	Hat rac module	Mini-module
Main Effects	Com BLEQ	R.D.C.F	Com, D., EQ, P, F,	Com EQ D .PS,	DLAS, EQ.W.	Com, DI, EQ. PS	Cam, Lim Di EQ 45	Com, Di, W, EQ, C,
	C,F,R,D,W	PS,T,NR	CT,V,PS,D,R	W,FP,C,T,APR	PS, F. P. T. C. D. R	PFC,D,R	P,F,C,W,T,PS,RS,D,R	F.T. RM. R.D. AS
Simultaneous effects	6	2	5	7	6	6	8	7
True Stereo7	No	Yes	No	No	No	No	No	No
Mill Patch Change	NO.	1.0	No	No	No	No	Yes	No
MIDI Param Control:	No	No	No	No	110	No	Yes.	No
Druplay	2-dig LED	None	2-dig LED	2-dig LED	2-dg LED	Custom LCD	2x20LCD	Costom LCD
Resolution	18-64	16-bit	16-bit	18-bit AD/16-bit DA	16-bit	16-bit	16-b t	18-bit
Sample Rate:	44.1kHz	44 11.42	44, tkHz	44.TkHz	44 1i Hz	44 1 Hz	44.1kHz	A5 1kHz
Frequency Response	40Hz-1-SkHz	40H2-14 H	-OH 1 -KHZ	40Hz-14kHz	40Hz-14kH	40Hz-14 Hz	40H=-14LH	40Hz-14kHz
Presets: Factory/User	30/12	512/None	20/20	28/28	40/40	+10/40	198, editable	40/24
Footswitch Control	705	Yes	Yes	Yes	Yes	Not avail	Yei	Yes
Inputs Outputs	1/1	2/2	1/2	1/2	1/2	1/2	1/2	172
Distributor	MCM	MCM	MCM	мсм	MCM	MCM	MCM	MOM

If computers belong in the studio, how come we spend half our time Gaffa-taping up the cracks? As a music technology trainer, PAUL D.LEHRMAN is something of a digital evangelist — but one who's suffering a crisis of faith...

Computers & Creativity

t's never without a wing, a prayer and a gulp of trepidation that I boot up my digital home studio. I get the same sense of dread when I answer the phone and one of my students is on the line. Something horrible has gone wrong, or is about to go wrong something that will take hours, if not days, to track down and fix, that will have me arguing with a round robin of customer support people, that will cause me to miss a deadline, or my students to blow a large part of the semester.

This dread doesn't come from any change in my medications, or the makeup of the current US Congress. It's a result of the fact that technical disasters of all kinds have dominated my life for the past 12 months. My entire studio was down for six weeks, and cost several thousand dollars to get running again. In the college courses I teach, students who are supposed to be mastering sequencers, synthesizers, patch editors, samplers, synchronisers and hard-disk systems, this year learned primarily about bugs, crashes, incompatibilities, trashed files, and how much hair their instructor can pull out in one session.

Oh, I'll be the first to argue that serious students of the recording arts need to learn this stuff: technical failure is part of the real world, and being prepared to deal with it will make them highly valuable to future employers. Only this year, the balance between the amount of time spent creating music and the time spent recovering from disasters shifted radically, so by the end of the semester, it felt as though very little *real* work had been done.

Talk to many people in the industry, and you'll get the same story: 'down time' in their studios has increased, while those intervals in which they can actually *do* anything are getting briefer and further apart. It's ironic: years ago, those of us who were struggling with primitive software and hardware were telling anyone who would listen that computers would someday save all of our audio dreams. Now that everyone has bought into that idea, and the entire music industry is totally dependent on computers to accomplish even the slightest task, those very computers are in danger of making it impossible to produce anything at all.

How did this happen? I see three general principles at work, which have recently achieved a kind of convergence: the 'infinite upgrade spiral';

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and outputs-(unbalanced). Separate CONTROL RODM OUTPUT (bal./unbal.). DIRECT DUTPUTS

(bal./unbal.) channels 1-8. SUBMASTER DUTPUTS (bal./unbal.).

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THE DIGITAL DREADZONE

 the 'we can't test everything' syndrome; and the 'we've got to be the first' mantra. For the people who design and sell the tools we use, these principles may represent lots of fun and profits, but to those of us who have to use them, they're poison.

INTO THE VORTEX

Here's how the first one works: You buy an upgrade for a piece of software — let's say a digital audio editor. You install it on your computer, only to find that in order to get it to run, you need a newer version of the computer's operating system. After you install that, you find that all of the customisations you've made to your computer over the past five years — the fax mailer, the network sharer, the email gatherer, the custom keys, the automatic backup — are no longer usable. You have to get new versions of all of them, and re-install and reconfigure them one at a time.

But the new editor, combined with the new custom stuff and the new operating system, use more memory than the old versions, so you've got to double your RAM. You shell out for the memory (which costs an order of magnitude more than the software upgrade), but then you discover that your computer doesn't see all of it, because when its ROM operating

system was designed, it had a RAM ceiling on it. Five years ago that ceiling was plenty high, but today it's pathetic. Looking through the back pages of a hacker magazine, you find a small company in East Overshoe that will trade your computer logic board for a board from the next generation of computer. This will cost you only slightly more than what you just paid for the extra memory.

When the new board arrives, it has one less peripheral card slot than your old board, and suddenly you have to choose between running that nice large video monitor or using your digital audio system. But the choice has actually been made for you, because your old audio hardware, for which you just upgraded the software, doesn't work on the new computer, because in between models, the computer manufacturer subtly altered the clock rate of the peripheral bus just enough to make the audio card non-functional. For a reasonable fee equivalent to the sum total of what you've paid so far — you can upgrade your audio hardware. Now, of course, you'll need new software...

Believe it or not, with very little exaggeration, this is what I went through this year with my home studio. I now seem to have it all stabilised, but only just. I can't use the latest digital audio hardware, I have to turn off all of my customisations if I want to run digital audio with my sequencer, and my computer is a bizarre hybrid that no service centre will ever touch. I am now three versions behind the latest operating system, yet when a fleeting thought of upgrading enters my mind, I pour a large drink and head straight for bed.

SYNC'ING FOR SMPTELTONS

As for the second principle, a trial that my students underwent is a fine example of that: in class one day, a student attempted to play me his current project, which used MIDI and hard-disk audio sync'd to SMPTE-striped videotape. Whenever he started the tape anywhere other than the very beginning, the MIDI data wouldn't play smoothly, erupting instead in dense spurts, about a second apart. We eliminated sequencer tracks one by one, and eventually got the sequence to behave itself. We then rebuilt the sequence, using the parts we had cut, and everything seemed to be okay.

The next day, a different student called. He was having the same problem. Over the weekend two more called, and by the next week's meeting, the entire class's work had come to a standstill. We optimised the hard disk containing the audio files. We searched for viruses. We replaced the hard disk. We re-installed the sequencer. We reinstalled the system, and took everything out of the operating system we could. We called the sequencer manufacturer: obviously it was the fault of the accelerator card we had installed, which had been running fine for four years. We disconnected the accelerator: no change. We tried other SMPTE sources. We called the maker of the SMPTE-to-MIDI convertor: obviously it was a problem with the sequencer software. And round, and round, and round. For two more weeks, the students got no work done.

Finally, I removed the SMPTE-to-MIDI convertor (a model with '2' in its name) from the studio, and replaced it with an earlier model from the same maker. The problem disappeared, and has not come back. As I gaze at the river slowly running past the window of my office, I feel a warm glow knowing that the convertor with '2' in its name is now resting on its bottom.

ALL MOUTH AND NO SOFTWARE

The third principle can also be described as 'creeping featuritis'. In any rapidly-developing technology where several developers compete, this is a problem, but lately it's become ridiculous. I'll illustrate with one case I am particularly close to: Macintosh sequencer manufacturers are falling over themselves to make their products all things to all people, especially with regard to generating music notation and manipulating digital audio. The problem is that a lot of these features don't work very well, if at all. But following the dubious lead of Microsoft (whose innovative approach to marketing has got them a lot of attention from the Justice Department), manufacturers now announce new products and features 'defensively': they don't actually exist, but since the competition is already touting that they've got them, everyone feels they have to play catch-up, or risk losing customers. Unfortunately, this 'strategic vapourware' strategy often causes a company to

"Now when a fleeting thought of upgrading enters my mind, I pour a large drink and head straight for bed."



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THE DIGITAL DREADZONE

fall on its face: the announced feature turns out to be impossible to implement, or it's implemented so badly it's unusable, or it requires so much juryrigging of the software code that the program never works properly again.

COMPROMISING POSITIONS

Can we slow down 'progress' enough to make sense of it? Or have we reached that assymptotic point in music technology's development curve where the paths are running in parallel; where technological development has utterly overwhelmed our ability to deal with it? In the 'real' worlds of finance, education, law, and communications this has become one of the most pressing questions of the decade, so why should our little corner of the world be immune to it? We are fortunate, however, that our industry is still relatively small, and well interconnected. Perhaps by recognizing the problem now, and working together to solve it, we can avoid the kind of crisis others are facing.

One negative factor that we may not be able to do anything about is that we live in a world where our fate is largely dictated by the two computer giants: Microsoft and Apple. A decade ago, when models and operating systems evolved relatively slowly, it wasn't all that hard for developers to keep pace with the changes. In recent years, however, the rate of change has taken off exponentially, and no sooner is the development community comfortable with one platform than it's superseded by the next version.

Apple, in particular, has been guilty of this: its obsolescence timeline was once three years, but it has now shrunk to six months, with each new model not only requiring a new operating system but even new hardware specifications. As one disaffected Apple engineer put it, "they keep breaking the serial ports". With their software dependent on their hardware, and their hardware dependent on the whims of the computer companies' marketing departments (none of whom could give a fig about the music market), developers are not in a happy situation.



"Without co-operation, hundreds of killer technologies will be stranded on hundreds of desert islands." And of course, the more junk you add to a program, the more chances for something to break. So you end up with a program that doesn't quite work, and when whatever doesn't work now is fixed, something else won't quite work. The White Queen in *Alice Through the Looking Glass* knew this routine: "The rule is, jam yesterday, jam tomorrow, but never jam today!"

Even if the onslaught of new features manages to avoid technical catastrophe, software designers, in their mad dash to offer everything including the kitchen sink, lose sight of their original vision for the program. So instead of being an integrated set of tools for making music, the programs degenerate into a designed-by-committee catalogue of unrelated functions, leaving the hapless user to scratch his head over whether any of these wonderful features can actually help him finish a project.

Although manufacturers will always claim that they are issuing new versions of their products in response to users' needs, in reality, upgrades are mostly bug-fixes, or consist of features that were promised for previous versions, but weren't finished in time for the release date. Sometimes there will be new features no one really asked for, thrown in to make it *seem* as if this is an important new version, and to justify asking users to pay for it. Rarely, however, is any of this truly helpful to the user — more often it's all he can do to keep the new version from pushing

him *backwards*: it takes a while to feel as adept with the new software as he was with the last version, but he's got to get back to work, so he can pay for all of this. Except for those features he must know *right away*, he never has the chance to learn any of the cool new features.

MAINTAINING STANDARDS

Yet still there are ways we can help make this work. The first is for users and manufacturers to adopt an attitude that we really are all in this together. Recognising standards, and sticking to them, is important. When the Compact Disc was introduced, many people knew that there were good reasons to use higher sampling rates and longer words than the format provided, but they were impractical at the time, and it was more important to get the medium established than to wring every possible ounce of performance from it. If they had waited for the next generation of technology, the medium probably would not have caught on anywhere near as well as it did.

MIDI, too, was slow and finicky, and had its detractors, but it has enhanced our ability to make quality recordings far more than even its strongest proponents imagined. The lesson here is that cooperation is crucial. Without it, hundreds of companies may develop killer technologies, but they'll be stranded on hundreds of desert islands screaming their lungs out about it, with no one to hear them. Standards like VITC, AES/EBU, OMF, ADAT, MMC, and Control-L not only allow, but *demand* that our tools all work together. Competition is fine — it spurs excellence and innovation — but meaningless one-upsmanship and deliberate incompatibilities do no one any good.

DUTY OF CARE

The second way forward is for manufacturers to take the task of supporting their users a hell of a lot more seriously than they do now. Customer support is still the bastard stepchild at many companies: it's treated as a necessary but distasteful chore you have to perform after the real fun of selling the product is over. Even when companies have real [as opposed to virtual? --- Ed] support departments, they often have the wrong attitude: one executive (hired from outside the audio industry) actually confided that he was looking for ways to make customer support a profit centre. He's going to have a long search. Support is an inevitable, necesssary expense, and the earlier that's written into the business plan, the better off the company will be.

It's been said that we no longer buy computer tools; we subscribe to them - and subscribers need to be serviced regularly and well. Users of music and audio technology are busy, creative people, and most of us are not stupid. We want the kind of help that recognizes our intelligence, we want it to be accurate and relevant, and we need it right away. Staffing hundreds of customerservice lines around the clock is beyond the resources of most companies, but new technologies should allow the resources they can afford to be used much more efficiently. Menudriven automated switchboards (designed by nonsadists, please), fax-back services, 0800 numbers, and prompt responses to voicemail are some of the ways companies can respond economically to users without raising their ire.

On-line services are still woefully under-utilised. Competition has brought the price of communications hardware and Internet access down to the point where many manufacturers can afford to bundle with their products a modem, access software, and either a free trial subscription to an on-line service or an account on a private BBS. Designing a top-flight host or World Wide Web page with menu- or icon-driven access to frequently-asked questions, implementation ideas, diagnostic programs, and other information is now ridiculously easy. For solving really thorny problems, the information contained in an online discussion thread can be even more valuable than a live support person — someone, somewhere has experienced the same dilemma you're currently embroiled in, and has solved it. But this information isn't going to magically appear on line by itself: someone has to compile it, put a really good search engine on it, and place it on a server with enough room to keep a couple of years' worth of discussions.

BEATING THE BETA-TESTING BLUES

Finally, manufacturers need to let products mature. A functional, solid, bug-free program is far more use than something that contains every bell and whistle in the universe but falls over as soon as your back is turned. These are creative tools every time a manufacturer does a major rewrite, it is forcing the creative types using the tool to stop whatever it is they're doing and learn the tool all over again. Imagine how guitar players would react if every time Fender came out with a new model, it had a different number of strings in a different order, and the frets were arranged in a new way.

Yes, manufacturers, please fix bugs. Yes, make things slicker and more efficient. But no, you don't have to throw in every feature that anyone has ever asked for. No one feature is going to make or break a product. Besides, a lot of the time, users are just wishing out loud, suggesting something for its coolness factor, not because they would ever

Pop open a Studio

use it. Don't fall for the 'flavour of the month' mentality, and don't worry so much about customers jumping ship if you're missing this feature or that. Users in this industry are more loyal than that, if for no other reason than they can't afford the effort and 'down time' required to learn whole new programs. And while you're at it, please stop lying to your customers. Touting features that you know don't work, boasting about compatibilities that are still on the drawing board, and listing misleading or downright hallucinatory specifications won't win you any friends, or prevent customers from going to the competition. They will, however, tie up your support lines, where you're not making any money.

I don't want another year like the last one. I want to make music, and I want to teach my students how to make music and use all these wonderful tools we've developed. I love my studios, and they can do, right now, just about everything I want them to do. If I have to stop upgrading my studios completely so that they continue to do so, I can live with that. Perhaps, eventually, the dread will recede. Somehow, though, I doubt this will happen. Keeping up with the latest technology as it speeds by is too much darned fun. But always keep in mind that in music technology these days, as has long been true in life, it's important to remember that speed kills. "Listing misleading or downright hallucinatory specifications won't win you any friends, or prevent customers from going to the competition."

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	ATM10a	ATM31a	ATM33a	ATM25
Solo Vocals		•	•	
Group Vocals	•	•	•	
Overhead Cymbals	•		•	
Hi-Hat			•	
Snare			•	•
Tom		•	•	•
Kick Drum				•
Misc. Percussion	•	•	•	•
Acoustic Guitar	•	•	•	
Horns		٠	•	
Piano	•	•	•	
Strings	•	•	•	



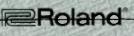


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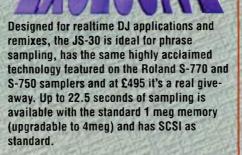
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ow often have you found yourself imagining how good it would be to add a live vocal or instrumental to the sequenced tracks you're working on? How often, after going through the rigmarole of setting up the mic, cueing tape or setting up a hard disk recorder, do you find your inspiration gone leaving you dissatisfied and frustrated? Yet again, the means have overwhelmed and destroyed the end — that of creating and recording your music.

Today, however, we are witnessing the metamorphosis of our old friend the MIDI

OVERVIEW

Cakewalk Pro Audio 4.01 is a 256-track recorder. Audio track size is limited only by the spec of the PC: as ever, 'the faster, the bigger, the better' is the rule. Any 16-bit Windows MME soundcard can be used. However, you will need a DSP-based card for simultaneous record and playback. Sample rates are soundcard-dependent, but 11kHz, 22kHz and 44.1 kHz are supported. Special provision is made for Digidesign Session 8. A great plus is that as Audio-MIDI synchronisation is internal, you can

Letthemediat avoid the cost of a SMPTE timecode unit, unless you wish to lock to external devices. The program will run in Windows 3.1 or Windows 95, and installation is hassle-free. The printed manual is comprehensive, indexed, clearly

With the addition of digital audio, version 4.0 of this popular, PC-based sequencing package isn't so much a cake as a chocolate gateau. JANET HARNIMAN COOK takes a walk in the Black Forest...



sequencer into one of the most powerful aids to musical creativity and recording ever known. The addition of digital audio tracks running alongside MIDI presents us with an astonishing range of recording and editing tools. Yes, computer music is finally coming of age. It can't be long before sequencers without audio are regarded as quaint and old-fashioned.

Cakewalk Pro Audio 4.01 is one of this new wave of MIDI + Audio recorders, and describes itself as 'the MIDI and Digital Audio Workstation for Windows'. It features digital audio recording and editing, MIDI recording and score printing. But with such a modest price tag, can it deliver the goods?

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CAKEWALK PRO AUDIO v4.01

laid out and supplemented by Windows Help.

Cakewalk Pro Audio 4.01 marks a giant step forward from previous versions, including Drag & Drop editing throughout, and an improved front page — minus the blobs! Song structure editing is vastly improved. The program also uses a multiscreen approach, and has a timebase of between 48 and 480ppgn (pulses per quarter note). Colours can be customised — I went for a gentle-on-the-eye look, essential for prolonged use. You can save to disk without closing editors, and user-assignable keybinds enhance mouse activity, to make getting around fast and efficient.

FRONT PAGE

Track View consists of the Track pane and the Clips pane. The Track pane list contains the default parameters for each Track. The Patch Name parameter is especially impressive. Double-clicking the field connects you to Instrument Definitions an onboard database from which you can select any voice in any MIDI instrument by name or program number. Right-clicking on the Track pane calls up the Track Inspector menu. This enables you to add, delete, solo or edit tracks, alter the appearance of Clips and set Snap values for the Clips pane. Cakewalk Pro Audio 4.01 uses the Windows Clip to cut and paste text between Track, Patch and Clip names, and you can even import text from your word processor into the Information box or Lyric View. All very cool!

Notably absent from this latest version of

The Clips Pane.

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Cakewalk Audio is the Track Loop function, which (in *Cakewalk Pro 3*) enabled cycling during Play and Record. Indispensable for the style of techno/rave that builds a song by muting or playing changing combinations of 8 or 16-bar loops, its absence will be a crushing blow to some, and a blessed relief to others...

The Clips Pane displays groups of MIDI and digital audio events as coloured rectangular blocks, which scroll horizontally during playback and record. A Clip may contain either MIDI or Audio events, and can be copied, moved, split, combined or renamed. Split Clips is well thought-out, with options including multiple splits at definable intervals and split to Markers. All rather splendid, and a great improvement on *Cakewalk Pro 3*, but more power would not have gone amiss. A Clip Parameters tool would be welcome, embedding the basic parameter and MIDI controller changes that typically distinguish song sections. A Clip mute tool would also be helpful.

The double-headed arrow icon next to the Clip selection tool is used to select by time. All events within the time range drawn are selected, unless excluded by clicking on the Track numbers. Above the Clips pane is the Measures ruler. This can read Time or Bars, and can also contain Markers. These are static text flags used, for example, to indicate cue points or song sections.

Markers are edited as a list in the Markers view. The Now marker is special, as it acts as the Current Position flag, and is moved by clicking on the Measure bar or through the use of various Go To commands. Horizontal and Vertical Zoom controls (magnifying glass icons) allow the resizing of the Clips pane.

The Control Bar contains the main transport functions, and runs in 'always on top mode' (cf. the missionary position). It can be placed anywhere on screen. The Current Position is displayed in Meter and SMPTE time. Tempo, SMPTE/MTC format, Step Time, Record mode, Loop points, Meter and Key signature are set by double-clicking on their respective fields. When looping passages containing digital audio, there is a short pause whilst the audio is re-cued from hard drive. Unforgivably, there are no MIDI activity indicators: these are essential in a multi-port system.

AUDIO

Any signal from CD, tape deck, instrument or microphone (via the mixer) can be quickly recorded and edited in glorious CD quality (soundcard permitting). With a digital card you can clone DAT, CD or CD-ROM. Audio is recorded as stereo across two Tracks, or as a mono Track. Windows .wav files can be imported through the Insert Wave File command.

Selecting Audio Meters from the View menu brings up the Input meters used to optimise incoming audio levels. Typically, there will be two meter bars, but more appear when working with supported hardware such as Digidesign Session 8. Audio Meters also contains a handy Available Disk

The Track Pane

CAKEWALK PRO AUDIO 4.01

PROS

- Excellent audio recording and editing.
- · Quick and fun to use.
- Multi-MIDI port operation.
- Superb value.
- Patch/Instrument database.

CONS

- No MIDI activity indicators.
- MIDI drum and controller editing underspecified for professional use.
- Limited MIDI loop handling.
- Front page could make better use of colour.

SUMMARY

Great integrated MIDI and audio sequencing package, capable of producing impressive results despite lacking some MIDI editing facilities.

<mark>Cake</mark>walk Pro Audio 4.01

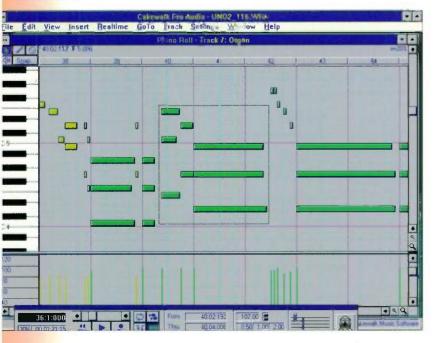
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he Audio Editor.

Space indicator that informs you of the remaining hard drive capacity. File Menu Utilities contains soundfile management tools, to allow the deletion of unwanted Cakewalk Audio soundfiles — these may include temporary edit buffer files and rejected takes. Here too is the means to convert between proprietory Cakewalk wavefiles and the standard Windows .wav formats.

The Audio Editor can display multiple Tracks, and is accessed via the Track or Clips Inspector menus. The vertical axis represents amplitude, and the horizontal axis represents time. Time may be expressed as Bars or Samples. In the lower left corner of the graph is a rather neat velocity level control. Audio events respond to MIDI volume and pan controller messages. Real-time MIDI control, although possible in theory, may in practice be inhibited by the processing power of

he Piano Roll Editor.



your PC. The Audio toolbar contains Select options, cut, linear fade and scrub tools. Further tools are found in the Audio Editor Inspector, which allow audio parts to be split, combined or deleted. The Inspector also contains an excellent array of Wave editing tools. Here *Cakewalk Audio* excels, presenting an array of sophisticated functions, including graphic and parametric EQ, noise gate, normalisation, crossfade, fade envelope editing and Extract Timing.

Extract Timing is an advanced Audio-to-MIDI function. On the PC, it is unique to *Cakewalk Audio*, and similar to that found in Opcode *Studio Vision* (currently Mac only). Using pulse analysis and timing synthesis, Extract Timing will generate MIDI notes with velocity information from audio, and can create a tempo map for use as a Groove Quantise file. This can then quantise (or rein in) MIDI parts — even those originally recorded at a different tempo — by configuring the MIDI tempo to that of the audio events. I have had some simple initial success with Extract Timing, but I get the feeling that it will take practice and patience to realise its full potential.

CAKEWALK PRO AUDIO DELUXE

This CD-ROM release consists of *Cakewalk Pro Audio* 4.01 and the Cakewalk Musician's Toolbox, containing Lotus Cam video tutorials, Roland Sound Canvas editor, and Lyrics hyphenation dictionary, together with a weird and wonderful bunch of MIDI files and .wav samples to get you started.

There are very useful MIDI drum patterns from House of Drums, audio drum loops from Charlie Morgan & Steve Gadd, DNA Groove templates from Sly Dunbar & Armando Borg, gobsmacking Native American Indian .wavs, super TC500-treated guitar samples, brass stabs and some of the most humorously surreal MIDI files ever recorded, in Dr Solo's Outrageous Rhythm Tracks (what is this guy on?).

All this and more — including Route 66 Jam, your very own glue-together Friday night covers band. Great fun!

A less precise but quicker method of sync'ing audio to MIDI can be used, which works with rhythmically simple material such as short drum patterns. Record the drum pattern as an Audio Clip, and then top and tail it so that it starts on the beat and contains the complete bar measures. Next, set the Tempo in the Control Bar to the estimated bpm of the audio, and position the clip at the first tick (000) of the first beat of the bar in the Clip pane. Adjust the Tempo until your audio clip is the same length as the bar. The audio and MIDI will then sit on the beat, and, as if by magic, run in sync.

EDITORS

The Cakewalk graphical editing screens are generally the most attractively designed that I have encountered in any sequencer on any platform. They are entered from the Track or Clips Inspector menu (right click) or via the View menu. Most MIDI edit commands can be carried out in real-time, during playback. On slower PCs, real-time editing can cause momentary breaks in playback continuity.

The Piano Roll, Controllers, and Lyrics views show the whole of a single track; the Event, Audio and Score views show multiple Tracks. In the Piano Roll editor, notes are displayed as coloured horizontal bars. Pitch is represented by the vertical piano keyboard and the Time line, as in all Cakewalk editors, runs horizontally from left to right. Above the edit pane is the Measure rule, and below it is the Velocity pane. Note velocities are shown as vertical columns: the taller the column. the higher the velocity. The panes can be resized using the Zoom tools. The Piano Roll tool bar includes Select, Draw, Erase and Scrub tools, and the Snap Value button. Select is used to prepare for editing a single note or a group. The selection, just as in the Clips pane, can then be edited. Draw is used to resize or enter new notes, and to rescale velocities.

The Drum Editor has a list of drum voice names rather than the piano keyboard, and drum notes are displayed as diamond shapes. Otherwise, it looks and behaves much the same as its alter ego, the Piano Roll. Sadly, the lack of a comprehensive drum edit environment lets Cakewalk Pro Audio 4.01 down. All that's needed is the ability to select Solo and Mute for each drum voice, so that individual drums or groups of Drums can be heard in isolation. Similarly, edits in the Drum Editor Velocity pane should follow Select and Solo. An overall Velocity boost/gain for each drum voice is also required, and a Cubase-style drum mapper would enable drum sounds from different instruments to share the same drum editor page, and be assignable to a single keyboard layout. One gremlin I encountered in the Piano Roll and Drum editor panes was that in high magnification, notes of short duration (drum sounds, for example) are displayed as vertical black lines. which, when selected, appear to vanish completely!

The Event List view is a simple, timebased list editor that can display multiple channels. MIDI events are displayed by Track, Start time, Channel Type and Values. You can cut, paste, delete, insert and so on, but there is a need for a View Event-type filter, to select by event type. For soundtrack work, the Event List also acts as the Audio EDL (Edit Decision List) playlist.

The Staff View will display and print multiple staves, adding song lyrics and traditional expression and dynamics markings. Performance advice text can also be added, as can guitar chord tablature. Surprisingly, there is no chord recognition, but the familiar range of *Cakewalk* edit tools can be used, and non-concert key transposing instruments are catered for by using the Track Key+ function.

The 'open surface' design of Cakewalk Pro Audio v4.01 means that it is not

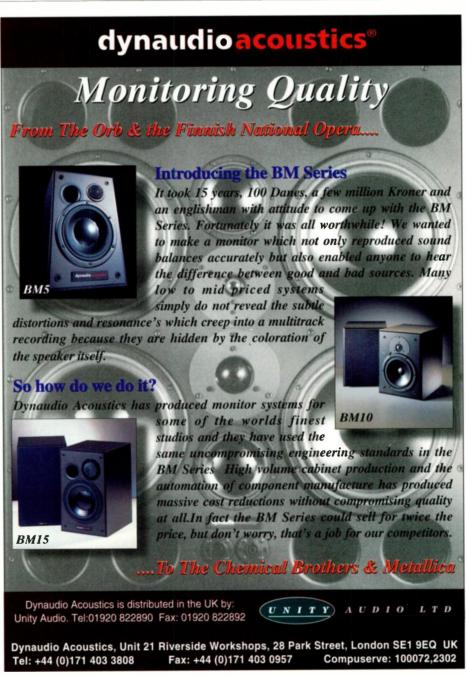
AUDIO RECORDING & EDITING

Recording is a doddle. Once your input routing is in place and you have set your Track's input levels, simply mute the monitors, switch on the mic or CD, hit 'R' on the computer keyboard, and you're on! When done, save or delete.

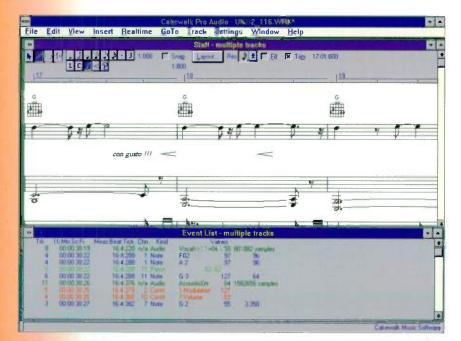
MIDI and audio tracks play back in sync as you overdub the new audio track. Be careful with record levels, because each track you add accumulates, until the maximum headroom of the soundcard's output DACs is exceeded. This is evidenced by the presence of audible distortion. To avoid this, either attenuate the track levels or, better still, record tracks at a lower input level where possible. And remember that *Cakewalk Pro Audio* will only support a single common sample rate throughout each song.

To edit: select the take in the Clip pane. Enter the Audio Editor and select the event. Adjust Snap, and with the Scissors tool, top and tail. Next, select and delete unwanted audio segments, then return to Track view, name and save the song. To record your next audio part, select a new Track and repeat.

necessary to close the editors in order to save or move to new editors. Editors can also be minimised as icons, and restored later. There is even a



Cakewalk Pro Audio 4.01



Staff and Event Editors.

multiple-level undo edit capability, with a 128-step history that lists your edit changes. Très chic!

Additional tools can be found in the Edit menu, home to the Transpose, Slide, Length, Retrograde, Audio and Quantise functions. Groove Quantise lets you create or import Quantise templates, which apply preset tempo and velocity characteristics. Select by Filter and Interpolate allow edit commands to be applied to events fulfilling predefinable criteria. Fit to Time enables you to shrink or extend whole songs or sections to a specified time. Fit to Improvisation takes MIDI events not recorded to clock, analyses their timing, creates a tempo map and presents the events as regular bars and beats. Regrettably, there is no Delete Doubles function, to search for and erase duplicated MIDI events. The Velocity Scaler ramps note velocities to create crescendi and diminuendi. This would be a good place to put an Add/Subtract Velocity - currently only available as a CAL (Cakewalk Application Language) — sub-routine.

Tempo is edited graphically. This is great for drawing in tempo curves, but a list-based tempo editor is far quicker for certain tasks. Also, it can take ages to review Tempo changes, as Zoom out can only display a maximum of 15 bars at any one time. A nearly-wonderful related feature is found in Insert Tempo: *Cakewalk* will analyse mouse clicks as bpm. Impressive, but I wish it was possible to use a note from a MIDI keyboard, which typically has far more accurate switching than your average rodent.

CONTROLLERS

The Controllers View displays controller information for the selected Track, and is switchable between controller types. Controller events can only be viewed in the context of the channel in which they originated. If you have created parts by cutting and pasting between Tracks, you may have controllers across many channels on one Track. In this case, the lack of a

SMPTE MADE SIMPLE

Cakewalk Audio will now lock up to and control external devices such as ADAT, VTR or analogue multitrack. However, when a song contains audio events, SMPTE sync places an additional burden on the computer CPU. MIDI+Audio sequencing systems take audio timing information from the clock on the soundcard. MIDI timing is derived from the computer's clock, unless the program is running in external sync mode (from MIDI Clock or SMPTE/MTC). If the external clock drifts, Cakewalk Audio will stretch or shrink the audio to stay in sync. This will cause slight pitch changes which, Cakewalk developers 12-Tone assure us, should be negligible.

View All Channels function makes editing difficult.

The Faders view — the virtual mixer — is best avoided, in my opinion! At best, it's a good idea in need of further development. A strange omission is Real Time Controller mapping, to re-route messages in real time between controllers, such as using the Modulation Wheel to input MIDI volume.

CONCLUSION

In a word — thrilling! The shortcomings of *Cakewalk Pro Audio 4.01* are forgivable in the context of its superb audio handling and low price. Costing little more than a second-hand Portastudio, it represents tremendous value for money.

Cakewalk Pro Audio 4.01's wave editing power gives it the edge over Cubasis Audio, which admittedly has a lower price tag (£250). To find a better MIDI + Audio package for the PC, you will have to pay twice the price of Cakewalk Pro Audio 4.01, and go for Cubase Audio (£699). If more sophisticated digital audio editing is required, then look towards more expensive dedicated programs such as Steinberg Wavelab, or SAW (see my 'Living With...' feature in SOS January 1996).

Cakewalk Pro Audio 4.01 is the quickest, most intuitive method of recording and editing live audio tracks with MIDI that I have used. It offers a viable, low-budget route to high quality music production. As an audio/MIDI sketchpad and demo maker, it excels. With DAT and a digital card, you could even master your tracks for CD if you were on a limited budget. And where to from here? Pass me that mic while I plug in my guitar, I feel a tune coming on ...

Many thanks to Mark and Colin at Etcetera for their help during the writing of this review.

FURTHER INFORMATION

- Cakewalk Pro Audio 4.01 £339; Cakewalk Pro Audio Deluxe CD-ROM (contains program plus multimedia tutorial, Wave samples, MIDI sequences) £399. Prices include VAT and UK delivery.
- A Etcetera Distribution, Unit 17, Hardmans Business Centre, Rawtenstall, Lancs BB4 6HH.
- 1 01706 228039.
- F 01706 222989.

space.

SYSTEM REQUIREMENTS

4865X33 PC/8Mb RAM/8Mb drive

RECOMMENDED CONFIGURATION

486DX2-66 PC or better, with VLB or

PCI bus/minimum 16Mb RAM/a large,

fast E-IDE or SCSI hard disk (hard disk

audio requires 11Mb for each minute of

stereo at 44.1kHz sample rate).

MINIMUM CONFIGURATION

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The last year has seen Steve Rodway shoot to fame as a producer/remixer whose golden touch is as highly respected on the dancefloor as it is on the mainstream charts. MATT BELL meets the man behind Motiv8 to discuss his mixing methods, the technology he uses, and the remix work that put him on the map...

imes have certainly changed for producer, songwriter, and remixer Steve Rodway since SOS last spoke to him in August 1994. At that point, he had had only two doses of chart success: one as artist Motiv8, with the self-produced hit 'Rockin' For Myself'; and the other as remixer on a substantial Euro-style dance reworking of the Doobie Brothers' 1972 hit, 'Listen to the Music'. However, these two hits proved to be just the beginning. Steve's name has scarcely been absent from the charts since, whether appearing on Motiv8's own singles, or, as has been more common recently, as a remixer on the releases of other artists, such as Diana Ross ('I Will Survive'), West End ('It's Raining Men'), and Dubstar ('Stars').

Indeed, over the last few months, Steve has settled into an enviable position as the remixer of choice for artists requiring a hit on dancefloors and radio playlists alike. The 'Euro' sound that has characterised his work since 'Rockin' For Myself' unashamedly sequenced basslines chugging alongside rhythmic arpeggios, strong synth lead lines and the relentless sound of the Roland TR909 kick, snare, and hi-hat — seems equally at home pounding from club PAs as it does from radio speakers.

The track that launched Steve into the top division of UK remixers was the Motiv8 mix he did for Pulp's 1995 hit single 'Common People'. 'Common People' made it into the Top 5 in its original, guitar-laden version without too much remember saying to Jarvis [Cocker, Pulp's charismatic lead singer] 'Are you *sure* about this? What about your fans? Won't they hate it?', but he just said 'Nah — they'll love it'. He was right! It's quite rare for a remix to be playlisted over the original version. It certainly changed my mixing career for me, and opened a lot of doors."

As with most of his remixes, Steve decided to take only Jarvis Cocker's vocal from the original track, and create his own backing track. He explained why: "I only take things which spotlight the performance of the record, and with 'Common People', for me, it was Jarvis's vocal, and the song itself, which shone out.

"I went back and thought about how I could change the track. It was the first remix I'd done where everything had to be slowed down, because the original was at about 160 beats per minute! Normally, I have to speed things up." In the end, Steve made considerable changes to the arrangement of the song. The original 'Common People', built to a climactic finale, instrumentally and vocally. "I took one of the earlier, quieter choruses and repeated that at the end, to avoid the raggedness of the original version's final verses. I think that helped make it more danceable, because it was more uniform throughout.

"A passing chord was added on the chorus. This brought out the passion in Jarvis's voice, and had the effect of breaking up the repetitive sequenced bassline in the chorus a bit, which needed to go



STEVE RODWAY OF MOTIV8 • REMIXING PULP & ST ETIENNE

SACRILEGE AND HERESY

Steve owns a real Minimoog, and though he loves its sound and uses it extensively for basslines, he tends to sample it first. Recognising that this is tantamount to heresy amongst those who swear that there's *nothing* like the sound of a real Minimoog, Steve explains why he bothers to do this:

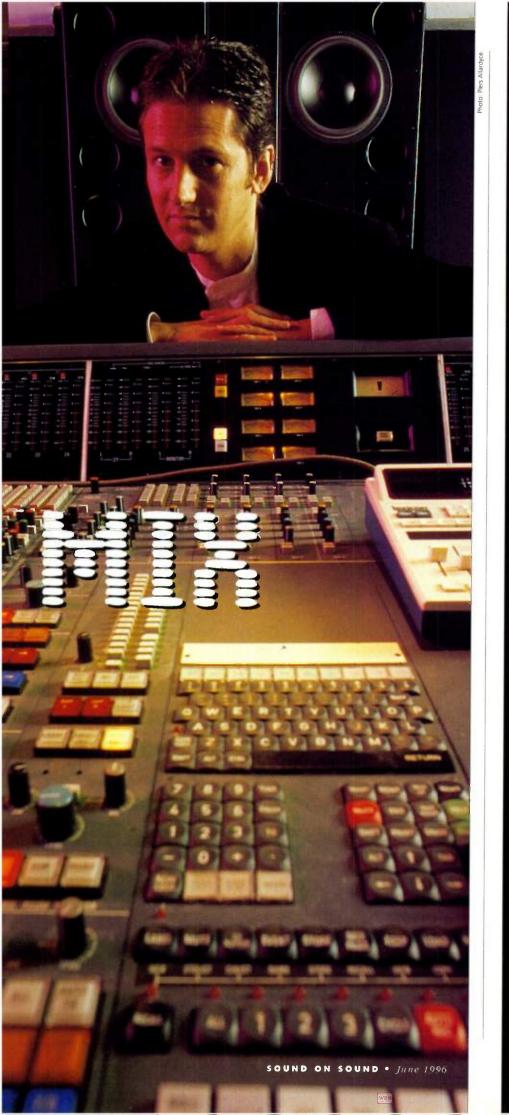
"That's exactly why! You can tell if you have a real Minimoog in an otherwise sampled mix; it's got extralow frequencies that appear beneath the bass drum. Sampling removes those, and then at least you get a uniform bottom end on your mix. I suppose it's sacrilege to suggest deliberately sampling a Minimoog when you've got a real one... But of course, you keep the Minimoog, so you can keep setting up different sounds to sample." help from Motiv8, but then something rather unusual happened; Radio 1 replaced the song's original mix on its daytime playlist with the Motiv8 remix. Naturally, Steve's name spread around the music business like wildfire, and remix offers started to flood in. I met with Steve to discuss the technology he now uses to perform his remixes, with particular reference to the three projects which had opened the most doors for him: 'Common People'; the remix of the follow-up Pulp single, 'Disco 2000'; and a St Etienne track, which, thanks to Steve, became the hit single, 'He's On The Phone'.

PULP FACTS

Steve explained how the Pulp mix had come about. "Pulp's manager was looking for remixers to work with the band, and rang me up — they clearly wanted to corner another part of the market. I met with them to get a feel for want they wanted from me, which was a good thing to do, as often you don't have to meet the artists you do remixes for. The thing that kept coming out was that they loved 'Rockin' For Myself', and wanted a pure, unashamed, Euro version of 'Common People'. I somewhere else at that point. Finally, a lead synth line was added as a hook, from my Oberheim Matrix 1000 and Roland Jupiter 6, which had a little portamento. I felt the track needed something like that, because the chorus was quite long."

The remix's rhythm track followed the quasi-standard Motiv8 dance pattern of Roland TR909-derived kick and snare samples overlaid with two low-key percussion loops, and cabasa and tom-tom sounds from Steve's Roland U220. Steve: "The bass drum was one I'd prepared earlier — a Roland TR909 sample EQ'd, treated, pitched and re-sampled. I call it my 'English' kick [see the 'Now That I Own An SSHDR1' box for more on this]. I used more than one snare sound, because the backbeat was coming off the loops and the clap. A 909 snare came in just to do the fills. That way, they pop out at you more".

"The basslines were layered Moog samples on top of a Novation Bass Station and Roland Juno 106, and I chose a combination of Korg Wavestation and Emu Morpheus for pads. The high string line was the trusty U220, which I find really cuts through mixes. I'm a big fan of the U220 — it's an oldie but goodie!"



THIS IS A USER LIST FOR A RANGE OF MICROPHONES:

Black Crowes Bon Jovi **Bonnie Raitt Bruce Springsteen Crosby Stills & Nash Dooble Brothers** Elastica Hall & Oates Hole Jesus and Mary Chain John Mellencamp Tour Lenny Kravitz **Lindsey Buckingham** Natalie Merchant Offspring **Pearl Jam** Pulp Queensryche Radio Head **Red Hot Chili Peppers Roxette Smashing Pumpkins** Sonic Youth Soundgarden **Stone Temple Pilots** Suede **The Beach Boys Yngwie Malmsteen 1996 MTV Video Awards**



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STEVE RODWAY OF MOTIV8

The track also featured one of Motiv8's trademark sounds — little arpeggio figures running through the verses. Last time SOS spoke to him, Steve was actually triggering this sound from a Roland JP4 and its internal arpeggiator. The sound used here, however, was a Juno sample from Steve's Emu Vintage Keys Plus, sequenced to sound like an arpeggiator.



Motiv8 mixes usually feature arpeggios through a stereo delay, with the right-hand delay set to a multiple of the left-hand delay. "That works out nicely, as I like to use a mono delay on lead vocals and with stereo delay on the arpeggios, you've got a gap down the middle of the mix for the voice."

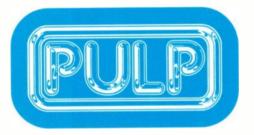
Timestretching Jarvis Cocker's characteristic vocals to fit the new, slower tempo of 135bpm caused Steve some problems, as he recounted:

"When you listen to Jarvis's vocals over the original music, they fit really well, because they've got a ragged feel that blends in with the ragged energy of the music. But as soon as I put his vocals over a mechanical, continuous 135bpm beat, I had to *make* his vocal blend in. I found myself moving various vocal lines, which I couldn't hear being out on the original — but against the perfect timing of the new backing, they required some careful adjustment. Once that was OK, I compressed the vocals heavily with a valve compressor. In the end, I thought the vocal was perfect for the remixed version."

DISCO FEVER

Given the smash success of the Motiv8 'Common People' remix, it was hardly surprising when Steve was subsequently invited to remix Pulp's followup single, 'Disco 2000'. But he decided to avoid repeating himself, and two mixes resulted, the vocal 'Discoid' and the instrumental 'Gimp Dub', each almost as different from one another as they were from the 'Common People' mix.

Steve: "They were a bit harder-sounding. I wanted to avoid doing something similar, as I knew the spotlight was on me. I hadn't been asked to do two mixes, but I wanted to get over a different angle on the track, and rather than run a version of



the same mix without so many vocals, it was nice to treat the music slightly differently. It's important to remember that a lot of people perceived Motiv8 as having quite a hard underground sound when it first came out, but equally, others associate it with crossover stuff, so I needed to keep both sets of people happy. Mark Goodier raved about it, saying the Discoid version was better than the original

CHANGING GEAR: MOTIV8 EQUIPMENT

One important result of Steve's recent success is that he can now afford to improve his equipment; the core of his recording setup is now a PC-based Soundscape hard disk recorder. When he carried out the three remixes discussed in detail in this article, he was additionally using an old Atari ST running C-Lab's *Notator*, which was slaved to the Soundscape system. With this setup, he would store all the acoustic tracks he was working on (guitars, vocals, and occasionally sax) in Soundscape, and keep his MIDI instrument data in the sequencer on the Atari. By the time I spoke to him, he had just taken delivery of *Logic* for Windows, and had installed it onto the PC running Soundscape, allowing him to dispense with the Atari completely.

I was keen to know why Steve had chosen Soundscape over other hard disk recording systems.

"I was advised that there was going to be a huge amount of software available for the PC, music-wise, as there's such a huge base of users. I was amazed at the new pitch-shifter on Soundscape — they've let me have an advance beta copy of it. For me, pitch-shifting and timestretching is the cornerstone of remixing. It's great to be able to keep the pitch of something and change the tempo, or vice versa.

"Soundscape's got a brilliant system for recording vocals, as well; you can set up a loop record mode, with start and end points — say the beginning and end of a verse. The machine then keeps dropping in and recording until you have say 30 takes of the verse in the right place, and just pick the one you want, then compile one from the different takes. The vocalist can record all the takes while you go off and have a coffee!"

Hard disk recording is not the only area Steve has been investing in. A fully-expanded Akai S3200 sits alongside his old S1100 — now only used

when the S3000's memory is full — and he has also enlarged his synth collection ("lots of analogue stuff, basically") to include two Roland Juno 106s, a Jupiter 6, a Jupiter 8, an SH09 and TB303 (retrofitted with MIDI by Kenton Electronics). There's also a Minimoog (see the 'Sacrilege & Heresy' box for more on this), an Oberheim OB8, and a Roland JX10, which he uses for brassy lead sounds.

Not all the synths are old, however — Steve's collection also includes two Yamaha TG500s, two Emu Vintage Keys Plus modules, a Korg Wavestation, Oberheim Matrix 1000, an Emu Morpheus, Novation BassStation and the much-used Roland JD800



hoto: Piers Allardyce.

Steve Rodway with much-loved valve processors from Focusrite and Tubetech. An Eventide H3000 UltraHarmonizer and AMS delays are visible on the left of the picture.

keyboard and U220 module, plus no less than three Control Synthesis Deep Bass Nines. Why so many? Steve: "I wanted more TB303s — but couldn't get them! So I got these instead. They're very good, but the tuning wanders, so you've got to let them warm up before you use them, and keep them on. You don't quite get the range on the filter that you do on a 303, either — but you do get solid, reliable, sounds. And, of course, they work via MIDI."

When it comes to processing, Steve is a confirmed fan of the 'valve sound', claiming, like so many others, that tube-based units add a 'warmth' to the sounds passing through them: and should have been on the album — so I knew I'd probably cracked it!"

For the vocal mix, Steve again took nothing but the vocals from the original track, discarding even the driving guitar riff that powered the original song - and built a new backing, this time based around a harder rhythm track than that featured on 'Common People' and a fatter-sounding, more resonant bassline. Once again, too, he made some changes to the arrangement, inserting a new Jupiter 6-derived synth lead line, and inserting more passing chords into the chorus to make up for the loss of the guitar riff in the original track. For the 'Gimp Dub' an even harder backing track was constructed, comprising the same bassline, but with an even more 'acidic' sound, sparse snatches of vocal, and a structure totally unlike the original song or the Discoid mix.

Unsurprisingly, to create the fat bass sound on the 'Discoid Mix', Steve fell back on two of his Deep Bass Nine analogue bass synths. The highly acidic line on the 'Gimp Dub' was from his TB303. "That's a completely live filter sweep, too! I just tweaked the knob while I was recording it to DAT." Filter-swept pads from Steve's Korg Wavestation, heavily-compressed U220 guitar samples, and harder rhythm loops completed the picture, with more effects present on the 'Gimp Dub' version. As Steve recalls: "I'd done the main mix, and then gone one step further. It's a good underground version."

"I love that sound — especially for dance music, where you're not using analogue tape, and not getting analogue distortion. If you're sequencing everything live in the studio and mastering to DAT, you do need to think about not having too harsh a sound. You don't have any low-end distortion from analogue tape, and everything's going to be quite clean — so you need to put some grit back in there". For this reason, Steve makes use of several valve compressors around the studio, including those from Focusrite, Tubetech, and TLA, as well as the Drawmer 1960. "I'm a fan of any valve compressors. They really help warm up sharp mid-range vocals."

Despite the extensive use of analogue synths and valve processing in his work, Steve is also a fan of certain digital effects units, such as the TC Electronic M5000, and Lexicon reverbs — he now owns a Lexicon 224 and a 480L. In addition to his Eventide H3000 UltraHarmonizer, he relies on a more unconventional source for chorus and flanging effects — the little-known Yamaha DSP1:

"It's similar to their SPX series effects, but it's 16-bit, so it's much quieter. It was originally designed as an expensive piece of kit for generating surround sound and other effects on hifis — an early attempt at what you get on many stack systems nowadays...".

THE SAINTS CAME MARCHING IN

The production Steve carried out on a St Etienne track last year differs from his work for Pulp, in that the Motiv8-produced version became the commercially released St Etienne track, while the original recording of the song remained hard to find. St Etienne had collaborated with French male singer Etienne Daho on a rare EP of five songs, but regular vocalist Sarah Cracknell had only sung lead vocals on one of these, 'Accident'. The group then became involved with putting together their Greatest Hits package *Too Young To Die*, and wanted a single to promote it. Steve Rodway takes up the story:

"I'd remixed one of their previous singles, and Bob [Stanley, of St Etienne] came to me with the track 'Accident', saying 'We want a



hit to launch our Greatest Hits album, and we'd love to get on Radio 1 with this'. They had never planned for 'Accident' to be a single, but it was the only new track they had."

As with the Pulp mixes, after an initial meeting, Steve was left to get on with the remix undisturbed by the band who had written the track. Unlike the work for Pulp, however, he was asked if he could include two elements in addition to the original vocals. Firstly, there was a rap by Etienne Daho:

"I had to get that in, because the track was supposed to be a duet. I chopped the rap down — it went on for ages in the original — so it's completely different now." The second element from the original 'Accident' was the piano riff that opens the finished track: "Bob did ask me to try and keep the piano in somewhere, or a line similar to it. It was a nice line, though, so it stayed."

Lastly, Steve chose to keep at least the *idea* behind the string arrangement on 'Accident': "I liked the general feel, although I changed the arrangement for my mix. I just took out what I thought the original arranger had been trying to get at in his arrangement, and redid it as a classical chord progression with pads on my Wavestation and U220, which worked well in the new version".

Apart from the three points mentioned

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STEVE RODWAY OF MOTIV8

Steve Rodway is currently enjoying success as producer/writer of Gina G's monster hit 'Ooh Ahh... Just A Little Bit', and is working on various remixes, as well as a new Motiv8 single for release later this year. above, however, 'Accident' was rebuilt from the ground up by Steve, like his mixes for Pulp. The track eventually surfaced as the single 'He's On The Phone', which did exactly as everyone had hoped, gaining substantial Radio 1 airplay, reaching number 11 in the national charts, and serving as a trailer hit for the *Too Young To Die* package.

Steve: "The track was substantially changed. I pretty much took it apart, and changed a couple of lines of the melody in the chorus, where Sarah Cracknell sang 'Someday...'. She only said it once on the original, but I made it into a little hook". In 'He's On The Phone', Sarah's line is echoed and answered by what appear to be backing vocals not present in 'Accident'. However, as Steve explained, Sarah was *not* required to record extra vocals: "I created those vocals using Soundscape, by repeating the original phrase, timestretching it and pitching it up. The track just seemed to gel after that — people came into the studio and said, 'Oh, that's great, play it again!', so I felt it was working."

'He's On The Phone' contains most of the 'trademark' Motiv8 sounds — the bass is a sampled Minimoog, and the driving arpeggios are taken from Steve's Juno 106. The rhythm is again composed of TR909 samples, overlaid with a programmed conga pattern, and the snare only performs fill duties, as on the Motiv8 'Common People' mix. The high string line is once again from the U220, and pads are supplied by the faithful Wavestation and JD800. However, of the three mixes dealt with in this article, it was definitely the one that saw most use made of Soundscape, and not only to add to Sarah Cracknell's vocal. The tom that kicks the track into motion after the intro simply wasn't satisfactory until Steve edited it in Soundscape: "That was a standard low tom sound, and when I listened to the mix back, I felt it didn't have enough bottom end, so I went into the EQ page in Soundscape and adjusted it there. That page is fantastic --- it's fully parametric with variable Q, and it worked superbly. So well, in fact, that I've ended up resampling the EQ'd tom to use on other records!"

Once the track was complete, Steve found himself unhappy with the start. "At one stage, I had the vocal 'He's on the phone...' starting everything off, but on listening to it back, I decided to stitch the pad and piano riff onto the front of that in Soundscape, just to introduce that vocal, as I felt it was perhaps a bit harsh to just jump straight in. I also tweaked the number of times the chorus came round at the beginning before the track kicked off. Now it's finished, it's one of my favourite tracks."

REMIXING WITH A HARD DISK RECORDER

I wondered to what extent Steve's Soundscape system had altered his working methods. He took me through a 'typical' remix.

Steve tends to extract very few elements from any previous mixes when he remixes a track: "It's usually just the vocals. If you've got your own 'sound' which is, after all, what someone wants from you when they ask you to remix their song — it's easier to build that up around a vocal on its own".

The vocals arrive on DAT tape, a capella and without any effects. From the DAT, they are loaded into Soundscape. The remix tempo then needs to be decided. Steve: "For dance stuff, I tend to say that anything will work from a minimum of about 131 or 132bpm up to about 138bpm. Anything much faster than 138, and you start to have problems getting people in the UK to dance to it. Germany will have it at 160bpm - but how many German records at that tempo make it into the British charts? Those are my rough parameters, though of course the final tempo also depends on the individual track, and how it sounds.

"So, knowing roughly the tempo I'm aiming for, I usually sample a small amount, like a chorus, time-stretch it to around the desired tempo, and see how it sounds. Sometimes you're a bpm or two out — it's trial and error, really."

Once the target tempo has been determined, Soundscape is used to timestretch or compress the entire vocal, which is then returned to DAT. From here, it can then be chopped up into short phrases and retriggered later over the new instrumental backing, once this has been constructed.

Steve starts on the backing by finding pads and chords to match the chorus vocals, sometimes changing the chords of the original track, as in all three of the remixes discussed in this article. However, he is not always free to do this: "Sometimes, you have backing vocals with complex harmonies that just won't permit you to shift into any other chords." Once the chorus is settled upon, Steve works out the verses. "I feel comfortable once I've got the hook sorted, because to me, it's the most important part of the record."

The Motiv8 rhythm section tends to comprise sampled loops overlaid on programmed drum samples. Steve relies only occasionally on loops from sample CDs, preferring to create his own:

"There's some interesting percussion on the TG500 which I've worked up into loops. They sound so good, because you've got the balance of elements right yourself — you're not stuck with what someone else has done for you. You can guarantee nobody else will have them, either. I can't be the only one who likes them, as I've heard various loops from 'Rockin' For Myself' on some sample CDs!"

For kick and snare samples, Steve favours Roland TR909 samples, like most dance music producers, but as with loops, he keeps his own library of distinctively-treated samples:

"Depending on whether I'm doing a mix aimed more at the British or European markets, I've either got a very highpitched European kick drum — which I call the 'Napoli' kick, because it's very Italian — or a deeper, 'English' kick, for want of another expression. I'll often start off with one of these on a track, and then change it later if it's not working."

Unlike the pounding kick drum, straight snare sounds tend to be used in a low-key role in Motiv8 mixes. Steve: "I've often felt that it isn't necessary to have a huge snare sound in dance music — often, the snares that appear in your loops will do, especially if you've got a clap as well."

Once the backing track is complete, the vocals can be positioned.

"I spend a lot of time on vocal placement. You have to get the vocal sitting right in a track, and it is a time-consuming process. It's very difficult to place vocals against just a bass drum — you've got to wait until you've got all the music, and see how the groove is sitting. When I think I've got vocals in, I always pull them one way or the other, to make sure they couldn't be tighter. Then, you'll always hear a point at which they are clearly out, and you know where the right place is.

After the vocals have been added, the mix is usually complete, as Steve is a firm believer in balancing and adding any required processing or effects as a track is built up, rather than in one long mixing session at the end:

"It's all done as I go along. The secret is not to lose sight of the drums everything else has to stack on top of them, so they can't be too loud. You have to be minimal with everything, and also create the right placement for elements in the mix, in terms of panning. I'm constantly adjusting any EQ, listening to the overall mix as I record, changing things musically, and also keeping an ear out for the vocal - is it too bright, or too loud, is it sitting nicely? If a vocal is too quiet, I'll bring it up in Soundscape. I normalise vocals before I start and then attenuate them to give me headroom, so I can raise them if I want.

"This way, you're always in mix mode, rather than doing all the recording and only then considering the mix. I prefer the continuous process - then if something doesn't work as you're recording, you fix it at that time. I'm a great believer in 'hands-on' recording - I try and do mixes in one pass, rather than by editing sections together. Even if I make a mistake, I'll do the whole mix to tape, and then go back and do a short repair piece, which can easily be edited in over the mistake using Soundscape. Even when we've done mixes on the Neve desk, we've swept the EQ live to DAT, because it's so fabulous. You've got to have a bit of that, because it's easy to get very rigid in the studio. After all, it's not like live TV — if it doesn't work out, you can just do it again."

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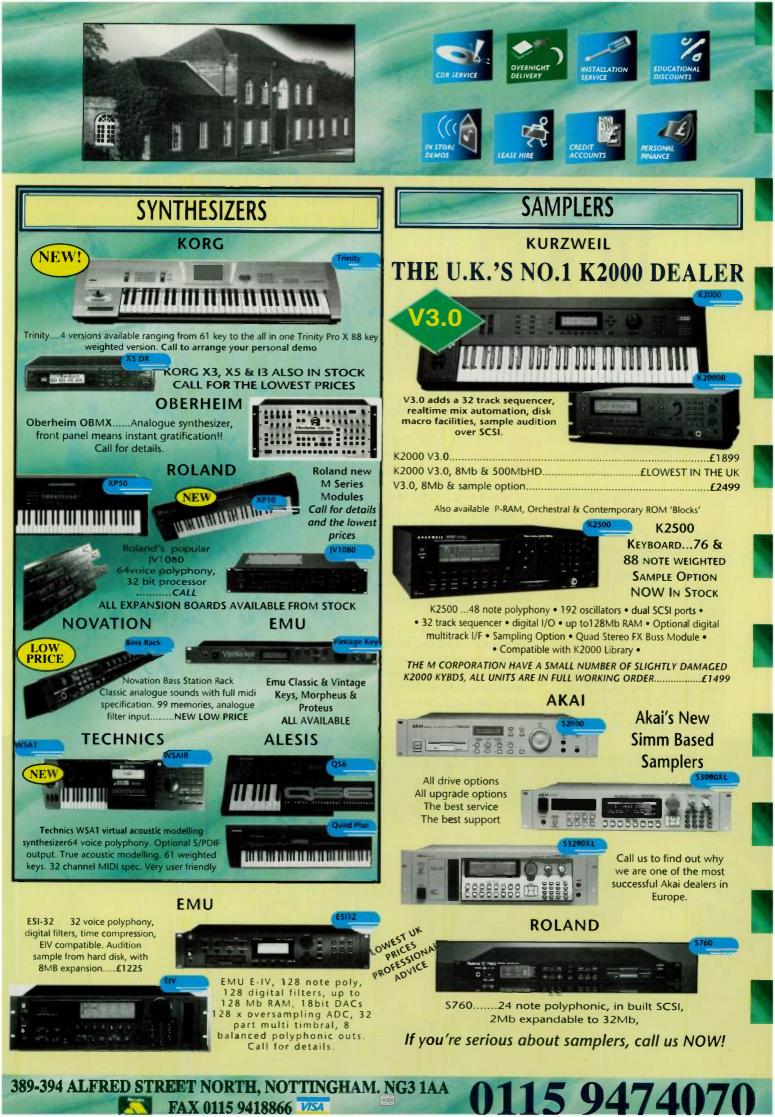
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The battle for control of the affordable digital multitracker market has intensified in 1996. PAUL WHITE puts Fostex's latest weapon, the rackmounting D80, to the test.

virtual tracks, virtual effects or fancy processing tricks to confuse the issue. Indeed, like the DMT8, the D80 is designed to look and feel as much like a tape machine as possible, and is designed to interface with an analogue mixer.

TOUR OF INSPECTION

The 3U has eight discrete analogue inputs and eight discrete outputs, on phono connectors at a nominal -10dBV operating level. All eight tracks can be recorded at once, and the supplied 850Mb, 3.5-inch IDE disk drive can hold up to 18 minutes of material. Like the DMT8, the disk space is

FOSTEX D80 RACKMOUNT DIGITAL MULTITRACK RECORDER

n the race to develop a digital, tapeless version of the cassette multitracker, Fostex were first past the post with the DMT8. Their new D80, an 8-track, rackmount hard disk recorder, faces rather more competition from a number of established, stand-alone tapeless recorders. However, Fostex have the advantage of experience here, accumulated during the development of their Foundation series of products. It was a team in New England, largely drawn from the defunct Synclavier company, that was behind those, and their influence is also evident in the D80.

Rather than trying to outdo the competition by cramming in more features and sophistication, Fostex have opted for the user-friendly approach. As a result, the D80 comes over more as a tapeless alternative to an ADAT/DA88 than as an all-singing digital workstation. There are the usual hard-disk benefits of copy/paste editing, but there are no

88.

organised such that you have a maximum of 18 minutes of recording, regardless of how many tracks you record on — a very tape-like philosophy. By contrast, a computer-based system such as Pro Tools works on the basis of giving you so many 'track-minutes,' and it's up to you how you use the time. Similarly, any copied sections take up disk space, so you can't, for example, take ten minutes' worth of material and turn it into a 40-minute remix using the D80's copy and paste features.

Sadly, Fostex have omitted to fit a SCSI port for connection to external drives, but they have gone some way towards mitigating this by making the drive itself removable. The removable caddy takes a standard IDE hard drive, and the user can buy additional caddies, for use with drives of up to 1.8Gb, which extends the maximum recording time to around 44 minutes. An empty 9040B HD caddy costs about £35. The disk caddy is located



PROS

- As easy to use as a tape recorder.
- Excellent sound quality.
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CONS

- No external drive connections.
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- · Unbalancea audio ins and ouis

SUMMARY

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Studio 610 Specifications

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Studio 1176 Specifications

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Stadio 1100 Specifications

Studio 2001 Specifications

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As 1176 but with 88 keys

Also available with integral flight-case

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external keyboard regions. • Also available with integral flight-case

STUDIO 1100

PIECE OF TH ACT

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FOSTEX D80

 behind the lift-off front panel, and is locked in place using the key supplied.

Projects (both audio and its associated edit data), can be backed up to DAT via the onboard optical interface in about 4x real time, and those users who don't have a DAT machine with an optical interface can buy a Fostex COP1 optical/co-axial interface for £50. Digital recordings from DAT or other 44.1kHz digital sources can also be transferred to the machine via this interface, and routed to the track pair of your choice.

To organise the recordings on disk, a Program Change facility allows up to five separate songs to



be identified, and basic non-linear editing is possible on these using conventional copy, cut, paste, move and erase operations. Editing can be carried out to absolute time points, MTC locations, or MIDI bar/beat and clock positions, the latter requiring the construction of a tempo map using the on-board facilities. Edits can be undone or redone, and the amount of remaining recording time is shown in the display.

The physical appearance of the D80 is deliberately tape machine-like, right down to the transport buttons, metering section and auto punch in/out routines. When you fast-wind the audio, an artificial fast-wind speed has been built in, so that you 'spool' through the recording at about the same rate as a DAT machine in fast wind. Without this feature, the disk would go immediately to the start or end, giving you no chance to find an in-between point.

Fostex have always been keen advocates of the removable control panel, and the D80's entire front panel can be unclipped and used as a remote, with the aid of an optional 10m extension cable. The familiar DMT8-style Fostex jog/shuttle wheel allows up to 20x normal speed cueing, while the jog dial provides audio scrubbing to help in the precise location of edit points. In scrub mode, the sound loops continuously, so you don't have to keep moving the wheel to find out where you are.

Like the DMT8, the D80 can transmit MIDI Clock with Song Position pointers (via the 64-point internal tempo map), as well as MTC and MMC, making it possible to control and synchronise an external sequencer. Similarly, the display can be switched to read bars and beats as set by the internal tempo map. However, there's still no sign of a facility that would let you import tempo maps from your own sequencers — so very complex tracks with multiple tempo changes may be off the menu.

The very large plasma display provides bargraph metering, record status indication, location

time/position, and a limited amount of text dialogue, for information or to issue warnings. Six editable memories store the autolocate, auto return and auto play locations, as well as auto punchin/out times. There's also a 9-point autolocator built in. Just like a tape machine, the D80's auto punch-in/out feature includes a Rehearse mode, which lets you monitor the effect of a punch-in without actually doing it for real. When you're happy with the result, you can go into Take mode and make it so. A pre-roll value can also be entered, so that the machine starts a few seconds before the punch-in point.

Just as modern digital multitracks have the facility to run several machines in sync, the D80 has a slave sync function, so that several machines can be sync'ed together using the optical Data port, in conjunction with either the internal MTC or an external MTC source such as a sequencer. You can also run D80s as slaves from a DMT8, as well as from other D80s.

The optical data connectors are on the rear panel, along with MIDI In, Out and Thru sockets and the analogue In/Out phonos. I would have liked to see a balanced EDAC connector or similar facility for professional use, but then you do have to consider what is practicable at this price level.

THE SYSTEM

Before a recording can be made, the disk must be formatted, though this will already be done on a new machine. The first song will be recorded as Program 1; the Program number is selected by holding down Hold and then using the Store button to step through the five Programs. While I can see logic in only providing five Programs for pop song work, it seems rather frugal if you're working with jingles, as you could get 25 or more 30-second pieces on a disk. As it is, you'd have to put several jingles one after the other, within the same Program. As there's also a possibility that you could inadvertently select a song you meant to keep and then record over it, I would also have liked to see a facility for locking individual Programs to keep them safe.

Once the Program has been selected for recording, operation is very tape-like, with a choice of Input or Repro monitoring for each track. To put a track into Record Ready mode, you simply use the select buttons beneath the display, which causes a red number to flash at the bottom of the relevant meter. Pressing Record once puts any selected tracks into input monitor status. Then you hold down Record and press Play. It's all very reminiscent of tape — except that there's no clunking and whirring! Level setting is carried out at the mixer in the usual way, taking care never to drive the meters into clipping. When you come to punch in and out, a 10mS crossfade ensures that there are never any audible clicks or glitches.

A standard footswitch facility is provided for auto punch in and out (although the unit itself is an optional extra), which means that musicians working alone can punch in and out without hands. You can also program an auto punch in and out.

"The D80 comes over more as a tapeless alternative to an ADAT/DA88, than as an all-singing digital workstation."

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FOSTEX D80

Because the songs are recorded into 'Programs', you can have different setup parameters for each song. Each Program stores its own tempo, time base and MTC offset, plus slave status, pre-roll time, clock on/off, etc. Parameters that operate globally as opposed to per Program include device ID, Undo All/Edit, Digital I/O status and Locate memory. The last two return to their default states when power is switched off.

To slave a sequencer to the D80 using MIDI Clock and Song Position Pointers, it is first necessary to enter tempo map details. If you're working with MTC, just select the appropriate MTC format and enter any desired offset. The MTC offset relates to the start time of the current program, which is the system used by the Alesis ADAT BRC remote control. I like this way of working, because I can use the same default sequence template for every song, and know that I won't have to mess around with the MTC offset every time. My own preference is to set the MTC offset to zero on the recorder, and to 10 seconds on the sequencer. This means that the tape (or in this case, disk) runs for 10 seconds before the sequencer kicks in, keeping you away from the evil 'SMPTE zero hour' which gives most MIDI sequencers a headache. Like the DMT8, the D80 can be controlled using MMC (MIDI Machine Control), so that you don't have to keep jumping from your sequencer keyboard to the D80's front panel.

IN USE

I tested the D80 alongside Emagic's *Logic* on the Mac, and found that both MIDI Clock and MTC sync modes performed fine — though MTC is

EDITING

Before hard disk recorders, editing was something that we occasionally needed to do, but most of the time managed without. Now, manufacturers would have us believe that if we can't edit everything in the minutest detail, we simply haven't got the right tools for the job.

Most D80 editing is destructive, despite the term 'non-destructive' cropping up a few times in the manual. You can undo an edit, but once you move on to the next one, it becomes permanent. As intimated earlier, Fostex have tried to keep things simple, so the D80 is limited to simple cut, copy, paste and erase editing. These terms are fairly self-explanatory, but they can vary slightly from manufacturer to manufacturer, so here's what Fostex mean by them:

• ERASE

The ability to erase data on between one and seven tracks, between the punch in/out locator points you have set. You can't erase all eight tracks at once, and if you don't invoke the Undo function straight away (memory permitting), the data is gone for good.

• CUT

Be warned that Cut doesn't actually mean 'cut' in the conventional sense, and I feel Trim might have been a better term. Using Cut erases all data (within a program) beyond the marked point, and can be applied to any number of tracks between one and all eight. A good use of this facility is to clean up the end of a song — but to clean up the beginning you have to use Erase. Because Erase can only work on up to seven tracks at once, you may need two goes to completely clean up an intro.

• COPY/PASTE

Copy duplicates the data between the location points, and uses a clipboard system, enabling it to be pasted to any new destination. As far as I can tell, the clipboard just holds the start and end points; the data itself is copied directly from the source position.

When the DMT8 had the earliest version of its operating software, you couldn't copy data from one track to another — which was a point open to criticism. You can now (on both the DMT8 version 2.0 and the D80) change the paste destination track if you have selected a mono track (or an adjacent odd/even stereo pair) as your source. This makes it possible, for example, to take the best bits from several vocal tracks to compile one perfect take.

If, however, you're pasting three or more tracks, or two non-adjacent tracks, you have to paste the data back into the same tracks as the source data. You can't paste data in a position that would cause it to overlap the original data, otherwise the original data will be altered, creating a time paradox and the possible destruction of the universe — well, it might mess up your song, anyway.

Another new feature is that you can now program multiple pastes in one go, allowing you to repeat the same musical sequence many times. Now what type of music could possibly need a facility like that, I wonder? Copy start and end points may be captured on the fly with the Hold button, though one potential shortcoming is that you always need to press more than one button to store a start or end location, which makes working



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obviously nicer if you have it. However, I couldn't check out the multi-machine sync, because I was only given one machine to play with! Before you start work on a song, you have to call up the appropriate Program into which to store your work, and also select the type of sync system to use. If you choose MTC, you'll need to ensure that the frame rate is the same as that on your sequencer — the default is 25-frame. Those using MIDI clock will first have to set up a tempo map --another good reason to work with MTC if you can. Having said that, working with a tempo map means that you can edit to beats and bars, which is a lot more accurate than hitting start and end points manually. Those used to working with analogue machines will really appreciate the ability to sync up a sequencer without having to waste a

on the fly rather difficult.

In all other respects, Copy and Paste is about as straightforward as setting up an auto punch-in/out sequence on a cassette multitracker. If you try to paste more data than you have disk space for, a warning message will appear in the display. All conventional bouncing obviously must occur in the analogue domain, as there's no onboard mixer.

· MOVE

Move works in exactly the same way as copy, except that the data is erased from its original location and the clipboard is emptied after the operation has been completed.

• UNDO/REDO

Edits can be undone or redone using the Undo and Redo buttons, but these may only be utilised while the recorder is stopped. Only one step can be undone, so if you start recording again or make any other edit, your previous edit will become permanent. Similarly, you can't undo an edit if, in the meantime, the machine has been switched off. track on timecode.

The sound quality of the unit is excellent; no data compression is used, so the 'CD sound quality' tag is pretty well justified. All eight tracks can be recorded at once, which makes live-style recording possible, though for location gig recording, a large hard disk would be required. The control panel is so much like that of a tape machine that it's easy to forget this is a disk machine; even the drive noise is very low. Only the rather long-winded marking of edit in and out points takes the gloss off what is otherwise a very slick user interface.

Backing up to DAT is straightforward and seems to work reliably, though it does take over an hour to back up the internal drive, plus another hour to restore the material when you want to continue work on it.

LASTING IMPRESSIONS

Despite all the sophisticated competition, I think Fostex have managed to make a very musicianfriendly recorder. If you think of the D80 as a 'tapeless tape recorder', it looks very serious indeed, though there are bound to be users who regard it as underspecified, because of the additional processing that computer-based hard disk systems are capable of. What I find amazing, though, is that you can now get a hard disk 8-track recorder for half the price of its digital tape-based equivalent. Seen in this light, the D80 is a very impressive and attractive piece of equipment indeed.

FURTHER INFORMATION

- D80 £1499 (includes 80Mb hard drive);
 COP1 optical/co-axial interface £49;
 8051 optional footswitch £26. Prices include VAT.
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Precious

BOSS GX700 GUITAR EFFECTS PROCESSOR/PREAMP

Inside the GX700 lies a heart of gold — Roland's innovative physical modelling technology. PAUL WHITE straps on his guitar and puts this advanced multi-effects unit to work.

here's no shortage of guitar effects units on the market, but because guitar sounds are so much a matter of personal taste, you have to try a few out before settling on one that suits your playing style. Some use digital distortion, some have an analogue front end followed by digital effects, and some even include valve preamps teamed with digital effects. For recording, a guitar preamp also needs an amp/speaker simulator, to emulate the tonal changes and filtering caused by a real guitar amp.

The Boss GX700 uses a solid-state analogue front end to create its distortion and overdrive effects, and this is followed by a powerful multieffects unit featuring amp and speaker simulation — which I understand is based on Roland's COSM modelling technology developed for the VG8 guitar system. While COSM may be technically complicated, from the user's point of view, the Boss GX700 is used much like any other effects processor, and most of the effects on offer are guite familiar.

FIRST IMPRESSIONS

The 1U rack processor is sold under the Boss rather than the Roland name, probably to be more guitarist-friendly. Apart from the front panel which looks as though it's been glazed in sweet and sour sauce — the control layout is pretty typical of a well thought-out effects unit, with the minimum of multi-function buttons. The signal



chain can be thought of as: guitar preamp, stereo effects processor, and speaker simulator, where the amp simulation comes as part of the general effects package. The preamp emulates a number of popular amplifier and stack types, while the speaker simulator can be turned off when the unit is to be used live with a guitar combo or stack. A built-in guitar tuner is included — one of the best I've ever used, by the way — and the buttons are illuminated, so that you can see at a glance which effects are active in any given patch.

As supplied, the GX700 comes with 100 factory presets and a further 100 user memories, which are filled with duplicates of the factory patches. Patch selection is via the front panel controls or MIDI, and Roland do a rather nice foot controller (FC200) which is ideal for live performance. Powered from an AC adaptor, the preamp has a mono input, which is duplicated on the front panel for ease of connection. The output may be mono or stereo, and there's a level-matching control on the back panel, to allow the GX700 to work with mixing desks or guitar amplifiers.

Further connections are provided for an effects loop, allowing other effects or processing to be combined with the existing effect, and the patch information includes in/out switching for any externally connected effect. An interesting addition to the connection system is that the output can be set up in software to match guitar combos, guitar stacks, or the loop insert points of either. This affects both the level and tone of the output, as single-speaker combos and multi-speaker stacks



SOUND ON SOUND . June 1996

BOSS GX700 E49

PROS

- Easy to use.
- Immensely flexible.
- Really good effects.
- Great clean sounds.
- Loads of different overdrive effects.

CONS

• Sounds best on either the clean or very distorted settings.

SUMMARY

A flexible and sensibly priced studio guitar preamp/effects unit. Best for heavily 'produced' guitar sounds.



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BOSS GX700

have quite different characteristics. You can also switch off all of the above for live use. Another considerate touch relates to the speaker simulator: this may be on or off within each patch you set up, but you can switch the speaker simulator on or off for all patches at a stroke if you need to.

There are connectors for MIDI In, Out and Thru plus two further jacks for connecting pedals. Control 1/2 jack allows an optional patch up/down dual pedal to be connected, whereas the Exp pedal input takes a volume pedal, to provide variable control. Strangely, there doesn't appear to be a dedicated bypass footswitch input, though you can set up the GX700 so that the Control 1/2 input operates as a bypass. However, if you do this, you lose the ability to step up and down through the patches remotely.

Patches may be copied from one memory location to another or they may be exchanged, and numerical values, including patch selection, are dialled up on a data wheel rather than up and down buttons. Individual effects may be bypassed using the 12 dedicated front panel buttons, and unlike some units which work only on preset effects configurations, the GX700 allows you to freely change the order in which the various effects blocks are connected.

Editing the parameters for each effect is simply a matter of pressing the required effect button, and then trawling through the available parameters using the parameter arrow keys. The data knob is then used to change the parameter value, and each effects block has a meter function which allows you to check that you aren't overloading the next block in line. After editing, use the Write button to save the patch to any desired user location, and then hit Play to get back into performance mode. A nice touch is that selecting the Tuner mutes the output, so you can tune up silently. Patches can be named with up to 12 characters.

No modern effect processor would be complete without some degree of real-time MIDI control, and with the GX700, you can select up to

REVERB, DELAY & MODULATION

Roland have always been very strong on modulation effects, and the GX700 provides massive scope in this area. In addition to the expected Flanger and Phaser, you get to play with pitch-shifting (up to two octaves either way), vibrato, ring modulation, the Humanizer (vowel filter), and the wonderful Harmonist, which can add up to three extra harmonies to a single note lead line.

Of course, it needs to know what key you're in, so you have to program that into the patch, and if you have something more specific in mind, you can (if you have the patience), enter your own harmony scales. The tracking on this feature is surprisingly good, so it should appeal to anyone wanting to recreate their own Gary Moore-style guitar solos. You may notice that I haven't included chorus in the list of modulation effects, and that's because it has a section all to itself. Roland pretty much invented Chorus, and as you'd expect, there are no complaints here.

The Delay block can provide up to two seconds of delay, and you can set up to three different delay times for left, right and centre. There's a tap tempo facility, variable feedback and high cut/damping filters to help simulate tape delay effects. Tremolo/Pan provides LFO level modulation, with a choice of triangle or square wave modulation, while Reverb gives a choice of two rooms, two halls and a plate setting with a maximum reverb time of ten seconds. Though there aren't as many tweakable values as you might expect on a dedicated studio processor, you can adjust the most important characteristics such as pre-delay, diffusion and the high/low frequency filtering. four parameters per patch for MIDI/pedal control. You can also set the range over which the parameters are modified by the external MIDI controller.

EFFECTS & PROCESSORS

Let's have a look at some effects and sound processing facilities available in the GX700.

• Noise gate: with user control of threshold setting.

• **Compressor:** with variable attack and release characteristics, plus control over sustain and tone. In common with all the other effects blocks, this also has a level parameter.

• Wah: this classic effect is familiar to guitarists everywhere, and can be recreated quite convincingly with the GX700, either under LFO or pedal control. The resonance of the wah effect can be varied, as can the frequency range over which the effect sweeps.

• Distortion: I suspect this section is based around the concepts used in the Boss analogue pedals. The choices available include Vintage OD, Turbo OD, Blues, Distortion, Turbo Distortion, Metal and Fuzz. In addition to an adjustable drive level, the distortion settings also have a basic 2-band bass/treble equaliser.

• Preamp: this is where COSM modelling comes into play, because here you can select from several amplifier characteristics, including JC120, Clean Twin, Match Drive, Big Lead, MS1959 (I), MS1959 (II), MS1959 (I+II), SLDN Lead and Metal 5150. The available controls include the usual Bass, Middle, Treble and Presence, as well as the Volume/Master Volume method of setting the amount of amp distortion, and a 'Bright' switch. A gain parameter is also included, which affects the distortion amount.

• Loop: this isn't an effect at all, but rather a means of switching in an external effect or processor. The Loop function connects via the rear panel jacks, and has adjustments for both send and return levels, which is a sensible inclusion.

• **3-band EQ:** despite the fact that the overdrive section and the preamplifier both have tone controls, there's also a 3-band equaliser with a fully parametric mid section.

• Speaker Simulator: this again offers several choices: Small, Middle, JC-120, Built-In 1-4, Big Stack 1-2, MS Stack 1-2 and Metal stack. There are also three possible virtual mic settings, for close miking and more distant miking, and separate level controls are provided for the mic level and the direct level.

• Noise Suppressor: this comes at the end of the amplifier chain, but before the effects. However, because the effects can be connected in any order, it can be used elsewhere if you have a reason for doing so. Personally, I'd be inclined to use it after the modulation effects (for anything that doesn't involve level modulation, such as panning or vibrato), but before any delay or reverb effects. As far as the user parameters go, these are really down to Threshold and Release time, though you can also choose to key the gate from either the noise reduction block's own input or from the guitar input jack.

SUBJECTIVELY SPEAKING

Like most Roland/Boss gear, the GX700 is well thought-out and nicely built, with plenty of flexibility. I tried the unit with both my Fender combo and directly into my mixer, to check if this was a practical way of getting instant guitar sounds onto tape — and with some reservations, it was. The clean sounds are quite excellent, and the compressor really works nicely to produce tightly controlled, shimmering chords which can be further refined by adding a light touch of chorus and reverb.

The heavily overdriven sounds can also work very nicely, though I found I had to edit the factory presets to get anything remotely

"The effects were generally first class, and struck the right balance between flexibility and complexity."

to my taste. I found the presets very harsh and edgy, which might be fine for heavy metal, but with a little fine tuning, especially in the EQ department, I was also able to get a pretty convincing Dire Straits 'Money for Nothing' sound out of my Strat. On the other hand, I just couldn't get a sweet blues tone out of this box, without rolling off so much top that the resulting sound was dull and lifeless. At lower overdrive settings, you can get a workable tone for single notes, but chords tend to sound very scratchy or grainy, even through the speaker simulator. The effects were generally first class, and struck the right balance between flexibility and complexity. The pitch shifter works better than most (though it isn't perfect), and the 'roll your own' harmony feature (see 'Reverb, Delay & Modulation' box) is very effective.

SUMMARY

In the studio, I could find lots of uses for the GX700 — it could give me lots of usable sounds I couldn't get any other way — but it falls short when you ask it to come up with more subtle or musical overdrive sounds. It's great for heavy rock, hammering, tapping, widdly-widdlying and power chords that could slice concrete, but it isn't great at blues, and it doesn't do the world's best Pink Floyd impression. Similarly, it isn't as convincing as it could be on '60s and '70s raunchy rock sounds, so if you want to sound like the Stones, ZZ Top or even Marc Bolan, you'll have to be prepared to spend some time programming and experimenting with programming.

Of course the GX700 isn't alone in attracting these criticisms, and pretty much every guitar multi-effects unit I've tried sounds wonderful at the extremes, but is somewhat deficient in creating 'real world' amp sounds. Against the competition, the GX700 stands up very well, especially in the effects department, but if the one-box solution that will satisfy everyone actually exists, I've yet to find it!

FURTHER INFORMATION

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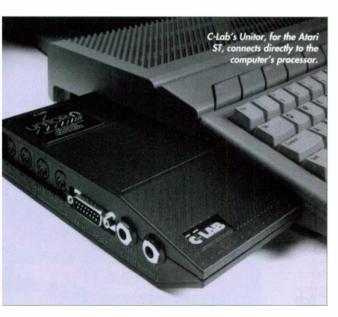
he Society of Motion picture and Television Engineers devised SMPTE, the timecode that bears their name, to sync soundtracks to films, so that separatelyrecorded dialogue could be added after filming, without having to rely on sprocketed tape and manual lining-up of start points.

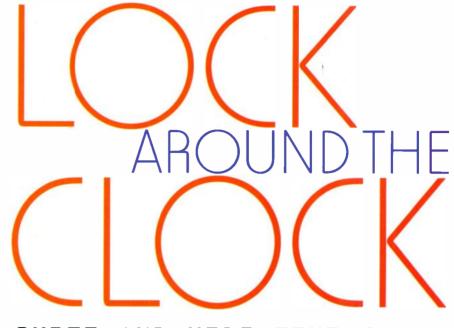
Later, it was discovered that SMPTE time code was also a useful way of synchronising one tape machine to another. Both machines carry a track of code, and a synchroniser box compares the time positions of the two codes. If the codes are not identical, a control signal is derived which changes the speed of the slave tape machine, forcing it to move back into sync with the master machine.

Initially, such SMPTE systems were very complicated and expensive, but now that we have dedicated, inexpensive microchip sets capable of handling SMPTE generation and reading, SMPTE is cheap enough to use in MIDI studio applications. The code is based on real time, measured in hours, minutes and seconds, with further subdivisions to accommodate individual frames of TV and film material. This is in direct contrast to MIDI Clock. which is a direct multiple of tempo. Because SMPTE is independent of tempo, a whole tape can be recorded or 'striped' with code before any recording or programming starts — I like to think of this as being similar to printing the 'cm' and 'mm' divisions on a ruler. Before going any further, it might help to see what these invisible markings actually tell us.

Strictly speaking, SMPTE code covers only the American TV format of 30 frames per second (fps) and film at 24fps, the European equivalent being EBU code, which relates to 25fps TV. It's now common to combine both codes under the title SMPTE/EBU, but most people still refer to the code as SMPTE, whatever its format. Apart from the more common 24, 25 and 30 fps formats, the

PAUL WHITE takes a closer look at SMPTE and MIDI Time Code, and their role in tape-to-MIDI sync.





SMPTE AND MIDI TIME CODE

standard also includes 'drop frame', which is used when converting film to TV. The system gets its name because whole frames of picture are periodically discarded, to eliminate cumulative timing errors which would otherwise build up, due to mathematical remainders which occur in the conversion maths.

Drop frame is not used in audio-only applications; it is more usual to set the SMPTE format to the local TV standard: 25fps in the case of Europe's PAL and SECAM broadcasting systems, or 30fps in the USA or other countries which use the NTSC system (or 'never the same colour twice' as it tends to be known). Because the frame rates of film and TV are still too coarse a measure for audio — where even tiny timing differences can throw the feel of a piece — additional resolution is achieved by interpolating between individual frames.

When using SMPTE to sync a MIDI sequencer to tape, the SMPTE code is normally recorded on the highest-numbered tape track, and the track output fed back into the converter box. Noise

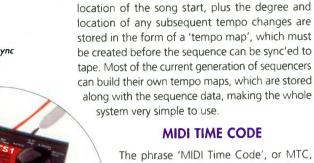
> reduction should be avoided if possible, because it can introduce errors into the code. Because sequencers can't read SMPTE directly, a conversion has to be done somewhere along the line, to generate a data format the computer can understand. This could involve a conversion to MIDI Time Code (MTC), or in the case of C-Lab's original Unitor box (which was used with *Creator* and *Notator* software on the Atari ST computer), the interface communicated directly with the processor inside the ST (see picture).

In addition to converting SMPTE into a form the computer can read, however, it is necessary to convert the SMPTE time information into musical tempo, and this is handled either by the computer used to run the sequencing software, or by a dedicated SMPTE-to-MIDI sync box. The



SMPTE AND MIDI TIME CODE

Philip Rees' TS1 MIDI Tape Sync unit is capable of converting SMPTE to MTC and back again.



often crops up when talking about but what exactly is MTC, and what are its benefits when compared to, say, SMPTE or MIDI Clock sync? Most textbooks dismiss MTC by saying that it's the MIDI equivalent of SMPTE, but that's not really the whole story. It's true that some MTC systems work by taking SMPTE from tape and then turning it into MTC (Philip Rees' TS1 unit, for example, reviewed in SOS March '95, is capable of this) — but then the Alesis BRC can generate MTC directly from the ADAT's own subcode without SMPTE necessarily being involved at all. Essentially, MTC follows the same format as SMPTE in that it is independent of musical tempo and expresses elapsed time in hours, minutes, seconds and frames, and all the common SMPTE variants have an MTC equivalent.

initial tempo of the piece of music and the SMPTE

Standard MIDI Clock sync doesn't include any position information — it's rather like the sprocket holes in cine film — so if a sync pulse gets lost, the sequencer will happily follow along one pulse late. SMPTE, on the other hand, comprises a continuous stream of positional data, so if a short section of code gets lost or corrupted, the system knows exactly where it's supposed to be the next time a piece of valid code is read. MTC also includes positional information, but because it has to share the MIDI data highway with other information, its data is sent in short bursts — four to each SMPTE frame. It takes eight of these 'quarter frame' messages to carry enough data to make up one complete set of location data, which means that the receiving MIDI device must read two frames of code before it knows where it's supposed to be.

Technically, MTC can't pass on positional information as quickly or as accurately as SMPTE, but for practical tape-to-MIDI sync applications, a little clever software writing on the part of the sequencer designers ensures that there's no practical difference.

If MTC has a weakness, it's that its position in the MIDI data stream can get jostled about when a lot of data is being sent; if you have a multi-port MIDI interface, it's usually best to make sure the port carrying the MTC isn't clogged with other MIDI data. If the MIDI data stream is running close to capacity, the MTC data may arrive a little behind schedule which has the effect of introducing a small amount of timing jitter. In really adverse situations, this may be serious enough to be noticeable.



96



Now that Sound Designer II no longer provides sampler support, the way is clear for an improved version of the veteran Alchemy software. MIKE COLLINS thinks it's worth its weight in gold.

Ichemy sample-editing software for the Macintosh has been around for some years now, but after disappearing briefly (as if to gauge its popularity) it's had a facelift and staged a comeback. At least part of the reason for this new lease of life is Digidesign's decision to remove sampler support from its Sound Designer Il software. Sound Designer II started out as a sample editor, and allowed you to transfer audio to and from a range of popular samplers, but has now been optimised for editing complete audio recordings rather than short audio samples. This has opened up a niche for Alchemy 3.0, which has been upgraded to support the most popular samplers currently available. I'll run through the new features first, before recapping on the basic package, and offering a few tips and hints on how to get the best from it.

NEW FEATURES

Existing Alchemy users will be pleased to hear about the many useful new features: the Soundfile Info dialogue has been expanded to include a pop-up menu which lets you access all open files, a new Graphical Key remapping function, and loop start/stop information. The Graphic Keymapping provides a quick and easy way to assign pitch ranges to samples using the mouse, while the Loop Information allows you to numerically adjust loop start and end points, or turn loops on or off.

The Process menu also has some additions. For instance, the Pitchshift Dialogue now shows frequency in Hertz and cents, to allow finer adjustments than previously, and the Resample dialogue now features an option to set sample rate conversion based on the period of the sample (ie. how often the waveform repeats itself). If you click

PASSPORT ALCHEMY 3.0 FOR THE MAC



the button labelled 'Sample Period', the sample rate is recalculated to an integer multiple of the sample period, which makes looping much easier. Once you've set your loops, you can change the sample rate to suit the particular sampler you are working with — and that includes any changes you've made.

Talking of looping, *Alchemy 3.0* now lets you adjust loop points in the waveform window using the left/right arrow keys on your Macintosh keyboard. Using the modifier keys (Command, Shift and Option) you can edit either the left or right loop points, or move both loop points together. These great features allow you to loop your samples much more quickly, accurately and efficiently before transferring them to your favourite sampler, with the benefit of seeing much more on your Macintosh screen than in any sampler currently available — including the Roland models, which let you attach a video screen for editing.

Several new commands appear in the Edit menu

ResEdit and other popular utilities) so that they will be recognised by the appropriate software.

Support has been added for the Digidesign Pro Tools I and Pro Tools III boards, along with the older Sound Accelerator II and AudioMedia II boards. Alchemy 3.0 also supports the RasterOps MediaTime board favoured by some multimedia producers, and using the Apple Sound Chip available in most Macs, you can now play stereo samples without using any third-party boards. And Alchemy 3.0 now supports version 3.0 of the Apple Sound Manager, which means that PowerMacs, AV Quadras, and add-on hardware that supports Sound Manager 3.0 can play back 16-bit audio directly. The Listen button in the Open Special dialogue will also play loops in looped samples. Finally, support has also been added for Opcode's OMS and for MTP-compatible multi-port MIDI interfaces.

Sound files can now be recorded directly into

for selecting harmonics in the Harmonic Spectrum window (the window which appears when you analyse a soundfile). Using these commands, you can select particular harmonic ranges of a sample to cut or shift up or down — and you can achieve some very useful effects using these features. So, for instance, to create short echo effects, you can select every fourth harmonic and cut these, then select every third harmonic and replace these with the previously-cut fourth harmonics. This will shift portions of the harmonic spectrum down by an increasing factor, and the shift in the higher frequencies will result in that portion of the sound content playing back more slowly - resulting in the simulated echo effect. Another helpful command is 'Select Less Than', which can be used for selecting all the lower-amplitude harmonics and then clearing them. This will sometimes clean up a sample, resulting in greater clarity.

Alchemy 3.0 can now open mono and stereo Sound Designer II, SoundEdit and stereo AIFF files — which means that you can open just about any type of audio file you are likely to come across on your Mac. Alchemy 3.0 can also read and write 8and 16-bit WAV files, which are commonly used on PC systems. Files translated with Apple File Exchange, PC Exchange, or similar programs can be opened in Alchemy 3.0 if they have the filetype 'WAVE' or the .WAV file extension, and 8-bit files are converted to 16-bit when they are opened. The Save As dialogue then allows you to save files in either 8- or 16-bit WAV format. You can set the file type of any file on your Macintosh (using Apple's Alchemy 3.0 using the Apple Sound Manager v3.0, so there is a new 'Record Sound' item in Alchemy 3.0's Action menu. Sounds are recorded into free RAM (the amount of free memory available to Alchemy 3.0 is always displayed in the Tool Palette). Don't worry if you run out of RAM for recording; Alchemy 3.0 will stop the recording process for you, although you might get a little frustrated unless you have mega amounts available!

When you choose 'Record Sound', a dialogue will appear where you can make the appropriate settings. Here, you can choose between the input device (which could be the Mac's built-in digitiser, or a Digidesign or RasterOps board), set the sample rate and resolution, choose mono or stereo, and monitor through ---- if required. With everything set, you use the Record, Stop and Play controls until you're satisfied with the result, and then hit Done. The newly recorded sound file will appear in an untitled window in Alchemy 3.0, and to save this you just use the standard Save As dialogue and select a file format. A good tip here is to make a test recording and then check this in Alchemy 3.0's waveform window, to see if the loudest portions are clipping, or if the levels are too low, before making your final recording.

MAIN FEATURES

Once you have some sound files to play with, you can use the Waveform Drawing mode to redraw a waveform, which can help to eliminate pops or other glitches. This is a useful tool at times, although in practice, it can be very difficult to correct such flaws.

If you are preparing material for your sampler, you will probably want to loop the sound next.

ALCHEMY 3.0 £500

PROS

- Allows you to edit harmonics.
- Features a multi-tap delay.
- Offers amplitude and frequency enveloping features.

CONS

- Should offer support for a wider range of samplers.
- Could offer support for editing sampler programs.
- User interface could do with improvements.

SUMMARY

Alchemy is one of those packages which you will not use every day, unless you are constantly involved in preparing samples for popular samplers. However, it contains software 'tools' to die for whenever you do want to edit your samples! Despite minor criticisms, it is the best single package to buy for working with samples on the Macintosh computer.

PASSPORT ALCHEMY 3.0

"These great features allow you to loop your samples much more quickly, accurately and efficiently before transferring them to your favourite sampler." The looping tools are pretty comprehensive, and there is an excellent section in the manual which describes how to make simple splices, crossfade loops and mirror loops, with plenty of tips on achieving perfect-sounding loop points. There are also various simple tools available to let you reverse a sound, invert the waveform, fade in or out, sample rate-convert and so forth. You can also apply digital EQ to any waveform, choosing from low shelf, high shelf and peak/notch type EQ filters, and set parameters for centre frequency, cut or boost, and width in the case of the peak/notch type. The EQ features are not quite as comprehensive as those in Sound Designer II, which also offers graphic EQ (and dynamics processing), but they are adequate for basic EQ'ing tasks.

The most basic edits you might make will involve Cut, Copy and Paste operations, and you can choose to use the Blending functions here if you like. Blending is an auto-crossfade function which is carried out every time you use the Cut, Paste or Insert commands. When you perform one of these edits with the Blend function on, all edit splice points are automatically crossfaded with each other to produce a smooth splice transition. The size and slope of the automatic crossfade range used at each splice point is set using the Edit Options command in the Edit Menu. Using the Blend function ensures that your edits will not cause a click, pop, or 'brick wall' transition at splice points.

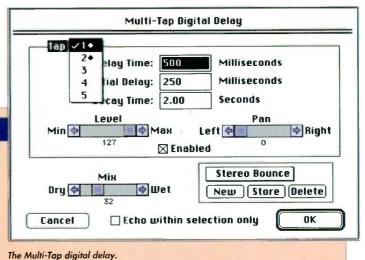
The Blend function actually accomplishes its task by overlapping the waveforms before and after an edit splice point, according to the size of the Blend

Amount. Since wave data is being overlapped, the overall duration of the sound will be generally decreased — so you do need to keep this in mind when using this function. There is now a handy button just above the numeric display at the bottom of the Tools palette, which lets you turn *Alchemy 3.0*'s Blending feature on and off, rather than using the Edit menu item. There is also a numerical display to the right of this, which shows the current blend time in seconds; a mouse click on this time field will open the Edit Options dialogue, where you can change the Blend time amount.

TEMPORAL DISPLACEMENT ZONE

In common with Sound Designer II, Alchemy 3.0 lets you do both time-stretching and pitch-shifting. Sound Designer II offers more control and can sometimes achieve better results while time stretching, but on the other hand, Alchemy 3.0 will detect the pitch of the sample for you — while in Sound Designer, you have to compare the sample pitch with an A440 tone, and set the pitch manually.

Pitch-shifting allows you to change the pitch of a sampled sound accurately, with or without changing its duration. To shift the pitch, you select a range (or the entire sound) and choose Pitch Shift from the Process menu. You get a dialogue box, with a music keyboard, where a dark grey key indicates the selected sound's current pitch. Just click on any key to choose the new pitch, or type a transpose amount into the 'Transpose by' box. If you want the pitch-shifted sound's duration to match the original duration, you can select the Preserve Duration option. When you have made the settings you want, just click OK to execute the pitch-shift. Using this feature, you can quickly create harmonised sounds by first pitch-shifting



TAPPING OUT A TUNE

delay feature. The Echo item in the Process Menu brings up the Multi-Tap Digital delay dialogue, which you can use to add simple or more complex echo effects. The upper portion of this dialogue displays one of five identical panels, one for each of the five delay 'taps'. Using the Tap pop-up menu, you can select each panel in turn, and make appropriate settings. The enabled taps have a black diamond next to them in the pop-up.

To enable additional taps up to a maximum of five, choose an unused tap from the pop-up and, when its panel appears, check the enabled checkbox. Each tap can have its own delay time, initial delay, decay time, level and pan position, although the Pan position is only available when you're processing a stereo soundfile, and both channels are selected. The initial delay is used to set the time between the first occurrence of a sound and the first reflection (or first repeat) of the sound. The delay time is the time between subsequent repeats. The decay time determines how long the delayed signal will repeat after the first reflection occurs. 'Delay time' ranges from 1 to 3000 milliseconds, with 'Initial delay' from 1 to 3000 milliseconds, and 'Decay time' from 0.0 to 30.0 seconds.

The relative amplitudes of the dry and wet signals can be adjusted in two ways: the Level control sets the level of the processed signal for each tap, while the Mix control sets the overall mix of dry and wet signals. If you check the 'Echo within selection only' checkbox, this will force the effect to be constrained to the selected region. Otherwise, the effect will extend beyond the selected range, or if the entire

soundfile is selected, lengthen the sample. Alchemy comes with a few preset delay

settings already provided, but you can also save an unlimited number of your own. The presets include Stereo Bounce, Stereo Spread Simple Echo, Slapback, Reverbish, Pan Bounce and Roomverb. To choose a preset, click and hold on the pop-up menu in the lower part of the dialogue and choose from the list. To create a new preset, make your delay settings and click the New button. A dialogue appears that enables you to name your preset and add it to the pop-up list. The Store button allows you to save changes to an edited preset, while the Delete button removes the current preset from the pop-up menu. Altogether, this is a pretty serious feature, which offers the sound designer the opportunity to experiment directly on-screen with various types of sophisticated multiple delay effects.

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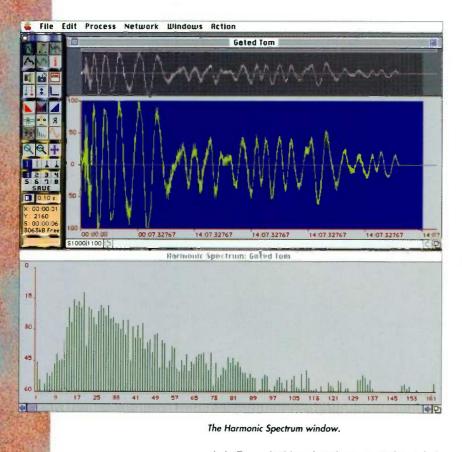
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your original sample (such as a guitar note) down by the interval you want, copying this to the clipboard, undoing the pitch-shift on the original sample, then using the Mix command in the Edit menu to mix the pitch-shifted sample with the original sample to create your desired harmony. Time Scaling is the process of changing the

duration of a sampled sound without altering its



"Alchemy 3.0 is an indispensable tool for anyone involved in sampling who has a Mac."

pitch. To apply this, select the range to be scaled, or select the entire soundfile, and choose Time Scale from the Process menu. Type in a new end time for the range, or type in a scale factor describing the relationship between the scaled file and the original file. Then hit Calculate. The Duration value is automatically updated to how long the processed file will be. When you are happy with this, click OK to apply the process. Scale factors between 0.7 and 1.3 are suggested for best results, as more extreme values will alter the sound too much. A 'Grain Size' field has been added to the Time Scale dialogue to help you get more flexible results. A Grain size with the default value of 30 has always been used for time scale operations in Alchemy 3.0, but prior to version 3.0, the Grain size was inaccessible to the end user. It is now possible to decrease the Grain size to as small a value as '2' or as great a value as the sample rate, size, and time scale factor will allow.

The Grain size is an arbitrary unit used to define a 'time slice'. During a time-scale operation, time slices are analysed for frequency and amplitude content, and a new time duration is constructed, one slice at a time. Smaller Grain sizes can result in a 'smoother' end result, but there are trade-offs. To start with, smaller Grain sizes will require more time for computation. Also, when using smaller Grain sizes, the low-frequency content may not be properly analysed. The lower the frequency, the more samples are required to determine the frequency, so if you use too small a Grain size, the low-frequency content in your sample may be lost entirely. Using a larger Grain size produces sounds that might best be described as 'more chunky'. The end result can sound similar to an echo effect, as longer 'time slices' of the sample are reproduced. Another nice bonus is that time scale operations are faster with larger Grain sizes.

As with other DSP effects, the best way to understand and learn what does and doesn't work is to experiment. Rather than limiting the use of this feature (by limiting the range), the field will accept any value from 2 on up, and only warn you if the Grain size or time scale amount is unusable. The Grain size cannot be 'larger' than the duration selected, for instance. As to what a 'Grain' actually is, well, technically speaking it's a 111000th of the sample rate, plus a 'taper' factor. The taper amount ensures that the size result is an even multiple, and is also used to blend the time slices together. Again, don't try to analyse this one too much — just fool around and see what works.

ADVANCED FEATURES

So far, the features we have looked at are similar to those available in Digidesign's *Sound Designer II* software, but *Alchemy 3.0* goes quite a bit further, with specialised features for sound design.

As in Sound Designer II, Alchemy 3.0 offers a spectrum analysis feature. Sound Designer offers more display options than Alchemy 3.0 - but Alchemy 3.0 lets you not only display, but also edit the harmonics, which is a much more powerful feature. Alchemy 3.0's harmonic spectrum display shows a series of vertical lines representing the individual harmonic components of the waveform you have selected to analyse. The height of each line represents its amplitude. while its horizontal position represents its frequency. Just select the part of the waveform you're interested in, and hit the 'Analyse' button in the Tools palette. This brings up the harmonic spectrum display, where you can select any harmonic using the mouse, get a readout of its frequency and amplitude in the numeric display at the bottom of the Tools palette, and drag it up or down to change its amplitude.

If you want to select all the harmonics above or below this, there are menu selections in the Edit menu. These commands mean that you can use the harmonic spectrum display effectively as a very accurate low-pass or high-pass filter, to remove all frequencies above or below a particular frequency. To hear your results, click on the waveform display, and then on the Resynthesize icon (the palette tool which looks like a sine wave). Another use of this feature is to take out (or



PASSPORT ALCHEMY 3.0

reduce in amplitude) any unwanted harmonics a hum, or any other annoying frequency component, for example.

Unfortunately, there is a limit (32,768 samples) to the length of the audio waveform you can analyse, and you can only edit one channel at a time within a stereo file. These are serious limitations, which restrict the use of this feature to relatively short samples, and make it less convenient for working with stereo files. Of course, as with *Sound Designer II*, you could always use the spectrum display to look at the harmonic content of a small, hopefully representative, portion of your waveform, and thereby identify problems such as unwanted frequency components, or too much energy in any part of the frequency spectrum, and then apply EQ filters to correct the problem.

Another useful feature is the 'Replicate' tool, which lets you copy a range of your waveform and repeat this over a large waveform area. This tool functions by require, and then type the new number in the Sample Size box. Now when you look at your waveform, the display is much longer, but the new part is empty. To make your repeats, select the original waveform and copy it to the clipboard. Next, select the entire waveform, including the blank portion, before hitting the Replicate button in the Tools palette (the icon for this looks like two matchstick men standing side by side). Now you will have the exact number of repeats you want, exactly filling the length of your soundfile. This does seem a little 'fiddly' at first, and the instructions in the manual are a little vague at times, but once you've got the hang of it, this is a 'useful tool.

WELL SYNTHESIZED

The next pair of features, the Amplitude and Frequency Enveloping modes, take us well into the realms of sound synthesis, offering the opportunity to apply volume and pitch envelopes to your sounds.



You can transfer sounds to and from the Akai \$1100 (or \$1000) via SCSI or via MIDI. SCSI is much faster, so you should use this in preference wherever possible.

First, select \$1000/\$1100 from the Network Menu, then choose Instrument: Edit from the Network Menu, to bring up a dialogue box where you can select the correct SCSI ID for your Akai sampler. Mine is set to ID 6, for instance. You need to check that your sampler is set to the same SCSI ID, of course, and you do this by hitting the MIDI button on the bottom row of buttons on your Akai sampler. Then hit the F7 button on the sampler to bring up the SCSI page. Here, you will see '\$1100 SCSI ID : ?' with the number your sampler is currently set to in place of the question mark I have

USING ALCHEMY WITH THE AKAI S1100 SAMPLER

used. To get a sound from or send a sound to the sampler, just use the appropriate commands from the Network Menu. You can also get or send all the sounds or a range of sounds if you prefer.

If you have samples already in your \$1100, you may want to transfer these to the Mac to take advantage of the more sophisticated processing available in *Alchemy*, or any other Mac software you have, or maybe even just to do your looping in the much larger waveform edit window on the Mac's screen. Alternatively, you may already have samples on your Mac, or you may prefer to record them using Pro Tools to get the very best possible results, before transferring to the sampler. Once you have sent your samples across, you will need to set up a program in the \$1100, with suitable keygroups from which to play the samples.

This is all very straightforward in practice, although I wish it was possible to set up the \$1100 programs using *Alchemy* and then send these back to the sampler with all the samples. Obviously it would be good to do this with all the samplers supported by *Alchemy*, and this would involve plenty of programming effort. Nevertheless, it should be possible to add these features in a modular way — perhaps using some kind of software extensions to offer this feature for particular samplers.

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The Instrument:Edit window.

taking whatever waveform you have copied to the Mac's clipboard, and duplicating it repeatedly until it fills the new range you've specified. For instance, if you want to repeat a sound or a portion of a sound to get a stuttering effect, and your soundfile only contains the sound you want to repeat and nothing more, you will need to extend the Sample Size (that is, the length of the soundfile), to make space for the repeats you want.

If you want to do this precisely, you need to know the exact length of your original soundfile — which you can find by selecting the whole file, and checking out the Soundfile Setup command in the File menu. This brings up a dialogue box, which shows the Sample Size as a number. You need to multiply this by the number of repeats you The Amplitude Enveloping mode allows you to adjust or trace the amplitude envelope of any sampled sound. Traced envelopes can be copied and superimposed over other sampled sounds, so, for instance, you could trace the envelope of a violin, and superimpose that envelope over a piano to alter the way its volume changes over time.

This feature is pretty easy to use. With a soundfile open, when you click on the Amplitude Envelope mode icon, the waveform will be greyed out, and a horizontal amplitude envelope line will appear near the top of the Y-axis. This default position indicates that the amplitude is at its maximum value for the duration of the sample. If you click on this line, you will create 'break points' wherever you click, and you can set any number

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of these. You then drag these breakpoints around to set the particular amplitude levels you want over time within your soundfile. Once you are happy with the shape of the envelope you have drawn, choose the Amplitude Fit tool to increase or decrease the amplitude values in your soundfile to fit exactly under the new envelope. Alternatively, you can use the Amplitude Scale tool to adjust your waveform to the correct shape, although not necessarily to the same actual amplitudes (this option is provided because, in sound. Copy this to the clipboard using the Copy Envelope command in the Edit menu. Next, open the guitar note sample you want to use, switch to Amplitude Envelope mode, and choose Paste Envelope from the Edit menu. The amplitude envelope you originally traced and copied from the sample you liked is now pasted into the new guitar sample's amplitude window.

At this point, it is recommended that you use the Scale feature to scale the amplitude envelope to the maximum amplitude value, to make sure

that the resulting waveform will make use of the full amplitude scale. Finally, click on the Amplitude Fit icon. This fits the plucked envelope which you want over the more sustained envelope of your new sample.

When I tried this the first time, I got a little confused — until I realised that I was applying the envelope from a three-second file to a six-second guitar note. The general shape of the envelope was still the same, but the six-second soundfile still took six seconds to decay, while I had somehow

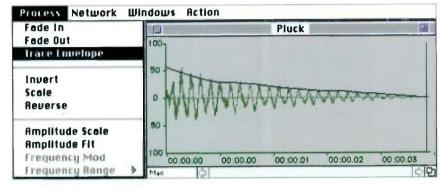
expected it to just last three seconds — like the envelope. To make this work properly, I had to edit the six-second guitar note to last just three seconds, so that the new note sounded just like the original fast-decaying plucked guitar note.

BACK OF AN ENVELOPE MODS

In a similar way to that described above, Alchemy 3.0's Frequency Enveloping mode makes it possible to modulate the frequency of any sampled sound by drawing in a modulation envelope, or by pasting in any waveform to act as a modulation envelope. When you click on the Frequency Enveloping mode icon (which looks like a sawtooth wave) in the Tools palette, your waveform greys out and a horizontal amplitude envelope line running along the X axis is shown, indicating that no modulation is being applied. You can click on this line to insert break points, or

> just use the default break points at the start and end of the sound, if you just want to make the pitch rise or fall from one value to another throughout the sound. You can select a frequency range of one semitone, one octave, or two octaves to define how far the pitch will be modulated when you drag the break points to their maximum plus or minus values in the display.

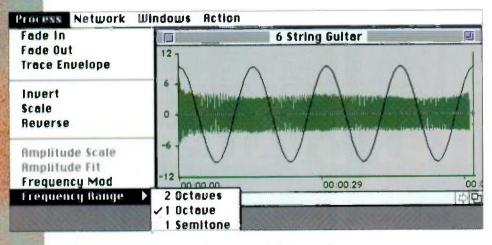
> With everything set, choose Frequency Mod from the Process menu to apply the processing to the sound. The pitch of your waveform will then be modulated or shifted, according to the modulation curve defined by the modulation envelope which you have drawn. So, using the Frequency



A typical envelope trace.

practice, Amplitude Scale works better on low amplitude sounds, or those that contain areas of silence).

Have you ever wanted to make a sample decay over time exactly as another sample does? For instance, imagine a sample of a guitar pluck which dies away fairly quickly, so that its amplitude envelope is like a sloping line starting high and falling off to zero quite quickly. You decide that you like the way this sample decays, but you want to use a different guitar sound. The other guitar sound you want decays in a different way, so you need to force its decay envelope to match that of your original sample. Easy — just open the sample file with the desired envelope, switch to Amplitude Envelope mode by choosing the ADSR-like icon from the Tools palette, and then choose Trace Envelope from the Process menu. This draws an outline of the decaying envelope of your plucked



The Frequency Modulation window.

Enveloping mode, you can apply the envelope of one waveform to control the frequency (pitch) of another waveform over time. An example here would be applying heavy pitch modulation to a guitar sound, by using a sinusoidal envelope to change the pitch of the guitar sample over time.

First, open the Loop Sine sample on the disk of example files which comes with Alchemy 3.0, and copy this to the clipboard. Next, open the guitar sample you want to process, and select the Frequency Enveloping mode by clicking on the icon in the Tools palette. You can choose a frequency range setting in the process menu, such as '1 Octave', and then use the Paste Envelope command in the Edit menu to paste the sine wave into the Frequency Modulation window. You could use any waveform you like here, but the sine wave makes the process clearer to understand when you hear it. To activate the pitch-shifting, hit the Pitch Shift icon on the Tools palette. Now you will hear the guitar note being frequencymodulated up and down, one octave above and below normal pitch, according to the Loop Sine envelope.

In practice, you can copy any envelope or waveform to the clipboard, and then use this as the amplitude or frequency envelope for a different file. There is no actual difference between

an envelope or a waveform when it is in the clipboard, so if you think you have a useful envelope which you may want to use again, simply copy it to the clipboard, and save it into a new file. You can build up a library of useful envelopes ---stored as waveforms with the appropriate envelopes — for future sound designing projects.

SUMMARY

All in all, Alchemy 3.0 is an indispensable tool for anyone involved in sampling who has a Macintosh computer. Yes, you will almost certainly want to have Sound Designer II and a Digidesign board to work with, and you may well want a selection of other tools such as Steinberg's Time Bandit for timestretching and pitch-shifting, or the various plug-ins for the Digidesign software which offer a wide range of signal processing functions. Nevertheless, when you are preparing sounds for use with a sampler, Alchemy 3.0 has the extra features you will need to get the best results. 505

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INFORMATION

"You can build up a library of useful envelopes — stored as waveforms with the appropriate envelopes — for future sound-designing projects."

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MEGATON BOMB Five star review - "An almost ridiculously

complete 2-CD package of loops, drum hits and other assorted goodies -

everything from construction kits containing multilayered arrangements to drop-the-needle turntable noise, from TB303 Bass riffs to Sci-fi dialogue. If they let us give 6 stars for selection, this package would have scored even better. $A A A A^{-}$ (Keyboard USA). The collection features ambient, hardcore, trance and techno on a 2 disc set for only £69.95



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DOUBLE PLATINUM DRUMS Brand new from Ilio Entertainments in L A: Multi-

Platinum record winners. producer John Boylan and drummer Michael Botts have put together one of the smartest, most lightly assembled collections of drum loops to date. Phenomenally wellrecorded and mixed in true stereo with the same high quality you expect from platinum records. These acoustic kits are played with raw, rockin' energy and plenty of feel, Loops & hits, Dry & Room, Intros, fills & ends for complete tracks! Audio CD 2-disc set. £79.95.

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SOUNDS

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YLISTICS 2 R&B/Jungle/Trip Hop whatever the trendmakers

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AMPLING



Anticipated pricing: £19.95 each, with Akai CD-ROM versions also becoming available for C39,95 each. Tittes include Drum Tools (Laidback, Brushed, & Popped), Country, Roots Reggae. On The Latin Tip, G-Soul, Trippy, House, and more! More news very soon!!



Audio CD- £59 95 **BEATS 'N'** THE HOOD

component samples given separately (drums & instruments) together with the sequence data for each loop on a separate MIDI-file floppy disc (PLEASE STATE ATARI/IBM or MAC version when ordering). This arrangement gives you complete flexibility to customize all loops to any tempo or content you like, 2-CD audio set: £59,95

YOU CAN GET. "("The Mix", UK),



roove elements. Every 5 construction kits are same BPM groove elements, Every 5 construction international & key for mixing & matching. Fresh, well-organised and a true goldmine for the serious producer.

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X-STATIC 1 -REMIXOLOGY X-STATIC

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ELEMENTS Both audio CD volumes now combined into one CD-ROM (Over 500Mb / 1900 samples!) - all

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EUROTECH (Sound on Sound manazine) Specialising in Euro-dance/ Europop. This style of music has dominated the charts all

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releases sounds from his private sample library. Powerful gutar textures, incretibly detailed and expressive, using up to 12-way velocity switching! Also includes massive rock guitar grooves each works in every key and at various tempos. This library contributed to Hans rich sonic approach in many films incl. The ion King. Cool Runnings, True Romance, etc. A must-have for any serious sample collector. Audio CD: £59.95. CD-ROMS £120

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TIME+9 VISA THE LEADING EDGE OF SAMPLING TECHNOLOGY a-Mail: info@timespace.col Internet: http://www.timespace.com Bored with ordinary commercial studios, The Cure decided to cut loose for their latest album, and set up their own recording facility in a Tudor house in the country. NIGEL HUMBERSTONE visited the band on location to discuss the technology that made the move into the country possible, and the group's working methods. Wish album, they opted for a similar approach, and retreated for 16 months to St Catherine's Court, a secluded Tudor house in Bath, where they recorded and mixed what has become their new album, Wild Mood Swings.

BREAKING THE ROUTINE

After a few years with a seemingly ever-changing list of members, The Cure sported a new line-up for the making of this album: Robert Smith (guitar, vocals), Simon Gallup (bass), Perry Bamonte (guitar and some keyboards), and Jason Cooper (drums), with Roger O'Donnell returning to carry out main keyboard duties after a five-year absence from the group. It was Roger who acted as my host for a short guided tour of St Catherine's when I arrived there to meet the band and their

THE CURE • RECORDING WILD MOOD SWINGS

he Cure are the great survivors of the punk era. They have been together albeit with an ever-changing line-up for nearly 20 years, during which time their mix of gothic, independent, and quirky pop styles has allowed them to transcend the vagaries of fashion and enjoy enormous, and continuous commercial success.

But with success comes routine, and after so long in the music business, the album/tour/ album/tour treadmill can prove stifling to creativity. One of the many ways musicians can escape this trap, finances permitting, is to invest in an affordable, high-quality and portable studio system, and move from location to location recording on the same setup wherever they go. U2's enormously successful experiments with portable studio facilities, which resulted in the albums *The Unforgettable Fire*, *Achtung Baby* and *Zooropa*, are well documented (see Paul Tingen's piece on the subject in *SOS* March '94, for example). When The Cure decided the time had come to record the follow-up to their 1992 producer/engineer Steve Lyon. As Roger explained, the beauty of the setting had proved to be both a help and a hindrance to the recording:

"It's been so relaxed here. There wasn't a deadline, so we kept pushing it back. It's comfortable and big enough that you can get away from everybody else — so everyone's not on top of each other."

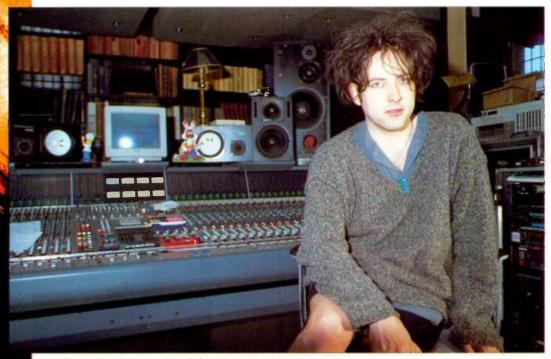
In keeping with the fresh approach to the project, reflected in the choice of recording location, various long-standing conventions in the Cure's working methods were broken or altered for the making of this album. The working title, *Bare*, was ditched when it became obvious to Robert Smith that it wouldn't be appropriate for the album's vibe; instead, he substituted *Wild Mood Swings*, originally the title of a solo album he started writing 10 years ago. The band also chose to work for the first time with producer/engineer Steve Lyon, best known for his work with Depeche Mode. Smith clarified the group's reasons for the new choice:

"I thought that it was time to have a change from working with Dave Allen [the group's



Paul Cox

The Cure



Robert Smith with the Neve VRP desk used to mix Wild Mood Swings.

previous producer/engineer] — I was worried that nothing new was going to happen. We've never really needed anyone to help on the creative or artistic side, but I thought it would be best to get someone in who was younger and didn't have any preconceptions about the group."

Steve's approach was to be ready for anything, as he explained: "I've tried to keep things as open as possible. If, at any time, there's been the opportunity to capture something, I've made provisions so we could do it. Even during rehearsals for the band's festival tour last year, I arranged to record the rehearsal. The four ADATs we've been using have been very useful for that, as they have for putting drum takes together and

THE CURE'S COUNTRY HOUSE

Home to the actress Jane Seymour, St Catherine's Court is a late Tudor/early Jacobean manor built in the Renaissance style, with Benedictine origins dating back to the 14th Century. The story goes that Robert Smith had an agent look for houses with enough bedrooms to accommodate the band, and sufficient space for all their equipment. When St Catherine's was suggested, Smith came and stayed for a month during the summer of '94, sought rechnical advice, and finally set up an enormous portable recording system at the house. Some of the gear used at the house was already owned by the band, but most of of it - including a 44-input Amek Big By Langley console and 32-track ADAT system — was purchased en masse from London-based studio equipment suppliers Stirling Audio Systems. Recording at the house finally started at the end of the year.

Despite its rich heritage, St Catherine's Court had never played host to a modern recording facility, and some construction work had to be done before recording could commence. A dining room had been chosen as the location for the control room, but the acoustics were not entirely suitable, and required analysis and treatment before the room could be used. In the end, a London firm of acoustics specialists, Recording Architecture, were employed to carry out the work, and they installed one of their Black Box acoustic conditioning systems to solve the problems. Ultimately, little else in the house was altered, and recording finally commenced at the end of 1994. In addition to the dining/control room, a stone room was used to record most of the drum tracks for the new album, and then became a general living room for the band recently, as they prepare to leave the house and embark on a world tour. But it was the vast, wood-panelled ballroom and music room which saw most use, serving as both the main recording area and a rehearsal room for some live festival dates the band played last year. changing arrangements in songs where lyrics have been added. There have been four or five different versions of some songs, where edits have been tried and sections have been moved around, by sampling from ADAT into our Akais."

SEDUCED BY TECHNOLOGY?

As mentioned elsewhere in this article, this album has seen the Cure making greater use of technology than ever before. They are launching an Internet Web site in June, and according to Roger O'Donnell, the band have all bought Apple Powerbooks. Nevertheless, he remains sceptical of some of the freedom technology can offer.

"I'm not really one for quantising — I don't see the point in recording a part, quantising it, and then putting human feel on it! But then I'm from the old school, even though I've been using Mark Of The Unicorn's Performer and a Mac since 1987.

"I also think that using computers creates a different performance. If you're playing a piano part, and you know it's going straight to tape, you give a special performance. But if you're playing into a computer, you know that you can change every tiny part. I use the computer in a freer way — but also just as a MIDI tape recorder."

Despite the increased use of technology by the band, they evidently remain clear-headed about its limitations. In a similar way, the recent resurgence of interest in analogue synths appears to have passed them by as well; although Roger O'Donnell has amassed a formidable collection of vintage analogue gear (including Moogs and Sequential Circuits Prophets) during his career, none of these have yet found their way onto a Cure recording.

"No — though I tried! Most of the keyboards on the album have been either piano or organ. We have used an Emulator II quite a lot on this record, though. We've got the Universal Sounds CD-ROM, and it has some really good sounds, even though it's only 12-bit."

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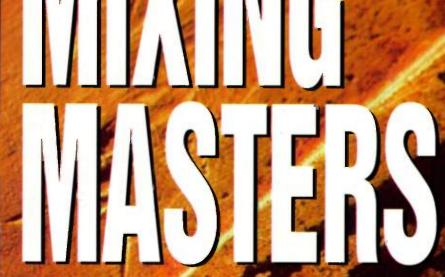
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The Cure



VOCAL INSPIRATION

Such rearrangement was necessary because Robert Smith's distinctive vocal and lyrical ideas don't usually emerge until late in the songwriting process. Smith explains that after song demos are completed, the most he'll usually come up with is a working title, which is sometimes retained all the way through to the finished track. As Roger O'Donnell puts it: "you come to know your songs as instrumentals. Then, overnight, they're changed when Robert sings on them."

Steve Lyon described the process of recording Robert's vocals: "Robert would live with a vocal for three or four weeks, then come back and sing through it, and it would become obvious which parts needed backing vocals or not. Then, within 20 to 30 minutes, you'd have the multitracked backing parts — because he knows his own voice so well."

It was at this point that the songs occasionally needed to be rearranged (Smith: "Sometimes, I'll

> nick one of the tunes played by an instrument as a melody, so that instrument will have to be scrapped") — though this was avoided where possible.

Cure rack shot number 1 — three racks full of gear including the Akai ME3ST Audio/MIDI trigger interface, Tubetech compressor/limiter, Drawmer gates, an Akai S3000 and S1000, no fewer than 5 Alesis ADATs and the Opcode Studio 4 MIDI interface. On top of the racks on the right is the Power Mac running Cubase Score.

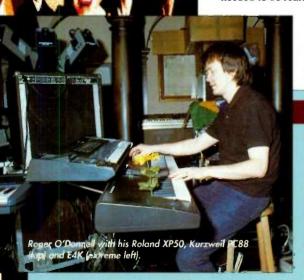
Despite the restful surroundings and propitious atmosphere, most of Smith's vocals were recorded elsewhere. "Somehow, I didn't feel comfortable singing them here. It's different working in an environment that isn't a studio. And because we've actually *lived* here, and the music room hasn't been just for recording, it's been a social focal point — it's meant that that line has been blurred between making the album and living. Nothing we've done before has been like this. If you're in a studio environment — apart from the fact that you're paying £1,000 plus a day — you know that when you're gone, somebody else is arriving, and you're just part of the treadmill process of making another album. Here, it's never been done before, and there's a different feeling."

STRINGS AND THINGS

Another notable development for the new album was the use of real strings and brass instruments, with the strings (a quartet) most prominent and effective on the track 'This Is A Lie'. The idea to use strings was formed at an early stage (see the 'Demo-ology' box for more on The Cure's demoing process). "That track was originally an acoustic guitar part done by Perry," recounts Smith, "and when I started playing around with it, it evolved into a string piece on the keyboard. I always had in mind that we'd be using strings, right from the very outset. In that way, the house helped — there was an instant atmosphere for any string quartet walking into that room."

Audrey Riley's string quartet was chosen for the work: a wise choice, considering Smith's general disdain for classical musicians.

"I'd looked through a lot of CDs with strings that I thought sounded good; contemporary stuff, because I didn't fancy working with strictly classical musicians. Initially, Audrey Riley wasn't available, so we got another quartet to come down,



At the time of my interview, Roger O'Donnell was trying to finalise his keyboard rig for the forthcoming Swing Tour '96, like a holidaymaker deciding what to pack. "It's got to be the Kurzweil PC88 mother keyboard,

ROGER O'DONNELL ON THE CURE LIVE

because I always prefer a weighted keyboard, and I think this is the best on the market at the moment. It allows me to have multiple splits across the keyboard — I need at least three or four. The Roland XP50 is used as a backup, because it's got so many sounds in it. The PC88 drives the rack, but if that goes down, then I can always resort to the XP50, to fill in for a song. I've also just got the Yamaha ProMix 01 mixer — and it's amazing. All the songs are programmed in the PC88, and as I flip through them, everything changes on the desk as scene memories — levels, effects sends and EQ.

"The heart of my rack is an Emu EIV. I wanted something that had enough memory to store data for all the songs, so I wouldn't be waiting if Robert decided to change the order. It meant resampling every old sound and storing it on there. That added up to between 72 and 100Mb. I use an Emu Proteus especially the stereo piano preset — and an UltraProteus for basic sounds. I have a MOTU MIDI Time Piece II, and use an Apple Powerbook to make editing and routing of the Time Piece easier.

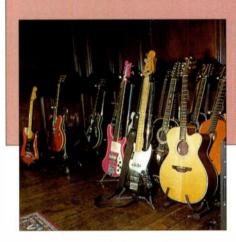
"I also use the Mac, with Alchemy editing software, to juggle samples round in the EIV. I just send a stereo feed out, much to the dismay of the front of house sound engineers, who usually want a feed pre-master level. I always run up against this, because they seem to think that you're going to ride the master volume pedal, but I don't — I just need to fade out the tails of strings and stuff.

"I've just got the keyboard version of the EIV, the

ROBERT SMITH - VOCALS AND GUITAR

I was keen to know what equipment Robert Smith used on the album, "I've used an AKG C12 mic since the Wish album, because, for me, it's much more forgiving. I have a hard edge to my voice when I'm singing, which peaks at about 3kHz. The only piece of outboard I know of, which I've used for the last three albums, is a Massenburg 8200 EQ — just because, again, it's notching out rather than adding. My voice changes dramatically if I'm tired or emotional. It's difficult, because I've got a window of opportunity to get vocal takes done - I reach a point where I'm mentally and emotionally geared up, and then I pass that point and can no longer sing — even if I think I can.

"Most of the guitar work has been done on a



Robert Smith's overstocked guitar collection, including Takamine acoustics and his Ovation 12-string. Attend The Cure's world tour and they might be yours!

but the problem with classical musicians is that they can't play in strict time. Well, they can, but they don't, because they feel it's demeaning. Their tuning was awful as well!

"Audrey, on the other hand, was very aware of recording for contemporary pop, as you might call it. She's very honest about it, and if they are playing something wrong, then she's not afraid

E4K. And Perry's going to play keyboards on a couple of songs, so we're both going to have E4Ks. It's a great keyboard for live use — they've really worked out the logistics of using a sampler in a live situation."

The job of recreating real instruments live falls to O'Donnell — a task which can sometimes prove difficult.

"I've taken some samples off the recordings, but I've also just got the Emulator CD-ROM sound library, and I'll be using sounds off that. Simulating a string quartet is essentially about getting the voicing correct. The brass is easier to recreate."

Interestingly, the band's new fondness for computer sequencing has yet to extend to their live performances. "We've never used any sequencing live - it's just not the Cure way of doing things. I don't think anyone would feel comfortable, and it would be too restrictive."



Robert Smith with his Gibson Chet Atkins limited edition guitar.

limited edition Gibson Chet Atkins — a huge guitar, I've been getting about one or two for every album, and with gold all over it. I have actually played every single guitar in the ballroom; each one's been recorded, but use them all, one last time, before I get rid of them. I'll give them away as tour prizes!"

now there are just too many. I don't collect them - I do like three of them in particular, but the rest just go back they've not all made it onto the record. My goal was to in their cases and stay in storage the next year. Maybe

to say so. With the other lot, I had to go in myself and say 'Look, can't you hear that you're playing out of tune?""

Wild Mood Swings also saw the band making greater use of computers than previously. Having been away from the group for five years, Roger O'Donnell was particularly well-placed to notice this change: "When I left the group in 1990, there wasn't a computer in sight. I came back, and there's computers everywhere. We've really started using sequencing - all the keyboard parts have gone through it [Cubase Score for Macintosh]. The use of a string quartet and brass section is a strange contrast!"

Strange, perhaps, but Cubase Score proved a considerable help when it came to communicating with the classical players. Smith: "It's been good using the Score package, because anything I play in can actually come out as musical score. Audrey would then hand-write it for the players, but it's really excellent, because you can instantaneously change pieces. Before, it was like trying to put your ideas over in another language."

MIXING

Of the 14 songs on the album, five were mixed at St Catherine's Court by Smith and Lyon, while eight different people (including Adrian Moulder, Flood and Spike Drake) undertook the remainder. A Neve VRP Flying Fader Console was astutely purchased by Smith for the two-month mixing session, as he gleefully explains: "I bought and sold it in the same week! I even made a profit." Perhaps the swift resale was a good idea, as the Neve turned out not to be his cup of tea at all: "The Neve is an engineer's desk. The computer inside it is so archaic

NO JAMMING PLEASE, WE'RE THE CURE

Robert Smith "I always see jams in two ways: they either degenerate into a farcical situation — or they start off as a farcical situation, and get worse! We tried recording some stuff to DAT, but it's painful, listening back to jams — it really is quite depressing".



The Cure

even though Steve will tell you the opposite, and say it's very obvious. I suppose it's because I've worked with SSLs so much that I take the command functions for granted. It's about artist involvement, really — Steve had wanted to work with a Euphonix desk, and I wouldn't, because that has assignable channels, which keeps the artist at bay even *more*. With the Neve, you might touch a fader and go 'Oh no! The yellow light went on instead of the red!' I just want to be able to maybe push the bass up in level, without having to go back two mixes, or whatever. That is really frustrating that's why, even though the Amek's got automation, we never turned it on."

Smith always gets involved with the mixing of Cure albums, if only as a pair of fresh ears: "I walk into it towards the end, when it's reached a certain stage. I'm not really interested in the way that things have been routed, or what's plugged up where. Also, a lot of the time, I just haven't had enough time, because we were doing promotion for the record as it was being mixed. After doing six or seven hours of interviews, I was knackered, and Steve would be waiting for me to say what I thought, so that he could move onto the next stage. So, it's been very broken up; more than it should have been."



Cure rack shot number 2 — outboard including Lexicon PCM70 and PCM80 effects, TC Electronic TC2290 delay, Eventide H3500 UltraHarmonizer, Yamaha SPX1000, SPX900 and SPX90 MkII, and Roland Dimension D Chorus and delay.

Mixes were laid to half-inch tape at 15ips, not in an attempt to add warmth to the ADAT recordings, but merely as a long-term preference of both the band and Lyon. Smith: "With halfinch tape, at least you get a decent-sized box.

Massenburg mic preamp

Massenburg 8200 EQ

• Urei 1178 compressor

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Outboard

• Akai \$3200

• Akai \$1000 (x2)

Macintosh Powermac 8100

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Lexicon PCM80 effects

Lexicon PCM70 effects

Roland Dimension D chorus
 TC Electronic TC2290 digital delay

Yamaha SPX1000 effects

Yamaha SPX900 effects

Zoom 9050 effects

• AKG C414B ULS (x2)

• AKG CK98 capsule

Crown SASSP PZM

• Electrovoice RE20

Shure SM57 (x8)

Shure SM58 (x5)

• Neumann U87 (x2)

AKG CK1 capsule (x4)

• Bruel & Kjaer 4007 (x2)

Sennheiser MD421 (x2)

Microphones

• AKG C3000

Yamaha SPX90 Mkll effects

Eventide H3500 UltraHarmonizer

Steinberg Cubase Score

Tubetech LCA28

THE CURE'S GEAR

ROBERT SMITH (GUITAR, BASS, LEAD VOCALS, KEYBOARDS)

- AKG C12 mic
- Ampeg Combo SVT112
- Banjo (5-string)
- Boss effects pedals
- Coral Sitar guitar
- Emu Emulator II
- Fender 6-string bass
- Fender Jazzmaster
- Gibson Chet Atkins Itd edition guitar
- Gibson SG Custom guitar
- Gretsch Tennessee Rose guitar
- Jen Cry Baby Wah Wah pedal
- Marshall Bluesbreaker Combo
- Mosrite guitar
- Ovation 12-string guitar
- PHD Custom guitar
- Sitar
- Takamine 12-string acoustic guitar
- Takamine 6-string acoustic guitar
- Vox AC30 amp
- Yairi Classical guitar

SIMON GALLUP (BASS)

- Ampeg 1x15 SVT cabinet
- Ampeg SVT 200T bass amp head
- Ampeg 2x10 SVT cabinet
- Boss effects pedals
- Dick Knight Custom bass
 Fender Jazz bass
- Fender Jazz bass
 Fender Musicman bass
- Semi-acoustic Washburn bass

PERRY BAMONTE (GUITARS,

- KEYBOARDS, BASS)
- Boss effects pedals

118

Left-handed Fender 6-string bass

- Left-handed Gibson Chet Atkins electric
 Left-handed Gibson Les Paul
- Left-handed Peavey Musician 4x12
- (6-string bass)
- Left-handed Ovation 12-string acoustic
- Marshall Bluesbreaker
- Peavey Chorus 2x12 Combo

Vox AC30 amp

ROGER O'DONNELL (KEYBOARDS)

- Apple Powerbook 5300CS (plus CD-ROM drive)
- Furman power supply
- Emu E4K keyboard sampler
- Emu EIV rack sampler (with Emu
 - CD-ROM library)
- Emu Proteus synth
- Emu UltraProteus synth
- Kurzweil PC88 master keyboard
- MOTU MIDI Time Piece II
- Roland XP50 synth
- Yamaha ProMix 01 mixer
- Zip Drive

JASON COOPER (DRUMS)

- Akai ME35T Audio/MIDI Trigger interface
- Akai S3200 sampler
- Akai 53200 sample
- 10/12/15/16 toms (power)
- 14x8 Ludwig Colosseum
- 14x8 Tama
- 14x14 Noble & Cooley • 14 brass shell DW
- 22 bass drum
- Dauz pads
- DW pedals
- · Dw peda
- Emu EIV sampler
 Pearl rack

- Roland Octapad SD11
- Yamaha Maple Custom kit
- Zildjian cymbals
- PORTABLE STUDIO FACILITY

Recording

- AKG C451E mic preamp (x4)
- AKG SE3000B mic preamp
- Alesis ADAT (x4)
- Alesis BRC and meterbridge
- Amek Big By Langley 44-input
- console with patchbay extension
- ATC SCM100A powered monitors
 BSS AR116 DI boxes (x10)
- Fostex D30 DAT
- Genelec 1030 monitors
- IBM 486 computer/monitor (for Amek automation)
- Opcode Studio 4 MIDI interface
- Rane headphone amp (x2)
- Yamaha N\$10M monitors
 - innal and affects and an
- Signal and effects processors
- dbx 902 de-esser module
 dbx 160XT (x2)
- Dolby 363 2-channel SR/A noise reduction

• Drawmer DP320 universal noise filter

Focusrite ISA110 equaliser/mic PA

· Focusrite Red 3 stereo compressor

Focusrite 4-way rack module

Focusrite ISA130 dynamics

module (x2)

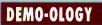
Focusrite ISA215

Klark Teknik EQ

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March Million

The starting point for the majority of Cure songs are demos submitted by individual band members, who all get together to decide which ones are best. The ideas are then fleshed out by the other members in the studio, as Roger O'Donnell explains:

"On some songs, Robert had specific ideas of what he wanted played. But for other songs I just played along, and it was a perfect experience to be allowed to play what I thought, and see what happened. There were bits that I thought had no chance of staying on which Robert would come down and say he liked. It was very rewarding for me, more so than when I played on Disintegration [The Cure's 1989 album], because then, it was more a case of playing a part that had already been written. This time, it was more creative for me."

I asked Robert Smith how far the final songs are from the original demo tapes.

"Some of them are immeasurably different, but if nothing else, they retain core elements of the original. "When I do demos at home, I play a lot and build up the song. I use a little Casio home keyboard, a Musicman bass and an electronic Casio guitar with plastic strings [a DG20, possibly? —Ed], as well as an Ovation 6-string acoustic. Then there's a Tascam 8-track Portastudio. I also use a Roland R8 drum machine, but I always use presets on that, or drum sounds from the Casio keyboard as a basic timing.

"I like to work out the melody lines and how they are going to work with each other, but I don't tend to bother with the drum **patterns** much — I keep it as simple as possible, because working with a drummer, it would be pretty dumb for me to say 'Here's the drum part.' I've tried to relax a bit more about the whole thing, even though there are key elements. When I'm doing demos at home, it's generally after a few drinks, so I want the simplest route from playing something to getting it on the tape.

"Simon (Gallup) sometimes gets a raw deal, because the bassline is usually intrinsic to the song, and it doesn't change that much. Simon's demos are usually stripped back to a bassline with top melody line. Perry (Bamonte) tends to do just an acoustic guitar or a piano, 30 seconds long and that's it — because he thinks that if I like something about that 30 seconds, then it can be developed. And Roger's demos are always very accomplished."

The Cure

which feels like it's worth something. A DAT is like a Swan Vestas box! I regret the demise of vinyl albums as well — they're so big they actually *meant* something, and the artwork looked good.

"Adrian Sherwood mixed a track using 24-track analogue, but then he mastered onto DAT. His was the only mix returned on DAT, even though he's Mr Analogue! The only difference was that we had to reduce the level compared to all the other mixes from halfinch. But the difference in sound quality wasn't noticeable."

MASTERING

Finally, and in another break with tradition, Robert Smith's involvement on this album extended to supervision of the album's final mastering at Metropolis, London. Previously, Cure albums had been mastered at another facility, and Smith was not present. But this time, he wanted it done differently: "I was very frustrated, especially with the last couple of releases we had, where I hadn't turned up. This time, I thought I should get involved. Ian Cooper at Metropolis was recommended to us by Flood.

"When using a cutting engineer, you have to have faith that the person knows what they're doing — because that's the final link in the chain that you really have no control over. We were discussing all the details for the cut, and I said 'How are you calibrating all this?' — and it was just with his ears, basically. So you've got to trust that he can actually hear!

"This album was a difficult one to cut, because it's been mixed by so many different people. Steve went down two days before, because I knew that that would be a technical day --- for lining everything up, putting it into the computer and EQ'ing. I got a CD-R the next day, listened through, and there were things I heard that I wasn't really sure were necessary. It was mainly EQ, but also compression. When I went along, I went having heard what they'd done - and heard it in one hit through a hi-fi, unlike them. They'd spent 12 hours piecing it all together, and by the time you get to the 14th track, you just can't hear the same as you did on the first one.

"I'd made notes, and felt that if my feelings when I was in the mastering room the following day corresponded to how I'd felt listening in the house, then I'd know I was right. So I made a new set of notes, and asked Ian what he thought, and we agreed on five songs that had been either over-EQ'd or compressed. In the end, it was quite an easy process."

The album Wild Mood Swings is out now. The Cure's world tour — The Swing Tour '96 — starts on May 21st in Aberdeen.

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Everyone feels happy having bought a new studio item, but how quickly that can fade.... Discovering the limitations in new equipment is so often a chastening experience - know the feeling? Happiness is knowing the truth before you buy. So here it is, as spoken by the entire music and hi-fi press....

Happiness is purity of sound

'the recording quality is to all intents and purposes indistinguishable from DAT or CD. Indeed, if you're using the analogue input, you'll actually get a little more dynamic range than you would with a DAT machine.' Sound On Sound

'... it's easy to forget you're listening to tape and not a silver disc.. the improved dynamics of the 18 bit system are again apparent... certainly there's no feeling that this is CD's poor relation.' What Hi-Fi

"...the Philips exhibited excellent dynamics and a beautifully seamless sound that caught the air and space of the hall, subjectively far superior to when it was recorded from either analogue or 16 bit CD. ...All in all, I was seriously impressed with the DCC's'. Hi-Fi World

'In contrast to the two MiniDisc (MD) machines, the DCC sounded bold and vital, and ultimately more engaging - there was more going on, giving the aural senses more of a workout. The treble sounded clean and crisp, without the fried-eggs quality of the MD recorders, but with plenty of detail and a more palpable sense of presence. ... the mid-band was similarly more vital and engaging. The Philips was much more consistent than the others, with none of the rather crudely-drawn quality that becomes apparent on MD when the music turns stressful...by far the best sounding of the three'. Hi-Fi Choice

Happiness is picking winners

'These new generation DCC machines start out by sampling the incoming signal not at 16 bits but at 18 bits which gives rise to a potential improvement in both dynamic range and residual noise of around 12 dB... DCC sounds just the same as DAT ... The way DAT keeps going up in price, DCC could well become the home recording standard of the latter half of the nineties." Sound On Sound

'...DAT is starting to get out of reach with its escalating, almost elitist price range...The DCC730 is much better and cheaper than the recordable MiniDisc; it even makes a handsome partner for a direct-to-disk system. If only you could use it to back-up data I'd give up on DAT altogether. Go out and buy one ... ' The Mix

'Philips allegedly invested £500 million in the research and design of DCC... the low-cost DCC730 could seriously challenge DAT's hold on the high-tech market. ...could encourage small studios to adopt the format over the increasingly expensive DAT alternative.' Future Music

'I've used a good quality DAT machine for years and am no stranger to the way digital tape can render analogue sound dry and antiseptic. But the Philips simply wouldn⁺t entertain the possibility, giving a surprisingly warm and fulsome rendition. The bass was particularly well-rounded and lacked the sense of sterility so common with digital. There was no trace of hardness higher up the frequency range.' Hi-Fi World

'All DCC recorders will accept a digital input at 32, 44.1 & 48khz, which is good news for anyone who wants to transfer a DAT collection to DCC. DCC's ability to handle any sampling rate you can throw at it might even precipitate a glut of second-hand DAT machines!' The Mix



6

Emu's Vintage Keys synth was a big hit with both the dance and

traditional electronic music fraternities, but given the recent boom in dance-orientated S+S synths, it was only a matter of time before the company produced a synth aimed squarely at dance production. And now here it is! Space cadet MARTIN RUSS goes into Orbit...

EMU ORBIT £869

PROS

- Large number of samples, with a strong rhythmic content.
- Beats mode is great fun, and the planned MIDI file disk should turn it into a useful starting point for real drum patterns.
- Cheaper than an equivalent sampler.

CONS

- The choice of samples (chords and dance-orientated hits) restricts the Orbit's use for types of music other than dance.
- Using the multisamples with an external sequencer can be timeconsuming.

SUMMARY

Once learned, Emu's user interface is fast and easy to use, offering instant access to lots of sounds, and the potential for programming if you want it. The Orbit is brilliant for dance, techno, ambient...



VOLUME

PHONES

EMU ORBIT 9090 SYNTHESIZER

esigning the front panel for a 1U rack box can't be very exciting. Presumably, the marketing department says it has to be a black metal panel and look sophisticated. The 'on-stage' consultant says it needs white lettering so it can be seen in monochromatic light, and assures everyone that there is no need for a front-panel headphone socket. The software programmer and user interface guru thinks that 50 buttons, 12 knobs and a big LCD display are essential. And the hardware engineer looks at the budget and says it can't have any knobs, and a maximum of 20 buttons, to keep the cost down. As the proud owner of several slim black boxes designed by these people, I confess to a little surprise at the appearance of this one.

The Emu Orbit breaks rules. The front panel is golden: not guite burnished, but a considerable departure from the usual curtain of black. It has LFOs which can be synchronised to MIDI clocks (hurrah!) - so I'm sure I'm not the only reviewer who is going to try and make a joke about it being 'a synchronous Orbit'! The sounds inside have nothing to with silky-smooth orchestral timbres — the Orbit has been inseminated with a large dose of fun instead of sample correctness. It even breaks the unwritten rule about not putting a sequencer or a drum machine inside a rackmounting box. It's a synthesizer module that looks and sounds like it has escaped from the laboratory when the management were not looking, and it has an insidious and highly infectious effect on humans: it makes your body move. We're talking rhythm!

GENERAL FEATURES & USER INTERFACE

The Dance

The Emu Orbit is a 32-voice polyphonic, 16-part multitimbral synthesizer with six audio outputs. The 512 preset sounds are not General MIDI-compatible at all, thank goodness. 256 of these preset memory locations are stored in RAM, and so are available for your own edits. The other 256 are permanently stored in ROM and are thus beyond the reach of even the most powerful editor or accidental button-presser. Underpinning these presets are the sound samples; more than 600 wild and wondrous snippets of audio, which definitely do *not* include soft string sections, tinkly electric pianos, tame percussion and surf washing on a beach.

Emu have always trodden a knife edge between synthesis and sampling — and the Orbit is not just another sample player. It has bienty of synthesis capability, enabling users to program their own sounds instead of relying on a CD of someone else's pre-packaged samples.

Some 1U rackmount boxes have awful user interfaces, but Emu's remarkably simple front panels are also astonishingly easy to use definitely the best I've ever seen. The cursor buttons move the flashing cursor around the screen, and the data knob changes the value of the selected parameter. There are four modes: pressing the Master button enters the global control menu, whilst the Edit button accesses the sound editing menu, and Beats mode involves pressing both buttons at the same time. The final 'Play' mode is in force when none of the others are selected, and allows remarkably quick





reconfiguration of the Orbit for multitimbral MIDI use: you just select the MIDI channel, and the currently assigned volume, pan and instrument are displayed, ready for editing. I can't see how it could be any easier to do! Ten out of ten for this.

SOUND ARCHITECTURE

The Orbit is a 'sample + synthesis' (S+S) synth: it uses the audio samples stored permanently in ROM as the raw material for a synthesizer-type processing section. Comprehensive modulation patching facilities make it more than just a sample replay machine — you get virtual patch cords to play with! And it has portamento — something which many digital synths ignore completely.

A single Orbit 'voice' (which Emu call a Preset) has two parallel, identical parts (termed Primary and Secondary in the manual). Each of these comprises a complete sample replay-based oscillator, filter, DCA and envelope. The two LFOs are common to both these parts of the voice, as is the auxiliary envelope (usually used for the filter). This structure sets it apart from some other S+S synthesizers, which have dual oscillators, but only one filter. Figure 1 shows the Orbit's voice architecture graphically.

The filters in the Orbit are not just the resonant low-pass filters you might expect. There are 16 different types, all but one of which (the 'Bottom Feeder' filter) are derived from the filters in Emu's EIV professional sampler (see SOS reviews in April '95 and April '96). They also incorporate the realtime morphing first seen on Emu's classic Morpheus synthesizer. This means that alongside the 2-pole and 4-pole resonant low-pass filters that have been a standard part of synthesizers since the first Moogs, there are additional filters which can be used to shape and manipulate the samples. These include a marvellously sharp 36 dB/Octave 6-pole low-pass filter, high-pass and band-pass filters, parametric EQ filters, phasing and flanging comb/notch filters, formant filters which emulate the human vocal

"The Orbit has been inseminated with a large dose of fun instead of sample correctness."

CHIPS OFF THE OLD BLOCK: INSIDE THE ORBIT

The whole of the recent series of 1U modules from Emu are very similar inside. The Morpheus and UltraProteus have a faster processor, more H chips (filters) and an add-on effects board, but almost everything else is common to Emu modules like the Vintage Keys and Classic Keys. In fact, the Orbit PCB has provision for a card slot as found in other modules — but it isn't occupied, of course.

The Orbit's processor is that classic workhorse, the Motorola 68000 — as found in the original Apple Macintoshes. The two main custom chips are the Emu chip made by Oki, and the H chip made by AMI, which does the filtering. The operating system is in two 27C010 EPROMs, which represents a return to dual in line (DIL) components — my Morpheus has surfacemount PLCC OS ROMs. But apart from this exception, the very nicely-made, well-laid out, double-sided PCB is almost entirely surface-mount in construction.

Unlike previous models, where the sample memory has been soldered onto the main PCB as PLCC ROMs, the Orbit uses the SIMM slot instead — the PLCC positions are empty. This suggests that the Orbit's 8Mb of ROM is not expandable — at least not without throwing away the existing SIMM. The audio output is the usual block of six Analog Devices AD1861 18-bit digital-to-analogue converters (DACs), and there's one per output — so no output multiplexing here (unlike some S+S synthesizers).

The power supply unit is the standard universal Emu unit, which will work on any AC power from 90 volts to 260, at either 50 or 60Hz — making the world the Orbit's oyster. The Orbit shares the same tough steel construction as others in the series — a good thing, because the review unit had been previously dropped quite hard on one corner, and the front panel bolts were very loose, so presumably it had suffered a bruising from the couriers as well. The force of the drop had been enough to break the factory 'do not remove' anti-tamper sticker, but in spite of all these mishaps, the unit behaved perfectly during the test period.

EMU ORBIT

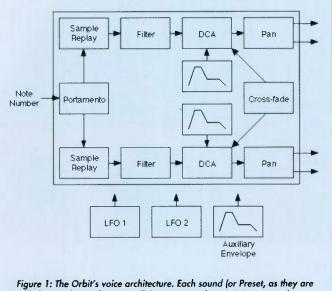


Figure 1: The Orbit's voice architecture. Each sound (or Preset, as they are called) is made up of two parallel sections, each containing a sample replay oscillator, filter and envelope, with common LFOs and a comprehensive patching system.

> tract, and that evocatively-titled 'Bottom Feeder' filter, intended to add distortion to low-frequency sounds like bass and drums. This combination of well-chosen samples and versatile filters makes the Orbit a powerful machine.

SURE BEATS WORKING

The Beats mode is accessed by pressing the Master and Edit buttons simultaneously — not as easy as pressing the single buttons which are required

AUDITIONS

So - you're about to rush off to your nearest Emu dealer to listen to an Orbit. But what do you listen to first? Here's my recommendations for essential sounds to play around with in the shop:

JUZ paa:Ambiwina	Ambient: wim a hidden vocal
036 syn:303 love	Use the modulation wheel.
088 syn:Syntouri	Busy!
104 pad:Falling	One finger only!
216 sfx:Rainman	Busier!
328 syn:SevenSaw	Lower the filter cutoff, increase the resonance, and use the mod wheel to hear
	those 6-pole filters chew the sound!

Unlike previous Emu units, the Orbit demo song is hidden away in the 'Moster' menu. Here's how to get to it. Press the 'Master' button, and twist the data knob clockwise until the display stops at 'Viewing Angle', twist the data knob anti-clockwise to get 'Demo Sequence', then press either of the cursor buttons, and the 'Home/Enter' button. Enjoy!

For some recommendations on the beats to try — well, here I must hand over to my seven year-old daughter, who I left with the Orbit for half an hour. When I came back, she gave me these settings, which goes to show that anyone can have fun with an Orbit!

Beat	Transpose	Instrument
2	+12	442
5	+12	423
19	-18	447
21	+01	440
21	+02	440
21	-01	440
23	-01	440
28	+16	439
28	+24	433
29	-36	435
29	-12	438
29	-12	439

for all the other front-panel operations. But it does emphasise that you are entering a very different mode of operation. In Beats mode, the Orbit becomes a simple replay-only sequencer with only four controls:

- Beat selection (also via MIDI Song Select messages).
- Tempo (also sync'able to external MIDI Clock messages).
- Transpose (of which more in a moment).
- Playback Instrument.

Each 'beat' lasts two bars, and for want of a better word, is a drum pattern. Many of the 2-bar patterns follow the usual convention: the end of the second bar has a busy paradiddle-ish finish to pull you into the next bar. There are 60 different beats in total, and these cover as wide a range of dance drum styles as is possible in 60 snippets. Now so far, this probably doesn't sound too spectacular — but read on...

What makes the Beats mode special are the other two controls: Transpose and Playback Instrument. Ordinarily, a drum pattern consists of MIDI Note On messages, which map to specific percussion sounds, and different 'drum kits' are merely different percussion sounds mapped to the same Note numbers. One notable mapping is the one specified in the General MIDI specification, and this has become something of a de facto standard, because of the wide availability of GM MIDI Files. However, if you've ever tried to play back a MIDI File with the wrong instrumentation, you'll know that a percussion or drum track has a rather 'distinctive' character if played back using a pitched instrument instead of percussion sounds. To be frank, it sounds rather silly — and may sound even worse if the mapping of percussion sounds does not match the GM specification.

What Emu have done is exploit this guirk of drum mapping to provide a neat way of producing lots of variations on the basic drum patterns. Instead of the sparse mapping of percussion sounds that you often encounter in drum maps, they have provided special drum kits which map all of the available MIDI Note numbers to percussion sounds — and the mapping is not quite as you might expect. The percussion sounds are allocated in groups of white or black keys, and these groups repeat across the note range - but not always with the same instruments. So a mapping might have a kick drum across the whole of the lowest octave, then snares and claps on white and black notes for half an octave, then toms and hi-hats for the next half-octave, then snares and cymbals, different toms and hi-hats, then bongos and congas, more snares and hihats, then timbales and shakers, bells and cymbals, and finally a tom across the final upper octave.

If you transpose a simple drum pattern played using this mapping slightly, a different set of percussion sounds will be used. But because of the way the mapping has been laid out, for small shifts in pitch the new sounds are likely to be different sounds, but still within the same group.

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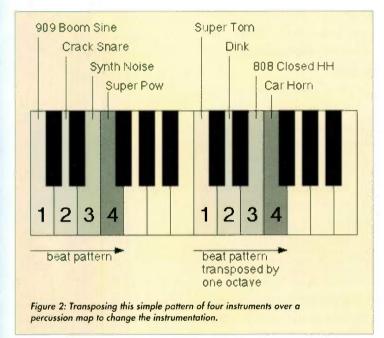
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Larger transpositions will produce more fundamental changes in the instrumentation until you reach one of the repetitions of groups when the pattern may sound similar to the untransposed form. In use, once you have selected a beat, you move the cursor across to the Transpose parameter, and then use the data knob to change the Transpose in real time. This enables you to change the drum pattern as it plays. Perhaps the easiest thing to do is to just nudge up or down by one note number for a beat, and then



return to the original. This can provide fills, variations and on-the-fly improvisation (see Figure 2 above for an diagrammatic example of how Beats mode can work, if you're lost at this point).

To help you make the most of the Beats mode, Emu have provided three settings: the Factory setting resets the Instrument, Tempo and Transpose whenever a new beat pattern is chosen; User 1 leaves the Tempo unchanged, but resets the Transpose and Instrument; User 2 allows the beat pattern to be changed without affecting the Tempo, Transpose or Instrument.

The combination of basic patterns, with the Transpose and Instrument controls providing a very large number of variations, does give the Orbit an immediacy which is very lacking in other expander modules. You can spend quite a while just choosing settings and listening to the patterns they produce. Emu have chosen the mapping of percussion sounds in the 'Beats' preset instruments very carefully: the Transpose parameter really *does* make drastic and yet useful changes to the instrumentation.

The limitations of the parameter become very obvious, however, if you select one of the pitched sounds instead — or even a drum kit where there is a strong pitched sound mapped to part of the keyboard range. In this case, you can then hear the

SAMPLES

At first glance, there appear to be only 384 internal samples in the Orbit, but this omits the large number of multisamples — especially in the hits and drum kits. The final number of different samples is probably over 600.

The breadth of sounds is formidable. From 001 to 137, there are loads of basses, sync leads and classic analogue synth waveshapes. 138 to 148 contain those complex Fairlight/Emulator-type sounds which are probably best known from Ryuichi Sakamoto's work in the '70s and '80s. Most of them are so harmonically rich that they might as well be chords, and they are best used for single finger work. Samples 149 to 166 are where we enter the twilight zone. This is where the wild and weird sustained loops live.

Sample 167 starts the one-shot sounds: hits of many types. For example, preset 169: Dance Hits, contains lots of multisamples — of hit dance sounds! From 172 onwards, the hits are chords, and the chord is given in the name: 'prest 172:StrHitBbmin' is one example. 237 is the start of the 'drum' percussion sounds, many of which are multisampled. From 256 onwards, there are complete multisampled drum kits — by the skip load. 296 to 382 holds numerous single drum sounds; more than 1 wanted to listen to in one sitting. 383 and 384 contain looped hits of a snare and a conga.

There are also some vocal sounds, some speech/scatsinging type sounds, opera, guitars, scratches and so on. If you've heard it on a dance record, then there's a good chance that there's something like it here. There are one or two subtle hints about the sources or inspiration for the samples: the sample names contain bits of text like 303, 2600, PPG, CZ, DX, JP4, JP6, Moog, DB9, P5, M12, OBX... Even the Orbit's Emu model number seems deliberately chosen: 9090. There are samples in depth: and I just loved some of the sounds — particularly 138 to 143, and '140:Pad Classic' is especially gorgeous! Best of all, almost none of these samples are anything like what you might find in a GM synthesizer sound set!

pattern sequence as a series of notes, and transposition is then exactly that: a change in pitch of the sounds rather than a change of instrumentation. Drum kits which mix pitched and unpitched sounds suffer greatly as soon as you transpose them: the root changes, and you are faced with a changed set of drum sounds and a transposed bass or accompaniment note or chord. This destroys the magic somewhat, and reduces the usability of Beats mode.

Although the synthesis possibilities are strong for pitched sounds, you can't edit the drum sets; neither the mapping of sounds to the keyboard range, nor the individual sounds. Whilst you can create a sound using one of the multisampled drum samples, any editing affects all the notes, which effectively restricts you to using simple filtering, phasing or pitch effects. What you *can* do is play along with the pattern using the sounds set up in the normal operating mode, and use MIDI Song Select messages to change the beat pattern live.

Emu's LaunchPad stand-alone MIDI controller box is designed for just this purpose, and it should

BRIEF SPECIFICATION

Up to 32-note polyphonic		
256 permanent ROM memories		
384 'samples' (many multisampled)		
18-bit DACs		
16-bit linear audio encoding		
>90 dB		
>90dB		
<0.05%		
+4dB into		
600Ω		
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extend the live performance options for an Orbit quite considerably. Unfortunately for the purposes of this review, the LaunchPad is not now due to arrive in this country until mid-summer (although it was demoed in prototype form at



the Frankfurt Musik Messe this year). The Orbit's Transpose parameter was also not controllable via MIDI on the v1.01 operating system in the review model. Emu have assured me, however, that it will be by the time you read this — although only via SysEx codes which they will be placing on their Web site shortly. (See the details at the end of this review for the site address.)

Although very useful for impressing people, and good fun for just exploring the potential of the Orbit, you might be thinking that Beats mode is ultimately a dead end, because you can't edit or store your beat settings. Admittedly, you can't record the beat patterns into a sequencer and then fiddle with them — they don't appear at the MIDI Out socket. But a MIDI file disk will be available soon from Emu for a 'nominal' charge, which will contain the 60 preset beat patterns, plus 40 extra. This will enable the patterns to be reproduced using an external MIDI sequencer, and then edited, chained and so on. This should make the Orbit a much more serious tool for the pro user.

CONCLUSION

I can see that many people are going to love the quick access to pre-programmed drum patterns. Instant grooves have an immediate appeal, and lots of people may buy an Orbit on the strength of it. But there is still lots of depth to an Orbit once you start using it. The synthesis capabilities in Emu products are often formidable - I'm still exploring my Morpheus, for example — and the Orbit adheres to this tradition, its samples providing a rich starting point for making the most of those wonderful, EIV-derived filters. Ultimately, it is the sounds that matter — and in my opinion, the Orbit is full of patches to die for! 505

£ £869 inc VAT.

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The Orbit is made for a very specific market: dance. And yet it has enough new goodies inside that I can't help wondering about a future 'dream machine'. So here it is, based around the Morpheus/UltraProteus and Orbit — with a few extras of my own. • 16Mb of non-GM samples, with extra samples in RAM.

- Morpheus/UltraProteus filters plus the EIV filters from Orbit.
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- Forget the onboard effects spend the money on wave sequencing.

At the moment, the nearest to this is an e64 or an EIV, so perhaps I may be getting closer to buying a sampler...

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ever leaving the K2500 enviroment ects enable you to take a project from Advanced Synthesis, Sampling, ing synthesizer ever (2500 - Kurzweil's most powerful sampl he spectacular sequencing & concept Π ontinuing the retro trend of 'new analogue monosynths', Swiss company Spectral Audio enter the fray with their ProTone, a 2U module generously laden with controls and ready to do your bidding. The first thing you'll notice is its colour. The review model was a cherry red, and because Spectral Audio are industry striplings, they're still able to offer purchasers the personal touch, and supply the ProTone in the colour of your choice.

The unit is compact, a mere six inches deep, and a look at the back panel reveals MIDI In and Thru, but no Out. This is because there is no processing between the synth's controls and the sound generator, and so MIDI codes can be neither generated nor received by the controls. Stereo outputs, CV and Gate sockets, and external VCO and LFO inputs complete the picture. Happily, the power supply is internal.

PROTONE MONOSYNTH

SPECTRAL AUDIO

It may be Swiss, but there's nothing cheesy about the idea of a synth that lets you rekindle your rusty analogue programming skills. PAUL NAGLE dons his boots and goes hiking through the peaks

and troughs of the ProTone's analogue waveforms...

SPECTRAL PROTONE £599

PROS

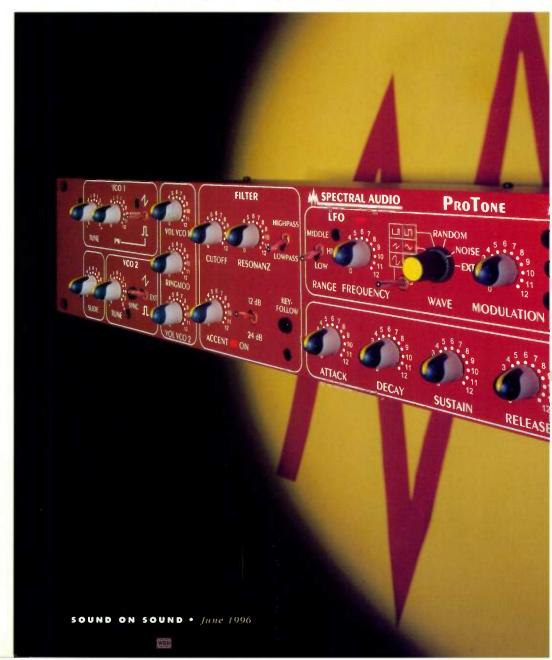
- What you see is what you get, as there are no patch memories.
- A dedicated knob for every function.
- Built-in CV-MIDI converter.
- Looks good.

CONS

- No patch memories what you see is what you get! [I've got this funny sense of déjà vu, Paul — Ed]
- Simple architecture.
- Limited MIDI control.
- Relatively expensive.

SUMMARY

It's surprising to see the resurgence of the monosynth, presumably in response to the need for blippy filter sounds in dance music. The ProTone delivers an adequate range of analogue noises, with the added advantage that you can instantly 'see what it will sound like'. It's a brave move to bring out a MIDI synth with no patch memories and practically no MIDI control over parameters, and although this might restrict its usefulness live, it encourages familiarity and mastery in a way that is too often ignored.



PROGRAMMING & INTERNAL ARCHITECTURE

Programming involves getting to grips with a combination of stylish knobs, slightly flimsy switches and small black 'liquorice imp' pushbuttons. With the latter, only a few millimetres separate the on and off positions, which sometimes makes it hard to tell the status without an experimental prod. And perhaps it was a lingering effect of the colour, but I felt there was something of a 'kit' feel to the controls.

These niggles aside, you've got instant access to everything, and a view of the synth's setup which beats any LCD hands down. This is fortunate, as Spectral Audio have totally omitted any means of storing patches. The positive side to this is that the position of the controls always reflects the sound that the synth will make; the negative side is that many of the advantages of MIDI are lost, especially in live situations where you might need a particular sound instantly.

The ProTone uses highest-note priority at all times. This is a shame, as it prevents certain solo techniques being developed with lowest- or last-note priority. If, however, you use a synthesizer more for basslines and sequencing than for expressive solos, it won't worry you too much. I have to say I wasn't immediately blown away with the sounds I was able to coax forth. The filter doesn't seem to have the range for those classic sweeps, and the





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Spectral Audio Protone Monosynth

resonance (or 'resonanz' as it is labelled) comes tantalizingly close to self-oscillation without quite getting there. With no means of saving patches internally or via MIDI, you need to take a note of all settings on the thoughtfully-provided patch charts. Through rose-tinted spectacles, I reminisced about the joys of reprogramming sounds one hollow clarinet through to a narrower, oboe-like pulse wave. VCO 1 also has a switchable noise source suitable for percussive or sound effects, whilst VCO 2 has oscillator Sync and an external input. This allows other synthesizers, drum machines or suitably amplified instruments to be processed through the synth's filter, drastically altering their



A close-up of the left-hand end of the ProTone, showing the oscillator and filter controls in more detail.

"With no superfluous facilities, this is subtractive synthesis stripped to its barest essentials." parameter at a time from precious, if slightly grubby, pieces of paper.

Fortunately, the ProTone is very simple and direct to learn, and if you spend a little time with it, you'll soon be rattling through its repertoire without a safety net. Taking the front panel from left to right, there are two Voltage Controlled Oscillators (VCOs), a small mixer section, the filter, Low Frequency Oscillator (LFO), ADSR envelope generator and an overall level and pan control. The two VCOs each have a tuning range of approximately plus or minus a sixth. This really isn't enough, and I'd suggest at least an octave would have been better, especially for bass and sequence lines. It also lacks an overall tuning control and the option to fine-tune between the oscillators.

The VCOs both have sawtooth or square waves in their raw sound palette, with VCO 1's square wave being continuously variable from a sort of

MIDI & CV/GATE

Setting up the ProTone for MIDI operation is simplicity itself. Push the Learn button and the synth automatically sets its MIDI channel to that of the next incoming message it receives. Key ranges are also set by incoming notes, and the intriguingsounding controller x, which governs filter cutoff, is similarly assigned to whichever controller number the ProTone first receives when the Learn button has been depressed.

Although not usually an advocate of vivisection, the first ProTone I received was dead on arrival, so I opened it up. Whilst nosing about inside, noticed two jumpers labelled in and out. I discovered that these switch the function of the CV/Gate jacks to either input or output mode, so provided you have an old synthesizer which uses the 1 Volt-per-Octave convention, and a triggering voltage of 0-4.5V, you can use it to drive the ProTone.

Once I received a working unit, I tried running the ProTone from CV/Gate using an old analogue sequencer, and this rattled along so well that I found myself wishing for a voltage-controlled filter input, so I could really make the most of the ProTone. I also tried operation the other way around, plugging the ProTone's CV/Gate output into my faithful Korg MS50 module and running everything from MIDI. After boosting the trigger signal slightly, the results were pretty accurate. I'd say as an add-on, the MIDI/CV converter is useful, but it is not a replacement for a dedicated unit, since there is little available other than notes and trigger information. tone: a useful facility for you bold explorers out there. By enabling Sync, VCO 2 locks to the pitch of VCO 1, and by then applying modulation or manually altering the pitch, you can create some rich timbral changes. Sadly, there is no way to route the envelope shape to oscillator pitch — it's the LFO or nothing. Slide (portamento) is provided for those gradual pitch changes, letting you glide smoothly between notes, as with fretless bass or violin.

A simple mixer balances the levels of each oscillator and the ring modulator. Ring modulation produces the sum and difference of two incoming pitches, resulting in metallic, complex tones. You can't tune the oscillators very far apart, so this is slightly limited, but it does add to the richness of the sound. I found myself constantly mixing it in a little to thicken things up.

FILTER & ENVELOPES

The filter features both high- and low-pass modes, and is switchable between 12 and 24dB, giving a wide range of tones. I think it's fair to say that analogue synths stand or fall by the quality of their filter. In the past, Japanese companies such as Yamaha and Korg produced monosynths with 2-pole (12dB) filters, whilst Americans Moog and Sequential used the much steeper 4-pole (24dB) roll-off. Thus we tend to think of the Japanese sound being alternatively 'thin' or 'delicate', whilst the Americans are 'fat'. Admittedly, I'm generalising quite a bit here, and ignoring several important exceptions, but the point is that even when switched into 24dB mode, the ProTone doesn't match the fatness of a Pro One or Moog Prodigy. I'd say its sound was closer to that of the Roland SH-series. This isn't necessarily a bad thing — in fact it is easier to fit the ProTone into a mix — but there are going to be times when you



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Spectral Audio Protone Monosynth

SPECTRAL AUDIO GMbH

want that gutsy sound. Experimentation with filter, accent and envelope settings provides plenty of usable analogue material, from thunky bass noises to strange space zaps and warbles. Switching in the high-pass filter aggressively removes any lower-frequency components, and by cranking up the resonance, the synth achieves quite a sweet, distinctive character.

Having but one envelope is a little restrictive, but being of the ADSR variety, it's a cinch to program. An envelope amount control decides how much of the envelope is routed to the filter. Modulation is derived from the single LFO featuring a three-way range switch, and a rotary knob to fine-tune the rate. The available waveforms are: square, pulse, two different sawtooths, triangle, sine, random, noise and the

PROTONE

synthesis stripped to its barest essentials, and I mean it as no insult when I say this would be an ideal tutor for someone who has only ever seen more complex and daunting 'modern' instruments. It's also great for us oldies, who can instantly feel at home with its layout and functionality. Forget any worries you may have about using 'other people's' sounds, since everything you program will contain all those tiny variations that real knobs bring. Somehow, seeing a filter's range represented as numbers from 0 to 127 never quite feels the same as turning a knob freely and using your ears!

CONCLUSION

At the time of this review, there is no English version of the manual, so I was thankful that the front panel was mostly self-explanatory — and

 Werning Shock Hezerő - do not openi Varecht Lebenegelebr - moht Miner?
 Ave Reque de choc Electrique - ne per



simple rea panel. Note the external VCO and LFO inputs — but there's no VCF input. external option. Unfortunately, there is only one overall knob for controlling modulation amount, which is then routed according to on/off pushbuttons. If you wanted a little gentle vibrato but a deep pulse width modulation, well, you're sunk. Routings are to VCO1 pitch, VCO2 pitch, VCO1 Pulse Width, Cutoff and pan position.

The external LFO input is rather an unusual feature, allowing an outside source to be patched in and used as a modulator. I used the output from another synthesizer, patching in both low- and high-frequency sounds with interesting results in the weird noise department. Switching to the fastest LFO speed available and applying it to pitch or cutoff generated some screaming alien effects, and by using noise as a modulator. I managed to come up with a remarkably good aural impression of frying bacon. With no superfluous facilities, this is subtractive

MIDI IMPLEMENTATION

The ProTone has a somewhat spartan MIDI implementation responding to note on/off (with or without velocity), pitch bend, controller 7 (volume), controller 64 (sustain), controller 65 (sets accent on or off) and controller x (see the 'MIDI & CV/Gate' box for more on this). This is then used to control the filter cutoff, usefully enough.

Since the ProTone has stereo ouputs, I was surprised that CC10 (pan) wasn't implemented, and that modulation depth could not be controlled remotely at all. Due to the way that the accent feature of the filter works, setting MIDI volume to 0 won't necessarily mute the instrument. You'll need to ensure that accent is off too, or you may still get output directly from the filter. This is confusing at first, though you might find a creative use for it.

Six MIDI program changes are recognised,

which act as switches for the few options not available from the front panel. This is a rather messy process, since you may have to send up to three program numbers in succession, depending on your needs. The MIDI program changes received are as follows:

- Program 1: The ProTone does not recognise velocity, legato playing is recognised (default at power up).
- Program 2: Recognises velocity, but not legato play.
- Program 3: Velocity does not affect the filter (default at power up).
- Program 4: Velocity affects the filter.
- Program 5: Envelope retrigger on ie. the envelope retriggers even during legato playback (default at power up).
- Program 6: Envelope retrigger off.

setting up the MIDI reception didn't take too long to suss out either. Nevertheless, I hope by the time you read this, an English manual will be available.

I'm forever seeking synths with improved accessibility, and with more than 30 realtime controls, the ProTone

certainly delivers in this respect. It strikes me that the lack of in-depth MIDI specification might not be such a drawback in these enlightened times. Armed with one of the affordable hard disk recorders now on the scene, all experimental tweakings can be captured. It's then a simple matter to cut and paste all the good bits, saying goodbye forever to worries about generating too much MIDI performance data.

The ProTone's no-nonsense, informative layout will appeal to synth newcomers who want to get to grips with programming right away. The raw sounds aren't muscular enough for my taste, however, and there aren't really enough options to make them unique. Having said that, I know the high esteem in which some people hold the (much simpler) Roland TB303 Bassline, and how much they're prepared to pay for one. The ProTone can easily pass for a TB303...but then so can my ageing grandmother after eating sprouts!

Synthesizer sound is very subjective. I frequently felt I was on the verge of programming something classic, but despite my best efforts, was unable to get there. A second ADSR or wider oscillator pitch intervals would have helped significantly. Ultimately, I think the ProTone is a little expensive for what it delivers, but perhaps the blend of MIDI, knobs and rackmountability will be enough to sway potential buyers who might otherwise have chosen something second-hand.

FURTHER INFORMATION E £599 inc VAT. A The ProTone is available from all branches of Music Connections. T 0171 731 5993. F 0171 731 2600.



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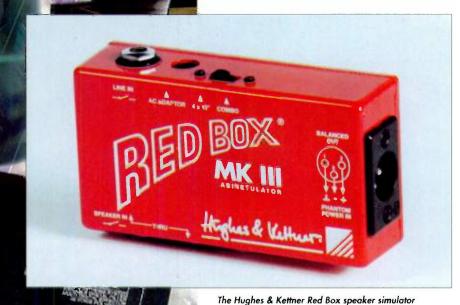
PREVENTATIVE MEDICINE IN THE STUDIO

Last month, we looked at which elements are most likely to go wrong in a mix. This month, PAUL WHITE takes a more positive line, and looks at how to record the right instrumental sound to tape in the first place.

t the risk of being boring, there's just no escaping the fact that a good mix starts by getting good sounds onto tape (or disk) in the first place. 'Fixing it in the mix' really is an uphill struggle, and rarely entirely successful. In fact, only a very sad person who has spent far too many hours in the studio would consider this kind of salvage operation to be either fun or artistically satisfactory. Having said that, next month's article is all about rescuing duff mixes!

FIRST BASS

I'd like to start with the bass guitar, because on the face of it, all you need is a DI box and a compressor, and you're all set to get a great bass



one way to a better DI bass guitar sound.

sound. If you're lucky enough to work with a good bass player, this may well be true, and I've done a good many sessions where the bass has been DI'd via an active DI box with a compressor patched into the channel insert point, just to keep the levels under control. You can get absolutely superb results this way that need virtually no further treatment or EQ, but pass the bass to a different player, and you may end up with a sound that's all squeaks and fumbles, with no power or depth. Yet this same player may sound fine live.

"Fixing it in the mix really is an uphill struggle and rarely entirely successful."

Once you've coached and cajoled the player to play the damned thing properly, it's up to you to make the best of what you have, and I've discovered a few tricks that might help. Firstly, if the player is really uneven, don't be afraid to pile on the compression to get the levels under control, and if the bass part is fairly simple, you might benefit from patching in a gate (usually before the compressor), to help keep the spaces clean.

Unless the player has a confident style, you might still have too much squeak or fret noise, especially if you've laid on the compression with a trowel, and under these circumstances it can help to use a DI preamp with a speaker simulator built in. The Award Matchbox, or a conventional DI box followed by a Hughes and Kettner Red Box speaker simulator works well. While we always appreciate the need for a speaker simulator when DI'ing guitar, it's often overlooked that a real life bass amp is usually loaded with 12- or 15-inch speakers, which have a limited frequency range. Even a bass cab with 10-inch speakers will sound warmer and less edgy than the DI'd equivalent, so taking steps to simulate the speaker coloration can help thicken the sound while making it seem cleaner. In some instances, you

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VOX POP

in SOS January '95.

equipment.

There's nothing difficult about getting

a good vocal sound — so long as

you have a good singer — and

we've covered the mechanics of

miking singers before, most recently

You must have noticed that you can just stick a mic in front of some

people and whatever they do sounds

great, while other, apparently

musically proficient people can

spend hours trying to get a sound.

This just goes to show that most of

what we consider to be a good sound comes from the voices and fingers of the

musicians, not from a rack of esoteric

to make the singer feel good.

The main thing is to use the best mic you

pop shield and avoid having any reflective

surfaces too close to the singer, especially directly

behind them, as these will bounce sound back into the

microphone. Record without EQ, and provide reverb in the cans

can get your hands on, use it with a separate

Match before you mix

 can't do better than to stick a mic in front of a bass amplifier — so don't rule this out.

While I seldom advocate the use of radical amounts of EQ, bass guitar is one area where you can really go to town, because electric guitars produce guite artificial sounds anyway. This means that you don't have to worry about making them sound natural. However, it's worse than useless working on a bass guitar sound in isolation, because it will sound totally different when you add the rest of the band. I've fallen for this one before, and what seems like a wonderfully rich bass sound when solo'd can easily dissolve into a glutinous mess when you bring up the rest of the mix. The only way to do it is to set up a nominal mix balance, and then EQ the bass in context, so that it cuts through properly. You'll find that the mid-range is very important here, and you may have to apply quite a lot of boost somewhere between 2kHz and 4kHz to get the right edge to the sound. If you boost much higher up, you're into fret noise and string buzz territory, and if you've recorded without a speaker simulator, you might want to roll off some top at the same time. At the bass end, you can add

boost at between 70 and 120Hz

The Neumann TLM 170 condenser mic fitted with a pop shield.

Also, it's important to appear patient and supportive — artists don't work well if they feel hassled. You may need to add a little compression during recording to even out the level, but don't overdo it, as you can always add more when you mix.



to fatten up the sound, and a good sweep equaliser or, better still, a parametric, helps a lot. A simple low-shelving EQ will emphasise the bass, but may leave you with a poorly defined, out-ofcontrol bass end. Though most mixing consoles these days have pretty good EQ sections, a quality parametric equaliser is a lot more flexible, and every serious studio could use at least one.

GUITARS

Like the bass, an electric guitar sound starts out with good playing technique, and you'll usually find that the better the player, the simpler the recording technique you can get away with. Clean rhythm parts need nothing more than an active DI box (and not even that, if you have an active guitar), with the possible addition of a compressor. Alternatively, nearly all the reputable guitar multieffects preamps produce wonderfully 'finished'sounding, clean tones, with or without effects so guitar-playing studio owners should look very seriously at these (check out our Effects Buyer's Guide starting on page 40 of this issue for models and prices).

Lead guitar sound is a much more personal thing, but you can still get a good sound by Dl'ing. In my experience, most of the all-in-one recording preamp/effects units give you a great range of heavy metal sounds, but all the ones l've tried fail to give you a natural, touch-responsive amp sound — and that's what most guitarists seem to want. A good test is to set up an overdrive sound, and then see if you can bring it down to an almost clean sound, using just the volume control on the guitar. If the sound disintegrates into a fizzy mess, you know you're onto a loser.

If I must DI, my own preference is to use either an Award Sessionmaster recording preamp or a Sansamp unit. Both of these pass the above test, but both also have different characters, so you'll have to try them yourself to see what you want. On a recent demo, I had to recreate the Dave Gilmour 'Brick in the Wall' sound, the vintage Eric Clapton 'Hideaway' tone, the classic 'Money For Nothing' honk, and a generic raunchy 70s rock tone. Interestingly, using a Fender Strat Plus in all cases, I managed to come very close to the original sounds using a Sansamp XXL pedal plugged into the desk via an Award Matchbox, with a little compression (around 8dB of gain reduction), courtesy of a Drawmer 241 set on Auto. The main effect I used was a little ambient reverb, with the addition of a little subtle delay on the Floyd sound. The desk EQ was used to squeeze up the mid-range on the 'Money for Nothing' sound, to produce the necessary nasal quality. The neck/middle pickup combination was used for the Floyd sound, and the bridge/middle combination used for all the others.

Interestingly, the most aggressive lead sounds come through turning the distortion amount down, not up. Use too much overdrive, and you'll end up with a wall of fizz that loses almost the whole of the character of the instrument you're playing. Again, I must emphasise that a lot of the sound starts with the player, and if you can't go some way towards emulating the technique of the artist whose sound you're trying to capture, you'll never pull it off. In particular, picking intensity and vibrato are very important, as is string-bending.

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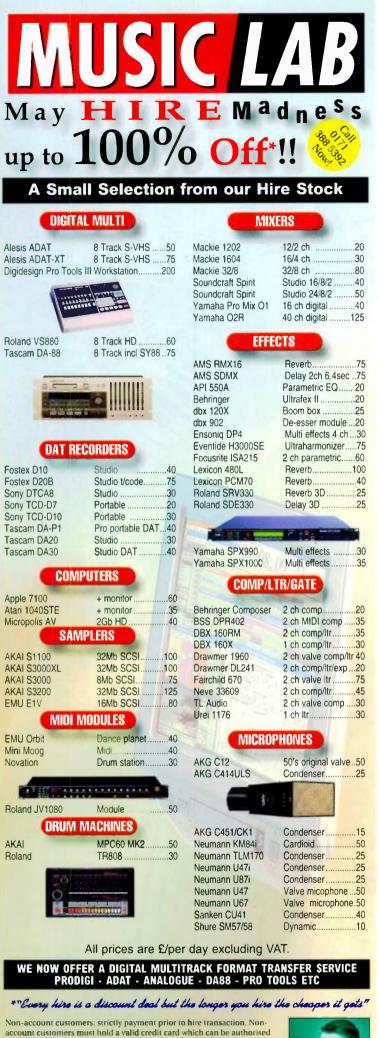
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Match before you \dot{mix}

Because of the physically aggressive nature of rock guitar playing, it is also vital to check the tuning before every take; instruments with tremolo systems are generally more susceptible to tuning problems than fixed bridge models. The temperature changes in studios also affect guitars and basses, and I find that my guitar tends to go slightly sharp after a while, even though it's been left to acclimatise to the room. Fitting locking machine heads such as those made by Sperzel or Schaller can make a big difference to tuning stability, and this is a simple DIY job. That way, there's no excuse for not renewing your strings the night before a recording session, on the grounds that the tuning might drift!

A convenient alternative to Dl'ing an electric guitar is to use a combined speaker simulator and dummy load, of the sort that replaces the loudspeaker in a combo or guitar stack. This approach works particularly well with nice-sounding valve amps, and avoids the noise problem very neatly. I use one of the old passive Palmer models, which turns in a very close approximation of what the amp would sound like miked up, though you have to add ambient reverb to recreate the room sound, just as you do with any other type of DI or very close mic recording.

Of course, all the previously discussed methods are designed to mimic the sound of a miked-up amplifier, so if noise isn't a problem, why not mic up an amplifier? If you like to work and play in the control room, you can put the amplifier in the studio and run a lead through to it from the control room. That way, you get to hear the sound over the monitors, which tells you what the recorded sound is going to be like. It also helps prevent you from going deaf! Moving the mic a few inches to either side, or back from the speaker makes quite a difference to the sound, so if you're not happy with your first experiment, take a little time trying the mic in different positions.

If you mic very close, you'll still have to add reverb, though you may prefer the classic spring reverb in the amp itself, if you're a stickler for authentic sounds. It's also worth noting that the size of the sound on tape has little to do with the physical size or power of your setup, and many classic rock albums have been made using little Fender Champ 12-watt valve amps or similar combos.

DRUMS

We've covered drum miking pretty extensively before (See SOS April '94, and September '95), so I won't dwell on the details too much, but once again, the sound comes from the player and the

"If you record something dry, you can change the effects afterwards. If you record with effects, you're stuck with them."

kit, not from the mics or the reverb unit. Good mics will make a better job than poor ones, but the way the kit is played still makes the most difference.

The drum machine is a useful alternative to a human drummer for pop applications, but only if it is programmed extremely well. A compromise approach is to use the drum sounds from a sampler or drum machine, but trigger them from drum pads such as the Trap Kat or Roland Octopad. On a recent project, the drummer used my DrumKat plus a bass drum pedal to put together a demo. We

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used a programmed drum part as a guide, so that we could work on our parts individually. This is more friendly than a click track, but for music with a freer feel, it's best to turn off the click altogether and just record the sequenced parts 'free'. This ignores the sequencer's own bar and beat reference, so you can't quantise the result, but it's the only way to work for music with real feel.

In our case, we settled for the convenience of playing to a quantised guide track, but once this was erased, it surprised me just how much real feel had been injected by the drummer. You can see this by looking at the piano roll edit screen, where it's quite obvious that the beats are consistently falling before or after the quantise tick that you expect them to fall on. Indeed, if you do quantise the parts, the feel may end up totally wrong.

If the playing is only a *little* sloppy, however, you can use quantisation, dialling in a percentage to bring the beats closer to their 'perfect' positions — and without losing all the feel. Between 50 and 70% is usually OK, but beware of quantising fills, because this can trash them altogether. In practice, it may be best to break the drum track down into sections, and then quantise only the parts that contain straight beats. If the fills sound natural, leave them unquantised. If some of the drum sounds have a flanging effect on them, you probably have a duplicated note caused by stick bounce, and if you've used quantisation, these notes are probably exactly on top of each other.

Some sequencers have a function for eliminating duplicated notes, but in the case of my own system, this function has a habit of removing the loud note and leaving the low-velocity stick bounce note underneath. If this happens, you may have to go through the track manually, adjusting the velocity levels of rogue notes to make them match the rest of the track. Another method might be to use the 'delete notes below a certain velocity' function, to trim away unwanted low-level stick bounces.

Good as sampled cymbals are, they are still too regular for my taste, so to add the real finishing touch to an electronically recorded drum part, use a real hi-hat and real cymbals along with the drum pads. If you put the mics reasonably close, the thudding of sticks on rubber shouldn't pick up too seriously.

KEYBOARDS

Keyboards are the easiest thing in the world to record, because the sounds are pre-packaged, pre-designed and pre-digested. What's more important is choosing the right sounds, and if the instrument has built-in effects, ensuring that the effect level isn't set too high, as you won't be able to take it off again afterwards. Most people now run their keyboards into the mix as virtual tracks, but there's a lot to be said for putting them onto multitrack as well, in case you want to do a remix without having to recreate your original MIDI setup. With analogue tape, you need to take care that high-pitched synth sounds don't distort. The trapKat drum pad ---lets a drummer perform without the hassle of an acoustic kit.

Record them at a lower level if they give problems, but otherwise, record them flat, so you can EQ them later if there's a need.

On a general note, if you can avoid using gates during recording, so much the better, because you only get one chance to get the settings right. If you can arrange it so that you can gate during mixing, you'll be able to experiment with the settings for as long as you like, and there's the added bonus that the gates will take out any tape hiss as well. Likewise, unless you have a good artistic reason for doing so, avoid recording too many effects; if you record something dry, you can change the effects afterwards. If you record with effects, you're stuck with them. In the case of mono instruments with added stereo effects, it also saves tracks if you can record them dry in mono, and then add stereo effects during the mix.

On the other hand, some keyboard sounds rely heavily on the internal effects to make them work, so it would be wrong to switch these off without good reason. You can still keep the effect in stereo by running the instrument into the mix via a sync'ed-up sequencer. Guitar players also need certain effects to be able to perform properly. Overdrive, wah wah and chorus are examples of commonly used guitar effects, but if you have a spare track, it might pay to make a duplicate DI recording straight from the guitar at the same time. That way, if the sound on your main track doesn't work out, you can take the clean DI'd sound from your extra track, and feed it back through an amp or effects unit, to create a new guitar sound without having to get the part played again. SOS Now that Waldorf have released their 4-pole filter as a stand-alone unit, giving your digital synth an analogue spin is as easy as popping it in the Microwave. The result, as PAUL WARD discovers, isn't always fast food. o matter how good digital filters have become over recent years, the good old-fashioned analogue filter still has that certain 'something', which keeps it tantalisingly out of reach of the digital domain. While many argue about the relative merits of the ARPs, Moogs and Oberheims of the past, one thing that most agree upon is that the character of the filter in such machines plays a large part in defining the character of the synth as a whole. Several manufacturers are now producing add-on analogue filters which can bring the warmth and character of the analogue filter to our often anodyne digital synths. Waldorf are the latest.

The Waldorf Miniworks 4-Pole is, as its name suggests, a resonant four-pole low-pass analogue filter, identical to that which graces the Waldorf Microwave. The four-pole design results in a 24dB per octave cut-off slope, which is arguably the most popular filter type for traditional analogue synthesizers. ADSR (Attack, Decay, Sustain, Release) envelope parameters are supplied for both filter cut-off and amplitude. Reasonably complex modulation routings can be applied to affect cut-off, resonance, volume and left-right pan position, either from the in-built modulation



Cook and Chill

WALDORF MINIWORKS 4-POLE £299

PROS

- Good-sounding resonant analogue filter.
- Excellent range of modulation options.
- The Audio Envelope-to-MIDI breath controller messages feature is genuinely inspiring.
- Generally good all-round MIDI spec.

CONS

- Can be tedious to program.
- Awkward desktop package.
- External power supply.

SUMMARY

This machine can certainly produce the goods, if you've the patience to cope with the tedious user interface. Try to get some time with it before you buy.

WALDORF MINIWORKS 4-POLE FILTER

sources, MIDI controllers, the trigger envelope or the input signal envelope.

This all makes for a very flexible device that is as comfortable handling single-ended noise reduction duties as it is adding resonant analogue filter warmth to a digital synth or sampler. Indeed, so keen are Waldorf to promote the 4-Pole over a wide range of applications that they include several factory patches, and suggest configurations to generate auto-wah effects, de-noising, autopanning, compression, pseudo-ring modulation and even pitch-swept drum synth sounds (although when the world will ever be ready for those again, I don't know).

INS & OUTS

Input to the 4-Pole is strictly mono, although a pair of outputs provide the ability to pan the incoming signal across the stereo soundfield, either at a fixed position or under the control of a modulator, such as the in-built LFO, or MIDI velocity values. Alongside the audio input is the trigger input. This allows the use of an old-style voltage trigger to fire the 4-Pole's envelope generators. Our brief tour of the rear panel ends with a quick glance at the ubiquitous MIDI In/Out/Thru sockets, and a glimpse of the AC 9V power connector. Waldorf have taken it upon themselves to label the top panel above the rear connectors, so that you don't have to peer round the back of the unit, which is to be commended. Would that other manufacturers were so considerate!

The 4-Pole has a grand total of 40 preset memories. The first 20 of these are available for overwriting by the user, whilst program numbers 21-40 feature fixed factory patches. Programs can be selected by MIDI program change messages, or by a pair of up/down buttons to the right of the display. I can't help feeling that 20 user memories is a bit stingy by today's standards.



TRANSFORMER TRIALS

My hatred for the dreaded external power supply is little short of pathological these days. I grow increasingly tired of having to make space on my plug boards for them, and having to Gaffa-tape the cable to a keyboard stand to stop the instrument connector falling out on stage. Waldorf do little to help matters here, with a power supply sporting what look like continental shaver plug pins!

I was also disappointed to discover that the 4-Pole doesn't rackmount. I don't know what real estate is like in your studio, but in mine I have to fight for space to put down so much as a coffee mug! If the number of controls or the size of the display had precluded a rackmounting package then I might have been more sympathetic, but five buttons and six knobs doesn't seem that much to accommodate. It must be said that the provision of a rackmount casing usually ends up increasing the asking price for equipment, but the 4-Pole's customised, bullet-proof panelling with tasteful matt grey finish and swish legending is already luxuriant enough...

Programming of the 4-Pole takes place over six 'Edit Levels'. To access each level, you are required to press the 'Mode' button, until the LED to the left of the required level is lit. Once the level has been selected, the four control knobs will affect the parameter in the column above it. Waldorf have opted to make the leftmost of the four controls a bright red, presumably to signal its use as the control which takes care of cut-off frequency — arguably the most oft-tweaked control on a filter. On some edit levels, the control knobs double up for two (related) duties, when used in conjunction with the Shift key. On Edit Level four, for instance, the second knob controls resonance modulation amount or, alternatively, selects the resonance modulation source when the Shift key is held down.

The knobs can be set to operate in 'Jump' mode (the current edit value immediately jumps to the absolute position of the control when it is first moved) or 'Relative' (moving the control to the left subtracts from the currently set value, whilst moving



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The third in the well-received 'Rhythm of Life' series, this CD features one Mr Talvin Singh playing various Indian percussion instruments.' The first section comprises 15 multitracked, layered percussion patterns played live — for, arguably, a few bars too many (unless you've got loads of RAM or a hard disk recorder). This is followed by instrument patterns for the individual instruments. Everything is beautifully recorded in wide stereo with minimal use of artificial reverb, and even the composite, 'fullon' mixes seldom sound congested. This is partly thanks to Talvin's ability to adhere strictly to a click track: tempos are rock solid throughout.

Track 1 kicks off with a layered, insinuating, soulful pattern pitched at 110bpm and played on duggis, tabla and finger tabla, and incorporating a subtle 3/16ths echo. This is followed by each of the three component layers presented separately. 'Rupe loop' covers tracks 2 and 4, once again offering a composite and its elements. This time the pattern is busier, though slower at 102bpm, and less Western-sounding. For some reason, track 3 features a completely unrelated pattern (Dubla mix — 68bpm).

Tracks 5-8 feature various manifestations of a splendidly idiosyncratic 100bpm rhythm called 'Swinging Singh'. It takes another four tracks to deal comprehensively with 'Tabla Trance', a 140bpm number designed to get the adrenalin flowing, incorporating voice, tambourine, dumbeck — and metal! It's pretty busy and finished-sounding, and I doubt you could layer much else on top of the full mix. That said, some of the elements could be useful in a composition.

'Mello Tabla' takes up three tracks, and comprises a pretty loose 96bpm pattern which rotates around three 4/4 bars. Some of the later patterns don't sound quite as tight — in particular, the programmed kick drum and played percussion do not seem to sit together at all well in the 'Sikh Lion' tracks. The slow 'Shakti Shuffle', spread over tracks 23-25 and featuring triangle and shaker, is up to standard though, as is the bouncy 'Mambo' (96bpm).

Tracks 29 to 32 feature 'Bombay Boogie Beat'. The only apparent variation is the progressive omission of a conga, which strikes me as overkill, though the pattern itself is worthy. There's no location recording about the 11 'Ethnic Atmospheres' samples — these are studio simulations featuring arrhythmic shaker and/or tambourine rolls, synthesized wind noises, percussion taps in digital reverbs and water droplets. They're quite amusing and well produced, even if the source sounds are a bit limited.

Single Hits and Solo Grooves complete the set. Tabla hits are presented in a wide range of playing styles and dynamics, while the single instrument patterns (of which there are around 50) might be a valuable source of groove elements for dance.

These lengthy patterns (and the atmosphere tracks) will be much appreciated by soundtrack composers, ambient artists and the like, and it is to this group that *Abracatabla* will most appeal. Pop composers/producers, however, will have work to do cutting the samples into sampler-friendly soundbites. Fidelity, incidentally, is excellent on this niche product which, paradoxically, could be applied in several diverse production areas. *Wilf Smarties*

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LOOPISMS DANCE ZONE (AUDIO CD)



D-Zone have already established quite a name for themselves as producers of fine-quality sample CDs that don't exactly break the bank. This latest release is in almost exactly the same format as their other CDs, namely 24 drum loops, each repeated for about a minute, followed by a selection of single-sample keyboard sounds. In this case, it's the turn of the Korg Prophecy.

The drum loops are of a better than average quality, and kick along at anything between 126 and 171bpm. Their solid construction points them easily in the direction of the dancefloor, and although not overflowing with stereo activity, they are meaty enough to stand up against most other loops currently available.

Part two of the CD is devoted to showing off the best of the Korg Prophecy, and even if you hated drum loops, it would almost be worth buying *Dance Zone* for these samples alone. As anyone who is familiar with the Prophecy will tell you, it is a serious synth



packed full of seriously meaty sounds, and the collection provided here certainly does it justice. There are sections devoted to analogue pads, guitars, lead, bass and FX samples. Almost without exception they leap from the speakers, and unlike more 'authentic' sounds such as pianos, this kind of 'synthesized' approach doesn't suffer too much from the lack of any multi-samples.

As with other D-Zone releases, the last tracks consist of mono and unprocessed versions of all the drum loops, in their shortened two- or four-bar states. The extra carrot that D-Zone are dangling in front of the potential user is the inclusion of all samples, not only in audio format, but as AWE32 and WAV files. Add to this PC demos of *SAW* and *Cubasis*, as well as the game *Rise of the Triads*, and you've got a sample CD that is astonishing value for money, without compromising on quality one inch.

I still don't feel that the layout of D-Zone's CDs is as perfect as it could be, but by paying closer attention to their presentation, D-Zone will undoubtedly clean up in the budget



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 section of the sample market. Even with its imperfections, *Loopisms Dance Zone* is a good product, packed full of useful stuff, and deserves to do well. *Paul Farrer*

E £12.95 inc VAT and UK p&p.

SYMPHONIC ADVENTURES (AUDIO CD/AKAI

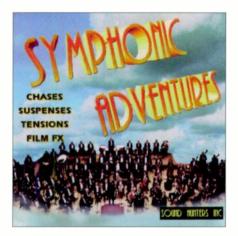


& ROLAND FORMAT CD-ROM)

Symphonic Adventures is a 56-track Audio CD, cut from the same musical cloth as Peter Siedlaczek's excellent Orchestral Colours. The producers have assembled a top-class orchestra (although we aren't told which one) and a 'very famous composer' who, although blessed with obvious talent and experience in this field, also wishes to remain anonymous.

Where Orchestral Colours gave us a wide assortment of film and TV soundtrack genres, this CD is dedicated almost entirely to the darker side of orchestral arrangement. The samples themselves fall into a number of 'sinister' stylistic categories, namely; Chases, Suspenses, Wild and Free, Full Orchestra Effects, Small Instruments, and Film Orchestra Effects. Each category is then split up into as many as 18 different musical phrases, runs, stabs or effects. These are then broken down into full orchestra performances, versions with no percussion, and sections with just the strings, as well as woodwind-only and brass-only edits.

The musical phrases are anywhere between two and 30 seconds in length, and this 'deconstructional' approach to the samples gives you tons of flexibility when it comes to piecing phrases together in your sampler. One drawback appears to be that although there is lots of variety with regard to the arrangement of the phrases, in most cases the performances are limited to one or two key signatures. This certainly limits their use to the original key (short of pitch-shifting and timestretching, which never works well with orchestral samples



of this nature).

The recording quality, however, is superb, and the intelligent arrangements and orchestrations give this CD an utterly convincing big-budget movie feel. Bpms are listed where appropriate, and the sleeve notes are clear and easy to follow. The depth of instrumental emotion is astounding, and the composer (whoever he/she may be) is obviously not afraid to experiment with unusual and often atonal harmonies and FX.

This CD is an unashamed tribute to the drama and suspense of the typical Hollywood soundtrack. The lack of any 'romantic' or 'scenic' themes is a deliberate attempt to fill this release with the best orchestral material, made to measure for *Batman 4* or the next *Predator* movie. Of course, if the phone did ring and Warner Brothers wanted you for their next blockbuster, chances are you'd have the budget to get your own orchestra in. In the meantime, however, *Symphonic Adventures* is a highly respectable and awe-inspiring next-best-thing. *Paul Farrer*

- Audio CD £59.95; CD-ROMs £149.00. Prices include VAT and UK p&p.
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AKAI SAMPLE LIBRARY Vols 1-4 (Akai Format CD-Rom)



Akai have recently repackaged and relaunched their sampler CD-ROM library as a series of four disks. Volume 1 contains duplicates of the original S3000/CD3000 collection with a few new samples, while Volume 2 gives the same treatment to the S1000/1100-series sounds. Volume 3 is entirely given over to drum sounds, and Volume 4 is dedicated to rhythm loops.

Volume 1 is divided into various sections, including Piano, Strings, Brass/Wind, Drum/Rhythm, Bass Guitar, Voice/Organ, Synthesizer, and Sound Effects. These samples are obviously culled from an era when people were far less well-off in sample memory terms than today [we 'ad it tough then — Ed], for all weigh in at under 2Mb, with many as small as 1Mb. Volume 2 presents an almost identical set of categories, and again, many will fit on an HD floppy.

As you'd expect from such short samples, they don't rival today's memory-hungry samples for realism, especially in areas such as choirs, but the standard of looping is excellent, and many of the samples perform far



better than they ought to. For example, there are some very usable pianos and basses, as well as general pad sounds. The percussion sounds also tend to be very strong. If you've just bought an S2000 and can't afford to upgrade the memory, then one of these disks will satisfy your needs admirably.

Volume 3 is all about drum sounds in the context of a traditional drum kit, and some of the longer cymbal samples occupy in excess of 8Mb. Rather than being arranged as kits, the sounds are grouped into kicks, snares, toms, cymbals and so on, and it's up to you to load the ones you want to create your dream kit. Many of the sounds are excellent, and a snare program might comprise several versions of the same drum on adjacent keys, so you can play very convincing rolls. Unfortunately, this tendency for each sample to occupy several keys means that conventional GM drum mapping has been thrown to the winds, with the result that you may have to do quite a bit of remapping if you don't want your closed hihat key to trigger your crash cymbal as well! Even so, the large range of excellent sounds means that the result is often worth the effort.

Volume 4 comprises drum, synth-drums and effected drum loops, each detailed with their bpms. There's also a bonus section of individual drum sounds, so that you can build fills to match the loops. The size of these samples varies from around 2Mb to just over 10Mb, and you get a selection of both dry and ambiently recorded drum loops at between 80 and 140bpm. These are all solid and usable, though not in any way remarkable, and each program gives you several variations on the basic loop mapped to different keys. Some of the best examples are in the 'Others' section at the end, where weirdness has been given a freer rein. *Paul White*

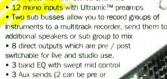
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n the studio, the recording process differs according to the style of your music. As I mentioned when I covered pre-production, a guitar band may prepare in a rehearsal studio, or even on the road, but they will come into the studio with nothing actually recorded. A dance act, on the other hand, will probably have a significant amount of pre-programmed material, which only needs to be dumped from the MIDI gear onto tape. Tape, by the way, is still the preferred storage medium for most producers. Those who rely solely on their sequenced MIDI systems right the way through to the mix are very much the exception. For the purpose of this article, I'll talk about recording a band with a drum kit, guitars and keyboards - but just about everything I shall say can be applied to other styles of music too.

BACKING TRACKS

Any dictionary will tell you that a band is a group of musicians who play together. 'Together' is the operative word here, because in a multitrack recording studio it is quite possible to record each instrument separately. If you do it this way, however, you will probably end up with a recording that has all the instruments playing all the right notes in all the right places, but which lacks that indefinable something that makes it sound like a band [Togetherness? - Ed]. It is usual, therefore, to record the basic instruments drums, bass and rhythm guitar - all at the same time, to get the feel of a real band playing together, and then add vocals, solo instruments and embellishments one by one, as overdubs. The basic instruments form the so-called 'backing

PART 6 — IN THE STUDIO

Э

track' or 'basic tracks' — often referred to simply as 'the track'. 'Tracking' is the process of recording the backing tracks, although some people use the word to cover overdubs as well, so it can mean the entire recording process, apart from the mixing.

Setting up to record the backing track takes some time, and it is common to finish recording all the backing tracks for an album before starting on the overdubs. Setting up the drum kit alone, with however many microphones the engineer chooses to use, could take the best part of a day, depending on how picky you are about the sound. As a producer, you obviously want to get a really good sound on the record, and a skilled engineer will be able to offer you a good drum sound in a couple of hours. But if you have a particular sound in mind that you want to achieve, then it may take some time experimenting with mics and mic positions, to achieve precisely what you want. You are the producer, so you're in charge. Take as long as you like, but remember that you're responsible for sticking to the budget too!

Setting up the other instruments and the mic for the guide vocal is straightforward in comparison, and you should be able to relax and collect your thoughts, while the engineer and his or her assistant work on the mics and mixing console. When everything is ready, one of the key moments in the production process has arrived. The band are going to lay down the backing track for what will hopefully be their next hit single. This has got to be right, and you are the person who has to make it so.

Let the band play through the song a few times, so that they can get used to the headphones, and check foldback levels with the engineer. You will be thinking about the sound of each instrument, and each drum of the drum kit, from both technical and musical points of view. While realising that you are not hearing the final mix, you will be considering how the instruments blend, and whether the tempo is the same as it was in the rehearsal studio. You may need to discuss subtle musical points with one or more of the band. Maybe the bass player is dragging notes out when they would be better cut short. Perhaps the guitarist hasn't settled into this rhythm yet, and will need a few more runs through. Maybe they are all just a little bit nervy, because they don't have much studio experience and have forgotten that if they make a mistake, the engineer can wind back the tape and they can try it again.

TAKE FIVE

How many takes will the band need to get it right? As many as are necessary, of course. There is no point in going any further and overdubbing to a backing track which isn't absolutely right. This is where your skill as a producer comes in.

UCer

Probably the most important part of your role is to be able to know when something is right, and this isn't nearly as easy as it seems. Absolute perfection is unattainable, but many successful records are less than perfect technically, with wrong or missed notes and rhythmic inconsistencies. Yet despite this, they sound great!

The producer should be able to spot a great take, even when there could be some musical errors. If you have captured such a take and recognise its quality, you then have to decide whether to use it as it is, or try and fix the problems. You can fix the odd duff chord in a guitar track with punch-ins. Punch-ins in a backing track can be noticeable where the spill from the other instruments suddenly disappears, then comes back again. Listen carefully, and have the engineer bounce the original take and the punch-ins onto a new track for safety, if possible.

If the band has lost the rhythm at some point, this is a bigger problem. The same thing applies if a take has started really well and has then broken down. In both of these cases, the solution is to edit the multitrack master tape, and use sections from two or more takes spliced together. The engineer will do this for you if you prefer, while you pace up and down, chain-smoking in the corridor. Taking a razor blade to 2-inch 24-track tape is not a task for the faint-hearted, since if it goes wrong, you have lost all. It hardly ever does go wrong, however, because the engineer will know from experience whether or not an edit will work.

One reason why it might not work is if the tempo has changed from one take to another, and there is a sudden gear shift. You can avoid this by getting the band to listen to a metronome ticking at the correct tempo before each take, or even getting them to play to a click track. This latter solution is rather drastic, and it is something that really needs to have been planned for at the rehearsal stage. Some producers

THE PRODUCER'S VIEW — GARY LANGHAN

Gary Langan is a well respected engineer/producer, with credits including Paul McCartney, Public Image, Scritti Politti, Hothouse Flowers, Spandau Ballet, and The Art of Noise.

• RECORDING THE BAND TOGETHER

"If I was recording a band, I would like to have all the band playing in the studio, and the vocalist singing. Without a vocalist, you don't have anything. Then I'll work on that and see what, if anything, needs rearranging or repairing. If I am working with a band, it is very important that I have all the information there all the time. Also, a musician in a band is getting off on what his mates are doing. You can't really get off on sitting in a bloody great room with a pair of headphones strapped to your head looking at nobody. To me, that just cannot be fun, and if you are not having fun, then you are not going to give me the ultimate performance, which is what I need. I can get around every other problem, but there is no substitute for the ultimate performance."

• THE GUIDE VOCAL

"If the performance is good enough and it is recorded well enough, there is no reason why it can't stay. It may be that only bits of it will stay. I'll certainly hang onto it until the end. I won't erase it, because there may be something that occurred while that was going on that might be useful when we come back later to redo the vocals. Even though the guide vocal might not be perfectly in tune or in time, maybe the sense of what the singer was trying to put across was right, so I can always go back and show him what he was giving as a performance when everyone was playing together.

HOW MANY TAKES? "I don't have a problem with putting a razor blade

regard editing as a creative process in its own right, and will actively seek out the best parts from all the takes the band has done.

This brings us back to the question of how many takes is enough. There's no set number, but let's just say that some bands have as few as three takes in them. This means that if they don't get it within those three takes, then 33 won't be enough, and it's best to move on to a different song and have another go on another day. Other bands really can keep going, and once they know that they have one take in the can which is good enough, they'll relax and get better and better.

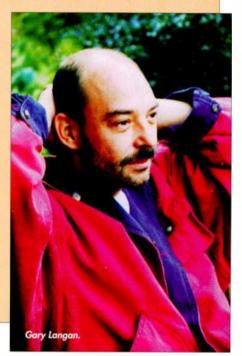
OVERDUBS

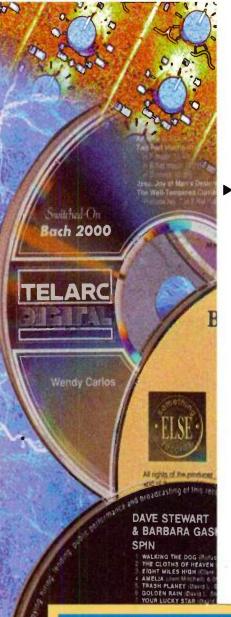
When the tension of recording the backing track is over (or in a MIDI-originated recording, when the tedium of dumping the backing tracks to tape is over), the overdubbing stage can begin — and this is when the creative juices flow thick and fast. Being creative is fun, fun, fun — as long as the ideas keep coming. It's when the ideas *stop* flowing that everyone looks at the producer. It's no good calling yourself leader of the gang and then turning to someone else to ask, "What shall we do now?".

Usually, overdubs get off to a good start, and things seem to be going well. That's because you

MATCHING TEMPOS BETWEEN TAKES

"I listen to the bits I am going to put together. Maybe I would preview what I was thinking of doing on the multitrack on quarter inch, if I was uncertain. If the band is OK at playing to a click track, then you wouldn't have tempo changes but I wouldn't force them to play to a click. That's like making someone who is left-handed write with their right hand."







and the musicians are using up the stockpile of ideas that has been built up during pre-production and the early part of the recording process. There will come a point, however, when it is obvious that the recording needs something, but no-one knows quite what that something is. Often it is very difficult to be creative when you know the clock is ticking and you are effectively flushing £50 notes down the toilet, but there are strategies you can use to allow the collective creativity of you and the band to shine through. Here are a few ideas: • If you have recorded all the backing tracks for the album before starting on the overdubs, then you can skip backwards and forwards according to which song you most feel like working on. If you run out of ideas on one, change over to another one.

• Equip the band with multitrackers (they probably have them already) before starting recording sessions, and let them work with copies of the rough demos. Tell them that you want as many musical ideas as you can get — the crazier the better. You can pick and choose later.

• Use the same cassette multitrackers to give them copies of work in progress. Send them away to work on their ideas, instead of hanging around the studio's pool table.

• Unless you think there might be a clash of egos, let the musicians swap instruments where possible.

The guitarist might bash out a simple idea on the keyboard that the keyboard player himself might not have thought of.

• Encourage a climate of experimentation and receptivity to new ideas. People often jump on an idea and say it won't work, after only a few seconds' consideration. This hardly encourages creativity. Have 'brainstorming' sessions where all you come up with is ideas, and no-one criticises them until later.

You may of course have the opposite problem, where there are too many ideas, and you need to refine them down into something that is simple, but exactly right for the song. This is very much more difficult than it sounds, but if you listen closely to successful records, you will realise that they are usually very simply constructed. Don't underestimate how difficult it is to achieve that simplicity. A successful producer is someone who can encourage the generation of many ideas, and then discard the vast majority of them, leaving only the ones that will blend together to create the perfect sound.

RECORDING VOCALS

And so the nightmare begins. Since the vocal is the most important component of the recording of any song, it has to be exactly right. But getting it exactly right is the most difficult part of the entire recording

THE SINGING TEACHER'S VIEW — HELENA SHENEL

People whom Helena Shenel has helped with their singing include Paul Young, Annie Lennox, Peter Gabriel, George Michael, and recently the 'boy band' Upside Down.

USING THE VOICE CORRECTLY

"I don't teach people a style, I teach people how to use the voice and the muscles involved in singing correctly, so that they don't strain anything — and get the best possible development out of their particular voice."

• SCREAMING HEAVY METAL SINGERS, TOO?

"They are all using the same instrument. I show them how to use it without damaging it."

Peter Gabriel.

• WHY DO TOP SINGERS GO TO HER? "To make sure that they do nothing to strain the voice. They might be going on tour or have a heavy recording schedule, and they would ask me ways of strengthening the voice, and making sure that it doesn't get tired."

• UPSIDE DOWN

"They were all quite good. They all had voices. Sometimes, I get people from managements or record companies saying, "This person's got the right image — can you make them sing?" I've done my best, but I don't know what happens to them afterwards. It was much the same with Upside Down, but all four of them had voices to start with. They were all quite bright, and they didn't need to have very many lessons."

• SINGING OUT OF TUNE

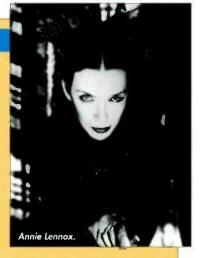
"That's a bit difficult. A student of mine first came to me saying that he really really wanted to sing, but I had to ask him if he realised that he couldn't sing in tune. Added to that, he made a noise which was somewhere between a bull beflowing and a donkey braying painful. We persevered for about three years, and he eventually became a very good singer. It is amazing what you can do with someone who really wants to do it — but you need patience. Sometimes people can't sing in tune because they are pushing and forcing the voice beyond what nature intended it to do. One of my most important things is that you can't pronounce words the same way as you would speak them, because you run the risk of singing out of tune."

BREATHING

"Breathing should be as natural as possible. I never give people special breathing exercises. I teach them how to sing, not how to breathe. You can breathe very well and be a long distance swimmer, but it doesn't necessarily mean that you can sing well."

. HOW MANY LESSONS?

"It depends so much on the individual. A young man singing with a band came to me for an hour-long consultation. I told him about putting his head and neck in the right position, opening his mouth correctly and all the various things. At the end of the lesson, he said, "I can't believe it, it's absolutely amazing the difference it



makes". A few days later, after a gig, he told me that his voice felt so much stronger, it didn't get tired or hoarse and the band all thought he sounded better. That was after one lesson. It depends to a large extent on whether the person has an open mind and is willing to accept my ideas. I do occasionally get a bit of resistance if people are unwillingly sent by their managers or record companies, but generally I find that people with the most outrageous public personae are really very nice people with a very good, professional attitude."





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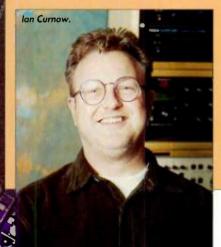
process. Singers come in three basic types: First, there is the top class performer who always gets it right, and the only other possibility is that he or she might go for another take and sing even better. Among people who call themselves singers, people like this are one in a thousand! Usually, you will be working with the second type, who is someone who obviously can sing, but doesn't like to do so

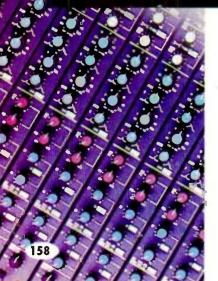
THE PRODUCER'S VIEW - IAN CURNOW

Keyboard player and programmer lan Curnow together with his engineer partner Phil Harding, came through the Stock, Aitken and Waterman PWL 'Hit Factory', and now have their own studio at The Strongroom, which allows them to offer a complete production package to record companies. Their most recent success was co-producing East 17's Up All Night album.

. ON WORKING WITH THE BAND

"I know musicians who can play fantastic things that can just blow me away, but whether it's right for the record is another thing. It's part of the producer's job to limit players of awesome technical ability to just doing the right thing especially drummers."





PROBLEM SINGERS

Many of the people we work with have problems. Since our PWL days of manufacturing records, as people have accused us of doing, we have got used to working with people who can't actually sing very well. For the last two years, we've made full use of Steinberg's Time Bandit with Cubase Audio. Quite often, we will only push a singer until we have what we feel is a good performance, knowing that we can retime and retune it later. You can correct tuning, timing and volume with technology. The one thing you can't get from technology is the performance. If the performance is there, and the singer is delivering a message to the listener, we can make it palatable by putting it in tune. It's nice if they can sing it in tune, but once you recognise that you are not going to get that, it's a question of going for lots of takes and getting as much of a performance as possible."

THE VOCAL SESSION

"Both of us will sit there during a vocal session. Phil will push the singer to the limit of their performance, while I will consider whether I can retime or retune it. We try and record a vocal quite quickly these days. If we have a performance there in two hours, we'll leave it and and work on it later for six or eight hours. We usually record the vocal in chunks. We'll record the chorus and then tackle the first verse. Anything that is going to be repeated, we will only record once, and use that performance each time."

under the studio spotlight. The third category of singer is someone who has been chosen for his or her looks or personality, and sings like a donkey. You're in big trouble here, but you've got to pull through!

There are certain actions you can take to make sure the vocal is recorded as well as possible. Let's start with things that help even the best singers, and then work up to more drastic solutions.

It isn't widely appreciated, but even the top singers need help to allow them to sing the way they do. We take it for granted that a champion tennis player needs a coach. A top singer needs a coach, too. There are two types of people who work with singers to improve their performance. One is a singing teacher, who will help with the production of the sound, and the other is a voice coach, who will help with the performance of a song. For our requirements, a basic singing teacher is probably the best option. (Bear in mind that some people who advertise themselves as 'voice coaches' work with speech rather than singing, so be careful not to get confused).

Most singing teachers specialise in West End musicals or classical singing rather than pop, rock or death metal, but the principles of voice training are very similar. Anyone with a weak, wobbly voice, lacking in range, will benefit enormously from two or three months of weekly lessons. Even if the teacher doesn't understand the style of music in which you are working, and thinks your singer wants to be the Phantom of the Opera, it will still work. It's like going to the gym - you do exercises that bear no relation to any activity you would perform in real life, but if you go regularly you will end up feeling fit and looking good. Go to singing lessons, and your voice will feel fit as well as sound good, in any style of music

Once you have taken steps to make sure that the singer's voice is at the peak of condition, then it is up to you to decide how to tackle the recording. With the help of the engineer, you will select a microphone that works well with the singer's voice, and sort out other technical matters. Many producers these days record a number of takes of the vocal, maybe as many as six or eight, and then sort through them later to get the best version of each line. With a little bit of skill, you and the engineer will be able to compile the best of all of these versions, perhaps to the extent of swapping between takes on every line, or even the odd word where necessary. After this, there may still be the odd line that doesn't sound quite right, so you'll have to get the vocalist back in again to correct it.

You may worry that since it can take quite some time to compile several takes into one, the vocalist may come back with a different tone of voice. This may be a problem, but it is better than leaving a line in an unusable state. If you listen carefully to records made by people chosen by the record company for their looks or personality, you'll almost certainly be able to hear these inconsistencies. If it was possible to record a perfect vocal in one take, everyone would do it. Unfortunately, singers capable of doing this are few and far between.

If the worst comes to the worst, and you just can't get a satisfactory recording, then you will have to use a little studio trickery — or a lot, if necessary. This can range from pitch shifting out-of-tune notes using a Harmonizer, or sampling a line and tweaking the pitch bend control as you record it back to tape, to a total reconstruction of the vocal, using an audio sequencer with time and pitch correction software. If you think this sounds extreme, let me assure you that to get a perfect vocal, the motto has to be 'by all means necessary' - because that is what is going to sell the song. 505



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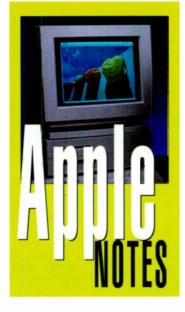
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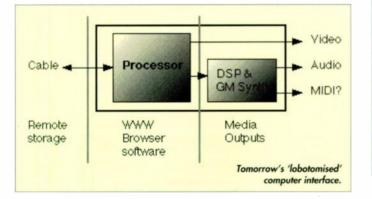
PROFESSIONAL AUDIO & MULTIMEDIA EDUCATION



The last years of the '90s will see a lot of changes, with the fin de siècle spirit extending to music and computers. MARTIN RUSS sees Macs shedding their inhibitions...

hat box you call your computer (when you're feeling polite) may well have a very different appearance by the end of the century. Its price may have tumbled to £300, and it may connect to a TV, affording access to the Internet, interactive television and even a simple videophone. Today's £2,000 computer with its big bulky monitor, keyboard, mouse, hard disk, floppy disk, CD-ROM and modem is far too complex and expensive to hit the mass-market in any quantity, and so something which has more in common with a VCR or a games console is more likely to be the 'computer' that you will find the 'man in the street' using.

How does this affect musicians? Well,



remembering the popularity of the Atari ST when it cost a few hundred pounds, and comparing this with the price of a decent Mac (or even a PC), I can see many of today's undecided going to Dixons, Comet or their local music shop, and coming home with a credit card-impulse purchase.

TIP OF THE MONTH - PASSWORDS

After last month's 'How it works' section appeared, I received a bit of a ribbing for suggesting that a computer password should be a ridiculous mixture of letters, numbers and hard-to-remember symbols. At the risk of compounding the error, let's think about some more words to avoid, and then move on to one or two ways to produce memorable, but still effective passwords.

If someone is trying to hack their way into your private email or Internet account, they will try the obvious things first. Words like 'password', 'martin' and 'russ' would be candidates, as would 'guest,' and 'apple' or 'macintosh'. Even 'june96' or 'june1996' are potentials, as are the eternal 'sharon' and 'tracy'. Other targets would be a partner, spouse or friend's name, your location or address, your age or birthday, name of your pet, type of car, a word connected with your hobby, and so on. You would be very dismayed at how easy many passwords are to guess.

Curiously, the ease of finding a password increases if it is changed regularly. If a password changes monthly, then passwords of the form 'june96' or 'june 1996' will crop up alarmingly often.

So how do you choose a password to protect your personal information? Well, avoid the obvious. If your password would appear in a dictionary or encyclopedia, it just ain't suitabul. Aha! You see, bad grammar and mis-spellings are useful. 'Parswurd' or 'joon96' are preferable to the plain versions (assuming, of course, that the hacker is not himself illiterate!). Typing words 'sdrawkcab' can be a neat idea, whilst transpsoing two letters can be easy to remember, and only likely to be reproduced by a dyslexic hacker. Symbols can be introduced into words by misinterpreting the symbol. \$ can replace s in word\$, whilst the £ can replace the letter I. @ can repl@ce a, and some people use ^ for 'hat', * for 'star' (as in *ling, the bird) and ! for 'ping' (as in 'shop! at a supermarket'...).

In common with the Atari ST, such a mass market computer will be easy to use: on the ST, you put a disk in the drive and turned it on, and with this cheap '90s follow-up, you may not even need the disk!

To make it cheap and easy to use, such a 'consumer' computer will have very little inside.

HOW IT WORKS - MacTCP

MacTCP deals with the interfacing between the application software which runs on the Macintosh, and the network-specific drivers which communicate with the network itself. Whereas SLIP or PPP are concerned with the nitty-gritty details of the modem and the telephone number for the Internet Service Provider (ISP), MacTCP deals with much more abstract numbers; the main ones being several 'addresses'.

On the Internet, major input and output points are given numbers which uniquely identify them - rather like a postcode. These are usually in the form of four numbers separated by full stops: 123.145.78.9. The numbers indicate increasingly small locations as you move from left to right, so the 123 might indicate the country or county, whilst the 145 could indicate a specific city, town or company, the 78 might be part of a town or a specific ISP, or part of a company, and the final 9 would be a particular input/output port.

Four numbers is not always going to be adequate for unique numbers, and the numbering scheme is due to gradually change over the next few years, but the underlying idea of having numbers for each major input/output connection is the same.

MacTCP needs to know a few of these Internet Addresses, which are called IP Addresses, because they are used as part of the header in the Internet Protocol (IP) packets that get sent around the network. This is rather like the channel number in a MIDI message — it indicates where something is going to or has come from.

MacTCP needs to know things like what the IP address of your computer is, the IP address of the 'gateway' provided by the ISP, and the address of something called a Domain Name Server (DNS), which deals with the decoding of named places on the Internet. Ever wondered how a WWW browser could find somewhere called 'www.apple.com'? Well, the DNS converts from the name to an IP address.

In most cases, DNS's will be set up by the installation software, or you may need to type them in manually. Once set and working, you should never need to change them - but don't forget them. If you were sent a 'welcome' letter from your ISP with a series of IP addresses on it, then keep it safe. You may need it if you ever have a hard disk crash and need to manually re-install all your software again.

When it is set up and working, MacTCP works almost invisibly, acting as a go-between: it takes the output of Mac communications programs, packages them up into packets, and passes them on to SLIP or PPP. Packets which are received from SLIP or PPP are unpacked, and then presented to the communications program. Next month, I will look at Mac communications programs.



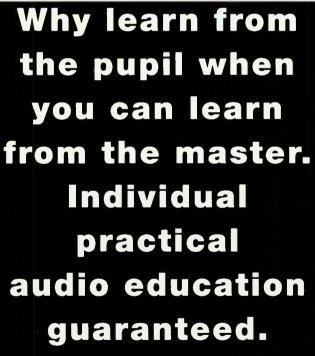
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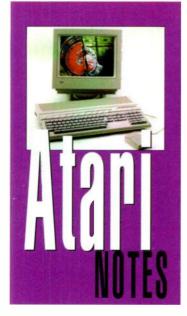
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PROFESSIONAL AUDIO & MULTIMEDIA EDUCATION



Whether you see it as sleeping with the enemy or simple self-preservation, Atari users are increasingly defecting to Mac and PC emulation packages. OFIR GAL considers some of the available options.

t's been a quiet month for developments on the Atari computing front. Various updates of existing software have been released, including a new version of CAB, the Atari Web Browser, although it is still lagging far behind Netscape for the PC and Mac. It seems like a good time to look at the options Atari owners have to upgrade. It is worth noting that the days when the Falcon was the only computer capable of direct-to-disk recording without additional hardware are gone. The new Cubase v3.0 for the Mac, for example, is capable of recording up to 32 tracks of digital audio on Power Macs without extra hardware, and has a price tag of only £329 (compared with £699 for the Falcon version). Additional hardware is expected in the near future to provide multiple Mac audio outputs and inputs (like the Falcon's FA8), and an S/PDIF interface similar to the Falcon FDI is also on the cards, though neither of these is available yet. Meanwhile, development of PC software and hardware is moving forward at a staggering rate. Development for the Falcon is almost at a standstill.

One way of escaping this trap is to get a Mac or a PC and run it alongside your Atari computer. That way, you can use each for what it does best. Many have done this, but in most cases the new computer gradually takes over, and the Atari is left unused. Another possible route is to buy a Mac or PC and an Atari emulator that lets you run Atari programs on the new computer.

EMULATION

Emulation is a complex issue, with many pitfalls from both the programmer's, and the user's point of view. In simple terms, an emulator works like a translator, converting Atari computer instruction code to PC or Mac-speak. It is generally simpler to emulate an Atari on an Apple Mac or a Commodore Amiga because these computers use the same main processor. However, if you have ever looked inside a computer, you will know that there is more than one processor in it. So, even though the main processor is the same, other chips, such as the ones responsible for the graphics, MIDI and mouse control, are very different. On PCs, the task of emulation is even more difficult, because the main processor is a completely different beast. The job of the ultimate emulator would be to perfectly mimic both the Atari hardware and the operating system (TOS). This is practically impossible, so a compromise has to be found.

MAGIC MAC

Most Atari users will find the Mac natural, and in many ways similar to the ST — after all, the ST was inspired by the Mac. MagiC is an alternative operating system for Atari computers. It is almost identical to TOS but provides several enhancements, including the ability to multitask several programs. MagiC Mac is simply an implementation of the operating system that runs on the Mac. It does not emulate an Atari in the strict sense, but merely provides a way for Atari programs to run on the Mac. This works well as long as the program in question does not try to access Atari-specific hardware such as the cartridge or MIDI ports. Unfortunately, all MIDI sequencers do just that, and are therefore incompatible with MagiC Mac. The practical approach to MagiC Mac is to use a native Mac MIDI sequencer and use MagiC Mac to run word processors and graphics applications. MagiC Mac runs best on the older range of Macintosh computers based on the 030 or 040

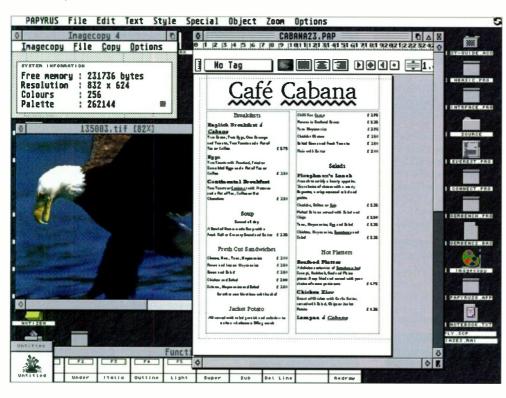
processor. A fast Quadra, for example, can be up to 10 times faster than a basic ST when running Atari programs. The newer Power Macintosh computers can also run MagiC Mac, but are not as fast. They do have the advantage of 16-bit

> stereo sound hardware, capable of direct-to-disk recording.

The minimum requirement for MagiC Mac is an 030-based Macintosh computer with at least 8Mb of RAM. Note that MagiC Mac is incompatible with any form of virtual memory on the Mac, but it can utilise as much memory as you throw at it. MagiC Mac can run in any screen resolution, supporting up to 256 colours, and even allows printing and the use of a modem. Its sound emulation is limited to beeps, but it will happily read and write to Atari-formatted floppy disks, CD-ROMs and hard drives, as well as Mac formatted ones. Since MagiC Mac is completely disk-based, no hardware installation is required. When MagiC is running it takes over the whole screen, but you can switch between Mac and Atari mode at any time using a keyboard shortcut.

MagiC Mac costs £149.95 and is available from System Solutions (tel: 0181 693 3355).

MagiC Mac offers many advantages over TOS, including an enhanced user interface and the ability to multi-task.



GEMULATOR

PCs have the advantages of being a little cheaper than Macs, and of enjoying the status of an industry standard, although not necessarily the *music* industry standard. There are plenty of high-quality PC sequencing and music-related applications on the market, though PC hard disk recording requires additional hardware such as a soundcard. Many soundcards are limited to a maximum of four tracks, and cannot play and record at the same time, making overdubbing nearly impossible. The more expensive cards and top-end external units are normally used for production-quality material.

The GEMulator is a combined hardware and software Atari emulator for the PC. The hardware includes an optional set of TOS 2.06 ROMs (same as on the MegaSTE) and comes on an ISA card, which is easy to fit into any desktop or tower system. A smaller version of the card is expected later this year, to support portable models as well. Using the Atari's original operating system ensures better compatibility with Atari programs, but means that the GEMulator can only run one program at a time. Emulating a Motorola 68000 on an Intel CPU is a complex affair and as would be expected, the GEMulator is not as fast as MagiC Mac. Even so, a low-end Pentium based PC is faster than a Falcon.

Currently at version 4.15, GEMulator requires a 486 or Pentium PC with at least 8Mb of memory. It

runs best under Windows 95, but also works under the older Windows 3.1, or even under DOS and OS/2. The system supports up to 14Mb of RAM, CD-ROMs and extended SVGA screen resolutions, but is limited to 16 colours. Unlike MagiC Mac, GEMulator does not occupy the complete PC screen, so you can have an Atari program running alongside Windows programs. It supports both modem and printer ports, and even the MIDI port, although this is of limited use as most MIDI programs require a protection dongle — and the GEMulator has no cartridge port.

GEMulator (including TOS 2.06 ROMs) costs £149.95, and is available from FaST Club (tel: 0115 945 5250)

REALITY CHECK

Dedicated Atari owners will no doubt be disappointed to see that I am recommending PCs and Macs to Atari users. But it really depends on your requirements. If the Falcon or ST meet your musical needs, then stay with them. But if you find that you need proper Internet access, or want to use programs like Photoshop you don't have much choice but to desert your Atari. The new audio versions of Cubase are just the beginning. Before you know it, the Falcon will no longer be unique in its ability to deliver digital audio straight out of the box. Me? I'm still using that old MegaST, and waiting impatiently for the C-Lab Mk X to finally arrive... When it does, I promise to tell you all about it. 505



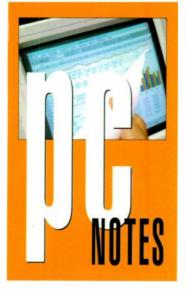
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Brian Eno is convinced that it's the start of a whole new ballgame... but is PC soundcard technology advanced enough for 'generative' music to work? BRIAN HEYWOOD hears the new Enigma Variations...

was invited to an interesting press conference recently. Brian Eno - doyen of new musical techniques - was holding forth on the development of music and, incidentally, announcing the release of his latest music project. If you are not familiar with Mr Eno, he was a founder member of Roxy Music and has collaborated with such luminaries as David Bowie, John Cale, Robert Fripp, Nico (Velvet Underground), Television, Genesis, Devo, Daniel Lanois, U2 and many others. In fact, he has been credited with inventing ambient and new age music, with the release of Music For Films in 1978, although I think that his No Pussyfooting (1973) collaboration with Robert Fripp is an earlier example of the genre.

One of the things Brian has always been interested in is what he calls

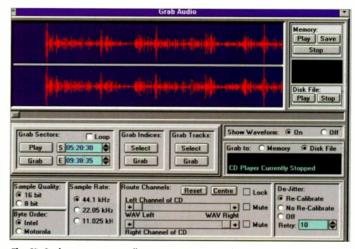
'Generative Music', which is where the composer 'designs' the processes that make the music, rather than defining the notes, voicings, etc that actually make up a particular performance. A simple example of this is a set of wind chimes; you can define the notes that are played, but the order, tempo and loudness with which they are played will depend on the current atmospheric conditions. Obviously a computer is an ideal tool for this kind of thing, assuming of course that appropriate software is available.

record store, and costs just under £45 (inc VAT). You can also get the authoring software — *Koan Pro* — so that you can create your own generative music for £152.69.

'RIPPING' YARNS

Last month, I talked about the CD-ROMs from D-Zone which provide drum loops and instrument samples in a form that you can read directly off your CD-ROM drive. However, there are also truckloads of audio CDs out there which contain audio material specially designed to help you create your next musical masterpiece.

Now, you could simply use your soundcard to record the audio out from your CD-ROM drive, using the mixer application supplied. But a much neater solution is to 'grab' the digital audio directly



The CD-Grab capture screen allows you to 'rip' CD audio, as well as display and manipulate the data.

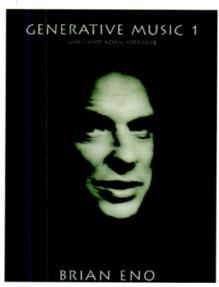
Generative Music 1 is Eno's latest ambient

project, and unlike his previous offerings in this line, it's actually a piece of MPC music software rather than a traditional recording. The album uses SSEYO's Koan Plus music player, which uses 'probabilistic' rules - defined by the composer - to determine which notes will be played, so each performance is unique. This is rather like the composer defining a list of possibilities for the performer — in this case the Koan Plus software - from which he/she can choose. As a result, each performance is definitely 'Eno', but the actual notes played can be different every time you hear it.

The software/album requires that you have a SoundBlaster AWE32, SB32 or TDK MusicCard, as it uses samples developed by Brian Eno especially for the piece. This means it is by no means a universal work, but it is an interesting concept, which could gain currency as the MPC standard becomes more widespread amongst consumers. *Generative Music 1* is available from Software off the CD in the digital domain. This makes a lot of sense if you think about it, since the audio is stored on the CD as digital data, much the same as on a CD-ROM disc. The differences between an audio CD (or CD-A) and CD-ROM only appear at the information level, since the latter needs to have a bulletproof error detection/correction system. This process of copying audio data straight off the CD is usually referred to as CD 'ripping'.

There are a number of products around that allow you to do this, but I've been using one called *CD-Grab*, from London-based AL Digital Ltd. *CD-Grab* allows you to read the audio data directly off the audio CD, and save it to your hard disk in the audio format of your choice. Since the data stays in the digital domain, the quality of the audio is identical to that of the CD, regardless of the quality of your soundcard.

Initially, *CD-Grab* looks rather like a host of other CD-Audio controllers available for Windows — the user interface is modelled on a CD remote control. And indeed, it allows you to play a CD, select the tracks and even eject the disc if you so wish. The added facilities only become apparent if you use the 'Tools' button. This reveals three extra buttons — 'TOC', 'Grab' and 'Index' — as well as a start and end selection edit control.



The cover of Brian Eno's latest ambient work.

SOUND ON SOUND • June 1996

Warehouse (01675 466467) rather than your local

Nord Lead is the first digital synthesizer to use "Yithal Analog Synthesis". Clavia has analysed analog synthesizer, design in detail and implemented the research in a digitak model. Nord Lead employs mathematical simulations of the electronic signal generated by analog oscillators, instead of using waveform tables. This makes it possible, for example, to sweep the pitch smoothly over a very wide range and allowing for true pulse yild it madelation. In other words it sounds amazing!

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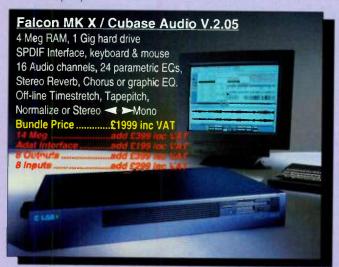


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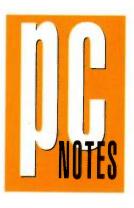
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The 'TOC' button activates the Table Of Contents window, which gives details of the physical layout of the CD. This window allows you to work out timings and sector counts of the tracks, mark tracks for 'grabbing,' and generally find out what's happening on the CD, deep down at the sector level. The top left hand of the window gives the total running time of the CD along with the total number of sectors, while the area below gives the timings and sector counts for each track.

The Grab window is where the main action happens, and allows you to select the audio that you wish to copy, as well as the destination format. You can select the audio to capture in a number of ways, either by track, timing cues or even by disc sectors. The destination format can be either 8- or 16-bit stereo, at a sampling rate of 11, 22 or 44.1kHz (CD quality is 16-bit stereo at 44.1kHz). You can also adjust the balance of each track, allowing you to alter the 'position' of each of the tracks in the stereo image. So, for instance, you could create a mono-sounding stereo track, or even reverse the stereo image. Future versions of the software should allow you to create a mono WAV file, which would be helpful when using the data in a basic MIDI/Audio sequencer (like Cubasis Audio), or for downloading to a sampler.

The application works by transferring the audio over the CD-ROM's data buss, either using the facilities built into MSCDEX

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(Microsoft CD Extensions) or — if you have a SCSI CD-ROM — the ASPI driver. To be able to use the software, your CD-ROM drive needs to be able to read the raw audio data from the audio disc. but most modern drives should have this ability.

The final window allows you to define up to eight edit selections or index points — so you can quickly mark the sections of audio that you want to grab. You would use this control surface in conjunction with the remote control window when defining the index points, and then with the Grab window when copying the audio to your hard disk. When you're indexing, you can use the buttons on the remote to fast forward or rewind the CD to bits of the audio you want. The index points can be transferred between the various control windows, using the 'Send' and 'Bring' buttons.

The CD-Grab application is one that you might not need very often, but when you do, it can be absolutely crucial. This is a tool that no multimedia audio person should be without. Apart from copying music, musicians can also use the facilities to read samples off commercial audio CDs, for use with their sequencers or sample editing programs. The AL Digital product worked on all of the CD-ROM drives I tried it on — admittedly all SCSI — and should work well with most currently available hardware. At just over £115 (inc VAT), CD-Grab won't break the bank either. To find out where to get a copy, call 0181 742 0755. 505



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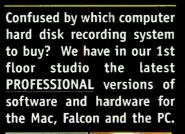
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Few people would deny that there's nothing like a real acoustic piano — but they're not always the most practical of instruments. PAUL WARD looks at an electronic alternative that could be the answer.

YAMAHA P150 £1899

PROS

- Superb, realistic piano voices.
- Beautifully responsive keyboard action.
 Master keyboard facilities with MIDI merge feature.

CONS

 Available polyphony could be a problem, especially with layered voicings.

SUMMARY

An excellent electronic piano with a liberal sprinkling of master keyboard facilities. If a realistic weighted-action keyboard is high on your list of priorities, this could be the one for you. It looks good in the drawing room too! amaha are no strangers to the world of pianos, of both the acoustic and electronic variety. The new P150 sees them refining the electronic version, with an instrument that aims to provide a convenient and realistic alternative to the real thing for professional stage and studio applications, as well as home entertainment and music study use. Yamaha have also equipped the P150 with enough control features to make it a viable contender as a mother keyboard.

AMAHA P150 ELECTRONIC

HEAVY DUTY

At nearly 34 kilograms, the P150 is certainly no lightweight. Gigging musicians ought to think long and hard before taking one of these on the road (unless, of course, you pay someone else to do the lifting). The manual thoughtfully suggests getting help to take it out of the packing and onto a stand and having had first-hand experience of this procedure, I'm not about to argue! Weight aside, the build quality of the P150 is very nice indeed, with an understated air of refinement that would see it as much at home in a living room as in Abbey Road studios. The flat top (with its grilles hiding the pair of 13cm speakers) reminds me of the good old, bad old days when the number of keyboards you used on stage was governed by the number of flat surfaces available to stack them on! Certainly an Atari computer or PC keyboard would sit comfortably on here, with room to spare for a mouse mat.

The keyboard itself is an 88-key, weightedaction, touch/aftertouch-sensitive affair, incorporating Yamaha's 'Action Effect II' keyboard technology, which is designed to give the feel and response of a real piano keyboard. Over to the left are the pitch and modulation wheels. These came as something of a pleasant surprise, falling straight under my left hand with a reassuring nonslip finish and a very positive response. Although performance devices are largely a matter of personal taste, for what it's worth, I'd like to give these my own seal of approval. A headphone socket is sensibly placed at the front left-hand edge of the instrument, just below the pitch and modulation wheels.

The rear panel hosts a pair of standard quarterinch jack sockets to connect the P150 to a mixer or external amplification, and a switch to turn off the internal speakers. A further pair of sockets also allows an external instrument to share the P150's built-in amplifier and speakers. Connectors for sustain, sostenuto and soft pedals are provided, along with a foot controller input — and those three wise MIDI sockets put in an appearance too.

PIANC

Just above the keyboard are the main controls and a 32-character backlit LCD with contrast control. To the far left, and out of arm's way (sorry!) is the power button. To the right is the main volume slider, which governs the output level from the built-in speakers, the jack outputs and the headphone socket simultaneously. Next in line is the programmable control slider, which also doubles up for data entry duties. This slider can be assigned to a MIDI control parameter and also given a pair of values which define the range over which the control will function. This is a useful feature allowing for fine control over, say, a synth's filter cutoff, where it may not be appropriate for the filter to ever close down fully. While we're on the subject, the continuous foot controller can also be similarly programmed.

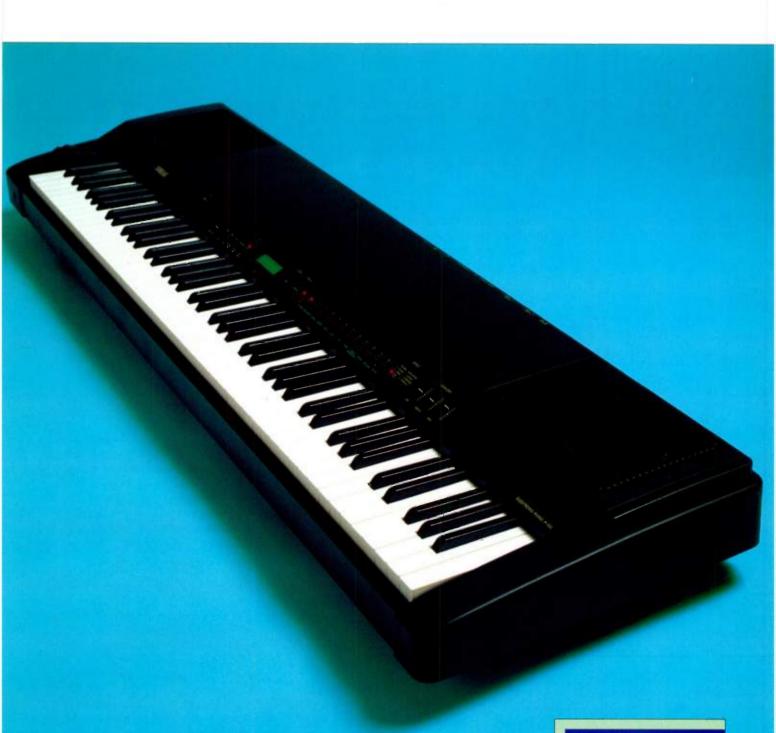
A pair of programmable panel switches is provided, although the degree of programmability is restricted to a choice of off/start/stop/continue. This is a shame, since it would have been useful to be able to send other 'on/off' control messages, such as portamento or hold, particularly when using a sequencer. These two buttons also act as +1(Yes)/-1(No) data controls in the various edit pages.

Keyboard splits and transpositions of up to +/-24 semitones can be accommodated. The buttons responsible also double as the cursor control buttons when editing. Both of these buttons have an accompanying LED to make the user aware that they are active.

The final control is the MIDI button. This quite simply toggles MIDI transmission on and off would that all synths had this feature. If the MIDI button is pressed in conjunction with the effect and modulation buttons, the P150 will perform a 'MIDI Panic Send' that should silence hanging notes and reset any wayward controllers. When editing, the MIDI button steps through the various pages.

PERFORMING ARTS

The P150 can be used in one of two basic modes: Voice and Performance. Voice mode gives access to any of the 12 basic AWM (Advanced Wave Memory) instrument voices, which consist of four



Pianos, three Electric Pianos, Vibes, two Organs, Strings, and Bass. In fact, there are actually 13 voices, since the Bass voice can be toggled between Upright and Electric Bass. Similarly, Pianos 1 and 2 are switchable between stereo and mono versions. Each voice has its own set of parameters, which govern its associated effects, equaliser settings, keyboard sensitivity (both internally and via MIDI), pitch-bend range and mod wheel assignment. Two voices can be layered or split at any point across the keyboard, with variable balance, detuning, and transposition. Dual or split configurations make use of the concept of a 'Main' and 'Sub' voice, with the Main voice's specific settings (effect, pitch-bend range, and so on) taking precedence over the Sub voice. When you are happy with your edits, the current configuration can be stored as one of the 12 Performance memories in each of the A and B Performance banks. Performances can be stored and named with up to 16 alpha-numeric characters, and in Performance mode the P150 can instantly recall these previously stored configurations.

Two simultaneous effects are available, specifically a reverb type (Room, Stage, or Hall, with reverb depth programmable for each Performance) and a modulation type (Chorus, Symphonic, or Tremolo). The reverbs are competent, if unexciting, though the Room reverb is especially adept at adding a little resonant realism. The modulation effects represent a nice selection of their type, although I would like to have seen a rotary speaker simulation to help out

SPEAKING VOLUMES

The internal speakers generally did justice to the P150 although they did begin to flounder on some voices at high volumes. I particularly enjoyed the vibrations under my fingers as I played, which helped the illusion of playing an acoustic instrument. With the internal speakers switched off, although my studio monitors gave a better overall sound quality, I found myself missing that tactile feedback and so switched them back on. The loss in audio coherence was more than made up for by the enthusiasm generated by the feeling of actually 'hitting' something real!

Yamaha P150

the organ voices. Besides the depth of effect, speed is also programmable and can be modulated. Some of the factory Performances make use of this feature by assigning the mod wheel to create varispeed Leslie-type effects.

The 3-band EQ is more than welcome, and it performs its duties with a minimum of fuss. Rather than merely embedding the EQ controls in a submenu (although they can be found there as well), Yamaha have blessed the P150 with three frontpanel sliders.

MIDI & SYSEX

The P150 can transmit Performance bank A, bank B, or all of its internal settings as a system exclusive dump. Both transmit and receive filters are available, and you can selectively remove data such as note on/off, program change, and aftertouch from the MIDI stream. Yamaha have also implemented something I have been asking manufacturers for for years - a MIDI merge facility. This takes data arriving at the MIDI In and merges it with that generated internally, passing both to the MIDI Out. When in use with an external sound module, this gives the ability to perform data dumps from the module without any repatching. It also enables you to use a pair of mother keyboards in a live situation without recourse to a stand-alone MIDI merger or patchbay.

PIANO FORTE: P150 SOUNDS

The sound of the P150 is impressive. The three acoustic Pianos are undoubtedly the stars of the show, with the stereo Pianos in particular exhibiting a depth and richness that should satisfy in all but the most demanding of situations. That's not to say that all the other voices are not up to scratch, but the stereo Pianos are really so good that I found myself wondering how the others would have sounded had they been recorded in stereo too. Piano 4 presents a wonderfully clunky rendition of the old Yamaha CP70 electric grand that I still find very appealing, and had me digging into my 1970s repertoire quicker than re-runs of *The Old Grey Whistle Test*. The Electric Pianos are excellent, with

SECOND OPINION: RICHARD TAYLOR GMus PPRNCM

We thought it would be interesting to get the views of a professional, classically-trained pianist. Richard Taylor, musician and writer of musicals including *Once Upon a War* and *Whistle Down the Wind*, gives his opinion following an evening with the P150:

"The keyboard action is pretty good, although the keys seem to have a little too much travel. When stretching for wide intervals with the left hand, I found the edge of the keys to be too close to the metalwork to allow for my usual playing style. Other than this I was happy with the response and range of dynamics.

"The acoustic Piano voices are fine particularly Piano 1. Piano 3 is probably the least successful, though the higher notes are as close to a Steinway as I've heard from an electronic

simulation. The Vibes are outstanding and the Electric Pianos generally well represented, though some of the jumps in tone with higher velocities are a little unsubtle in places. With several of the voices I found some ranges of keys sound better than others. This is very much the case with the Strings, where the extreme lows and highs are excellent, yet the middle ranges are fizzy and unrealistic. The Bass Guitar is not too good in any range!

"The internal speakers are OK, though they did have problems at higher volumes, where heavy bass notes caused higher notes to 'gargle' in sympathy. I'd be happy to own and use a P150, both as a writing tool and a performance instrument. At the moment there is still no substitute for the real thing, but this is as close as they get." that characteristic 'bite' at higher velocities. Vibes are as close to the real thing as I've heard, but I struggled a little with the organs. Organ 1 sounded very much like many of the DX7 organ sounds I have heard over the years. With judicious editing of the drawbar combinations (see box 'Top Draw(bar)') and a little EQ I was able to come up with some reasonable pad organs, but I just couldn't get the attack and 'spit' of a lead organ sound. Organ 2 makes a better stab at such timbres, but the lack of any editing left me feeling frustrated. The Strings are a little on the fizzy side for my taste, although I found a touch of high-frequency cut helped to get things under control. I would like to have heard more of a bowed attack at higher velocities, but that might be nit-picking on my part. The Electric Bass is adequate, though by seemingly treading the middle ground between being an all-out slapped bass and a rounded, plucked tone, it doesn't cut either of them particularly well. The Upright Bass, on the other hand, is warm and full-bodied.

Available polyphony caused me some concern. When playing a single mono voice, the P150 is 32-note polyphonic, which seems quite generous. When a stereo voice is selected, this drops to 16. As soon as dual modes are wheeled in, things start to become tight. I could certainly hear note-stealing occurring on more complex arrangements, especially with a lot of sustain pedal action. Whether this would present a problem is really down to the individual's use of the instrument.

CONCLUSION

I like the P150 very much. I think Yamaha have got the keyboard response just about right, although, in common with its contemporaries, there is still a certain 'detachment' from the sound that an experienced pianist would probably spot straight away. The sounds are generally excellent and would stand up well in situations where they need to appear in isolation, unlike most jack-of-all-trade synths and workstations. The master keyboard facilities are adequate, especially given that excellent MIDI merge feature, although it could probably be argued that a 'real' master keyboard would need more zoning facilities and control sources.

If you're looking for a competent, weightedaction keyboard as the controller for a larger system, you should consider whether it might be worth sacrificing a little of the flexibility of a dedicated master keyboard for those high-quality on-board voices. If, on the other hand, your goal is a realistic piano sound with a good keyboard action, the master facilities should be seen as a bonus. Either way, this machine should certainly have a place on your audition short-list.

FURTHER INFORMATION

- £ £1899.00 inc VAT.
- A Yamaha Kemble Music (UK), Sherbourne Drive, Tilbrook, Milton Keynes, MK7 8BL.
- 01908 369269.
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TOP DRAW(BAR)

Although there is no way to edit the basic sounds on the P150 as such, Yamaha offer some good old-fashioned drawbar parameters for the Organ 1 voice, on the 'Organ Combination' page. Not only can the basic levels of the various harmonic registers be set, but the overall attack and individual percussion times for the higher registers can also be edited. Another feature I welcome is multiple (polyphonic) or single (monophonic) percussion modes, the latter going a long way to making Hammond emulations more authentic. I was somewhat dismayed to see this Organ Combination editing restricted to the Organ 1 voice, since I found the sound of Organ 2 to be more up my boulevard. Such is life ...

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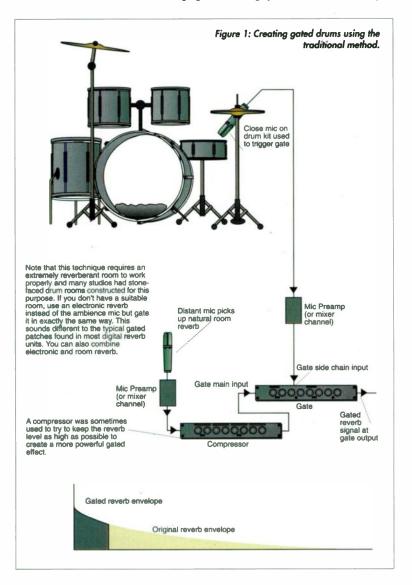
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Canyons of the Mind

THE PSYCHOACOUSTICS OF REVERB

PAUL WHITE explores a few ways of taking nature's most common audio phenomenon and manipulating it to create special effects. atural reverb is so much a part of our everyday lives that we just take it for granted, unless we enter a building or other space with a spectacularly long reverb time. A good quality electronic reverb unit allows us to add a convincingly natural sense of ambience to recorded music, but in pop music we don't always want the end result to be a simple imitation of nature. It stands to reason that if we take natural reverb for granted, then we'll do the same with the reverb added to recorded music. What I intend to explore here are ways in which simple reverb can be modified to make it more attention-grabbing in the context of a pop mix.

Any good stereo reverb will create a sense of stereo width, and even front-to-back perspective, but the human hearing system will very soon decide that the effect isn't really important if it isn't changing. Our hearing systems are far more likely to



lock onto *change*, because historically, our hearing systems are part of our survival mechanism. A loud roar followed by the gnashing of sharp pointy teeth is more likely to get your undivided attention than more subtle changes, although something like a sudden silence where there was previously background noise, can also warn of possible dangers. Working on these principles, it follows that if we can add changes to the expected reverb character, the listener's attention is more likely to be grabbed.

Perhaps the most obvious conclusion you can draw from this is that reverb will be more effective if it's only used in parts of a mix, and not all the way through. Basic space-creating reverb probably will be used all the way through a mix, but the occasional use of massive or unusual reverb settings can help create the required interest.

GATED EFFECTS

Probably the simplest form of change you can add to reverb is to call up a gated setting. This has no natural counterpart, so the abrupt cessation of reverb at the end of the gate period attracts attention. Getting a gated reverb sound is usually just a matter of calling up a suitable preset or creating your own patch using the editing parameters in your effects, but it can help to keep in mind how the effect was originally engineered.

The gated effect was first applied to drums, and involved putting up ambience mics in a very live room to capture the reverb sound. These mics were then fed through a conventional stereo gate, which was externally keyed from the close mics on the drum kit. Setting a hold time of half a second or so, followed by a fast release time, causes the gate to allow only the first half second of reverb to pass though after each drum hit, before closing again. Figure 1 shows how gated drums can be created using the traditional method. A compressor was often used to maintain the level of the reverb, and this is shown in the illustration. The result is the gated drum sound that has become something of a cliché, though the effect doesn't have to become stale if you use it sparingly.

Gated drums still work better in a dance than a rock context, and you'll find that the more reverb you add, the more powerful the drum sound appears to get. If you want to be less obvious, use the gated effect on just part of the drum/percussion mix — perhaps just on the handclaps or additional percussion. Gated effects also work particularly well on industrial, metallic sounds, making them sound more aggressive.

Less obvious applications for gated reverb include treating electric guitars, to create a 'small club' effect. Perhaps the best attribute of gated reverb is that it manages to make its presence felt without filling up all the spaces between notes or beats. Because plenty of contrast is retained between the beats and the spaces between them, the sense of loudness is exaggerated by the effect,



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THE PSYCHOACOUSTICS OF REVERB



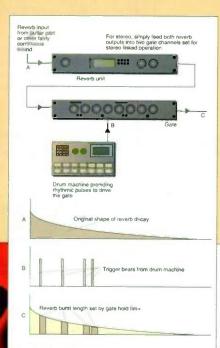
Reverse reverb envelope builds up to a peak and then stops abruptly

whereas most reverb has the effect of diminishing the sense of loudness.

The reverse reverb effect found in most multieffects processors is also closely related to gated reverb, the main difference being the envelope of the reverb reflections. Instead of starting off loud and then being cut off sharply, as in the case of gated reverb, the reverb level builds up from zero over a period of a second or so, then stops abruptly — as illustrated in Figure 2. This is exactly the opposite of the envelope you'd expect a natural reverb to have,

FASCINATING RHYTHM

Normally, reverb is added to a dry signal, but you can create interesting effects by muting the entire dry signal and using just the reverbed signal. This can work nicely on certain types of backing vocal where you want a disembodied, distant effect, and in new age music,



Creating rhythmic reverb.

you can create seriously washy synth pads by using just the reverb output for certain sounds.

The next step is to crank up the reverb time to several seconds, then use a key-triggered gate to change the envelope of the gate. This is similar to the

gated reverb setup, but instead of simply chopping off the reverb after half a second or so, you can feed a rhythmic sound into the gate's trigger input, to switch the reverb on and off.

A percussive sound from a drum machine can be used to force the reverb to 'play' the same rhythm as the percussive instrument. The length of the reverb notes can be changed by varying the hold and decay time of the gate, as shown in the accompanying diagram. By feeding the outputs of the reverb to two gates and panning the outputs left and right, two different rhythmic trigger inputs can be used to create counter-rhythms that appear from the left and right channels. How well this works depends largely on what signal is being fed into the reverb unit in the first place, but harmonically rich sounds such as gritty synth pads or distorted guitars work well.

so it sounds rather like a tape being played backwards, even though nothing is actually being reversed.

The traditional way to create true reverse reverb (as opposed to this kind of off-the-shelf fake), is to record the track to be processed onto an analogue multitrack, thread the tape in reverse so it plays backwards, then use the reversed

track to drive a conventionally set reverb unit. The reverb output is recorded onto a spare tape track, so that when the tape is once again threaded the right way round, the reverb is truly reversed, to the extent that it even starts to build up before the sound that created it. This effect has been used to create such things as demonic voices in films, but it's also quite a nice musical effect if used carefully. Try it on voice, single chords or stabs, and cymbal crashes.

MOVEMENT

One easy way to create a sense of movement without having to actually pan anything is to set up two different reverbs, one for the right channel and the other for the left. At its most basic, this could involve using two similar reverbs, then adding a second or so of pre-delay to one side only, so that the reverb appears to start in one channel, then moves over to the other as it decays. If you don't have two reverbs, you can get the same effect by putting one of the outputs of a stereo reverb through a delay unit set to give around a second of delay with no feedback.

Another nice 'movement' dodge is to use a reverse-type reverb in the left channel, and a conventional reverb in the right. If you can match the two effects so the reversed sound reaches maximum just as the other channel decays to nothing, you get something similar to a gated reverb, but with left/right movement thrown in. Figure 3 shows how the reverb envelopes might look.

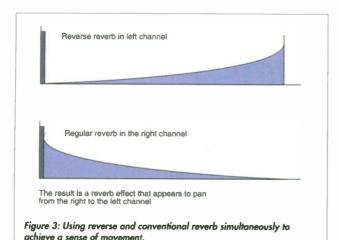
Of course, the most direct way to get movement is to physically move the reverb from left to right using an autopanner. Most multi-effects units now include a panning facility, and if you set the pan rate to a multiple of the song tempo, you'll find the effect adds movement without interfering with the rhythm of your music. If you have an effects unit that can give you panning sync'ed to MIDI clock, then you can have precision panning. Whereas normal panning can be gimmicky, just panning the reverb (or other effects) and leaving the dry sound in one place is far more subtle — but still busy enough to be interesting.

AND FINALLY

I could go on forever about the use of effects, especially reverb, but I'm going to finish off with a few short and useful tips.

 If you find a reverb patch is making a vocal appear sibilant, edit the patch so that it has more high frequency damping. You may need to bring the HF damping right down to 3kHz, or even less, to clean up the sound.

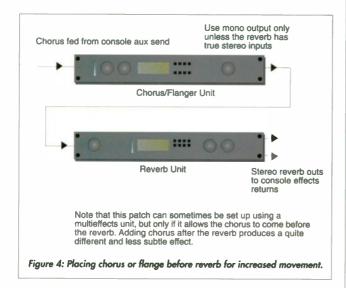
 During post-production (a polite name for salvage), you may sometimes have to add reverb to a track that's already been mixed, in which case the bass instruments will probably get overtreated and become muddy-sounding. You can get around this by putting an equaliser before the reverb input, to cut off anything below 150Hz or thereabouts. The side chain filters of a Drawmer DS201 gate work particularly well for this - just put the gate in Key Listen mode and use the filters as equalisers. To add interest to an otherwise static-sounding reverb, try feeding the effect send though a chorus or flange effect, before feeding it into the reverb input as shown in Figure 4. The modulation of the chorus/flange effect will add movement and interest to the reverb patch, but leave the original sound untouched, so that you don't end up with



a gimmicky result. This effect is great for all kinds of music, from pop ballads to new age.

· For more radical musical styles, try heavily effecting the sound before it is fed into the reverb. You could use a pitch shifter, for example, to push the reverb feed up or down by an octave, or even a musical fifth. You could use a distortion box to chew up the signal before you add reverb, or even set up a multitap delay with loads of feedback, so that all the individual delays get transformed into their own little cloud of reverb. There's no limit to what you can try, and although some of what you come up with is likely to be unusable, the occasional gem will emerge.

• If you feel a sound needs more reverb, but adding more makes the mix sound messy, consider increasing the reverb level but shortening the reverb decay time. This increases the sense of the sound being in a real space, without flooding everything in a wash



of reverb. You can also roll off some bottom end from the reverb return, or increase the low frequency damping, providing this doesn't make the reverb sound too cold.

· Lastly, you may have an old reverb which you feel sounds unnatural by today's standards. Don't bin it, because some of those trashy old sounds are great in a creative context. The old Alesis XTc is now something of a collectors item because of its wonderfully gritty character, and early Yamaha reverbs have a nice industrial edge to them. Don't judge everything by how natural it sounds; look what happened to the Roland TR909. Failing miserably in its attempts to emulate the sound of a real drum kit, it sank without trace when first released in 1984. People today prize the sounds for what they are, not for what they once tried to be, and a good example can fetch up to £900 on the second-hand market. 505



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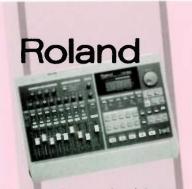
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EIGHT-LANE BLACKTOP

ART PRO NOISE GATE

here are processors that add something to a sound — reverbs, delays and enhancers, for example — and then there are others specifically designed to take something away. The most commonly used subtractive device is the noise gate, which has PAUL WHITE gets the first ART eight-channel Pro Gate to land in the UK — and discovers that behind the hi-tech facade, it's a bit of a Harley-Davidson.

ART PRO GATE E999

PROS

PRO GATE

- Well-specified analogue gates with good sonic performance.
- Sensibly designed user interface.
 Good value for anyone needing
- eight gates. • MIDI control and keying/trigger
- capability.

CONS

• No ducking facility.

SUMMARY

An easy-to-use gating system with the added bonus of MIDI keying and MIDI trigger outputs. Very costeffective, given the quality and facilities provided. been an essential part of the studio toolkit ever since homo sapiens recorded 'pictures of sound' on rust-coated strips of yak skin threaded around a vibrating lode stone.

OK, I lied about the yaks, but not about gates being essential pieces of studio kit. Indeed, as today's studio has far more channels and tracks than it used to, gates probably have a more important part to play than ever. Even more of a problem is the number of synths (not to mention guitar preamps), that still chuck out so much hiss and digital grunge that most manufacturers are reluctant to provide technical specifications.

The world and his wife may still be skipping down a digital signal path, but for my money, the best noise gates are still analogue. This latest ART creation provides eight, fully specified analogue gates in a 2U rack with conventional knob control — yet a look at the front panel shows only one set of controls and a suspiciously digital LCD window. So what's going on?

As you've probably guessed, ART have taken conventional analogue gates and placed them

under digital control — but in order to retain the analogue 'feel' when setting up, the digital control circuitry is driven by analogue knobs! The clear advantage of this approach is that the same set of knobs can be used to set up all eight gate channels, whereas in a fully analogue system, there would be no alternative to duplicating the whole set of controls eight times.

Another advantage of digital control is that MIDI compatibility can be accommodated, along with the ability to store settings in memory. In the case of the Pro Gate, there are 20 Song memories, each of which holds the settings for all eight gates as a single MIDI patch, plus MIDI real-time control over the gate threshold level, attack and release times. The Pro Gate also responds to MIDI note triggers, enabling it to handle rhythmic chopping effects under sequencer or MIDI keyboard control. Conversely, a MIDI note can be generated by the gating action, allowing, for example, MIDI drum modules or samplers to be triggered by off-tape drum sounds being fed into the gate.

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WRH

ART PRO GATE

THE GATES

This machine's gate facilities are equivalent to those of the better stand-alone analogue units, and I noticed more than a passing resemblance to the Drawmer DS201, in that sweepable, shelving side-chain filters are included alongside the more familiar threshold, attack, hold, release and range parameters. Internal or external keying is also implemented, as is the ability to link adjacent channels. The key listen mode has a separate output on the rear panel, so that the operator

"The Pro Gate is still an analogue gate at heart, despite the digital side-chain control."

can audition the post-filter side-chain signal for any of the gates without interrupting the main gate outputs.

Balanced quarter-inch jacks are used for the gate ins and outs, with unbalanced jacks for the key inputs, though the software allows the user to switch between balanced and unbalanced operation without incurring any level changes. Hard relay bypassing connects the inputs directly through to the outputs whenever a gate is switched out of circuit.

THE HARDWARE

Everything fits easily into a 2U rack unit, with all the connections on the rear panel, including MIDI In, Out and Thru. Power comes directly from the mains, and a large 2-line x 40-character display sits directly above the dedicated controls for Key Filter, Threshold, Attack, Hold, Release and Range. To the left of the display are eight green LEDs which, perversely, light up when the gates are closed rather than when they are open, while eight red LEDs show which gate is selected for editing (dedicated buttons make gate selection easy). A single Bypass button operates on whichever gate is selected, while a further three buttons relate specifically to the side-chain filter section. These are labelled Key Listen, Source and Frequency. Source selects between internal (self) and external (key) triggering, while Frequency toggles the Key Filter control between adjusting the high-pass and low-pass side-chain filter frequencies.

In normal use, setting up is simply a case of choosing a gate with the Select button, then using the six knobs to set up the gate in the usual way. The green lights come on when the gate is closed, a protocol which could spell disaster on British roads, even if the Japanese might understand it.

To the right of the display is a large data wheel, used to scroll through different menus for editing or setting up. For example, when you're in the normal 'setting up gate parameters' mode, it moves through the Overview screens, which show (respectively) the linking, int/ext keying and bypass status for all eight channels at once. This control also accesses the Save and Recall Song page.

In Link mode, the Select buttons can be used to link the operation of any gate to the one immediately to its left, with the leftmost gate of any linked group always the master. Similarly, in Bypass mode, the Select buttons are used to bypass the individual gates, whereas in key mode, the Select buttons toggle between internal and external trigger. This might seem like a lot to remember when you see it written down, but the reality is that the gates are just as easy to set up as their conventional counterparts, and everything is designed to be very intuitive.

Beneath the data wheel are the final two buttons, Menu and Select, which are used to navigate through the programming options and to select parameters for changing.

ON THE MENU

Pressing the Menu button steps around the Channel, System and MIDI menus, but each page also has the word 'Back' on it, so you can move back to the page you've just come from. This facility is also used when you want to cancel any new information you've just dialled in, but not confirmed. The Channel setup menu allows any MIDI note to be chosen to trigger each of the gates, as well as setting up the MIDI controllers for real-time Threshold, Attack and Release control. While I can't foresee many applications where I might want to use a gate as a MIDI-controlled performance tool, this facility does allow computer sequencer users to create their own gate control pages very simply. For example, you could create a few controller faders on an Environment page in Logic. Channels may also be named in this menu, and settings copied from one channel to another.

BRIEF SPECIFICATION

Inputs and outputs	Balanced jacks, +21dBu max
Key inputs	Unbalanced jack
Frequency Response	10Hz to 30kHz +/- 1dB
THD	Less than 0.05%, OdBu in
Output Noise	-95dB broadband
Dynamic Range	Better than 115dB
Key Filters	12dB per octave, 25Hz to 2.2kHz (LP) and 250Hz ta 20kHz (HP)
Threshold	-50dB to +16dB
Attack	20us to 500mS
Hold	3mS to 45
Release	2mS to 45
Range	-2dB to -82dB
Key Source	Internal, external or MIDI
MIDI	In, Out and Thru
Format	2U rackmounting



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07

ART PRO GATE

It's also here that you get to choose which MIDI note each gate sends out when it's triggered.

The System menu accesses the usual display angle adjustments, as well as offering the facility to lock the front panel parameter change controls — a must in installations. Song data can be saved, named or recalled from this menu, and you can even switch the inputs and outputs from balanced to unbalanced operation.

UNLOCKING THE KEY INPUT

The Pro Gate's side-chain filtering comprises a pair of shelving equalisers, one high-pass and one low-pass, connected in series with the gate's side-chain. Using the filter, it is possible to make the gate open only when it 'hears' the band of frequencies between the upper and lower filter frequencies. This helps in situations where spill from other instruments might otherwise cause false triggering, and is often used when miking drum kits — to prevent, say, a crash cymbal from opening a tom gate.

It is important to realise that the filter doesn't affect the sound of the signal passing through the gate, only the way in which the gate reacts to it. In the case of the Pro Gate, the filter can be used in both internal and external (side-chain keyed) modes.

The external input is used when you need to gate one sound in response to another. The classic example is the gate that's opened by the kick drum, but fed from the bass guitar. Because the gate doesn't open until it 'hears' the kick drum, any bass notes that are played too early will be muted until the drum hits, creating the illusion that the bass player is in time. This is, of course, assuming that your drummer was in time in the first place!

The MIDI menu is used to select the system MIDI channel, the MIDI mode, and to set up or edit a MIDI program table — which lets you assign any program change number to each of the 20 user memories or 'Songs'. MIDI dumping and loading of Songs, either individually or *en masse*, is also initiated from this menu.

IN USE

It really only takes a few minutes to find your way around the Pro Gate, and the menu structure is very straightforward compared to what you might expect on a MIDI synth or effects unit. The use of dedicated knobs for the familiar gate controls is a big help, and though these don't seem quite as responsive as true analogue controls, they are still satisfactory, and infinitely preferable to menu/cursor driven systems.

The Pro Gate can be set to a minimum attack time of 20 microseconds, and tests with drums and drum machine sounds confirmed it to be very fast indeed. The hold parameter, plus a small amount of built-in hysteresis, prevents the gate from chattering, and as far as I could tell, the gate doesn't add any perceptible noise or distortion to the signal being processed. In all respects, including the key filter action, the Pro Gate performs like any other well-designed analogue gate, and has the advantage that you can link together as many of the gates as you like, for tasks such as synchronising backing vocalists who have a habit of finishing at different times.

What you don't get on most analogue gates is

the MIDI trigger or real-time control function, and both worked flawlessly. No glitching occurred if parameters were changed while a sound was being processed, so my guess is that the gate waits until it next closes before updating its parameter values. Indeed, the only thing I didn't entirely understand is why the currently selected patch — they do insist on calling them Songs ----isn't displayed somewhere on the main page. You

also have to remember to save your settings as a Song, especially when you're connected to a sequencer, as you only have to send one patch change message by accident, and the Pro Gate reverts to the previously called-up settings, or jumps to a different patch altogether. In this respect, a couple more dedicated buttons for faster saving would have helped, but even as it is, nothing in the menu structure is very far away.

SUMMARY

Given the constraints of handling eight gates from a single set of controls, ART have done an excellent job, and after your first session or two, you're unlikely to have to refer back to the mercifully concise manual. The Pro Gate is still an analogue gate at heart, despite the digital side-chain control, and as such it behaves in a transparent and reasonably

predictable manner. Better metering might have helped, by giving you a clue as to how far away from the current threshold setting the input actually is, but in all fairness, few conventional gates provide this either.

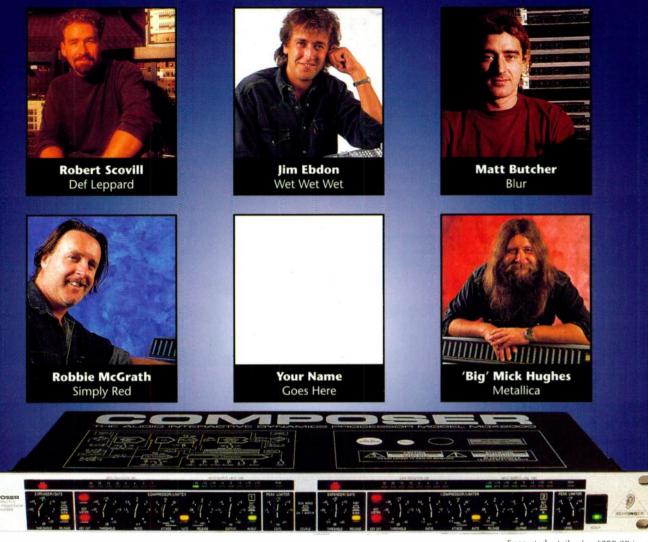
The most useful MIDI feature, in my opinion, is the ability to chop sounds using MIDI note information, with the MIDI note output feature coming a close second. I can't imagine many situations where I'd want to store a set of eight gates to allow me to recreate an archived mix, but it is handy to be able to set up and store the MIDI parameters and key/link options for one or two specific requirements.

There's little to dislike about the Pro Gate. ART have resisted the temptation to include too many facilities, though MIDI-triggerable panning would have been useful, as would conventional ducking. Ease of operation doesn't suffer significantly because of the shared interface, and the ability to rig up control from a sequencer using MIDI controller data has potential. If you need eight full-featured gates with MIDI capability, this could be one of the more useful and cost-effective options.

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"I'd already done some designs for distortion in the '70s, because none of the commercial boxes around gave the same smooth tone as a tube amp. They had a very processed sound with very little dynamics, and I felt that touch-sensitivity was very important to the guitar player. As you play louder, it isn't just the level that changes, but also the harmonics."

Solid-state University of the Solid Payer As you payer As



by asking him what was the first thing he built from scratch.

"The first thing I built was a tube amp of around 15 watts with two EL84s in the output stage, three preamp tubes and a single 12-inch speaker — a friend of mine still has it somewhere. It took a lot of work, and was hard to reproduce with a consistent sound. That was one reason I

ANDREW BARTA OF TECH 21

Tech 21's founder and inventor of the SansAmp range of solidstate, vacuum tube-emulating amplifiers talks to PAUL WHITE about the intricacies of reproducing tube circuits without the tubes.

The first product we saw from you was the little SansAmp Classic box with the DIP switches on top — it was a great product. What kind of research did you have to do to get to that point?

"That was an interesting story, because when I built it originally, I had the DIP switches in it only to figure out what settings to use. But I wanted to get other people's opinions first — I was doing some amp modifications for Foreigner at the time with Mick Jones, and he asked if he could try it out for a couple of days. When I told him I was planning to get rid of the DIP switches, he said that was one of the best features, because you could use them to create different amp setups and different sounds.

"Initially, I built the thing for myself, but people kept asking to buy one — so I made 10, then 20. I tried to sell the technology to some of the larger companies, but no one was interested, so I decided I should put it in the music stores myself."

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Andrew Barta of Tech 21

HYBRID TECHNOLOGY

The production SansAmps use some form of hybrid circuit design, but I guess your prototypes relied on traditional, hand-built circuitry?

"Yes, and there was a lot of circuitry which didn't fit comfortably into the box — so I was looking for a way to miniaturise the circuit. I was fortunate to hook up with a company which was prepared to work on a much smaller scale at the beginning. Back then, there was no surface-mount PCB technology; only the hybrid technology which uses a ceramic substrate. Metal is evaporated onto this, and then the resistors are formed by laser cutting. It is a very involved and expensive technology, but it was all that was available at the time, and we still use it. It took four or five attempts before the hybrid performed

properly, mainly due to layout problems. We could change it now to surfacemount, but you know how people are — they would say it doesn't sound quite the same. We've decided to stick with what we have, because that's what people want, and the same circuit is at the heart of all our products."

SPEAKERS AND EQ

One area where tube amps do seem to sound different to their solid-state counterparts is at the bottom end, where the speakers can really thump. Is this a result of a damping factor, or is there more to it?

"There's more to it, and one thing I discovered recently — which I built into the XXL overdrive pedal — has to do with the even harmonics. They change with the level of the amp, creating an almost envelope filter-like effect. When a good tube amp decays, you can hear the harmonic content changing — almost like an 'OW' sound. There is no single secret to making tube amp

> "One problem is that people say solid-state devices can't sound like tube devices without trying it."

simulation work properly; it's a matter of combining the results of a lot of different observations, to give you the effect you're looking for."

One thing that has always surprised me is how much difference it makes whether you put the EQ before or after the overdrive stages.

"Oh yes, that was one of my very early discoveries, 15 or 20 years ago. I had an old Laney Klip amp, and though I liked the sound, there was something I didn't like about the attack — so I made what went into the clipping circuit a bit brighter, and cut out some of the low end, which made it less of a fuzz type of effect. The combination of pre- and post-EQ gives you a tremendous amount of variation — which is what we do in the SansAmp PSA1 preamp. In fact, the PSA1 doesn't entirely rely on preamp EQ, because some of the EQ, like the Crunch control, is in the

WHILE MY GUITAR (AMP) GENTLY WEEPS - THE SANSAMP SOUND

You once said that the secret of your sound was your circuit — which is really a tube amp built in miniature, using FETs, right down to a push-pull output stage.

"Exactly. When you use a simple clipping circuit there is no real dynamics to it, but when you listen to an amp distorting, it changes its harmonic structure depending on how you play the guitar, what pickup you use... there are so many variables. I wanted to find a way to make a solidstate amp do what a tube amp does, and it's important to emulate both the preamp and the power amp. There are tube products out there that use a single 12AX7, and they just don't work properly. A lot of things happen in the output stage, including how the output transformer reacts, and although we can't put a transformer on a chip, we can simulate it. The transformer is really a huge inductor.

"The phase inverter is also very important, because it does some funny things which I became very familiar with in my tube amp days. When you put a master volume before the phase splitter, they never sounded good, but if you put them *after*, using a stereo pot, they were better. I took all these effects into account when I was building the SansAmp."

I should imagine that the transfer characteristics of the loudspeaker also play a large part in the sound.

"That's absolutely true, and there is the damping factor too. There are interactions between the loudspeaker and the transformer, but what you have to do is look at which effects actually influence the final sound and which are irrelevant. Some of the things that are different between a solid-state amplifier and a tube amplifier don't make as much difference as you might think — I'm not going to tell you what is important and what isn't, but you have to do a lot of A/B testing to find out. I built a lot of prototypes, including a 12AXT tube overdrive, but I discarded that idea, because it sounded really thin and useless.

"One problem is that people say solid-state devices can't sound like tube devices, without even trying it. I started with a clean sheet of paper, not believing anything that other people said, and I tried everything I could. I used silicon transistors, germanium transistors, JFETs, MOSFETs, LEDs, different op amps — everything. Another important point is the impedance of the circuitry, because most solidstate circuits have a relatively low input impedance, whereas tubes have high impedances. That's why I used FETs, because they can be used in very high-impedance circuits. It isn't the same using a transistor circuit and putting a high resistor in series with the input."

The SansAmp XXL overdrive pedal. THU Systems DARWIN

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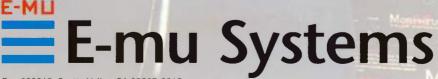
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Andrew Barta of Tech 21

feedback loop. If you look at a tube amp, the presence control is fed back from the power amp output. It's another small detail, but they all add up.

"To develop the speaker simulator, I miked up cabinets and drove them at different volumes, and recorded the results. Again, I don't want to reveal what I came up with, but the bottom line is not to



The SansAmp PSA1 rackmount guitar amp simulator.

believe anything until you're tried it. People tell you that it's important how a loudspeaker breaks up when it's played loud: maybe it is, maybe it isn't, but you have to do experiments to get at the truth. I used to arrange double-blind tests for myself, so that I could compare recordings I'd made without knowing which was which until afterwards. The psychological effects are very strong.

"There's also a myth about the soft clipping in tube amps, which is true in some ways, but false in others. If you look at an overdriven Marshall on an oscilloscope, you see a very strong clipping waveform. That's because you're overdriving the output tubes, which are biased in a way, in that they become non-linear very quickly at a certain level. If you do the same experiment

with preamp tubes, you find that they'll clip softly — but only on one side, because the circuitry is class A."

THE COMBO

After building a career based on *removing* the need for an amplifier — as the very name SansAmp implies — you introduced a guitar combo into your range. What is special about this design?

"The preamp in there is based on existing SansAmp technology, and the

combo has a ground-lifted XLR DI output with speaker simulation for recording. Many big rock names like Eddie Van Halen run their stage amps into a speaker simulator, combined with a dummy load. Then he runs everything through HH amplifiers, which are very clean. Once you've got a good sound, you just need to amplify it; you don't need to change it any more, and that's what we've done in the combo, by putting in a very clean power amplifier. It's the same with the speaker, because you've done all the simulation before it.

"Our power amplifier has lots of headroom and is limited by the power supply *current* rather than by the power supply *voltage*, which means loud transient signals won't be clipped. One of the wonderful things about power MOSFETs is that they can handle a lot more power than you actually use them for.

"There is also a real difference between tube and solid-state rectifiers, not in sound but in dynamics. A tube rectifier lets the voltage sag

when you play a loud chord or note which pulls down the level, then lets it rise again rather like a compressor. You can simulate this very closely with a solid-state rectifier, by putting a resistor in series with it — because this simulates the impedance of the tube rectifier.

"I haven't done anything like that in the power amp stage, because that would be

cheating — the DI sound would be different to the sound you get from the loudspeaker. If you listen to the XXL pedal, you hear this effect recreated in the preamp stage. Some people think there is a compressor in there, but that's not it. What happens is that there is a natural sagging effect, but again, I don't want to say how I've done it. On the combo amp, we call it the Weep button, because it gives you that kind of crying quality. You can hear it on the old Queen



recordings from the AC30s, but the modern reissue amps don't seem to have it. The combo is also fitted with a genuine Accutronics spring reverb, because digital reverbs don't sound as warm on guitar."

In the course of the interview, it became clear that Andrew's passion for the guitar and his insight into electronic design have enabled him to develop a unique product, where the end result is judged purely by its sound and not by the technology used to create it. I look forward to trying out one of his new combos in the studio.

"Once you've got a good sound, you just need to amplify it; you don't need to change it any more."





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Studiomaster's new desk joins the long list of other contenders in the crowded 8-buss mixer market. Unlike many of its competitors, however, the Classic 8 is a split console, and includes MIDI

> muting and a meter bridge as standard. Is this enough to encourage musicians to settle for Studiomaster? PAUL WHITE finds out.

STUDIOMASTER MIXDOWN CLASSIC 8 £1879/2349/2819

PROS

- Simple, split console design.
- MIDI muting and meter bridge included as standard.
- Generally good sonic performance.

CONS

 Not as many inputs as an equivalent in-line console.

SUMMARY

A good value recording console with many standard features that other manufacturers sell as extras. STUDIOMASTER MIXDOWN CLASSIC 8

Fracks?

Studiomas

a Monitor input for every one of its normal inputs, providing double the number of inputs during mixdown. You also get EQ on only eight of those 16 monitor channels on this particular board.

The Mixdown Classic 8 is an 8-buss recording mixer available in 16, 24 and 32-channel versions, with the benefit of MIDI muting as standard providing click-free muting under the control of any MIDI sequencer (see the 'Mute Witness' box for more). Also standard is the full-width meter bridge and a rackmount power supply. Direct outputs on every channel mean the console isn't restricted to 8-track recording, and the 3-band EQ features sweep control on both mid and lower sections — which makes it very flexible.

tudiomaster are one of the longest

established UK mixer manufacturers, and

indeed, they're one of the few not

bought out by an overseas parent

company. Their Mixdown Classic is based on

technology and features drawn from the original

Mixdown range of consoles, and unlike most of

today's mixers, it retains the traditional 'split' format,

rather than the in-line approach used by the majority

of its competitors. Without wanting to enter into the

split/in-line war, split consoles are generally

considered to be easier to use than in-line models,

and there is no need to share the available EQ and

aux sends between the main and monitor channels.

On the negative side, the Mixdown Classic only

provides 16 Monitor inputs, regardless of how many

input channels you have, whereas an in-line desk has

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Studiomaster Mixdown Classic 8

Inside the robust steel chassis are individual circuit boards for each channel, unlike many budget mixers which use large, horizontal boards. This more painstaking construction method is more expensive, but does allow the controls to be mounted properly, avoiding the wobbly knob syndrome that afflicts so many budget desks today. It also affords easier access for servicing.

CHANNELLING

The input channels all feature balanced mic and dual line inputs as well as direct outs, insert points, a switchable 20dB pad and individual phantom power switching. There's no mic/line switching, though you just plug into the input you want to use. All the

> connections are on the top panel for easy access, though the addition of a meter bridge means they aren't quite as easy to get at as they would be without it. The 'Line A/Tape' switch sends the off-tape signal from the multitrack recorder either to the input channel (for bouncing or mixing) or to the tape monitor section for tracking, whereas Line B provides an input for external line level sources.

After the input section comes the 3-band EQ, which provides up to 16dB of cut or boost per band. The Hi band is a fixed, 12kHz shelving filter, while the Mid and Low may be swept from 350Hz to 7.5kHz and 25Hz to 300Hz respectively. This EQ, which features a band-pass mid

section and a variable-frequency shelving low section, is a derivation of the circuit Studiomaster have been using for the past couple of decades, and it does have a certain musical charm and warmth to it. Of course, you don't want EQ all the time — so a bypass switch is also fitted.

Of the six aux sends, numbers 1, 2 and 3 are set post-fade for use as effects sends. Auxes 4 and 5 may be switched as a pair for either pre- or post- operation, while Aux 6 is fixed pre-fade, for use as a performers' foldback send. All the panning and routing controls are guite conventional, but the Listen button shares its status LED with the channel clip indicator — a handy feature for letting you know when you're taking too many liberties with the headroom. There's also a channel On button, which has its own status LED and is connected directly to the electronic muting system. Rather than muting the signal instantaneously, which might cause clicks, the mute circuitry has a 50mS fade time to ensure silent muting under all programme conditions. This also applies if the mute is activated manually.

The master section of the console is pretty conventional, and includes a 1kHz test tone oscillator and talkback (switchable to slate or foldback) with an integral mic. Each of the six aux sends has its own master level control, and further level controls are provided for the control room monitor and the headphone output. There's Control Room monitoring of either the main stereo output or the 2-track return; pressing a Solo button overrides the stereo mix, but the 2-track output always takes precedence when selected. A nice touch is that sends 1 and 2 also have mute functions, while sends 5 and 6 (normally used for foldback), have Listen buttons, allowing them to be solo'd.

SPLIT MONITORING

In true split console form, the off-tape monitoring is handled by a set of monitor channels above the Group faders. These are arranged as two rows. The top row can be switched from its normal monitor duties to act as an additional line input when mixing, and this row of monitor channels has the benefit of 2-band sweep EQ, level and pan controls, and two

> aux sends. The upper of these two sends is dedicated to aux 6, while the lower send may be switched between aux 1 and 2. There's also a Listen button. Also on this row are fader reverse switches, enabling the Group fader and monitor level control functions to be swapped over. During recording, this makes it convenient to set the offtape monitor levels using faders rather than knobs, but as

there are only eight Groups, this feature is available only to the first eight monitor channels.

The lower row of returns is similar, except that there's no EQ and no Listen, and the source is switchable between Tape and Group. Selecting Tape always gives you the tape return, unless a jack is plugged into the relevant aux line input, in which case the external input takes priority. Once a jack has been plugged in, the channel functions as a simple line input feeding the stereo mix.

In Group mode, the Group signal passes through the monitor channel's pan, level and aux controls, making it possible to pan or add effects to subgroups. While this further reduces the number of inputs available at mixdown, it does get around the age-old problem of having to tie up two Groups whenever you want a signal panned anywhere other than hard left or hard right. Each of the Groups is controlled by its own long fader, and separate faders are used for the left and right stereo master outputs. All these faders have Listen buttons, and insert points are provided for all the Group outputs.

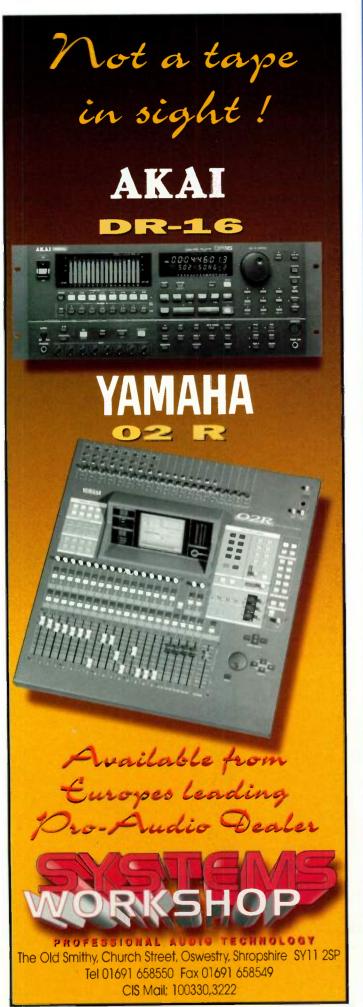
Like most Studiomaster mixers, there's a certain amount of user configurability, including the ability to select the XLR outputs to run at either +4dBu balanced or unbalanced. It's also possible to change PCB links to match up with -10dBv or +4dBu multitrack recorders.

MUTE WITNESS — THE CLASSIC 8 & MIDI

As already mentioned, the Classic 8 features MIDI muting as standard. The first thing to do is set up the MIDI channel for communications, using a rotary switch adjacent to the MIDI In, Out and Thru sockets on the rear panel. Once the system is switched on via the MIDI switch on the front panel, mute information is sent as Note Off and Note On data on MIDI notes 1 to 32 for the channels, and 101 and 102 for Aux 1 and 2. Note On equals Mute On. Unlike some systems, which use nonlatching buttons for the channel On switches, the Mixdown Classic 8 has normal latching buttons. These must be in the channel On position before mute data can be played back into the console green status LEDs show the mechanical status of the switch. A red LED shows whether or not the channel is muted, so when both LEDs are on, you know the channel is being muted via MIDI.

Some older sequencers don't handle very long Note On events very happily (you have to feed them an extra one occasionally just to stop them timing out), but most current sequencers should be fine, and the great advantage of such a simple system is that it's very easy to edit the mute data in your sequencer. You can either set up the mutes as snapshots, then dump them to the sequencer one at a time using the Dump button, or you can run the mix in real time and record note data straight into the sequencer by pressing the console's mute buttons. By working on a few mutes at a time and doing each pass on a separate sequencer track, editing is simpler — and you can always merge the data to a single track when you're happy with it.

If you start a mix mid-song, there's a good chance that some of the mute data will be wrong, because the sequencer won't know what mutes were last set, and it will stay wrong until the relevant mutes are next updated. To get around this, Studiomaster have used the same system adopted for their P7, where mute data is also sent out as bursts of MIDI controller information every second or so. When editing mute data in the sequencer, the controller data must be discarded, otherwise you'll have two conflicting sets of mute instructions. New mute controller data is output from the mixer's MIDI Out when you next play the sequence data back into the console. For those without a sequencer, it is possible to set up one mute snapshot and switch it on or off using the MCM On button.





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Studiomaster Mixdown Classic 8

METERS BY THE YARD

When it comes to metering, the Mixdown Classic 8 spoils you like no other budget console I know. There are moving coil VU meters on the meter bridge for the main output, but if you prefer PPMs, you have those too, on the main console panel. These also display the PFL or AFL signals when a solo button is pressed. The remaining meter bridge displays monitor the individual channel signals, and these may be set to meter the channel outputs or the multitrack returns. Eight more bargraph meters on the console panel cover the Group outputs or tape return levels.

"The circuitry is commendably quiet and the EQ compares favourably to the competition."

OPINION

Because this is a split console, it is very easy to use, though it doesn't have as many available inputs as a similar sized in-line console. Perhaps more restricting is that only a single dedicated stereo aux return is available, so all other effects have to come in via input channels, or via unused monitor channels. This potential restriction on the number of available inputs aside, the Mixdown Classic 8 performs very well: the circuitry is commendably quiet and the EQ compares favourably to the competition. I like the simple approach to mute automation: this is as easy to use as your choice of sequencer will allow, and the mute action is smooth and vice-free. I also like the way the designers have given each channel On switch two LEDs: a green one to show when the switch is physically in the On position, and a red one to indicate muting, either manual or MIDI.

Cosmetically, the Mixdown Classic 8 is a little more up-to-date than consoles from Studiomaster's 'brown period', though some may still find the choice of colours a little busy. The legend is clearly readable, there's plenty of room for chubby fingers between the controls, and the knobs themselves are clearly marked, with a nicely tactile, rubbery surface.

SUMMARY

Compared with other low-cost mixers, the Mixdown Classic 8 stands up as a well-specified and solidly-built product, which includes some endearingly old-fashioned features. It also sounds good and sensibly includes MIDI muting on two of the aux sends, which is where you need it for creative effect control. The comprehensive metering is a big plus point, and the only real weakness is the sole stereo return. On an in-line desk, this might be less serious, but with a split console of this type. you're always limited to 16 monitor inputs, even if you buy the 32-channel version of the desk, and even then you lose another monitor channel every time you use a Group to create a subgroup. The plus side of the split arrangement is that setting up a monitor mix is less confusing, and when you come to use the monitors as extra line-ins at mixdown, the top eight have the advantage of EO without having to hijack it from an input channel.

The 8-buss mixer market is pretty ruthless at the moment, and I think it would be unfair to point to any single product and proclaim it the clear winner. All have slightly different combinations of features, and the Mixdown Classic 8 looks as though it will appeal most to those who want low-cost MIDI muting, straightforward operation and generous metering.

FURTHER INFORMATION

- Mixdown Classic 16:8:16:2 £1878.82;
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Paul and Kenny are two songwriters from the North West looking for a publishing deal, having no desire to be recording artists themselves. The pair are definitely aiming at the AOR end of the market, which makes the material more suitable for America, Japan or mainland Europe.

The productions lean heavily on sampled brass and electric guitar, the combination that was so successful for Robert Palmer. Yet they've chosen to treat the electric guitar with so many effects (a heavy modulation or pitch change) that the clarity and punch is lost. This is a shame, because with a Paul Reed Smith and a Mesa Boogie combo, the guitar should sound good enough straight. It's a common fault with guitar to pile on too many effects. And when the effects are printed to tape with the sound, you can't do anything about it in the mix.

I fast-forwarded to the 'reggae-style' song, 'Don't Take My Heart', which features skanking keyboards and some lightweight, clean funk/pop guitar fills. Again, the brass plays a prominent part, and the duo use it in a way which sounds a little uncomfortable. After a couple of listens, it seemed to me that the brass parts were placed too low in pitch, sounding out of the real instrument's range — or perhaps it was just that the low brass dominated. Anyway, if this low octave had been taken out, the brass sound would have been far more crisp, introducing

VOODOO GURU

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Recording Venue: Home.

Video Recorder, Aiwa S260 DAT machine, Fostex 812 with 8200 MIDI interface unit, Fostex 2016 line mixer, Sanyo DCX 233L hi-fi amp, JBL Control 5 and M350 monitors, AKG, Sennheiser and Peavey mics, Atari STFM running *Cubase*, D&R mano compressor, Tantek rack, Yamaha SPX 900 effects processor, ART multiverb LT.

Recording Equipment: Alesis ADAT + JL

Well, I'm knackered just from writing the gear list out, but it's worth it for this rather interesting CD from



Darlington-based rock band Voodoo Guru! Although the music is unashamedly guitar-orientated, it is very accessible and contains many nice, guirky moments. For example, members of guitarist Neil Scarth's family variously appear in such cameo roles as weather man, samaritan, crying, screaming and partying. Other effects are recorded from TV and embellished, like running water and a miked-up bucket of water. Sometimes these are slowed down and generally messed with, but that video recorder seems to have come in useful for a lot of it!

All the sounds, with the possible exception of the bass, have been well recorded. The guitars were recorded with effects when necessary, and Neil used a Gallien Kruger 250 ML with a GP16 effects unit, mostly miked up via

a pro amp Viper. Tom Fisk's Ibanez Roadstar was miked up from a Fender Super Amp, after being treated by a Boss ME5 and a Boss graphic. Halfway through the recording, he managed to get hold of a Zoom 9050S, which turned out to be 'excellent'. Many of the guitar sounds are distorted, but there's no problem with separation on these mixes. The sounds have been carefully chosen, and the EQ — a little more pinched for the lead guitar — helps it stand out when there is a wall of distorted rhythm guitar.

A DI was used for the bass

guitar, and this, coupled with the lack of warmth that ADATs seem to bring to bass, caused some problems. Boosting the bass at 70-100Hz on certain songs has helped, without causing any rumble, however the sound is still a bit on the thin side. What's needed here is some sort of bass preamp for the recording, to get that 'Entwistle' sound. Even so, all the mixes are a bit bass-light for rock music, and the CD definitely sounds better played with the loudness button in!

For the mix, Neil wrote a mixer map on Cubase, to mute channels

a clarity to the overall mix and more punch to the brass sound itself. Its very weight tends to drag the production down in the lower mid frequency area, where a lightweight muted brass chordal pad would have been better.

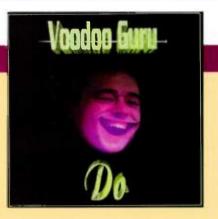
All the songs are sung well within their standard pop arrangements, and the guitar playing and programming is basically sound. It's just a question of getting the songs to the right ears.

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on the Fostex 812 using Control changes rather than notes to save channels. Tracks were then mixed to the Nicam Video recorder and bounced back to the ADAT using tracks 1+2 and 3+4 alternately, to fade between songs. Special effects were added to tracks 5+6 and the whole lot mixed to tracks 7+8, running Cubase to trigger samples. Well, I suppose it beats hiring another ADAT! The general mix does not seem to have suffered for this elaborate arrangement, nor for the addition of compression at post production.

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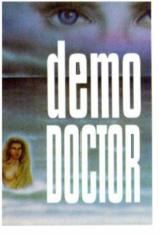
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CLIVE MCARTHUR

Recording Venue: Home

Recording Equipment: Atari 1040STE computer running C Lab Notator, Unitor synchroniser, Alesis 1622 mixer and microlimiter, Yamaha SPX 900 effects processor, Yamaha R100 effects processor, Shure SM58 microphone.

Clive labours under the misapprehension that I live in 'sleepy, picturesque and relaxing

St Ives'. Not only that, he's confused St Ives, Cambs with St Ives in Cornwall. Wrong on both counts! We'll let him off though; he's Australian and lives in sunny Melbourne — perhaps consuming too much of the amber nectar.

The tape, however, suffers from no such muddleheadedness. As a guitarist who's discovered recording technology and keyboards, the material is straightforward pop rock. Armed

with an Atari synchronised to a 4-track, Clive arranges the backings and sounds. These are designed to work around the guitar part, and it is obvious that he still writes on the guitar.

The guitar is quite hard-sounding in the lower-mid region, as though an old fuzzbox has been deployed. The result is that it sounds contemporary, in a retro sort of way — which is just how it's fashionable to record guitar. As for the rest of the track, it's refreshingly sparse, with some good harmony vocals on choruses and later verses. An extra guitar joins in with a rhythmic, broken-eights pattern, and this also lifts the song at critical moments.

'If It Need Be' is the title of the second track, an understated song with some nice clean rhythm guitar and question/answer vocal touches. Some echo on the guitar would have given the song a more produced quality, but its lack of studio guile still has appeal.



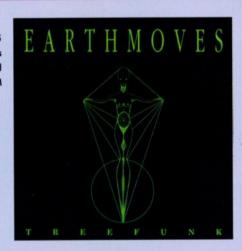
Flip the tape over, and we find Clive experimenting with drone vocals for the cassette's title track, 'Grey Buddha'. This intro is effective and moves into a rolling hypnotic backbeat using drums, sampled upright bass, repeated vocal phrases and ad-libbed vocal. Some of the repeated vocal phrases are treated to what sounds like pre-delayed backwards reverb, others just placed back in the mix with a hefty dollop of reverb. The vocal sound itself is a bit on the muffled side, but the general concept is excellent. Again, it is the understatement in the instrumental backing which lends the song weight.

Recording Venue: Home

Recording Equipment: Fostex Model 80, Trident series 65 24:8:2 desk, Yamaha SPX990 and SPX50D effects processors, LA audio compressor/gate, Electro voice and Sennheiser microphones, Quad amp, Yamaha NS10M monitors.

Earthmoves are a 5-piece, Bedford-based band who put their own small studio together a couple of years ago. From this humble beginning they've graduated to releasing a three-track CD EP which sounds rather good. The band style is a blend of heavy funk and retro synth sounds, and features some of the best real drum kit sounds I've heard for some time on a demo. Also, in terms of production they've taken a natural sound approach, using the minimum of effects.

On the first song, 'Doors opening', swell synthesized chords with opening filter, a groove drum beat and vocals kick off. The drummer is certainly a solid player, and the Gretsch kit sounds superb, with the snare tuned up tight to



EARTHMOVES

give that classic funk/rock sound. For an M80 this is quite a fat drum sound, which also sounds like it's been compressed to add extra punch and attack to the sound. I felt that the hi-hats could have been louder in the mix, but they've obviously taken an executive decision to keep the beat flowing off the kick and snare groove.

'Big Toy' is the second track, and has a far more up-to-date sound in terms of instrumentation and arrangement. I really think that it's the keyboards which add this, as retro sounds tend to make things sound so much more contemporary. The singing of Alistair Lindsay (who also plays guitar) tends to float effortlessly across the music, which suits the final song (a ballad) to a tee. However, on the uptempo compositions it doesn't quite sound like he's really making enough effort - yet he more than makes up for it with some fine, energetic guitar playing and soloing. I don't particularly like the electric guitar sound, which has been squeezed by mid EQ and divorced from the other instruments, but that's purely a matter of taste.

With the exception of the last song, this is not particularly commercial music, with guitar and keys trading lead licks — but I suppose Level 42 got away with it, didn't they?

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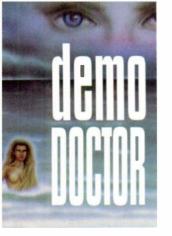
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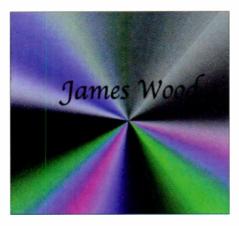
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JAMES WOOD: James Wood's CD is designed to promote his songs primarily to publishers and record companies. The voice and the playing are strong, so he's got no worries on this score, but I have reservations about the material for Britain. It's all very American, from the Steely Dan-influenced 'Bad Business' to the Whitney Houston-esque duet with singer Marion Wilson, 'Why Do We Hurt Each Other So'. Regardless of the influences, this last song could be a hit anywhere if it was given the right push, or given to the right publisher.



And there's the rub. Nevertheless, people are real suckers for the male/female duo, complete with key transposition towards the end, so let's hope James gets a bite. My favourite song was another ballad, 'You're So Much More' which also featured the best mix. Clarity of instrumentation, good choice of vocal reverb, with some occasional special effects and a great vocal performance made this a worthy choice.

GRACIE FAY: Now here's a little gem of a tape from singer/songwriter Gracie. A simple recording on a 4-track with no real attempt to tart up the production, apart from an overdubbed acoustic. This plays occasional fills, and there's a bit of percussive knocking on the guitar body — a nice touch. Technically, it's a bit noisy, but the acoustic guitar sound is good and the vocals... well, the vocals have real emotion and sensuality! Great upfront singing that suffers here and there from sibilance, but who cares, whatever 'it' is, the girl's got it!

PANAMA GRIN: Hats off to the Grins, who are managing to sell quite a few copies of their self-produced CD *Drunken Dream* in the Portsmouth area. The music is unabashed '70s rock, and includes cover versions of songs by The Stones and John Lee Hooker. Listening to



the first song. I was deceived into thinking that the CD had been produced live. The whole performance captures the energy of a gig, and the choice of reverb - short room and club only serves to emphasise this. Far from being a criticism, I rather like this approach to music, which is firmly fixed in the '70s grooves of Santana, and features extended, improvised soloing on piano and guitar. Some of the tracks seem to lack bass, and the use of what sound like modern guitar preamp sounds in places doesn't sit well with the material ('We'd Go To Heaven'). I suspect that processing has been used on the general mix too, as the top end sounds over-enhanced on some tracks ('Under My Thumb'). Nevertheless an enjoyable listen if you imagine that you're in a sweaty, cramped club gig 20 years ago. Best track: 'Funny But It's True'.

SILICON MIRAGE: Paul Woodward's demo is aimed at the soundtrack and incidental music market. Consequently, he asks for comments on the suitability of the material in this context. The first composition, 'Wipeout', could certainly while away the time when the programming grinds to a halt on your TV set. Cheesy melodies and a happy beat guarantee as much. Yet the piece is too long for a demo, and I'd suggest getting several styles of music together on one tape, each with a running time of no more than one and a half minutes. You could then think of presenting them to library music companies as well as TV and radio stations. Having said that, the second instrumental develops very well, from a low-key start to a powerful synth workout that it would be a shame to miss! Assuming I was meant to have the Dolby switched in, the standard of engineering sounds pretty high (If not, it's a bit brash in the treble department!).

THE MILESTONE GROOVE: Recorded at Rockbank studios in West Manchester, this tape has a muddy quality that is probably down to the cassette rather than the master. Everything above 8kHz seems to be missing! Even so, the energy of the band comes across well, and singer Jon Travis has a lot to do with this impression. His vocal commitment is one hundred per cent on material that demands a good frontman — raunchy rock. Not a bad rhythm section either, with Jon Francis and Zach Fairbanks giving it the heavy groove treatment, on bass and drums respectively. The guitar playing is also good, but the sounds leave a bit to be desired, being over-equalised in the upper



mids and definitely lacking energy in the lower mids as a result. Best track: 'Go A Little Easy'.

THE BUSHMEN: Reviewed back in December, it seems that the Bushmen can't keep away from the clutches of the Demo Doctor. I seem to recall suggesting that they try using some more real instruments in their production. Perhaps wisely, they've decided to totally ignore this advice and



carry on building synth arrangements with strong vocals from Jane Whitehorn and Dave Bartlett. The heavily reverbed guitar works well too, disguised and mixing in with the synthesised sounds. Dave's voice is rough like gravel, but does

work with Jane's thinner backing voice — yet I feel she could have been higher in the mix on the second song. It was interesting to hear so many vocal-style synthesizer sounds, the growling filters playing off the sound of Dave's voice in the second track. Intentional or otherwise, it's a sound production idea. Good use of effects too, like the delays and backwards reverb on the vocals.

ENELLEN: A couple of interesting songs from Nottingham-based Richard Hattersley. With a fairly limited setup, he's managed to come up with an interesting production sound which borrows heavily from the '60s.

Maybe it's the sound of the Teac A3440 which gives his demo a retro flavour — a warm sound to the bass end and a lack of harshness



in the upper mids, even when a synthesized harpsichord sound is used. I guess some bouncing went on between the Yamaha MT120 and the Teac to achieve the multitrack vocal sounds. I've got a feeling that on the

first song, Richard is trying to sound a little bit like the Beach Boys.

On 'Haphazard' the second track, the trebly sounds of the DI'd electric guitar are instantly recognisable from my early days of experimental recording. The acoustic guitar merely strums away in the background and is not identifiably a 12-string — none of the rich sound is captured. However, the backwards guitar solo more than makes up for it and makes me regret my own switch to an ADAT. Cheerfully understated, the real bongo and tambourine add a lot to the general sound. \Box

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Thanks for the Memory? DG MEMORYMOOG ANALOGUE

As a child, NORMAN FAY was cruelly cheated of the thing he wanted most — a Memorymoog. Never one to bear a grudge, he reviews Moog's most unruly synth with the benefit of hindsiaht.

n the roque's gallery of analogue 'classics' fetching ever higher prices on the second-hand market these days, an especially prized item is Moog's Memorymoog, a hefty polyphonic synth with a reputation for producing the strongest, most powerful analogue sounds since Moog's early modular synths.

When speaking to keyboard players about the Memorymoog, the response you'll often get is one of unabashed gear lust - lots of players badly want one of these, and the few examples which appear for sale disappear very quickly. This has led to a strange state of affairs where many of the people who most want a Memorymoog have never actually played one!

If you speak to someone who has owned a Memorymoog for any length of time, though, you may hear a different story. Yes, they sound fantastic, but the distressing and occasionally downright bizarre tales of unreliability may come as a shock to those of us reared on modern synthesizers - you know, ones that actually work.

SWAN SONGS

The Memorymoog was the last instrument marketed by Moog Music --- a later polysynth, the SL8, was exhibited at at least one trade



show, but never put on sale, owing to the company's bankruptcy. At the time of the Memorymoog's release — 1982 in Britain, a little earlier in America — it was greatly sought after. A polyphonic version of the much-loved Minimoog was bound to be a winner --- one merely wonders why the company didn't try to produce it earlier.

It was, it must be said, very expensive, well out of reach of anyone who wasn't a professional musician, though a glimpse at adverts of the time shows that it was slightly cheaper than some of its contemporaries; instruments such as the Roland Jupiter 8 or the Oberheim OBXa.

At the time I, along with many other young synthesizer fans, would spend many happy hours in the local music store, annoving the sales assistants there with our inept attempts at playing. The Memorymoog was the most popular instrument with us --- there was no doubt that it sounded far better than any of its competitors, so there was always a gueue to play it. None of us could actually afford one, of course, but we could dream ...

In the North East, where I grew up, most of the people who actually could afford

Memorymoogs and the like played in covers bands on the working men's club circuit [and me Uncle Albert used to breed whippets --Ed]. The majority of these players sold their big analogue polysynths when the Yamaha DX7 appeared on the market. To the modern synthesist, obsessed with knobs and switches. the idea of selling a Memorymoog to buy a DX7 may seem like like the act of a madman, but to a working musician at the time, it made a lot of sense. The DX7 was smaller, lighter, more reliable, and most importantly, made better piano and organ sounds.

For a short while, and as a direct result of the success of the DX7, many of today's big collector's instruments were available secondhand, to those of us on a budget. Memorymoogs sold fastest, so much so that I bought a Rhodes Chroma because I never managed to put a deposit down on a Memorymoog in time!

Those with rich parents or good jobs got a nice-looking 6-note polyphonic keyboard for their £3100, with each voice being an improved version of the Minimoog. You got three oscillators with triangle, sawtooth and variable pulse waveforms, selectable individually or in any combination — sawtooth and triangle mix

DARK SIDE OF THE MOOG

I've got no axe to grind; I'm a musician, not a collector, and nor am I trying to sell you a Memorymoog. Maybe that's why I'd advise against buying one at any price.

Let's get the price bit out of the way first. One reason why Memorymoogs very seldom come up for sale is that, compared to more modern instruments like the Korg M1 or the Yamaha SY85, there weren't that many sold. Another reason is the current vogue for analogue synths of all kinds, particularly among

the Japanese, whose buying power has pushed the price of Memorymoogs up to what I consider to be a quite unacceptable level — you'd be doing well to get one for much less than a thousand pounds. To some readers this may not seem too bad, but it's actually terrible value when you consider the instrument's legendary unreliability. I once saw a band whose keyboard player had no fewer than three Memorymoogs on stage at once. At the time I thought this rather excessive, but

now I know why - he needed the backup, because the Memorymoog is, I'm afraid, one instrument which is almost sure to let you down.

They seem, on the whole, to have been quite badly put together, and broke down a lot, even when new. Ten years later, they won't have got any better. The main problem is the tuning, which will go off at the slightest provocation. A friend of mine bought one several years ago, and found the usual tuning problems manifesting themselves when he tried to play it. He took it to the repair shop, only to find (typically) that the instrument worked perfectly there. After an hour or so back at home, it went horribly flat again. This performance was repeated several times, until the engineer actually visited the poor chap's home. After some investigations, the engineer noticed that the Memorymoog was situated near a radiator, and every time the central heating switched itself on, bang went the tuning. How's that for 'analogue warmth'?



²By the seventh day God had finished the work he had been doing; so on the seventh day he rested^c from all his work.^e
³And God blessed the seventh day and made it holy,^f because on it he rested from all the work of creating that he had done. (Genesis)

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MOOG MEMORYMOOG

particularly well! You could synchronise VCO2 to VCO1, which offered an advantage over the Minimoog, as well as other analogue polysynths. With the Memorymoog's extra oscillator, you could even get oscillator sync and swirly detune effects at the same time. The three VCOs can be mixed together with pink noise if you so desire, and then routed through the filter.

TOOTHSOME TWIDDLING

There is much hype surrounding the Moog low-pass VCF and its rich, powerful sound. I'm afraid it's all true. If you get a chance to have a go on a Memorymoog, try tuning all three oscillators to Unison, and select sawtooth waves for all of them. Then, play a low note on the keyboard while sweeping the filter, which ideally should have a little resonance (or Emphasis, as Moog dubbed it). A truly inspiring sound! If you turn the levels of the VCOs up full, the filter circuit distorts slightly, making it sound even better. As well as controls for Cutoff Frequency and Emphasis, the filter has a pair of switches for keyboard tracking, which can select 0, 1/3, 2/3 or full keyboard control of VCF frequency.

Each voice has two envelope generators, one each for the VCF and VCA. The envelopes (or 'Contours', in Moog-speak) are standard ADSR types with a shared set of four buttons to add extra effects. One merely turns off the release time, which doesn't seem too useful to me, but the other three controls are unusual, and can produce some interesting effects:

• 'Unconditional Contour' causes the envelope to run through the full attack/release times, regardless of how long you hold the keys.

• 'Return to Zero' cuts off the release of any existing notes when you play new ones; useful if you are using long release times, and don't want the sound to get muddy.

• 'Keyboard Follow' shortens the envelope times as you play higher up the keyboard a nice effect, but it would perhaps have been more useful as a variable control, rather than a switched, on/off effect. An unusual feature of the envelopes is that the Attack, Decay and Release knobs have time graduations marked on the panel. A nice idea, this — marred only by the inaccuracy of the marked times!

BANK HOLIDAY MODS

The modulation options on the Memorymoog are limited when compared with many modern instruments. There is only one LFO, which can be sent to any or all of the following destinations: VCO 1, 2 or 3 pitch; VCO1, 2 or 3 pulse width and VCF cutoff. The LFO has a rate control and a choice of waveforms: triangle; forward and reverse sawtooth; square; and random sample and hold. No sine wave, I'm afraid.

Below the LFO section is the 'voice modulation' section, which is similar to the

THE LINNTRONICS 'LAMM'

It's only fair to point out that Memorymoogs can be made to work reliably, by having a series of modifications made by a German company. Linntronics are based in Nuremberg, and will take your sick synth and put everything that was wrong with it right! They will also substantially upgrade the instrument's operating system, giving such benefits as velocity sensitivity (over MIDI), better parameter resolution, system exclusive capability and so on. This is the good news. The bad news is that the instrument has to go to Germany to have all this done, and the cost is high - apparently, you'll not see much change from £2000, once you've taken the transport costs and sad state of Sterling against the Mark into consideration. If you really want to stick with your Moog, though, then the LAMM is worth saving up for. I wish they did one for the Chroma!

Unfortunately, the expense of this is such that, bearing in mind that it's really an essential addition, buying a Memorymoog is strictly for the committed and deranged only! There are alternatives, though, if you're really keen on that 'big' analogue sound. The first of these is the Oberheim OBMx, which has Moog-style filters, (see SOS September 1994). The second, and most intriguing, is the Studio Electronics SE6, which was announced at the 1995 Frankfurt show. At the time of writing, I have no information on this, but it would appear to be a polyphonic version of their SE1 monosynth. If this is the case, the SE6 will be a real winner - a Memorymoog for the '90s. Why, then, should you waste your time and money on an instrument which is apt to let you down when you need it most? Leave this one to the collectors.

FURTHER INFORMATION

Nuremberg 8500, Germany.

'poly mod' section on the Prophet 5. You can route VCO3 or the VCF envelope generator to any of the following destinations: VCO1 or 2 frequency; VCO1 or 2 pulse width and VCF cutoff. There is a button to invert the VCF envelope's output, as well as a rather effective button which controls the amount of VCO3 modulation from the VCF envelope. VCO3 also has a pair of buttons to switch it to low frequency, or to remove it from keyboard control.

Judicious twiddling of these controls will yield many excellent effects. My favourites are modulating VCO1 with the LFO, and VCO2 with VCO3 for a rich, swirly ensemble sound, and adding a little frequency modulation from VCO3 to the beginning of notes, using the VCF envelope.

Although the modulation controls are effective, there are limitations. You can't send different amounts of modulation to different destinations, for example. This is one area where modern instruments, such as the Emu Vintage Keys or the Korg Wavestation, leave the Memorymoog (and most other old analogue polysynths, for that matter) behind. The Memorymoog voice could certainly use another envelope generator, so that different VCF and voice modulation effects could be programmed. Most frustrating.

SWAMP THING

Enough of the technical stuff for now — you'll be wondering what it actually sounds like! Fantastic is, I'm afraid, the only answer. The modern, MIDI-equipped synthesist will be used to layering different sounds together for extra warmth and richness. This is something you'll rarely, if ever, have to do with a Memorymoog, as it's quite capable of filling a track out on its own. Sometimes the power of the Memorymoog's sound can be too much for certain tracks. Indeed, so rich and full is it that it can easily swamp other sounds!

Although you'd never expect this instrument to produce accurate recreations of 'real world' instruments, you may be suprised at the wide range of sounds it actually *can* produce — far more than your standard analogue polysynth repertoire. The Memorymoog is also capable of great delicacy, as well as great power. The Best Memorymoog sounds are, in my opinion, its 'wash' or 'pad' sounds. Lovely brass and string ensemble sounds just seem to pour out of it during any programming session, and loads of good abstract synthetic chord sounds can quickly be created, to add character to any style of music.

It is possible to play the instrument monophonically, and though it doesn't sound *exactly* like a Minimoog, I think the extra controls more than make up for any discrepancy in the sound. As well as being able to play one of its six voices monophonically, you can also play all six, in unison, from a single key. I can almost *hear* the analogue freaks drooling over the prospect of '18 Moog oscillators' and 'six Moog filters' blasting away at once — yet to my ears it sounds crap, buzzy and harsh. More is less in this case, I'm afraid.

The Memorymoog had quite a decent set of presets when it came out. One that I remember especially well was a choir sound. It was pretty special, the best synth choir I ever heard, in fact. I went through the programs on the model I had looking for it, but of course it wasn't there. If you're trying a Memorymoog out, look out for it.

Some Memorymoogs are more equal than others. The Memorymoog Plus came late in the production cycle, with the questionable addition of a very basic sequencer, and almost ludicrously basic MIDI implementation. If, despite my warnings, you persist in wanting a Memorymoog, I wouldn't worry too much about this — save up your money and fit the LAMM upgrade (see box above).



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ROLAND U110 sound module, great sounds especially planos and strings, 2U rack, flightcase, £199 ono = John 01475 639766 Scotland)

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61 keys, 64-note polyphonic, 4 months old, hardly used, £1800.

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modeling workstation, 6 months old, home use only, baxed with receipt and manual and new sounds, £1750, RRP £2500 @ Ted 0181 242 9127

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YAMAHA CS15D £170; Roland Juno £290; VAMARA C3150 11/0, Koland Ulino 1250, D10 8000 6290; SH1000 6150, Custom Modular £750, Drumtracks £150, OBIE DX £150, TR606 £155, MAC Soundtools disk recording hardware £190 # Tom 01372 745496/0956381.

YAMAHA DX5 flightcased £600. Yamaha's answer to the Minimoog, CS15 analogue synth with case £250. = Chris 01293 425737.

YAMAHA DX7 with three ROM cards, two owners, ungigged, £325 = William 0181 656

YAMAHA DX21 programmable digital s nth manuals £150 = Damien 0191 386

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nce! £475 = 01244 382815

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Koro M1 £550; Cubase PC+MPU 401 £150. aha NS10s £240: Midiman Syncbox Pro F 1 2 0 + lots more ... = Andy (Oxford) 01608 810095

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ENSONIQ DP4 the ultimate 4-effects unit in one, 3 months old, superb condition, boxed, will accept £800. = Mark 01274 611343

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QUESTIONS

I. What physically distinguis the Six-Pack's other cardie	
a. Go-faster stripes.	
h Lamor wind backet	

- c. Built-in Maglite torch.
- d. Built-in pop shield.
- 2. What would be the total cost including VAT, if you were to buy the seven microphones individually (excluding the carry case)?

a.				

b. £839.70

c. £1099.95

- d. £945.50
- 3. What type of microphone is associated with the American rock guitar sound?

a.	Vacuum	tube.	
12-11	antre service		

D.	Condenser.	
-	Capacitor	

-	-		- (-		
-1	Du	-		-	

4. Which of these microphones does Paul White recommend as a drum overhead?

a	Δ	Т	M	12	2	-
ch.	1			2	-	0
			1.1	1		

- b. ATM31a
- c. ATM25 d. ATM10a
- d. ATHIC

TIE-BREAKER

If you were to win the Audio Technica Six-Pack, which performer would you most like to record, and why? Please answer in not more than 30 words, explaining which Audio Technica mic(s) you would use.

Name	
Address	
, Daytime tel. no	
	Audia Technica Competition

218			1
t your entry to: SOS A	udio Technica Competition,	Sound On Sound, Media	1
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TECHNICA Studio Microphone he Audio Technica Microphone he Audio Technica Microphone Six-Pack is not all it seems. A roadie's

he Audio Technica Microphone Six-Pack is not all it seems. A roadie's face might light up when he mistakes it for a cooler bag full of refrigerated

lager, but the actual contents of this rugged knapsack promise longer-term satisfaction. Inside, you'll find a microphone for every application, from acoustic instruments to vocals, from cymbals to bass guitars. No more fumbling about in padded bags or flightcases for the right mic they're all here, in a pack which brings together three pairs of omni and cardioid mics, plus all accessories, at an unbeatable package price. Audio Technica have even added an extra twist, in the form of an ATM25 dynamic bass mic, which normally retails at £175, but comes to you free with the Six-Pack. It might not add up, but this modestly-named package certainly represents great value.

We've teamed up with Audio Technica to give away a

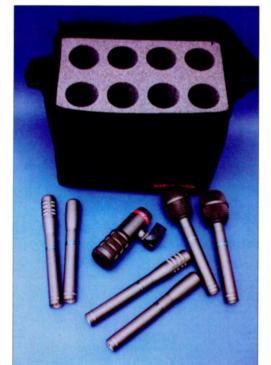
Six-Pack as the prize in this month's competition. To enter, just answer the following simple questions and complete the tie-breaker in an apt and original fashion. All the answers are to be found in Paul White's review of the Audio Technica Six-Pack on page 34. All entries should be received by the closing date: **Friday, July 5th 1996.**

Prize kindly donated by Audio Technica (tel: 0113 277 1441).

the small print 1. Only one entry per person is permitted. 2

1. Only one entry per person is permitted. 2. Employees of Sound On Sound Ltd, Audio Technica, and their immediate families are neigible for entry. 3. No cash alternative is available in lieu of the stated prices. 4. The competition organisers reserve the right to charge the specification of the prizes 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 with to make a personal presentation.

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Anatek's WIND MACHINE and your Yamaha BCI or BC2 Breath Controller (not provided) will add woodwind-like expression to keyboard performances. Brass patches can punctuate or pad according to your whim, not to some preprogrammed attack setting. Sax solos will turn heads with their authenticity. And layered string sounds can fade in precisely where they're needed, while your hands and feet are free to control whees and pedals. (Will not work with Yamaha WX7/11.)

Compatible with everything, WIND MACHINE interfaces to Korg, Roland, Yamaha, Ensoniq and the rest! No longer are you forced to use your Yamaha breath controller with only one brand of MIDI synth. Any MIDI keyboard that will respond to MIDI Volume, Aftertouch, Modulation, Breath Control, Pitch Bend, Expression, Foot Controller, or Pan can be controlled via your breath controller and WIND MACHINE. Blowing into a mouthpiece is the most natural way to enhance keyboard performance. Wind instruments have been designed around this principle for centuries. Alone, keyboard Aftertouch isn't as effective because when you release the keys, the effect goes away. Modulation and Pitch wheels alone aren't as effective because they don't allow you to play chords. But when combined with WIND MACHINE, all of these can be used to create vastly improved expression capability.

A flexible input/output configuration means that WIND MACHINE can fit seamlessly into any setup. The simplest way is to use it to send control signals to the MIDI in of a keyboard synthesizer. If the MIDI setup involves a master keyboard and external modules, WIND MACHINE can combine incoming signals from the master with its control signals and then pass them on to a sequencer or sound modules. WIND MACHINE can transmit the most popular



parameters to keep it simple. Most MIDI keyboards respond to Modulation, Aftertouch or Volume so you won't have any problem finding one compatible with your synth. Any one of the 16 MIDI channels can be selected as well. All control parameters are set by switches on the lid that retain settings even when power is disconnected.

Order Code: PP002 E85 inc VAT. Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET PEDAL

 Sends on multiple MIDI channels • Supports 1 continuous controller • Supports 1 momentary footswitch • Sends pitch-bend, modulation, portamento time, and MIDI Volume • Sends sustain, portamento on/off, sustenuto, and start/stop • Auto pedal/footswitch calibration • Forward/Reverse pedal operation • 3 mode pitch-bend operation • Combine data types

POCKET PEDAL is an indispensible controller for the performing musician. Use it with an ordinary volume pedal and footswitch to send MIDI volume, modulation, and sustain controls on all 16 MIDI channels simultaneously. For owners of multi-effects processors, POCKET PEDAL provides a convenient cost-effective way of providing dynamic control over effects parameters. It is also a handy controller for automated mixdowns, converting any resistive input into MIDI Controller messages for VCAs. Connect a photocell to POCKET PEDAL and control MIDI parameters with a light source!

Order Cede: PP009 £09 inc VAT. Postage: UK E2.50 Europe E4.95 ROW E8.95

POWER PACK

 'Phantom' powers all Pocket Products • Functions in-line with MIDI signal • Powered by most AC adaptors • Automatic polarity switching • Fully regulated supply • Passes all MIDI data

• Alleviates hook-up problems • Boosts MIDI signal POWER PACK provides power to Pocket Products in instances where upstream devices from other manufacturers have neglected to meet MIDI specifications, or in any instance where power is unavailable. POWER PACK can be placed anywhere in the MIDI chain and accepts power from a standard AC adaptor (not included). It provides additional power when more than 4 Pocket Products are used in a row or allows POCKET PEDAL and POCKET FILTER to retain their channel settings when the master device is turned off. What's more, POWER PACK can be used to boost the MIDI signal and extend the maximum distance between two devices.

Order Cede: PP012 £29 inc VAT. Postage: UK E2.50 Europe E4.95 ROW E8.95

POCKET SPLIT

 S-Zone Keyboard Splitter • Range from 1 to 127 notes • Fixed boundaries • MIDI Channel/Zone assignment • Footswitch controllable • Floating split point

POCKET SPLIT is an 8-zone keyboard splitter. Each zone has its own MIDI Channel, and has a range of 1 to 127 keys wide. Zone boundaries can be set for hard or soft (overlap or splits). Use POCKET SPLIT to maximise the performance of your master keyboard, or create interesting performance possibilities with your guitar controller. An added feature is an 'intelligent' 2-way floating split that automatically tracks the keyboard player's left and right hands. Now any MIDI device can have the features of a sophisticated MIDI controller at a fraction of the cost!

Order Code: PP013 E 69 inc Postage: UK E2.50 Europe E4.95 ROW E8.95

POCKET TRANSPOSE

 In-line 16 Channel transposer • +/- 5 Octave transpose range • Switch between normal and transposed modes • Separate intervals for each channel • Transpose key signature and octave simultaneously • All non-transposed MIDI data is passed • Harmonisation mode • Footswitch controllable.

POCKET TRANSPOSE is a performance-orientated transposer that supports separate transpose intervals for each MIDI channel. Although many keyboards have a transpose function, it's usually too cumbersome for live use. POCKET TRANSPOSE makes transposing easy. Intervals can be set while playing, and the user can select the normal or the transposed setting from a footswitch. Guitar synth players can use the POCKET TRANSPOSE to set intervals on 6 separate MIDI channels, or use it to transpose all strings by a certain amount. POCKET TRANSPOSE provides an easy way to try different arrangements without altering sequencer data. You can even set it so that the drum machine channel remains intact.

Order Code: PP011 £65 Postage: UK E2.50 Europe £4.95 ROW £8.95

POCKET CHANNEL

 Remaps Receive channel
 Remaps Transmit channel
 Sends multiple MIDI channels Velocity-switch mode
 Footswitch controllable

POCKET CHANNEL takes data from any MIDI channel and remaps it on to one, several, or all 16 MIDI channels. Up to 16 different channel assignments are possible. A unique velocity-switch feature allows automatic switching between two different sound modules depending on the key velocity. Use POCKET CHANNEL to organise channel assignments for a multitimbral sound module, or send a controller's output to two or more MIDI channels. With POCKET CHANNEL, for example, two drum machines or two samplers can share the same note ass gnments and be set to two separate MIDI channels. **£69** inc VAT.

Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET THRU

 1-In, 3-Out MIDI Thru box • High-speed CMOS design • Very low power requirements • Buffered outputs clean up data • Handles all MIDI data
 Stackable for more outputs

POCKET THRU is an essential building block for any MIDI setup and an excellent companion product for all Pocket Products. POCKET THRU provides 3 buffered outputs from a single MIDI input. Use POCKET THRU to minimise MIDI delays, or expand the outputs of a POCKET MERGE unit. POCKET THRU also allows POCKET FILTER to be placed anywhere in the MIDI chain, when using it to channelise older synths. Up to 4 POCKET THRUS can be combined to provide a total of 9 outputs.

Order Cede: PP010 £35 inc VAT. Postage: UK £2.50 Europe £4.95 ROW £8.95



accessories designed to solve the problems arising from incompatibilites between MIDI products from different manufacturers. Compact and sturdy, Pocket Products can be placed anywhere in the MIDI signal chain.

Pocket Products

are handy MIDI

Anatek Pocket Products to

At *SOS*, we have regularly found ourselves referring readers to one or other of the Anatek Pocket range of MIDI accessories to solve their all too common MIDI interconnection and transmission problems. Trouble was, Pocket Products were previously hard to find... until now!

POCKET SYNC

• 'Smart' FSK Tape-to-MiDI synchroniser • Starts anywhere in song • MIDI In to Out merging • Automatic read/write switching • 'Jam Sync' protects against tape dropouts • Records tempo changes • MIDI and FSK status LEDs

POCKET SYNC is the way to expand the capabilities of any multitrack studio. No longer is it necessary to allocate more than one tape track for sequenced parts. Now, shutting to different points in the song is quick and effortless. POCKET SYNC writes a special FSK sync tone on one track of tape that is converted to MIDI Clock and Song Position Pointer on playback. Merging of data from the MIDI input to the output allows new sequencer tracks to be added while remaining synchronised to tape.

Automatic switching between write (recording FSK) and read (playback FSK) cuts downs on confusing switches and buttons. Tape oxide dropouts are no longer a problem with POCKET SYNC's variable dropout protection. The sequencer can continue playing over a dropout for a short time, even if FSK code is completely lost!

Order Code: PP003 £69 in: VAT. Postuge: UK £2.50 Europe £4.95 ROW £8.95

POCKET MAC

POCKET MAC opens up a whole new world of MIDI programs for the Macintosh computer user. With many Macintosh programs simultaneously supporting both the serial port and the modem port, one POCKET MAC could be connected to each allowing access to twice as many MIDI devices.

Order Code: PP004 £39 inc VAT. Postuye: UK £2.50 Europe £4.95 ROW £8.95

POCKET CURVE

Modifies MIDI velocity response

 Controls
 keyboard sensitivity
 Gapered curves
 velocity decrease curves
 constant levels

POCKET CURVE is a necessity for master keyboards that require velocity scaling control. With it, a keyboard's response to harder or softer playing styles can be modified to suit the player and their MIDI setup. DX7 owners can especially benefit from POCKET CURVE! A special curve is available to boost the DX7's low velocity output, so that missing dynamic potential can be recovered. Use POCKET CURVE to allow a lighter touch during performance on a heavily weighted keyboard controller. For ease of programming, a quick reference to the many curve possibilities is permanently printed on the sides of the unit. **E69** in: VAT.

Order Code: PP005 £6 Postage: UK E2.50 Europe E4.95 ROW E8.95



 Remaps MIDI controllers • Maps Pitch Bend to Aftertouch • 'Set and forget' programming Supports 15 controllers • Allows unconventional routings • Updates older keyboards.

POCKET MAPPER allows modulation routings to be customised to suit a particular need. Controller data such as Pitch Bend, Aftertouch, Breath Control and others is received and can be retransmitted as a different controller. For instance, DX7 Breath Control modulation can be rerouted to MIDI Volume to modulate synths that do not accept Breath Control. POCKET MAPPER is the most convenient and cost effective way of rerouting MIDI modulation. Now, MIDI wind instruments can remap mouthpiece Breath Control to Aftertouch quickly and easily.

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POCKET MERGE

Merges 2 MIDI signals into 1
 Handles System
 Exclusive
 Merges on all 16 MIDI channels
 Merges Clock and MIDI Time Code
 Merges all
 controllers
 Handles large volumes of data
 Stackable for 3 or more inputs

POCKET MERGE is an essential tool for sequencing or live use. Operating as a 2-In, 1-Out MIDI Merger, several Pocket Merges can be stacked to merge more than 2 inputs. Now any controller can be a 'mater'. In live setups, POCKET MERGE allows any two controllers (keyboard, drum pads, guitar synth, etc) to share a sampler or sound module. Use one keyboard as a master, while using a favourite pitch bender from another, or combine two keyboards for a multi-liered, organ-style controller. In the studio, POCKET MERGE is a must for sample dump editors, allowing a keyboard and a computer to be connected to the sampler at the same time. POCKET MERGE handles data very quickly, making buffer overflows a thing of the past.

Order Code: PP007 £59 inc VAT. Postupe: UK £2.50 Europe £4.95 ROW £8.95

POCKET FILTER

• Filter on all MIDI channels • Filter controllers, System Exclusive and real-time data • Combine data types/channels • DIP switch selectable filtering • Select channel from any keyboard • Filter all data on selected channels

POCKET FILTER is a vital tool for problematic setups. With MIDI data becoming increasingly complex, POCKET FILTER can unclog the MIDI data stream, sending only the most useful info. Use it to remove unwanted clock messages or System Exclusive data or memory-intensive aftertouch and controller information. POCKET FILTER frees-up unused MIDI Channels from multitimbral synths, making them available for other modules. In addition, it can be used to channelise older synths that only receive in Ornni mode.

Order Code: PP008 £69 inc VAT. Postage: UK £2.50 Europe £4.95 ROW £8.95



• Enables extra-long MIDI cable runs • Easy to connect to existing 3 conductor wiring • 4,000 feet capability • Balanced XLR connectors • Dual transceivers allow 2-way MIDI communication • Handy data input and output LEDs confirm presence of MIDI signal

presence of MIDI signal The problem with MIDI is that you are likely to encounter data errors when running more than 50 feet of MIDI cable. These can be embarrassing errors such as hung notes, mysterious program changes or worse in the middle of a performance.

The cost-effective solution is MIDIMATCH by Anatek. Two identical units convert MIDI data to balanced signals that can be transmitted through up to 4,000 feet of cable. The balanced MIDI signal is virtually immune to the problems that have previously plagued studio owners and sound contractors over long MIDI runs.

MIDIMATCH works through ordinary balanced microphone cable so you can connect keyboard controllers to MIDI sequencers or lighting controllers to dimmer packs through your existing snake! Studios already wired for audio can connect MIDI through the cabling already in place. MIDI signals could even be run through a balanced patchbay!

The price includes transmitter and receiver. (Please note: requires two 9V AC adaptors.) Order Code: PP001 Postane: IK *C2*.50 Europe £4.95 ROW £8.95

















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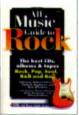
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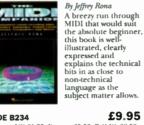


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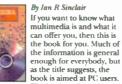


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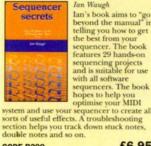
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ROLAND G800



Presented by Roland UK's product demonstrator Sara Revbould, this video Revisioning, this video covers every essential feature and function of the Roland G800. Sara provides the user with a wealth of knowledge on this sophisticated instrument, with instrument, with Roland association with Roland U'K and Roland U'K

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ROLAND GR09

Presented by Roland UK product demonstrator Nick Cooper, this application-based tutorial video for the Roland GR09, produced in association with Roland USA produced in association with Roland USA, covers even function completely. Covered topics include: the GR2A Synthesiser Driver, pickup sensitivity, use of the pedals, patch edit 1 & 2 (including layering and detune, chromatic function, reverb & chorus, edit target, pitch shift), the use of external midi devices, saving to an external exquence R more saving to an external sequencer & more £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 This is an application based video that provides many examples of how your new found knowledge can be applied. Just a few of the 50 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 & Lavers in a Patch. £24.99

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index booklet. The video is written by computer journalist Ian Waugh

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KORG PROPHECY VIDEO MANUAL

Written by Phil MacDonald

Writtee by Phil MacDonald Korg's new Prophecy Synthesizer now has its own video manual! The video covers all the major features over 6 sections, with lots of examples of the amazing effects that are available using the 'log' and 'mod' wheels. The video's visual interest is maintained by the extensive use of Chroma Key and multi camera effects. This is a video that is ideal for new owners, and those who want to know more about and those who want to know more about the Prophecy before they make a purchase.

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ROLAND TDE-7K DRUM SYSTEM



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Roland's TDE-7K

have a different configuration to what is shown in the video, but no matter!, Roland Product Specialist Garv O'Toole shows you how the complete kit is put together. Gary concentrates on the TD-7 in detail, showing how the parameters are set up, and giving demonstrations of how the sounds are derived and altered. Good use is made of the visual side in this video with multsounds are derived and attered. Good use is made of the visual side in this video with muli-camera shots, a 'birds eye' view of the entire Kit shows Gary's playing abilities to the full. As you would expect from a production aided by Roland UK & USA, this video shows you everything you need to know.

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YAMAHA PSR6000 **ELECTRONIC KEYBOARD VIDEO** MANUAL



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The Advanced tape takes the mystery out of sound editing, custom tuning, advanced sequencer applications, external sequencer hookups, using other MIDI sound modules, indeed virtually everything the GR-1 is capable of doing. If you own a GR-1 or are thinking of buying one, do yourself a layour and order these indispensible videos. CODE V014

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VIDEO

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MANUAL The Toneworks series of guitar processors of guitar processors from Korg gets a real work out on this 55 minute tape. Korg's guitar demonstrator Steve Fairclough whizzes through the G1, G2, G3 and the flagship AX30G and provides clear expla-nations of how each units works. And to

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users allice CODE V044

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CUBASE 2.6 BASICS FOR WINDOWS

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and those who need added insignt into rus complex system. Contents: Basic MIDI, Value Selection, Arrangments, Arrange Window, Transport Functions, The Inspector, The Toolbox, Quantisation, Grid Editor, Step Recording, -24 99 and much more.

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KORG X3

This video offers an easy way in to this powerful workstation. It starts from absolute basics, including audio connections and volume levels, and the clear and helpful script covers all basic facilities of the X3. The video features a sophisticated use of picture in picture, with the X3's display cut into the main image to show you clearly what Phil is actually doing, and main points are reinforced with on screen text and graphics. The main section headings are: • X3 Auduo Commentions • Getting Around the X3 • Factory Disk • Disk Drive Modes • Seitcring Sounds • Global Modes • Sequencer Mode • Quick Sound Editing • Playing MIDI Files on the X3 • Using the X3 with an external sequencer Note that these are loose headings, with each section also containing information on connected subjects in varying amounts of detail A lot of ground is covered, and we can recommend the tape to any X3 owner. This video offers an easy way in to this

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portable sequencer. sound source is a deceptively simple device to use; if you think you might like some insight into getting that little bit extra out of the device, then look no further. Produced in co-operation with

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features mobile musician Tom Robinson showing you how to get the best from this portable marvel. Tom, who has used the QY20 extensively as a writing tool on the road, says: "I never leave home without i

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VIDEO VOLUME 1 Produced by Emagic themselves, this video once again sees Tim Walter (featured on the excellent Notator video) in the tutor's chair. There are plans for a series of

videos which become ever more detailed and and nunning, and covers virtually all the controls

and running, and covers virtually all the controls you'll need. This video is valid for all versions of Loger, whether being run on an ST, Mac or PC. Presentation i rather intriguing, with a mobile camera that helps to hold the interest more than the average training video and sone interesting graphics that aid comprehension and help to quickly find specific tutorials and bits inside tutorials. Contents as follow: follows

- Tutorial 1: The Arrange window and basic
- Huorian T. Encounter, Conservation of the sequencing
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 Tutorial 6: Windows and key commands
 Tutorial 7: More sequencing
 Tutorial 8: Score

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 Tutorial 9: Looking at the Event List
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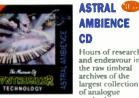
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882

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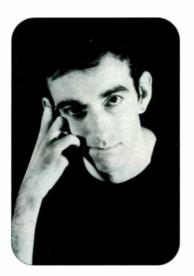
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Next copy deadline for the July Issue: Wed 22nd May 1996 he other day, I was listening to Desert Island Discs on Radio 4, sad person that I am, and the guest (George Martin, producer of The Beatles) said something that stuck in my mind: that some of the old, humorous records that he produced decades ago (such as 'Right Said Fred' by Bernard Cribbins, complete with sound effects) would not succeed nowadays, because today's listeners no longer have the necessary visual imagination.

It's certainly true that we're in danger of turning into techno-junkies, embracing every musical trinket and toy that the information revolution can throw at

sounding OFF



Multimedia artist NICK ROTHWELL isn't very old. But he's old enough to remember a time when we didn't need hallucinogenic drugs to have a visual imagination. What's he on? us. Our paradigms and thought processes are having to accommodate changes, perhaps the most significant of which is the trend towards ever-greater detail and literalism. To a large extent, this is because it is so easy for a computerised system to deliver detailed visual feedback. Our sequencers show us precise timings of notes in a variety of colours, and our keyboards draw little diagrams of envelopes and audio routings on their LCD screens.

Isn't this a good thing? In some respects, certainly. But I would suggest that there are definite drawbacks as well. For example, if you're staring at screens, how are you going to be able to visualise the music you're composing? Perhaps old age is creeping up on me, but I used to be able to visualise the timbres of a PPG Wave without too much effort. These days, all this staring at editor pages and thinking numerically about the modulation routings in my Waldorf MicroWave has somehow dulled my imagination. And since imagination is immediate and detail is slow, as soon as any idea gets anywhere near a computer, it's almost certain that creativity will dry up.

Unfortunately, this march towards the visual and literal seems to be widespread in our culture. MTV delivers hour after hour of video footage, artists invariably lip-sync'ing to their lyrics, and none of it requiring effort or imagination to comprehend. Gone are the days of the young child preferring radio to television, because 'the pictures are better.' I am coming to the conclusion that we are living in a culture obsessed with images, but unable to appreciate imagery.

It has recently dawned on me why I dislike multimedia. When I was younger, multimedia meant performance art; eclectic 'installation pieces' of dance and sound combining different media in unusual ways, and appealing to the different senses. Today, it seems to mean regimented video footage and generic music, delivering sanitised 'knowledge-bites,' literal and precise. While a multimedia encyclopaedia or Web site might be able to tell me everything I ever wanted to know about meteorology, it is never going to help me see the shapes of imaginary animals in the clouds. Since I appear to have such a low opinion of the visual, you might be wondering why I work in contemporary dance. Actually, I have nothing against the visual *per se*, just the overly-literal. I'm all for piles of bricks in the Tate Gallery and concrete houses for the Turner Prize (though I do draw the line at animal carcasses), and I find architecture fascinating. What is so wonderful about dance is that, when it is done well, the imagery can be incredibly powerful. A contemporary dance piece seldom tells a story or acts out a drama, and yet it can still have a striking message. Anyone who doubts that should check out Rosemary Butcher's work in the South East, or the New Moves dance festival in Glasgow [http://www.cassiel.com/dance/listings.html].

Sadly, this drive towards the literal is impacting on all of the Arts, including music. It seems as though everything these days has to be categorised and labelled. Wannabe an American rock 'n' roll band? Grow your hair and wear Spandex. Wanna play techno? Woolly hat and Roland TB303 obligatory. Gone are the days when the popular music scene could be turned upside-down by a shy teenager with a room full of guitars, recording an album like Tubular Bells. Multinational corporations now hold the purse-strings and yardsticks, serving up identikit artists who fit neatly into record shop categories. The musical instrument scene seems similarly afflicted: we judge a synthesizer by the quantity and selection of onboard sample ROM and presets, rather than by what the instrument might be able to do with some imagination and maybe a little misuse. The Usenet synthesizer newsgroups are flooded by articles asking 'Which is better?' from punters wanting quick and easy answers.

Not that the publicly-funded Arts scene fares much better. Much as I love the contemporary dance scene as an arena for experimentation and innovation, if you want a real challenge, try getting project funding as a musician directing a dance company. Pegs don't come much squarer. The Physical Theatre performers and companies I know just get bounced between Dance and Drama Departments at the Arts Council.

In spite of all this doom and gloom, however, I can see room for optimism. The crucial step is to realise the limits of the literal, in all its guises. We have to learn to see things, not for what they are, but for what they resemble or suggest. We have to be open to new experiences, experiments, projects and performances. And we have to break down barriers. Although the techno scene is a soft target for ridicule, its best examples are rich in imagery, and their graphic art is well sorted. There is innovative music out there, and true multimedia installations are still performed — the project by Robert Wilson and Hans Peter Kuhn in London's Clink Prison Vaults last October was excellent. The big mixed-media performance companies battle on (and if you can get to see Brith Gof or NVA performing live, I strongly recommend them). In the meantime, you could start by digging out a set of Brian Eno and Peter Schmidt's Oblique Strategies cards (a Web search should turn up a copy) and have a go at doing something musically unconventional. And above all, don't take things too literally. 505 SEE YOUR AUTHORISED LA AUDIO DEALER FOR A DEMONSTRATION FOR MORE DETAILED INFORMATION CONTACT SCV LOND

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