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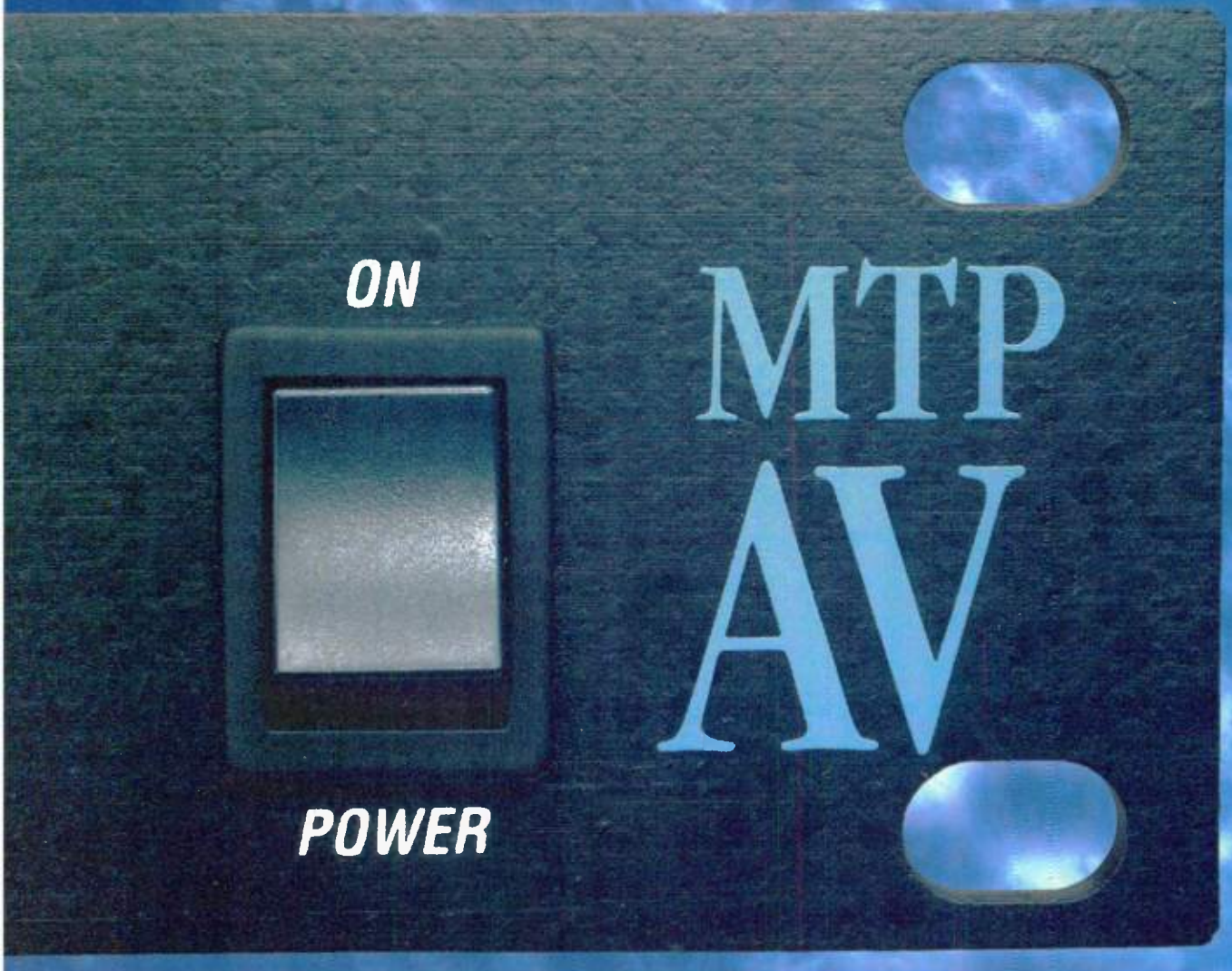

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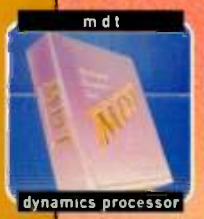

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leader

You may have noticed that over the past few months, a seemingly endless stream of new effects units has come onto the market — and the same goes for compact mixers. Part of this is obviously due to manufacturers cashing in on a lucrative niche opened up by somebody else (this is certainly the case when it comes to small mixers), but there's also a trend for music manufacturing companies to diversify as they expand, which results in more overlap between the products from different companies. While this presents users with a potentially confusing choice of models or makes, it does force down prices. Having recently returned from a tour of various American manufacturing facilities, it's obvious to me that they've all made major investments in automated assembly plant to enable them to compete on price terms with Far Eastern companies. But having made this investment, they have to maintain a high volume of throughput to justify having the machines, hence the pressure to diversify. At one time we complained about the Japanese making products obsolete — or at least out of date — every six months, but now it's the Americans who are bombarding us with 'new improved' versions.

So, we have more choice and lower prices — which is obviously good — but do we really get anything new for our money? After all, high-quality reverb has been around for more than a decade, good analogue mixers have been around forever, and just how many compressors and gates is it possible to fit into the average home studio? I don't know about you, but I'd like to see more innovation. Effects units get cheaper, but they still offer the same reverb, delay, pitch-shift and modulation effects. Relatively few units include vocoding, not a difficult thing to do using a modern digital effects engine — and few people have really explored the possibilities of dynamic, complex filtering which could, for example, put some of what Emu's Morpheus does for synthesis into an outboard processor.

The same thing is true of synths and sound modules. Few offer new sounds or new synthesis methods. There are exciting exceptions, one of which (the Yamaha VL70m) is featured in this issue, but I can't help feeling that most manufacturers are happy to peddle the same tired old additive synthesis sounds. Ask them why, and they'll tell you they're making what people ask for — the same thing as before but cheaper — but then how can an end-user ask for something new unless he knows it exists? For example, who was clamouring for FM before Yamaha's DX-series, who craved morphing filters before the Emu Morpheus — and who'd even heard of physical modelling before Yamaha's VL1? All the truly great products have been the result of somebody's inspiration, not a wish list from users of existing equipment. Valuable feedback can be had from users on things like price, subjective sounds and user interfaces, but when it comes to giving them something they've never had, how can they be expected to know? Great new ideas turn up in software packages all the time, so why can't the same imagination be directed towards hardware?

One American DIY store (Eagle Hardware) uses the catchphrase, 'more of everything', and that's exactly what we're seeing at the moment. But when it comes to musical instruments or sound processing equipment, I don't want more of the same — I want something truly fresh that inspires me to do something new with my music!

Paul White *Editor*

SOUND ON SOUND

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Photography Ewing-Reeson
DTP Bureau Sound Design
Colour Scanning CL Enterprises Ltd
Colour Origination Spectrum Repro Ltd
WYSIWIG
Printing Warners Midlands Plc
Newstrade Distribution Warners Group Distribution Ltd, The Maltings, Manor Lane, Bourne, Lincolnshire, PE10 9PH

Subscriptions
UK £35 **Europe** £55 **World** £65
Payable in sterling through UK bank

ISSN 0951 - 6816

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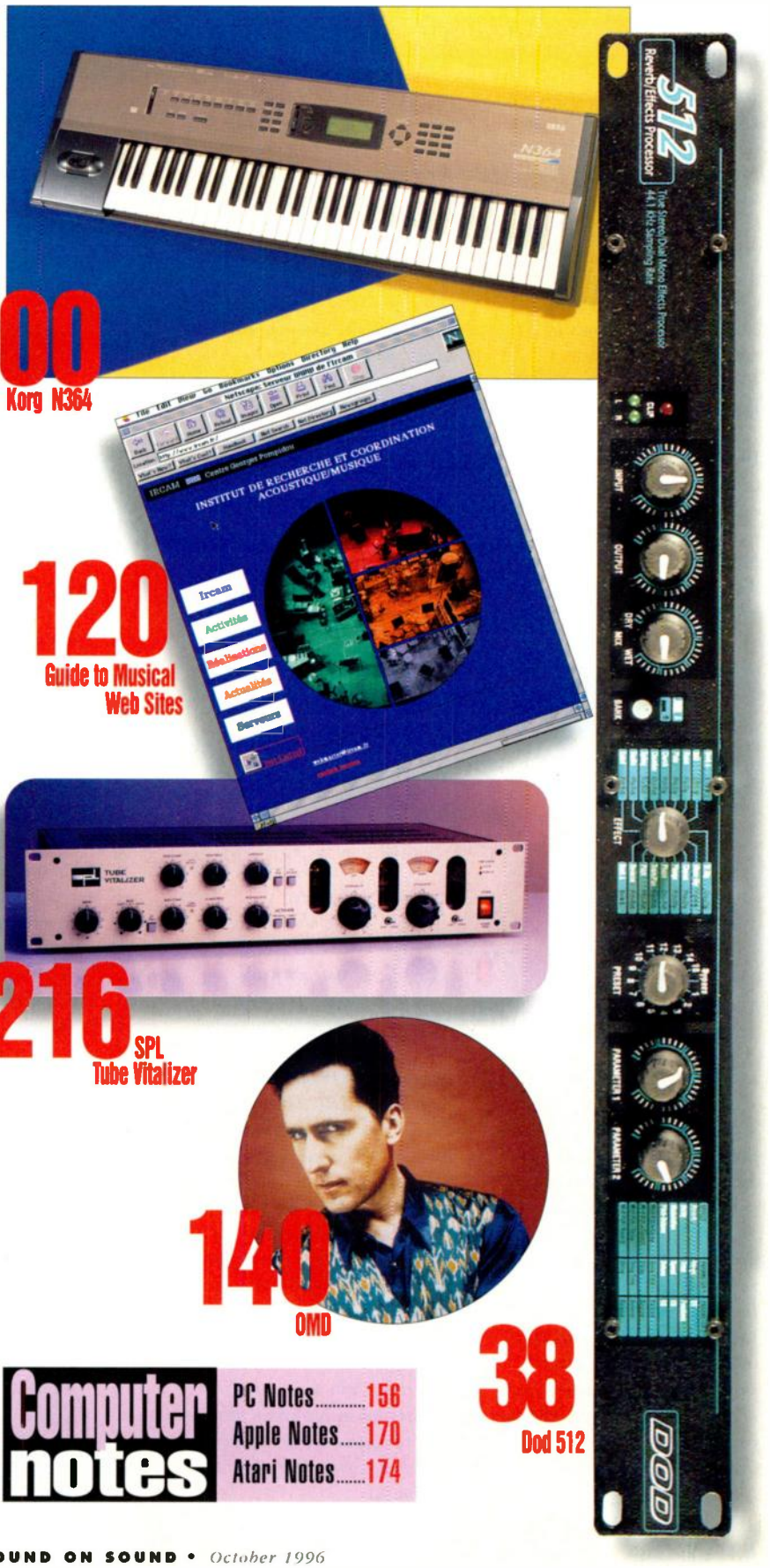

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Crosstalk

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Shareware? Where?

Thanks for a very informative article on shareware sample editors ('Share & Enjoy: Making the Most of Synth Sampler RAM With Your Mac') in *SOS*'s September issue. Could you please let me know if it is possible to purchase any of this software — especially *Sound Hack* — in the UK, since I'm not yet an Internet user?
Ardy
London

Derek Johnson replies: *There is an easy answer: if you've got a CD-ROM drive, you could buy the* Music & MIDI for the Macintosh *CD-ROM from Archipel Studios in France, which contains 650Mb of music and MIDI files and software. There, in the Sound Utilities section, are* Sound Hack *v0.743,* SoundEffects *v0.9.2 and* Sound Sculptor *v1.1.1. Discussions of versions of these packages formed the core of Mark Tinley's article. The disc also features a variety of editor/librarians (for the Kawai K1, Yamaha DX7, Casio CZ-series, Roland MT32 and SC155, amongst others), system files, demos, and a load of other sound utilities. The disc costs just £29.95 and is available from Time & Space (01442 870681). For the PC users out there, a CD-ROM collection of PC music-related software is available from the same source for the same price.*

For readers who don't have a CD-ROM drive either, we've looked into Mac PD/shareware libraries, but the general vibe seems to be that they've mostly decided that it's too much trouble to distribute Mac software in this way, since the majority of Mac users have, or have access to someone who has, an Internet account. Obtaining software via the Internet is cheap, easy, and often provides the latest versions without having to wait for them to filter through to a library. We did have a word with the London Mac Users Group, though, and they offer a 'shareware on demand' service for members: for a nominal amount per disk, LMUG will locate the shareware you're after, from their large collection of CD-ROMs or the Internet. Membership to LMUG costs £25 a year for wage earners, or £15 a year for non-wage earners. LMUG can be reached at PO Box 3550, London SE4 1RT, Tel: 0181 314 1753, or email **lmug@netclub-lon.com**. *Of course, if any readers have a favourite library, they should let us know. And don't forget: if the author of a shareware package you like and use, requests a registration fee or some other small payment, it's good practice to comply — you'll be enabling him or her to carry on writing software, and registration means you'll usually hear of upgrades before people who don't support the shareware system.* ❑

Roland Patch Match

I am using a Roland E15 keyboard to control a Roland D50 via MIDI. My problem is that whenever I select a patch on the E15, the patch on the D50 is changed according to the number chosen on the E15. What can I do in order for the D50 to remain as is while changing patch numbers on the E15?
Suren Ramdin
South Africa

Roland E15.

Derek Johnson replies: *It is possible to turn off Program Change reception on the D50 — all the info is on page 54 of the advanced user manual. To save you looking it up, you need to press the 'MIDI' button (it's under the joystick) three times, and you'll find the Program Change on/off switch in this screen — simply press the button underneath the display to select the state you require.* ❑

Editors Choice

I own a Korg 05R/W, and find the front-panel method of editing to be limiting and awkward. I believe there are software editors in existence, and I'd like to try these.
I use a PC.
David Brightman
Wakefield

Derek Johnson replies: *There are two answers to your question: Mark of the Unicorn's* Unisyn *(£229) and SoundQuest's* MIDIQuest *(£199). Both come with hundreds of drivers for MIDI-equipped devices, and both include a driver for the Korg 05R/W. With either piece of software, you'll be able to edit sounds graphically, and store libraries of your edits on your PC's hard drive. Contact MusicTrack on 01462 733310 for* Unisyn *(or check out the MOTU web site on* **http://www.motu.com/MOTUHome.html**) *and Arbiter Music Technology on 0181 202 1199 (***http://www.demon.co.uk/arbiter**) *for* MIDIQuest.

Interestingly, as this magazine went to press we heard about a new version 6.0 of MIDIQuest — *full details in next month's 'Shape of Things to Come'. Suffice to say that there are loads of new features, including full 32-bit operation under Windows 95. Be warned that the new version is available only on CD-ROM, so you'll need a drive.* ❑

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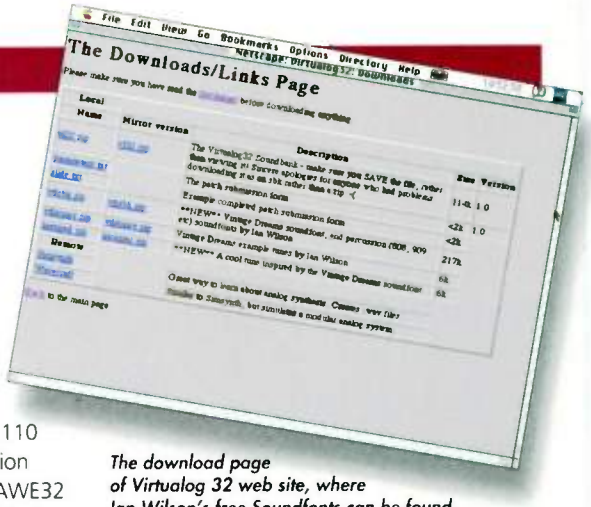
Crosstalk

AWE-somely Free

I was lucky enough to have a letter printed in the March 1996 issue [*the letter requested advice on buying second-hand synths*]. Thanks very much for the advice — I'll take it up if the Rand/Pound exchange rate ever sways in my favour!

I've spent many hours searching the Internet for high-quality vintage synth samples, only to find that the quality doesn't equate to the size of the files downloaded. In utter frustration, I turned my attention to emulating vintage sounds on my Soundblaster AWE32 PC soundcard (reviewed in *SOS* June 1994). After analysing how synths produce their sounds, I wrote some small utilities for generating simple waveforms — white noise, sawtooth, ring-modulated and FM waves, for example. The results have been encouraging, and to date I've completed four SoundFonts.

The advantages of these SoundFonts are that they are glitch-free, since no sampling took place, and they are extremely small because of the simple waveforms used. The first completed SoundFont (VINTAGE.SBK) has about 110 sounds and approximately 70 percussion sounds, and takes up a mere 96K of AWE32 RAM. And most importantly, it's provided totally free of charge! Robin Edwards was kind enough to spare some space on his Virtualog32 web site, from where the SoundFonts can be downloaded (**http://www.gold.net/clockworx/virtualog32/**).



The download page of Virtualog 32 web site, where Ian Wilson's free Soundfonts can be found.

I originally planned to market them, but it turned out that the market for the AWE32 here in SA isn't large enough. They can, of course, be converted to other formats using conversion programs (*Convert* for PC clones springs immediately to mind). The SoundFonts are as follows:

- VINTAGE.SBK: Plenty of early '80s vintage synth and percussion sounds.
- VD909.SBK: Ever-essential Roland TR909 sounds.
- VD808.SBK: Yes, also-ever-essential Roland TR808 sounds.
- VD101.SBK: An imaginary TR101 (sic) drum machine.

The sounds are, of course, not identical to the originals they attempt to emulate, but I think they could make a refreshing change from the current cluster of over-used samples. Future SoundFonts will include some mathematically generated renditions of simple FM sounds, ring-modulated and additive waveforms, and a set of TB303-type sounds.

Thanks once again for an excellent magazine.

Ian Wilson
Republic of South Africa ❑

Fun in the .WAVs

At the moment, I'm using an AWE32 soundcard to record and play back samples, but now I'd like to add a stand-alone sampler to my MIDI-based home studio. I need a unit that will allow samples to be uploaded from the sampler (ideally via a serial port protocol) and be treated as standard .WAV type files, thereby allowing permanent storage and general data manipulation within the Windows environment. The problem I am encountering is that the mid-range stand-alone units don't really support these features. I know you can use software sample format convertors that run on the Windows desktop and use MIDI SysEx to upload and download samples, but the data rate is very slow, and formatting sample types for every edit is time-consuming. I also know that a SCSI interface can be used for data transfer of audio files, but would this be an ideal solution to my problem?

David Pendry.
Via the internet

Derek Johnson replies: *A number of software solutions are available. KCCM's* ReSample Professional *(£199, Et Cetera Distribution, 01706 228039, reviewed* SOS *September 1995) can read an amazing range of samples from native disks; it can also write to a number of native disk formats. A brief glance at the compatibility chart reveals that as well as .WAV files,* ReSample *is compatible with AIFF, Akai S1000/2800/3000, AVR, Kurzweil K2000, SBK, Roland S550, Yamaha SY85, Yamaha TX16W, and many other formats. The results can then be edited comprehensively on your PC — minimum 386, Windows 3.1, 4Mb of RAM, with more recommended, a soundcard to audition playback, and a MIDI interface for SDS. Edited samples could be saved to native disk (in most cases) or beamed out via SDS. Software such as this means that you have a huge potential source of samples from PD libraries on the Internet, not to mention ease of editing using your computer.*

SMDI (SCSI MIDI Digital Interchange) is a sample transfer protocol pioneered by Peavey that is being supported by an increasing number of software applications and hardware samplers — Peavey's own DPM SP, Emu's ESi32, and Kurzweil's K2000, for example. You can dig up loads of info at **http://www.peavey.com/.** *The standard avoids MIDI entirely, transferring data between samplers and computers using SCSI connections. This method is much faster than SDS — but then the receding glaciers from the last ice age are faster than SDS. Just be sure to check that the sampler you want to buy, plus the software you plan to use, is compatible with SMDI if you want to take advantage of its speed.*

PC software that can read .WAV files and also send/receive samples via SDS includes Turtle Beach's recently-discontinued SampleVision *(reviewed in* SOS *December 1995) and Sonic Foundry's* Sound Forge *(£299, Arbiter Music Technology, 0181 970 1910, reviewed in* SOS *May 1996). Recent versions of* Sound Forge *can also send samples via SMDI, and* ReSample *will add this capability with its imminent v2.0 upgrade.*

By complete coincidence, there's also a feature in this very issue which seems relevant to your problem; check out 'SCSI Logic', starting on page 78. ❑

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SWITCHING MATRIX. This fantastic creative feature lets you route any combination of Tape, Subs 1 & 2, Subs 3 & 4 or Main Mix to Control Room/Phones bus. Lets you create custom headphone or broadcast mixes, monitor 2-track output or route a cue/click track to phones, create a second stereo main output with its own level control & more (covered in the extensive manual).

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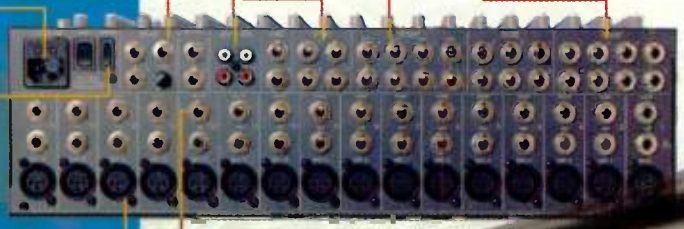

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WRH

Crosstalk

Let him run Cake(walk)

About three years ago, I got into MIDI sequencing with a cheap Yamaha QX5FD sequencer/TG100 sound module setup, but I've recently started yearning for the flexibility of software sequencing. Although money has been tight, my employer has recently provided me with a laptop PC (a Toshiba 486DX 75MHz, with 8Mb RAM and a 350Mb hard drive), which I'd like to use for music if possible. I'd like to run a budget sequencer, such as *Cakewalk Home Studio*, using the TG100 as MIDI interface (via its serial connector) and sound module. Will this work, and will I need any other software to get it to work?

Philip Logan
Carlisle

The Cakewalk range.

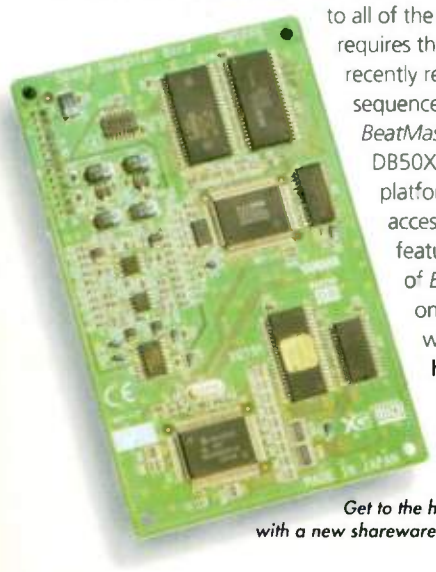
Yamaha's TG100.

Derek Johnson replies: *A couple of calls to Cakewalk distributor Et Cetera (01706 228039) and Yamaha (01908 369269) revealed that your system is perfectly adequate, and should quite happily run something like* Home Studio. *One extra bit of software you will need is Yamaha's serial driver, which is available free of charge from any Yamaha dealer (or from Yamaha Japan's web site at* ***http://www.yamaha.co.jp/english/****). You'll also need an appropriate cable. Call Et Cetera for advice, or check out Josty Cables (01642 769000).* ❑

Free Card Trick

I read with interest your review of Yamaha's DB50XG daughter board back in *SOS*'s May 1996 issue. It mentions that full access to all of the features of the card requires the Yamaha XG Editor. I recently released a shareware MIDI sequencer on the Internet, called *BeatMaster*, for which I used the DB50XG as the design platform. It thus provides full access to all of the board's features. The demo version of *BeatMaster* can be found on the Harmony Central web site: **http://www.harmonycentral.com/Software/Dos/**

Eamonn Martin
Via the Internet ❑


Get to the heart of the DB50XG with a new shareware sequencer.

In Search of... the ARP 2100

I enjoyed Robert Alexander's ARP 2500 retrospective in the August 1996 issue of *SOS*, and I thought readers would like to hear about the even larger ARP 2100 and 1631. Both these instruments were in development at the end of ARP's life, and a small number of both were hand-built before ARP finally disappeared. The 2100 had about eight times the power of the 2500, and the 1631 was an expansion wing for the 2100.

Although the spec of the 2100/1631 combination may be rather tempting — a quadruple envelope generator system where each stage has its own modulation input, two LFOs with 16 waveforms each, and a velocity-sensitive, 5-octave keyboard, for example — the actual pleasure of owning such a system is balanced by the compromises in its design. Basically, the sound is great, but the control surface is not.

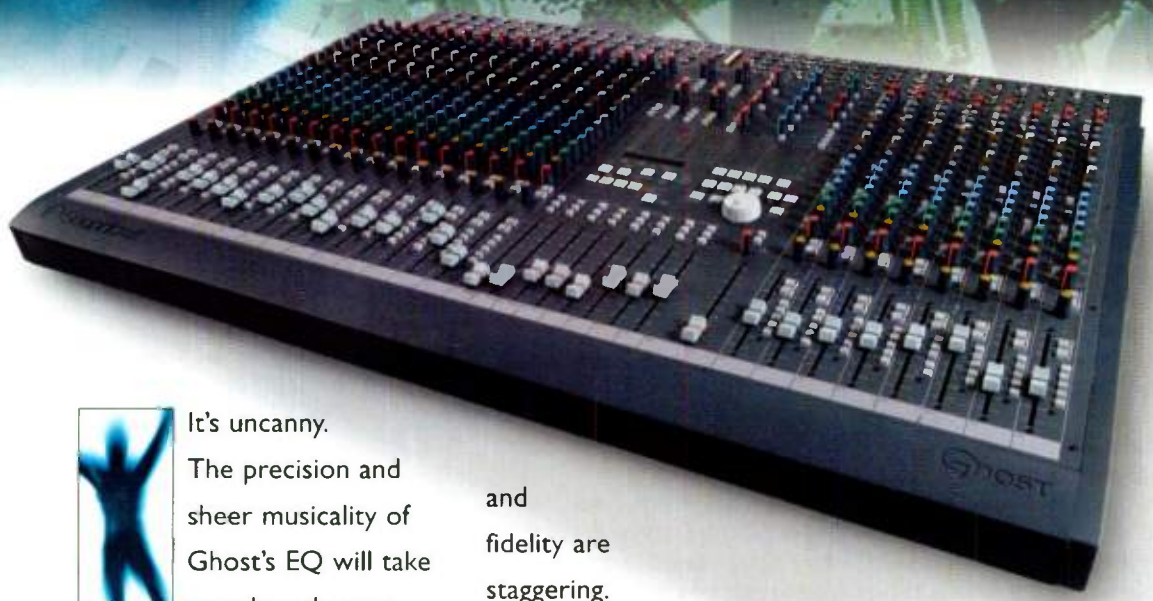
The 2100 uses a variant of the 2500's 'slide-and-click' method of making connections, but there are so many CV sources and destinations that a 2500-style control panel would be incredibly large. The rather inelegant solution is a single slider, plus 71 buttons to access the 850 control options — this makes the DX7 look programmer-friendly. There is also a limit to the 2100's internal connections. The many CV sources are assigned to patch matrices by no less than 64 multiplexer chips. This cuts down the physical size of the unit dramatically, but since the chips have no external CV connections, once you've used up your four EGs, there is no way at all of connecting an extra one to the matrix. Finally, although there are 32 EGs, the instrument is permanently partitioned into eight synth voices, with no connections between them. Adding the 1631 expander provides another eight partitions, but there is still no interconnection, so each voice has only four envelopes. However, since each voice can be set to a completely different timbre, you can layer sounds to provide the finished result.

Reliability is also a problem: for every hour you play, you can expect a corresponding hour of service time. I get by because I repair the 2100 myself, otherwise the situation would be impossible. But the effort is definitely worth it.

Anonymous

Derek Johnson replies: *It was interesting to hear — anonymously — of this apparently undocumented footnote from ARP's last days. The alert amongst you will recall reader Martin Straw alluding mysteriously to the 2100 at the end of his Rhodes Chroma letter back in November 1995, itself a response to Norman Fay's Chroma retrospective in October 1995. And without further details, the Chroma link seems to offer the most likely solution to the question of the mysterious '2100': the description of programming it with 72 buttons and a single slider seems to indicate that this particular machine might be some kind of modular prototype of the Chroma, before the electronics were refined and the final package designed. Interestingly, the working name for the Chroma* was *actually the ARP 2100. Thanks to Martin Newcomb of the Synthesizer Museum (Tel: 01279 771619) for his input on this particular puzzle. The 1631 is a strange one, especially since ARP 1600-series products were generally sequencers. Perhaps it's simply an 8-voice expander for the Chroma — which was 16-voice polyphonic, remember — or a prototype for the keyboardless Chroma that was eventually released. What suggests that these particular units may be a Chroma precursor is that the copy of an engineering flow chart for the 1631 supplied by our anonymous correspondent is actually dated December 1982 — about a year after ARP went under and the Chroma design team joined CBS, who eventually released the Chroma. Anyway, thanks for the info... whoever you are.* ❑

Paranormal EQ



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Crosstalk

Lost in the Digital Dreadzone

Congratulations on printing a couple of priceless articles in recent issues of *SOS*, namely 'The Digital Dreadzone', by Paul D Lehrman (June 1996 issue), and the interview with Richard Symons of Pro Tape (July issue). Both these articles made me feel that I was not quite as alone in the digital jungle as I had thought. Let me explain.

At the end of last year, I was complaining to a friend that I was fed up with constantly having to re-thread the tape on my trusty old TEAC A3440, as it had no sensors to locate the end of the tape, and was thinking of getting an ADAT machine. "No, don't do that", he said. "Hard disk is the way it's going. I should wait. By this time next year, you'll be spoilt for choice."

He was right. However, after reading numerous articles in *SOS* and elsewhere, I am no longer sure what I am buying. At first, I thought I was buying some sort of self-contained digital Portastudio, but when I began to be asked by retailers how I was going to store and retrieve all this digital data, I started to get a little worried. Despite my research, I was totally overwhelmed by discussion of the complexities of SCSI, Zip drives, Jaz drives, SADiEs, MTCs, MMCs, onboard optical interfaces, standard IDEs, and so on, all of which allow your machine to talk, or not talk, to itself or other machines, depending, of course, on whether they have a similar list of acronyms. Dazed and confused, I slunk away, aware that I was possibly developing serious Luddite tendencies.

I therefore take heart from the fact that even professionals such as Lehrman concede that today's technology is developing too fast for its (and therefore our) own good. And even if we can get to the point where we want to store our ideas (oh yes, I remember now... I was writing a song!), Richard Symons would not like to guarantee anything in digital form being retrievable after 10 years.

There, that settles it. After months of brain-numbing research, I'm going to upgrade to a... TEAC with a magic eye!

Keith Hale
Canterbury ❑

The Price is Wrong!

I feel that I must respond to a comment made by Paul White in his leader in the August issue. Although I agree with most of the comments to do with the issue of the never-ending learning curve, development of new instruments/recording technology, and so on, the statement that "on the value-for-money front, we are all doing fine" is hard to swallow, because as far as I can see, a lot of this stuff seems to cost far too much.

Can the majority of the readers of this magazine quite happily go and drop a grand on a valve microphone today and £3500 on a hard disk system tomorrow? If you purchased a Yamaha VL1 two years ago for £4000, I bet you'd be miffed at seeing them sold off for less than £800 new today. I remember remarking to a friend 10 years ago that I was using a Synclavier that cost $30,000, and she pointed out that you could buy a house for that much. I think of that comment from time to time, and it does help me get a sense of perspective.

I understand that the manufacturers have to make a profit on their efforts, but I often find myself wondering exactly what the profit margin really is for some of the gear, or is it the retailers who are making the bucks? You know, the guys that don't publish their prices in the ads in the magazines, promise you the best price in the UK and then waste your time when you try to get that price. Perhaps someone could provide some illumination on that area for the readers.

Thanks for publishing a generally useful and informative mag.

Chris Vine
Via the Internet

Paul White replies: *This seems to be the year for people to take issue with me, but then it all makes for interesting debate. Take PCs — well, somebody should, that's for sure! (More hate email?) On the one hand you say recording kit costs too much, but then you admit that a few years back you were using a Synclavier that cost as much as a house! Now you can do most of the same things using hardware that costs little more than a decent garden shed — in my book that's cheaper. Likewise, you say that it's infuriating to buy something and then see it plummet in price — but again, that means it's now cheaper.*

Even so, I know exactly what you mean, and every now and then, when reviewing some new and stunningly 'cheap' effects processor costing 'only' £250, I get a devilish temptation to point out that for the same money you could buy a washing machine or video recorder, with far more gubbins in it, that you'd probably get a lot more use out of. But then, consumer products are cheap because of the economies of scale. It's true that importers, taxmen, retailers, agents, shipping companies, and goodness knows who else, add greatly to the price we pay for anything (I guess a manufacturer has to be able to build something for between 25 and 30% of what it finally sells for to make a living), but that must be equally true whether you buy a TV or a Japanese synth.

But to get back to the original point: I never said that recording was cheap (it's probably the most expensive indoor hobby around!) — I only said that it's a lot cheaper than it was. A hand-made valve capacitor mic will still cost a grand or two, because that reflects the effort that goes into building it. You don't have to buy one — you can make do with a mass-produced back-electret mic and still get great results. A friend recently showed me a camera magazine with a £65,000 lens in it, but that doesn't mean you can't take good pictures with an 80 quid lens. And as for hard disk systems (don't talk to me *about hard disk systems), I got a really good trade deal on my first 650Mb drive to use with Sound Tools and it still cost me £2500! Now you can buy a 2Gb drive for less than the VAT on that figure. And what about my original Macintosh SE30, which originally cost over three grand? Now you'd be hard pushed to get a taker at £200. And that reminds me: I bought a Mac LCII system from Dixons three years ago and they just tried to sell me a further two years' warranty on it. The cost of the warranty was about fifty quid more than the system is now worth. Sometimes the fact that something just got cheaper is little consolation.* ❑

OK for writing letters

BRILLIANT | FOR | WRITING | NOTES

Practical, sure. Musical, er...well.

For all its qualities, the QWERTY keyboard is not exactly a source of inspiration when creating music.

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A high resolution, 110,000 note professional multitrack sequencer forms its heart with 32 instrument and 16 accompaniment tracks.

And an ear boggling 3,876 preset phrases, covering all styles of music, take the grind out of writing backings.

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But thanks to the QY700's brilliant interface, this massive power is at all times under control. Your control.

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YAMAHA

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Crosstalk

A Score for PC Users

Help! I'm trying to find a supplier for *SongWright V*, a PC music notation package. Have you heard of one, or could you point me in the right direction? I hope you can help...
Gary Turner
Via the Internet

Derek Johnson replies: *A quick trawl around the Internet and a fax to SongWright Software reveals that* SongWright *is now up to version 6, and retails for US$119.95. SongWright inform us that while they have no specific representation in the UK or Europe, they are happy to sell their products direct to customers (or dealers) in this part of the world — simply add US$10 overseas shipping and handling. The ideal payment method would be a credit card, but a banker's cheque in dollars drawn on a US bank would work. Check with your bank.*

For readers who aren't familiar with SongWright, *it's an affordable but powerful notation package, using a WYSIWYG interface, with a minimum requirement of an IBM PC-compatible with 512K of RAM; DOS 2.1; CGA, EGA, VGA or Hercules graphics display. Add an AdLib or SoundBlaster compatible sound board, and virtually any MIDI interface for audio and MIDI playback. Alert readers will have noticed that* SongWright *runs under DOS, which is perhaps its attraction for some potential users who simply require scorewriting on a PC. It will run under Windows, but needs slightly more memory to do so.*

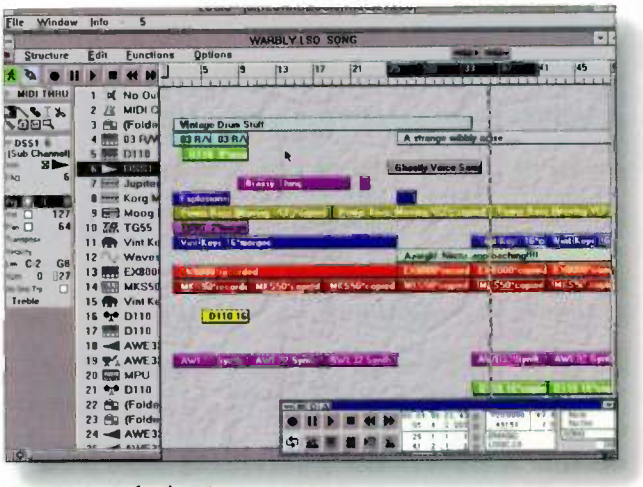
Music can be entered via the PC keyboard, a MIDI keyboard, the mouse, or by loading a Standard MIDI File. Many functions — justification, bar lines, and note beaming, for example — are automatic. SongWright *even features a graphic symbols editor/librarian, which allows you to draw any kind of symbol and place it anywhere in the music. Compositions can be played back via PC speakers or via any connected MIDI instruments; AdLib or SoundBlaster users can take advantage of 64 'realistic' instrument sounds and drum patches. If you want more information about* SongWright, *contact: SongWright Software, 7 Loudoun St SE, Leesburg, VA 22075 USA. Tel: 001 703 777 7232; Fax 001 703 777 7503. Email* **songwright@aol.com**.

Incidentally, anyone can have an informative five-page brochure faxed back to them by the company. Call SongWright's main number from your fax machine during the UK daytime, when the company's automated message system is on. When your call is answered, press '3' when prompted, for a list of fax options, then '1' for the SongWright *brochure, and follow the instructions until a voice asks you to press the 'Start' button on your fax machine. It takes a couple of minutes, but saves you waiting for the mail. SongWright also produce* Do Re Mi *($79.95), a package which reads a* SongWright *file and composes an accompaniment of up to three polyphonic instruments, plus bass and drums, and the SongWright* Symbol Collection *($25) of over 400 musical symbols, including orchestral and piano symbols, guitar chords, Gregorian chant neumes, and more.* ❑

Garage Music

Could *SOS* possibly point me in the direction of a studio designer who wouldn't mind a small project? I'm planning to convert a garage into a project studio and need to soundproof it effectively for all types of instruments, except drums. I can tackle the construction myself, but I do need a proper and effective design to work from, which would also preferably give indications of quantities of material and where they may be obtained. Perhaps you could also recommend one of the books advertised in *SOS* Bookshop as being particularly helpful.

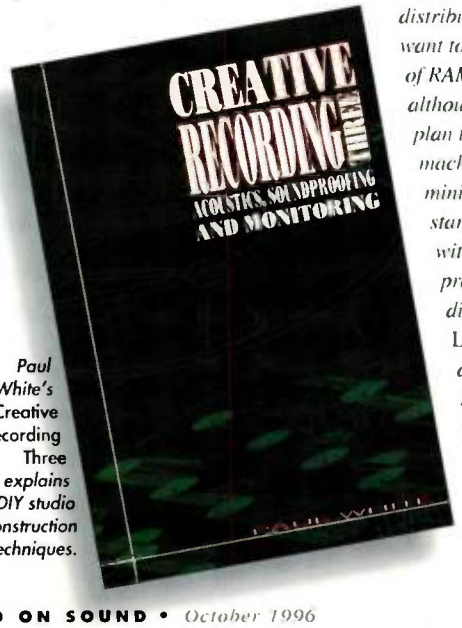
Lastly, I plan to run Emagic *Logic* in my studio, but need to know the minimum specifications for a PC needed to run this.
Robert McChesney
Weybridge



Emagic's Logic for the PC.

Derek Johnson replies: *We can actually point you in the direction of a studio designer: the Studio Wizard Organisation are happy to quote for any job of any size, from simple advice, planning and design, right up to construction and specifying and installing equipment. They will even provide the service you require — give advice, provide plans, put forward ideas for the raw materials — and then leave you to it. The Studio Wizard Organisation can be contacted on 01362 668900, or mobile 0860 666532. Their informative web site is at* **http://www.sworg.demon.co.uk**.

As for books, Creative Recording Three: Acoustics, Soundproofing and Monitoring, *by* SOS *editor Paul White, is an excellent place to start. It's priced at just £9.95, plus postage, from* SOS *Bookshelf (order number B317).* SOS *contributor David Mellor's* How to Set up a Home Recording Studio *has recently been updated, to include soundproofing and acoustics. This book is also available from the* SOS *Bookshelf, and costs £8.95 plus postage (order number B116). Check out the mail order section at the back of the mag for ordering and postage details. And remember,* SOS *subscribers get 10% off all books in the Bookshelf!*



Paul White's Creative Recording Three *explains DIY studio construction techniques.*

The second part of your query was answered by a quick call to UK Emagic distributors Sound Technology: if you just want to run Logic, *a 486 DX266 with 8Mb of RAM would be an absolute minimum, although that would be a bit slow. If you plan to run* Logic Audio, *the same machine with 12Mb of RAM would be a minimum, although a more sensible starting point would be a Pentium 90 with 16Mb or more of RAM. The program takes about 4-5Mb of hard disk space, and if you do go for* Logic Audio, *you'll need a fast hard drive. You will, of course, also need MIDI and/or audio hardware in order to communicate with the outside world. If you've got any more queries along these lines, call Sound Technology on 01462 480000.* ❑

FOLIO Notepad

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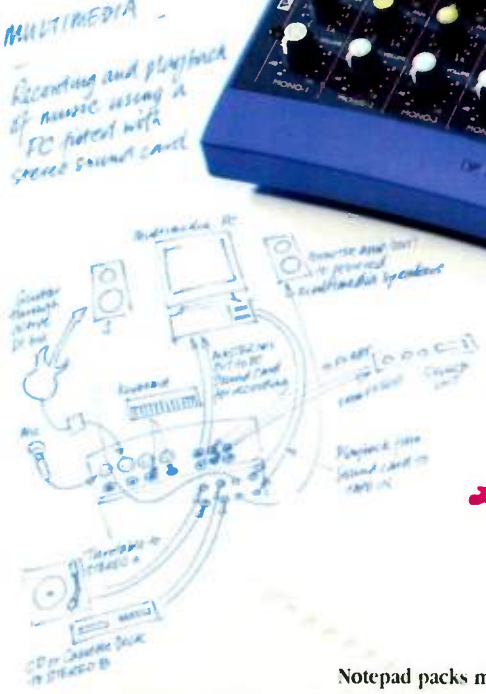
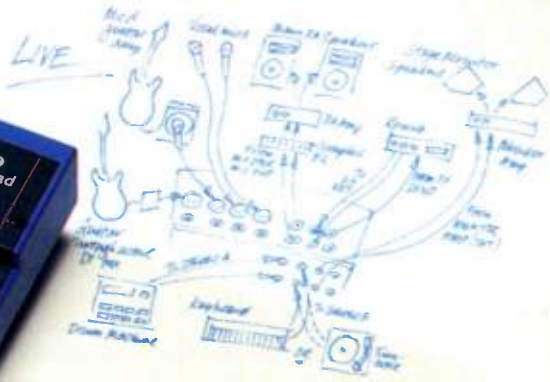
IT'S NOT THE SIZE

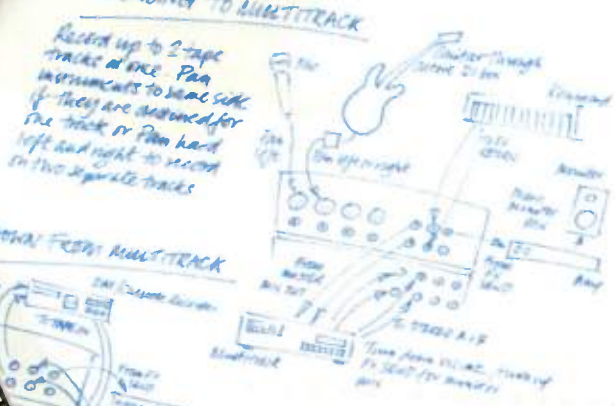
IT'S WHAT YOU CAN DO WITH IT

Folio Notepad is small but surprisingly versatile. Musicians, sound engineers, multimedia users, DJs and many others will find plenty of uses for Notepad at live venues, in studios, bars, schools, places of worship and even "on location". Notepad's use of high quality components and short signal path mean it sounds cleaner than many large "professional" consoles.

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



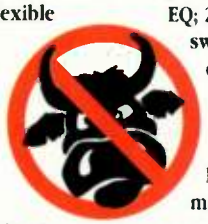




£199 UK RRP

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.

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.

SPIRIT
By Soundcraft
H A Harman International Company

Please send me more information on Folio Notepad

Name: .....

Address: .....

.....

.....

What will you use Notepad for?

.....

.....

What magazines do you read? .....

.....

.....

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

shape of things to come

by Derek Johnson & Debbie Poyser

Peak reaches new heights

BIAS *Peak*, tne digital audio editing software for the Apple Mac reviewed in last month's issue, has now reached v1.1. The upgrade is available free to registered v1.0x users, and can be downloaded from the tech support page of BIAS's web site. New features for v1.1 include support for QuickTime and .WAV files, tape-style scrubbing, audio compression support, phase vocoder, gain envelope, vertical scaling, and find/repair clicks.

BIAS have also announced some preliminary details of the forthcoming v1.5, which will be launched at the AES show in LA in November: this upgrade will add extended sampler support (including Akai, Roland and MIDI Sample Dump Standard), batch processing, playlists, and overviews.

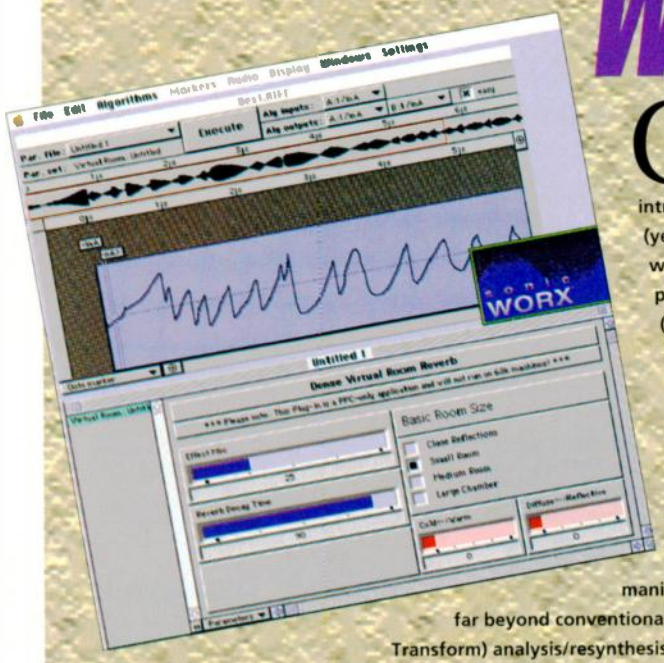
A Natural Audio Ltd, Suite 6, The Kinetic Centre, Theobald Street, Borehamwood, Herts WD6 4SE.
T 0181 207 1717.
F 0181 207 2727.
W http://www.bias-inc.com

Groove Tubes rest their case

The American-built range of mics from Groove Tubes now come supplied with sturdy aluminium attaché-type cases — at no extra charge. The cases feature adjustable internal partitioning and a lock for added security. In case you need reminding, there are three mics in the GT range: the MD1 cardioid valve condenser; the MD2 cardioid, large-diaphragm mic with adjustable attenuation; and the top of the range MD3, which has the benefit of variable polar pattern response. In addition, both the MD2 and MD3 models are supplied with the ST1 Shock Therapy integrated shock mount, and a pop filter.

A Axis Audio Systems Ltd, 3 Waterloo Road, Stockport, Cheshire SK1 3BD.
T 0161 474 7626.
F 0161 474 7619.
E sales@axisasl.demon.co.uk

Sounds in the WORX



German software house Prosoniq Products have introduced *sonicWORX* (yes, it really is spelt that way), a DSP software package for Macintosh (also native Power Mac) which uses neural networking technology to process audio files. This new technology is claimed to give *sonicWORX* powerful sound manipulation capabilities far beyond conventional FFT (Fast Fourier Transform) analysis/resynthesis. At present, the software comes in two completely different forms:

- *sonicWORX Artist* (£399): this package aims to help you design completely new sounds for movie soundtracks, dance and experimental music, and so on. It comes with over 50 plug-in modules including: transform multiplication; audio maximiser;18-band vocoder; room simulation; filters; de-reverberation; real audio morphing; transwave cycling; normalising; pitch-shifting; time-stretching; and the "drum loop jungle-iser".
- *sonicWORX Studio* (£699): the *Studio* package offers a complete range of post-processing/mastering tools, combining standard DSP functions with completely new algorithms, including intelligent phase alignment for vinyl cutting; high quality de-noising and de-crackling/de-clicking algorithms; psychoacoustic effects; and audio refreshing. It also features standard functions like normalising, sample rate conversion, and stereo pitch-shifting and time-stretching.

Both products are imported into the UK by Turnkey Professional, although they will also be available through any authorised Digidesign dealer.

A Turnkey Professional, T14-116 Charing Cross Rd, London WC2H 0DT.
T 0171 240 4036.
F 0171 497 0690.
E sales@turnkeypro.compulink.co.uk
W http://www.demon.co.uk/turnkey

Moog Music: The return

One manufacturer's name stands above all others in the recent resurgence of interest in analogue synthesis: Moog. That name is now being revived for a line of synths based on classic Moog technology and made in the USA. Available first will be the 9500 series modular synth, a fully-customisable system which can draw from a selection of 26 different modules, including VCO; noise generator; random signal generator; low-pass filter; high-pass filter; fixed filter bank; envelope generator; sample & hold; ring modulator; dual-trigger delay; reverberation unit; and mixer. Two 'preset' configurations are also available: the System I (£3695), and the System IV (£5195).

Early October will see the reappearance of the Minimoog, at a projected retail price of just £1199. All new Moog products are being made to the exact original specification, including original circuit diagrams, and original components. Where components have gone out of production, Moog have commissioned new parts to be made to the specification of the old ones.

Also coming full circle is the UK distribution of the new Moog instruments: it's to be handled exclusively in the UK by Turnkey Professional — part of the Arbiter Group, who were the original Moog distributors from the late '60s to the early '70s.

A Turnkey Professional, 114-116 Charing Cross Road, London WC2H 0DT.
T 0171 240 4036.
F 0171 497 0690.

SY-saver from Sounds OK

In last month's Crosstalk, we mentioned that Yamaha's SY85 had finally been discontinued, after several years of extreme popularity. However, SY85 owners needn't be worried that support will cease for the instrument: we've spotted third-party sound specialist Sounds OK offering a good deal on Sound Source Unlimited SY85 sound disks: buy the four SSU disks, which usually retail for £32 each, and they're yours for £79 in total. Sounds OK will also throw in a copy of their *UK Sounds* disk for nothing — that's a saving of £69 in all. The UK disk features a set of dance/ambient sounds created by Sounds OK's own Paul Wells.

Other synths are also in on the special offer vibe: any three SSU Korg 01-series disks can be purchased for £75 (instead of £39 each) and any three SSU Korg X3/X3r disks for £69, against the usual price of £29 each. All prices include VAT, but exclude £2 postage and packing.

A Sounds OK, 10 Frimley Gardens, Frimley, Camberley, Surrey GU16 5JX.
T 01276 682313.
F 01276 682717.

MIDI's greatest hits

Leicester-based Wernick Musical Instruments have unleashed a new electronic drum pad on an unsuspecting world...

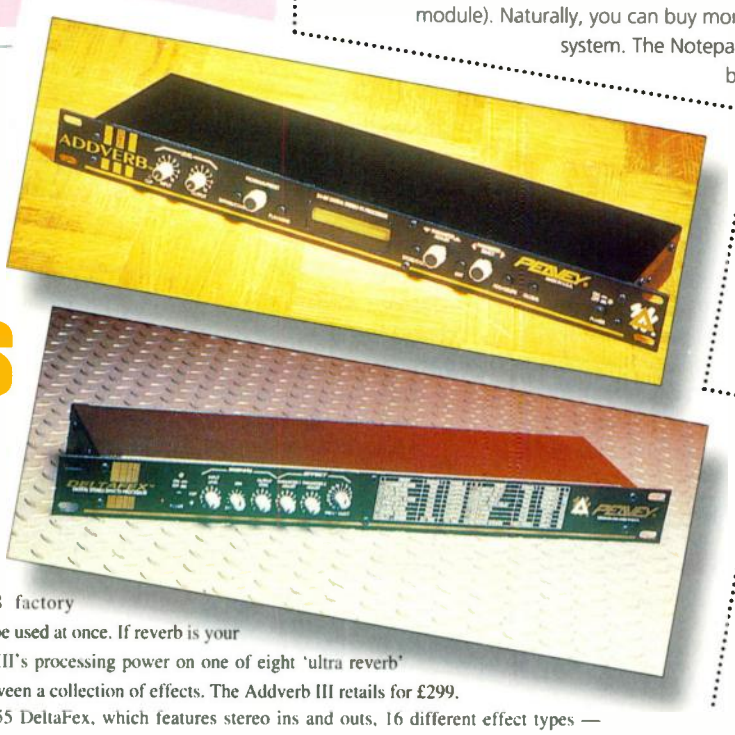
First seen at this year's Frankfurt Musikmesse in March, the Wernick Notepad consists of a single MIDI drum trigger pad, which can be plugged into any commercially-available trigger-to-MIDI system (such as the trigger inputs on the Alesis DM5 drum sound module). Naturally, you can buy more than one pad and build up a custom system. The Notepad costs just £85 including VAT for the black or white version. Dayglo models, for the techno-heads out there, can be had for a fiver more. Session percussionist Pablo Cook swears by the Notepad, and has been using several on the Pulp tour and while working with William Orbit.

Wernick also debuted the intriguingly-named Xylosynth, a 31-pad electronic Xylophone, at Frankfurt. Currently made to order, this unusual percussion instrument has already been purchased by Miss Saigon productions in Germany. Wernick suggest that it will be of particular interest to concert percussionists and schools.

A Wernick Musical Instruments, 19 Tichborne Street, Leicester LE2 0NQ.
T 0116 255 6225.
F 0116 255 6225.

Peavey's added value

Peavey's long-awaited Addverb III multi-effects processor is now available in the UK. The new unit is suitable for a wide range of applications, and features true stereo ins and outs, fully user-definable algorithms, and a total of 35 effects, including two independent chorus effects and two independent pitch-shifters. There is room for 128 user patches onboard, alongside 128 factory settings, and up to eight effects can be used at once. If reverb is your bag, you can blow all the Addverb III's processing power on one of eight 'ultra reverb' algorithms, or you can split it up between a collection of effects. The Addverb III retails for £299.



Even more affordable is the £155 DeltaFex, which features stereo ins and outs, 16 different effect types — including seven reverbs, four delays, chorus, flange, rotary speaker, and a paralleled delay/reverb — and two adjustable parameters per effect. The rotary speaker speed can be controlled in real time via a footswitch, and the front panel has wet/dry, input level, and output level controls.

A Peavey Electronics Ltd, Great Folds Road, Oakley Hay, Corby, Northants NN18 9ET.
T 01536 461234.
F 01536 747222.
W http://www.peavey.com/

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

Our full Internet address is 100517.1113@compuserve.com.

shape of things to come

MIDI interfaces, Et Cetera...

Et Cetera Distribution have a new multi-port MIDI interface card for PCs. The MIDI Edge 1x4 is a professional card with four independent MIDI inputs, giving 64 MIDI channels for playback, and one MIDI input. It also comes with a WaveBlaster-compatible connector for add-on Wavetable boards such as the Yamaha DB50XG daughter board, plus multi-card and multi-client drivers for Windows 3.1x and Windows 95. These drivers mean that you can use two MIDI Edge cards in the same PC if you like (and if you have the slots available). The retail price of the new card is just £129 including VAT.

Also new from Et Cetera is a new version of the *DART* (Digital Audio Reconstruction Technology) software for PC. *DART Pro* is shipping now, and adds de-noising, de-hissing, an updated Wave manager, and a spectrum analyser to *DART*'s original click, pop, and surface noise removal facilities. The de-noising option allows the user to remove any constant noise disturbance; according to Et Cetera, *DART Pro* will take a noise print from a highlighted area of noise, analyse it, and then remove that noise from an entire wave file — especially handy for removing surface noise from old records. The de-hissing process can be used, for example, to remove hiss from old cassette recordings, and the new Wave Manager allows you to compile renovated audio material into a playlist, which can then be played in order onto DAT or cassette.

DART Pro costs £389; the original *DART* is still available at £89. Current *DART* users can upgrade for just £49.

Note that we inadvertently printed Et Cetera's old address with our news item about the *Cakewalk* v5.0 sequencer updates last month — the following address is the correct one!

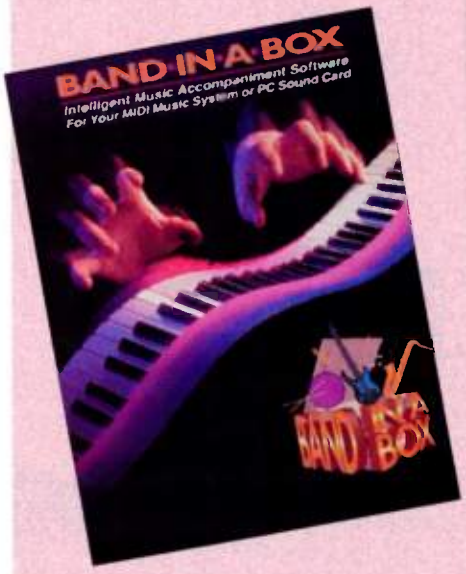
A Et Cetera Distribution, Valley House, 2 Bradwood Court, St Crispin Way, Haslingden, Lancs BB4 4PW.
T 01706 228039.
F 01706 222989.

Better Band in the Box

PG Music's popular *Band in a Box* composition/auto-accompaniment software has reached version 7.0 for Windows; over 60 new features have been added to the new upgrade. *BIAB* v7.0 costs £89.95; you can upgrade from an earlier version, or crossgrade from a Mac or Atari version, for just £45. Here's just a few of those new features:

- Improved notation.
- Step/notation edit of Stylemaker patterns.
- Style changes at any bar.
- Scroll-ahead option for notation.
- Improved synth support.

PG Music's *Pianist* range is also expanding and now includes the



following: The Bluegrass Band; The Children's Pianist; The New Age Pianist; The Blues Pianist; The Pianist Volume 3; and The Jazz Soloist Volumes 1, 2 and 3. Demos are available from the Arbiter web site.

A Arbiter Pro MIDI, Wilberforce Road, London NW9 6AX.
T 0181 202 1199.
F 0181 202 7076.
W http://www.demon.co.uk/arbiter

Dave Stewart and Barbara Gaskin are in the process of finishing off their fifth album, and on September 28 take a break to make a rare live appearance. Dave and Barbara will be joined by guitarist Andy Reynolds at the Queen Elizabeth Hall for a concert presented by CD journal *Unknown Public*.

T Queen Elizabeth Hall Box Office 0171 960 4242.
W http://www.demon.co.uk.creative/davebarb/

Ex-Japan members Steve Jansen and Richard Barbieri were asked by JVC to compose a soundtrack for one of a series of ambient videos back in 1984, shortly after Japan folded. The tracks were recorded and mixed in Tokyo, and came out as *Worlds In a Small Room*; the accompanying video featured footage of space shuttle missions. The album is quite hard to get these days, so the duo have re-issued selected tracks, under the same album title, together with three new pieces, on CD.

Symetrix's new 551E 5-band parametric EQ uses a new type of EQ circuitry, dubbed UltraQ. This incorporates five fully-overlapping frequency bands, each allowing for a range of 10Hz to 20kHz, and independent knobs for adjusting frequency, bandwidth, and cut/boost. Other features include low- and high-cut filters, and connections on both XLRs and quarter-inch jacks.

T Fusion plc, 01932 882222.

Dedicated to DJs

The Royal Festival Hall, in London SE1, is the venue for the DJ Workshop 96, taking place on Saturday, October 5. This event, dedicated to all things DJ, originates from the DJ course run at the British Record Industry School in South London, and aims to be both fun and educational. Tickets cost £15 for participants or £5 if you just want to watch, with doors opening at 11am, and closing time at around 10pm. Professional DJs lending their expertise to the event include DJ Kofi, Nicky Blackmarket, Outmaster Swift, Alex Knight, and many more. Last year's event attracted over 500 participants and spectators.

T Blu Inc 0171 771 0771.
T Ticket Line: 0171 960 4242.

SOUND CREATIVITY HAS TAKEN A QUANTUM LEAP

- Acoustic Modelling Synthesis (PCM waveform driver with DSP modelling resonator)
- 64-note polyphony
- Large graphic display (86 x 115mm [320 x 240 dot]
- Drum kit edit by Acoustic Modelling Synthesis
- WSA1 controllers: Realtime Controller, Realtime Creator, Pitch Bend Wheel, Modulation Wheel 1 and 2 for realtime editing
- WSA1R controller: Realtime Creator
- Preset sounds: 256 sounds, 128 combinations
- User sounds: 256 sounds, 128 combinations
- Remap function
- Digital drawbars
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- DSP effects: 3 blocks, 43 algorithms (plus 12 algorithms in REV block)
- 16-track, 47,000-note capacity professional standard sequencer (for SX-WSA1 only)
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shape of things to come

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Our full Internet address is 100517.1113@compuserve.com.

Alesis axe prices

News from Sound Technology this month kicks off with some welcome tidings on the Alesis price front. The ADAT XT 8-track digital tape recorder has had £500 carved off its price, bringing it down to £2699, while the Microverb 4 and Midiverb 4 effects processors have both been reduced by £70 each, to £229 and £329 respectively. Monitor One speakers now cost £329 — that's a drop of £74 — while the Monitor Twos have plummeted to £599 from £799. Lastly, the 3630 is now £225 (down £50), and the DM5 18-bit digital drum module retails for £429, down £70.

Sound Technology also distribute Samson products, and new to that range is the MixPad 12, a 12-input version of the compact MixPad 9 mixer (reviewed in March 1996's *SOS*). The Mixpad 12 features 12 channels with six balanced XLR mic/line inputs and three stereo inputs, two auxiliary sends per channel, two stereo effects returns, and 2-band EQ. The M12 costs just £275, and Sound Technology will even throw in a £90 Samson microphone, absolutely free, to purchasers.

A Sound Technology plc, Letchworth Point, Letchworth, Herts SG61ND.
T 01462 480000.
F 01462 480800.
W http://www.soundtech.co.uk

CP Mega: it's in the bag

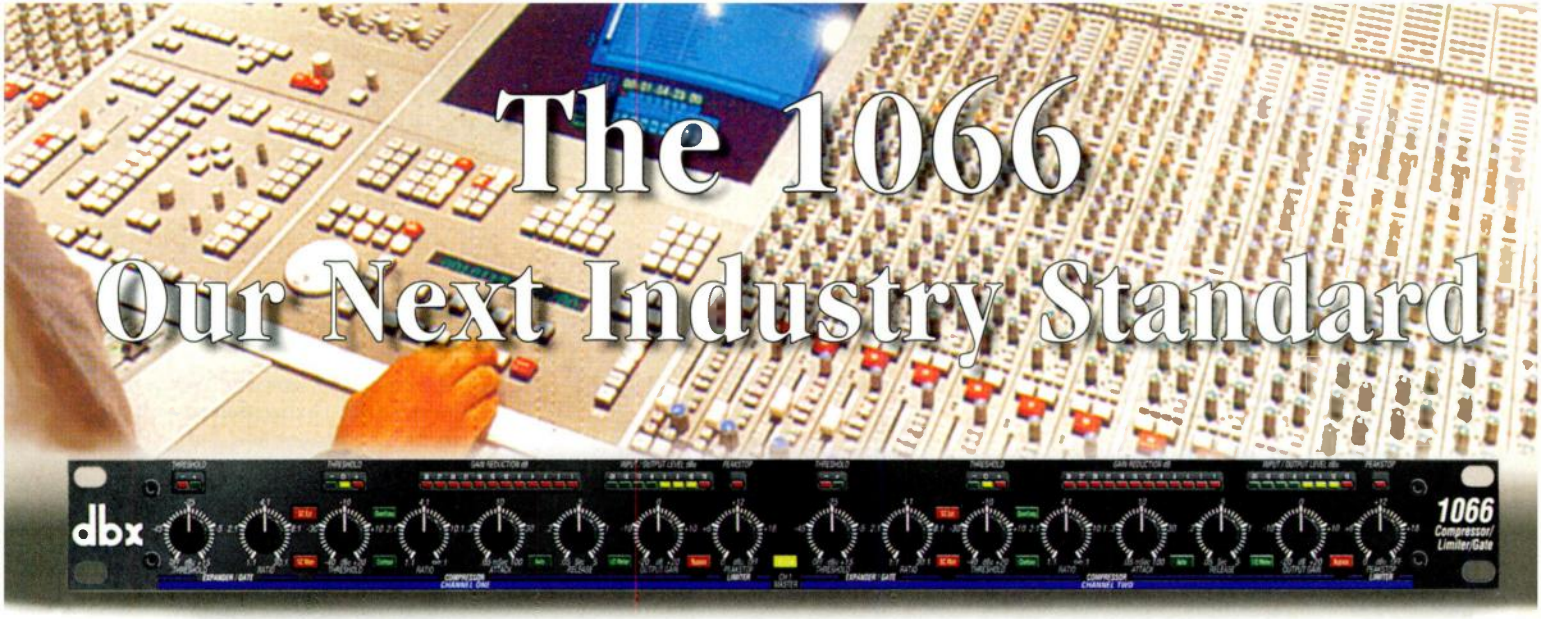
CP Mega Ltd have introduced a range of rugged carrying bags for audio equipment. The Pro Bag Range features four models of audio bag and audio organiser, and has been designed in conjunction with recordists assigned to BBC World News and Reuters. The bags use a combination of double-skin Cordura, closed-cell, semi-rigid foam cushioning, and transparent covers: equipment access and user comfort have been foremost in the design process. As an example of what you can expect to pay, the model VA02 audio bag pictured here costs around £182 including VAT. Not cheap, but they're built to last, with a lifetime warranty on materials and workmanship.

A CP Mega Ltd, Worton Hall Industrial Estate, Worton Road, Isleworth, Middlesex TW7 6ER.
T 0181 568 1881.
F 0181 568 1141.

Dawsons Music: It's big up North

Warrington's Dawsons Music are sponsoring what is claimed to be the biggest ever exhibition of musical instruments and audio technology in the North. Music User 96 is to be held at Haydock Racecourse (located near the junction of the M6 and the A580, between Liverpool and Manchester) on October 25-27. The first day is dedicated to the education market exclusively, but the remaining two days are open to anyone, with over 50 exhibitors showing more than 150 brands. Music User 96 will be divided into three areas: music in the Home, in Performance, and in the Studio, between them covering domestic, live and studio instruments and technology.

A Dawsons Music Ltd, 65 Sankey Street, Warrington WA1 1SU.
T Ticket info hotline 01925 574495.
F 01925 417812.
E musicuser@dawsons.co.uk



The 1066
Our Next Industry Standard

Look at the equipment list of any large studio or live concert system and chances are you'll find dbx products. Studio and live sound engineers rely on dbx to deliver silky smooth vocals and crisp, tight drums and bass which are the dbx trademark.

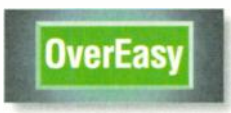
In building a successor to our early classics we talked to hundreds of working engineers and producers about the way they work and what's important to them in a dynamics processor.

The result is our new 1066 Compressor/Limiter/Gate. Classic dbx sound, an almost fanatical level of build-quality and the most comprehensive specification of any processor in its class.

A Solid Foundation

The heart of any dynamics processor is its VCA and **dbx** really scores in this department. Our proprietary VCA's are good enough to be used in famous name mixing consoles as well as our own products, and the 1066 features our best VCA yet. The new V2™ boasts superb dynamic range while maintaining very low distortion and almost immeasurable noise.

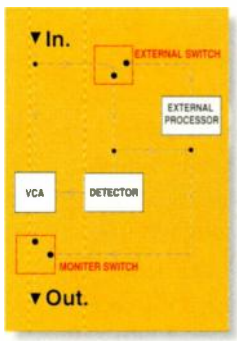
Classic DBX features at your fingertips



Our original *OverEasy*® soft-knee compression is switchable to hard-knee for that almost special-effects sound.

The Smartest Sidechain

The 1066 makes using external devices in the sidechain simplicity itself. *Monitor* lets you instantly flip between the sidechain and



the compressed signal for rapid set-up whilst the *External* switch allows you to A/B processed and unprocessed signal without the need for complex patch-bay normalisation.

PeakStopPlus™:
is **dbx**'s latest limiting algorithm and the best yet. It suppresses those unwanted transients while minimising the distortion common to many other hard limiters.

Add to this numerous other switching options, a ratio control on the gate and metering of input level, output level and gain reduction and you have the most comprehensive set of controls available.

Hand built in the USA.

All **dbx** effects are hand built in our factories and scrupulously tested before shipping. Components are meticulously selected and the 1066 is no exception. It features illuminated switches, detented pots and new super bright lightpipe technology which replaces standard LEDs found in other units.

We think the 1066 is a worthy successor to our original compressors. See and hear one for yourself and see if it sets your standards.

dbx
PROFESSIONAL PRODUCTS

Distributed exclusively in the UK by
ARBITER GROUP PLC
Wilberforce Road, London NW9 6AX
Tel: 0181 202 1199 Fax: 0181 202 7076
Web site at: http://www.demon.co.uk/arbiter

Voyage to Mansfield

Electronic music and Tangerine Dream fanzine *Voyager* is presenting 'The Xmas Concert part III: The Revenge'. On stage will be Andy Pickford (see interview back in *SOS* July 1995), with support from *Sound On Sound* contributor Paul Nagle, and Asana. Paul will be releasing the fourth CD in his *Elements* series — entitled *Earthshaper* — on the night. There will also be a fully-licensed bar and a raffle. The date is November 30, the time is 5.30, and the venue is The Sherwood Suite, Mansfield Leisure Centre, Mansfield. Note that seating is strictly limited to 130, so book early! Advance tickets cost £8, and can be had from Julian Bickmore on 01623 657 907, or Midas Records on 01332 349 429.

Raven: Spec up price down

Quasimidi's Raven synth (reviewed in SOS March 1996) has undergone a hefty price cut — from £1599 on its launch to a list price of £999, including VAT. If the Raven is your kind of synth, you can spend some of that £600 you've saved on a tasty new upgrade. With the £249 Raven Max upgrade board, the Raven can have its sound pool expanded to an amazing 112Mb, featuring 1000 extra sounds, with the focus on new drums and percussion instruments, vintage synths, vocal hooks, and effects. In addition, the Raven Max expansion provides new sequencer functions, including copying and deleting pattern and user motifs, and using the Motivator for direct recording onto any track of the Raven's sequencer.

A Quasimidi Musikelektronik GmbH, Eisenbahnstr. 13, D-35274 Kirchhain, Germany.
T 0049 6422 94020.
F 0049 6422 940244.

MTV's London-based TV complex has recently purchased six Sennheiser UHF multiple-channel radio mic systems from Marquee Audio. The system comprises six EM2004 switchable-frequency receivers and four EK4015 miniature, camera-mountable, true-diversity receivers, plus six 16-channel switchable SK50 UHF belt-pack transmitters. John Whitworth, MTV's Senior Technical Manager, notes: "We chose Sennheiser above the rest because of its better sound quality and robustness."

T Sennheiser UK Ltd 01494 551551.

Control Synthesis — producers of the Deep Bass Nine TB303 clone — inform us that they have had a hand in the development of the Emu Orbit's synth module's sound ROM, lending a European feel to an otherwise American product. To go back to the Deep Bass Nine briefly: a limited number are actually available from Control Synthesis for the knock-down price of £279, against the original £449 retail.

T 01270 883779.

Aspen Media Ltd will supply and fit Tascam's new v4 software (with a retail value of £58.75) free of charge to your DA88, SY88 and RC848 when they next service your machines. Remember that a full service is recommended every 500 hours or so.

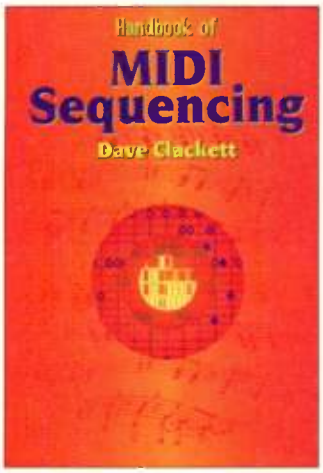
T 01442 399949.

Crimewatch SOS

Thefts of pro audio gear appear to be sadly on the increase; the latest to be hit are Blue Systems of Saffron Walden. If you're offered any of the following under dodgy circumstances, contact Blue Systems or Saffron Walden police station. The list is as follows: Power Mac 7100/80 64/700CD, 2Mb video; Apple 17-inch display with Adaptec; Bluedisc 2.1Gb drive; Bluedisc 230Mb drive; Vista scanner; two Sony DTC1000 ES DAT recorders; six Syquest EZ Drives; 16U full flightcase, green; 12U full flightcase, blue; Tascam MM1 mixer; Opcode Studio 3 MIDI interface; rackmount hard drive, 44/200Mb, with 'Vibe Control' on front panel; two SoundTech 31-band EQs; Akai S1000 sampler with 32Mb memory, SCSI; Oberheim Matrix 1000 synth module; Emu Proteus 1 synth module, expanded; Roland Super JX synth with card; Roland U220 sound module; Alesis ADAT 8-track digital recorder; two Fostex D80 digital recorders; Panasonic SV3800 DAT machine; Denon CD player; TEAC V3000 cassette deck; three Tascam DA20 DAT machines; two pairs of Yamaha NS10M monitors; six Lexicon LXP15 MkII effects processors; five dual balanced SPL Vitalizers; SPL EQ Magic; Ensoniq DP/4 effects; two Ensoniq MR rack synths; four Novation Bass Station keyboards; four Novation Drum Station drum modules; Evolution MKS149; two Beyer boom stands; Yamaha CD8-AD; eight Blue Canamps headphone amps (distinctive, and last to be manufactured in this style); Yamaha ProMix 01 mixer; Adaptec SCSI card; Roland JV1080 synth; Yamaha SU10 sampler; 10 EZ cartridges; four Akai 8Mb cards for S1000/S1100; Denon PMA250; SIMMs (four 4Mb 72-pin, three 16Mb 30-pin, two 8Mb 72-pin); Office Pro 95 CD-ROM; five Windows 95 CD-ROMs; 8-way jack-jack loom; three MO650 cartridges.

A Blue Systems, The Old School House, Church End, Ashdon, Saffron Walden, Essex CB10 2HG.
T 01799 584095.
F 01799 584094.
E info@bluesystems.com
W http://www.bluesystems.com

Hands-on handbook



Hands On MIDI Software's Dave Clackett has condensed his extensive knowledge of MIDI sequencing into a collection of tips for getting the best out of hardware or software sequencers. The result has been published as *The Handbook of MIDI Sequencing* by PC Publishing. Dave covers the hardware and software you need in order to get into sequencing, and introduces the basics of using sequencing and notation software, with particular emphasis placed on making use of General MIDI/GS/XG sound sources. The book is available from *SOS* mail order for £13.95 plus postage (check the mail order pages for full details).

A Sound On Sound Ltd, Media House, Trafalgar Way, Bar Hill, Cambridge CB3 8SQ.
T Mail Order Hotline 01954 789888.
F 01954 789895.

Fab new features for UltraMix

Mackie Designs' UltraMix Universal Automation System Software has reached v1.11 for both Mac and PC versions — and views and features for both platforms are identical. Files are easily interchanged between the platforms, and the new upgrade offers speed improvements, bug fixes, and "higher performance and stability".

New features include:

- Clipboard edit filter.
- Enhanced event editor.
- Default mix snapshot.
- Program change editing.

In addition, key encryption for the Mac program has been removed, and a new Quick Start manual and in-depth user manual are now available. Ultramix costs £2199 including VAT; the upgrade is free to existing users.

A Key Audio Systems Ltd, Unit D Chelford Court, Robjohns Road, Chelmsford CM1 3AG.
T 01245 344001.
F 01245 344002.

caught in the net

SABINE

Sabine Inc, best known for their amazing feedback control technology, have launched a web site that will feature product info, reviews and user lists, with links to Sabine's artist endorsees coming soon. Full specs, graphs and drawings are also included.

W http://www.sabineinc.com

AXIS AUDIO

Stockport-based Axis Audio, UK distributors for Groove Tubes mics, FAR studio monitors and RSP Technologies Circle Sound equipment, are now on the Internet. Full information, prices, and useful links to other sites will all be on their page, along with on-line order forms.

W http://www.axisasl.demon.co.uk

SADiE USERS FORUM

Following the launch of SADiE's web site last month, Studio Audio & Video have passed on some information about an independent SADiE users forum that's just been started. Administered by Jim Rusby at the University of Oregon, the mailing list will be monitored by Studio Audio & Video, while remaining independent of the company. To subscribe to the list, simply send an email, with "subscribe sadie" in the body of the message, to the address below.

E majordomo@lists.uoregon.edu.

STUDIO WIZARD

The Studio Wizard Organisation — they who design and build studios to any budget — have had a change in their web site's URL. Try the address below.

W http://www.sworg.demon.co.uk

BASS CONTROL

Bass Control, the "first fully-searchable database of music industry services on the net", has recently made it to number five of the Yellow Pages Top 10 UK web sites.

W http://194.72.94.4/basscontrol/

SONGLINK INTERNATIONAL

Tipsheet/magazine *SongLink International* has been running for three years, and as part of the celebrations has launched a web site. The magazine is published 10 times a year and provides details of artists looking for songs worldwide, details of record company A&R executives, and lots of other useful info for songwriters.

W http://www.webcom.com/genoagrp/songlink/

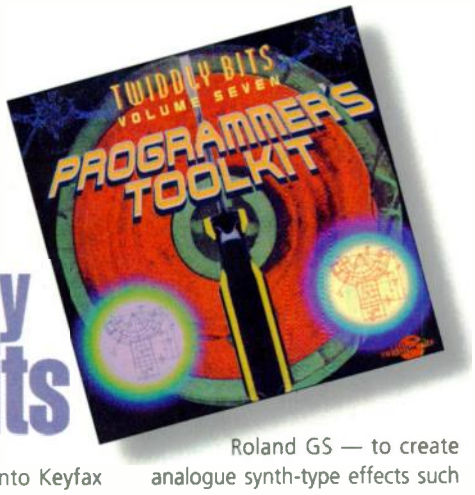
Heavenly new prices

For a limited period, Heavenly Music have cut the prices of their acclaimed MIDI song files and building block files. The list includes (with original prices in brackets): Dr Beat Volumes 1-6, £8.50 each (£14.99); Rhythm's Greatest Hits 1 and 2, £8.50 each (£16.99); Break Beats Deluxe, £8.50 (£16.99); Afro Cuba, £8.50 (£16.99); Beat 'n' Bass, £8.50 (£14.99); The Jam Files 1 and 2, £8.50 each (£14.99); Ultimate Blues 1 and 2, £8.50 each (£14.99); Hit Shot, £12 (£19.99); Jungle, £9 (£16.99); Dr.Rave 1 and 2, £8.50 (£14.99); Arpeggiotron, £10 (£12.99); Bytes 'n' Pieces, £13 (£19.99); QY/QS Phrase Disks 1 and 2, £12 each (£19.99), The Techno Files, £8.50 (£14.99); and MIDI Song Files, £4.99 each (£5.99 each).

A Heavenly Music, PO Box 3175, Clacton, Essex CO15 2RP.
T 01255 821039.
F 01255 821039.
E heavenly@ortiz.demon.co.uk
W http://www.ortiz.demon.co.uk

shape of things to come

Fit kit from Twiddly Bits



The latest entry into Keyfax Software's series of building block MIDI file disks is *Twiddly Bits Volume 7 — Programmers Toolkit*. The disk contains a collection of dance-orientated arpeggios and keyboard riffs, plus a range of NRPN (Non-Registered Parameter Numbers) data files that allows users to take advantage of enhanced General MIDI-equipped sound modules — Yamaha XG or Roland GS — to create analogue synth-type effects such as filter sweeps, resonance whistles, and so on. The disk costs £19.95 plus £2 postage, and comes with a 12-page manual.

A Keyfax Software UK, PO Box 4408, Henley on Thames, Oxon RG9 1FS.
T 01734 471382.
F 01734 471382.
E 100705.3565@compuserve.com
W http://www.gmedia.net/keyfax

Zoom 1202: Alive & kicking

Last month's news pages announced the arrival of Zoom's new Studio 1204 effects processor — check out the review elsewhere in this issue for more details. When the news item was written, we were under the impression that the 1204 was a replacement for the earlier 1202, but since then, distributors Exclusive have called to let us know that the 1202 is still very much in the Zoom range, though one thing has changed: £50 has been shaved off the retail price. At the new price of £149.99, the 1202 is even better value than before.

A Exclusive Distibution, Unit 10, Furmston Court, Icknield Way, Letchworth, Herts SG6 1UJ.
T 01462 481148.
F 01462 481149.

'Check gets mate

The *Sound Check* audio test CD, recorded and compiled by Stephen Court and Alan Parsons, has become an international reference for producers, musicians and sound designers, and has just been upgraded. *Sound Check II* is available in two forms: the CD alone, which now features extra test tracks and new packaging; and a deluxe set that includes (built into a double CD case) a mic and spectrum analyser. In conjunction with the CD's 1/3rd octave tones tracks, these are all the tools you need to make general room and loudspeaker measurements, whenever and wherever you may need to. *Sound Check II* costs £28.78 plus postage, while the *Sound Check II* plus Spectrum Analyser set costs £73.43 plus postage. Both are available from *SOS* mail order.

A Sound On Sound Ltd, Media House, Trafalgar Way, Bar Hill, Cambridge CB3 8SQ.
T Mail Order Hotline 01954 789888.
F 01954 789895.

HHB sell company mini!

HHB have added a professional MiniDisc blank to their own-branded range of blank media. The 74-minute MD74 features a precision sputter-coated recording layer to "ensure an exceptionally low block error rate", and a high carrier-to-noise ratio, even after over one million read/write cycles. The disc has been introduced in response to professional users, such as BBC TV News and Radio, making increasing use of the format.

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

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jaz drive
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Endless storage space.
Goes anywhere you go.

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Removable disks allow you to work on multiple projects.
Save entire projects on one disk.

iomega™

BECAUSE IT'S YOUR STUFF.™

Iomega products are available from Dixons, PC World, Virgin Megastores, Byte, Watford Electronics, Evesham Micros, and other leading computer outlets.

© 1996 Iomega Corporation. Iomega is a registered trademark, and the Iomega logo and Jaz™ are trademarks of Iomega Corporation. [illegible] price may vary. *Prices quoted exclude VAT.
Waldren "Frog" Joseph as photographed by Lee Crum.

shape of things to come

The studios of long-wave radio station Atlantic 252 have become the first in Ireland to buy a Soundcraft Ghost desk (see review starting on page 112 of this issue), which was installed during recent refurbishments. A multitrack console was chosen so that station promotional material could be produced on-site.
T 01707 665000.

Gremlins meant that an item in last month's 'Education Corner' for King's Lynn-based Norfolk College of Arts & Technology was printed with incorrect contact details. The item concerned the college becoming established as a centre for music-based courses in East Anglia. In addition to their current BTEC National Diploma in Popular Music, a range of specialist modules, including Music Technology and Recording Techniques, have been added as part time/evening courses from September. Our apologies to the college for this error: the correct details follow.
A Norfolk College of Arts & Technology, Tennyson Avenue, King's Lynn, Norfolk PE30 2QW.
T 01553 761144, ext 271.
F 01553 764902.

We concluded that Viscount's EFX10 multi-effects unit, reviewed in last month's issue, was very good value at £249. Imagine our surprise to hear of a further £50 being shaved off the price by UK distributors Turnkey — the EFX10 can now be yours for just £199.
T 0171 240 4036.
W http://www.demon.co.uk/turnkey

Our apologies to photographer Piers Allardyce: we omitted to credit his photographs, which accompanied the School of Audio Engineering 20th anniversary feature, in the last (September '96) issue of *Sound On Sound*.

Hey, big Spendor

Tony Larking Sales have been appointed UK distributor for the Spendor SA series of active monitors. The range currently consists of two models, the SA200 and SA300 nearfield monitors, and both are two-way reflex enclosures, bi-amped via Spendor's own integrated amplifier design. Each pair is matched to within 0.75dB to ensure "outstanding stereo imaging", and magnetic shielding is standard.

A Tony Larking Pro Sales Ltd, Norton Mill House, Nortonbury Lane, Letchworth, Herts SG6 1AN.
T 01462 490600.
F 01462 490700.

Take note with Musitek

PC users looking for some way to scan printed music and convert it into a MIDI file should check out Musitek's *MidiScan* (£189) or *PianoScan* (£89). The former, currently at v2.5, can read up to 16 staves and 24 pages at a time, while *PianoScan* reads two staves and up to 24 pages at a time. Both packages offer similar facilities; they will both:

- Interpret pitch, duration, clef, key, time signature and accidentals; nearly all elements of printed music will be extracted.
- Work with any TWAIN-compatible scanner — or even a fax machine if you use fax modem software.
- Produce multitrack MIDI files.
- Interpret pre-scanned TIFF, BMP and PCX files.

In order to use the software, you need a TWAIN-compliant greyscale or colour scanner (minimum 200dpi); a hand scanner can be used for *PianoScan*, but a flatbed is preferred.

A Software Partners, PO Box 201, Station Road, Claverdon, Works CV35 8ZU.
T 01926 842998.
F 01926 842384.

Changing times for DA60

Tascam's four-head timecode DAT machine, the DA60, has been enhanced both in name and features: the DA60 MkII now offers a built-in chase synchronise which locks to and generates all timecode formats, and locks to external word clock and video sync, and an RS422 implementation that provides extensive machine emulation. Improved servo hardware and control software provide for fast lock-up times, and audio performance has been enhanced through the use of new A/D and D/A circuits, extending the MkII's dynamic range and lowering its noise floor. According to Tascam, the new machine's features are available "at almost no additional cost". The DA60 MkII costs £4999 inc VAT (the original DA60 cost £4463, plus £504 for the timecode board).

A TEAC UK Ltd, 5 Marlin House, The Croxley Centre, Watford, Herts WD1 8YA.
T 01923 819630.
F 01923 236290.

Let's talk rubbish

Our industry generates huge amounts of hype and rubbish.
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shape of things to come

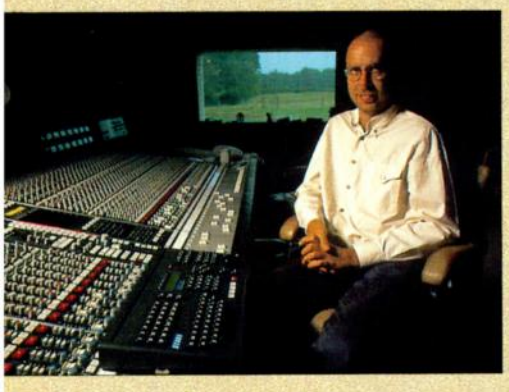
Opcode Vision of PCI future

Opcode's *Studio Vision Pro* v3.05 is now compatible with Digidesign PCI-based digital audio hardware, as used by the latest generation of Apple Power Mac computers. A v3.05 updater will be made available to all v3.0 owners, and can also be downloaded from Opcode's web site. Compatibility with PCI hardware also requires Digidesign's v3.0 DAE and *Digi System Init* extension; these are available at: ftp://ftp.digidesign.com/pub/support/digi/mac/dae-dsi/

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

Radar hits UK half-century

The 50th Otari Radar hard disk recorder to be supplied in the UK has gone to Genesis' studio; the band will be using the system for their next album project, scheduled for Spring release next year. Genesis co-producer and engineer Nick Davis says: "It operates in a very similar way to a tape machine, so there's no need for complicated programming. What's more, the sound is excellent." Nick has also been working with German artist Herbert Grönemeyer, who was so impressed with the Radar that he's ordered one for himself — a 12Gb system, which provides more than 38 track hours of recording time.

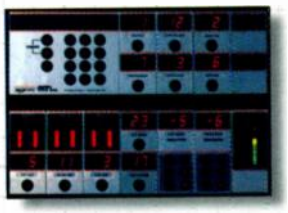


A Stirling Audio Systems, Kimberley Road, London NW6 7SF.
T 0171 624 6000.
F 0171 372 6370.
E stirlingsales@channel.co.uk

dynaudio lexicon dbx

turnkey

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



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.

Pro-Tools III and Soundcraft DC2020 in Studio 1.

Huge range across Mac, PC and Acorn platforms.

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

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Fax: 0171 379 0093 114, Charing Cross Road, London WC2H

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The DR8 and DR16 recorders utilise Akai's 24-bit internal processing enabling simultaneous 8 track recording, 16 track playback (DR16 only), real-time dynamic digital mix capability and random-access editing, a full range of optional cards allow TC, RS422 & Bi-phase sync. and ADAT optical I/O. Both will record and play back on a range of SCSI devices including MO and Iomega drives.

Now the introduction of the optional graphics board, using technology from the Post Production DD1500, means you can have lightning fast graphics and smooth scrolling, without using a computer! It even adds 5 levels of undo, and track labling etc via a PC keyboard. Our special bundle prices include a rock solid Seagate Barracuda hard drive, MIDI board for synchronization, graphics board, colour monitor and QWERTY keyboard!

- Easy operation, MTR feel
- 8/16 track record & play
- 16 ch. programmable mix
- Full sync. facilities
- Fully file compatible with DD1500

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DR8 BUNDLE £3499 INCLUDING 1GIG HD, GRAPHICS & MIDI BOARDS, MONITOR & KB turnkey Tel 0171 240 4036

DR16 BUNDLE £4999 INCLUDING 2 GIG HD, GRAPHICS & MIDI BOARDS, MONITOR & KB turnkey Tel 0171 240 4036

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New ProTools III software options

ProTools III Package
- *7100/80 8/350 c/w keyboard*
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Audio Media Package
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- *1 Gbyte AV Hard Disk*

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Designed to provide ProTools functionality at an affordable price the Pro Tools software and Project Audio Card gives 8 tracks of simultaneous record/playback and either analogue or digital i/o.

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- *15" Multisync Display*
- *Session 8 Core & 882 Interface*
- *1Gbyte Hard Disk*

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YAMAHA

Yamaha MD4 MIDIDISC

Whilst good results can be got from a modern 4 track cassette - there's no comparison between that and Yamaha's new digital multitrack. The MD4 combines the clarity of digital recording with the convenience of almost immediate access to any part of the song (no rewind or fast- forward). If you've tried computer based hard-disk recording and found it too complex - you'll be delighted by the straight-forward controls of the MD4 - it's really just like using a tape recorder, but without the limitations.

NEW PRODUCT £899 INCLUDING 4 TRACK PACK

MD4 Features :
- *4 mixer inputs + 2 sub inputs*
- *3 band EQ per channel*
- *4 x direct track outputs*
- *Auto punch in with rehearse*

SyQuest & IOMEGA

ZIP

Removable disk drives

JAZ

There was a time when hard disks were a luxury for sampler owners, but with the advent of the ultra cheap Iomega Zip and Jaz drives, and the soon to be released Syquest EZ 135 drive, this has become a thing of the past. For under £200 the Zip drive stores 100Mb (94Mb formatted) on each cartridge and the EZ drive 135Mb (124Mb formatted). If you want greater capacity the Jaz's 1Gbyte will suit any large fx library and is ideal for many dedicated hard disk audio systems like the Emu Darwin or Akai DR series.

EZ-135

ZIP RRP £219 £99 INC DISK & SCSI CABLE

JAZ RRP £648 £499 INC DISK & SCSI CABLE

EZ-135 RRP £219 £149 INC DISK & SCSI CABLE

KORG ensoniq ALESIS Steinberg Technics Vestax FATAR

Soundcraft

UNBEATABLE RECORDING PACKAGES!

16 channel Spirit Studio

Soundcrafts Spirit Studio desks revolutionised the project studio market when they were introduced over 5 years ago offering sound quality and features only previously found on desks several times the price. Even then they were great value for money, but because Soundcraft have recouped their R&D costs, and because of our substantial buying power, they are now available at an unbelievable price. No other desks represents such fantastic value for money, just check out the feature list:
'In line' layout means 40, 56 and 72 inputs respectively for the 16, 24 and 32 channel desks, 4 band EQ with 2 mid sweeps, 6 aux. sends, 8 true subgroups, direct outs on every channel, LED metering, fader reverse - the list is endless!

- **Exemplary Build & Audio Quality.**
- **Spacious & Clear Layout for Easy Operation.**
- **Up to 72 Inputs at Mixdown.**
- **Unbeatable Package Prices.**

Whether you want to record direct to hard disk with the Fostex D80, or prefer the convenience of tapes with the Alesis ADAT XT, Turnkey has the recording package for you - we are even throwing in the looms and a pair of superb Absolute 2 Monitors!

STUDIO 16 & FOSTEX D80
£2499
INCLUDING FREE LOOMS & ABSOLUTE 2'S

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STUDIO 24 & 2 x D80
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STUDIO 24 & 2 x ADAT XT
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INCLUDING FREE LOOMS & ABSOLUTE 2'S

*Add £499 to 24 ch. packages for 32 ch. desk

Yamaha 02R Digital Console

YAMAHA

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

BUNDLE AT
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INCLUDING ALESIS ADAT XT, BOARD & OPTICAL CABLES
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DTC790 Dat Machine

SONY

We have exclusively secured a small supply of the Sony DTC790 to bring you the cheapest full size DAT machine on the market, but this is not at the expense of features: SPDIF coaxial input and optical in and out, digital and analog recording at all three sampling rates (32 kHz, 44.1 kHz, 48 kHz), as well as all the usual ID functions and a full function infra red remote control.

These machines are brand new and boxed with a full twelve month warranty. Another DAT exclusive from Turnkey!

TURNKEY EXCLUSIVE
£529
INCLUDING REMOTE

PCM-800

SONY

PRO 8 TRACK DIGITAL RECORDER

The definitive statement in 8 track digital machines? The Sony PCM800 is based on Tascam's DA88 but has the added advantages of balanced XLR connections and AES/EBU. Buying power makes our offer cheaper than the DA88! Limited quantities only available at this price. Buy now before stocks are exhausted!

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SONY

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RRP £599
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E-mail: sales@turnkey.demon.co.uk Fax : 0171 379 0093, 114, Charing Cross Road, London WC2H 0DT E-mail:sales@turnkey.demon.co.uk

lexicon

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- Lexicon Reverb Quality
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- Full 19" Rack Units
- Reflex Has Extensive Realtime MIDI

Virtually nobody in the industry would dispute that Lexicon have the best sounding reverb algorithms around - after all, they invented digital reverb! Until recently, their products were beyond the reach of the average home studio, but the Alex and Reflex have changed all that.

Both units feature the famous Lexicon reverb sound, and have a wide range of presets to cover almost any application, gated, reverse and cathedral settings are all there! In addition, there is a liberal sprinkling of delays, choruses and flanging etc. If you need MIDI control, the Reflex not only responds to patch changes, but almost any parameter can be controlled in realtime.

The Lexicon PCM70 is a legendary effects processor, and had a lifespan of over 10 years - unbelievable for hi-tech equipment. The PCM80 has taken all that the 70 was best loved for, and added state of the art audio quality, true stereo processing, amazingly detailed editing including MIDI clock control, and a card slot - cards include Dual FX, Pitch FX and the Scott Martin Gershin card.

- Range of extra FX cards
- Industry standard processor
- Ultra comprehensive editing

ALEX	REFLEX	PCM80
£349 INCLUDING FREE CABLES	£399 INCLUDING FREE CABLES	£2099 INCLUDING FREE ROM CARD

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Green range

FOCUSRITE GREENS FROM £819 CALL FOR A DEMONSTRATION turnkey PROFESSIONAL Tel 0171 240 4036

Focusrite have long represented the pinnacle of audio achievement, but sadly their products have always been out of reach for most of us. Now, specifically with the high quality project studio in mind, they have designed the Green range of processors. The first 3 products are the Dual Mic Pre, the Focus 4 band EQ with filters, and the Voicebox - this combines a mic/instrument preamp, compressor, de-esser and parametric EQ in a single unit - the ultimate signal path for digital recording! All 3 are on permanent demo at Turnkey.

TL Audio

NEW Indigo Range

In the production of modern valve audio equipment, the success of TLA equipment has been unrivalled, from the best selling compressor, 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.

PRICES FROM £699 CALL FOR DETAILS turnkey PROFESSIONAL Tel 0171 240 4036

SONY

HR-MP5 MULTI FX PROCESSOR

Sony's HRM-P5 uses the chipset as their pro studio effects series, costing over £1,000 each - the quality of effects is absolutely superb. A wide range of effects include sparkling reverbs, breathtakng modulations and delays, 2 EQ sections, as well as unique wah/filter type effects. True stereo operation, a huge display and an intuitive operating system make this a highly desirable unit even at the RRP - our exclusive deal makes it irresistable!

RRP £586 £299 NEW BOXED

- Top Quality Effects Processors
- Exclusive End of Line Clearance Deals

HR-GP5 MULTI FX PROCESSOR

Acclaimed quality multi-effects unit from Sony, brother of the HR-MP5. The same processing split further allows up to 7 effects at once with a fantastic range of reverbs, delays and more "off the wall" effects, plus a superb pre-amp section making it ideal for both studio use and guitarists. It features the same display and operating system as the MP5, so nothing could be easier to use! With our massive discount stocks won't last long, get your order in now!

RRP £586 £249 NEW BOXED

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AKAI | MACKIE | BSS | YAMAHA | TANNOY | DENON | AKG | Digitech | EMAGIC

ALESIS

The World's Best Selling Outboard Range !

After completely redefining the budget reverb market with the original MIDIVerb - Alesis went on to dominate the mid-priced reverb market with the now legendary Quadraverb series. Alesis are best known for the clarity and realism of their reverb algorithms - there are many imitations. On top of this, you get one of the most straight-forward operating systems so that you can actually use their best features.

The most recent addition to the range - 18 bit true stereo reverbs + no fuss !

RRP £169 **£169** NEW BOXED

The standard budget compressor - RMS/peak detection, soft/hard knee + gate

RRP £225 **£199** NEW BOXED

The only 2 x 30 bands graphic EQ in 1U, but not at the expense of excellent sound quality

RRP £269 **£229** NEW BOXED

18 bit true stereo reverb + FX,, basic programmability in a 1U rack

RRP £229 **£215** NEW BOXED

As the microverb 4, but with added programmability, large LCD and MIDI control

RRP £329 **£299** NEW BOXED

The ultimate in FX programmabilty - up to 8 effects blocks arrangable in any order + ADAT digi I/O

RRP £699 **£649** NEW BOXED

ADAT XT

ALESIS

Alesis pioneered low cost digital multitrack recording with the introduction of the ADAT, and changed the face of home and professional recording. The new XT version is totally compatible with the old machines, but has numerous improvements.

The design features a die-cast chassis and has a 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, and an all new display further simplifies operation.

Turnkey are probably the most experienced suppliers of ADAT's, which coupled with our unbeatable pricing makes us the first choice for the new XT.

- **Totally compatible with 'black' ADAT's.**
- **New 4 times speed transport design.**
- **Absolutely unbeatable price.**

RRP £3199 **£POA** PACKAGE DEALS AVAILABLE turnkey Tel 0171 240 4036

SPIRIT Folio RacPac

Soundcraft

This excellent member of the Folio range is a sure-fire winner combining superb sound quality with a fantastic list of features : 3 Band EQ with Mid sweep, 6 auxiliary sends, high-pass filters, rackmountable (includes swivelling connector field) up to 28 inputs on mixdown, 4 true sub-groups plus separate mix bus, insert points and direct outs on every channel. *Mega deal only at Turnkey!*

- **28 Inputs at Mixdown.**
- **6 Auxiliary Sends.**
- **4 True Subgroups.**
- **3 Band EQ with Mid Sweep.**

RRP £899 **£POA** NEW BOXED

SPIRIT Folio Lite

Soundcraft

Soundcraft's Spirit Folio must have more features per square inch than any other mixer. Ideal for any small recording setup, it has up to 16 inputs including 4 mono mic/line channels (with phantom power), 4 stereo channels and 2 returns, 2 band EQ and 2 aux. sends - 1 switchable pre or post fade. If you need to rack it, optional *ears* are available.
Mega deal only at Turnkey!

- **Up to 16 inputs to mix.**
- **2 Aux sends, 1 switchable pre/post**
- **4 mic amps with phantom power**

RRP £312 **£POA** NEW BOXED

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SONY

DTC-A6 - BREAKING THE PROFESSIONAL PRICE BARRIER

Sony have done it again! A full size, full spec DAT machine at a bargain price! Just look at the list of features: SPDIF coaxial input and optical in and out, digital and analog recording at all three sampling rates (32 kHz, 44.1 kHz, 48 kHz), as well as all the usual ID functions and a full function infra red remote control. Sony's exclusive Super Bit Mapping process can also be switched in, cramming the sound of 20 bits into 16! Initial stocks are limited - get your order in now!

NEW PRODUCT
£649
INCLUDING 6 FREE TAPES

S4 Plus

ALESIS

Unbelievable clearance deal on this top of the range synth brings you a huge range of features and serious performance at a bargain price. The Alesis S4 Plus Piano features: 64 note polyphony, 16 part multitimbrality, a huge range of up to the minute sounds and large area of the ROM given over to top quality piano samples, the ability to download samples onto PCMCIA RAM cards, 4 simultaneous multi effects processors based on the Quadraverb 2, huge screen for easy editing and packaged in a 1u rack unit, with plenty of knobs and buttons for editing. Under half price! Limited quantity available - first come, first served!

- **4 Simultaneous FX Processors**
- **64 Note Polyphonic**
- **Massive LCD Display**
- **Under Half Price!**

~~RRP £999~~
£499
EXCLUSIVE DEAL

Macintosh

MIDI Bundles

While stocks last we are offering Apple's Powerful Performa CPU with a MIDI sequencer of your choice - Steinberg Cubase, E-Magic Logic or Opcode Vision. Comes with 1-in, 3-out MIDI interface.

BUNDLE PRICE
£1299
INCLUDING SOFTWARE

Performa 630 MIDI Package:
- *Performa 630 8/350CD c/w kbd.*
- *14" Colour Display*
- *MIDI Sequencer + Interface*
- *ClarisWorks Software*

* CPU Apple B stock - full warranty

Reno Portable CD-Rom Drive

MEDIAVISION

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 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 quantity of these at a huge discount - order now whilst stocks last!

~~RRP £429~~
£139
INC 'PHONES & CARRY CASE

EMU

EMU EIV - The Ultimate Sampler!

Our superb product knowledge and backup service has meant that Turnkey have been chosen by E-mu as the UK's exclusive dealer for the E-IV. If you are in the market for a sampler, or indeed any kind of sound module, you owe it to yourself to have a serious look at the EIV - it's the choice of professionals worldwide.

Standard features include 128 note polyphony, RAM expandable to 128 meg, supreme ease of use, with an icon based O/S & Proteus style multitimbral operation. Synthesis is unrivalled with over 20 different types of filters (up to 6 poles and with morphing), 100's of modulation routings and details like multiple LFO waveforms, and a huge range of DSP processes such as time stretch and sample rate conversion. There are 8 balanced +4dB analog outputs, AES/EBU & SPDIF digital I/O, dual SCSI ports via which it reads Akai and Roland libraries transparently (no need for convert load procedures), and a PC QWERTY keyboard port for titling and easier navigation. Impeccable audio performance can be taken for granted with 128x oversampling sigma/delta ADC's, and 18 bit DACS. A huge library of EMU's own sounds is already available on CD-ROM - we have the lot at Turnkey!

FX Board

Whereas most MIDI instruments use onboard fx for live performance or to improve their grey sounding presets, the EIV FX hardware option is a high quality 24 bit dual stereo fx card, designed for use in a studio environment. Algorithms include reverb, delay, chorus, flange and other ambient fx. Two fx can be stored with every preset and re-sampled internally for further processing of samples. It's fair to say that the EMU engineers are Lexicon fans! (£329)

As if all that wasn't enough, there are now a whole range of new features and options:

V2 Operating System

New features include: SoundSprint - uses buffering to allow sounds to be loaded and played within 1 second over SCSI ! • 16 track sequencer • Roland library support • 4 new morphing filters • Time correction DSP adjustable by tempo • Steinberg Recycle support • Iomega JAZ drive support • 12dB output boost • Trigger sampling via MIDI note (All this now comes as standard with the EIV and is also available to existing users for £69 including 2 CD-ROMS.)

8 Output Board

This hardware option provides an additional 8 balanced outputs bringing the total to an incredible 16! (£799)

DEAL 1: E-IV + 32 Meg

DEAL 2: E-IV 64 Meg, 16 outputs, fx board, JAZ drive, 4x speed CD-ROM drive, QWERTY keyboard & 16 CD-ROM library

DEAL 3: 'Hire to Buy' on a trial basis.

DEAL 1 £3699 CALL FOR DEMONSTRATION turnkey Tel 0171 240 4036

DEAL 2 £6399 CALL FOR DEMONSTRATION turnkey Tel 0171 240 4036

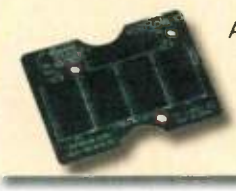
Roland

JV1080 Super JV Module

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

But expandability of the machine is where it really comes into it's own. There are over 10 different expansion boards which can be fitted (up to 4 at once), each one with as much ROM as the original machine, covering sounds from Vintage to Orchestral and Dance to World.

RRP £1199 POA NEW BOXED



At Turnkey we have the full range in stock, as well as an unbeatable price on the machine itself. Check one out today!

RRP £1468 £1299 WITH ANY EXPANSION BOARD

waldorf

Red

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

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.

EXCLUSIVE FROM £6299 CALL FOR DETAILS turnkey Tel 0171 240 4036

Orbit

The Dance Planet

EMU

Emu have taken their wealth of experience in making modules such as the Proteus, Vintage Keys and Morpheus, combined it with the filters from the incredible Emulator 4, and with their usual innovation, come up with the Orbit - especially built for dance music.

The Orbit is stacked full of classic drum sounds, pulsating basses, ambient pads, as well as a huge variety of hits and effects. The inclusion of the E4's 16 different types of 6 pole filters mean that this module has more powerful filtering than any other synth. Finally the 'BEATS MODE' includes a wide selection of loops and grooves, which can have their pitch changed *without* tempo change and vice-versa, and even their sounds too !

The Orbit is already on demo at Turnkey - audition one today !

NEW PRODUCT £799 INCLUDING FREE CABLES

ROLAND VS-880 DIGITAL WORKSTATION

It's an 8 track recorder, each with an additional 8 virtual tracks, giving up to 64 in total! Variable levels of data compression can be applied to give unheard of amounts of recording time on a single hard drive (the VS880 supports an internal IDE but we recommend an external SCSI drive such as the Iomega Jaz, for better performance and value.)

Mixing is all digital for superb quality, and is also fully automatable. Built in MIDI synchronisation allows quick and easy setup with any sequencer. An additional fx board can also be added which gives two simultaneous effects busses, featuring RSS and SE70 type effects. Want to know more? Call us or come down for a demo today!

BUNDLE PRICE £1599 INC 1 GIG INT. DRIVE

BUNDLE PRICE £1749 INC 1 GIG JAZ DRIVE

BUNDLE PRICE £1999 INC 1 GIG, JAZ & FX BOARD

MC303 Groovebox

NEW PRODUCT £549 NEW BOXED

NEW PRODUCT £649 WITH MK149 CONTROLLER KEYBOARD

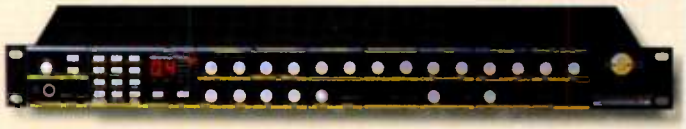
The enduring popularity of the TB303, MC202 and TR909 has just refused to go away but increasing rarity has meant that secondhand prices have been driven up to ridiculous levels. Roland, the creators of these machines, now bring you the MC303 Groovebox which combines all their classic drum machine sounds,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

PULSE

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

NEW PRODUCT £599 NEW BOXED

DrumStation



Someone had to build this eventually! Despite being discontinued for at least 10 years, Roland's TR-808 and TR-909 drum machines have remained indispensable popular classics ever since. Now, Novation bring you those classic sounds with the original editing parameters, and in the convenience of a 1U rack, with MIDI, and 8 outputs. Initial supplies will be limited and demand, high. We have been guaranteed a significant quantity of the first stock available. Call for further details.

RRP£449 £429 NEW PRODUCT

CS1x

Here's another fantastic addition to this year's slew of equipment specifically designed for dance music. Not only does it look great, it sounds great too! As well as 480 XG format voices and 11 different drum kits, the CS1x also has 128 special performance sounds especially designed for dance and techno music. Front panel knobs allow instant access to crucial editing parameters like the filter, and 2 are assignable to anything you like. Round this off with top quality effects and an arpeggiator, and you have what has to be the best value keyboard of the year!

RRP £599 NEW PRODUCT

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EUROPE'S LOWEST PRICES GUARANTEED*

Sound Modules

YAMAHA VL1m & VL7

EXCLUSIVE DEAL OF THE YEAR !!!!

Whilst we've always been well known for bringing you exclusive 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 break-through in synthesis technology since the advent of FM. Not only that,but Yamaha's implementation of Physical Modelling gives the most breathtakingly realistic acoustic simulations available as well as fantastically powerful lead and bass synth sounds

Physical modelling takes a completely different approach to sound reproduction than any previous method. Rather than begin with inflexible samples or a simple oscillator, extremely powerful DSP chips simulate in real time characteristics of real instruments such as tube/string length, damping, absorbtion, lip/bow pressure, throat characteristics, tonguing and many others

Once the basic (or not so basic !) sound has been created, it can then be passed through a powerful multi-mode filter section with resonance, harmonic enhancer, impulse expander, resonator and five-band fully parametric EQ with key-scaling abilities

Finally, a 32 bit effects section based on Yamaha's top of the line SPX1000 unit provides up to 3 simultaneous effects processors,capable of flanging, pitch-shifting, reverb, delay, distortion etc

If acoustic simulations aren't your thing, then imagine the virtually limitless palette of synthetic sounds the VL series can produce, in fact we have commissioned top programmers at Yamaha's R&D department to produce a "Dance and Techno" sound set which we're giving away with the units (these load via the built-in 3.5" disk drive)

The VL-1m is a 3U 19" rackmount unit and is duophonic. The VL7 is a monophonic, 4 octave keyboard with velocity and aftertouch sensitivity, and comes bundled with the breath controller and expression pedal

These prices represent 71% and 67% discounts from the RRP and offer a once in a lifetime opportunity to own a classic synth with real character. We have strictly limited quantities of the last ever units and orders will be fulfilled on a first-come, first-served basis. Buy now to avoid disappointment !

RRP £2448
VL-7 £699 WITH FREE BREATH CTRL + EXPR PEDAL

RRP £2399
VL-1m £799 NEW BOXED

The UK 4 track Centre

THE turnkey 4-TRACK PACK

Our famous 4 track pack includes everything you need to start making music. Maxell headphones, microphone with cable, chrome tapes, cables, head-cleaning kit and the best book we've yet seen on multitrack recording, taking you through basic track laying, mixdown etc... with sections of everything from mic placement to synchronisation and MIDI. We've obtained some great 4 track pricing AND for a limited period we will give you the 4 track pack (normal price £59.95) absolutely free with the units featured herein

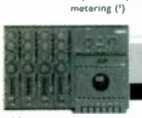
PORTA 03 Mk2

only £199

INC 4 TRACK PACK

New version of a classic portastudio improved styling and metering (!)

RRP £229 **£199** NEW BOXED



YAMAHA MT50 Multi-tracker

INC 4 TRACK PACK

High Speed, record on all 4 tracks simultaneously, dbx noise reduction, 2 band EQ on each track, as well as auxiliary send/return

RRP £389 **£299** NEW BOXED

FOSTEX XR7 Personal Studio

INC 4 TRACK PACK

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

RRP £499 **£449** NEW BOXED

FOSTEX XR-3Multi-tracker

INC 4 TRACK PACK

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

NEW PRODUCT **£249** NEW BOXED

KURZWEIL MicroPiano

SPECIAL PURCHASE

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

RRP £599 **£369** NEW BOXED

NOVATION BASS STATION

BUDGET MONO SYNTHS

If you need to get into analog synths on a budget, then the Bass Station rack or keyboard is for you. But this is no mere toy! Two oscillators, pulse width modulation, two LFO's and knobs that send out MIDI information make this a versatile sound creation tool, capable of a wide range of bass sounds and effects. The ideal addition to any MIDI setup!

FROM ONLY **£329** NEW BOXED

NEW, USED & EX DEMO

Access MATRIX Prog	£369	Oberheim OBMX26	1799.95
Access MicroW Prog	£369	Peavey Spectrum Organ	£289
Akai SG01K	£299	Peavey Spectrum Syn	£359
Akai SG01P	£299	Peavey SpectrumBASS	£299
Akai SG01V	£299	Roland JV1080	£949
Alesis SQ01K	£249	Roland MDC1	£349
Alesis DM5	£399	Roland MGS64	£399
Alesis SR16	£150	Roland MKS70	£649
Boss DR5	£249	Roland MOC1	£499
Boss DR660	£249	Roland MS1	£229
Dream GMX 1	£69	Roland MSE1	£499
Ensu CLASSIC KEYS	£69	Roland MSV1	£349
Ensu MORPHEUS	£899	Roland MVS1	£499
Ensu Orbit	£739	Roland P55	£299
Ensu Procussion	£645	Roland SC55ST	£365
Ensu Proformance	£150	Roland SC88VL	£649
Ensu Proteus 2	£810	Studio Elec SE1	£1526.33
Ensu Proteus FX	£399	Technics SXWSA1R	£2199
Ensu UltraProteus	£1139	WALDORFMICROWAVE1	99
Ensu Vintage Keys +	£799	Waldorf PULSE	£599
Kawai GMega LX	£129	Yamaha MU5	£179
Korg 05R/W	£349	Yamaha MU50	£299
Korg X5DR	£399	Yamaha MU80	£449
Kurzweil K2000RB	£1800	Yamaha QY22S	£479
Kurzweil KMP1	£299	Yamaha QY300	£549
Marion PRO SYNTH	£699	Yamaha QY8	£149
Novation BassStation	£289	Yamaha SU10	£299
Novation Drumstatn	£449		
Ob'heim Matrix1000	£499		

NEW, USED & EX DEMO

Fostex 3805	£799	Tascam 424MK2	£399
Fostex DMT8	£1199	Tascam 464	£699
Fostex XR3	£225	Tascam 488MKII	£899
Fostex XR5	£299	Tascam Porta 03	£165
Fostex XR7	£350	Tascam Porta 07	£289
Roland VS8F1	£340	Yamaha MT4X	£379
Tascam 424	£379	Yamaha MT50	£279
Tascam 424 mk2	£399	Yamaha MT8X	£699

TASCAM 424 Mk 2 PortaStudio

INC 4 TRACK PACK

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

NEW PRODUCT **£499** NEW BOXED

FOSTEX DMT-8 digital multitracker

INC 4 TRACK PACK

The personal digital multi-track is here at last, and at a price you won't believe! 8 separate tracks of CD quality audio recorded to half-gig hard-disk (up to 12 minutes). Record up to 4 tracks simultaneously, jog-shuttle, sync to MIDI without losing a track. The 8 channel mixer accepts up to 4 mics, 2 band EQ and 2 aux sends. Separate outputs and S/PDIF optical output. Unbelievable discount

RRP £1499 **£POA** NEW BOXED

FOSTEX XR5 Personal Studio

INC 4 TRACK PACK

Stunning new double speed Fostex machine with individual EQ, up to 3 aux sends and 2 stereo returns, 2 inserts & 4 sep tape outs allowing use with an external mixer

RRP £420 **£335** NEW BOXED

TASCAM Porta07 PortaStudio

INC 4 TRACK PACK

A fantastic new machine from the makers of the Portastudio. Double speed, EQ on each channel, built-in dbx, 4 channel metering system

RRP £399 **£339** NEW BOXED

HAMMOND XM1 & XM1c

ORGAN MODULE

Amazing sounding all new organ module with remote drawbar controller. Based on the guts of the £8000 XB3, there is nothing as realistic as this on the market. Built in Leslie simulator and overdrive, up to 3 registrations simultaneously, variable release envelopes, percussion and too many more features to list here. Exclusively supplied by CKK

EXCLUSIVE **£1085** NEW BOXED

F.A.T. FB-383 TB303 CLONE

Superb first product from new manufacturer Freeform Analog Technologies. The only authentic sounding TB303 clone, with MIDI. 1U rack with 1 knob per function, all the sound controls of the 303 are duplicated. Cutoff, Resonance, Envelope Mod, Accent, Tune and Decay. Waveform is continuously variable from square wave to sawtooth, and an auto tune button is included to retune the oscillator. Filter cutoff CV controllable (convertor box available only £69 if bought with FB383). The ultimate analog bass machine - this incredible price means these will fly out of the door! Turnkey Exclusive

NEW PRODUCT **£199** NEW BOXED

WALDORF MICROWAVE

TURNKEY FACTORY DIRECT EXCLUSIVE

The Waldorf Microwave has genuine analog synthesis including resonant filters. It has 16 oscillators, 8 part multi-timbrality and 6 individual outputs. Sweep through up to 64 different waves, controlled by LFOs, envelopes etc. Devastating bass, totally unique sound ! Also available on a trial basis, please enquire - once you've tried this, you won't want to go back !

SPECIAL **£1199** NEW BOXED

YAMAHA VL70M

VIRTUAL ACOUSTIC MONO SYNTH

Physical Modelling Synthesis for the rest of us - Yamaha's ground-breaking new unit. Physical modelling takes a completely different approach to sound reproduction than any previous method - extremely powerful DSP chips simulate in real time characteristics of real instruments such as tube/string length, damping, absorbtion, lip/bow pressure, throat characteristics, tonguing and many others.

The sound can then be passed through a powerful multi-mode filter section with resonance, harmonic enhancer, impulse expander, resonator and five-band fully parametric EQ with key-scaling abilities. Finally, a 32 bit effects section provides up to 3 simultaneous effects processors ,capable of flanging, pitch-shifting, reverb, delay, distortion etc... Initial supplies will be limited on this exciting piece of technology - get your order in now to avoid disappointment.

NEW PRODUCT **£499** NEW BOXED

NOVATION DRUM STATION

BUILT AT LAST !

Someone had to build this eventually! Despite being discontinued for at least 10 years, Roland's TR-808 and TR-909 drum machines have remained indispensable popular classics ever since. Now, Novation bring you those classic sounds with the original editing parameters , and in the convenience of a 1U rack, with MIDI, and 8 outputs. Initial supplies will be limited and demand, high. We have been guaranteed a significant quantity of the first stock available. Call for further details

RRP £449 **£419** NEW BOXED

ACCESS PROGRAMMER

FOR MATRIX 1000 OR MICROWAVE

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

SCOOP EXCLUSIVE **£369** NEW BOXED

OBERHEIM MATRIX 1000 EXCLUSIVE

Now almost 10 years old, and still sounding as fresh as the day it was released. The Matrix 1000 is essentially a Matrix-6 in a rack - 6 note polyphonic, 2 oscillators per voice, true analog VCF filters with 8 modes. "Matrix™" modulation with 20 sources and 32 destinations, raw gutsy analog sounds. Why 1000? The 1000 presets were generated by Matrix6 owners worldwide in reponse to a competition to find the best analog sounds on the planet. You're sure to find the perfect patch for virtually any application. Group mode allows chaining of up to 6 units to create a true monster! Fully editable via MIDI, Mac, PC or Atari editor (available for only £49)

FACTORY DIRECT RRP £599 **£369** NEW BOXED

Keyboards

HAMMOND XB-2

B3 LIVES AGAIN !

If you need an authentic Hammond sound, there is currently only one place to turn. Hammond's XB2 has been specifically made to recreate the sound of the legendary B3, with 128 presets, 9 drawbars for easy programming, built in Leslie simulator, overdrive and reverb, nothing else comes close. You can even connect a genuine Leslie via the 11 pin connector (reconditioned Leslies also available), and best of all, it weighs only 30 pounds! Exclusively available through Turnkey

EXCLUSIVE **£1399** NEW BOXED

NEW, USED & EX DEMO

Alesis QS6	£599	Roland AX1	£349
Ensoniq SQ1PLUS32	£899	Roland EP 5	£239
Evolution MK10	£59.95	Roland EP3	£149
Evolution MK40	£99	Roland EP7	£499
Fatar CMS61	£229.95	Roland JV 50 EX	£569
Fatar Studio 1100	£1099	Roland PC200GS	£165
Fatar Studio 1100FC	£1299	Roland Rap 10	£129
Fatar Studio 2001	£829.95	Roland RD500	£1699
Fatar Studio 2001FC	£849.95	Roland SPD11	£649
Fatar Studio 49	£1099.95	Roland XP10	£649
Fatar Studio 61	£109.95	Roland XP50	£1349
Fatar Studio 610	£229.95	Roland XP80	£1699
Fatar Studio 610+	£299.95	Sequent. Prophet VS	£1199
Fatar Studio 900	£599.95	Technics SXWSA1	£2499.99
Fatar Studio 900FC	£829.95	Ultimate keybd stand	£119
Goldstar GMK 49	£129	Viscon FK1000	£899
Hammond XB2	£1390	Waldorf Wave	£6845
Hammond XB3	£2630	Yamaha CBX K3	£139
Kawai K11	£399	Yamaha CBXK1	£129
Korg PROPHECY	£999	Yamaha KX5	£199
Korg Trinity	£2300	Yamaha P300	£3199
Korg Trinity PLUS	£2299	YAMAHA PF150	£1389
Korg Trinity PROX	£4300	Yamaha PF85	£949
Korg X3	£699	Yamaha QS300	£939
Korg XSD	£689	Yamaha SY45	£299
Kurzweil PC88	£1099	Yamaha SY85	£699
Novation Bass Stn R	£310	Yamaha VL1m	£899
Roland A30	£299	Yamaha VL7	£699
Roland A33	£399	Yamaha W7	£899

Sampling

TIME & SPACE

THE BEST EVER DR. RHYTHM !

We have two Time & Space jukeboxes in store, each fully loaded with the current top 100 CDs. There are choices to cover everything from straight instrumental sounds through sound effects, to loops and breaks. We carry virtually the full range in stock and can also supply most disks in CD-ROM format for direct loading into your sampler. Come and check out the latest sounds today

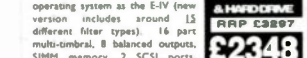
From as little as £29.95

EMU E64

COME FRO A DEMO AND HEAR THE DIFFERENCE!

64 note polyphonic. Uses the same operating system as the E-IV (new version includes around 15 different filter types). 16 part multi-timbral, 8 balanced outputs, SIMM memory, 2 SCSI ports, AES/EBU and SP/DIF digi I/Os.

WITH 8 MEG & HARDDRIVE RRP £3897 **£2348** NEW BOXED



EMU ESI-32 + SCSI

VERSION 2.0 SOFTWARE

Featuring 32 note polyphony, 4xpolyphonic, G-chip resonant filters, huge quality library, (Akai and Emaxll compatible) Time-stretch, doppler FX, parametric EQ, exciter etc... All E-mu samplers come with free access to our enormous sample library (we have all the Elll library on CD-ROM) and excellent tech support (many staff are owners)

WEST END EXCLUSIVE RRP £1199 **£999** NEW BOXED

Now bundled with SCSI interface, CD-ROM drive, EZ-drive and 8Mb of RAM for the incredible price of only **£1399**

NEW, USED & EX DEMO

Akai EXM1003	£189	Emu E4 Keyboard	£3499
Akai EXM1006	£129	Emu E64	£1999
Akai EXM1008	£499	Emu ESI32	£899
Akai EXM101	£99	Emu ESI32 SCSI	£949
Akai EXM3002	£199	Kurzweil K2500	£2799
Akai EXM3008	£549	Kurzweil SMP R	£893.99
Akai IB208P	£399	Kurzweil SMPK	£893.99
Akai IB3015	£99	Roland DA400	£420
Akai IB302D	£349	Roland JS30	£850
Akai IB303T	£149	Roland OP760 IP	£330
Akai IB304F	£349	Roland S760	£999
Akai MPC3000	£2799	SIMM 1 MEG 30 PIN	£29
Akai S1100	£1199	SIMM 16 MEG 30 PIN	£499
Akai S2000	£849	SIMM 16 MEG 72 PIN	£649
Akai S3000XL	£1499	SIMM 4 MEG 30 PIN	£129
Akai S3200XL	£3299	SIMM 4 MEG 72 PIN	£129
Emu E4	£4799	SIMM 8 MEG 72 PIN	£299

ROLAND PC 200-II keyboard

IDEAL ENTRY-LEVEL MIDI CONTROLLER KEYBOARD

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

PC200 PLUS PROTEUS FX **£649** NEW BOXED

PC200 PLUS AKAI VINTAGE **£399** NEW BOXED

PC200 **£149** NEW BOXED

WALDORF PULSE

ALL NEW ANALOG MONO SYNTH

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

NEW PRODUCT **£599** NEW BOXED

EVOLUTION MK149 KEYBOARD

IDEAL ENTRY-LEVEL MIDI CONTROLLER KEYBOARD

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

Check out our unique package prices with these modules

NEW PRODUCT **£119** NEW BOXED

Proteus FX + MK149 -	£629
MG564 + MK149	£529
MU50+ MK149 -	£469
SC7 + MK149 -	£249

EMU E-IV DEALS

SUPER SAMPLER

EXCLUSIVE UK DEALER EXCLUSIVE UK DEALER

Our superb product knowledge and backup service have lead Turnkey to be chosen by E-mu as the UK's exclusive E-IV dealer. As if this 128 polyphonic sampler wasn't great enough already, version 2.0 software and a range of new extras have transformed the product. Version 2.0 features include 4 new editable 6 pole filter types (now 20), direct reading of Roland library as well as S1000, and the incredible SoundSprint technology from the E4K, allowing virtually instantaneous loading of sounds from disk. Also new are the FX board (RRP £329), giving 2 simultaneous top quality FX processors as in the E4K, and the 8 output board (RRP £799) giving an extra 8 balanced analog outputs, bringing the total to an incredible 16! Our bulk purchasing allows us to bring you these incredible deals -

E-IV 32 Mb **£3699** NEW BOXED

E-IV PACK **£6399** NEW BOXED

OUR E-IV PACKAGE:

E-IV 64 Meg, 16 outputs, built-in effects, Jaz drive, Apple CD600 4x speed CD-ROM drive and 16 CD-ROM library

ROLAND S760

WITH FREE CD-ROM DRIVE & DISK

MEGADEAL! - incredible new low price from Turnkey including free SCSI CD-ROM drive and disk. Everything you need to get started with plenty of usable library. Also available packaged with OP1 video/digital board at £1699, or with OP1 plus DA400 8-output convertor for £1999

RRP £1899 **£1399** NEW BOXED

PRICES INCLUDE 17.5% VAT

Uk mainland carriage £9.99

*We will beat any genuine quote from a UK or European dealer. We must be able to substantiate the quote and the goods must be available and in stock

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Authorised Dealer | Soundcraft | DRAWMER | MACKIE | Roland | SONY | TASCAM | FOSTEX | digidesign

EUROPE'S LOWEST PRICES GUARANTEED*

Outboard

VISCOUNT
EFX10 Studio Multi-effects
HALF RACKMOUNT EFFECTS

We've just received stocks of Viscount's entry into the fully professional effects market, and it sounds great !. The unit features audiophile sound quality delivered by 24 bit processors with 128x over-sampling Delta / Sigma convertors. True stereo -20/+4 dB connections. Realtime MIDI control, large backlit display, huge range of effects including reverbs, delays, chorus, flanging, pitch-shift, wah, phasing, leslie simulations, etc .. The price of £299 makes the EFX10 probably the best value for money effects unit on the market - 7 day money back guarantee if not satisfied!

RRP £399
FACTORY DIRECT
NEW PRODUCT
£199
NEW BOXED

SPL STEREO VITALIZER
BULK PURCHASE

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

RRP £589
£299
NEW BOXED

DIGITECH TSR-12
FEATURES 'S-DISC' PROCESSING

With the introduction of the Studio Quad, Digitech have decided to stop production of the TSR12 as it is too expensive to make We have stock of the last ever units available at a bargain price Features include S-DISC processing, up to five effects at once including several different types of reverb, delays, chorus etc. Full MIDI spec allows realtime control of individual effect parameters Limited stocks only

RRP £399
£299
NEW BOXED

DIGITECH STUDIO QUAD
4 CHANNEL STUDIO EFFECTS PROCESSOR

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

NEW PRODUCT
SHORT SUPPLIES
£499
NEW BOXED

Monitoring

ABSOLUTE 2
Studio Monitors by SPIRIT
PHONE FOR BEST PRICE

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

RRP £2.49
POA
NEW BOXED

CONTROL 5
JBL
NEW LOW PRICE

These classic monitors from JBL have been a standard in studios for several years and still stand up very well against more recent competition. The solid build quality you can expect from JBL comes as standard and the ported design gives fantastic bass reponse Internal fuses help to prevent blown tweeters and a separate sub-woofer is also available for only £199 Exclusive to Turnkey.

RRP £499
£249
NEW BOXED

PRICES INCLUDE 17.5% VAT
Uk mainland carriage £9.99

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FOR REST OF AD

LA AUDIO 4G
HALF PRICE Exclusive Turnkey Deal

The LA Audio 4G is a high quality 4 channel frequency conscious noise gate incorporating fully balanced inputs and outputs, externally switchable Hi-Lo pass filters and a single ended noise reduction feature (SNR) This all adds up to a very versatile device which is suitable for use in all audio applications wherever noise reduction/gating is required.

RRP £399
£169
NEW BOXED

DIGITECH
Studio Twin
NEW MODEL - NEW MODEL

True Stereo, 99 Presets 99 users 46 kHz sample rate 18 bit, Internal PSU 1U / case slightly edtrable, Reverb, Multi-tap delay, Chorus, Flanger Phaser, Tremolo, Parallel effects processing using S-DISC chip. 2 digit display, MIDI program change.

JUST OUT
£249
NEW BOXED

ALESIS NANOVERB
BULK PURCHASE

To create the NanoVerb™, Alesis created sixteen powerful new preset effects algorithms, added 18 bit digital converters, and fit them into a compact, easy-to-use and incredibly affordable package Lush Hall, Plate and Room Reverb, rich true stereo Chorus, Flange, Delay and useful Multi-effect programs are all offered. The NanoVerb's powerful assortment of programs offers enough variety that you can use it on your guitar rig, author a multi-media presentation the next day, and mix bands at the coffee house the following night The Adjust knob allows you to tweak its great-sounding programs until they're just right for your music, while the Input/Output levels and Mix controls ensure proper effect levels for a wide variety of applications And since the NanoVerb is so affordable, you can put two or three in your rack for dedicating to multiple sources

RRP £169
£POA
NEW BOXED

BEHRINGER Composer
WORKHORSE COMPRESSOR

A natural sounding and fully featured compressor at a give away price ! Built-in gate removes any unwanted noise, soft-knee action makes compression much less obtrusive, "auto" mode makes quick setup a doddle and side-chain access means it can also be used for de-essing etc.

RRP £349
£229
NEW BOXED

LEXICON Alex and Reflex
SPECIAL OFFER

If You're looking for a straight reverb unit, Lexicon have a reputation that's hard to beat ! These are the cheapest units to offer the famous 'Lex' sound - The Reflex has the additional benefit of dynamic MIDI, allowing real time control of multiple effects parameters Huge discount at Turnkey !

RRP from ~~£899~~
POA
NEW BOXED

YAMAHA NS10M
Nearfield Monitors
INDUSTRY STANDARD

The Yamaha NS10M is a high-performance near-field monitor - the choice of recording professionals throughout the world Its wide acceptance means that you can take your mix from studio to studio and always be sure of hearing it on a similar system Using NS10M's also means you'll get a clear idea of what your mix will sound like on the "average" hi-fi system

RRP £299
£279
NEW BOXED

OMNIPHONICS FOOTPRINT
Power Amplifier
FLYING OUT OF THE DOOR

Superb quality 75w per channel power amp from top studio amp manufacturer omniphonics. Balanced inputs, emergence cut-out and bridgeable to mono, 1U rack-mount case. These are flying ! RRP £399.

SCOOP
RRP £399
£279
NEW BOXED

CONTROL 1c
JBL
NEW LOW PRICE

These superb compact monitors (RRP £289) are ideal for accurate monitoring on a budget. Sturdy impact resistant casing makes them the only choice for location work. Bundle them with the Peavey PMA70 power amp for only £299.

RRP ~~£289~~
£139
NEW BOXED

NEW, USED & EX DEMO

Alesis 3630	£175	Klark Teknik DN301	£939
Alesis MEQ230	£149	Klark Teknik DN320	£611
Alesis MICROVERB3	£165	Klark Teknik DN330	£646
Alesis MICROVERB4	£250	Klark Teknik DN332	£891
Alesis MIDIVERB4	£335	Klark Teknik DN360	£1479
Alesis QUAD2	£499	Klark Teknik DN3600	£2345
AMEK 9098	£1099	Klark Teknik DN3601	£1820
Aphex 720	£1818	Klark Teknik DN3696	£1880
Aphex C2	£189	Klark Teknik DN405	£727
Aphex Expressor	£149	Klark Teknik DN410	£1175
APHEX-105	£399	Klark Teknik DN500	£939
APHEX-106	£399	Klark Teknik DN501	£979
APHEX-107	£549	Klark Teknik DN510	£939
APHEX-108	£269	Klark Teknik DN514	£856
APHEX-320A	£1818	Klark Teknik DN6080	£3237
APHEX-720	£1818	Klark Teknik DN716	£1232
BBE 322	£149	Klark Teknik DN726	£1749
Behringer EX2100	£149	Klark Teknik DN728	£2100
Behringer EX3100	£199	Klark Teknik DN7730	£2130
Behringer MDX2100	£229	Klark Teknik DN775	£1999
Behringer MDX2400	£299	Klark Teknik DN800	£1433
Behringer MX8000	£2199	LA 4C	£319
Behringer XR2400	£399	LA 4G	£319
BOSS RV70	£399	LA CX4	£289
Boss SX700	£369	LA CX8	£699.13
BOSS VT1	£399	LA CX2	£249
BSS DPR402	£849	LA GX2	£249
BSS DPR901	£849	LA MX2	£249
DBX 150X	£149	LA V8	£816.63
DBX 160A	£504	Lexicon 300L	£4641
DBX 165A	£1426.45	Lexicon 480L	£10569
DBX 166A	£548.73	Lexicon Alex	£269
DBX 168A	£1028.13	Lexicon DUALFX	£249
DBX 266	£351.33	Lexicon JAMMAN	£399
DBX 274	£539.33	Lexicon LARC	£1512
DBX 290	£410	Lexicon LXP15II	£699
DBX 296	£417.13	Lexicon PCM80	£1799
DBX 760X	£383.05	Lexicon PCM90	£2589
Denon DRM550	£129	Lexicon REFLEX	£329
Denon DRM640	£209.99	Lexicon VORTEX	£469
Denon DRS810	£309.99	Masmerb. GLM8200	£3319
Denon DRW580	£199.99	Masmerb. GLM8900	£5046
Denon DRW760	£259.99	Neve 3369PC	£"3 2,192"
Digitech DHP33	£699	P+R DB 1 DI	£20
Digitech DHP55	£999.95	Passport Analog Filter	£359
Digitech MIDIVocalist £449.95		PHONIC PCL3200	£179
Digitech RPM1	£549.95	Roland RSS10	£2199
Digitech StudioVocalist £999.95		Roland SDE330	£450
Digitech TSR12	£269	Roland SDX330	£450
Digitech TSR24S	£799	Roland SRV330	£856
Digitech TSR6	£219	Sony DPSV77	£1399
Digitech VOCALIST II £549.95		Sony HRGPS	£499
DOD 231	£449.95	Sony HRMPS	£499
DOD 830	£259.95	SPECK EQ316	£699
DOD 834	£349.95	SPL CVXLR	£822
DOD 835	£199.95	SPL EQMAGDX	£1175
DOD 866	£249.95	SPL MIREMAN	£468.82
Drawmer 1960	£1169.13	SPL OPTIMIZER	£1173
Drawmer 1961	£1169.13	SPL SVLXLR	£645
Drawmer DF320	£499.37	SPL Vitaliser Stereo	£315
Drawmer DL221	£558.13	SSL 834	£2350
Drawmer DL241	£448.63	Summit DCC2000	£3113
Drawmer DL251	£558.13	Summit EQF100	£2526
Drawmer DL441	£616.88	Summit EQP200	£2345
Drawmer DS201B	£299	Summit TLA100A	£1610
Drawmer DS301	£616.88	Summit TPA200	£2229
Drawmer DS404	£616.88	Symetrix 402	£699
Drawmer LA12	£287.88	Symetrix 420	£380.7
Drawmer LX20	£299.13	Symetrix 422	£599
Drawmer M500	£910.63	Symetrix 425	£499
Ensoniq DP/4+	£1299	Symetrix 488	£599
Ensoniq DP2	£799	Symetrix 501	£329
Eventide DSP4000	£4694.13	Symetrix 501/01	£379
Eventide H3000B	£3401.63	Symetrix 528	£649
Eventide H3000DSE	£2696	Symetrix 566E	£995
Eventide H3000DSX	£1991	Symetrix 571	£799
Eventide H3500DFX £3701.25		Symetrix 572	£699
Focusrite BLUE 230	£2932	Symetrix 601	£1938.75
Focusrite BLUE215	£2932	Symetrix 602	£1938.75
Focusrite BLUE245	£2879	Symetrix 628	£1095.1
Focusrite BLUE315	£4653	Symetrix SC1	£30
Focusrite BLUE330	£5076	Symetrix SC2	£30
Focusrite RED1	£1175	Symetrix SX201	£258
Focusrite RED1	£2262	Symetrix SX202	£258
Focusrite RED2	£3344	Symetrix SX204	£258
Focusrite RED3	£2579	Symetrix SX208	£258
Focusrite RED4	£2344	TC M5000 SADF	£3496
Focusrite RED5	£2056	TLA CL1	£1169
Focusrite RED6	£1675	TLA EQ1	£1052
Focusrite RED7	£1757	TLA EQ2	£1522
Focusrite RED8	£1440	TLA M1	£3819
Frontline DDS 20	£99	TLA M2	£4994
Furman LCX	£349	TLA PA1	£1052
Furman PL8 PLUS	£235	TLA PA2	£405
Furman PL8E	£175	TLA V1	£464
Furman QN44	£399	Vacount EFX 1	£179
Jen Mesh Voice Chan.	£589	Vacount EFX10	£119
Klark Teknik DN300	£939	Waldorf 4 Pole Filter	£299

NEW, USED & EX DEMO

AKG LSM50	£89	JBL CONTROL5+	£575
Alesis monitor 1	£299	JBL CONTROLSB1	£269
Alesis MONITOR2	£799	JBL CONTROLSB5	£339
Alesis RA100	£250	KRK 6000	£699
AR Powered Partners	£149	KRK 6000S	£817
ATC SCM10	£995.23	KRK 7000B	£1169
ATC SCM100	£4033.78	KRK 7000B/S	£1287
ATC SCM100A	£5459	KRK 9000B	£1874
ATC SCM20	£1505.18	KRK 9000B/S	£1992
ATC SCM200A	£11207.15	KRK KROK	£351
ATC SCM300A	£11994	KRK KROKS	£469
ATC SCM50	£3480.35	Omniph Footprint	£381.88
ATC SCM50A	£4864.5	Otis power station x 2	£199
Behringer HA4000	£299	Peavey CS200X	£389
Chameleon 1100S	£922.37	Quested M108	£904
Denon PMA250MKI	£159.98	Roland MA20	£99
Dynaudio BM10	£734.37	Roland MA7	£150
Dynaudio BM15	£998.75	Samson SERVO150	£150
Dynaudio BM5	£493.5	Samson SERVO240	£225
Dynaudio M1	£1761.32	Samson SERVO500	£399
Dynaudio M2	£3758.82	Soundcraft Absolute 2	£199
Furman MA6	£389	Tannoy PBM 6.5 Mkll	£140
Genelec 1030A	£1069	Tannoy Sys 10MK2	£569.88
Genelec 1031A	£2322	Tannoy Sys 12PMK2	£802.53
Genelec 1032A	£2935	Tannoy Sys 215MK2	£689.58
Genelec 1092A	£1308	Tannoy Sys 8MK2	£350.15
Genelec 1094A	£2196	TannoySys 15MK2	£1442.9
Goodmans ACTIVET5	£99	Waldorf EMESRed	£939
JBL 4206	£351	Waldorf EMESWhite	£579
JBL 4208	£279	Yamaha A100	£159
JBL 4412A	£586	Yamaha A100A	£289
JBL CONTROL 5	£515.82	Yamaha MS101II	£116
JBL control micro	£99	Yamaha MS202II	£205
JBL control one	£149	Yamaha NS 10M	£150
JBL CONTROLI+	£299	Yamaha NS10MSTUDI	£375
JBL CONTROLIC	£175		

Computer Music

MUSICTIME DELUXE
Notation arranger
NEW VERSION JUST RELEASED

MusicTime has been our best selling music package for 4 years Now, Passport have just released MusicTime Deluxe You get both CD-ROM and floppy versions in the box, and a much more powerful program including part extraction, cross-staff beaming, correct playback of complex repeats (DC, Coda etc), and automatic part extraction. (We have small remaining quantities of the old version at £99

NEW VERSION
PASSPORT
£129
WINDOWS95

SOUND FORGE3
PRICE CRASH £200 OFF !!
ALSO SOUND FORGE XP - £149

Sound Forge 3.0 is a full-featured sound editor intended for musicians, sound designers, and multimedia developers using the Windows platform (16-bit or 32-bit Windows). Allows sound file editing, effects, loops and regions, playlists External samplers and sync to MIDI and SMPTE Time Code. Multiple window environment allows more than 50 sound files to be open at one time. Supports WAV, AIFF, Creative VOC, VOX, and Sound Designer SD1 files. Drag-and-drop, auto-snap to zero-crossings or time units for seamless, glitch-free editing

WAS £499
£299
WINDOWS 95

MIDIQUEST 6.0
Universal PC Editor Librarian
OVER 200 DIFFERENT EDITORS

MIDIQuest is the most powerful, flexible and comprehensive editor librarian around, with support for the widest range of MIDI devices including XP50, JV1080 series, Morpheus / UltraProteus, MU50, MU80, Quadraverb Plus / GT, Classic Keys, TD-7, KT76 / KT88, Korg X5, DPM3 and many others Driver upgrades are generally free of charge, so MIDIQuest will last for as long as MIDI is around ! It's a really good investment. New version comes on CD-ROM and is fully Windows 95 native (ie 32 bit)

RRP £285
£199
NEW PRICE

MIDI WORKSHOP
64 track MIDI sequencer
GREAT FOR BEGINNERS

Based on Passport's award winning Masterstracks Pro 6 (which scooped "Best Buy" in Future Music round-up, MIDI Workshop is the perfect sequencer for beginners, featuring a clear uncluttered user interface which conforms to windows 95 guidesiines, so it's ideal for people who've been using PCs for years MIDI Workshop features a graphic arrange page, Key Editor, Step Editor and reassignable volume faders for each track. MCI support for playing WAV files, Also includes basic notation editor - (users wanting proper scoring should look at MusicTime instead)
We're bundling MIDI Workshop with a free SoundBlaster™ type MIDI cable - everything you need to get started!

RRP £119
£49!
WINDOWS 95

SOUND EDGE
YAMAHA
SW20 Sound Card
FREE DIGITAL SEQUENCER

YAMAHA'S SW20 SOUND EDGE is the ultimate sound card for music, featuring Yamaha's clear and realistic OPL4 wavetable chipset (Not to be confused with the much older OPL3 FM chipset). A good choice for recording multi-track audio direct to hard-disk, the Sound Edge can play up to 16* stereo audio tracks simultaneously at up to 48 kHz. We're including Voyetra's Digital Audio version of MIDI Orchestrator Plus (RRP £129), which lets you record, edit and play digital audio and MIDI tracks side-by-side, similar to brand leading products Also - Digital Effects Processing, CD-ROM interface, MIDI interface (cable optional) Original RRP was £175

RRP £175
£89
WINDOWS 95

ROLAND SC7 bundle with Cubase Lite
COMPUTER MUSIC STARTER PACK

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DOD 512

Multi-Effects Processor

DOD's 512 combines value for money, simplicity, and flexibility. But does it deliver the necessary sound quality too? PAUL WHITE reports.

Simple-to-operate, budget reverb units are no longer a novelty, but DOD are really going for the entry-level user with their 512: it's very easy to use, provides plenty of stock effects, and is eminently affordable.

As you can see from the photo, the 512 favours the rotary switch approach for patch selection. Alesis pioneered this idea, and later added another switch, to access 16 variations on each of the 16 presets. DOD have taken this idea further, adding a bank switch, to double the number of options to 512 — hence the name of the unit. To increase flexibility, DOD have also provided a couple of controls, labelled Parameter 1 and Parameter 2, which access two key parameters for each effect type.

DESCRIPTION

Housed in a 1U case and powered by the familiar external PSU, the 512 has stereo inputs and outputs on unbalanced jacks, no MIDI, and no power switch. It does, however, have an integral (simple but functional) noise gate, the threshold of which is controlled by a screwdriver-adjustable pot on the rear panel. Separate knobs provide control of input/output levels and mix, and there's a simple LED metering system for setting the input level.

Electrically, the 512 looks quite impressive, with a 90dB signal-to-noise ratio, 16-bit/44.1kHz sampling, and a 20Hz-16kHz audio bandwidth. The input may be adjusted to accommodate both pro and semi-pro signal levels, though the input impedance is too low to use directly with a passive electric guitar.

The 32 basic effects combinations offered by the unit are accessed via the 16-way Effect switch and the Bank button, while a Preset switch selects between 16 variations. An additional switch position acts as a bypass mode. This works well, except for the tiny lettering around the Effect switch, which had me peering with a torch from about eight inches away!

Bank A holds 16 different single effects, comprising various reverb types, mono and stereo delays, chorus, flange, phasing, panning and pitch shifting. If a reverb, for example, is selected, the two Parameter controls mentioned earlier vary the stereo width and the EQ, and the 16 variations provide different decay times. In delay mode, you can control decay time (up to 740ms in mono mode), and regeneration, while modulation effects can have their rate and EQ controlled (though I rather expected that rate and *depth* would be controllable). There's also a pitch-shifter, which can be used either for detuning, or for pitch-shifting by up to an octave in either direction, in semitone steps. As with the modulation effect, EQ control is provided.

Bank B combines the modulation effects with either reverb or delay; the user can control delay/decay time, and the balance between the two effects.

PERFORMANCE

My feelings about the 512 are rather mixed: I like the operating system, and the modulation and delay effects are actually very good, but I find the reverbs disappointing in comparison with some other budget units. There's very little difference between the different reverb types, other than tonality and decay time, and all, to me, sound rather coloured or spring-like — usually a sign of insufficient processing power. The spring reverb emulation, on the other hand, is quite authentic. It's not that DOD/Digitech can't make good reverbs, because Digitech's pro products are exceptionally good — it's simply that high-quality reverb usually requires serious hardware, and the compromises necessary to achieve the low price of the 512 are starting to show.

If you already have a decent reverb unit and simply want good chorus, flange and delay combinations, the DOD 512 begins to look like a better bet, as all the modulations and delays are clean and crisp, with a nice sense of width. The pitch-shifter is also surprisingly well behaved for such a budget unit, though as ever, it still needs to be mixed with some dry signal to be really convincing. The octave-down shift is particularly clean and works well with vocals. Inevitably, there is some delay associated with the pitch-shift effect, but that's part of the deal if you don't want an unduly glitchy result.

CONCLUSION

The verdict has to be that the 512 is a pretty good all-rounder for the money, with its reverbs being the only area of obvious compromise. If your main need is for a reverb, look elsewhere. Alternatively, if you can stretch to the extra £50, the Digitech Studio Twin (see review in September's *SOS*) still keeps the cost under control but improves on the reverb quality. But if you simply want a basic second effects unit to add to your flexibility, the 512 is worth listening to.

pros & cons

DOD 512 £199.95

pros
- Inexpensive
- Easy to operate.
- 512 different presets with basic parameter control.

cons
- Perfunctory reverb.

summary
A useful budget effects unit let down only by its rather lacklustre reverb.

SOUND ON SOUND

info

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Audio-wise it's a killer - Ghost features Soundcraft's new ultra-low noise mic amp with a whopping +60dBu input sensitivity, and of course legendary Soundcraft 4-band EQ with 2 fully parametric mids is included as standard. There are also 6 mono and 2 stereo aux sends, 4 stereo returns and Mix B path on every channel (giving 56 possible inputs on the 24 channel version). A really superb build quality completes the picture.

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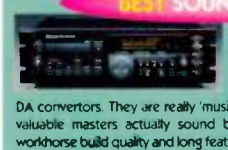

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WHICH ONE? THAT'S THE QUESTION

The two entry level hard disk workstations on the market are the Fostex DMT8 and Roland's VS880. Both cost £1499 (less at R&W!). But which one's right for you? • Here are some pertinent facts to help you decide: •

The Roland VS880 has a digital mixer with automation • The Fostex DMT8 has a friendly and familiar analogue mixer • The Roland needs a 2.5" hard drive at extra cost • The Fostex comes with a 540mB hard drive as standard (and this drive CAN be upgraded) • Both units have digital ins & outs, but only the Fostex allows direct in/out to/from its hard drive • The Roland uses data compression to squeeze audio onto its hard drive (this adversely affects its sound quality) The fostex DMT8 does not use data compression.

Whichever you decide, one thing's for certain - you'll get the best deal on either machine from R&W.

R&W & MARANTZ CD-R LEAD THE WAY

"Everything you've ever wanted in an audio CD-Recorder." That's the verdict on the CDR-620 and CDR-615 from Marantz. The ultimate (and increasingly preferred) mastering format is now Compact Disc. So if you're mastering from a Digital Audio Workstation you'll need the SCSI-equipped CDR-620 (with its FREE RC-620 Remote) or else a standalone CDR-615. Now is the time to buy Marantz CD-R from R&W - one of our hottest tickets.

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Following on from our success at Audio 96 with Soundscape's DAW for the PC, R&W now have two in-house specialists handling their busy Soundscape sales activities.

"We have been watching developments of this DAW for some time", explains R&W's Phil Darke, "because we see the PC/Windows platform as the future. What's so good about Soundscape is that it costs around the same as a fast Pentium, but it does everything the expensive leading Mac-based systems can do. You can drive it from a lowly 486 (or even an old 386!), and it's so completely stable we just can't get it to crash."

Soundscape is available in 8-track modules and can build to up to 128 tracks. It's perfect for every production and post-production purpose.

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The new DA38 Hi-8 Multitrack is here. Here are the differences from it's stablemate, the DA88?

• Improved on-board converters • Internal Track Bouncing & Track Delay facilities • Built-in Test Tone Oscillator. It will also slave to a DA88, but DA38 will only sync via a DA88, not on its own. R&W continue to be the UK's foremost supplier of this tape format, the preferred choice of the professional user.

PANASONIC IMPROVE

When pure audio performance is what you're after we have long considered two DAT recorders to be worthy of serious consideration, the Tascam DA30 Mk2 and Panasonic's now defunct SV-3700. But their new SV-3800 improves on its predecessor's performance even further. And at lower cost. Just listen to its new D-A and A-D converters! It's a practical DAT too - with a shuttle wheel multiple digital interfaces. Just a few reasons why the SV-3800 is selling so well at R&W right now. And we'll guarantee it for not one, but TWO years to give you that extra little bit of confidence & assurance.

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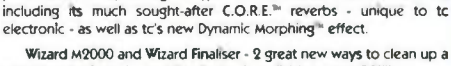
tc's SECOND WIZARD IS HERE



Hot on the heels of Wizard M2000, tc's new £1639 digital multi-effects processor, comes the second in their Wizard series. It's tc's brand new Mastering Dynamics processor and it's called 'The Finaliser'.

Based on the legendary MD2 Dynamics Package for tc's flagship M5000 Digital Mainframe, the Finaliser will let you do things you didn't think were possible to your final mix. And for only £1995. Stunning.

Meanwhile, the Wizard M2000 continues to sell in large quantities because it has quickly become the number one in serious multi-processors. Incorporating many, if not all, of the tc M5000's virtues, including its much sought-after C.O.R.E.™ reverbs - unique to tc electronic - as well as tc's new Dynamic Morphing™ effect.

Wizard M2000 and Wizard Finaliser - 2 great new ways to clean up a muddy sounding mix. And they're both available now at R&W.

BEST VALUE FOLIO SELLING WELL

The latest addition to the unbeatable Folio range from Soundcraft has taken off! No surprise because it's a corker. 20 inputs (12 mono & 4 stereo) into 4, with direct outputs from channels 1-8 for multitrack recording. Great EQ section ("*Real British EQ*" as Soundcraft put it). This desk must be heard to be believed. The perfect budget console for both live and studio use. Worth serious consideration.

~~Folio-SE is here. Now £2199 at R&W~~

BEST FOSTEX VALUE AT R&W

Take the concept of ADAT one step further. Throw out the tape. Put in a hard disk. Make it modular so multiple machines can be slaved together to build into 16 & 24-track systems. What've you got? Yes, it's the new Fostex D80 with its up-to-40 minutes of simultaneous 8-track recording in CD-quality on removable, IDE caddy-held hard disks. What's more, it's got a removable front panel Remote Control providing access to all functions including cut, copy, paste & move editing. The D80 even interfaces with the excellent Fostex DTM8 (see panel left).

~~For £1499 inc. VAT the D80 comes with one 850Mb (!!) hard disk to get you going. At R&W we'll either give you another hard disk FREE or else sell the D80 to you for much less than the list price (Double!). The choice is yours.~~

Yamaha 02R Digital Console

AMAZING FEATURE LIST

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2 NEW MiniDisc PORTASTUDIOS

Yamaha & Tascam, the inventor of the cassette Portastudio, have now taken the concept onto the MD (MiniDisc) format. With the triple advantages of digital multitrack recording on cheap and very small, portable media, these two 4-track machines are set to become the new face of entry level recording.

Both units allow up to 37 minutes of 4-track recording per disc (more than a C60 cassette), and provide comprehensive mixing and MIDI features. The are the basics - Tascam 564: 8-inputs, 3-band sweep EQ, Shuttle search, Bounce Forward, MTC out & MIDI Clock. Yamaha MD4: 4-inputs, 3-band EQ, MTC out, Quick Locate, flexible editing, clear LED control display. Only the Tascam has a digital out.

Official costs are £1099 for the Tascam 564 and £899 for the Yamaha MD4.

MACKIE 8-BUS MAGIC

The thing that immediately impresses you on first sight of a Mackie 8-bus console is its build quality. No doubt about it, this is one of the reasons Mackie is the first choice for a huge number of professionals on a budget.

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Spirit Folio Notepad

10-Input Micro Mixer

After finally discovering this little mixer almost lost amongst its own packaging, PAUL WHITE puts it to work.

If Fisher-Price ever made a child's mixer, it would probably look something like Spirit's Folio Notepad. It's incredibly small, but the designers have managed to cram lots of features into a space no bigger than a mouse mat — four mic/line channels with switchable phantom power, two stereo line/record deck channels, a stereo effects return, and a stereo tape input.

Moulded from an alarmingly lilac shade of plastic, with an integral carrying handle, the Folio Notepad has a distinctive curved styling.

Power comes from an external adaptor, and the whole caboodle weighs less than 1.5kg. Car battery use is possible using Spirit's optional Portapower pack, and a stand adaptor is available, so you can mount the mixer atop a mic stand.

CROSSING THE CHANNELS

Each of the mic/line channels has a balanced XLR mic input and a balanced jack line input. This is followed by an input Level trim control; 2-band bass/treble EQ offering 15dB cut/boost; an effects send pot; a pan pot; and a volume pot. As the Notepad's whole channel strip is no longer than a decent long-throw fader, you can see why volume pots have been used here.

The two stereo channels are accessed via phono inputs, which are switchable to accept a line-level signal from an instrument, or the output from a record deck fitted with a magnetic cartridge. There are no EQ controls on the stereo inputs, but you still have an effects send, a balance pot and a volume control. Unusually for such a diminutive mixer, both a stereo mix output and a separate monitor amp output are provided, the latter on phonos.

The monitor source can be switched between the stereo mix and a stereo Tape return, also on phonos. The Tape input has its own separate Volume control, and level controls are also available for the Effects Send master, the Master Mix and the Monitor Amp/Headphones. Sadly, you can't route the Tape input into the stereo mix to grab an extra couple of inputs.

Phantom power is provided globally for all four mic inputs; a red LED reminds you when this is switched in. The adjacent green LED shows the Notepad is powered up. Finally on the flashing light front, basic master stereo metering is provided by a pair of LEDs, amber showing average levels and red showing peaks.

NOTEPAD IN USE

Though this is a simple and visually 'jolly' mixer, that doesn't mean you should dismiss it as somehow inferior. It doesn't have insert points, but other than that, it's a serious mixer in microcosm. For example, the EIN (a means of describing the amount of full gain mic amp noise as an equivalent noise source fed into the input), is -128.5dBu, which equals Spirit's top-end consoles, while the audio bandwidth is flat within a dB from 20Hz to 20kHz. Crosstalk is a reasonable 90dB, and the total harmonic distortion is just 0.005% or less.

Signal levels up to +18dBu can be accommodated, and while this isn't quite as high as a pro mixer, it still leaves adequate headroom for working at +4dBu operating levels. All the jack inputs may be used balanced or unbalanced, and the main output is actually impedance-balanced, which offers many of the benefits of true balancing without the inconvenience of losing half your signal level if you work unbalanced.

pros & cons

SPIRIT FOLIO NOTEPAD £199

pros
- Inexpensive.
- Straightforward.
- Good audio quality.

cons
- Rudimentary metering.

summary
A practical toolkit of a mixer with loads of uses. Could even double as a frisbee!

SOUND ON SOUND

Because there's no PFL system, you have to set up input levels by first ensuring that the channel knob and master output knob are at 0dB, then adjusting input gain so that the amber meter LEDs are flashing but the red peak LEDs aren't. Failure to observe this nicety can result in audible distortion.

For a 2-band affair, the tonal control range of the Folio's EQ is very reasonable; enquiries revealed that the EQ frequencies are the same as those used in the rest of the Folio range of mixers.

CONCLUSION

The Notepad is a very simple, neatly designed mixer that cuts corners on features rather than audio quality. It's a useful tool for small-scale live performance, for adding extra inputs to a larger console, or for augmenting a small recording setup based around a Portastudio (and you can patch two Notepads together to increase the number of channels available). It would also make a good keyboard mixer, providing you don't have a lot of outputs to mix, and having a turntable input makes the Notepad ideal for mixing material from vinyl, while for live recording direct to DAT, the high-quality mic amps deliver full 48V phantom power. If small is all you need, the Notepad delivers. SOS

info

£ £199 inc VAT.
A Spirit by Soundcraft, Cranborne House, Cranborne Industrial Estate, Cranborne Road, Potters Bar, Herts, EN6 3JN.
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Joe Meek VC3 Pro

Preamp/Compressor/Enhancer

The Joe Meek Pro Channel is priced within reach of almost every studio owner, yet it delivers the same kind of classic sound as its bigger brothers. PAUL WHITE is introduced to the baby of the Joe Meek range.

Many of you will already be familiar with Joe Meek processors since our reviews of the Stereo Compressor (August issue) and the Voice Channel (September '95 issue). The Joe Meek range is actually the brainchild of Ted Fletcher, who studied the home-built circuits Joe Meek used back in the '60s, then brought them up to date to improve their noise performance, reliability, and stability. These units are difficult to ignore, especially since they're painted the kind of green you normally only see after tap dancing on fresh caterpillars!

PRO CHANNEL CONCEPT

Built into an unassuming (aside from the colour), non-rackmounting metal box, the Pro Channel is a single-channel processor with three stages: a mic/line preamp, a compressor, and an enhancer. The unit may be used instead of a mixer channel for sending a signal directly to tape, or it can be fed into a regular mixer channel.

According to the designer, the Pro Channel's circuitry features a wider than normal frequency response to maintain phase linearity, and it also provides a lot of headroom. With the benefit of switchable phantom power, the transformerless input stage can accept either balanced mic ins, via the rear-panel XLR, or unbalanced line inputs, via a conventional instrument jack. An insert point is also fitted, enabling further processing to be placed in-line, directly after the input preamp. An additional jack provides a means of mixing an external line input with the unit's main input, prior to compression and enhancement.

As you'd expect, the compressor section is based on the Joe Meek design used in the previous boxes bearing his name: this circuit uses an LED and photocell as a gain control element, with certain feedback techniques used to speed up the normally slow response of the photocell. This rather outdated way of controlling gain is one of the secrets of the vintage compressor sound — some compressors you buy because you can't hear them working; this one you buy because you *can* hear it working. Obviously, you don't get quite as many features as you'd expect to find in a stand-alone compressor, but switchable Fast/Slow attack, variable Release, and variable Compression controls, plus a Bypass button, are all provided. In most situations, this will be quite sufficient.

SETTING UP

Because this is a soft-knee style of compressor with a progressive ratio, there's no need for a separate ratio control. Furthermore, the compressor metering system has been stripped to the bare bones, so instead of the familiar gain reduction meter, you get a single LED. As you turn up the Compression control, the LED will start to flicker, and this is usually around the right setting. After that, you have to adjust by ear.

The final, and perhaps most unusual, section of the Pro Channel is the enhancer, which seems to combine the controls of a conventional enhancer with a parametric EQ. The Drive control sets the level of a filtered signal fed to a separate compressor inside the enhancer circuit, while the 'Enhance' control sets the amount of processed signal mixed back in with the original. To change the character of the processed signal on which the circuit operates, the user has access to a Q or bandwidth control, linked to the filter circuit. A basic, 5-LED level meter monitors the signal prior to the output level control (two separately buffered, but otherwise identical, outputs are provided on unbalanced jacks). Setting up the enhancer involves turning the Drive control until the Enhance LED lights briefly on signal peaks, and using the Enhance control to set the intensity of the effect.

For those unfamiliar with enhancers, the process adds a sense of brightness and transient detail that EQ often fails to

pros & cons

JOE MEEK PRO CHANNEL £299

pros
- Easy to set up.
- Powerful, up-front compressor sound.
- Effective enhancer.
- Sensible cost.

cons
- Very basic metering.
- Unbalanced outputs only.

summary

If you like the compressed vocal sound of classic rock recordings, you'll probably love the Pro Channel.

SOUND ON SOUND

Channel

achieve. Different enhancers work in different ways, but this one seems to work by selecting existing high frequency information, then compressing it to increase its average level. The Q control has to be set by ear: the higher the Q, the more the high frequency harmonics appear to 'hang on'.

AUDIO TEST

Judging a device such as this has to be almost entirely subjective — after first determining that the circuitry is adequately quiet and introduces no obvious distortion, of course. As with the other Joe Meek products, the compressor section is where the serious magic happens: if you compress heavily using a shortish release time, you can get right to the verge of level pumping, which produces a warm, very tight vocal sound with loads of punch. Though this unit is marketed primarily as a vocal processor, its compressor section also works brilliantly on acoustic guitars, basses and rock drums.

The exciter section is also most effective. By turning the Enhance control fully up, you can hear exactly what the Q control is doing, and once the Q is set to produce a subjectively pleasing result, you can back off the Enhance knob to reach a more realistic setting. I found the mid-way Q setting to be about right for most material. At this setting, the effect is to sharpen up high frequency detail without making the sound too harsh, but if you want to get nasty, as you may do when trying to clarify sloppy drums, you can try a higher Q setting. Gentle enhancement combined with tough compression really makes a rock vocal kick out of a mix, whereas to sharpen up drums, you might want to use the slow compressor attack in combination with a higher level of enhancement. The enhancement also adds definition to plucked instruments, working especially well on acoustic guitar and bright bass guitar sounds.

CONCLUSION

In the final analysis, the Pro Channel has the same warm, family sound as the other Joe Meek compressors, and the mic amp section seems well designed, with no apparent vices. The combination of front-end, compressor and enhancer is particularly useful for piping signals directly to tape (or disk), bypassing the mixer altogether, but the line-in facility also makes the Pro Channel a powerful post-recording tool. Indeed, I tend to compress only slightly when recording, then add more during the mix.

With today's emphasis being more on sound quality than gimmicks, the Pro Channel offers a good balance of cost and performance, and the processing it provides is usable at any level, from home enthusiast to serious professional. In other words, no matter how your studio progresses, it's unlikely that the Pro Channel will ever become obsolete. The only obvious corner cutting is the very basic metering and the fact that the outputs are unbalanced only — but given that this is the baby of the range, that's not too serious a compromise. If you want to be able to hear the compressor you've paid for, Joe Meek boxes won't disappoint, and the Pro Channel is no exception. SOS

info

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Francis Buckley EQ Magazine July 1996

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Tannoy System

Nearfield Studio Monitors

Tannoy's latest nearfields offer an updated version of their famous dual-concentric technology, while still retaining that distinctive Tannoy sound. PAUL WHITE test drives them.

While virtually every other loudspeaker manufacturer on the planet has settled for physically separate woofers, tweeters, and occasionally mid-range drivers, Tannoy have exhibited considerable tenacity in adhering to their original dual-concentric concept. For those unfamiliar with dual-concentric loudspeakers, the design is characterised by a horn-loaded tweeter mounted at the centre of the bass/mid driver. To improve the efficiency of the horn design, the bass/mid cone acts as an extension to the tweeter's own short horn. As with all the latest generation of Tannoy dual-concentric speakers, the tweeter incorporates an acoustic waveguide between the pressure transducer and the outside world, to force the tweeter into generating a spherical wavefront — the idea being to better control the directivity of the tweeter.

DUAL TO THE DEATH

Obviously, Tannoy haven't stuck with the dual-concentric principle out of blind intransigence: there are a number of well-documented benefits to this approach, the most important of which is that the speaker behaves as a point source of sound, ensuring that the high- and low-frequency components of the sound always arrive with the correct relative phase to each other, regardless of whether the listener is on or off axis. For nearfield use, this also means that the speakers can be used on their sides without compromising their performance. Furthermore, horn loudspeakers are more efficient than direct radiators, so a horn tweeter is able to produce more acoustic energy for the same input power.

Inevitably, every engineering approach has its disadvantages as well as its benefits, and in the case of dual-concentric speakers, the larger you make the speaker, the harder it is to make the woofer and tweeter frequency responses meet smoothly — and there's nowhere to put a mid-range driver. What's more, horn-loaded loudspeakers can suffer from phase problems caused by reflections and air non-linearities occurring inside the throat, resulting in a rather harsh edge to the sound, though even these can be minimised by careful design.

SYSTEM 600 DESIGN

The System 600s utilise a 6.5-inch driver, which is small enough to enable the woofer and tweeter elements to match up smoothly. The 'tulip' waveguide can be clearly seen at the centre, and the injection-moulded polypropylene cone is suspended in a high-compliance, nitrile-rubber surround.

The HF diaphragm is fabricated from aluminium and magnesium alloy to give it sufficient rigidity to work as a true piston to 25kHz. This is suspended in an inert, nitrile-rubber mounting with a very narrow roll surround to reduce resonance effects to a bare minimum. The tweeter voice coil is copper, chemically bonded to a Kapton former, and ferrofluid is used in the magnetic gap to aid cooling. A low compression ratio ensures minimal distortion from air compression effects, and the crossover frequency is at 1.8kHz. Apparently, a low-order crossover is used to ensure a smooth transition between the low LF and HF ranges, and because the drivers behave as a point source, the problems normally associated with overlapping frequency bands are much reduced. The shape of the LF cone profile continues the horn flare of the tweeter, and trim rings are used at the outer edge of the drive unit to help create a smooth transition from the horn flare to the flat baffle.

> "Judged as nearfield monitors, the System 600s present a good overall balance of sounds, with the proviso that there's no really deep bass."

The vinyl-coated MDF cabinet design is visually attractive and very solidly engineered — as you'd expect from Tannoy's highly advanced cabinet manufacturing plant. As well as looking distinctive, the cabinet shape also makes it very rigid, which helps counteract excessive cabinet vibrations. Chamfered corners are used to reduce cabinet edge diffraction, and the twin reflex ports are

600

filled with acoustic foam to fine-tune the cabinet damping.

The sum of all these parts is a passive, 2-way monitor weighing in at 7.5kg and measuring just 220 x 360 x 267mm. A single pair of terminals provides for bare wires, banana plug, or spade terminal connection, and nominal impedance is 8Ω, with a quoted sensitivity of 90dB for 1W at 1 metre. As far as power goes, the speakers are rated at 80W RMS average, or 160W RMS programme material. In practice, a good 100W (into 8Ω) amplifier seems just about right for them.

The rated frequency response of the System 600s extends from 52Hz to 20kHz, and judging by the curves, this is relatively flat within two or three dB either way, with the inevitable roll-off at either extreme. Distortion is quoted as being better than 0.8%, but as the conditions under which this may be measured were not provided, it doesn't mean very much. Dispersion is a creditable 90 degrees to the -6dB point.

TESTING TESTING

Judged as nearfield monitors, the System 600s present a good overall balance of sounds, with the proviso that there's no really deep bass, and such bass as there is sounds just a hint 'tubby' or constricted. This isn't unusual given the small physical size of these speakers, and in a home studio environment or traditional nearfield application, the bass extension is generally adequate. Removing the foam plugs from the bass ports brings about a slight improvement in the bass end and also seems to open up the overall sound a little.

A good test of monitors is to listen carefully to the vocals on songs that you know are well recorded — and finding a well-recorded song isn't always the simple task it ought to be. Here the System 600s behave quite well, with just a bare hint of edginess in the 3-4kHz area of the spectrum. Once again, this isn't serious, and the mid-range sounds a good deal more open and better defined than it did on some of the older generations of Tannoy monitor.

When the System 600s are presented with a complex mix, the slight edginess noticed on vocals becomes a little more pronounced, though to maintain some perspective, there are far worse behaved monitors in higher price brackets. Perhaps more serious is that complex mixes start to sound a little confused in the mid range, though the imaging remains better than average. At the top end, cymbals, snare drums and picked guitars are bright and detailed with only a hint of 'splashiness'.

VERDICT

Every pair of speakers ever built is a compromise, and the System 600s neatly avoid the worst of the old-fashioned, rather coloured Tannoy sound. Their strength remains in their stereo imaging and wide angle of dispersion, both of which are excellent. However, I'm not entirely convinced that the mid-range problems associated with dual-concentric speakers have been entirely eliminated, though the colorations are subtle, and most people will very quickly get used to them. Those with a history of working with Tannoy monitors will probably welcome the System 600s as an improvement on a classic design.

Given their price, these monitors perform pretty well in a nearfield context, and they have the benefit that they can be used 'landscape' rather than 'portrait' without compromising their excellent dispersion. They're also extremely well built. Having said that, there are an awful lot of conventional two-way systems out there competing for your money, and to my ears, some of these sound more transparent than the System 600s, and/or have a greater bass extension. Ultimately, if you're a Tannoy person, you're sure to like the 600s, but if you're not entirely sure, audition them alongside a selection of their competitors and hear for yourself how they compare. SOS

pros & cons

TANNOY SYSTEM 600 £447

pros
- Well engineered and sensibly priced.
- Good stereo imaging.
- Wide angle of dispersion.

cons
- Not as revealing of detail as I would have liked.
- Limited bass extension

summary
Nicely-presented nearfield monitors with a distinctively Tannoy family sound, rather than the completely neutral sound which would be ideal in a reference monitor.

SOUND ON SOUND

info

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Tascam M08

12-Channel Mini Mixer

Tascam are known for the quality and reliability of their larger consoles: now they've turned their hands to a super-mini mixer, which will have to slug it out with similar models already on the market. PAUL WHITE assesses its chances.

I must admit that I did a double take when I first saw this mixer — it's compact, it's mains powered, and it features four mono mic/line channels, plus four more stereo line channels, all with rotary knob rather than fader control. It also has square corners and it's grey! In fact, the only real surprise was that it didn't have 'Mackie 1202' written in the top right-hand corner. Instead, there's a tastefully embossed Tascam M08 logo. I've always had a great respect for Tascam mixers — indeed, I use one in my own studio — but I can't help wondering why the guys in Japan decided to build a competitor to the Mackie 1202 when that model has been superseded by the more sophisticated 1202VLZ. Not that this in any way detracts from the usefulness of this little mixer, or its exceptional value at under £300, but still...

DESIGN

Closer inspection reveals some differences of approach between the M08 and its obvious source of inspiration, but the basic concept is very similar. The four mic/line channels have balanced XLR and jack inputs, globally switched phantom power, and insert points, while the stereo channels have dual inputs on unbalanced jacks. All channels are equipped with a gain Trim control, two-band shelving EQ (operating at 12kHz and 80Hz), two Aux Sends, a Pan control, and a Level pot. On the stereo channels, the pan control functions as a balance control and is labelled accordingly, but one area in which Tascam have dropped a couple of points is in the aux send system: Aux 1 is dedicated pre-fade and Aux 2 is dedicated post-fade. There's no global pre/post switching for Aux 1, something which is now becoming a regular feature on other small mixers, though there is a useful overload LED which lights a few dB before clipping. If you want to use the stereo channels as mono channels, you can plug into the left input only; all channels are fitted with Mute and PFL buttons.

Unlike some small mixers, the M08 provides aux send master level controls as well as two dedicated, stereo aux returns on unbalanced jacks, and these, too, have level controls in the Master section. Provision is made for using a 2-track tape machine, which, as with the Mackie, may be used either for mastering, or may be routed into the stereo mix to add taped effects to a live performance. A monitor level control regulates the headphone output level, and the stereo master level is controlled by a single, stereo Master fader rather than by a knob. A high-resolution stereo bargraph meter with a delayed peak hold feature gives the master section a very professional look, while a red PFL LED lets you know if any channels have their PFL buttons down. When a channel PFL is pressed, the channel level is brought up on the main meters to facilitate accurate Trim setting.

> "If you need a very simple mixer which delivers professional quality at an attractive price, the M08 represents excellent value."

Stereo outputs are on both phonos and balanced jacks, while further phono inputs provide a way into the aux busses and the stereo buss, as well as accommodating the 2-track returns.

pros & cons

TASCAM M08 £299

pros

- Excellent EQ.
- Professional metering.
- Rugged, uncluttered construction.
- No external PSU.

cons

- Facilities are very basic.

summary

A good value mixer for anyone needing to do very simple mixing jobs without compromising on audio performance.

SOUND ON SOUND

OPINION

The M08 is a very straightforward little mixer, well suited to small PA work, keyboard mixing, small MIDI setups, or direct-to-stereo recording. At under £300, it'll cost you about the same as a couple of modest mic preamps in a rack, so it makes a lot of sense, both for live recording or as a front end to a hard disk recording system.

Direct feeds may be taken from the channel insert points or via Aux 1, and for multitrack recording work, this means you could, at a pinch, squeeze a maximum of seven independently controlled outputs from this little mixer.

Operationally, the M08 works smoothly and efficiently, marred only by slightly wobbly control knobs. All mixers using this type of construction have the pots fixed directly to the circuit board, not to the front panel, and if the bushing between the knobs and the panel itself is not snugly fitting, some lateral movement is inevitable. There's not enough movement to cause reliability problems — it's just a little irritating from the the tactile point of view.

Electronically, the M08 is quiet and neutral sounding, with well-behaved, reasonably sensitive microphone inputs. The EQ is particularly good, with the High EQ just picking out the right degree of sizzle, and the Low control underpinning the bass end without sounding flabby. In truth, the EQ is probably the only area in which the M08 differs significantly from its competitors. For all the claims of radical technology, new circuitry, and fancy construction methods, all well-designed mixers of this type and size are pretty close when it comes to noise and distortion performance.

CONCLUSION

It seems that the mini mixer marketplace just keeps on expanding, which means lots of consumer choice and keen prices. If you need a very simple mixer which delivers professional quality at an attractive price, the M08 represents excellent value. The metering and quality of EQ are better than average, but there's a lot of competition out there, some offering more flexibility by way of routing or aux send switching. However, if basic mixing is all you need, I don't think you'll be in any way disappointed by the quality of the M08. SOS

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Spatializer HTMS 2510

3D Sound Processor

PAUL WHITE experiments with mind expansion '90s style, and discovers no harmful side effects!

A number of low-cost, so-called 3D sound systems have appeared on the market recently, mainly aimed at those setting up home cinema systems or playing computer games. These systems vary in cost and effectiveness, but because they're built for a mass market, they're very cheap compared with pro-audio equivalents.

The Spatializer HTMS 2510 was created by the company responsible for the *Spatializer* TDM software for Pro Tools TDM systems, and as far as I can tell, it works on the same principles as the software, to give a 3D effect to the material being processed. Physically, the Spatializer unit is about the size of a typical rackmount box, but without the mounting 'ears', and is designed to operate at a nominal 4V signal level, making it compatible with -10dBV systems; +4dBu users need to be aware that they will have very little headroom, though having said that, I ran the Spatializer using my +4dBu insert points without any problems. The audio ins and outs are on phonos, and a second pair of switchable inputs is fitted so that you can switch the processor from TV to hi-fi. Power comes from an external adaptor.

SPACE ODDITY: ANALYSING THE SPATIALIZER

No precise description of the Spatializer's processing method is provided, though the documentation says that aural cues normally suppressed in conventional stereo recordings are restored by the process. There are only so many ways in which this can be done, and all involve filtering off-axis sounds, introducing phase shifts between the two channels, or both. This particular system shows signs of directly out-of-phase L/R components when connected to my phase meter, but there's also a lot of frequency domain manipulation going on. The design also probably includes some kind of intelligent processing, because previously expanded material isn't over-processed, and central dialogue sounds aren't allowed to become swamped.

THE CONTROLS

The Spatializer's control system is incredibly simple. Essentially, the effect is either bypassed or on, with three switchable effect 'levels' accessed from the front panel. A large, green, sci-fi style indicator displays three concentric LED semicircles, and the number of arcs lit indicates the process setting. There's no dynamic display or metering of any kind, but a supplied cordless remote allows you to adjust the effect without leaving the listening position. A further button adds extra bass for the benefit of those who think that too much bass is the same thing as hi-fi sound quality; this is best left firmly in the 'off 'position.

THE EFFECT

The hype that comes with the Spatializer box sounds pretty much like the claims made for almost every other 3D processor, but I'll tell you now that this one really works. I tried it on a few mixes, and as soon as I pressed the 'On' button, sounds and effects panned left and right moved way out beyond the speakers, and sounds which were previously buried in the mix seemed to find a space of their own in which to exist. The process isn't entirely tonally neutral at the highest settings — there seems to be a low-mid boost which warms everything up quite noticeably — but this isn't a violent tonal effect and can be compensated for by rolling off the low end a little. More surprising is the fact that the effect has good mono compatibility, a further indication that equal and opposite components are added to the two outputs. When you switch to mono, these components cancel, leaving the original signal. This effect seems to work particularly well on orchestral sounds, where a real concert hall ambience is created, even without reverb or delay. If there's reverb in your original mix, it wraps right around, and although the system fails to position sound behind you, it does have you looking to the sides on occasion.

pros & cons

SPATIALIZER HTMS 2510 £250

pros
- Relatively inexpensive.
- Staggeringly effective stereo expansion.
- Simple to use.

cons
- Phono, -10dBV connections.
- No level metering.

summary
The Spatializer is sheer magic on a stick — I must possess it!

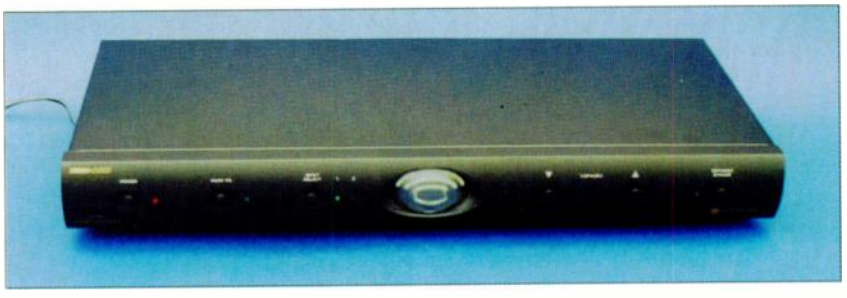
SOUND ON SOUND

THE VERDICT

This box is aimed at home entertainment, and is capable of making a dramatic difference to a stereo TV soundtrack. In the studio, used with care, it can add a completely new dimension to music: I think it would be fair to say that the effect it produces is comparable to what you'd expect from the big-money pro systems.

Though you can simply process your whole mix, I'd be more inclined to patch the Spatializer into a couple of mixer group inserts, to process selected instruments and effects returns. This maintains contrast and avoids the possibility of tonal changes on sounds that don't need widening.

At under £250, the Spatializer is a bargain, and as far as I'm concerned, it's a must-have box in that I must have one! I'd be happier if a recording Spatializer was available, operating at +4dBu with jacks instead of phonos, but in the meantime this one will do just fine. SOS



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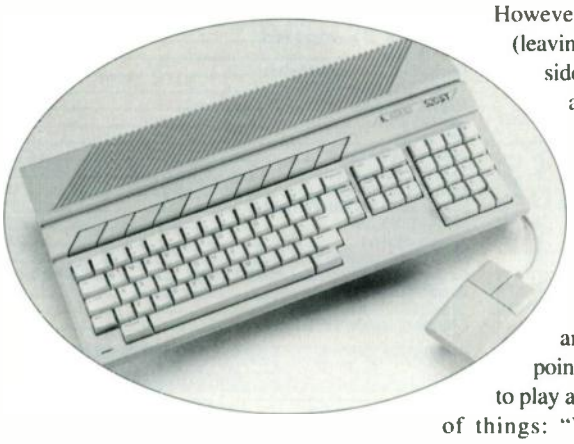
WRH

The ST is Dead: Long Live

These days, you can pick up an Atari ST computer for under £100, and its once-guaranteed studio ascendancy is seriously threatened by the Mac and PC. PAUL WARD checked out all the alternatives when upgrading his computer, and decided to stick with the faithful ST. Here he explains why.

There seems to be a great deal of doom and gloom surrounding the Atari ST these days. My clunky old 1Mb STM machine with external floppy drive has served me well for the best part of a decade, but recently I too started to succumb to the allure of a newer, faster machine and the exciting prospect of integrated hard disk recording. I looked at the possibility of the PC, Macintosh and Falcon as my next potential studio workhorse, and carefully sifted my way through the information packs and multiple magazine reviews.



However, it quickly became clear that (leaving aside the hard disk recording side of things for the moment) the amount of money I would need to spend in order to achieve merely comparable results to my old ST seemed unreasonably high. The newer operating systems place extremely heavy demands on the hardware they are designed to run on, to the point where the applications appear to play a very minor part in the scheme of things: "Well, sir, you really need Windows 95 to take advantage of the next generation of applications, so you'll be needing a 100MHz Pentium with at least 16Mb of RAM and a 1Gb hard drive..."

And what of the Falcon? Well, I have to say that I remain unimpressed by the quality of the audio from the Falcon's own outputs. And by the time a decent digital interface and separate audio outputs had been factored in, the costs were beginning to escalate alarmingly.

It was time to make some tough decisions. After sitting and chatting with myself over a couple of capuccinos, I discovered that I was misleading myself somewhat. OK, so we'd all *like* the added flexibility and increased audio quality of hard disk recording, but do we really *need* them? Sheepishly, I had to admit that I was the victim of techno-lust!

THE NEEDS OF THE ONE...

Most of the music I make is played 'live' from my keyboards and sound modules. When guitar or vocal parts *are* required (probably in less than 50% of the pieces I produce), I record these to my stalwart Tascam 38 8-track recorder, with MIDI synchronisation provided via an XRI SMPTE generator (God bless MIDI Time Code!). For much of the time, my Tascam remains unpowered, and as a consequence has a great deal of life left in it — at least as far as head wear and transport fatigue are concerned! Over the last couple of years, I've taken to recording 'acoustic' instrumentation into my sampler, saving versions as I go along until I either have the perfect take, or can build it from two or more nearly-perfect takes. Either way, the end result then goes onto the Tascam. The quality may not be up to digital standards, but the tape tracks play a minor part in my own style of music — who would notice the extra fidelity on a distorted guitar overdub anyway?

So what did I do? Well, I went out and bought a new computer — an Atari STe! After a few phone calls to suppliers I eventually came across one, Keychange Music Services, who was not only prepared to help, but actually understood the thought process that had lead me back to the ST. After the exchange of questions, advice and information, I had a much clearer idea of what I needed.

HARD TIMES

I ordered a new 105Mb SCSI hard drive, plus the requisite specialised cable which allows the Atari to make use of it. As far as the hardware is concerned, there is very little in this setup to concern even the most timid of users. Simply connect the hard drive's power cable, plug the SCSI cable between the ST and the drive, and

the ST!

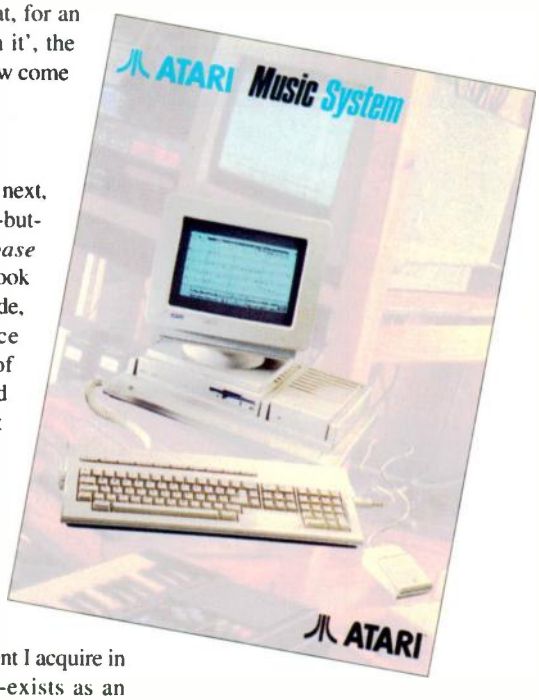
or 'How I learned to stop worrying and love the Atari'

power up. Keychange were happy to format the hard drive for me, and there was nothing else for me to do other than install my application software. Due to restrictions in the specification of SCSI drives, the ST needs to be booted twice (just press the reset button) to allow the drive to be accessed. The automated solution for this is a program called *Coldboot*, which simply sits on a disk in the Atari's internal floppy disk drive and keeps on re-booting the ST until the hard drive responds — whereupon the hard disk boot takes over. Slightly inelegant, perhaps, but no trouble at all once in place — just switch on and wait a few seconds.

The addition of a hard drive to the ST means much more than an improvement in saving and loading times. Tools and accessories that were hidden at the back of your disk box are now constantly at your disposal. The number of accessories or AUTO folder programs is no longer restricted by available space on a floppy disk, or by the necessity to copy the same programs across all of your boot disks. Your machine will be configured in just the way you like, and with the tools and accessories you specify, each time it is switched on. If, like me, you have always struggled along with floppies in the belief that, for an ST, a hard drive just 'wasn't worth it', the low price of adding one may also now come as a pleasant surprise.

SOFT SOLUTIONS

An upgrade to 4Mb of memory came next, allowing me to plug in all those cute-but-not-so-little accessories and *Cubase* modules that I had always liked the look of but never had the capacity to include, for both memory and disk space reasons. I use an excellent piece of librarian/database software called *Chameleon* that enables me to not only hold SysEx data for all my existing instruments and processors (and search for them by name or criteria, such as 'soft', 'metallic', 'favourite', or the like), but also has its own programming language with which I can write SysEx transfer routines for any new equipment I acquire in the future. *Chameleon* happily co-exists as an accessory alongside *Cubase*.



ST SERVICES DIRECTORY

The number of dedicated Atari ST supply, service and spares outlets isn't as high as it once was, but there are still plenty to be going on with. Here's a list of companies who can help you expand your ST and keep it running:

REPAIRS, SUPPLIES & UPGRADES

- Analogic Computers, Unit 6, Ashway Centre, Elm Crescent, Kingston upon THames, Surrey KT2 6HH. Tel: 0181 546 9575. *Atari spares, repairs, upgrades, hard drives.*
- Fast Computers, 142 Tanner Street, Tower Bridge, London SE1 2HG. Tel: 0171 252 3553. *Mail order repairs and upgrades.*
- First Computer Centre, Unit 3, Armley Park Court, Stanningley Road, Leeds LS12 2AE. Tel: 0113 231 9444.
- Gasteiner, 126 Fore Street, Upper Edmonton, London N18 2XA. Tel: 0181 345 6000. *A range of upgrades and extras for the Atari ST and Falcon.*
- HiSoft Systems, The Old School, Greenfield, Bedford MK45 5DE. Tel: 01525 718181. *HiSoft is home of the venerable* Replay 16 *16-bit SDS-savvy sampler/editor. HiSoft also supply some great productivity tools, including the* Papyrus Gold *word processor and* Lattice C *programming environment, plus CD-ROM drives and Iomega Zip drives with Atari driver software.*
- Keychange Music Services. Tel: 01925 266120. *Atari spares, repairs and upgrades.*
- The Upgrade Shop, 37 Crossall Street, Macclesfield, Cheshire SK11 6QF. Tel: 01625 503448. *Upgrades, monitors, hard drives, repairs.*

PD & SHAREWARE

The Atari public domain/shareware scene is not nearly as moribund as might be expected. There are plenty of libraries out there, run by enthusiasts and supplying some rather good software for a minimal outlay - and that includes a wide range of editor/librarians, other musical applications, and banks of sounds. Here's a quick list of a few to get you started.

- 16/32 Systems, 173 High Street, Strood, Kent ME2 4TW. Tel: 01634 710788.
- Caledonia PDL, 250 Oldtown Road, Hilton, Inverness IV2 4PT. Tel: 01463 225736.
- FAST Club, PO Box 101, Notingham NG2 7NN. Tel: 0115 945 5250.
- Floppyshop, PO Box 273, Aberdeen AB9 8SJ. Tel: 01224 312756.
- Goodman PDL, 16 Conrad Close, Meir Hay Estate, Longton, Stoke on Trent, Staffs ST3 1SW. Tel: 01782 335650.
- LAPD, PO Box 2, Heanor, Derbyshire DE75 7YP. Tel: 01773 761944.
- MIG Music, 55 Angel Hill, Sutton, Surrey SM1 3EH. Tel: 0181 641 6808.
- Music Domain, Beaufort, Glencople, Dumfires DC1 4RD. Tel: 01387 770429
- Riverdene PDL, 30a School Road, Tilehurst, Reading, Berks RG31 5AN. Tel: 01734 452416.
- Tumblevane PDL, 6 West Road, Emsworth, Hampshire PO10 7JT.
- Westec MIDI Market, 30 Fish Street, Goldhanger, Maldon, Essex CM9 8AT. Tel: 01621 788466

ST SHOWING OUT

Every computer platform has its exhibitions and shows, and the ST is no exception. In fact, Goodman PDL are running a pair of Atari Shows on Saturday the 28th September, at the Birmingham Motor Cycle Museum, and Sunday the 29th September at London's Osterley Hotel (near Osterley tube station on the Piccadilly Line). Both shows run from 10am to 5pm, and cost £3 for adults and £1 for children under 12. A good selection of suppliers and PD libraries will be in attendance. Contact Goodman PDL (see above) for further details. Incidentally, Goodman have also bought up the remaining stocks of Steinberg's venerable *Pro 24 v3* Atari sequencing software, and can supply it for the tasty price of £14.95.

Derek Johnson

Long Live the ST!

ST SOFTWARE: NETTING THE FREEBIES

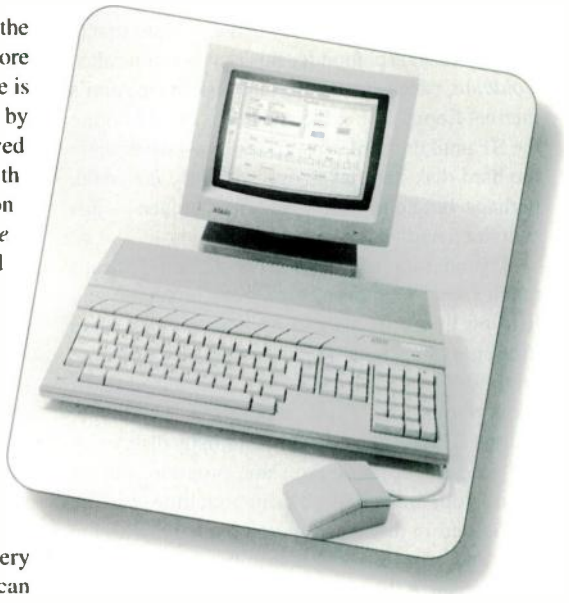
If you're not already sorted as regards email and the Internet, the addition of a modem and some basic Internet software is a perfectly reasonable proposition for the ST. I have to admit that this is not a priority for me, since I use an equally ageing PC for this task, but the capability is there. Once you're connected, a quick scout around the Internet soon yields a healthy supply of support software for the ST. I came across lots of useful stuff, including:

- A program to order the running of programs held in the AUTO folder.
- A utility to enable all desktop accessories to be held in their own 'ACCS' folder.
- A copy of *ST Tools* to help me keep my hard drive tidy and optimised.
- A copy of *ST2DOS*, which makes your standard Atari ST-formatted disks readable by a PC.
- *Dump-It*, a utility that permits the ST to make use of those .SYX SysEx files which crop up regularly on Internet ftp sites.
- An up-to-date copy of *Cubase* and its associated drivers (this is completely legit, by the way, as you naturally can't use it without your dongle).

Amongst other bits and pieces I downloaded, I also found a 19-inch screen emulator for the standard 12-inch Atari monitor, and a German to English translator! Here are the web addresses to check out for Atari-related stuff.

- Steinberg/Cubase:
  http://www.midifarm.com/steinberg/
  ftp://ftp.mcc.ac.uk/pub/music/cubase/
- Links and a list of the best utilities:
  http://www.mcc.ac.uk/~dlms/atari.html
- Utilities:
  ftp://micros.hensa.ac.uk/micros/atari/
  ftp://src.doc.ic.ac.uk/packages/atari/
- Other useful Atari-based sites:
  http://www.tripnet.se/~mille/pdman/601.html
  http://www.ccn.cs.dal.ca/Services/PDA/atari.html

NVDI is a program that replaces many of the ST's screen handling functions with faster, more efficient code. Once it's in place, the difference is immediately obvious. Benchmark tests (written by *SOS*'s own Ofir Gal, I should point out!) showed some of the ST's graphics routines running with a speed increase of more than 500%! Version 2.5 of *NVDI* is totally compatible with *Cubase* and makes much lighter work of moving around editor screens. *NVDI* gives the ST a much slicker feel, that belies its humble 8MHz processor speed. Installation is child's play — basically, you just copy one configuration file and a folder of system files to the root folder of your boot disk, move *NVDI* into your AUTO folder, and forget it!



LIVE AND WORKING

My 'new' ST system is a thing of joy. The very simplicity of the hardware is its strength. I can forget about card slots, interrupts, IRQ settings and megabytes of disk storage space dedicated to keeping the operating system up and running (yes, I *have* trodden the PC route in my time!).

But the most important thing is that my combination of Atari ST and *Cubase* still do the job I require of a sequencer. Perhaps I'm delaying the inevitable, and forgoing the delights of hard disk recording in the meantime, but the prices of replacement systems are falling all the time. I can wait.

Of course, I'm sure it won't be too long before I again look at the possibility of upgrading to a newer machine, but in the meantime I have a system that works perfectly well and costs me precious little to maintain. Since the ST is a 'dead' machine as far as games-players or business users are concerned, replacement STs go for a song (£60 seems to be the going rate for a 1Mb machine in my local free paper these days).

So don't despair of your Atari. If you're considering moving to a new computer, take a look at what you really need from your system and see if a couple of upgrades might be a better solution, at least in the mid-term. I'm not here to tell you that you can turn your ST into a PowerMac, but you could provide yourself with a much better working environment than you have currently, for a relatively modest outlay. For myself, I think any new machine that does arrive in my studio in the future is now likely to have to share its living space with an Atari ST for quite some time to come. SOS

THE ST: FOR AND AGAINST

IT'S GOOD BECAUSE...

- It's cheapest by far of the available options, and more than up to sequencing.
- You don't have to faff around with MIDI interfaces: MIDI's built in.
- The operating system's built in, so you don't have to wait for it to boot up.
- Because ST software writers had to work within strict memory limitations, ST software is all pretty efficient and mostly works within 4Mb of memory (or less).
- It's reliable. Most Atari users we've come across have had far fewer problems with their machine than PC or even Mac users.
- If you break one, you can easily pick up a cheap replacement.
- There are lots of add-ons and utilities available to improve its performance.
- A big plus for many is how the ST makes very little noise of its own in the way of disk drives or fans. This helps when miking up and provides a better working environment in any case!
- Adding a second MIDI output port is inexpensive.

ON THE OTHER HAND...

- It's not really suitable for hard disk recording.
- It's not made any more, though there are loads about second-hand.
- It can feel slow, and software is less sophisticated compared to the latest generation of Macs and PCs.
- Some add-ons are expensive compared to Mac or PC equivalents (but since the basic computer costs so much less...)
- Getting hold of mono monitors is a pain. The Atari ones are often hard to come by (and are often trashed) and the third-party replacements usually lack an internal speaker for the metronome. Standard PC/Mac monitors won't work.
- The limitation of double-density disks can be restrictive when all your other gear relies on high-density. It is possible to upgrade, but a non-standard ST could become a liability should you need to replace it.

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think ENSONIQ

Voyage of Discovery

EMU LAUNCH PAD MIDI CONTROLLER

Emu's Launch Pad provides a hardware control surface for the Orbit sound module, but can also be used with other MIDI gear. PAUL NAGLE finds out whether it's destined to become a springboard for many a successful mission...

When I first heard about the Emu Launch Pad, it was described as some kind of drum machine add-on for the Orbit dance sound module (see review in *SOS* June '96) complete with velocity-sensitive pads, MIDI sliders, and some cool ways of interacting with the Orbit's Beats mode (a simple, replay-only drum sequencer mode, for those who haven't read the Orbit review). Now that the Launch Pad has arrived, I can tell you that it's actually a combination of MIDI control generator, MIDI clock source, MIDI Machine Control and sequencer transport buttons, and pretty versatile note trigger. It *does* feature velocity-sensitive pads, as well as five sliders and a pitch wheel, and is intended to be placed in the MIDI chain between your main MIDI controller and the synth to be played, although this could be routed via a sequencer to record the output from the Launch Pad's sliders and other controls. The back panel features inputs for a MIDI switch and continuous controller pedal, plus MIDI In and Out. There's no Thru socket, since all incoming data is passed on unchanged, along with anything generated by the Launch Pad.

When the Launch Pad arrived with me, I was somewhat surprised by its compactness: just 325 x 195 x 40 mm, according to my trusty tape measure, but nevertheless solidly constructed, with a sexy curved metal front panel. A look through the slim 21-page manual revealed no hidden depths (or dimensions, hence the aforementioned tape measure) so I plugged in the obligatory external adapter (supplied) and set about tapping and sliding.

For the purposes of this review, I used an Emu Orbit as my sound source, but most of the facilities discussed apply equally to any synth with a reasonable MIDI spec.

HIT ME!

The drum pads are actually more like rather chunky computer keys, and are laid out in the form of a velocity-sensitive, one-octave, polyphonic keyboard (C3-C4). The pads appear to be designed for single finger strikes rather than elaborate flams or trills, and are no substitute for dedicated drum pads. I didn't feel confident enough to really let rip (and I'm not exactly Arnold Schwarzenegger, except perhaps in my command of the English language), because if I dug in too hard around the middle of the scale I could feel the underlying circuit board bending slightly. Two transpose knobs are used to shift the pitch of the pads, either in 12-semitone steps, or by a whopping nine octaves (five up and four down). A third knob controls the MIDI output channel, which is great for quickly sweeping through patches on each layer of a multitimbral synth. It's a pity that this MIDI selection doesn't affect incoming notes too: if you want to use a controller keyboard in conjunction with the Launch Pad, you must select MIDI channels on both devices to jump between voices in this manner. Channel selection affects all the Launch Pad's controls — including the sliders, switches, pads, and pitch wheel — except for the six transport trigger buttons.

CONTROL ME!

With its five assignable sliders, a sprung pitch-bender knob, inputs for both an on/off foot pedal and a continuous pedal, plus the cutely-named 'Thumby' switch, the Launch Pad is a veritable Swiss army knife for whittling out a real-time performance. This, of course, assumes that you have a synth capable of responding to such twiddling — such as the Orbit. An Orbit patch, for example, has four continuous controllers in its modulation matrix (including mod wheel), with each one routable to over 30 destinations. Sliders A-D on the Launch Pad, by default, produce the first four MIDI control messages — logically enough. However, the mod wheel duplicates the factory setting for slider A, so I reset it to controller 7 (volume) which was far more useful. Typical applications for the footswitch and Thumby would be to produce on/off events such as sustain (hold) or portamento, but you can just as easily pick other controllers too, for more unusual effects. Volume and pan are good candidates, allowing you to make sounds jump instantly from mute to maximum level, or suddenly move between left and right speakers. Equally serviceable is the continuous pedal input, although I'd have liked the option to generate channel aftertouch with it — especially as this is one modulation source which Emu synths will respond to but which can't be generated at all by the Launch Pad.

LAUNCH ME!

You can select programs, songs or patch banks using a simple increment/decrement system, or type in a patch number and go straight to it. For live use, you might want to keep your synth nearby so you can see program names. Bank select follows the MMA standard and provides no support for manufacturers (the manual cites Roland as an example) who produce instruments which deviate from this.

All settings are remembered when the Launch Pad is turned off, but since customisation is so straightforward, you would probably re-program on the fly most of the time. For the more cautious-minded, all values can be transmitted via the MIDI output as system exclusive data and saved into your favourite sequencer. Reloading a configuration is as simple as playing the SysEx back again.

BEAT ME!

One of the most nifty features of Emu's Orbit is its Beats mode. For more information you should check out the review in June's *SOS*, but I'll just say here that the Launch Pad provides a quick method of stepping through the current beats, drum-machine style, whilst adding impromptu whacks via the keys. By holding down the Thumby button and using the Inc/Dec buttons, you can globally transpose the Launch Pad's output; this command is recognised by the Orbit and is used to introduce variations into the current rhythm, making use of the cunning way in which the drums are mapped out. You need to activate Beats mode on the Orbit itself before it will accept clock information and start/stop commands from the Launch Pad. Resetting the tempo value to zero will stop clock transmission — its workable range is 30-255 bpm. Stepping through patches as the rhythm drives along is fun, and it's easy to stray into some pretty quirky areas. The problem for me was that the Launch Pad didn't add any new dimensions to the Orbit in this respect, or allow me to achieve anything that I couldn't have produced with it and a drum machine or mother keyboard.

TRANSPORT ME!

The Launch Pad provides a replica of a traditional tape recorder-style transport for sequencer and MIDI Machine Control. I connected it to my VS880 hard disk recorder and it happily played, rewound, fast-forwarded and returned to zero, all very smoothly. It's much more basic in its handling of sequencer controls, with only 'start from zero' and 'stop' being supported. I rather expected more sequencer control than this! With no discernible way of assigning tempo to the sliders, you must set the required tempo using the keypad and then hit the Enter button to activate it. To change tempo, type in the new rate and hit Enter again — a little long-winded for my taste.

Toggling into Trigger mode, the transport keys become six latched note-trigger buttons which you hit once for a note-on event and a second time when you wish the note to stop. This would be useful for starting and stopping sample loops, sound effects or wavesequences from a Korg Wavestation; each button transmits on its own independent MIDI channel for further flexibility. You can jump between trigger and transport modes freely without interrupting the current beat or any notes which are sustaining.

CONCLUSION

A combination of useful features in a handy-sized box, the Launch Pad is a jack of all trades. I'd probably have sacrificed some of those drum pads for more assignable sliders, but given its intended use with the Emu Orbit (which can respond to only four continuous control changes), perhaps these would have been superfluous. The transport support for MMC works well but the sequencer controls could have been more comprehensive, and would be greatly enhanced by a dedicated tempo knob. The degree of sequencer control provided is fine when the Launch Pad is used with the Orbit's Beats mode (start and stop is all you can do there), but if you were hoping to use it with something like *Cubase*, the limited controllability on offer isn't sufficient.

Probably the best use of the Launch Pad is, as you'd expect, with the Orbit. Live selection of beats, plus manipulation via the sliders, and triggering notes via the keypad, could be turned into a performance by itself. Owners of other synths aren't totally left out, however: they might find the assignable controls, synchronisation and triggering options to be desirable, especially if their main keyboard is lacking in the knobs and sliders department.

With an Orbit in your rack and a Launch Pad strapped about your person (I shudder to think where the power adapter would go) you really could pose as a one-man dance factory. SOS

pros & cons

EMU LAUNCH PAD £429

pros

- Assignable sliders and switches can generate a wide variety of MIDI controllers.
- Sequencer and MMC transport operation.
- Control of Orbit's Beats mode.

cons

- You'd probably have to need all its features to justify buying one, especially at this price.
- The drum pads don't feel substantial enough for a really good pasting.
- Minimal sequencer controls and no dedicated tempo knob.

summary

An alternative MIDI controller and a good partner for Emu's Orbit, the Launch Pad would be equally at home on stage or in the studio.

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Heir Apparent?

BOSS SX700 STUDIO EFFECTS PROCESSOR

Although much loved by musicians, Boss's SE50 and SE70 effects processors have now been discontinued, and the new SX700 is designed to replace them. ROB BRADY decides whether the SX can follow in the footsteps of its forefathers, or whether it is destined forever to walk in their shadow...

Boss have been making effects processors in one form or another for well over a decade, from the original 'stomp boxes' and the later Micro Racks to the more recent multi-effects processors, the more-than-capable SE50 and SE70. Having owned most of these, I awaited the arrival of the new Boss SX700 multi-effects processor with interest, as it is obviously designed to fill the gap left when the well-specified SEs were discontinued.

JUDGING BY APPEARANCES

As you can see from the accompanying photograph, the SX700 comes in a 1U rackmount case and sports the sort of colour scheme that wouldn't look out of place on a sports car. The layout of the front panel is similar at first glance to that on the Boss's recent GX700 guitar effects processor (reviewed in *SOS* June '96) — but even cursory inspection reveals that the SX700 is a very different beast.

Starting on the left of the unit, there are two rotary controls for setting input and output levels — but unfortunately no wet/dry balance control. To the right of these is the now almost mandatory 2x16-character LCD display. Continuing right, you encounter two rows of five illuminated buttons; the bottom row of these is used to navigate around many of the SX700's more general menu pages, and contains the Exit and Write buttons.

This is where I raise my first gripe with this unit. I am fairly sure that I am not the only person who thinks that putting the Write and Exit buttons next to each other is a bad idea. In a dimly-lit studio, you need every bit of help preventing silly mistakes which can take ages to fix, especially if you are paying for the studio time. If anyone from the Boss R&D department is reading this, please do something about it next time!

Each of the five buttons in the aforementioned top row is dedicated to a single effector (more on this term in a moment). From left to right, you have EQ, Mod (Chorus, Flanging, Pitch effects), Delay, Reverb, and RSS. "Stop right there", you should feel free to cry at this point, "RSS on a Boss multi-effects processor for under £500?" For those of you who have missed the development of this exciting technology, read the 'RSS Enterprise' box elsewhere in this article.

To the right of the main buttons is the data entry knob, with parameter select buttons underneath. The knob is very tactile, and is a joy to use, being both 'stopped' and velocity-sensitive. This latter feature lets you rapidly skip from working with a delay time of (say) seven or eight milliseconds, right up to over a second's worth of delay with just a speedy turn of the knob — but turning the control slowly by the same degree will only produce a very subtle change in the parameter value. Finally, on ▶

pros & cons

BOSS SX700 £419

pros

- Great sounds at a competitive price.
- RSS alone is worth £419!
- Comprehensive MIDI specification.
- Genuine +4dB operation.

cons

- No vocoder.
- No digital I/O (although this isn't really a con at this price!).
- Wall-wart PSU.

summary

The SX700 is sure to find a home in many home studios, due to its versatile range of high-quality effects and ease of use — not to mention getting RSS for under £450!

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- 256 patch memories (128 preset, 128 programmable)

the extreme right of the front panel you encounter the Bypass, Utility, and power switches.

On the back panel are the standard compliment of three MIDI sockets, true stereo In and Out on unbalanced quarter-inch jacks, and sockets for a control pedal (switch), an expression pedal (continuous controller), and Bypass (switch). Also on the back is a switch for setting the input/output level of operation between +4dB or -20dB (why not the more standard -10dB?). This is one area where the SX700 again scores over the older Boss units, and it comes as a pleasant surprise to find professional standards being implemented on a unit in this price bracket.

Unfortunately, following in the tradition of almost every budget effects processor, the SX700 makes use of an external power supply (or wall wart to those of us who dislike them), which is a little irksome when you find out how much spare room there is inside the SX700's case.

EFFECTS ARCHITECTURE

The basic unit of effects currency in the SX700 is an effector, to use Boss terminology. The effectors are chained together in different orders and configurations in one of 19 preset effect chains to form patches. Sadly, there is no method of creating your own chains, so the presets provided by the designers are the only way of putting the effectors together. Obviously, this is not quite as flexible as, say, the Alesis Q2's virtual patching system, but the preset chains are well thought out, and allow you to create some quite stunning results.

In all, a patch can have up to five effectors running simultaneously, but you can only have one from each effector running at once. (see the 'Effectors In Full' box for a full list). In other words, you can't have a harmoniser and a flanger running simultaneously, or chorus and phasing at the same time, as all of these are generated by the Modulation effector, which has its hands full generating one effect at a time.

Almost all of the SX700's 128 preset patches use more than one effector simultaneously, nearly all have an EQ stage, and many have an RSS element sitting on the end of the effect chain. The five illuminated direct buttons on the front panel allow you to mute each effector, so you can see what each one is contributing to the overall sound produced by the unit. The direct buttons also come into play when performing editing functions on a patch, for example, enabling you to jump from editing Chorus rate straight to the edit pages for Reverb with a single button press.

USING THE EFFECTORS

• EQ

The SX700 always has a three-band parametric equaliser available, no matter how many other complicated effects are running at the same time. The frequencies are split into three bands, and the upper and lower bands are switchable to either parametric or shelving operation. Each band can have up to 12dB of gain applied or removed in a very musical manner. This makes the SX700 very useful to anyone who has a simple shelving EQ section on their mixing desk and needs a little bit more control over a complex signal. The EQ section is also good for reducing hiss from a dirty input signal, or for creative use in effects chains.

• MODULATION & PITCH EFFECTS

The Modulation effects (chorus, flanging, phasing, and Leslie simulations) are just as good as those found in Roland's much more expensive — and now discontinued — SDX330 (see *SOS* July '94). The SX700 even manages a more than reasonable impression of the old analogue SDD320 Dimension D Chorus, much sought after by the dance fraternity.

Pitch and harmoniser effects are also controlled by the Modulation effector, so you can't have chorus/harmoniser or flanger/pitch-shifter hybrids, which is a shame, but there have to be some limitations imposed on what is, after all, a mid-price unit. Depending on what else is included in your effects chain, you can use either a two- or four-voice pitch-shifter from the Modulation effector. The amount of shift is adjustable over a range of plus or minus two octaves, although as with many pitch-shifters, the usable range is much less than the theoretical maximum before audio artifacts become apparent. Generally speaking, though, the quality of the SX700's pitch-shifters is notably better than its predecessors, the SE50 and SE70.

The harmoniser in the SX700 has the same limitation as the pitch-shift: depending upon what

RSS ENTERPRISE — ALL ABOUT RSS

RSS, or to give it its full name, Roland Sound Space, has been with us for a little over five years in one form or another. It first appeared to fanfares of trumpets on *Tomorrow's World*, panning sounds around, behind, above and below an amazed audience. Well, that was the theory, anyway: In practice almost everyone in the country heard a slight phasing occur over their tiny, tinny, mono TV speakers, and not a lot else. Fortunately for Roland, those who heard RSS in a carefully-controlled listening environment were wowed by the clarity and realism of the 3D sound effects produced by their £13,000 box of tricks. Unfortunately, RSS only sounds great on headphones or in the 'sweet spot' in the middle of a pair of stereo speakers, and its mono compatibility is not its strongest point, either. This is due to the way the process works — it makes use of tiny, calculated phase shifts and delays between the two sides of a stereo mix.

Roland developed RSS by using an acoustically accurate model of a human head suspended in an anechoic chamber. They panned sounds around two microphones in the 'ears' of the head, and measured the changes in phase and timing of the sound reaching the ears. The results were then reverse-engineered to create mathematical representations of how human hearing works, which form the core of RSS.

Roland initially launched RSS as a £13,000, 4-channel unit, and it has since been used in specially-treated samples for the company's synths and modules (for example the JV1080), and in a limited form for spreading early reflections in two of its high-end reverbs and in the SDX330 chorus. There has also been the Roland RSS10, a cut-down 2-channel 1U rackmount unit costing over £2000 (reviewed *SOS* March '96). The SX700 is the first product to come out of the Boss/Roland stable costing less then £2000 that has a full RSS implementation, rather than just a gimmick for slightly improving chorus or reverb.

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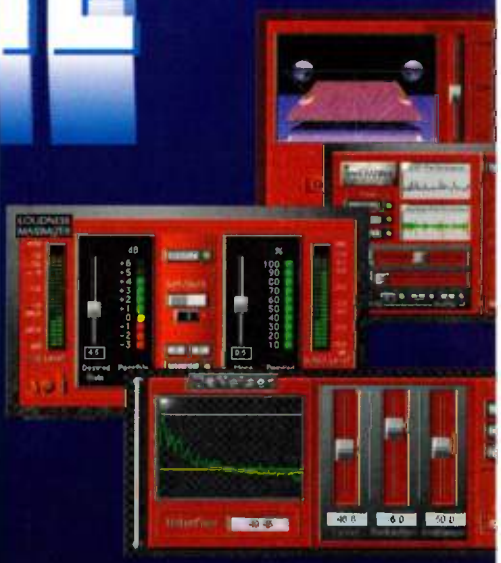

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RSS
- 3D Panner
- Single 3D
- Dual 3D
- Quad 3D

▶ other effects you have running in your chain, you can add either two- or four-voice harmonies to the source signal. The harmoniser is semi-intelligent, but you have to tell it what key the song is in — and only Major and Minor keys are supported as standard. If you are feeling adventurous, a user scale can be programmed, allowing you to create more exotic modes. The results are good compared to the competition, but you would not buy the SX700 for this feature alone.

Before moving on, there is one notable omission from the SX700's modulation section — vocoding. Some may say that the less chance people get to use a vocoder, the better, but the vocoder in the SE50 and SE70 was one of the highlights of these units, and allowed the creation of some seriously odd, interesting sounds. It's sorely missed here.

• DELAY

If you, like me, love messing around with delay to help create riffs and grooves, then the SX700 is going to impress you for its delay facilities alone, regardless of all its other bells and whistles. The SX700 has seven types of delay effect, ranging from a simple mono delay line, passing through the mild insanity of a band-pass delay, and off into the totally hatstand with 4-tap delays and quad delays.

The *total* amount of delay available is 1400 milliseconds — so if you have a stereo delay the maximum delay is 700ms. When working with multi-tap and quad delays, the total pool of delay is shared between each tap. In other words, you can have one tap taking 700ms, the next 300ms, and the next 300ms, but this means the final one can only have 100ms, bringing the total to 1400ms.

The SX700's delay section also has the added bonus of a very impressive tempo delay facility. This enables delays to be set up without the need for messy calculations to work out the exact delay for a given tempo. Simply tell the SX700 what interval you want the delay to be (minim, crotchet, quaver, semi-quaver, and so on), set the sync source, and you can obtain perfect delays, every time. The sync source can vary: it can be from an internal setting (you define an exact tempo), or MIDI Clock, a control switch (you tap your foot in time), or a MIDI key (same idea as control switch, but using a MIDI keyboard or drum pad). Again, the delay section passed quality control — I was particularly pleased to note the lack of the background hiss exhibited by the SX700's Boss forebears.

• REVERB

To be blunt, the reverbs on offer here aren't up to Lexicon PCM80 standard — there is a slightly thin and grainy tail end to longer reverb times — but the SX700 is certainly a match for anything by Alesis or Digitech. In direct comparisons, the SX700 also sounded brighter and more detailed than Boss's own RV70 (which offers similar facilities to those offered by the SX700's reverb effector). This is presumably due to the SX700's greater bit depth in its AD/DA conversion (18-bit instead of 16-bit).

• RSS

This is, in my opinion, the effector that is going to generate the most interest in the SX700. The RSS effector has two main modes: it can function both as a 3D autopanner and as a fixed positioning system, placing a sound either above or below the listener anywhere in a 360° circle. Sending a hi-hat pattern through the autopanner produces amazing results, with the sound literally moving outside the speakers' traditional sound field and back in again. The extent of the pan is subjectively different, depending on where you sit and how easily your brain is fooled. Playing exactly the same effect to a group of five people produced five different views on how well the system works — but all agreed that the sounds did distinctly move beyond the 'normal' sound field. An afternoon of experimentation revealed that high-frequency sounds (such as hi-hats and sequenced lines) produced the best results, but almost anything can be made to sound better by the use of a little RSS.

At first, the positioning system seemed a little bit disappointing after all the stunning results I'd had from the autopanner, but all it took was a brief glance in the MIDI programming guide (see the 'SX700 & MIDI' box for details) to start the creative juices flowing. You can control the pan position in both the horizontal and vertical plane via SysEx information, so after a few minutes setting up a mixer map in my sequencer, I had created a fully automated 3D panning system, and was able to move a sound around at will. This alone justifies the SX700's existence, as it allows almost any studio access to an effect which would, until recently, have cost thousands of pounds to create.

SUMMARY

After using the SX700 intensively on a couple of dance remixes, I decided I would have to buy

STUCK IN THE MIDI WITH YOU: THE SX700 & MIDI

On opening the SX700's manual, I flipped to the back to see what is controllable over MIDI, and was disturbed to find that there was no mention of SysEx or MIDI spec apart from a brief note explaining that the SX700 can receive on the usual 16 channels.

A quick call to Roland resulted in a comprehensive 20-page MIDI manual dropping through my door a few days later. It turns out that Boss supply the MIDI manual separately, arguing that only a small percentage of users actually use their products to this level. A quick glance through the MIDI manual revealed that every parameter of the SX700 is controllable via SysEx, and that several parameters can be assigned to more user-friendly continuous controllers. SysEx programming is considered something of a black art, but with a little bit of experimentation, truly breathtaking results can be obtained, of which more in the section dealing with the RSS effector elsewhere in this review (above right).

one. The SX700 has an immediacy which makes it easy to use, but despite this, it also has enough depth to keep the most ardent MIDI programmer busy for months. The sound quality is also much better than anything Boss have produced in the past — in fact I found the SX700 to be one of the sweetest-sounding performers that I have heard at any price. In blind tests, the SX700 matched the quality of my TDM plug-ins, as well as giving processors costing a great deal more a hard time justifying their price. And then, of course, there's the RSS facility, which really makes the SX700 stand out from a crowd of similar effects units.

Of course, I do still have a couple of points to moan about: wall warts have no place in a studio, and should be a thing of the past, and I won't forget the lack of vocoder, either. A last, minor niggle, which is actually more greed than gripe, is the lack of digital in/out connectors. This would have made the SX700 an absolute dream for Yamaha ProMix 01, Digidesign Pro Tools, and Alesis ADAT users, and would have elevated it to the level of a truly professional piece of equipment. These, however, are comparatively minor complaints — it's hard to find fault in something that I think is one of the best new products to come on the market in the last five years. SOS

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64-voice music workstation that can accept up to four SR-JV80 series wave expansion boards at one time. Instant response from a 32-bit RISC chip for more realtime potential and expressive power needed for recording and performance.
New model now available: XP-10
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32 Midi channels, Arpeggiator, 2 built-in DSP effects, 512 single sounds, 200 ROM performances, 50 RAM performances, 400 Grooves built-in across 8 assignable parts and interactive control of muting. Unbelievable to hear!

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THE PROPHECY
Uses the new Multi-Oscillator Synthesis System providing 7 oscillator types created through five different synthesis techniques including analogue and physical modelling. 7 built-in effects including Distortion, Wah, Delay and reverb. Can you keep up with it?

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UPGRADE YOUR NORD TO VERSION 2.0-More arpeggiator effects, additional midi features, new filter option, echo effect, 100 new performances etc.

ensoniq

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MR RACK
- 64 Voice polyphony
- 14 Meg Wave ROM Expandable to 8[illegible] Meg
- Idea pad - remembers what you play
- Onboard drum machine
- 16 track sequencer
- Reads & writes standard MIDI files
- Over 1200 sounds
- 24-bit ESP-2 effects with UMTE architecture

NEW

MR RACK
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- 44.1 kHz Output
- 4 Outputs
- All new ESP-2 effects
- Soundfinder
- GM Compatible

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NEW MR RACK AND KEYBOARDS

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YAMAHA QY700

Roland A90/EX

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A90-EX
8 keyboard zones (4 internal/4 external)
Patch name display contains patch lists of the ROLAND JD-990, JV-1080, Sound Expansion Series, JV-series, SR-JV80-series expansion boards, as well as GM/GS sound sources.
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16/24 channel in-line design
8 XLR MIC inputs inc. high performance preamplifier circuitry
Phantom power
TRS balanced line input on each control
Balanced/unbalanced tape returns via D-sub connectors
Signal present/overload LED on each channel
3 band assignable EQ with sweep mid-range
Tape/Channel monitor output assignable to AUX 1/2
1 Stereo and 4 mono AUX sends
4 fully assignable Stereo Aux Returns
In place solo
Mute switch on every channel
Insert point on every channel
Balanced group/direct outputs via D-sub connectors
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Optional Meter unit (included in price)
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16 Channel including meterbridge £1399
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Automation system for Mackie desks, complete with remote fader, software and 34 channel VCA unit.

MACKIE.

MACKIE 8IBUS
The ultimate expandable mixing system that the pro's use. Perfect for use with ADAT or DA-88. Now available, automation for 8-BUS Mackies including Mac software. Call for more details!

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The DCP-8

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8 Compressors
8 Gates
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All Under Digital Control
Only £79.68 a channel

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PreSonus Audio Electronics

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YAMAHA

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£CALL

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Compatability.
The 02R features an "open system" for compatability with all major industry-standard digital audio formats: TASCAM(TDIF-1), ADAT, AES/EBU, and Yamaha. Optional I/O interfaces allow the 02R to be easily intergrated with any digital recorders, wether tape based, or Non-linear "Hard-disc or Magneto optical".

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4 Independent 24-bit stereo processors
4 inputs & 4 outputs
Able to process 1,2,3 or 4 signals
54 algorithms
400 presets
Seamless switching of effects
Dynamic MIDI control
Front-panel headphone jack
Front-panel XLR
Dedicated input & output volume knobs
3-step input LED's
+4/-10 dB switching
Output mixing

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The power and flexibility of Ensoniq's DP series effects in an affordable 2-processor unit.

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YAMAHA
MT4X
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TASCAM
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E-100
SHARING THE INNOVATIVE SERVO CIRCUITRY WITH THE E-200, THE E-100 IS TRULY ONE OF THE BEST VALUES IN THE MICROPHONE WORLD.IN ADDITION TO THE PHENOMENAL WIDE BANDWIDTH RESPONSE, THE E-100'S PHYSICAL DIMENSIONS CONTRIBUTE TO ITS VERSATILITY AS A VOCAL MIC, AN INSTRUMENT MIC, A DRUM KIT MIC, OR AN OVERHEAD MIC.

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E-200
DESIGNED FOR CRITICAL APPLICATIONS SUCH AS RECORDING, SOUND REINFORCEMENT AND BROADCAST. IT'S UNIQUE COMBINATION OF TRANSPARENT REPRODUCTION OF ANY SOUND SOURCE AND HIGH SPL CAPABILITY MAKE IT ONE OF THE MOST VERSATILE HIGH QUALITY MICROPHONES EVER MADE. EQUALLY AT HOME IN A VOCAL BOOTH, IN FRONT OF A WHOLE SYMPHONY ORCHESTRA, CLOSE MICING A KICK DRUM OR RECORDING A CLASSICAL GUITAR.

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APPLIED RESEARCH AND TECHNOLOGY

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Some of the existing products have been totally updated and some are totally new. Like their brilliant mic preamps for all price points & the great new effects network. Also the new progate is getting rave reviews in America.

So if you're in the market for some pro-audio equipment, give the new range of ART effects a try, you won't be dissapointed!

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S760

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Incorporating all the capabilities that have made the s3000 series the world standard for professional sampling, the new range add features like a powerful multi mode for ease of layering and multi-timbral sequencing, multi-effects card that provides four independent channels of effects, RAM expansion with readily available SIMM memory, flash RAM, MESA graphical Macintosh-based front-end etc, etc.

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88-key weighted or 61-key synth action keyboards, or rack version.
Up to 31 voice polyphony
Up to 16 Mb memory
Stereo sampling at 44.1 and 29.76kHz
Analog or digital input
Sampling through effects
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Imports Roland and Akai CD-ROM's
24-bit effects processor with 62 algorithms
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Bank loading of complete performance setups
Easy sound layering and splitting
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2 TRACK HARD DISK RECORDING ON BOARD FOR YOUR FINAL MASTERING

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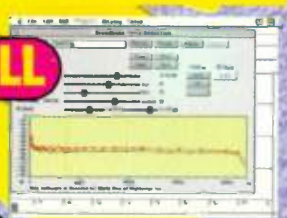

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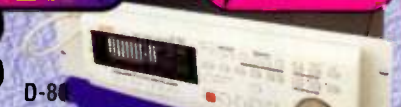

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WELL TRY AT THE MOST AMAZING PRICE OF JUST £299 THE ART DUAL MIC PREAMP.
THIS UNIT IS A SENSATION IN THE STATES AT THE MOMENT, PRECISELY FOR PEOPLE WORKING WITH VS880, D80 & OTHER HARD DISK RECORDING UNITS. PEOPLE THAT WANT TO ADD A LOVELY WARM CHARACTER TO THEIR VOCAL AND ANALOG RECORDINGS. THIS UNIT USUALLY SELLS FOR £389 BUT FOR A LIMITED PERIOD IT'S JUST £299.
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Optional effects expansion board.

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"The 20/20's bass end is sufficiently extended to make them useful as the sole pair of monitors in a small studio."

"There's plenty of top end clarity without any tendancy to fatigue, and the stereo imaging is excellent."
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Well we are here to help. RPG and Music Connections have teamed up to offer you the chance to actually hear your music as it really sounds. We can tailor a package to suit exactly the size and shape of your recording facility. Just think how impressed visitors will be, when they come to your studio and see you know all about acoustics.
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CALL FOR FULL RANGE OF MONITORS

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Ensoniq Sound Cards for musicians who want real sounds from their soundcard.

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£1695

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Lc 6.75
Features a unique intergration of crossover, cabinet and drivers that produce a rugged, attractive and cost effective unit while maintaining the sound characteristics so identified as the Westlake Sound.

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KORG POLY 800	£199
KORG DSS1 KEYBOARD	£299
ROLAND PC150	£99
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DRAWMER 1961 TUBE EQ	£695
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PROTEUS 1 EXP	£299
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GS3 16CH MIXER (3 MONTH'S WARRANTY)	£1195
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SONY DTC7.0	£300
PROTEUS 2	£375
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KORG C3500 PIANO	£799
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PEP 8 CHANNEL MIXER	£160
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EMU MPS KEYBOARD	£550
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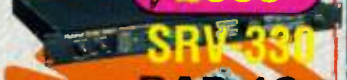

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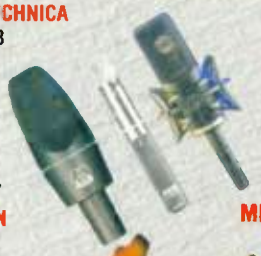

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MASTER CRAFTSMAN

Hugh Padgham is one of a select band of producers whose work is always in demand by top musicians, and whose style always seems current and relevant. RICHARD BUSKIN catches up with him on a rare break in his busy schedule, to talk about his latest projects with Sting and Phil Collins.

From Phil Collins, The Police, XTC and Paul McCartney, to Sting, Genesis, Melissa Etheridge and David Bowie, the artists and the awards continue to line up for Grammy-winning producer/engineer Hugh Padgham. Padgham has consistently been at the cutting edge of the music scene for almost two decades, courtesy not only of his good ears, astuteness and application to his work, but also his well-proven ability to match the sound to the talent and the direction to the material. When the talent and material belong to the likes of Sting or Phil Collins, that's no mean feat. Obviously Collins recognises this — after seven years and a one-album hiatus, the two men have recently been working together again, in the setting of a rented French chateau instead of the usual air-conditioned studio. Coming in the middle of a year which had already seen the successful completion of projects with Sting and new LA act The Beth Hart Band, the Collins sessions had already reached the mixing stage when I caught up with Hugh Padgham at his home in London. A few days later, he would be flying to Miami to produce a couple of tracks on the new Bee Gees album, but, after battling his way through the Friday night traffic, he was still able to take the time out to talk about his work, his preferences, and his views on technology old and new.

The Beth Hart Band — just one of Hugh Padgham's recent production projects.

PRODUCTION DEMOCRACY

Do your roles as a producer and engineer vary from project to project?

"Yes, although the bottom line is always that we want to go in and do the best job possible. Whether I'm working with new artists, such as Beth Hart, or people whom I've known for a long time, such as Sting or Phil Collins, it's a totally democratic situation. We'll discuss the way in which we want the album to go and then we'll work in conjunction with one another. For instance, on Phil's new album every track has drums. When we started the record I pointed out to him that his last album only had three songs with drums on them, and on one of these you could hardly hear them anyway. So I said, 'Look, Phil, you're a great drummer and I think you deserve a bigger and better drum sound.' There again, I remember working with Paul McCartney years ago and him asking, 'Well, who should we get to play bass on the album?' I said, 'You've got to be joking! You're the best bloody bass player there's ever been!' He genuinely thought that there might be someone better than him, so in that case I had to provide confidence, for want of a better word."

Has the degree to which you offer advice and express your own point of view increased over the years?

"It's difficult to say, because I've always had the same kind of approach. You see, although I did learn to play musical instruments as a kid and can read scores, I'm not really a trained musician. Therefore, my input with regard to making records is basically coming from the punter's point of view. Artists like McCartney and Sting don't necessarily need somebody who's a fully-trained musician to come in and try to change their songs. I mean, one reason why I think Sting and I get on so well is that he presents the music and I then translate it into the sonic medium. That's where my main production values come from: being able to comprehend what the artists want to do with their songs."

Do you ever have difficulty understanding what they actually want?

"No, that's never a real problem, but I suppose I've been doing this for quite a long time, so I'm used to seeing where people are coming from. There again, it's also down to me getting the kind of projects that I'm good at, because I doubt that I would have many r&b groups asking me to work with them."

When you work with the likes of Sting and Phil Collins, how do you bring something new to each project? Are they looking for you to do this, or are they basically just relying on you to do what you've done in the past?

"That's a difficult question. In Sting's case, the music he writes is always quite different from one album to the next, and the minute I hear one of his songs I can 'see' the sound in my head. I can see what he's getting at, and that therefore becomes a new challenge in itself. With Phil

Collins, on the other hand, just the fact that it's been seven years since we worked together has renewed the excitement in a way. I wouldn't say that Phil's albums progress musically in the same way that Sting's do, but what's interesting about Phil is that he writes these really good songs that only have about three chords in them. If you asked Sting to write a song with three chords, I don't know if he'd be able to do it! So that's where I think Phil's strength lies: a lot of it has to do with the simplicity of his approach, and that comes from many different facets, including the fact that he's self-taught. If I had to do a Sting record all the time, or if I had to do a Phil Collins record all the ▶

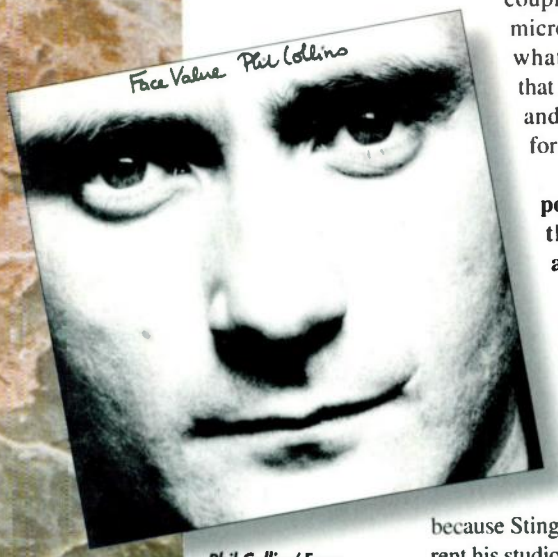
Hugh Padgham

time, or if I had to do whoever's record all the time, that would be boring. But it's because everybody's different in so many ways that my interest remains as high as it is."

CHATEAU COLLINS

In past interviews you've explained how you achieved Phil Collins' trademark drum and vocal sounds. Have you modified your approach or your methods with regard to the new album?

"Yes, in some respects. I mean, we certainly don't go for the big Phil Collins drum sound on every track because a) it wouldn't fit and b) it would become a bit tedious! However, as far as the vocals go, his favourite mic is still the same old Beyer 88 dynamic. The thing with Phil is that he sings to the sound, and if you put up a different mic, he himself sounds different. On a couple of songs we put up a different microphone, but generally he sings to what he knows. In many respects that will produce a better performance, and that's the most important thing for me."



Phil Collins' Face Value: the genesis of 'that' drum sound...

Why did you opt to use Sting's portable studio in conjunction with the French chateau for Phil's album?

"Well, Sting has, I think, the only known portable SSL board, by which I mean you can literally pack it up in two or three hours and stick it in its flightcases. It's a 64-channel G Plus with Ultimation, which was designed to be pulled apart and put back together again, and because Sting was on the road, we had this idea to rent his studio. What's brilliant about the system is that it has much shorter cable runs than a normal studio. In a normal studio, you have to put all of the wires through walls, go around corners and that kind of thing, whereas with Sting's setup it's as short as we want it to be. We have long cable runs and short cable runs, but all of the runs are still shorter than normal and I think that always helps sonically."

What was the setup in the chateau?

"We had three huge rooms on the ground floor and, unlike Sting's record, where everything — apart from the power supply and tape machines — was in the same room, in this instance we were able to put the drums in the room next door to where we had the equipment. This made it slightly easier from my point of view, as I could listen to the drums through the speakers a bit more. Then we had another room where all of the machines were."

How did you and Phil see each other?

"We had video cameras with remote controls. However, we did all of the vocals in the same room together, and as the room with the drums was right next to the control room I sometimes didn't even have to press the talk-back. He could just hear me talking through the door!"

As the rooms were so big, how did you avoid too much reverb?

"Apart from the old thing of closing curtains, putting rugs on the floor, and gaffa-taping bits of carpet onto the walls, we also used studio screens, as well as things called tube-traps. If, for instance, someone is playing an acoustic guitar in a quite reverberant room, you can surround the microphone, the player, and the instrument with some of these tube-traps and they'll radically change the reverberant characteristic of the sound. There again, on one song, we even recorded the drums in the garden..."

> "I would never work with an artist who I initially considered to be incapable even on a good day."

Have you ever done that before?

"No. I think I once did some outdoor recording with McCartney, but it wasn't as successful as this."

Was it a particular desire of Phil's to play in the garden?

"No, it was just a really nice sunny day, and I

KEEPING IT SIMPLE

Looking back at your career, what would you say have been some of your best or most interesting sound innovations?

"I can't really think of any one thing. Every day I'll learn something new, and every day there will be something that surprises me. The one basic rule I still adhere to is simplicity, and that applies to my production values as well as my engineering. Using the simplest and cleanest signal path to tape is very important to me. I also think that empty-sounding records are much harder to make than ones that include everything but the kitchen sink. I love it when a song has that minimal aspect to it, although that's not always the case. There are some songs on Phil's new record which have a very full sound because that's how they were written, so I couldn't then say that I was going to take everything away from them. I think that the producer is always at the mercy of the artist's songs. I haven't written the songs. All I'm doing is trying to present the songs that the artist has written in the way that both they and I hopefully think is the best way."

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thought there would be a great sound outside the chateau because some of the sound was reflecting off the walls. In a normal studio situation we wouldn't have had this kind of opportunity to go outdoors."

What about extraneous noises, such as birds, or cars passing by?

"Yes, there were birds, but actually the biggest problem was the breeze, so I had to put wind-shields on quite a few mics. We worked a little bit, setting the drums up in a position that wasn't too affected by the wind, but I also didn't use that many microphones. In the end we were all really surprised and pleased with the sound, and in some ways I wished that we'd done more tracks like that! However, we'd already done nearly all of the drum tracks by the time there was a day nice enough to work outside. There was a little bit of bird noise in the background, but you don't notice it once the music's in there. You only notice it at the very end, and then it's like, 'Oh, that's a good laugh. Let's keep that in and see if anyone can hear it'."

THE OLD CHESTNUT

Do you prefer digital, or analogue?

"I'm well into keeping up with the modernity of everything, yet ultimately I still think that in terms of warmth and sonic integrity analogue has the edge over digital. Even though we've now got 20-bit and 24-bit digital recording technology, as well as the higher sampling rates, I still have many problems making records on digital that I know I don't have on analogue. I don't really want to get into a whole conversation about that now, but I could easily write a thesis on it! When I'm working fully digital I'm still very much in learning mode, and the interesting thing we did with the new Phil record — which is actually the same as I did seven years ago on the *But Seriously...* album — is record the drums, bass and horns on analogue, and everything else on digital. I've had the luxury of having both and being able to choose between the mediums."

Mercury Falling, the latest in a series of Padgham-produced Sting albums.

How come you didn't go for more warmth on the vocals, by also recording them on analogue?

"Well, it's also a sort of hassle doing this recording on both systems, because you're always sitting there making slaves and then having to slave things back in, and so on. At the same time you've got code on one track and you can't record on the track next to the code if you want to be safe, and so by the time we'd put two bass tracks on, and 12 or 14 drum tracks, there wasn't a whole lot to play with. Generally, I prefer to record bass on analogue because of the warmth, as well as drums — the transients are uncontrollable on digital. With vocals, you don't really have those kinds of transients. Having said that, I've recorded the last three Sting albums totally digital, even though I've then put things through valve equipment to try and warm them up."

> "I think there's more that can go wrong with a CD these days than there was with a vinyl record."

Was the decision to record completely digital down to Sting?

"No, it was really a question of it being the only way we could work. We're always doing multitrack edits and moving things from one end of a song to another, and it's much easier to do that on digital. With Melissa Etheridge, I've done both of her last two albums on analogue. We've gone into rehearsal and totally worked out the album before going into the studio, so then there's no screwing around in that respect. We can record it onto analogue and virtually never have to edit anything, whereas with Sting that's not the way it works. With him, things change during the course of recording the album. Melissa's setup is much more of a rock band kind of thing, so we work it all out, we go in the studio, everybody plays live and we record it! Obviously it's easy to do that on digital as well, but it's very easy to do it on analogue and I think most rock 'n' roll music sounds better — warmer and thicker and gutsier — that way, at least to my ears. I just desperately hope that in the years to come A/D converters will improve to the level of analogue sound."

COMPUTER LOVE?

While we're on the subject of technological advancement, do you feel that the momentum of the late '70s and early '80s has declined?

"No, not at all. I think it's increased quite a lot, in terms of computer and microchip technology. I love computers, and now we've got these things like hard disk recorders cropping up all over the place. It's brilliant not to have tape any more. However, I still don't say that music is any better now than it was 30 years ago when they were recording onto 8-track analogue. I mean, look at The Beatles — their records still sound good!"

Compared to those years when the music was the thing, do you feel that technology today is looked upon as something of a crutch, in the absence of strong material?

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"Not necessarily. We've now got the techno music that came through in the '80s with Depeche Mode and so on, and obviously that kind of music couldn't have existed in the '60s, because they didn't have the technology. Whether you like it or not, it's a new form of music, and to me it's no better and no worse."

But don't you feel that studio tricks now allow some artists to get away with sub-standard performances?

"With that you've touched on an interesting point, really. It certainly can be the case, but personally I can't be bothered with all that. I'm really not interested in working with somebody who can't sing or play. This may sound very elitist, but luckily I have always been able to choose what I've wanted to do, and so I've never got myself into a situation where I've had to do a total repair job. Some producers and engineers would absolutely love the idea of being able to sit in front of their Macintosh and go crazy and change it all. For them, that sort of electronic manipulation would be very satisfying to do. It's like when you first get onto the Internet after weeks of messing around with applications on your Mac — 'Yes! I've done it!' I can't tolerate that kind of thing. I'm not interested and I haven't got the time for it. Occasionally, if an artist has an aberration, then OK, we can stick it through Sonic Solutions and mend it, but I would never work with an artist who I initially considered to be incapable even on a good day. It's fantastic when you're sitting there in the producer's chair, watching and hearing someone perform and they're really into it, and you go, 'My God, that's fantastic!' It's like when Melissa Etheridge sings: there'll be 99.9% of it there in one take, and that's because we've got her at the right time, the sound is right and it's a brilliant feeling. That's not to say that other people don't also have a brilliant feeling after they've spent two days using a Mac to manipulate the voice of somebody who can't sing. It's just that personally I prefer to do it in three or four minutes."

Melissa Etheridge: "99.9% of it is there in one take."

GOOD GEAR

What equipment do you yourself carry around from project to project?

"Mostly microphones. Favourite microphones: a few old Neumanns, a couple of KM86s, which you don't see in every studio, and I've also been getting into some mics by Audio Technica. I was mixing at Rooster Studios in London, which is a wonderful little place with a 36-channel Harrison desk, and the owner, Nick Sykes, said, 'I've got this fantastic dynamic bass drum mic from Audio Technica.' I think it's called the RT3. Well, the following week I had a recording session and Nick lent it to me, and it really was fantastic. A month later, Audio Technica then lent me one when the Sting sessions were coming up, along with the company's version of a U87 condenser mic, which is also really, really good and about half the price of an 87. For the Sting album, we also bought a very expensive Sony G800 valve mic — the one with the fins on it — and that was absolutely fantastic on his vocals. I could record flat and his voice would sound 'present' and full. As far back as 1990, the people at Sony lent me prototypes of this microphone, and I would report back my views on its performance. I'm not saying that I had anything in particular to do with its design, but at least I was able to give some sort of feedback that was generally positive. The end product came out really well, but obviously it isn't fantastic on everything. Every mic has its uses and so, even after having worked for years and years in the studio, it's still fun to discover new microphones and to experiment with them. Another couple of mics which I have are these Russian Oktavas..."

And why do you like them?

"Because they're cheap! When they first came out, some guy came into The Townhouse saying, 'You've got to try these mics out! You won't believe how cheap they are!' So I put them up against some Neumann 87s and Neumann U47 FETs. I was surprised at how good these Oktavas were, so I bought them right there and then, and I still use them. In terms of other equipment, I've got a few reverb units that I quite like, such as an old Roland. That's because, in typical Japanese style, they make a device and then when you go back for another one the following week, it's already been discontinued and replaced by a new model which isn't as good! You're left wondering why they didn't leave the old version alone, and so I've got a few bits of equipment for that very reason. Overall, however, I pride myself on not ever using very much outboard gear when I make records. As for Sting's gear, I myself spec'd up the outboard aspect of the studio. As a result, there are quite a few valve mic amplifiers, and some valve equalisers and valve microphones, so there's a lot of choice between solid state and valve. There are also things like old Lexicon PCM42 delay lines, that have a very nice kind of analogue sound to them, even though they're digital. So there's a lot of stuff that I like which I can borrow off him, and since I'm able to make do with very little outboard gear anyway, that's why I myself don't have a huge collection. When I'm mixing, I love using EMT 140s. I realise that a lot of young engineers today would rarely use an echo plate — the EMTs at The Townhouse are always free whenever I want to use one there — but I'm not a massive fan of digital reverbs. The plates have a real warmth and spread of sound, and there are certain ways in which I use them that I'm not prepared to talk about... Job security, old boy, job security!"

When you're trying to get as good a sound as you possibly can, is it easy to lose sight of what the average listener at home is going to pick up on? Perhaps their ears aren't as trained, their equipment isn't as good... Are they even going to hear the work that has gone into the making of the record?

"That's one very good reason why I use AR18s, which cost me $150 a pair. I find that I have to work on those speakers to make things sound good, or at least what I think sounds good. I've worked with many speakers and I love those by ATC and Roger Quested. They both make smallish nearfield monitors, and when I put them up I can hear the sound so well through them that I don't want to EQ or change anything. I can really hear things change, or

> "I still have many problems making records on digital that I know I don't have on analogue."

I can hear phase shift when equalisation is introduced — but with those speakers, the end result would probably be a record that would not sound 'present' or 'vibey' enough through the average person's hi-fi system or radio."

How involved are you with the mastering process? I've spoken with a number of mastering engineers over the years, and I've been amazed to learn how much they will change certain records. Do you keep a tight rein on that sort of thing?

"Oh yeah, I do. For 16 years I've used Bob Ludwig, who's generally recognised as one of the best mastering engineers in the world — if not *the* best — and 90% of the time I will attend the mastering process unless there's some very serious reason preventing me. To me, it's an integral part of the overall recording process, and it's also wise to keep an eye on the quality control of the resulting CDs. I think there's more that can go wrong with a CD these days than there was with a vinyl record. Many people think that because we're now working in a digital age everything is either just a dot or a dash — or a '1' or a '0', depending on how you want to describe your binaries — and therefore everything is always perfect. A lot of record companies still have that attitude, but there's actually a massive amount that can go wrong. When I hear the quality of some of the CDs out there, it really frightens me. It's very difficult to keep in total control of that, but there are freelance quality-control people who you can hire to make sure that everything is alright. I've listened to the CDs of artists who I've worked with which were manufactured in France, Germany and America, and they've all sounded quite different, and this leads me to another problem that I have these days: years ago we would always get final test pressings to listen to, whereas now it's very rare for producers to get CD pressings; that's a real shame. I get a really hard time from some record companies and artist managements for trying to maintain quality control... It's a real bug in my software right now!"

SOS

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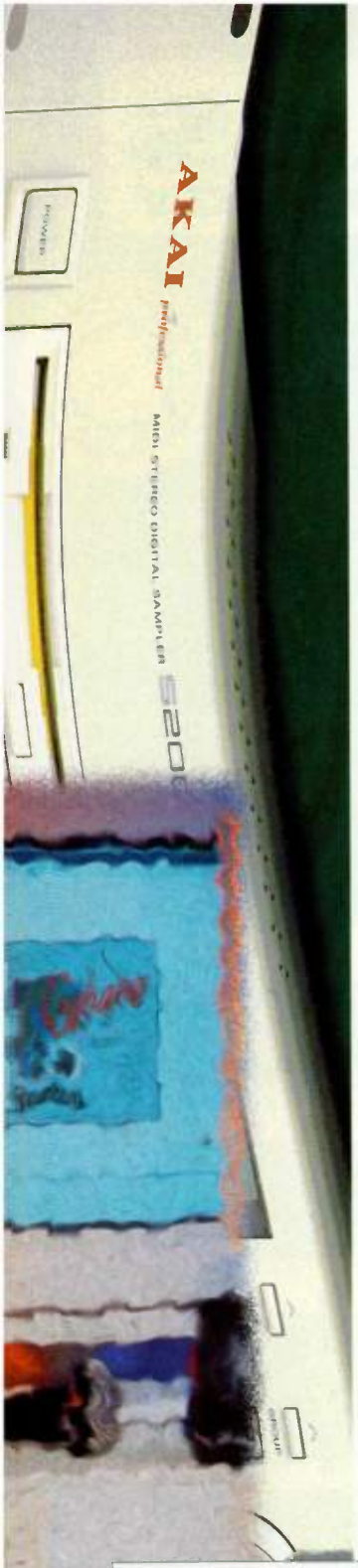

SCSi

INTEGRATING SAMPLERS & YOUR PC VIA SCSI

LOgIC

When MARTIN WALKER decided it was time to buy a removable SCSI hard drive for his sampler, he fondly imagined that it would be a centralised storage solution for both samples and MIDI data from his PC, streamlining song organisation and making sample management easier. Enter reality...

When I bought an Akai sampler a couple of years ago, the salesperson told me to expect to need a removable hard drive within a couple of months. At the time, my last thought was spending more money! However, when I discovered that a single song using 8Mb of samples could fill up to five high-density floppy disks, I began to rethink. The last thing you need if you're having a creative burst is several minutes loading time before you hear whether a different sample is more suitable in context. You want to audition it *now*!

When looking at the options for removable drives, I realised that the same drive could be used by my PC for more general use. The thought of editing and looping samples on a large computer monitor screen was enticing enough, but if I could also store the sample data for each song on the PC with the MIDI files, everything could be kept in one place. Centralised storage would ensure that a sample associated with one particular song would never be accidentally wiped. At the time, this dream seemed easy enough to achieve — the Akai S2800i had SCSI, the computer could be fitted with a SCSI interface card, so if I bought a SCSI removable hard drive, everything would talk to everything else. Wouldn't it?

How naive this all seems now...

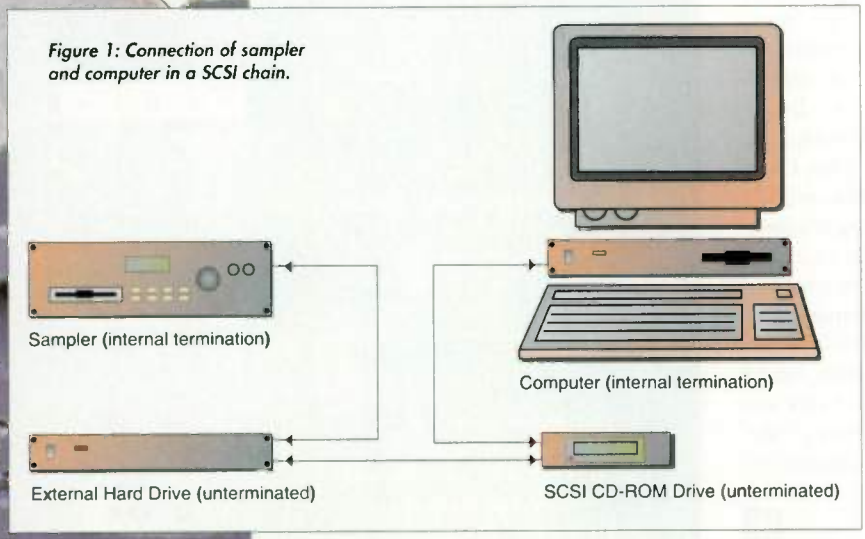

Figure 1: Connection of sampler and computer in a SCSI chain.

TRUE LIES

The main fly in the ointment is that hard disks need formatting by the device controlling them. Akai samplers format differently from PCs, so an Akai-formatted cartridge cannot be read by the PC, and vice versa. This is because in order for data to be stored on the disk, a small separate area must be set aside to store the directory (the collection of filenames and location of each file on the disk). CD-ROMs work in the same way, and this is partly why different versions exist for Akai, Roland, Emu, Ensoniq, Kurzweil, and so on. The other factor to bear in mind is that the program data will be different for each brand, with some parameters unique to each device.

Fortunately, in the last few years sampler manufacturers have made efforts to add cross-compatibility to their machines, allowing them to read foreign programs and extract valid information, while discarding anything that would not make sense. However, the option to 'Read Akai-Format Hard Disk' does not yet exist for computers.

It's easy enough to use the same removable drive for a computer and a sampler — just format two cartridges (one from each device) and use only the appropriate one — but unless you want to keep re-plugging SCSI leads from one to the other, you need a way to connect all three devices. Continual swapping of data cables is never a good idea, and if SCSI devices are switched on at the time you may blow something.

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GETTING HELP FROM THE INTERNET

While writing this feature I had problems with one of my Syquest cartridges holding PC data. I bought my 270Mb drive in a desktop unit badged by another company, and it arrived with no PC utility programs at all — just a Mac disk and the wrong cable (some things never change). Lack of suitable utilities is a common problem for many people if they buy one of the rack-mounting hard drive systems offered by specialist dealers. However, while browsing the Internet, I discovered that Syquest themselves provide numerous utilities for use with their drives, that can be downloaded free of charge. By reformatting the cartridge using their utility rather than the generic one provided with Windows 95, I solved the problem. FAQs (Frequently Asked Questions) are also provided by many manufacturers elsewhere on the net; these can solve problems without long and involved telephone calls to voice support lines, which often seem to have one operator per 50 enquiries.

THE TERMINATOR

SCSI devices are designed to be used in daisy-chain fashion, with up to seven devices connected in one long line. To ensure proper operation, the device at each end of the chain must be terminated, while those in between must be left unterminated. An analogy often quoted is that the chain is like a length of string that has to be firmly anchored at both ends. A terminator plug will normally be supplied with each SCSI device, or an internal one may be present, which can be switched in and out as required. At one end of the chain, the computer is in control and should be terminated, while at the far end, the final device in the chain also has to be terminated

Unfortunately, samplers also need to control the SCSI bus for their own purposes (see Figure 1 for connection details), and problems will occur if both the computer and the sampler try to take control of any SCSI device at the same time. As long as you're careful, things will be OK, but watch out for the following: during the boot-up routine, any controlling SCSI device (in our case, the computer or sampler) will interrogate the SCSI buss to find any connected devices that are powered up — a sensible procedure. However, if your sampler is busy accessing the drive when you switch on your computer, the inevitable will happen — and it did to me. I lost 100Mb of samples in a few milliseconds when the PC took control of the drive during an Akai sample load and scrambled the data. No doubt the actual sample data was still intact, but the directory was corrupted, so a large group of samples just disappeared as far as the sampler was concerned. You'll only make this mistake once!

Once the computer has finished setting itself up, it will only access a SCSI drive when you specifically ask it to, so the above problem can only occur while everything is powering up. However, in my experience, on occasions the Akai also refused to read anything from the hard drive unless the PC was switched on as well — this sort of problem can occur because the PC end of the SCSI chain is only properly terminated when power is applied. The safest procedure is to switch on the SCSI drive first, then allow the computer to boot up completely. Finally, switch on the sampler, and wait for it to finish setting itself up before doing anything else.

SCSI devices are normally very reliable in use, but you may get occasional inexplicable errors during read and write operations. Using high-quality (expensive) SCSI cables is the first step towards preventing data errors — never use cheaper parallel printer cables for SCSI use. The best cables have individual shielding for each connection within the cable, and mine are about half an inch thick and not very flexible. If you do have problems, the second thing any technical support person will ask is how long your cables are — anything over one metre in length may give unreliable results. A systematic approach is sometimes needed to track down problems — remove all items from the SCSI chain one by one (powering down and rebooting at each stage) to identify which device is causing the fault. Teething problems can be annoying, but once they're sorted out everything will normally stay very reliable.

THE FLOPPY ROUTE

I worked with this system for several months, until a project needed sampling on the Akai, but delivering in PC .WAV format. It seemed the ideal time to pursue my original goal of getting the computer and sampler directly connected, but the quickest way to get up and running proved to be by using the humble floppy disk. I had previously bought a copy of *ReSample Professional*, a versatile PC sample-editing and conversion program which will also read Akai-format floppy disks, as well as a selection of other formats, including those for models by General Music and Ensoniq. It also has an extremely good loop finder that can save a lot of editing time! (See *SOS* September '95 for a review.)

It proved easy enough to save samples onto an Akai floppy, pop them into the PC floppy drive, and read and save them in other formats using *ReSample Professional*. Kurzweil K2000/2500 owners are lucky in that their machines can read DOS-formatted disks, and these can also obviously be read directly by a PC. Once samples were inside the PC, the lure of large-screen editing again took hold.

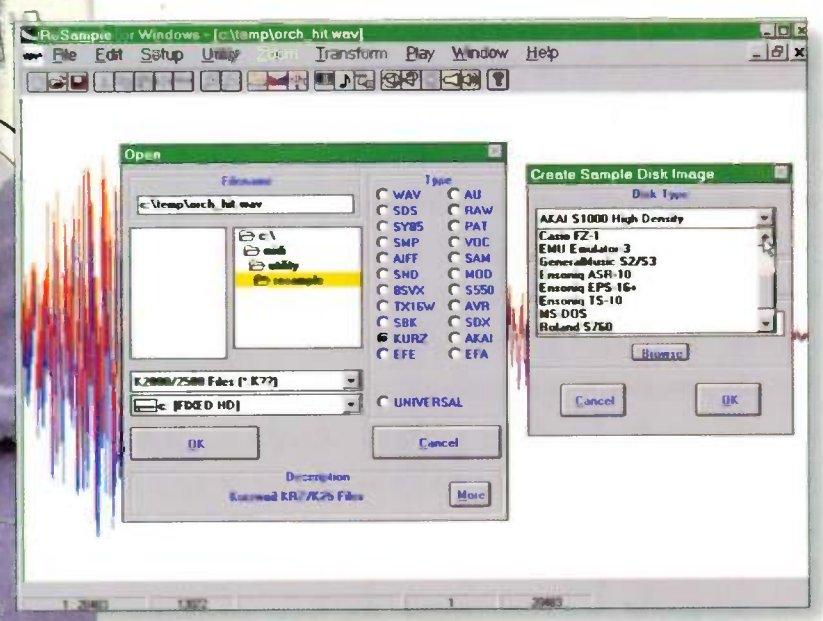

Figure 2: ReSample Professional — converts between a multitude of sample formats.

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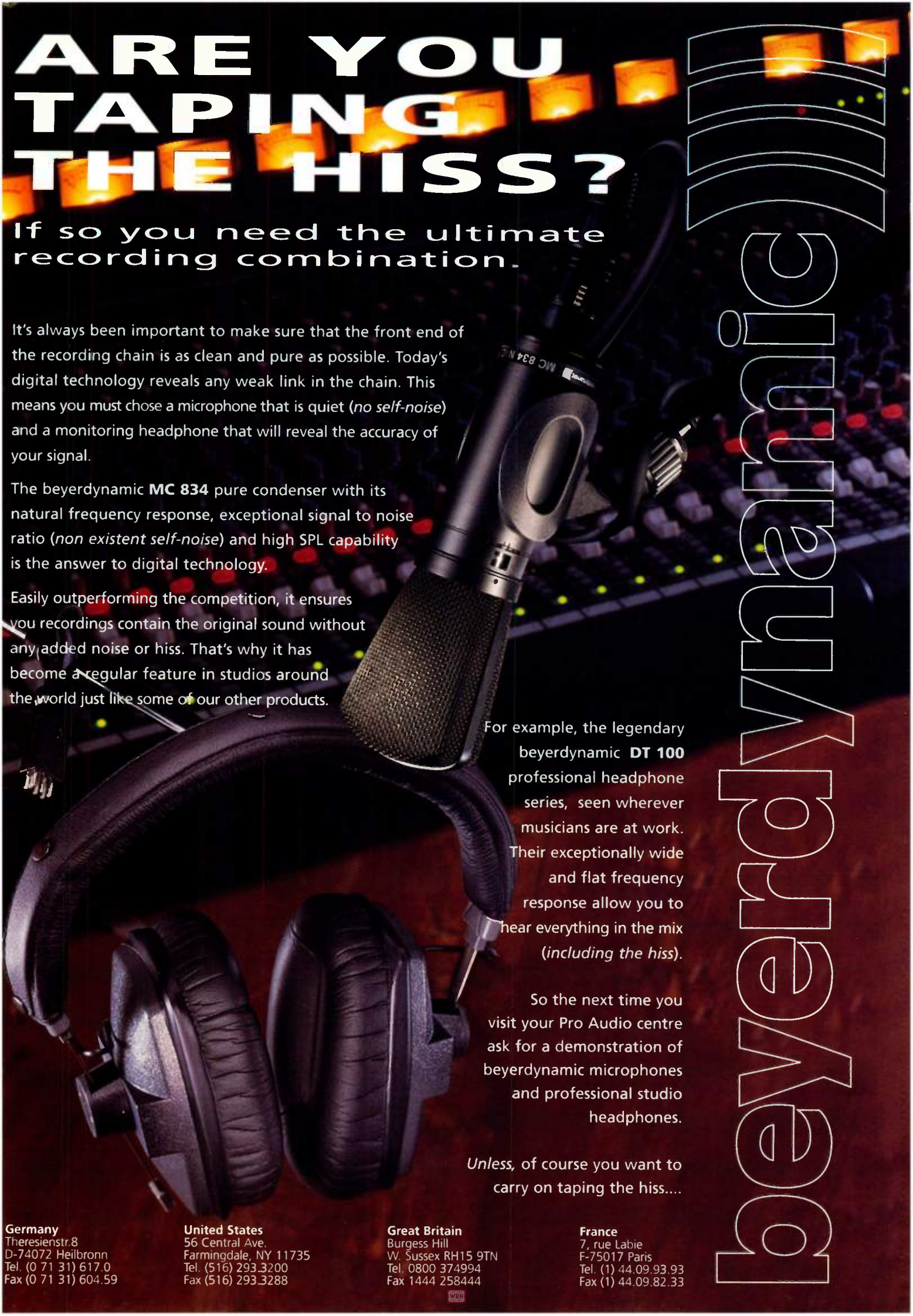

It's always been important to make sure that the front end of the recording chain is as clean and pure as possible. Today's digital technology reveals any weak link in the chain. This means you must chose a microphone that is quiet (*no self-noise*) and a monitoring headphone that will reveal the accuracy of your signal.

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Fax (1) 44.09.82.33

CHILL OUT WITH MIDI SAMPLE DUMP

The floppy approach works, but it is a very convoluted procedure to have to go through for editing, when the process also has to be repeated in the reverse direction to get the edited samples back inside the sampler. What is needed is a direct connection between sampler and computer, and I decided to pursue the much-maligned MIDI Sample Dump Standard (SDS). Yes, it is like watching paint dry (a single 180k sample will take about one minute to download), but it is a standard that is well documented and has been established for several years. I expected to find many PC programs that supported it. However, there are several (including *Resample Pro*) that will send dumps to a sampler, but no lower-cost programs seem to be available that would work in the other direction. There are many synth editors which allow two-way communication for editing and library storage, but sample dumps are very different beasts to SysEx dumps.

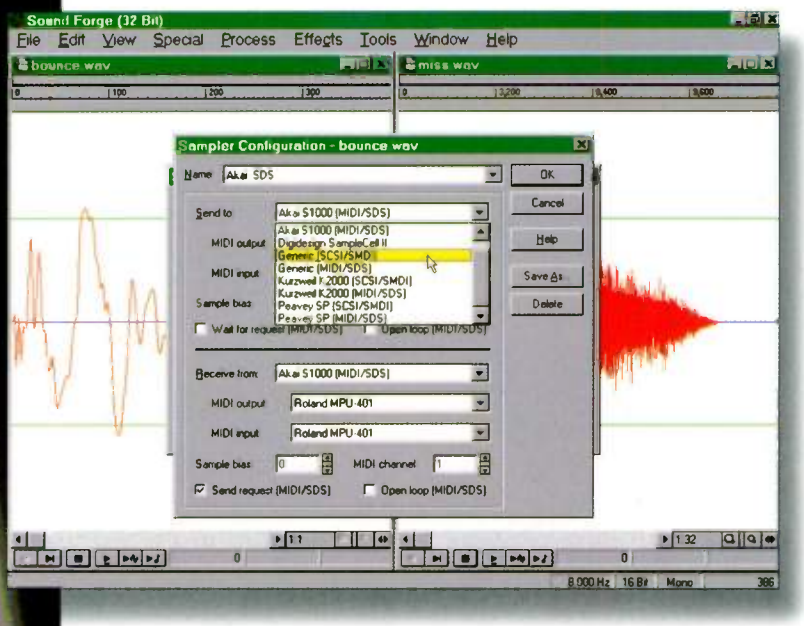

Figure 3: Sound Forge — establishing communication with the sampler.

SampleVision for Windows (reviewed in *SOS* December 1995) sounded promising, but Turtle Beach have now discontinued it, and the only product that I could find that fitted the bill was Sonic Foundry's *Sound Forge*. This is a comprehensive sample editing package (see review in the May 1996 issue of *SOS*) that supports MIDI SDS, and has recently had its UK price reduced, which is a bit of a bonus.

Using SDS is easy once you've set up the correct options for your particular sampler — the help file for *Sound Forge* is particularly good, and offers specific advice for connecting to various samplers, including Akai models. Transmitting samples from the program to the sampler worked first time, but I did have problems receiving dumps from the Akai if they were more than a few hundred bytes long, since the program hung until the sampler had finished sending the rest of the data. Sonic Foundry told me that the problem was probably caused by a combination of a slow PC (mine is a VL-BUS 486DX33) and an unbuffered MIDI interface (which most are), since receiving constant packets of SDS data can cause so many interrupts that a slow PC will grind to a halt. When transmitting from the PC, it's the sampler that takes the overhead, so in this direction things are easier for the PC.

THE SCSI CONNECTION

Throughout daily use for several weeks, *Sound Forge* was a pleasure to use, and my only big disappointment was that Akai samplers cannot use its much higher speed SCSI sample dump facilities. The recent SCSI MIDI Device Interface standard (SMDI) defines a suitable standard for two-way high-speed sample dumps over the SCSI buss; devices supporting this include the Kurzweil K2000/2500 series, and the Peavey SP sampling module. A computer simply has no way of knowing what data is present in a sampler unless it asks the correct questions, and Akai samplers use their own unique set of commands, which is useful for transferring samples between two Akai samplers but not much else. Because SMDI is not implemented by Akai, extra code would need to be written by Sonic Foundry to support only Akai samplers — they're currently working towards this, and will hopefully include it in a future release.

To address this limitation, Akai themselves have produced a Mac program called *MESA* (Modular Editing System by Akai), which has been written from the ground up as a large-screen version of the internal Akai sample and program editing system. Any parameter that can be edited within the Akai sampler on its own little LCD screen has an equivalent control on the computer screen,

DIVIDE AND CONQUER

Back in the dim and distant past, when hard disks of 20Mb were considered practically unfillable by mere mortals, PC operating systems set an arbitrary limit of 32Mb as the maximum hard disk size. As bigger disks came along, the concept of partitions allowed a larger drive to be split into several sections, each treated by the computer as a separate device. A 90Mb disk had to be viewed as a minimum of three sections. These restrictions have long since been removed, allowing partition sizes upwards of 1Gb, which are vital for hard disk recording.

You may wonder why many samplers still insist that you divide your hard drive into partitions rather than use one large area. One valid reason, which anyone struggling with a hard disk recording system will know, is that regular defragmentation can make the difference between glitch-free recording and a choppy mess. This is because files newly written to disk are slotted into whatever empty space is available. A single sample may end up split into several sections, each filling a convenient 'hole' on the disk, and writing these sections to disk or loading them back into memory will take longer than a single chunk. With the onset of hard disk recording options for samplers, a separate partition reserved for this function ensures that the recording process is not trying to work around hundreds of small program files already on disk. This will speed up disk reads and writes, and help ensure optimum results during recording. The ideal solution, of course, is to use an entirely separate drive for recording.

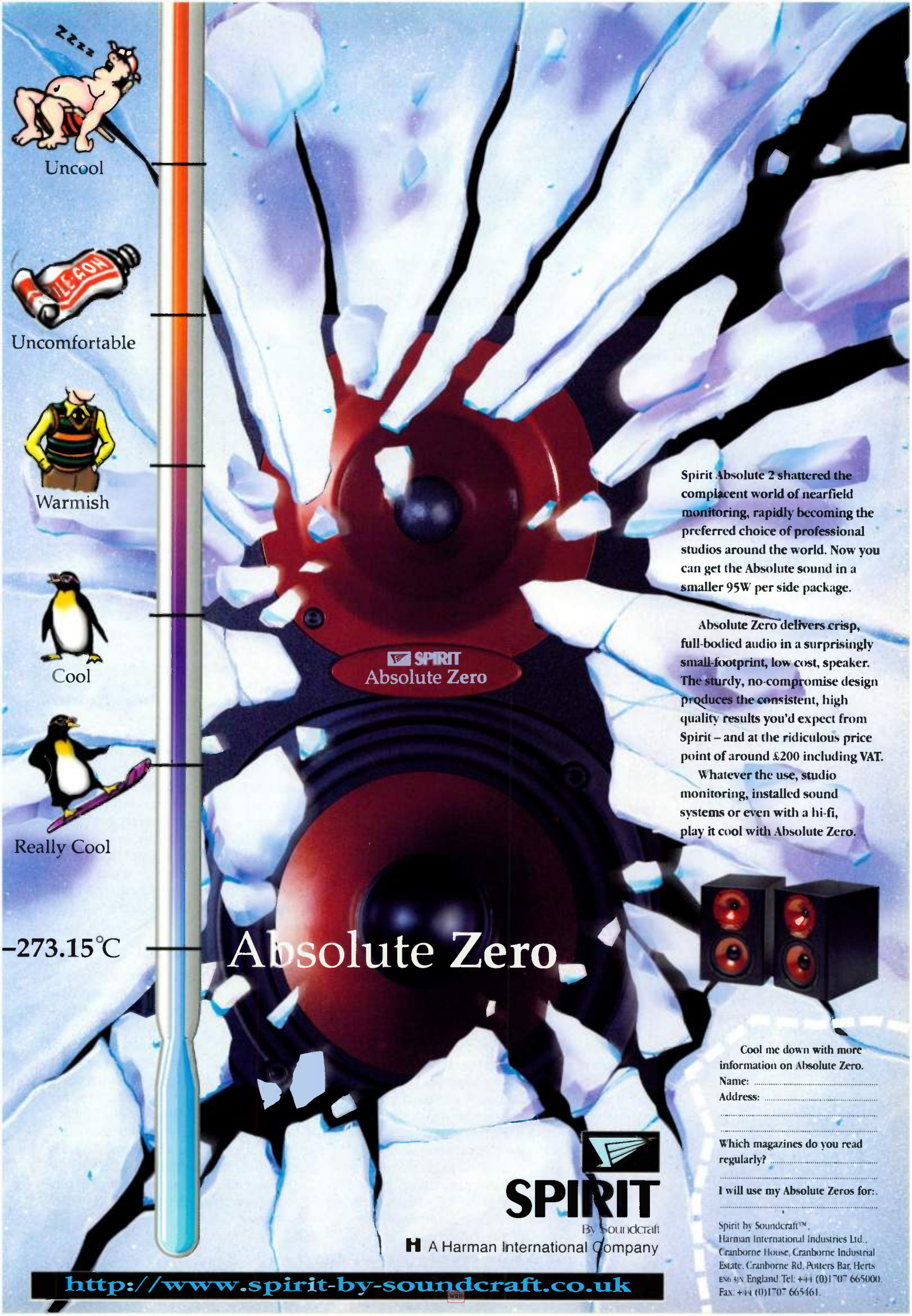

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Figure 4: Akai's MESA (Mac version) — the Ultimate Solution?

and both sample and program data can be loaded and saved to the onboard computer hard disk. A PC version is currently under development in this country by AL Digital, the company who, among many other things, have distributed the Akai sound library during the last few years. This is welcome news indeed for PC-owning Akai users, and means there's an end in sight to peering into that little LCD screen!

"Once your samples are in a computer, you have access to a multitude of useful utilities that sampler manufacturers cannot provide."

COMPUTER AIDED DESIGN

All of this may seem like a lot of effort, simply to gain a large screen and centralised storage facilities, but once your samples are in a computer, you have access to a multitude of useful utilities that sampler manufacturers cannot provide in their own internal operating systems, either due to space limitations or lack of time. At a basic level, it's far easier to organise a large number of samples when viewing the contents on a computer monitor — not only can you see dozens of filenames simultaneously and sort them by name, but each will have a date stamp created when the file was saved. How many times have you found two samples with identical names on a hard disk, with no way of remembering which one had all those tweaks made to it? On a sampler the only way to find out is to load each in turn and listen — a daunting task if only one multisample of a dozen associated with that particular sound has had its loop point tweaked. With a computer, even if two samples have identical date stamps, you can use file-compare utilities which allow you to see whether identically named sounds actually contain different data. Using a sampler alone, it's normally easier just to leave these possible duplicates where they are than to tidy things up.

Another frustration with many samplers is their insistence that you divide a hard disk into partitions (see 'Divide and Conquer' box). Even though there's still plenty of empty space left on the hard disk, if one partition becomes full, you have to select another partition to use. If, like me, you try to organise a large number of samples into suitably-named directories, to make looking for a particular type of sound easier, this task becomes increasingly difficult as the disk fills up. Once your samples are in the computer, even with partitions it's quick and easy to do large-scale moves and copies — unlike the sampler, where the only way to move sounds is to load them into sampler memory, delete the original on disk, and save them to a different location. In fact, once your samples are in your computer, you have total freedom from any sampler partition restrictions.

Defragmentation and disk-scanning utilities also allow you to perform regular housekeeping on your hard disk, speeding up access to data when the disk begins to get disorganised, and spotting any disk errors before problems get too serious.

TOTAL RECALL

Unless it turns out that there are unseen disadvantages, as soon as the PC *MESA* software appears I intend to use it to store all my Akai samples in the computer. In storage terms, it will only mean that the data ends up on an identical Syquest cartridge, but formatted by the PC rather than the Akai. However, given all of the above advantages it would seem silly to do otherwise.

But the biggest advantage of all may be that if any of my sample data ever gets corrupted again, I can attempt to rescue it with one of the many salvage and recovery programs available for the PC. The last time it happened with my sampler, the technical support staff could only offer tea and sympathy. SOS

CONTACTS

***MESA* for PC: £TBA**
T Akai UK, 0181 897 6388.
W http://www.akai.com

***ReSample Professional*: £99**
T Et Cetera Distribution, 01706 228039.
W http://www.etcetera.co.uk

***Sound Forge*: £299.95**
T Arbiter Group, 0181 202 1199.
W http://www.sfoundry.com

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New **Yamaha MD4**...MD Data (Rec/Play), MD Audio (Play), 44,1Khz sampling rate, 254 recordable songs, punch I/O, Midi out, incredible quality & value for money

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564 Digital Portastudio...CALL NOW

New **Vestax HDR8**...8 track hard disk recorder, user friendly interface, call NOW!

Roland VS880...8 track HD recording, 64 virtual tracks, 6 simultaneous recording, 32, 44.1 & 48kHz record rates, 14 mix channels, 8 bus routing & loads more!

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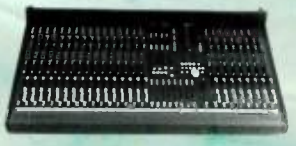
Yamaha O2R...On board automation of all digtial mixing parameters, 40 input channels & 2 full featured stereo internal effects returns. 4 band fully parametric digital EQ (automatable) on all channels. **Call to arrange your demo**



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UNBEATABLE DEALS!

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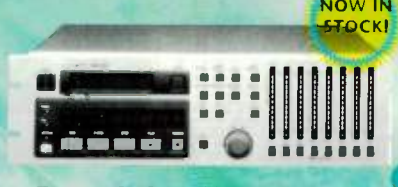
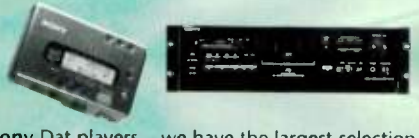


New **Tascam DA38**.....108 minutes recording time, 44.1Khz & 48Khz sampling rates, balanced & unbalanced analogue inputs, internal digital routing & track bouncing!

AVAILABLE FOR OVERNIGHT DELIVERY

DAT



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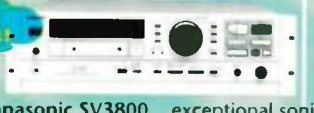
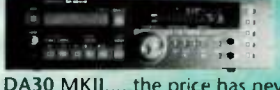
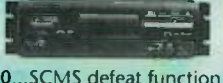


New **Panasonic SV3800**....exceptional sonic quality, mulitple digital interfaces, shuttle search & single program play.....IN STOCK



Tascam DA30 MKII.... the price has never been so low! 44.1, jog & shuttle wheel, balanced I/O, AES & SPDIF.....One of our best selling units



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Studio Masterpiece?

PANASONIC SV-3800 PROFESSIONAL DAT RECORDER

Panasonic's latest pro studio DAT is priced to compete with Tascam's established DA30 MkII. PAUL WHITE gives his professional opinion on how it measures up.

pros & cons

PANASONIC SV3800 £1291

pros

- Shuttle search wheel.
- Range of digital I/O options.
- High sound quality.
- Supplied infra-red remote control.

cons

- No unbalanced ins and outs — balanced XLRs only.
- Insists on writing a start ID whenever you go into record.

summary

A well specified and sensibly priced pro-quality DAT machine.

SOUND ON SOUND

Panasonic are one of the leading lights in DAT manufacture, with a track record of building high-quality machines with professional features, and the SV3800 looks set to continue that tradition. Strangely, the machine comes as a free-standing, rather than a rackmounting, unit, though the rest of the feature set is obviously geared for professional use. The analogue inputs are on balanced XLRs only, and while this is correct for professional interconnections, I rather like the idea of having phonos as well, so that an unbalanced-to-unbalanced connection can be made for taking cassette copies. On the digital side, however, you can take your pick from AES/EBU format on XLRs, or IEC Type II (S/PDIF compatible) on both phono and optical connectors. As you'd expect, recordings can be made at 44.1kHz or 48kHz, and you can also play back the less common 32kHz recordings if you need to.

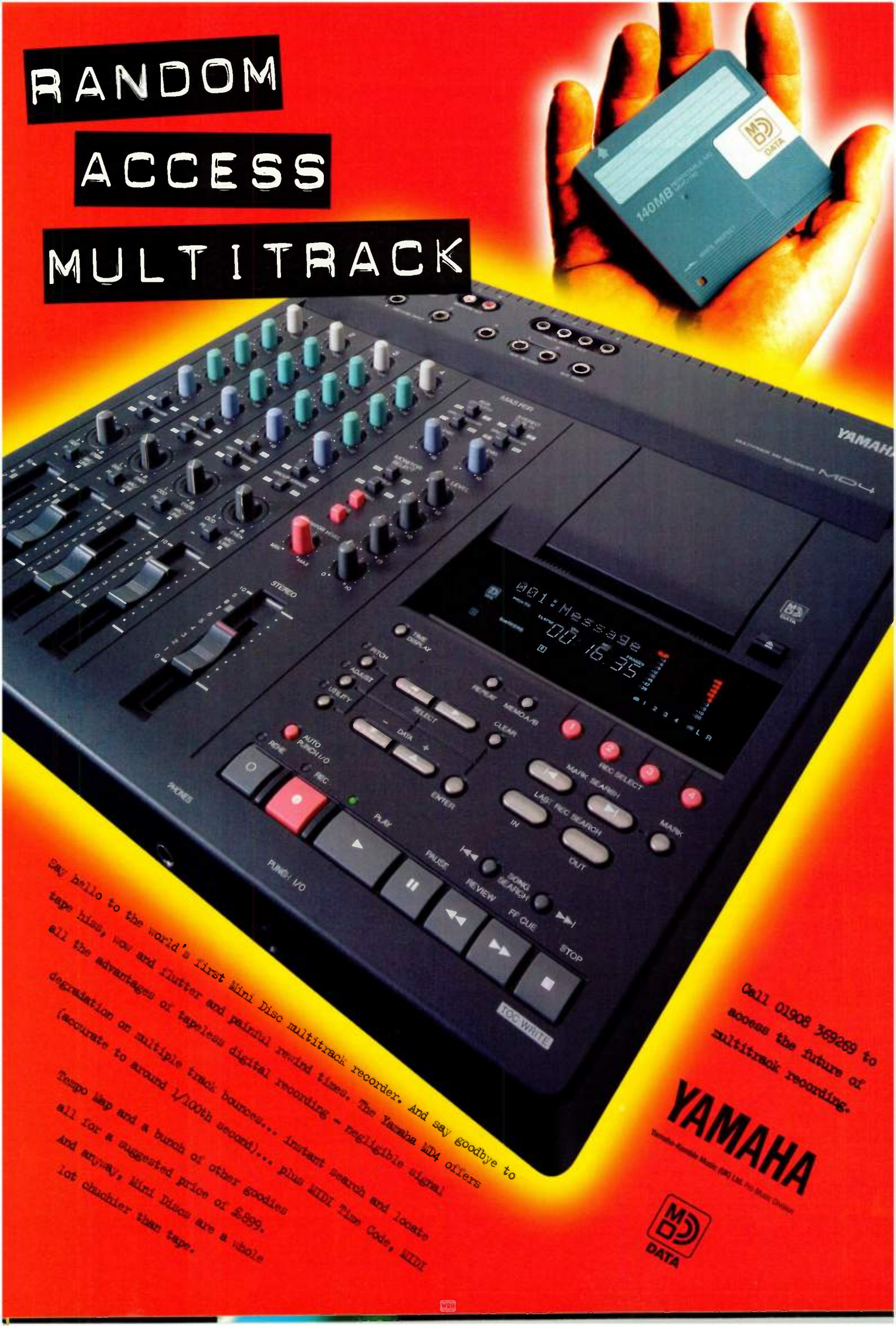
The tiresome problem of SCMS (Serial Copy Management System), sometimes simply called 'copy code', doesn't apply to the AES/EBU connections, but can be set in three different ways for the IEC connectors. It's possible to set the value of the appropriate data flag (ID6) to 00, which means that unlimited digital copies can be made from the source tape and from its copies; to 11, which means that copies may still be made of the original tape, but these copies will not copy again in the digital domain; or to 01, which produces copy-prohibited tapes that can't be cloned onto consumer DAT machines. Given that anyone with a professional DAT machine can tell SCMS to go swivel on its forefinger, I really don't see why the powers that be bother to implement it at all!

REMOTELY POSSIBLE

Remote control of the SV3800 is possible either via a 'wired' control port on the rear, or from the supplied infra-red remote. All the usual play modes are provided, including the facility to write skip codes so that unwanted recordings are bypassed, and there's also the familiar music scan mode, repeat play, and programmable playback order. Additionally, there's a fade-in/fade-out option that could be useful if you have difficulty creating clean, even fades.

Providing you're careful not to leave any unrecorded tape between recordings, the real-time sub-code provides an accurate readout of elapsed run time, and there's a facility for recording subcode only, with no audio, if you need to generate a clean stretch of silence. Program numbers may be automatically recorded, and providing there's no break in the subcode, these will be contiguous. Irritatingly, the SV3800 generates an ID whenever you enter record — if machines must do this, there should be an option to disable the function, otherwise you can end ▶

RANDOM ACCESS MULTITRACK



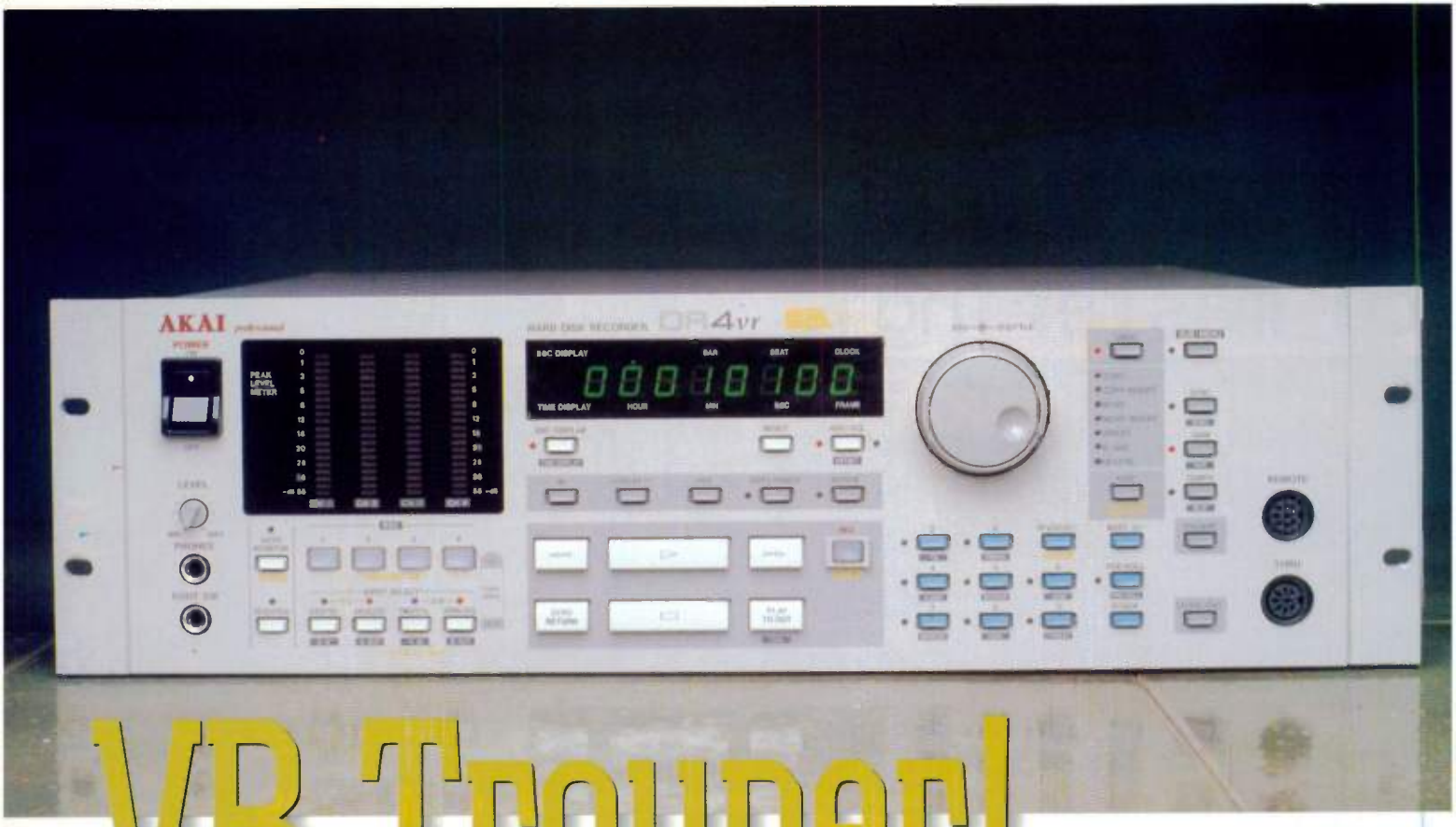
Say hello to the world's first Mini Disc multitrack recorder. And say goodbye to tape hiss, wow and flutter and painful rewind times. The Yamaha MD4 offers all the advantages of tapeless digital recording – negligible signal degradation on multiple track bounces... instant search and locate (accurate to around 1/100th second)... plus MIDI Time Code, MIDI Tempo Map and a bunch of other goodies all for a suggested price of £899. And anyway, Mini Discs are a whole lot chuchier than tape.

Call 01908 369269 to access the future of multitrack recording.

YAMAHA

Yamaha-Kemble Music (UK) Ltd. Pro Audio Division

MD DATA



VR Trouper!

AKAI DR4vr 4-TRACK HARD DISK RECORDER

The latest in Akai's line of stand-alone hard disk recorders, which also includes 8- and 16-track models, sticks with the 4-track format of its predecessor, the DR4d, but adds 250 'virtual' tracks to increase the flexibility it can offer. DAVID MELLOR checks out this low-cost entry into the world of disk recording.

Two interesting statements: if you want to get into hard disk recording but finances are limited, the Akai DR4vr is probably your lowest-cost option, unless you already have a suitable computer for which you can buy appropriate software and hardware; if you want to get into *professional* hard disk recording, the Akai DR4vr is probably your lowest-cost option.

If you don't have a hard disk recorder already, you may be considering acquiring one — there's now quite a selection from which to choose, with models by Akai, Fostex, Roland, and Emu on the market. You might be considering the computer-based hard disk system route, which certainly is a viable option, but since the focus of this review is a stand-alone unit, I'll eliminate computer-based systems from comparison.

I have already reviewed Akai's DR8 and DR16 in these pages (see *SOS* August 1995 and May 1996), and they are indeed thoroughly professional machines. I recently visited London's De Lane Lea film sound studios, which are stacked up to the ceiling with modified DR8s, a testimony to their worth. Fostex and Roland, too, have interesting models in their catalogues, Fostex's D80 8-track machine showing the closest similarity to the Akai DR4vr. Compared to all of these alternatives, there is one inescapable fact about the DR4vr that you can't help feeling puts it one step behind the competition: it only has four tracks, rather than the eight or 16 that most users would undoubtedly prefer. I could spend the rest of this article saying that the alternatives are better simply because they have more tracks. I'm not going to do this, of course, because it would become tremendously boring, and I guess you know already how many tracks you need for your own particular application. If you need to have eight individual tracks all playing at the same time, then the DR4vr is not for you. But if you don't need eight tracks, I think you might find my opening statements worthy of close consideration. Compare the options, and I think you'll find that the DR4vr offers more intrinsic capability and more possibilities for expansion at a very reasonable price.

WHO NEEDS IT?

The Akai DR4vr is not a hard disk 'Portastudio', that's for sure. If you're a newcomer to recording, you should probably take a look at the Fostex DMT8 or Roland VS880, each of which incorporates a complete studio (bar amp, speakers, and mastering machine) in one compact box. The DR4vr is a stand-alone recorder, and although it can do some mixing ▶

pros & cons

AKAI DR4vr £1099

pros

- Functional and professional.
- Easy to operate.
- Uses SCSI disks.
- Syncs to MTC and SMPTE/EBU with additional cards.
- A reasonably low-cost entry to hard disk recording.

cons

- Cost per track not favourable compared to Fostex D80 and some other hard disk recorders.
- Like every other hard disk recorder, makes ticking noises while recording or playing back.

summary

With a MIDI or SMPTE/EBU card, the DR4vr is the ideal thing to have in a MIDI studio or tape-based multitrack studio. Adds versatility to multitrack recording and facilitates stereo mastering and editing. Buy one and you'll use it every day.

SOUND ON SOUND

If your speakers sound like this then you need help..

A GOOD system sounds like

THIS

The EV T-Series.

CONCERT SOUND, COMPACT FORMAT

Does your PA pass the listening test? Can your audience hear the hi-hats at the back of the room? Are the vocals clear and intelligible? Does the kick drum really kick them in the chest? Is the mid-range rich and full? Can your audience hear *every* instrument, loud *and* clear? Do they get the message?

If the answer to any of the above is 'no', then chuck out your old system and check out the Electro-Voice T-series. Made in America, they're high quality, full-range, rugged, reliable and LOUD. We've packed nearly 70 years of expertise, and a host of concert sound components into enclosures that are just *made* for gigging. And we've made the price right for giggers.

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DR4vr: SON OF DR4D

You might be wondering whether the DR4vr is a totally new machine or whether it is simply an upgraded DR4d. The DR4vr cannot be considered a slimmed-down DR8 since the DR8 and DR16 were created by a different design team in the UK. To say that the DR4vr is 'only' an upgrade, however, might be to under-estimate its worth. The new features of virtual tracks and 'Ping Pong' (Akai's terminology) mixing are potentially useful, virtual tracks perhaps more so, but basically the DR4vr is a solid professional machine and it fully deserves its place in the Akai catalogue. The change from black — or was it very dark grey? — to traditional Akai beige is not unwelcome, but some of the panel screening is in yellow, which makes it difficult to read. Some features that might have been desirable, however, such as copy operations being performed without physically duplicating the data, and direct recording to magneto-optical disk, have not been incorporated.

of already-recorded tracks internally, you really need an external mixing console to get signals into the unit, and mix them on the way out too. You could hook up something like a small Soundtracs Topaz to the DR4vr, but you'd then have brought up the cost to something similar to a DMT8 or VS880, and you'd have to wonder whether this was worth doing. I feel that the ideal customer for a DR4vr is someone with a complete studio setup already. If this is the case, the DR4vr has a number of applications:

- As a mastering machine. If you mix directly to DAT, almost inevitably there will be some editing left undone. It's a rare multitrack recording that starts completely cleanly with no hiss, hum or other noises before the music. With a DR4vr, you can edit the track to within milliseconds for a clean start and finish. Also, many engineers like to mix in sections if an automated console is not available. With a DAT you can't edit the sections together; with a DR4vr it's a doddle. When the mix is finished and edited, the result can be transferred via the digital output to DAT with no quality loss.
- As a tool for improving multitrack recordings. If you use an analogue multitrack, which the majority of professional music recording studios still do, you'll be aware that the punch-in performance of analogue machines is not nearly as good as digital multitracks. Some analogue multitracks punch in quite nicely, but leave a gap at the punch-out. By syncing a DR4vr to the analogue machine, using the optional SMPTE/EBU interface card, you can get perfect punch-ins — using a footswitch, if need be — and then transfer the finished track to the tape. Similarly, if you want to compile several vocal takes into one, the DR4vr is the machine for the job. You could even take it home with you and avoid spending expensive hours in the studio doing this time-consuming work.
- For working to picture. Music to picture composers enjoy working with MIDI-sequenced systems because they can sync the sequencer to the video quite easily and cheaply, and chop and change the music around to follow the whims of the director. But as soon as you want to incorporate even one traditional instrument, all of these advantages disappear. You need an complex and expensive synchroniser to sync analogue or digital tape to video (or use a basic synchroniser and work at a snail's pace), and editing becomes very difficult. With a DR4vr and the optional MIDI card, your audio recordings will be as malleable as your MIDI data, and as quick to respond to the video as your sequencer.
- As a substitute for analogue stereo tape. Believe it or not, this has been the toughest nut for digital audio to crack, and the DR4vr still hasn't quite cracked it — but it's halfway there. Analogue tape is still widely used in broadcasting because it's quick to edit, and you can record, edit, and archive on the same piece of tape without having to wait for any copies to be made. You can certainly record and edit on a DR4vr; you can also copy the recording faster than real time, from the internal hard disk to an external removable disk, for long-term storage using the optional SCSI card. (Backup to DAT is also possible). The DR4vr isn't quite as simple as analogue tape, however, and I suspect it will be some time before any hard disk recording system is.

PRO FEATURES

Serious users are usually most concerned with the basic details, rather than the fancy features that advertising copywriters often tend to home in on. In no particular order of importance, let me confirm a few points that will set your mind at ease:

- The Akai DR4vr has four inputs and four outputs and records full 16-bit digital audio (32, 44.1 or 48kHz) with no data compression. That certainly puts it ahead of models that don't have an input and output for every track, and models that have to compress the data to achieve their maximum quota of tracks!
- An internal hard disk is available as an option — one which most buyers will want to take up, I imagine. The DR4vr isn't limited to this one disk, however. It is supplied as standard with a SCSI connector, to which a further six disks can be connected. Note that there is a greater choice of SCSI drive types than there is IDE. An additional SCSI card can be fitted for backup to a fixed or removable disk.
- Digital input and output is provided as standard, both on consumer SP/DIF phono connectors and professional AES/EBU XLRs. If four channels of digital I/O are required, an additional card can be fitted. Analogue inputs and outputs are balanced, and can be switched to +4dBu or -10dBV standards.
- The DR4vr supports MIDI Machine Control (MMC). MMC is fast becoming a standard in the recording world, and the DR4vr can be operated via MIDI from sequencers such as *Cubase*, *Logic*, and *Performer*, and also external controlling devices such as, to give just one example, the Soundcraft Ghost mixing console.
- The DR4vr offers a total of 108(!) locate points,

"Amazingly enough, you can alter the level and pan of tracks mixed any number of digital generations ago — the DR4vr simply recalculates the data."

The process of elimination.

TrueVerb - Virtual room/reverb processor for TDM systems. £599inc.

Add Waves software FX to your Digidesign, Adobe Premiere or Macromedia Deck II system and plug-in to the best digital FX processors for your hard disk recording system.

Pictured above is the latest plug-in from Waves - TrueVerb - not just a state of the art reverb, but designed to simulate the actual sound of a good room. Adjust reverb time, room size, frequency response and even the distance of the sound from the listener.

Also new from Waves -

Waves version 2.1 plug-ins are already 100% compatible with PCI based Digidesign systems. Version 2 also provides 'component' versions of the plug-ins for more efficient use of the available DSP and to allow more than one simultaneous process per DSP chip within both the Pro Tools TDM and SDII enviroments - a feature unique to Waves.

A new upgrade for WaveConvert (Macintosh/PowerMac 1.6, Windows 1.2) is now available. New features for the Macintosh include: audio conversion from within Quicktime, pre-processing for Real Audio encoding, custom Creator ID's, improved dithering, preservation of all regions, markers and loops in conversion (SDII, AIFF), and more. New features for Windows include: AIFF support, unlimited number of files, quantisation noise gate, arbitrary sample conversion rates, special dither for speech files, improved file naming conventions, Maximiser and audio quality. WaveConvert was used to prepare Real Audio files for the Metallica website (www.metclub.com) and by the band Nine Inch Nails for converting all the music and sound for the new video game Quake (the successor to Doom from ID software)

Waves' Audiotrack and L1 Ultramaximiser plug-ins are now available for Sonic Soundry's Sound Forge 3.0.

Coming soon-

PS22 Stereomaker - a dramatic stereo-from-mono plug-in for TDM, SDII and Powermac.

WaveConvert for Windows & Macintosh is an easy to use audio processing application for multimedia developers. It combines the well known peak limiting technology of the Waves L1 Ultramaximizer with other Waves processors into a powerful one step audio processor. Wave Convert easily converts Mac or Windows based high resolution audio files into lower resolution audio files while retaining optimal sound quality.

£229inc.

The C1 is a true frequency-selective dynamic processor with phase compensation. That simply means you could compress only the bass without colouring the sound. Or you could limit only the treble, and so forth. The C1 is an expert tool; there is no other dynamic processor like it in the world. Ideal for mastering, voice-over, or even frequency-selective keying, the C1 is supported by an extensive Setup library.

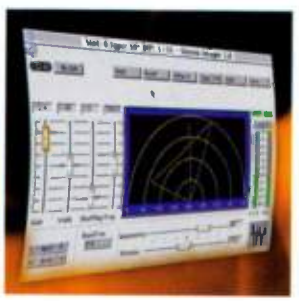
From £499inc.

L1 Ultramaximizer is the worlds best known digital peak limiter. The L1 features IDR processing-a better dithering/noise-shaping system than others costing nearly 20 times the price. Ideal for mastering Compact Disc and multimedia audio as loud as the major labels and publishers. The L1 is industry standard for CD and multimedia mastering. Our users include Microsoft, Steve Miller, Sony, Sega, Nintendo, Korg and Tangerine Dream.

From £459inc.

The Q10 ParaGraphic EQ is one of the most powerful equalizers ever made, with 10 band stereo parametric EQ, whether for subtle or extreme adjustments. A 200-piece Setup Library provides pre-emphasis, pseudostereo, multimedia, mastering and many more pro-audio tools. The graphic interface has been called "the model for audio software interface design". The Graphical and numerical control, and the display are unmatched.

From £309inc.



The S1 Stereo Imager brings together a comprehensive set of stereo manipulation tools. Four distinct processes make the stereo image wider or narrower, increase space in the lower frequencies and rebalance the left-centre-right, independantly! Three of these processes are phase-compensated, keeping mono compatility. Beyond any stereo processor on the market, the S1 is excellent for stereo TDM subgroups, reverb returns, stereo mic recording and mastering.

From £339inc.

Audiotrack is a low cost entry point into the world of Waves plug-ins, combining the most needed audio processors into a single piece of software, mono or stereo mode including 4-band EQ, compression/expansion and gating. Ideal for project studios, digital sequencers, and desktop post. With setup library. TDM, SDII, Powermac, Sound Forge 3.0

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Natural audio

"The virtual tracks feature is certainly entirely usable and very valuable."

- even without the DL4d remote controller. Pre-roll is adjustable, and playback is immediate.
- Last but not least in my list of desirable pro features (maybe not unique, but certainly not ubiquitous in the disk recording world) — the Akai DR4vr has instant, on-the-fly as well as programmed, punch-in!

OPERATION

Perhaps the easiest way to describe the operation of the DR4vr is to go through the process of what might be a typical application — producing a simple radio commercial with a voice-over and pre-recorded music bed. You could do all of this with the DR4vr, a CD player, mic and preamp, mastering machine and monitoring — no mixer involved. The first step would be to copy some music (taking out the necessary copyright clearances, of course!) from the CD to tracks 1 and 2. A domestic CD would probably give enough level to drive the inputs when set to -10dBV. Like most multitrack recorders, the DR4vr doesn't have any input or output level setting controls. Recording is as simple as pressing the record and play buttons simultaneously — no program to load, no files to open, no network, screen-saver or email software to shut down (and some people ask me why I have become cynical about computers in audio!). You can, of course, set the sampling rate, and which disk you want to record onto if you have more than one. If the commercial needs to fit into a certain time slot, as it almost certainly will, you'll need to edit the music to fit. You can't fade it within the DR4vr.

Let's suppose it's an easy edit and all you want to do is cut out a section from the middle of the track. Play to the start of the section, and as soon as you hear your edit point, hit stop. Carefully turn the jog wheel anti-clockwise to scrub the audio backwards. The audio quality of the scrub is pretty good — not as good as some high-end systems or analogue tape, but much better than a mouse, and certainly accurate. When you've located your edit point precisely, hit the Store button, then the In button. This marks the beginning of the section to be edited. Do the same to find the out point and store that in the Out location. You can easily check your edit points using the In and Out locators, the Play button, which will play the entire section for you, or the Play-to-Out button, which plays the last few seconds up to the out point. Since in this instance you want to cut out the section, press the Edit button repeatedly until the Delete function is indicated, and then press Enter. It's now done, and if you don't like what you have achieved, there's always the Undo button to turn to. In a similar fashion, you can move and copy segments to different time positions on the same tracks, or to different tracks. You have to specify which tracks you want to copy from and to; these are selected straight from the buttons on the front panel. An interesting point is that unlike the Akai DR8 and DR16, copies on the DR4vr are made by physically duplicating the data on the disk, rather than just pointing to the same blocks on the disk. This takes a little time, but it's faster than real time and in practice I didn't find it a problem.

Recording a voice-over should be quite simple, technically, but these things often need a lot of takes and sometimes the best performances come just a few words at a time, so you may need to edit between several takes. The original Akai DR4d was a 4-track recorder and that was it, so you would have had just two tracks for the voice-over — although you could have shunted takes further down the track as a temporary measure, to make more recordings. The DR4vr, however, offers up to 250 virtual tracks, of which up to four can record or play at any one time. This makes it far easier to go for lots of takes, up to the point where the disk is full. I would imagine that 250 virtual tracks would be enough for any user, unless you know different! Portions of takes, by the way, can easily be edited together to create the perfect voice-over.

The next step in our fictional commercial would be to mix the music and voice-over into stereo, which you can do internally in the DR4vr. In fact, you can mix together as many tracks, from the 250 virtual tracks, as you like, as long as you do it no more than two additional tracks at a time. You'll have control over level and pan.

You might be thinking that this sounds great as far as it goes, but what happens when you decide that a track you mixed ten layers ago now seems to be too loud? There's nothing you can do about it, apart from go back and do all that work again, is there? Well, amazingly enough, you can alter the level and pan of tracks mixed any number of digital generations ago — the DR4vr simply recalculates the data. You can't add external signals to the mix, but there's no reason why you shouldn't record some reverb onto virtual tracks and mix it in as appropriate. This new mixing feature is certainly very clever, but to be blunt, I would find it too much bother, and I would rather have spent more money on a machine with more tracks. That's my personal view, however — you may see it differently. The virtual tracks feature is certainly entirely usable and very valuable.

The DR4vr's well-furnished back panel, including digital In and Out in both SP/DIF and AES/EBU formats. Two more channels of digital I/O can be added with an optional board.

SUMMING UP

Right now I'm enjoying using the Akai DR4vr on a real project and I'm doing things with it that I wouldn't be able to do otherwise. In my home project studio, I have so far resisted buying more than eight tracks of digital multitrack because the right combination for my needs isn't yet available (since you ask, I want at least 16 tracks on a single machine, or *instant* synchronisation of multiple machines, and archivable media rather than fixed hard disks). I'm quite content for the moment making stereo premixes of backing tracks and adding additional tracks onto a new tape — in fact, there are certain advantages to working in this way that I might cover in a future article. But up until now, when I copy my stereo premix onto a new tape, I lose the ability to synchronise my sequencer accurately without much fiddling about, particularly if I have made the premix in sections and edited them together, which inevitably changes the duration slightly. The DR4vr, however, will synchronise perfectly to the multitrack (with the SMPTE/EBU card option), so that when I copy the premix to a new tape it will start at exactly the same timecode position. I can mix in sections, either dropping in on the DR4vr, or recording onto a different pair of tracks and editing, and the piece will stay the same length exactly. This way, I can continue to use my sequencer, and since any new tracks I record will be in sync with those on the original tape, I can hire or borrow another multitrack when I do the final mix if I feel the need to. In fact, I could make a recording of virtually any number of tracks, up to the limit of my mixing console, without having to own more than one multitrack recorder. The DR4vr also gives me the ability to lift guitar tracks off the tape, correct them where necessary for timing, and copy them back to tape again. With a digital interface for my multitrack I would be able to do this without any generation loss.

Are four tracks enough? Well, for multitrack music recording, other than simple demos, I would have to say no, so if this is your intention you should really be looking at a Fostex DMT8, Roland VS880 or Akai DR8. Four tracks, however, are great for stereo editing, multitrack manipulation, voice-over work, sound effects, adding to MIDI systems, and a potential multitude of other applications. Add 250 virtual tracks which can be assigned to the four outputs and you have a great deal of flexibility in a reasonably-priced package. If you had one of these in your studio, you'd use it all the time.

In conclusion, the DR4vr may not look too exciting on the surface, but there's a lot to get your teeth into. Every studio should have one, or something with at least equivalent capability, and Akai deserve continuing success with this update of the DR4d for years to come. SOS

info

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It's a Family Affair

KORG N364 WORKSTATION SYNTH

Though Korg's new N-series keyboards aren't completely new on the inside, having much in common with the recent X-series synths, they still have plenty to offer as powerful workstations, with some neat and contemporary embellishments for '96. GORDON REID sketches out the Korg family tree...

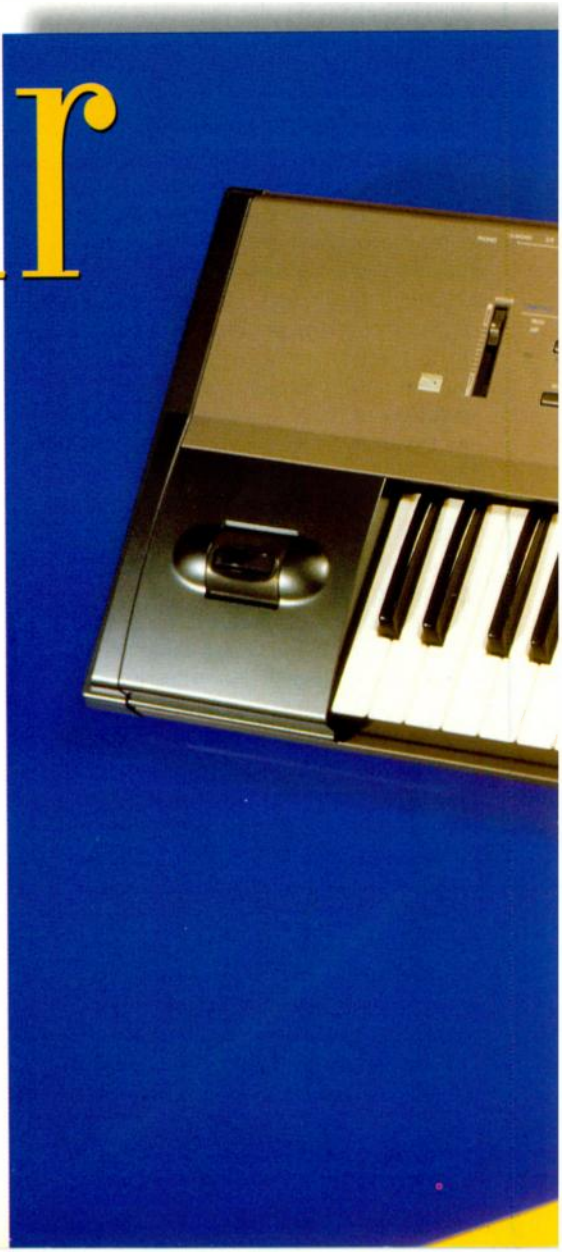
In 1988 Korg launched the M1, which, if we set aside unaffordable monsters such as the Fairlight CMI and Synclavier, introduced on-board sequencing, 8-part multitimbrality, and the workstation concept to the world. It also introduced Korg's AI (Advanced Integrated) method of synthesis. This, although it lacked resonant filters, was bright and flexible, and was a great success, so much so that Korg produced a rackmount version (the M1R), a cut-down module (the M3R), and three souped-up keyboards (the T3, T2, and T1). There was even a rackmount version of the T3, although, with somewhat arcane logic, Korg named this the M1R EX.

Still with me? OK... The next chapter in the AI story came in 1991 and, predictably enough, was called AI2. This came in the form of the second-generation O1/W and O1/W FD keyboards, and the rackmount O1R/W. As before, there was a baby rackmount, the 03R/W, but this time there were no equivalents to the T-series. The big difference between the 'M's and the 'O's was a facility called 'wave-shaping'. In principle, this allowed you to distort the waveform, adding many high harmonics and, therefore, brightening the sound. And there was no doubt about it: the 'O's were noticeably brighter than their forebears, although (and few people seemed to notice this at the time) you could count on your fingers and toes alone the number of factory programs that used wave-shaping. Clearly, the second-generation machines were definite improvements upon their predecessors.

The third generation, introduced in 1993, used another new method of synthesis. This lacked wave-shaping but, for reasons that Korg have never explained, was still called AI2. Nevertheless, the new AI2 retained much of the brightness of the O-series, and the basic model of this generation (the 32-voice X3 keyboard) leapt straight to the top of the best-selling lists, where it resided for the next couple of years. Other third-generation products included the inevitable X3R, the X2, and the 05R/W. Uh-oh, this is getting confusing...

Despite its 'O' prefix, the O5R/W was an X3 module, the only difference between this and the X3R being the omission of one bank of sounds and the lack of a sequencer. But now things get really crazy... The X5 was the next X-series keyboard, but this was an O5R/W with a keyboard — or, to put it another way, an X3 without a disk drive or sequencer. The X5D was a 64-voice version of the X5, and the X5DR was the rackmount of that.

Now, eight years down the line, we have the fourth generation, the N-series, comprising the N364 and the N264. Snappy names, aren't they? But here's the joke: while the '64' refers to the number of voices (no problem there) and the '3' and the '2' refer to the keyboard size, in time-honoured T3/T2 and X3/X2 fashion, rumour has it



that the 'N' refers to 'Next Generation'. Why's that funny? Because, while the 'T', 'O' and 'X' prefixes referred to derivatives of Korg's original synthesis, the sound generation in the N-series is identical to that of the latter X-series synths and modules. The N364 is the keyboard version of the X5DR, with the same amount of PCM ROM, and the same chip-set, but with the disk drive and sequencer reinstated from the X3. Indeed, the N364 sounds identical to an X5DR. 'N' stands for 'No changes', maybe?

Well, of course there are changes, but they are more subtle than the introduction of a new method of synthesis. So let's delve below the surface and discover whether Korg have struck gold again, or whether the enhancements embodied in the N364 are more along the lines of the Emperor's New Clothes...

HARDWARE

Physically, the 61-key N364 is very reminiscent of the X3, with an almost identical body and end cheeks. Indeed, the top panel is the same aluminium extrusion, the only difference being the width of the screen cut-out. The colouring is different, however, and I rather like the gun-metal blue, which reminds me of the OASYS prototype I first saw 13 months ago, but which has yet to appear in public.

Other similarities to the X3 abound. The disk drive is mounted on the side (unlike the more user-friendly O1/W FD and Trinity, which have it facing forwards) and, most unfortunately, the N364 shares the X3's major failing by offering a truly horrible keyboard. I hated the X3 and X2 keyboards, which I've previously described as black-striped marshmallows glued to the front of the synths. While I found the N364's keyboard much less spongy, I also found it to be over-light and extremely shallow. But maybe Korg are expecting users of the N-series to come from a less 'pianistic' mould than me? It's not an unreasonable perspective.

On a more positive note (oops, sorry), the N364 has one overwhelming advantage over the X3: it has four outputs. This is not trivial, because while the N-series share the same chip-set as the X3 and X5, they will be much more flexible in the studio. Funnily enough, the X2 also had four outputs, as did the X3R, and the more expensive Trinity, so Korg clearly understand that outputs are important. What's more, the inclusion of four on other X-series instruments shows that the hardware is capable of supporting them. What I still don't understand is why Roland should be able to offer us six or even eight outputs, while Korg never seem to exceed four, even on their flagship products.

VOICES

Continuing in this mode of comparing the N364 to the X3, I can summarise the voicing of the N-series very easily. The N364 is simply two X3s bundled together, so it's got twice as much of everything. For ▶

pros & cons

KORG N364 £1299

pros
- Huge range of classy Programs and Combis.
- The re-introduction of an arpeggiator.
- Continuity with previous Korg workstations.
- Good price/performance ratio.

cons
- Over-light keyboard.
- Badly-utilised screen.
- The name.

summary

Great-sounding, good value workstation. Though very similar to the X3, it has some valuable extras, while retaining a very competitive price.

SOUND ON SOUND

example, the X3 offered a maximum polyphony of 32 voices, so the N364 has 64. Likewise, where the X3 offered a single bank of GM Programs plus two non-GM banks of Programs and Combis, the N364 has four non-GM banks, though it retains the one GM bank. Furthermore, the N364's 8Mb of sample ROM is 1.33 times that of the X3 (OK, so most generalisations don't bear close examination) and, as already mentioned, there are twice the number of outputs as on the X3. If there's a subjective difference in sound (for example, I always felt that the X5DR sounded better than the X3) it's probably a consequence of better factory programming. Once you've worked with a synthesis engine for a year or two, you learn a few tricks which enable you to create better voices. This happened with the T-series (Korg's programmers were considerably better at voicing the T3 than they were the M1) and I'm sure that, out of the box, the N364 sounds a whole lot better than its ostensibly identical predecessors.

On that basis, there's not much point in lingering over the N364's programming capabilities, nor the quality of the results, in great detail. These have been covered in our reviews of the X3R (February '94) and the X5DR (May '95). Still, I should pause to give the GM bank special mention because it's one of the best I've yet encountered. What's more, it's editable, so full marks to Korg here. It's also worth pointing out that, while the N364 has lost the O1/W's wave-shaping facility, it's brighter, cleaner, and offers extended parameters regarding the panning of the oscillators, and the way in which you can apply effects to individual parts. Finally, I should mention that the N364 retains Korg's traditional quick editing mode: just press one of the appropriate buttons on the top panel, then use the data slider or increment/decrement buttons to change primary values. It's hardly new — the M1 had it — but it's still a super feature.

> "...I should pause to give the GM bank special mention because it's one of the best I've yet encountered."

With regard to its Combis, the N364 takes a step backward when compared to the M-series and T-series. While the screen will tell you how many Programs are inserted within a Combi, it can only give you the numbers of Programs 1-4 or 5-8 at one time. This is not a consequence of the size of the screen, but of the way in which the space has been (mis)used. And it's a pain. Before Korg jump on me, I'll admit that I'm aware that the higher cost of a larger screen would have to be passed on to the consumer. But better programming should have cost no more, and besides, if the M1 could do it...

PATTERNS

We now diverge from the N364's predecessors, because we come to the all-new, real-time Pattern-play function, part of the N364's onboard sequencer (see 'Sequencer Strengths' box for more sequencer details).

Patterns are phrases that you can assign to keys. They may contain drums, or basses, or organ, or guitar — or whatever you like — and different keys access different Patterns. So, for example, bottom C could trigger your basic bass and snare, while D and E access variations, and F and G access fills. Then, C# and D# could offer hi-hats, ride and crashes, with other percussion under F# and G#. Above these notes, A, B and C could have bass riffs appropriate to the basic rhythm, with suitable fills on A# and C#... and so on. These phrases can then be played in real time from within the sequencer. The Roland XP50 has a similar feature, but the bonus of the N364 is its immediacy. The Roland demands that you decide which Patterns you wish to use and where, and then place them in the appropriate tracks. Then Korg simply invite you to put the sequencer into multitrack mode, initiate recording, then press the keys that relate to the desired Patterns and listen to the sequence develop as it's recorded. If you press a key a little early or a little late, there's no problem. Provided that you're deriving MIDI clock internally, the N364 doesn't allow you to record anything out of time, and quantises the Pattern 'on the fly'.

There are important constraints, however. The most important of these is the need to match the Patterns to the song in which they're being placed. Failure to do this will result in incorrect instrumentation and, in all likelihood, the wrong tempo. Serendipity isn't my chosen method for writing music, and I've discovered that playing funk patterns with a light jazz kit and double bass doesn't work. You have been warned.

Despite the fact that the N364 can store up to 100 Patterns, the nature of Pattern mode precludes a great deal of variation, and the tracks generated display a great deal of repetition. In other words, nobody is going to write a violin concerto in this fashion. On the other hand, the dance fraternity are going to love it. Programming bass and drums can be a mind-numbing operation for some people, and this is a very quick way of getting the basics recorded. ▶

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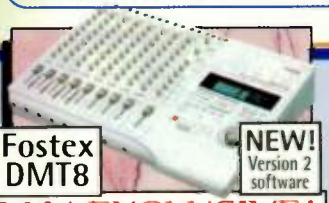

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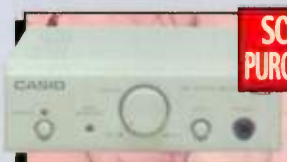

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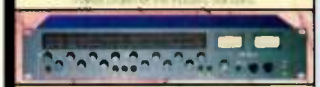

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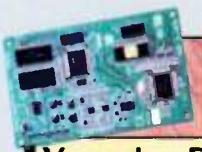

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Fostex G24S (24 track)	£	4995	Ch	Tascam 38 (8 track)	£ 799 Ch
Tascam 488	£	649	Ch	TDK MR8T (8 track cassette)	£ 599 Ch
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Then, once the rhythm track is in, you can use the sequencer to add transposition, variation, and changes in instrumentation. Mind you, it's hardly going to make software such as *Band in a Box*, or even Korg's i-series keyboards, obsolete. It might if it, for example, recognised chords played in the upper half of the keyboard (or something like that) and tracked them in real time. But it doesn't. You can play over the top of the Patterns, but that's all.

In addition to the Patterns pre-loaded in the N364, and the others that Korg supply on the factory disk, you can, of course, create your own. These can be edits of the factory data, or new Patterns programmed from scratch. You can even load sequences from elsewhere, select bits and pieces that you like, and allocate these to Pattern memories.

ARPEGGIATOR

The final major facility, and another one 'new' for '96, is the N364's arpeggiator. This offers five modes: Up, Down, Alt1, Alt2, and Random. Of these, three are self-explanatory, but the alternate modes bear explanation. On most arpeggiators, the upper and lower notes are played once per cycle — for example, a C major triad would be played over a single octave as C E G E on the first cycle, followed by C E G E again on the next. This is the behaviour exhibited by Alt1. Alt2, on the other hand, plays the highest and lowest notes at the start and end of each half-cycle, so that our triad now becomes C E G G E C, followed by C E G G E C again. You may think it a fine distinction, but this allows you to keep arpeggios within time signatures, shifting between common and complex times at the touch of a button.

The parameters that you can then apply to the arpeggio are range (1-4 octaves); note sorting; gate time (to make arpeggios more 'choppy'); MIDI velocity (1 to 127, or the played velocity); sync; latch; and speed. Oddly, if you continue stepping sideways within the arpeggio parameters, you find yourself in the edit map of the program playing the arpeggio. Whether this is intentional or not, I don't know, but it could be very useful, allowing you to modify the sound as the arpeggio is playing.

Because at the time of the review there was no manual for the N364, I looked at a Prophecy manual (as the Prophecy is also a Korg synth with an arpeggiator) to see whether there were any hidden arpeggio functions. I found that most parameters were identical, although the N364 has lost a couple of features, such as gate modulation and velocity modulation. But I suspect that few players will feel the lack of these.

CONCLUSIONS

It's time to sum up and, as is usual for a magazine review, space constraints mean that there are features we've ignored, and classic voices we've overlooked. Indeed, that last point is no throw-away line. The sheer range of sounds in the N364 is beyond review. With 936 Programs and Combis derived from a mind-numbing 430 multisamples and 215 percussion samples, there's no way I can give you a flavour of what this synth can do. The best I can say is that, after a Trinity Pro or fully-populated JV1080, the X5DR was next on my list of sonic lusts. Since the N364 sounds no different, I see no reason to change this view. Notwithstanding a few minor niggles regarding less than perfectly mapped multisamples, it sounds great!

Another plus point is the consistency of the editing system. If you can program an M1, you can find your way around an N364 without recourse to a manual. You might miss a few bits and pieces, but all the major facilities are where you would expect them to be. Unfortunately, many players no longer program their own patches. Maybe they would if workstations had the immediacy and accessibility of analogue synths, but nowadays most people just want a bucketful of sounds. Here, again, the N364 scores well, and with obvious reason. Where it fails to score is in its lack of expandability. The Roland XP50 hosts expansion boards that include new PCM sounds and additional patch memory. Even the humble M1 accepted PCM data cards. In comparison, the N364 is a dead end. Whether you would ever reach its limit is another matter, but it's a point worth noting nonetheless.

With regard to the N364's enhancements over the X-series, the new Pattern mode is very easy to use, and I can see third-party companies dashing to be the first to offer extra Patterns. The arpeggiator is an even more welcome addition, which lifts the instrument above the level of a simple workhorse to something a bit more immediate and 'synthy'.

To sum up: with the N364 and the 76-note N264 costing just £1299 and £1499 respectively, Korg have possibly regained the top spot in price/performance terms, and it's very likely that we'll see no more of the X3. Indeed, I wouldn't be surprised to learn that Korg had already deleted it from their product lists.

Though N364 is, for all practical purposes, identical to an X5D, its extra bank of sounds, disk drive, sequencer, real-time pattern mode, and arpeggiator add up to an attractive bundle of facilities at an attractive price. I suspect that the N364 could be the keyboard buyers' Christmas Number One. SOS

SEQUENCER STRENGTHS

There are no real differences between the X3's and the N364's sequencers. Indeed, since the review unit was a pre-release model without documentation, Korg supplied an X3 manual with it, and this proved to be completely adequate. Whether this shows a lack of effort on Korg's part — it's been almost four years since they developed the X3 sequencer — or is a result of Korg deciding that if it ain't broke, there's no need to fix it, I'm not sure. What I mean is this...

One of the reasons that the X3 sold so well was its sequencer. The instrument's major competition was, and remains, the Roland XP50 (see review in *SOS* June 1995), and this has a derivative of the now-revered MC500 sequencer built-in. However, the MCs were never the most intuitive of units. If you took the time and trouble to get to grips with them they were extremely fast in operation, well structured, and flexible. However, their screens were small, and the messages displayed on them were often cryptic, so relatively few players took the time and trouble to learn them, nor their XP50 progeny. Since the X3 sequencer was easier to learn and use (although, of course, not up to the standard of a computer-based sequencer) this became a selling point.

So, once again, there's little point in regurgitating a review of the N364's sequencer. It features all the normal facilities — cut, paste, delete, insert, event edit, and so on — and its capacity is also unchanged from the X3, at 32,000 events. However, there's one facility that warrants specific mention: the N364 holds its sequences in static RAM rather than dynamic RAM. This means that sequences are retained when you switch it off, and these become available again immediately upon power-up. Mucho brownie points for Korg.

If I have to criticise, 32,000 events is not a huge amount in 1996. It's not exactly mean, but RAM — even S-RAM — is relatively cheap, and if the Trinity can offer 80,000 events, surely Korg's latest workstation could show an increase over the 1993 model?

£ N364 £1299; N264 £1499. Prices inc VAT.
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pros & cons

ZOOM STUDIO 1204 £199

pros
- Good value.
- Good selection of effects, including some unusual treatments.
- Easy to use.
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cons
- No MIDI Out.
- Reverbs not that exciting.

summary

The 1204 provides a varied selection of useful everyday effects — but you can also get weird if you want to, which is most unusual at this price, and a tribute to Zoom's design team.

SOUND ON SOUND

The world seems awash with multi-effects at the moment, and it's gratifying to note that the more affordable end of the market is actually the most congested. One of the results of the lowering of the effects-processing price floor has been the stripped-down processor — such as Alesis' venerable Microverb series, Yamaha's REV100, and Digitech's Studio Twin — offering preset studio treatments in affordable packages with limited (or sometimes no) control over the effects. Zoom followed this trend with their 1202 (reviewed back in February 1995), which was as simple as they come: 512 varied and useful effects, with control over two parameters plus EQ per effect, no MIDI, and a low price.

Now it's late 1996, and Zoom have released the true stereo Studio 1204. At first glance, the new processor's spec bares an uncanny similarity to the 1202, with the same number of presets and the same abbreviated editing system. It even retails for the same price as the 1202 originally did (although the 1202 now costs £50 less — see the news pages in this issue).

But there are a few significant enhancements. First of all, the 1204 adds 100 user memories, a 2-digit LED display, effect category indicator LEDs, a simple but useful MIDI spec (program changes and access to a handful of parameters via MIDI controllers), and a modified selection of treatments. Alongside the expected reverb, delay and modulation effects is a welcome vocoder — which is unheard of at this price — a rotary speaker simulator, and the novel 'vocal distortion' effect.

PANEL BEATING

The 1204's stylish, gold-finished front panel is refreshingly straightforward: basically, what you see is what you get. At the left, you'll find the power switch, and a mic input which is mixed with the main rear input, except when you use the vocoder. The input/output level controls (with peak LED) are followed by the effect selection and editing controls, with buttons for storing and managing user settings to the far right. The operating system, such as it is, is nicely user-friendly, and similar in some ways to that of the DOD unit reviewed elsewhere in this issue. Let's take the tour:

- Effect: use this knob to select your main effect type. There are 16 reverb, delay/echo, gated reverb, and reverse reverb options in Bank A, and 16 modulation, serial, parallel, and 'special' effects (vocoder, rotary simulator, vocal distortion and noise reduction) in Bank B. Check ▶

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WRH

SPECIFICATION

- 512 presets.
- 100 user memories.
- 18-bit, 128X oversampling AD/DA converters.
- 44.1kHz sampling frequency.
- 10Hz-20kHz frequency response.
- Stereo jacks in, mono mic in, stereo jacks out.
- MIDI In.
- 9V DC adaptor.

▶ out the 'Effect Types' box for details. The 1204 allows a maximum of two effects at once, and obviously the combinations are preset for you.

- Bank: this button switches between the A and B Bank of effects.
- Pattern: the function of this knob varies from effect to effect, but essentially selects variations of the main effect. For example, when you're fine-tuning a reverb, this knob alters the reverb time, in 16 steps; with delay/echo effects, it selects feedback values, and so on.
- Edit 1/Edit 2: as you'd expect, these knobs allow you to edit two parameters per effect, with the parameters varying according to the current effect. Some reverbs use the knobs to alter diffusion and attack, some to alter pre-delay and high-frequency cut, while with chorus effects, they alter modulation delay and modulation frequency.
- Low/High EQ: up to 12dB of cut or boost can be applied to the two bands of EQ. Centre frequencies vary according to the effect selected, although the majority are centred on 80Hz and 2kHz.
- Mix: simply, a wet/dry effect mix control. At 12 o'clock, the untreated and treated signal have equal levels.
- Manual/Memory: this button toggles between preset and user memory modes.
- Effect: Toggles between effect and bypass.
- Store: used to store edits in one of the 100 user memories: press once, choose a memory location with the memory up/down buttons next to the display, and press again.
- Cancel: cancels a 'Store' operation.
- MIDI: selects MIDI reception channel for program changes and MIDI controller messages.

EDITING

Using the 1204 couldn't be simpler: choose an effect category, select the 'pattern' you want, within the category, and tweak the two parameters and EQ till you're happy. This is a surprisingly flexible system considering that there's only two parameters per effect available — in most cases, the parameters chosen are the ones you'd most want access to anyway. Although the display does its best by showing you the number of the current effect, and the Pattern and Edit 1 and 2 values when you tweak them, it's still a good idea to have the manual around, since it's tricky to keep track of exactly what these knobs are controlling, at least in your early days with the 1204.

One slightly odd thing is that once you've saved an edited effect, in preset mode, you need to hit the mode button and go into 'Memory' mode to access your edits.

EFFECT TYPES

The 1204's effects are quite varied, and different effects within any given category have different characteristics. For example, amongst the reverbs, the Room reverb time varies from 0.5-3.3 seconds, while the Solo reverb has a range of 2.3-55 seconds (yes, 55! Though the decay by then becomes masked in hiss). Both the Delay and the Echo have a maximum delay time of 370ms, but the left and right delays are truly independent in the case of the Echo; it is also possible to get a delay time of up to 740ms out of the Delay. Reverse and gated reverbs have an upper limit of 1152ms, and pitch shifting is +/- one octave, with detuning.

- REVERB: Hall, Room, Plate, Vocal, Ambience, Orchestral, Studio, Session, Percussion, Drums, Solo, Delay, Echo, Gate, Power, Reverse.
- MODULATION: Chorus, Flanger, Pitch Shift, Tremolo.
- SERIAL: Delay+Reverb, Chorus+Reverb, Flange+Reverb, Pitch Shift+Reverb.
- PARALLEL: Chorus/Reverb, Flange/Reverb, Pitch Shift/Reverb, Tremolo/Reverb, Chorus/Echo, Flange/Echo, Pitch Shift/Echo.
- SPECIAL EFFECTS: Vocoder, Rotary, Vocal Distortion, Zoom Noise Reduction.

LISTEN & LEARN

And how does it sound? Rather good, actually. Reverbs are generally perfectly usable for synths and instrumental material, though less ideal for percussion and vocals. Even treatments specifically designed for drums and percussion suffer from a little graininess, and the overall effect can be artificial. However, you can always indulge in some heavy tweaking of the EQ and selected parameters.

Other effects — delays, flanging, and chorusing, for example — are good on all kinds of material. Zoom's Vocal Distortion (which is provided in combination with a small selection of delays and choruses) is wicked: use liberally for instant Trent Reznor, or put a drum machine through it for an easy street-level jungle effect. As for the vocoder, while I really felt the need for a few extra controls (the ability to vary frequency bands, for example), this is good in its own way,

THE 1204 & MIDI

One drawback of the 1204 is its lonely MIDI In socket (no MIDI Out). But this need not be as restricting as it first appears. In addition to receiving program changes, the 1204 can use MIDI Control Change messages to switch Effect Pattern, turn the effect on or off, and change the Edit 1, Edit 2, EQ Low, EQ High, and Mix Level parameters — in other words, affect all controls save the Effects knob, Bank A/B button, and in/out level knob. Provided you can generate these controllers in some way — from a master keyboard, a sophisticated MIDI pedal-equipped effects board, or from within a software sequencer's mixer map, for example — you'll essentially have real-time parameter control, to a limited degree. However, you can't send any MIDI data from the 1204 to an external device, and obviously the 1204's knobs don't transmit any data (no MIDI Out, remember).

The 100 user memories are filled with factory settings that can be restored at any time; however, this will over-write any user settings.

With no MIDI out, you can't dump user settings over MIDI, or back them up in any other way. If I owned a 1204, my first move would be to arrange the first or last 32 user memories as un-tweaked versions of the main effects. Then, a base effect could be called up via a program change at the beginning of a song, and MIDI controllers used to select a variation and tweak its parameters during the song. The next time that song is loaded, the program change and controller messages would restore the effects exactly as you wanted them.

And now, those MIDI controller assignments in full:

84	Effect Pattern
85	Edit 1
86	Edit 2
87	EQ High
88	EQ Low
8	Mix Level
80, 91	Effect On/Off
Program Change	0-99

and I'm more than happy to see it implemented on a sub-£200 processor. Also welcome is the rotary speaker simulator, which features separate horn and rotor speed controls.

It seemed pretty strange to find ZNR (Zoom Noise Reduction) as a separate 'effect' on what is, after all, a budget processor. Personally, I'd like to have seen a basic ZNR included as part of every effect. As it is, if you want noise reduction, you can't have any other effect. But it has to be said that ZNR clamps down on noise, at the start or end of a track, for example, in a forgiving and unobtrusive manner.

The serial and parallel effects are useful, but the chosen pair of parameters for these can often seem odd. I also found the tremolo effect sounded more like a panned delay, although it's still very useable nonetheless. Pitch-shifting, as with most budget processors, is best left for special effects or small shifts.

Zoom deserve credit for providing an excellent feature set for less than £200, but there are one or two negative points worth noting. First of all, the sole MIDI socket means that the 1204 can't transmit MIDI data of any kind — see box 'The 1204 & MIDI' for further details. I also detected a little zipper noise when using the edit knobs or corresponding MIDI controllers. Lastly, the 1204 lacks a headphones socket and footpedal sockets (for selecting programs, for example).

ZOOMING OFF

To sum up, Zoom have taken an easy-to-use processor containing a good collection of serviceable effects, and added a selection of the kind of off-the-wall treatments usually found on more up-market products. This fact alone could help give the 1204 the edge in an increasingly crowded marketplace — £199 has suddenly become a rather popular price point for entry-level processors! If you're after a unit exclusively to provide high-quality reverb, for vocals or acoustic guitar, for example, you probably won't find the 1204 fits the bill. If you're looking for a good all-rounder to have some fun with, however, Zoom on down to your local hi-tech music emporium and check one of these out. SOS

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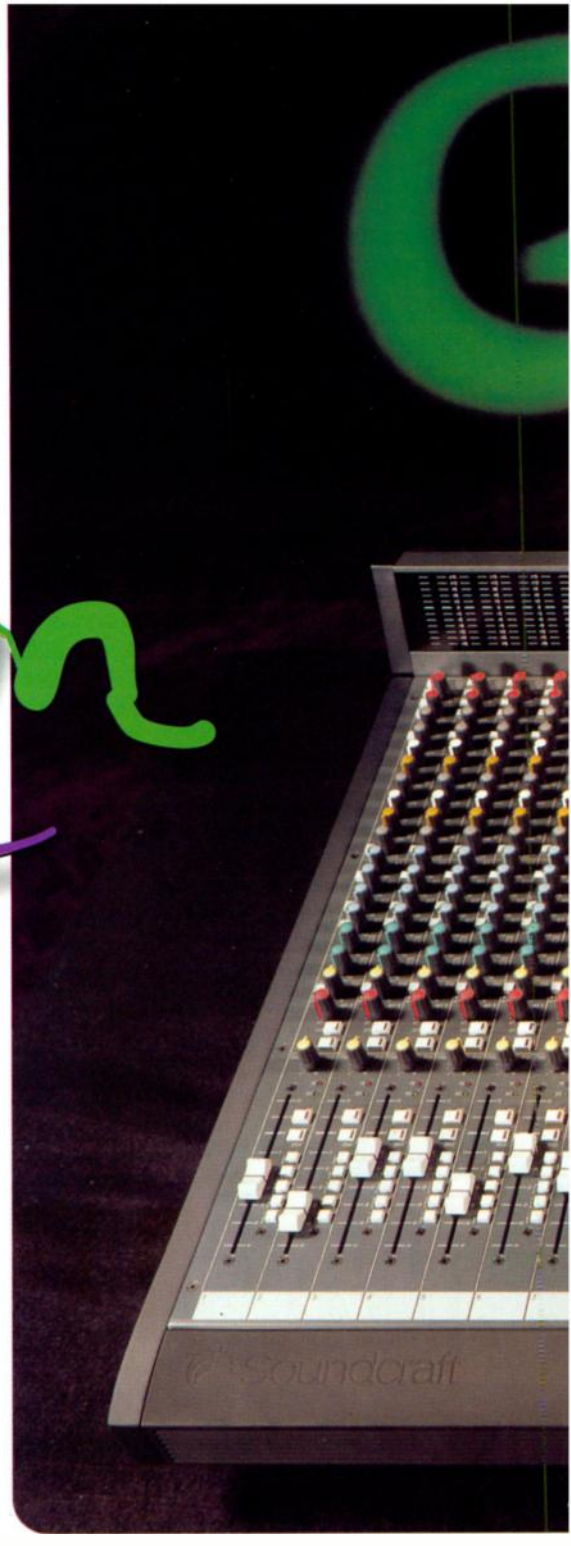
phantom power

SOUNDCRAFT GHOST 8-BUSS AUTOMATED MIXING CONSOLE.



After months of curiosity-arousing, X-Files-style advertising, Soundcraft's Ghost is here, offering the project studio owner automated 8-buss mixing at a highly competitive price. DAVID MELLOR deliberately avoids all jokes about transparent EQ and haunting sound quality...

When manufacturers first started to design consoles for the home and project studio market, they didn't seem to know how to make the equipment affordable enough without cutting corners. They threw out important features, loaded up the compromises — and then wasted all these savings by using clumsy, labour-intensive manufacturing techniques. We ended up with minimalised desks that didn't really perform as well as we wanted them to. But bit by bit, low-cost manufacturing techniques improved, and the features we need have returned — and more have been added besides. We asked for more, and we have got it. Enter Soundcraft's Ghost. I doubt such sound and build quality, and well-directed facilities have ever been available before at such a canny price.

THERE'S NO SUCH THING!

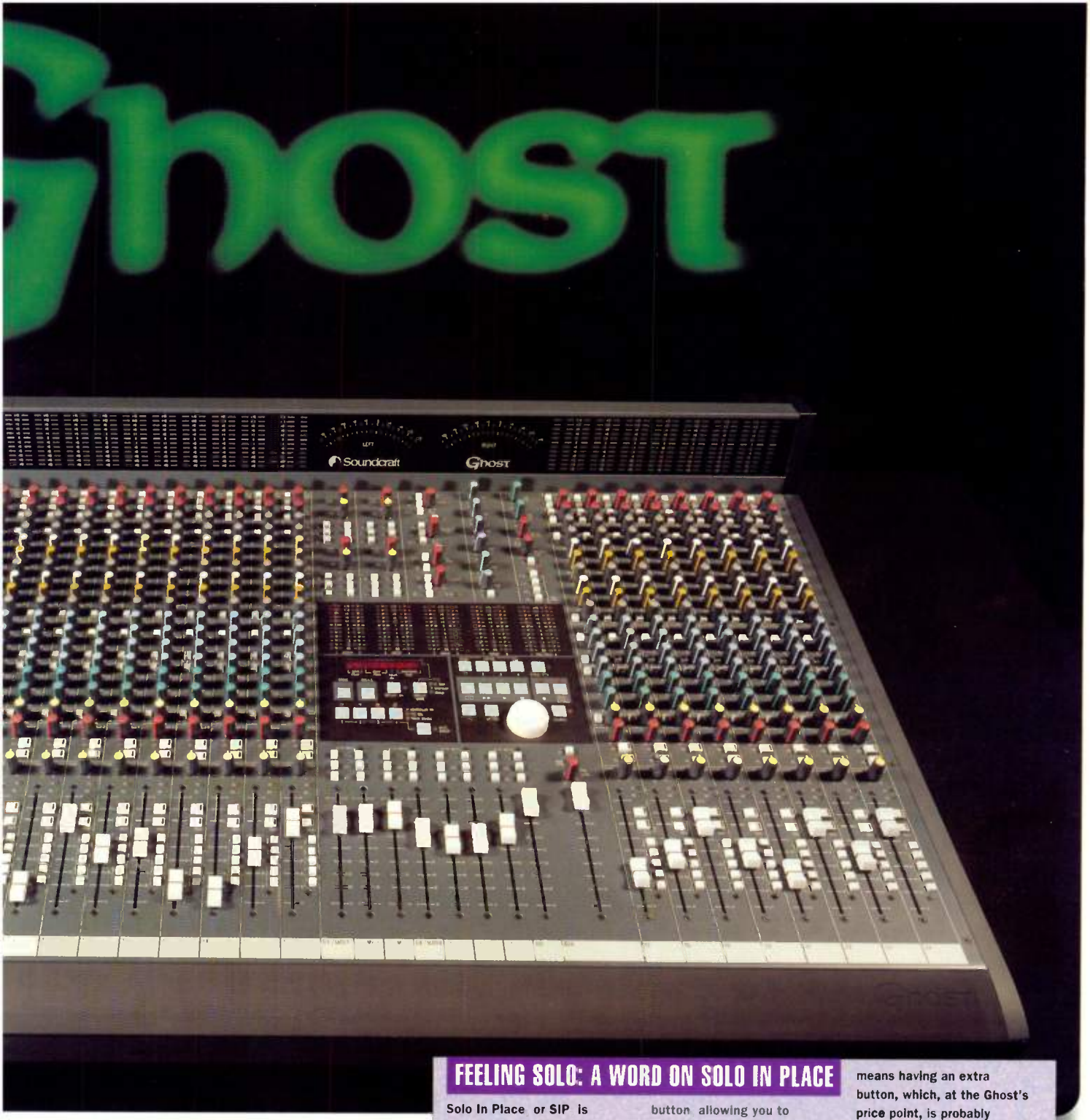
When reviewing a desk with a name like this one, from the company which is also responsible for the Spirit range of mixers, there's an overwhelming temptation to indulge in a tirade of ectoplasmic puns — but that would be to divert your attention from what is actually a very serious, 8-buss mixing console. Available in both 24- and 32-channel frame sizes, and with the option of a 24-input expander module, the in-line Ghost is currently available in two different versions, depending on your automation requirements, or lack thereof: the straightforward, manual mixer with no automation (the so-called Ghost Le), and a version with mute automation and machine control (as reviewed here).

Despite the name, this console has few insubstantial qualities. I can see that it has been aimed at the top end of the home project studio market — there's nothing cut-down, cut-price, or anything less than professional about the look, feel and sound quality of the Ghost — and for those in this bracket aiming to sell studio time, the appearance of the console is very important.

This is a traditional analogue desk, and whereas digital recorders have certain sound quality advantages over analogue tape, in terms of low noise and low distortion, even the top-end digital mixers are still hard pushed to rival the dynamic range and headroom of analogue mixers. In addition, there is no learning curve with a 'traditional' analogue console — you just sit down and start mixing. There is one knob or button per function — no menus, no shift keys.

CONSTRUCTION & CONNECTORS

The construction quality of the Ghost, given its price, is impressive. Soundcraft have made a sensible compromise between a non-modular construction (which means that if a single channel fails, the whole console has to be taken out of service for repair), and fully modular construction, which, at the extreme, is frighteningly expensive, due to the more complex metalwork and robust connectors that are necessary. If a channel on the



Ghost gives up the, er, ghost, then apparently the console can be disassembled (though even the technical manual doesn't explain how), and the circuit board replaced or serviced.

In common with other budget-conscious consoles, the connectors are on the top panel, which is downright ugly, as well as an open invitation to meddlers. I think Soundcraft will sell the optional meter bridge with just about every Ghost ordered — and a lot of people may only use it to hide the connectors! Perhaps they could also consider selling a non-functioning version for 50 quid? But seriously, in the past it was considered very important to be able to meter directly from the console, rather than having to turn elsewhere to look. Nowadays, the unforgiving nature of digital recorders means that it is natural to look on the recorder's own meters as the primary, most accurate reference, and meters on the console — even for the stereo output — have become more or less redundant for many. Perhaps the next development in consoles will be ADAT, TDIF or other digital inputs to drive the meters directly, with absolute accuracy, from the digital output of the multitrack? If anyone's working on this, AES/EBU and S/PDIF connectors would be nice too, please.

FEELING SOLO: A WORD ON SOLO IN PLACE

Solo In Place or SIP is regarded as a professional feature, because it completely destroys your recording or mix if you use it at the wrong time! The Ghost has a button to select SIP or conventional PFL (Pre-Fade Listen). SIP works by killing all the other channels apart from those on which you press the solo button allowing you to audition them at their fader and pan settings.

Upmarket consoles often have a Solo Safe button on each channel, which means they are protected from the effect of SIPing another channel. This is useful for channels which are used as effects returns. Of course, this means having an extra button, which, at the Ghost's price point, is probably unfeasible at present. As a workable compromise, all of the Ghost's effects returns are always solo safe. If you wanted to EQ your reverb returns by bringing them back through channels, you would have to SIP them at the same time as you SIPed any other channel using that effect.

pros & cons

SOUNDCRAFT GHOST

pros

- No hints of amateurism about this budget-conscious professional console.
- Solo In Place as well as PFL.
- 2-band, fully parametric mid EQ.
- Mute groups and mute snapshot automation — and full mute automation is possible with a MIDI sequencer.

cons

- Routing, Cut and Solo buttons clutter fader area.
- Noisy power supply.
- No pre-fade foldback mix from monitors.
- Meter bridge is an expensive extra.

summary

If you want a console in your studio that looks the part, as well as does the work, then the Soundcraft Ghost is a must-see. As a cost-effective 8-buss console, Ghost wants for nothing.

SOUND ON SOUND

The Ghost's input and output connections are on conventional TRS jacks, with XLRs for the mic inputs. The main outputs are ground-compensated, which in theory makes them compatible with both balanced and unbalanced inputs. Conventional electronically-balanced outputs need different wiring according to whether they are connected to a balanced or unbalanced input, which is inconvenient in the studio. The Ghost's inputs are all balanced, apart from the insert points, where the connector configuration does not permit it. In addition to the audio inputs and outputs, this console (but not the Le manual version) has a trio of MIDI sockets, and a timecode input and output, so there is rather more going on than simple mixing, as we shall see. But first, let's have a quick run down the channel strip — the pic on page 116 should help.

CHANNEL FEATURES

A screaming vocalist into a high output-level mic? No problem for the Ghost, which will accept an input signal of up to +14dBu. When you consider that 8dBu is usually considered peak level (allowing for headroom) for *line*-level equipment, you realise you shouldn't have any distortion problems here. There is a phantom power switch for each mic input, and a switch for line input, plus further switches for phase and a high-pass filter. The last of these has a cutoff frequency of 100Hz, and a slope of 18dB/octave, which is useful for cutting off the very low end of a bass boost applied with the EQ section proper. The filter is, of course, also useful for removing the standard problems of microphone pops and the results of vocalists kicking the mic stand during the best take!

Since this is an in-line console, the tape input appears in the channel strip, and there is a useful tape trim control. This comes in handy if you are using a particular sound very low in the mix, but you still want precise control over it on the fader. Just set the tape trim to a low value, and you will be able to operate the fader in a higher position. Tape trim is also useful when you have recorded a track at too low a level! A reverse button ('flip' on some other consoles) swaps the channel and monitor signal paths for mixdown. The insert point is pre-EQ, which is good for gating and not so good for compression, but you can always compress via the group insert point going onto tape. Every channel has an output to send signal to the multitrack, so the Ghost can handle as many tracks as it has channels. This output can be switched as a direct output from the channel, or routed through to the groups.

So far, everything is OK, but not exciting. The EQ section is where things hot up, almost literally. We have been asking for more, and Soundcraft have given it to us in the form of a 4-band EQ with two *fully* parametric mids. Fully parametric means that for each section, there are three controls, for gain, frequency and Q, Q being the sharpness of the filter. Generally speaking, a lowish Q (0.3 is low) is more useful musically, and a high Q (6 is fairly high) is good for picking out single instruments in a mix signal, or for correcting problems with the sound, such as mains hum. The

SMALL THINGS MAKE THE DIFFERENCE: KNOB DESIGN

It may seem like a small point, but I think Soundcraft have designed the perfect knob. It has a distinctive pointer that extends all the way from the top of the knob to the bottom. This means that it is visible from whatever angle you look at the knob, and you can check precise settings without having to consider parallax. The gently curved surface of the knob is also perfect for marking with a wax pencil, which is useful for live work, or for 'Chinagraph' mix automation.

I was a little irritated that the colour of the aux sends is very similar to the EQ level controls, meaning that I often grabbed the LF EQ when I wanted to adjust the reverb. However, the solution was simple — I just pulled off the white Q knobs and swapped them for the grey LF EQ level controls on all the channels!

MOAN & WHINGE CORNER

I like to get my moans over in one go, because it's very boring and no-one likes a moaner. But if I tell you what I think the worst points are about this console, and you think, "Well, I can put up with those", then surely you will know that the rest of it is OK. For me, the Ghost's most annoying feature is the location of the routing, Cut and Solo buttons alongside the faders. A mixing console to me is a musical instrument, and if someone said I had to put up with a load of buttons in between the keys of my piano I certainly know what I would say back to them! Look at any top pro console, and you will see that the faders are either completely clear, or that only the low-profile automation buttons occupy the same space. Mixing is a process requiring care and precision, and clutter should be kept well out of the way. On a purely practical note, many engineers both in live sound and recording mark fader positions with a wax pencil, and the room for manoeuvre here is very limited.

My other major moan is about the noisy external power supply. The only noise I want in my studio is the noise coming out of my speakers — that's my responsibility! All other studio equipment should be absolutely silent. Designers will insist that if the equipment doesn't have a fan, it will overheat. This may be true — but have they explored the limits that can be achieved by convection-cooled heat sinks? Have they tried to design quieter fans and perhaps employ the kind of noise reduction techniques that are used in studio air conditioning? Ticking hard disks are another contentious issue, but I am in no doubt where I stand. The Ghost's power supply cable is about seven metres long, which does facilitate mounting it remotely, but the manual warns against extending the cable further.

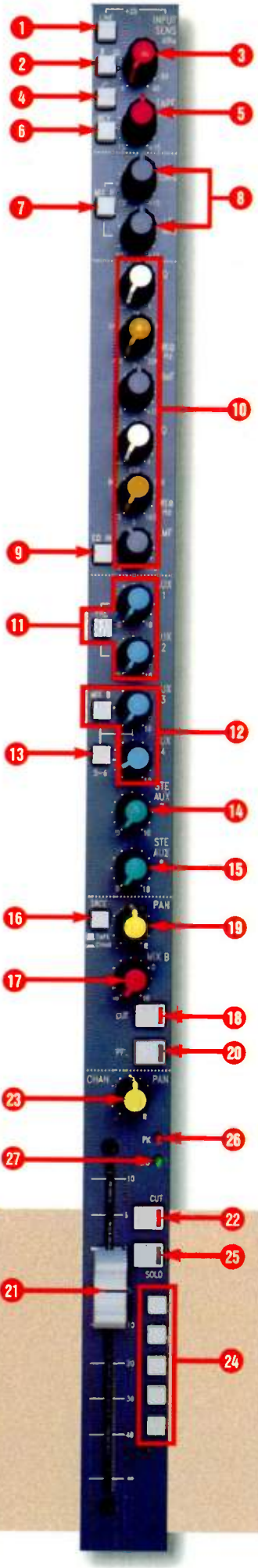
On a happier note, just as *SOS* was going to press, we heard that Soundcraft were already working on a replacement PSU after receiving some other comments similar to mine!

My third moan is directed not at the Ghost or Soundcraft *per se*, but the mixer industry in general, although the point was inspired by one of the Ghost's features: its Insert points are wired with the ring of the jack as send and the tip as return. Many mixers now seem to be made this way (rather than having tip as send, which used to be more common), the idea being that you can use the insert point as an additional direct output by plugging in an ordinary jack halfway, rather than having to make up a special cable for the purpose. I'm not sure that I like the idea of plugging connectors only halfway, but since everyone seems to be doing it, we'll all have to get used to it!

Ghost's Q ranges from 0.7 to 6. I don't feel 0.7 is quite low enough to satisfy everyone, but this is a fairly minor point. A Q of 6 is about what you would get from a guitarist's wah-wah pedal, and I had a lot of fun simulating this effect on a track I was working on, by setting maximum Q and sweeping the frequency control rapidly up and down. I ended up with a sore wrist and the feeling that the controls were just a tiny bit too close together — but it was fun! Two mid sections like these are just what we need in a cost-conscious mixing console, but the high and low sections are quite standard filters at 60Hz and 12kHz, providing up to 12dB of boost or cut. Judging from the graphs in the manual, and what I can hear, these filters seem to have a gentle slope, which helps make them musical, but by the same token, it makes them less incisive in difficult situations.

Since this is an in-line console, the high and low sections can be split off into the multitrack monitor signal path. Quite often, the monitor mix can benefit from a little bit of EQ to make it sound more like you know the final mix should. Also, when the monitor inputs are used as extra signal paths into the mix during mixdown, the versatility of being able to allocate your EQ resources as you wish, although not unusual, is certainly valuable. Finally in the EQ section, I'm happy to report that there is an EQ In/Out switch — something that's missing from too many budget consoles.

The Ghost is very well equipped with auxiliary sends; there's a total of 10 busses grouped as six mono and two stereo pairs. On each channel, you have to select whether to use busses 3 and 4, or 5 and 6, but that's fair. The way you handle foldback on the Ghost is unusual, and I'm not sure it suits my own way of working. Stereo foldback to musicians in the studio can be derived from three sources: the mixed stereo output (independent of the solo buttons), the monitor mix (Mix B), and Aux 1 (left) and 2 (right) — and these three sources can be mixed together. Although this offers a ▶



certain degree of flexibility, I don't think it is an ideal arrangement. For example, if you want to use the aux sends for foldback, you have to use both Aux 1 and Aux 2, otherwise the signal will only come out of one earpiece — unless you set up your headphone feeds to give you the same (mono) signal in each ear.

There are, actually, two foldback output sections in the console, but the fact that they have the same signal source options means that they are not as independent as they should be. I don't doubt there are workarounds, and that most engineers will find a method of using foldback that suits them, but I feel that a rethink is necessary here. I would also have liked to see at least one of the four effects returns route directly to the foldback for setting up quick and easy reverb in the headphones, which you can't do at present.

Moving on past the monitor section, which has level, pan, cut and pre-fade listen (PFL) in addition to the EQ and aux options mentioned earlier, we come to the fader section. The faders are nice and smooth for this class of console, and the solo and cut buttons are illuminated, which is an excellent feature. A Signal Present LED informs you when a channel has a signal at the input (great for live work), and a multi-point peak detector tells you whether the signal is approaching distortion at any point in the channel. Curiously, this LED will light if an extreme EQ boost is set but the EQ is switched out, so I assume it is connected to the EQ output. Perhaps it's good policy anyway to prevent distortion products buzzing around the console, even if they are not in the direct signal path.

Over on the output side, just to give you some brief information, the eight groups can be subgrouped to the masters either in mono or stereo (odd numbers for the left, even for the right). There are four stereo effects returns, with level and balance controls, PFL, and routing to all groups and masters. All the auxes have master level controls, of course, and PFL. The oscillator offers frequencies of 1kHz and 10kHz (what happened to 100Hz for analogue fans?). Talkback can be routed to tape, to the studio or to Aux 1 and 2. All that is pretty standard, but there's also a level control for PFL and a warning LED for Solo In Place (SIP) — both welcome after working with limited budget consoles (see the 'Solo In Place' box for more information). Also welcome are the four mixable control room monitor sources — channel and monitor mixes plus two stereo sources. The control room output has a button for an alternate set of power amp and speakers, and there's the essential mono-check button, which won't cure your stereo phase problems, but will at least let you know when you have them!

CHANNEL STRIP KEY

1. XLR/Line switch.
2. Phase Reverse switch.
3. Input Gain control.
4. 100Hz high-pass filter.
5. Tape Input Trim control.
6. Channel/monitor flip button.
7. Shelving EQ channel/monitor switch.
8. HF and LF shelving EQ.
9. HMF/LMF EQ In/Out.
10. Parametric EQ (HMF & LMF).
11. Aux 1 & Aux 2 (and pre/post-fade button).
12. Aux 3 & Aux 4 (and channel/monitor switch).
13. Aux 3-4/5-6 switch.
14. Aux 7 control.
15. Aux 8 control.
16. Mix B monitor/channel switch.
17. Mix B level rotary fader.
18. Post-fade monitor mute.
19. Post-mute monitor pan.
20. Monitor PFL switch.
21. 100mm channel fader.
22. Post-fade channel mute.
23. Post-mute channel pan.
24. Post-pan routing matrix.
25. Solo switch.
26. Multi-point Peak LED.
27. Signal Present LED.

AUTOMATION & MACHINE CONTROL

This is the aspect of the Ghost that many people reading this review will find particularly interesting. Taking the machine control first, this is definitely a pro feature — the mighty SSL company was virtually built on it. Having machine control incorporated into the console means that you don't have to mess about with the controls on the multitrack itself, or have an autolocator box lurking inconveniently around the mix position — you can do everything, in theory, from the mixer. Soundcraft have taken advantage of MIDI Machine Control (MMC), which is rapidly gaining ground in audio circles at all levels of professionalism. Having said that, on some products, MMC just isn't ▶

The Ghost's Foldback and Aux Return level controls, MMC control panel, and Group faders.

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TOGETHER IN SILENCE: MUTE GROUPS

Mute groups are the unloved, unappreciated and seldom understood feature of a number of mixing consoles. Put simply, mute groups allow you to select a number of channels and assign them to a button so that when this button is pressed, all those channels are muted. Two or four mute groups are common (the Ghost has four). Mute groups are a rudimentary form of automation, since you can carry out many more mute operations during a mix than you could possibly do individually, and you don't have to go to the trouble of programming a sequence of mutes — you just do it manually as the tape runs.

MUTE AUTOMATION

Mute automation does half the work of full automation. If you record real instruments and voices, as opposed to synths and samplers, you will inevitably end up with a lot of rubbish on the multitrack tape — guitar amp hiss, singers humming and making other strange noises when they are not actually singing, and sundry clicks, thumps and things that go bump in the night. If you are a connoisseur of all things analogue then you'll have tape hiss to contend with as well. Twenty-four tracks of tape hiss mixed together sounds like ocean surf! With mute automation, you can get rid of all these unwanted sounds without having to have lots of noise gates, and without all the time it takes to set these up correctly.

An additional bonus of having mute automation is that it allows you to record more material than you need — particularly textural parts — and then mute out the bits that you don't want in the mix. When you have mute automation, and you become accustomed to using it, it is surprising how useful and effective this technique can be.

▶ implemented in a well-thought-out way. How about the sequencer, where once you activate MMC, you can only record on the multitrack, and not on the sequencer (which is precisely what you would most want to do)? Oh well, it's a learning curve for manufacturers too.

I was able to use the Ghost's machine control with both my Fostex RD8, and ADAT plus BRC. First of all, I had to hook up two MIDI cables between the multitrack and the console, and also a third cable for timecode (this machine stripes its own timecode, but the Ghost has a timecode generator, should you need it). I followed the instructions carefully, and set the machine type from a longer list of machines than I would have expected (including Alesis ADAT with AI-2 or BRC, Tascam DA88, and Sony 9-pin for video machines) — and then I was ready to go. If I point out what actually happened in my situation, bear in mind that with other multitracks, you might get different results. I found that I was certainly able to play, wind and record as normal, and I could see the timecode coming back from the machine in the Ghost's display (even in fast wind, since the RD8 can throw out timecode when winding). I could arm tracks (the Ghost can control the arming of up to 48 tracks!) and drop in and out of record. However, the one thing I couldn't do was shuttle with audio. If you have a hard disk-based multitrack, you should be able to use the Ghost's scrub wheel, but do check out features that you think will be important to you. The Ghost has four locate positions, which can, like other data, be stored via MIDI dump (unfortunately, there is no floppy disk drive). A 4-position locator doesn't sound like much, but it's certainly enough for me — I have 100 positions available on my RD8 and I never use more than two! My own eventual conclusion, based more on hands-on use than analysis, was that I was better off with the RD8's remote. You might feel differently, and since the Ghost has a port to attach a PC for software updates, a lot more might become possible.

The Ghost's mute automation is quite easy to use, even without the manual. To perform simple manual mute grouping, all you do is set up the mutes on the faders, then allocate that setting to one of the four buttons. That setting will be recalled simply by pressing the button. If you want to go further, up to 128 mute snapshots can be set up and automated against timecode. This isn't actually what you would call mute automation (which works on an individual channel basis), but it is certainly extremely useful, if slightly more complicated to set up than the mute groups. Full mute automation *is* available if you use a MIDI sequencer — the mute on/mute off messages are then transmitted as MIDI Note On and Note Off messages. Ease of mute information editing, therefore, depends on which sequencer you're using — and some sequencers also have a limit on the note lengths they can record, which could pose a problem. Finally, for committed MIDI users, four of the group faders can be designated as MIDI controllers. This is great, but of course you lose four group faders, so maybe separate MIDI faders would have made more sense.

The Ghost's connectors and back panel, including MIDI sockets.

VERDICT

Of the consoles I've looked at recently, the Soundcraft Ghost has come closest to replacing my 1988 vintage crosstalk generator — sorry, mixer — and I think that it is only my finickiness about the buttons around the Ghost's faders that might put me off. I found the sound quality and overall usability of the Ghost to be excellent, and superb value for money. What's more, people don't come to my studio any more and say, "Where's the mixer?". They know a professional piece of kit when they see it. 'Nuff said! SOS

GHOST COSTING: THE PRICES IN FULL

As mentioned elsewhere in this review, the Ghost is available as two different models; the Ghost Le (with no automation), and the automated standard version under review here. Both these models come in either a 24-channel or 32-channel format, resulting in complex pricing arrangements. All prices given here include VAT, and the cost of the power supply.

GHOST Le
- 24-channel version £3877.50.
- 32-channel version £4700.

STANDARD GHOST
- 24-channel version £4465.
- 32-channel version £5287.50.

OPTIONAL ACCESSORIES
- 24-input expander module £TBA.
- Meter Bridge: 24-channel version £634.50; 32-channel version £740.25.
- Stand: 24-channel version £428.88; 32-channel version £440.63.

info

£ See the 'Ghost Costing' box.
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Surfin' Safari

Music & Audio Sites On The Internet

The Internet contains far more information than you could hope to assimilate in one lifetime — the problem is finding things you actually want to know about! In the first of a two-part series, DEREK JOHNSON & DEBBIE POYSER don their Tour Guide badges and present a musician's guide to interesting World Wide Web sites...

If you're already familiar with the Internet, you'll know that using it is often rather more like wading through treacle than shooting the curls off Malibu. Still, for musicians, it's an incredible source of information, help and advice, from basic manufacturer promotional pages featuring product information and prices, to newsgroups dealing with the nitty-gritty of modifying vintage synths and tube amps. This is not to mention the numerous band and artist home pages, both unofficial and band-maintained, which can make a diverting read. Finding all this stuff can be a bit of a pain, though, especially at the wrong time of day — during the evening, when telephone calls are cheap in the UK and most people are home from work, it's lunchtime or early afternoon in the States, and busy enough to really clog up the Internet, reducing the rate at which you can access and download information. A list of relevant sites can speed up the process considerably, saving you the trouble of having to scrabble around with a search engine. What follows is the result of *us* scrabbling around with a search engine, looking for pages we found interesting or useful, with lots of links wherever possible. Happy wading!

ROLAND US

http://www.rolandus.com/

At the time of writing, the Roland UK web site (***http://www.roland.co.uk***) was under construction. If it's still unfinished by the time you read this, check out the American Roland page in the meantime. This is a well-designed, comprehensive resource, with a full Roland product index, and specifications and features lists for the latest in Roland gear. *RUG Online*, also featured here, is the electronic version of the American Roland User Group magazine, which isn't bad as this type of mag goes, and lots of its articles are up here. There's not much in the way of 'how to' features, which is what we all want, but it's still a fairly good read. Worth a mention is the useful Web Toolkit area, which features browsers, audio compression utilities, and audio/video playback applications, all available for downloading. There's also a whole list of Netscape plug-ins, and in a real spirit of impartiality, Roland US even provide a link to Yamaha's *MIDPlug* software synth plug-in for Netscape *Navigator*!

IRCAM: it's French, but it's fun...

STIRLING AUDIO

http://www.stirlingaudio.com

Leading hi-tech retailer and distributor Stirling Audio's site is one of many on-line catalogues available on the net. It's clear and easy to navigate, featuring a full product guide for gear available through Stirling, with features lists and prices. The really neat thing, however, is their list of ex-demo gear and asking prices — recently, an Alesis ADAT digital 8-track was going for £1200 plus VAT, while an Emu ESi32 sampler was up for grabs at £750 plus VAT. The list changes regularly, and if you want to declare an interest, or simply get more info about a particular item, you just leave your details and Stirling will respond.

ANALOGUE SOLUTIONS

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

Vintage gear MIDI retrofit specialists Analogue Solutions accompany their on-line catalogue of what they can supply and what they can modify with hints and tips, and an extensive list of gear manuals they will photocopy for you. So if you've lost an essential manual, or bought a synth without one,

this is a quick way to remedy the deficiency for between £5 and £15. For the more ambitious, service notes or manuals for various machines are also on offer, though these can cost up to £35. If you're prepared to poke around a bit, this is a useful site, with explanations of analogue synth terminology, the whys and wherefores of MIDI interfacing, and prices for many different mods — for example, adding a CV input for the VCF, an audio input, and a pulse output for the ring modulator of a Roland SH101 will cost you around £20 for a kit, or £39 fitted.

KENTON ELECTRONICS

http://www.kenton.co.uk/

Kenton are well known in synth circles for their respected MIDI retrofits and their Pro Solo, Pro 2, and Pro 4 MIDI-CV converter boxes. From their web site, you can download a comprehensive Kenton info pack, and if you've bought one of their interfaces second-hand without a manual, you can even download one of these! The site gives full info about their MIDI-CV interfaces, including colour pics, plus a list of possible MIDI retrofits and their prices. There's also a fun page full of quotes from famous Kenton users, with pics, a Kenton dealer locator, and a page of links. If you've just bought (or are about to buy) a pre-MIDI instrument, this is a good place to check out the likely cost of bringing it into the all-MIDI '90s, and even if you're sorted on the MIDI front, it's still worth a browse.

THE TB303 HOME PAGE

http://www.infomaniak.ch/~trz/TB-303/tb303.htm

Billed as the "reference pages for all silver box freaks", this beautifully-presented site is personally designed and maintained by a Geneva-based Bassline nut. This is *the* place for all things 303 — including full descriptions and reviews of all the TB303 clones on the market (and there are more of these than are dreamt of in your philosophy, Horatio...), reviews of synths featuring 303 sounds, patches for making 303-style sounds on other synths, 303 mods and tips, info on backing up the Bassline, and schematics and service notes to download. You can even vote for your fave 303 track and artist, if you're that sad... And did you know that a chap called Woody McBride is currently touring the US with a 303 'orchestra' featuring 12 TB303s playing together? Stranger still, there's a link for a group of Slovenian bassheads who are intent on inducing Roland to rebuild the original TB303 by getting up a petition (or using whatever means become necessary...)

MUSIC SEARCH

http://musicsearch.com/

This site is basically an on-line reference for all things musical. There's a huge MIDI resource list here, including stuff like a complete SDS (Sample Dump Standard) specification, and worldwide instrumental archives: all sorts of hi-tech instruments are listed, with links to other sites. Also on offer are CD reviews, genre and artist areas, and a Music Reference section that lists sites or groups that have educational or technical materials available — schools, institutions, theory, technology and music history are just some of the fields covered on this excellent site. The Music Commerce area covers goods and services related to music, including record labels, distribution, management, mail order, promotion, production, and studios.

Whip it into shape: check out Devo mainman Mark Mothersbaugh's home page.

IRCAM

http://www.ircam.fr/

This site is the virtual alter-ego of its illustrious parent, the French electro-acoustic music research institution housed beneath the Georges Pompidou centre in Paris. As you'd expect, it's well-designed and nicely interactive. However, as you'd also expect, it's French. There are English pages, but these are being revised at present. Still, the virtual tour of IRCAM (featuring a map of its various rooms and studios, which you click on to go to a photo and text) is intriguing enough to get you wrestling with that rusty school French... Visit the Synthesis Analysis room, for example, and you can read the story of how IRCAM helped the producers of the film *Farinelli: Il Castrato* to reconstruct the voice of a castrato singer. Since castration is now fortunately illegal and the last western castrato died in 1902, they didn't have a lot to go on. Still, by cleverly blending the voices of a counter tenor and a coloratura soprano, as only IRCAM know how, they produced something which is believed to be pretty close. ▶

THE SEARCHERS: FINDING WHAT YOU WANT ON THE WEB

Although this article will hopefully save you from searching around for useful music sites for a while, you'll probably have other interests which you'll also want to explore on the 'net. With millions of pages on the World Wide Web, you'll soon be glad of the various Internet 'search engines' that are available. These are central registries of web pages, which allow you to search — for free! — via keywords; the engine then gives you a list of URLs (Uniform Resource Locators — in other words, web addresses) that correspond to your search terms. This can be a list many hundreds long, although the most likely choices are usually near the top of the list, and most engines give you the option to refine your search in some way so that really irrelevant pages are filtered out. The most popular search engines are *Alta Vista* (*http://www.altavista.digital.com/*), *Yahoo* (*http://www.yahoo.com/*) and *Lycos* (*http://www.lycos.com/*), although there are others — you could search for 'search engine', if you like. Try them all out: they each work in different ways, and can produce different results.

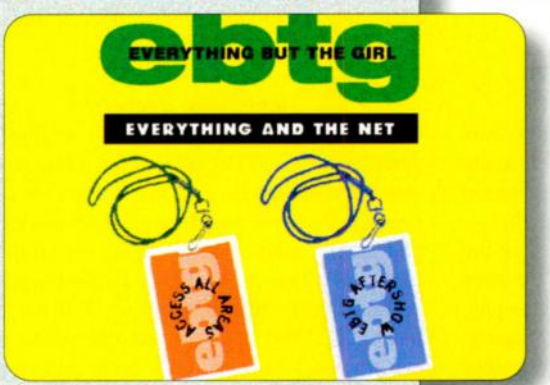
When using a search engine, you'll often come across links for pages that are no longer active, or which have moved or changed their name. In the case of moved sites, webmasters sometimes leave notices at old URLs pointing you to a new location, but not always. One useful tactic that may help when a URL comes up as not available is to progressively remove sections of the URL, between slashes, from the end of the address, until you're left with a URL that downloads a page. If you're fortunate, there will be some indication of where the page you're looking for is now located. If not, it's back to the search engine.

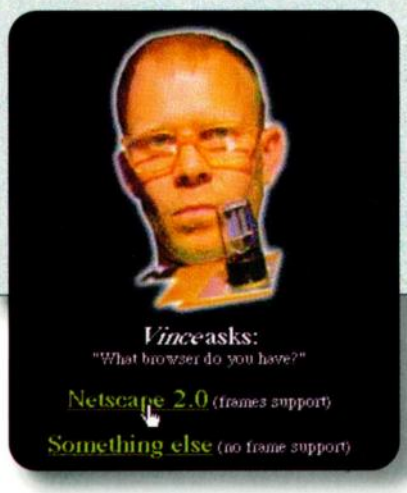
Music & Audio Sites On The Internet

BAND BOX

Some of the sites mentioned here are official band pages, while others are decent fan home pages. Some have been listed mainly because they feature good links to other relevant band/artist sites.

- 808 STATE
  http://www.feedback.com/808/
- BONZO DOG DOO DAH BAND
  http://www.anglia.ac.uk/~systimk/music/bonzos/index.html
- COLDCUT
  http://www.southern.com/PIPE/coldcuthp.html
- DEAD CAN DANCE
  http://www.nets.com/dcd
- DEPECHE MODE
  http://www.commline.com/ — or *http://www.mutelibtech.com/mute/dm/dm.htm*
- DEVO/MARK MOTHERSBAUGH
  http://www.mutato.com/mutato/ — or *http://www-unix.oit.umass.edu/~vndibere/devo.html*
- DUBSTAR
  http://www.columbia.edu/~bdz2/dubstar.html
- EVERYTHING BUT THE GIRL
  http://raft.bmg.co.uk/ebtg/
- ERASURE
  http://www.europa.com/~carl/erasure_home/welcome2.html — or *http://www.mutelibtech.com/mute/erasure/erasure.htm*
- FRONT 242
  http://www.waste.org/%7Eterje/front242/
- JEAN-MICHEL JARRE
  http://www.xs4all.nl/~jschurer/jarre/ — or *http://www.culture.fr/jarre/tekjarre.htm*
  (NB. Monsieur Jarre made this himself!)
- KLF/K FOUNDATION
  http://www.edu.isy.liu.se/~d91johol/klf/
- KRAFTWERK
  http://home1.swipnet.se/~w-10118/kraftwerk/
- OMD
  http://www.csu.edu.au/faculty/commerce/account/omd/
- ORBITAL
  http://www.rise.co.uk/orbital/
- PET SHOP BOYS
  http://zorro.ruca.ua.ac.be/%7Ewpeeters/psblinks.html





- THE RESIDENTS
  http://www.csd.uwo.ca/~tzoq/Residents/
- STEREOLAB
  http://www.maths.monash.edu.au/people/rjh/stereolab/
- TANGERINE DREAM
  http://home.sn.no/~mmoen/tadream/
- YELLO
  http://newton.space.net/yello/

MUTATO MUZIKA

http://www.mutato.com/mutato/

Devo are perhaps best known in this country for *Whipit*, their freak hit in the early '80s. However, the band made a lasting, if cultish, impression, with many current dance and techno artists citing them as an influence. No surprise, then, that the band have quite a presence on the Internet. A trawl through various Devo fan-run web pages (Devopolis, at ***http://www-unix.oit.umass.edu /~vndibere/devo.html***, and Spudland, at ***http://www.nfinity.com/~nutra/spudland.html***, for example) always leads to Mutato Muzika, the page run by Devo mainman and *Rugrats* animation theme composer Mark Mothersbaugh. This site looks good, but its graphics-heavy nature means that it can be a bit slow to load. The wait is worth it, though, with the end result of a tour of the Mutato studio, loads of Mark's pictures, details of Mark's label, MutMuz, plus audio samples to listen to. There's also info on Devo activity — including recent reunion gigs. The spuds appeared on five dates on the latest Lollapalooza US tour at the end of July, and performed at the Sundance Film Festival (this gig may be released on video). The site also features the Mutato store, where you can buy Mark's latest music, plus Devo CDs and merchandise.

MUSIC MACHINES

http://www.hyperreal.com/music/machines/

This site was originally an ftp (file transfer protocol) archive for the Analogue Heaven mailing list, and to an extent still feels like it, but it's evolved far beyond its original purpose, featuring loads of synth info and pics. Instruments past and present, from ARP to Yamaha, manufacturer and distributor lists, and famous name gear lists (including some past *SOS* interviewees) are all there, and there are specs and features lists, details of DIY mods, and info of all kinds for synth bods. One especially fun feature is a 'what synth is right for you' questionnaire. The associated Analogue Heaven mailing list is well worth a trawl — you can read postings and replies on all aspects of analogue, including some pretty mad stuff — we quote: "Now sit still and I'll explain it to you. Analogue is *good*. Digital is *bad*. People who use analogue are *good*. People who use digital are *bad*. People who use digital to emulate analogue are *very bad*. People who use both analogue and digital are *bad*. People who use analogue but speak of digital are *moderately bad*. People who switch from digital to analogue are *glad*. People who switch from analogue to digital are *mad*. People who yearn for digital are *sad*. People who construct digital are *bad*. People who construct analogue are *rad*." If you think you can take it, the mailing list is full and well-organised, with a keyword search engine. Search on 'modular', for example, and you can discover the astonishing fact that Batman invented modular synthesis, find out about building your own modular, and so on. Loads of stuff!

THE WENDY CARLOS HOME PAGE

http://www.apocalypse.org/pub/u/wendy/

Fans of early electronic music should not miss out on this site, which features a biography and discography of pioneering composer and synthesist Wendy Carlos, whose works include *Switched-on Bach* and the soundtrack to the early computer-animated movie *Tron*. But there's more on these detailed and great-looking pages, including a photo archive, examples of Wendy's artworks, and an open letter from Wendy in which she talks about

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£995 C-1 Dual Valve Compressor

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***Alex Marcou - Abbey Road Studios** (House recording engineer) - "The VI-1 makes hard sounding digital sound like cosy .. rounded analogue - a joy to listen to. The control that the EQs, Pre Amps & Compressors give is excellent."*

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

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

***Tom Lord-Alge** (Dual Grammy Award Winning Engineer) - "The Indigo 2011 EQ has given me the ability to EQ with clarity, rather than just tone. I find it to be very musical. Any problem sound I have come across, I patch in the 2011 and it allows me to add depth and clarity"*

***Stephen Croes** (Producer, Arranger, Engineer - Fleetwood Mac, Kenny Loggins, Jennifer Warnes) - "The Indigo 2011 EQ and 2021 Compressor are exceptional - both responsive and flexible. I can stomp or be subtle, hype a sound or just detail it. These are real tools for any level of music production."*

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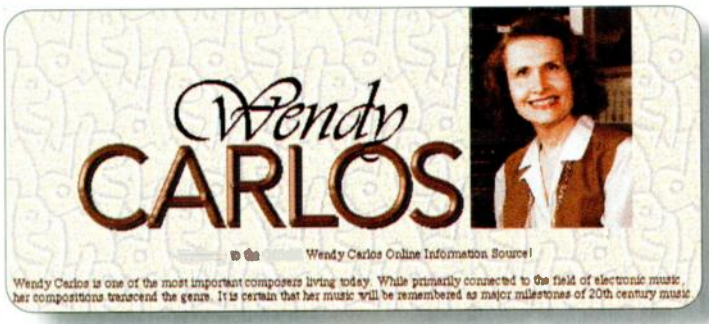
Music & Audio Sites On The Internet



Read an open letter from this influential electronic music pioneer on the Wendy Carlos home page.

▶ the nature of sound and composition, musical equipment both analogue and digital, and her past and present work. You can even email Wendy, though you probably won't get a reply... Still, here are all those little things you probably didn't know, such as the fact that Wendy develops sounds for Kurzweil instruments and prefers MOTU's *Digital Performer* for sequencing. Well, *we* thought it was pretty neat...

AUDIO & MIDI SITES

• PRO AUDIO WEB
http://soundwave.com/
This site is aimed squarely at pro audio users, featuring professional gear news, a diary of worldwide audio exhibitions, product information, a list of industry organisations and commercial studios, and an online shop. The best section is probably the news, since as well as the up-to-date info, there's an archive featuring releases from recent months. These are in the form of shortish, spec-heavy items, which can be useful. The site still wants work, as some of the listings are rather incomplete, but it looks good, is easy to navigate, and has potential.

• AMPAGE
http://www.aros.net/~tboy/ampage/ampage.html
Tube amp nuts should head here for a fix of all things valve guitar amp-related. There are tech

Get all warm and fuzzy on Ampage.

tips, resources, tube gear questions and answers, schematics, DIY stuff, and loads of links to other similar music and electronics sites, with the emphasis on guitar amps/tubes.

• JACK ORMAN'S DIGITAL MUSIC ZONE
http://members.aol.com/jorman/index2.html
This "tiny corner of the web is devoted to the design, construction and use of music electronics." Jack provides loads of schematics, of both commercial devices and circuits of his own designing, and again, links to other sites.

• HARDWARE WEB: MIDI HARDWARE PROJECTS PAGE
http://homepage.cistron.nl/~nctnico/midi.htm
This is an excellent page featuring loads of DIY MIDI projects with full diagrams, PCB layouts, and instructional text. Projects there for the making include an Amiga MIDI interface, an ultra-cheap PC MIDI interface, a MIDI merger, MIDI keyboard, MIDI tester, MIDI switcher, and various interface cables.

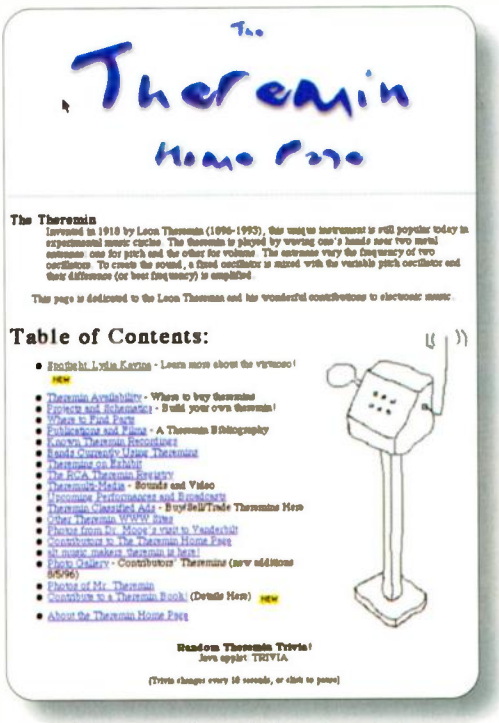
• SURREAL TO REAL HOME PAGE
http://www.netlink.co.uk/users/surreal/index.html
SOS contributor Paul Ward has two albums on the British Surreal to Real label, which is devoted to electronic music. Their home page, as well as featuring full label and artist info, has some useful links and even better, an extensive used equipment for sale/wanted section.

• CHRIS KENNEDY'S AUDIO LINKS
http://www.egr.msu.edu/~kenned11/Dig-Aud.html
This page is worth mentioning because of its good, straightforward selection of links to digital audio and recording sites.

• MIDIFARM
http://www.midifarm.com/
Midifarm looks great, navigates easily, is updated regularly, and is stuffed with useful information on all kinds of MIDI and audio-related subjects; there are synth resources and loads of sounds for different instruments. There's also a good 'For Sale' section, but since the site is American, this may be of little use to UK musicians.

THE THEREMIN HOME PAGE

http://www.telalink.net/~theremin/
Fans of even earlier electronic music will be jumping straight to this page, dedicated to that 1930s eerie noise-maker, the theremin. Against all odds, this unusual instrument is undergoing something of a renaissance: not only is synth pioneer Bob Moog concentrating on the instrument with his current company Big Briar, but the BBC even featured a theremin performance in this year's Proms. For sheer weight of useful information, it would take a lot to beat this site. It features a



Good vibrations: check out all things Theremin here.

comprehensive history, availability, build-it-yourself instructions with details of parts sources, a theremin bibliography, known recordings, bands currently using the instrument, where you can see them, classifieds and photos. One ongoing project is the location and documentation of all extant original RCA theremins from the '30s, whether in museums or private hands. There is also an associated newsgroup (*alt.music.makers.theremin*) and links to other sites on the Internet. This is how a Home Page should be done, and the 27,000 surfers who have visited the site in the last year will probably agree.

AKAI

http://www.akai.com/akaipro/index.html
Although based in the States, this site has a welcome international feel. Not only are comprehensive details on the Akai product range provided, along with spec, latest software versions, news, reviews, tips and customer support, but a nifty worldwide dealer locator tells you in an instant where you can audition or buy Akai products in your territory. A selection of free ▶

Works Miracles Late at Night

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Music & Audio Sites On The Internet

▶ samples, which changes regularly, is available to download.

SYNTHZONE

http://www.synthzone.com/

This is a handy synth resource offering a central jumping-off point for links to, and useful information on, anything to do with synths, old or new. If you're looking for sounds, info, or PD/shareware editors, this is a good place to start.

One great link, of special interest to Mac users, is the Twin Cities MIDI Home page (*http://www.cs.umn.edu/~fischer/Midi/index.html*). This features lots of Mac-specific MIDI stuff, including utilities that allow you to translate SysEx files in arcane PC formats to something you can use with your Mac software — invaluable if you're downloading banks of sounds for your synth, or samples for your sampler, and can't get anything to recognise them.

MANUFACTURERS/DISTRIBUTORS

We're sure that we haven't managed to include every manufacturer or distributor who currently has a web site, though we did try. If you're one who's been left out, we apologise in advance. Send us your details and they'll be included in a future issue of *SOS*.

- EMAGIC USA
  http://www.emagicusa.com/
- EMU
  http://www.emu.com
- ENSONIQ
  http://www.ensoniq.com/
- FATAR
  See Arbiter.

Welcome to the Akai Electronic Musical Instrument Division Web site.

- AKAI
  http://www.akai.com/akaipro/index.html
- ALESIS
  See Sound Technology. Or check out the unofficial Alesis Homepage (at *http://www.primenet.com/~alesis/*).
- ALLEN & HEATH
  See Harman.
- AMS/NEVE
  http://www.ams-neve.com/
- APPLE
  http://www.apple.com/
- ARBITER
  http://www.demon.co.uk/arbiter
- BLUE SYSTEMS
  http://www.bluesystems.com
- CAKEWALK
  http://www.cakewalk.com/
- CLAVIA
  http://www.clavia.se/
- JL COOPER
  See Sound Technology.
- DIGIDESIGN
  http://www.digidesign.com
- DIGITAL MEDIA
  http://www.digital-media.co.uk
- DIGITECH
  http://www.dod.com/DigiTech/
- DRAWMER
  http://www.proaudio.co.uk/xrawmer.htm
- GEM
  http://www.generalmusic.com/
- HARMAN
  http://www.harman.co.uk/
- HEAVENLY MUSIC
  http://www.ortiz.demon.co.uk/
- HHB
  http://www.hhb.co.uk
- HINTON INSTRUMENTS
  http://www.hollis.co.uk/hinton/
- KEYFAX SOFTWARE
  http://www.gmedia.net/keyfax
- KORG
  Although there's no official home page, there's loads of Korg stuff on the 'net, including sites for many different Korg instruments, free sounds to download, and hints and tips. For starters, M1 owners can check out the M1 Home Page (at *http://nextdch.mty.itesm.mx/~riopez/M1/*) for sounds, references, and lots of links.
- KURZWEIL
  http://www.youngchang.com/kurzweil/
- LAST UNICORN
  http://www.lastunicorn.com
- LEXICON
  See Stirling Audio.
- MARK OF THE UNICORN (US)
  http://www.motu.com/MOTUHome.html
- MICROSOFT CORPORATION
  http://www.microsoft.com/
- MICROTECH GEFELL
  http://www.gprime.com/mtg
- MIDIMAN
  http://www.midifarm.com/midiman
- OPCODE
  http://www.opcode.com
- PASSPORT DESIGNS
  http://www.passportdesigns.com/ — or see Arbiter.
- PEAVEY
  http://www.peavey.com/
- PG MUSIC
  See Arbiter.
- QUANTEGY
  http://www.quantegy.com/
- QUASIMIDI
  http://www.quasimidi.com/
- ROLAND (US)
  http://www.rolandus.com/
- SAMSON
  See Sound Technology.
- SENNHEISER
  http://www.sennheiser.com/hp_1a001.htm
- SHURE
  http://www.shure.com/
- SOUNDFIELD
  http://www.proaudio.co.uk/sndfield.htm
- SOUND TECHNOLOGY
  http://www.soundtech.co.uk
- SPIRIT BY SOUNDCRAFT
  http://www.spirit-by-soundcraft.co.uk
- STEINBERG (US)
  http://www.steinberg-us.com/
- STIRLING AUDIO
  http://www.stirlingaudio.com
- STUDIO AUDIO & VIDEO
  http://www.sadie.com
- STUDIOMASTER
  http://www.studiomaster.com
- TANNOY
  http://www.tannoy.com
- TC ELECTRONIC
  http://www.tcelectronic.com
- TIME & SPACE
  http://www.timespace.com
- TURNKEY
  http://www.demon.co.uk/turnkey/
- TURTLE BEACH
  http://www.tbeach.com/
- VOYETRA
  http://www.voyetra.com/ — or see Arbiter.
- WALDORF
  http://www.waldorf-gmbh.de/

- WAVES
  http://www.waves.com/waves
- YAMAHA
  http://www.yamaha.co.jp/english/xg — or *http://www.yamaha.co.uk/*

Not quite as tasty as the Twiglet Zone, but probably more useful.

NINJA TUNES HOME PAGE

http://www.southern.com/PIPE/coldcuthp.html

The Ninja Tunes record label is the brainchild of pop partnership Coldcut, who began releasing their own and other artists' material through it when their former label allegedly declined to promote their then-current album (see the home page for more). This funny, informal site features full info on all NT artists, including a Coldcut biog and production credits, plus the pair's forthcoming DJ-ing dates. Coldcut's '10 Classix Cuts' tell you what you should be listening to, and there are lots of other selections of funky stuff to seek out, picked for you by a wide variety of artists. In the spirit of Kleptomania (Coldcut's own sample collection) there's also a list of downloadable 8-bit, 22kHz samples. Be careful what you do with these, though — they don't appear to be cleared for commercial use.

THE SIMILARITIES ENGINE

http://www.ari.net/se/

This site is at least good for a laugh, and might actually yield something useful if you're on the lookout for more fodder for your CD player. The idea is that you key in the name of a band or artist whose music you like. Using information based on a survey of 18,000 music fans on the net, the Similarities Engine then comes up with a list of other bands or artists you might also like, with a

You'll like this...

'Confidence' rating of low, medium, high, or very high, for each. Sometimes the results are quite accurate and plausible — keying in Erasure, for example, brings up a list of choices which includes Electronic, Pet Shop Boys, Alison Moyet, New Order, Depeche Mode, and OMD. Sometimes, though, the suggestions are head-scratchingly bizarre: offering the name of American songstress Aimee Mann, for instance, brings up 'Rush', with a high Confidence rating. Mmmm... Still, it's a fun way to spend 10 minutes. SOS

Next month, in the second part of this feature, we'll continue our trawl across the Web, bringing you more music-related site info, including the addresses for record labels and music industry organisations. But for now, it's back to the virtual surfboard...

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VOL.6 - WORLD FX 3 - Wild & domestic animals, Atmos, Thunder, Storm, Splashes, Surf, Waterfall.
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Are Cuckooland Insane? Reality is strange and this incredible selection of rhythms, textures and FX will have you making music in very new ways. Grooves from 67 to 170 bpm provide rhythmical backing unlike anything you have heard before, the textures and FX are not of this world. This collection is ideal for all - from Trip Hop to Film - new styles of music will definitely evolve from this great CD!
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This new sequel features over 2 hours of Hiphop, R&B, and Funk samples. "Loopzilla 2" combines the best elements of programmed grooves & live playing with new melodic and funk elements. Tons of Slo' Jamz, R&B and Hiphop from Atlanta, Miami, New York & Oakland.
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Deep Inside - Tim Farris

From world famous INXS guitarist Tim Fariss comes an awesome collection of guitar samples, drum loops, dialogue, Fx, Hitz and more. This has taken over four years to compile and has many of the most treasured samples from his personal collection. Brilliantly produced, this CD is packed with goodies for all sorts of compositions.
Audio CD £59.95

LOOPMATIC

This superb tool is specifically designed to provide a fast and flexible working environment for analog sweeps, effect loops, digital sweeps, RND loops & drum sweeps. Each sound has been sampled with it's filter cutoff set at 32 different levels, so there are literally thousands of ways the sounds can be used, from creating smooth sweep effects to random duppy sequences. 320 different categorised sounds are included on this mixed-mode CD, containing an Akai CD-ROM section with over 10,000 samples!!
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ALI-BABA & THE 40 RAVERS

The Orient offers a massive range of beautiful instruments and percussion that can be used in many styles of music, and this new library captures just about all of them from Tunisia, Iran, Irak and Turkey! Hot off the press, this double CD contains phrases, individual notes and hits of instruments, percussion, turkish orchestras, moving atmospheres and oriental choirs. Call for more details!! Double Audio CD £59.95

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Five star review - *"An almost ridiculously complete 2-CD package of loops, drum hits and other assorted goodies - everything from construction kits containing multi-layered 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.* ☆☆☆☆☆" (Keyboard USA). The collection features ambient, hardcore, trance and techno on a 2 disc set for only £69.95

DANCE MEGADRUMS

4500 well-organised samples. 90 complete and different Drum machines as well as ultra rare analogue Ryhthm-boxes with several sound variations. Also 1500 latest dance Drumsounds (BDs, SDs, Hats, Percs, Analogue Drums and Perc). 400 Mb ROM part. All Drum machines laid out in keygroups, ready to play. Available as Double-CDs mixed mode Audio/Akai CD-ROM. Only £59.95 !!

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The worlds first sample-CD with realtime-filtered & arpeggio-ed analogue sounds. Total Control makes a brand new analogue synth out of your sampler with 4500 spanking new sounds, fractal loops & inspiration sets, all on a mixed-mode double CD-ROM including a 500mb Akai section!!
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DEF HOUSE

Brand New! Dedicated specifically to House music production, this high-profile stormer from Universal Sound Bank in France hits its target squarely. Bursting mainly on loops, you'll find it delivers tons of top-class material for all kinds of house music. We expect this one to enter the hall of fame! DEFinitely not to be missed. Available NOW in four formats: Audio CD: £59.95, or choose a version formatted specifically for Akai, Roland, or Ensoniq samplers - £149.00)

ABRACATABLA

New from AMG, produced by Talvin Singh (one of the leading exponents of UK ethnic fusion, who works with top acts like Massive Attack & Bomb The Bass). A huge selection of mostly ethnic percussion. Highly contemporary ensemble grooves with extremely intricate, tight performances, broken into various mixes/combinations/sounds. There is also a section of solo patterns complete with very comprehensive sets of single hits. "It's not surprising that Abracatabla took three years to complete. This is one inspirational CD from one very talented geezer." Future Music April 96
Audio CD: £59.95

VINYLISTICS 2

R&B/Jungle/Trip Hop - whatever the trendmakers call it - it all comes down to the Right Flavor of the Grooves. Many future styles will probably rely on breaks like this. Tons of Grooves, Hits & Loops to give you a unique feel for Raregrooves. Produced by PHAT FABE aka Fabian Thorsson (Nene Cherry & Shabba Ranks). Tempo-maps provided (plus MIDI-files on CD-ROM version).
Audio CD: £59.95. CD-ROM (incl audio CD): £149.

ALPHADANCE II

2 CDs featuring 90 minutes of audio & 300Mb CD-ROM section - all for only £59.95. House & techno organs, Strings, Sequencer lines, Combination Pads, Attack Banks, Vocals, Acoustic Percussion Loops & Drumloops, Rave Basses (mutisampled, with short demos), Dirty Loops, Lead & Hook Synths, Transformer sounds, Synth Drums. The CD-ROM section has everything mapped, in keygrouups, ready looped, ready for takeoff.
2 CD set including 300Mb Akai CD-ROM: £59.95

SYMPHONIC ADVENTURES

New library of orchestral samples from Everglades in France. As soon as we heard this superlative disc we knew it was a winner. Explores the darker side of the orchestra. Perfect for film composers or for any music that needs powerful stings, effects, phrases, suspense, moods, etc. A truly huge set of immaculately performed and immaculately recorded stereo samples. This tremendously versatile orchestral libary will not disappoint and we recommend it highly!"
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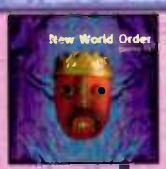

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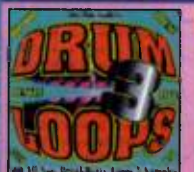

Drum Loops

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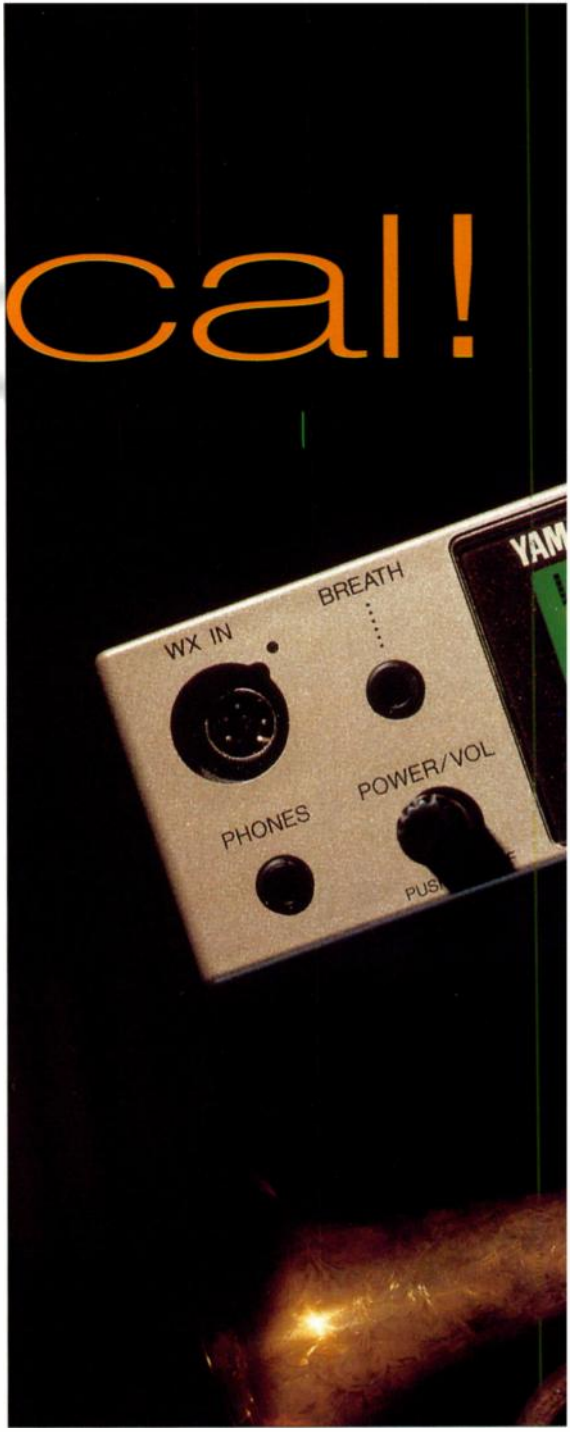
Let's get Physical!

YAMAHA VL70m VIRTUAL ACOUSTIC SYNTH MODULE

At under £500 — less than an eighth of the original price of its VL1 predecessor — Yamaha's VL70m constitutes a brave attempt to bring physical modelling synthesis within the reach of all musicians. MARTIN RUSS joyfully welcomes this monophonic modelling module...



I can live without a VL70m. I can, definitely. No problem. I've managed for a couple of years with only minor withdrawal symptoms from the VL1. Spending a few weeks learning about the VL70m won't affect me at all. No sweat. And then I just send it back to Yamaha... NYAAAARGH!

Technology has a nasty habit of becoming affordable. If you bought one of the first CD players, you would have had very little change from a grand, and CD-ROMs also used to cost thousands of pounds. In these technologically-aware days, it's hard to imagine (or remember) what it was like when all TVs were black and white, and when a scratch could ruin a treasured LP. The pace of progress continues to increase — in five years, CD-ROM prices have changed so dramatically that the disks have gone from being major purchases made only by multi-national corporations to being virtually given away on the front cover of magazines.

The plummeting cost of physical modelling synths provides another fine example of the benefit of developing technology to the end-user. The Yamaha VL1 (which I reviewed in *SOS* July '94) was the first synthesizer to bring the computationally-intensive technology of physical modelling out of the world of academics and researchers, and into the hands of musicians. It was crammed full of DSPs, and cost £4000. Two years later, the first of the second generation of Yamaha physical modelling synths costs less than £500, and there's a deceptively simple circuit board inside, with only a few chips on it. It is much harder to try and say that you can't afford a VL70m.

APPEARANCE & USER INTERFACE

The VL70m is a synthesizer expander module. 1U half-rack cases all look much the same unless you really work hard, and Yamaha have striven to echo the gold, cream and dark brown colouring of the original VL1 by reworking an MU80 case. The result is that the large, backlit green custom LCD display dominates a front panel which looks rather like a top-end hi-fi separate. It's by far the classiest-looking module I've ever seen. OK, so it isn't quite up to the real wood veneer of the VL1 — but then there's not much room for any wood!

There is no skimping on buttons: there are six for the different modes, and nine control/editing buttons. As with many modules, the 4x17-character display tries to squeeze in as much information about the basic configuration as possible. The VL70m's display uses some custom icons and a bit-mapped graphics block to make this possible. The latter is put to good use when you first press the combined power switch and rotary volume control to switch it on — the 16x16-pixel graphics block shows a lighthouse with its searchlight beam sweeping across towards you. Other icons include a finger, someone blowing, a speaker, a suitcase, and an accordion. I couldn't figure out what the icon on the main page was, and had to resort to asking Yamaha — not quite the deep, probing type of question they normally expect from me! I'll save you from the embarrassment by revealing that it is someone playing a keyboard.

Despite all those buttons, and the large display, changing the parameters displayed on the main screen involves moving around with just a couple of cursor buttons, and changing the values with another pair. Beyond that, there's a similar 'scrolling and changing' user interface for all the other settings — and there are plenty of things to alter, even though there are no built-in editing facilities for the physical modelling synthesis engine itself.

pros & cons

YAMAHA VL70m £499

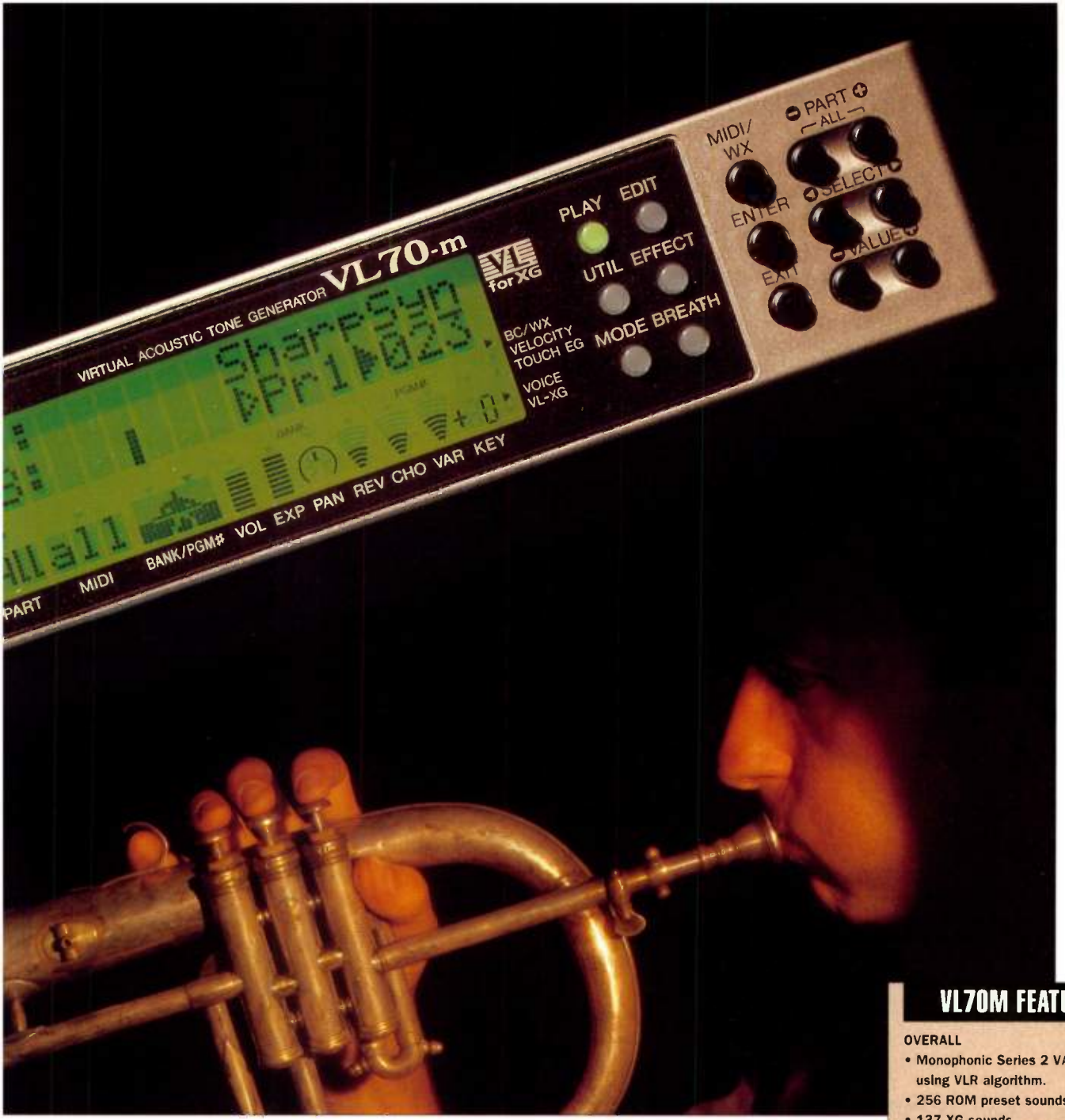
pros
- Affordable physical modelling synthesis.
- Superb sounds.
- Expressive and versatile.

cons
- Monophonic.
- Not as rich a sound as the VL1 series (although at *this* price, who can complain?).

summary

The price of the VL1 restricted its users to a select, exclusive circle, but the VL70m offers the realistic sounds of physical modelling in a package that permits the user a striking degree of expressive control — and all at a price the rest of us can afford. My only quandary now is how to justify *not* buying one!

SOUND ON SOUND



Incidentally, although all the main screen parameters can be edited at all times, some of the deeper edits can't be made whilst the VL70m is playing notes.

I'm pleased to report that Yamaha have included their 'double-click' shortcut for showing MIDI messages: press the 'Enter' button twice quickly and you see either the controller message or the SysEx message for the currently-selected parameter. This isn't just for people who like to write their own editors or mixer maps — it's actually very useful for typing those messages directly into sequencers, and saves all that messing about trying to record MIDI messages.

Yamaha include a 3.5mm stereo headphone socket jack on the front panel, as well as inputs for a breath controller and a WX wind controller. Putting these inputs on the front panel brings these often-overlooked MIDI controllers into sharp focus — remember that a keyboard is not the only way to play a module. Yamaha's breath controllers have improved incrementally with each generation, and the third-generation BC3 (which Yamaha sent along with the VL70m to help with the review) is the best yet, but still not quite perfect — see the 'Breath Control' box elsewhere in this review. WX-series wind controllers are something else entirely: the WX7 (reviewed way back in *SOS* December '87) and WX11 look like alien clarinets or oboes, and when they were used to control TX81Z-type FM sounds, they sounded just a little too synthetic. But when you combine the formidable range of control they provide with a physical modelling synthesizer like the VL70m, then you are talking expression in its most interactive sense. My second-greatest regret is that I was never taught to play the piano as a child — but my *greatest* regret is that I can't play a wind controller properly.

The rear panel has MIDI In, Out and Thru sockets, stereo audio quarter-inch jacks and a DC In socket for the external power supply. There is also a mini-DIN 8 socket for connecting the module to a computer serial port, and a 4-position switch for choosing MIDI, Macintosh, or two varieties of PC (IBM-compatible and NEC PC). ▶

VL70M FEATURES

OVERALL
- Monophonic Series 2 VA Synthesis using VLR algorithm.
- 256 ROM preset sounds.
- 137 XG sounds.
- 6 full user memories.
- 64 user memories for edited presets.

MODIFIERS (4)
- Harmonic Enhancer.
- Dynamic Filter.
- Equaliser.
- Resonator.

EFFECTS
- 12 Reverb effects.
- 10 Chorus effects.
- 44 Variation effects.
- 3 Distortion types.

REAR PANEL
- Stereo Outputs.
- Computer host interface.
- MIDI In, Out and Thru.

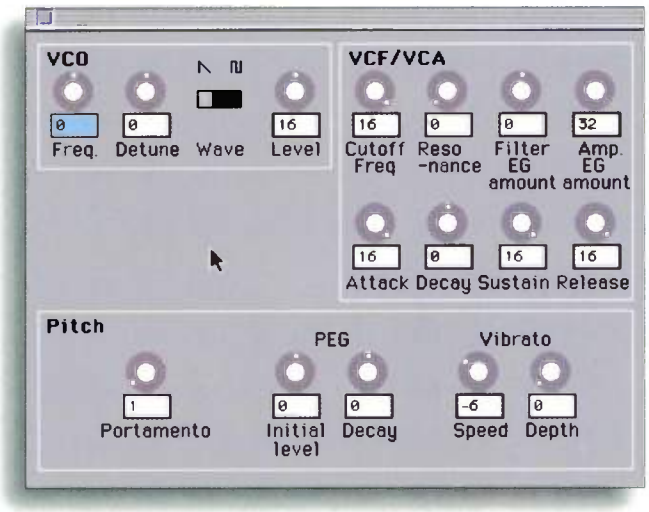
FRONT PANEL
- Headphone socket.
- Breath Controller Input.
- WX wind controller input.

Yamaha VL70m

▶ Having a combined MIDI interface and monophonic synthesizer is an intriguing concept; you normally need a little more polyphony than one note to make best use of a computer-based MIDI sequencer, and so it is reasonable to assume that you would need a polyphonic expander module in addition to the VL70m. I suspect that adapting the MU80 case meant that it was easier to include a MIDI interface than remove it.

HOW IT WORKS & EDITING

The VL70m utilises Yamaha's proprietary technology, Virtual Acoustics (VA), to make sounds. VA in turn makes use of a technique called physical modelling to produce the sounds — it literally uses a mathematical 'model' of the instrument, and calculates from this what would happen acoustically if you were playing the instrument in real life. As a result, VA sounds can exhibit the characteristics of real-world instruments, because the sounds are produced from an analysis of how the real instrument works, and not because someone has programmed a synthesis algorithm to try and emulate them. Even the transitions between notes sound real! The disadvantage used to be the huge computing power necessary to make all the calculations, but in the VL70m, a single custom chip does almost all the hard work. And what hard work it is: in a Sample + Synthesis (S+S) synth, this sort of chip might be producing multitimbral sounds with 32- or 64-note polyphony — but in the VL70m, it only produces monophonic sounds.



The Analogue Editor.

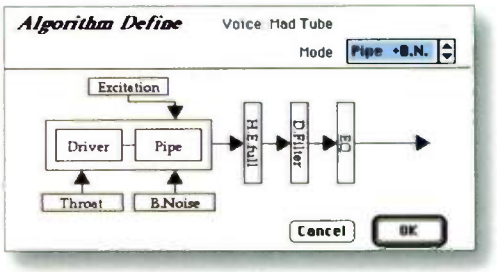


Figure 1: a typical VA patch.

VA synthesis uses three basic elements: a driver, a resonator, and a modifier (see Figure 1 above).

- The driver is the part that puts energy into the instrument — so it is the bit that you blow, pluck or bow, for example.
- The resonator is the timbre-shaping part of the instrument — for example, the tube with holes in it, in the case of a woodwind instrument, the body and struts of a stringed instrument, or the tubing and flare of a brass instrument.
- The modifier is a special-purpose set of effects, which are actually linked to the driver and resonator parts of the model. This includes a harmonic enhancer to change the harmonic structure of the sound, a dynamic filter for producing analogue synth-type filter sweeps, a 5-band parametric equaliser to tailor the overall tone, and a special resonator intended to produce a 'woody' type of resonance. You control these elements via a large number of parameters which determine how MIDI values (like velocity or information from a breath controller, pitch or mod wheel) are mapped to the physical model. The control parameters themselves have descriptive names which try to indicate their effect on the sound (some examples are Embouchure, Tonguing, Scream, Growl and Damping).

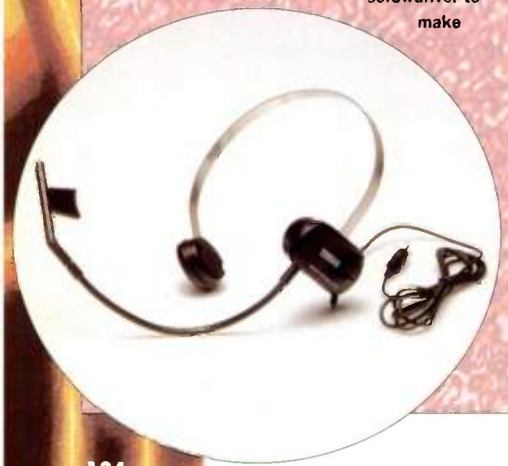
Two years of work on VA synthesis has improved the repertoire of the Yamaha programmers — the VL70m has a much more cultured and mature-feeling set of sounds than the ones that I drooled over (or drooled *into*; breath controllers do that) in the VL1 when I reviewed it. There are two banks of 128 preset ROM sounds: the first is designed for optimal playing via keyboard, whilst the second is aimed at making the most of a breath controller or wind controller. Edited versions of these 256 sounds can be stored in the 64 user RAM memories, but the edits are restricted to the controller settings, and do not allow full user editing of the sounds. ▶

EVERY BREATH YOU TAKE: THE BC3 CONTROLLER

The BC3 breath controller is an optional extra for the VL70m, but I would class it more as an essential purchase. Yamaha have now reworked the BC2 breath controller which was supplied with the VL1 (see my VL1 review for comments on this), and the BC3 is a great improvement in many areas. The adjusters are better: one is tiny and one merely small, but you no longer require a screwdriver to make adjustments. The tubing is now inside a miniature gooseneck-type structure, which is much better than the BC2's flimsy bit of wire. The adjustment for breath leakage has been vastly improved: instead of a floppy plastic cover, it is now a little rotary knob which works rather like the similar device on a vacuum cleaner hose — the pressure adjuster that you never use because the vacuum cleaner's always set to maximum suck anyway!

However, the plastic mouthpiece does tend to fall off the end of the tube — the interference fit that holds it in place is only just enough to hold it on. I suspect that with wear, it may need taping in place — and gaffa tape tastes terrible! Generally, though, the BC3 seems to have been designed rather more carefully than the utilitarian BC2 — or the embarrassing BC1. Perhaps a bit of Blu-Tak or sticky tape will hold that errant mouthpiece in place...

If you have to use a keyboard, then by setting a pedal or wheel to control Expression (MIDI Controller number 11) you can explore both banks of the VL70m's preset sounds and still have the feeling of interaction with them.



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Yamaha VL70m

The Visual Editor.

The six custom memories are different. These are used to store sounds which are edited using software on an external Macintosh or IBM PC-compatible computer (or a Japanese NEC PC 9801/9821). Here the editing allows full access to the individual parameters of the mathematical models themselves. There are a large number of values to change, and making meaningful changes requires considerable knowledge of the physics of musical instruments. Making random changes to parameters either does very little or changes the sound completely. To try and ease users into the editing process, Yamaha provide three pieces of free software:

- The *Analogue Editor* (Mac only). This provides very simple analogue synth-type controls for a synth which is anything but analogue!
- The *Visual Editor* (Mac and PC/Windows). This presents a simplified user interface with pictures of drivers and resonators, as well as context-sensitive hints on how to further process and control your creations.
- The *Expert Editor* (Mac only). This gives full control over the finest details of the VA algorithm.

Development of these programs is ongoing, and by the time you read this, the PC/Windows support may be better. The programs should be available from Yamaha dealers who stock the VL70m, or via the Internet. I got them from **http://www.yamaha.co.jp/english/xg/html/vleditor.html**, but some of the files are almost 1Mb in size, and will take a long time to download using a 28.8kbps modem. The Mac *Visual Editor* file exploded from 936K to a 3Mb folder, and all the Mac programs use the *MIDI Manager*. Not having a PC, I was unable to test the Windows *Visual Editor*.

If you find FM synths easy to program, editing VA using the *Expert Editor* may present rather more of an intellectual challenge — but if you found FM hard to grasp, you may prefer to use *Visual Editor* or *Analogue Editor*.

PLAYING & MIDI

There are two different playing modes. The default is called 'Voice' mode, and this is intended for use with other modules, especially non-XG ones. Each voice has its own effects setting — which means that they are all swamped in reverb and chorus. In the other, 'XL for XG', mode, the VL70m is intended to be used as an additional XG sound source in an XG system. In this mode, editing of sounds in the internal memory bank is not possible, and only one set of effects settings is available.

Although the VL70m is monophonic, it is possible to chain several units together and thus increase the available polyphony, although this affects some of the performance controls you can use, like the monophonic portamento and bottom or top key assignment.

The VL70m uses an extension to Yamaha's XG sound set, called 'VL for XG'. The XG GM super-set provides extra sounds, effects and editing capability, whilst VL for XG defines lots of additional NRPN controllers (Non-Registered Parameter Numbers) and uses the Sound Controllers (46H to 4AH). Complete GM or XG compatibility are not provided, because VA synthesis is restricted to particular types of sounds — although I can't say I particularly missed having GM's telephone, helicopter and canned applause!

In common with almost all GM-type instruments these days, there is a Bank Change map showing how to access the variations on the preset sounds using bank change messages. Some of the variations seem rather sparsely populated: I'm not convinced that it is a good idea, for example, to have two banks which are identical except for one saxophone sound.

One peculiar feature is way the MIDI Out socket re-transmits any MIDI messages which arrive at the MIDI In socket of VL70m, except for those messages which match the channel setting given by the 'Note Filter' parameter. This is intended to make it easy for the VL70m to be used with other modules, but carries the potential for all sorts of MIDI mayhem. The time delay for this 'Out as Thru' socket is about five milliseconds, which might become significant if it is used to drive another module with an equally slow MIDI response time.

THE VIEW FROM WITHIN

The inside of the VL70m is not as cramped as you might imagine. There is a single printed circuit board (PCB) which is more or less the size of the top of the case. It uses a mixture of double-sided surfacemount technology for the digital and most of the analogue circuitry, and conventional thru-hole mounting for the power supply. The standard of construction is very high.

IMPRESSIVE & EXPRESSIVE: THE SOUNDS

The hallmark of physical modelling is the synthesis of sounds which have that elusive 'real' quality, regardless of the fact that it may not be physically possible to construct the instrument. In the real world, you can't use a bow to play a clarinet, but the VL70m can give you a sound which 'feels' and behaves as if a 'claricello' did exist — and the way the module responds to controllers permits a huge degree of expression.

With the current interest in old monophonic analogue instruments still going strong, the VL70m provides a viable alternative to clichéd analogue sounds: a digital instrument which offers far more expression than just the filter cutoff or resonance tweaking over-used by retro enthusiasts. As well as a wealth of detailed control over the sound, the VL70m can exploit the same portamento and damping techniques that you find used by TB303 programmers — and of course the VL70m has a much wider initial palette of sounds to work from than the ubiquitous squidgy ones from that silver box.

The VL70m presets include both instrumental emulations and special-purpose sounds. The emulations include some superb bass sounds, classic lead-line synth sounds, feedback guitars (with distortion ranging from nasty to merely gross), some curiously lifeless acoustic guitars (which suffer hugely from being only monophonic), and then there are the woodwinds, brass and bowed strings that you would have expected. There are no pianos at all, and just a few weak clavinet and percussive sounds. There's plenty to explore, and the controllers really can make major changes to the preset sounds. The more you learn how to play it, the better the VL70m sounds — it's just like learning an orchestral instrument!

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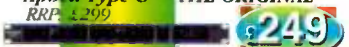

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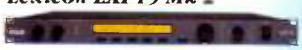

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Yamaha VL70m

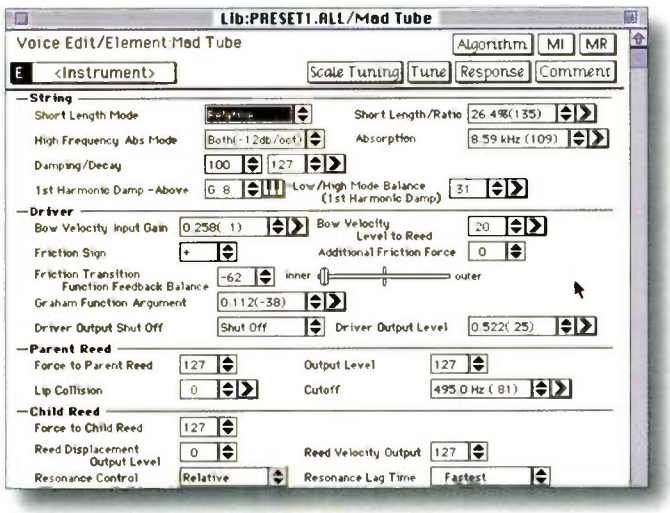
DIFFERENCES

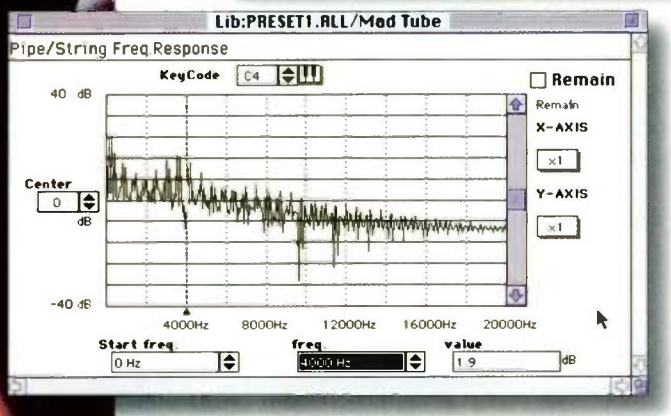
As I spent time with the VL70m, I started to notice the differences between the 'series 2' VLR variant of VA synthesis that it uses, and the original 'series 1' VA synthesis of the VL1 family. The most important difference is that the VL70m only has one sound-producing element, whereas the VL1 has two — although not all VL1 sounds use the 'dual' mode. This means that some of the subtler VL1 effects are not available on the VL70m, like having portamento on one element and not the other (this feature was used to great effect in the VL1's '50/50' preset sound). More importantly, the depth of detail which is available to the programmer on the VL70m is reduced — so the 'C Flute' sound on the VL70m does not have the same 'chiff' at the start of the notes as the VL1 version, because the VL70m is fully occupied producing the note itself, whereas the VL1 uses two elements: one for the note, the other for the chiff sound.

The underlying sounds in the VL70m are similar to those in the VL1, but not identical, and I suspect that there may be a difference in the sample rate — in certain sounds, some of the aliasing components sounded different on the VL1 and VL70m. The VL1 sounds are richer, more polished and sophisticated, whilst the VL70m has a slightly rougher, harsher feel — presumably the algorithm used is not as complex, and uses less processing power. The two actually complement each other very nicely — the VL1 has a smooth, rounded feel, whilst the VL70m is brighter and thinner.

The built-in effects processing is also markedly different. The VL70m uses a 24-bit effects chip which feels and sounds very GM in character: distortion is the first effect in the chain, and this is then followed by either the Variation effect (Reverb, Chorus and Echo, plus miscellaneous effects like rotary speaker and auto-wah) and then the Reverb and Chorus in parallel; or the Variation, Reverb and Chorus *all* in parallel. It sounded just a little rough and grainy on the VL70m to my ears — but then I was comparing it to something much more expensive. The VL1 has a 32-bit effects processor with less options (you can't have distortion and flanging together, for example), but it sounds much cleaner, crisper and smoother — especially the reverb.

The VL70m does not have a disk drive, which means that you have to use an external sequencer to store or load edited sounds via MIDI. But if you use the computer editors, then you don't need a disk drive in the module itself. Given the complexity of the editing process, the six custom memories seem perfectly adequate — none of my exploratory editing produced anything even faintly interesting. I wonder how many VL1 owners have used the user memories for their own custom sounds, rather than merely for edits to the controllers?





The Expert Editor: (above) edit parameters and (below) editing the frequency response curve.

CONCLUSION

Very, very nice. For a price which would buy you an ordinary S+S GM module, the VL70m is an entirely different source of sounds. Words like flexible, versatile, striking, expressive and compelling don't often appear in reviews of synths, but they all apply to VA synthesis (see the 'Sounds' box for more on this). Physical modelling may mark a closing of the retro circle: much of the attraction of analogue synthesizers derives from the combination of the interesting timbres they offer and the expression and degree of control over these sounds that is available from the front panel of an analogue synth. The VL70m offers the same kind of focus on control and personal expression. This is not a module where you listen to the presets and then know everything that it can do — instead, you need to work with it, to coax it into producing your personal sound. Just as a musician can produce a distinctive sound from an real instrument, you can do the same with the music you make with the VL70m: but remember that you will need to invest the time and effort in learning how to use it. SOS

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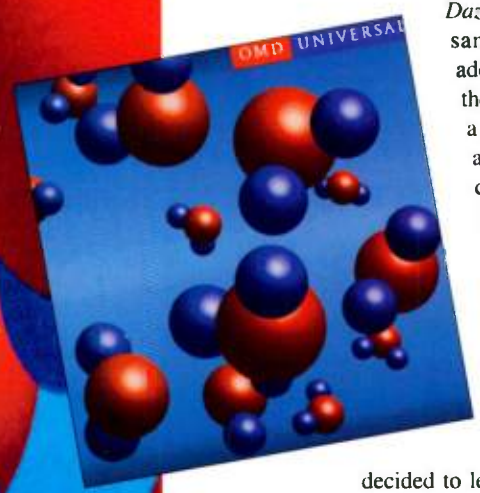
***One-time lords of synth-pop, OMD have had a chequered 18-year history, but frontman Andy McCluskey genuinely believes their 10th and latest album ranks among the band's best work. NIGEL HUMBERSTONE talks to McCluskey and producer Matthew Vaughan about the making of* Universal.**

Orchestral Manoeuvres In The Dark were a truly '80s pop success story — an electronic duo (Andy McCluskey and Paul Humphreys) who had the knack of writing killer melodies. From their low-key 1979 eponymous debut album through to 1981's superb *Architecture & Morality*, they balanced their love of Kraftwerk with epic Vangelis-like synthscapes, and had a healthy tendency to encapsulate both of these influences in three-minute pop songs. Singles like 'Electricity', 'Messages', 'Enola Gay' and 'Maid Of Orleans' met with enormous chart success as a result, and were guaranteed places on all future synth-pop compilation albums.

Like many predominantly synth-based groups of the early '80s, OMD hit a rocky patch in 1983. With the expectations placed on them by the public following the triumph of *Architecture & Morality*, the subsequent album *Dazzle Ships* was a commercial disappointment, although the duo were in fact continuing in the experimental vein that had led them to discover the successful Mellotron-and-Gregorian chant-based *Architecture* sound in the first place; but this time their experiments used early sampling technology such as the Emu Emulator. After the relative failure of *Dazzle Ships*, OMD were never quite the same again, despite the continued adoption of then-new technology, like the Fairlight CMI. The group embraced a much more obviously pop-based approach on subsequent albums, but curiously this yielded a reduced success rate for their singles and albums overall, with occasional exceptions, such as the 1986 worldwide smash hit 'Forever Live And Die'.



As the duo's fluctuating fortunes continued and the decade wore on, conflicting interests within the partnership began to surface, and when, in 1989, Paul Humphreys decided to leave and pursue a career outside the band in The Listening Pool, Andy McCluskey had to pick up the pieces. "I was traumatised when he left," McCluskey admits today, "because he was the guy I'd written songs with since I was 16. But looking back, I realise that it had to happen. I think we both decided that OMD, as it was, could not have continued — it would have completely self-destructed. I'm glad it ended when it did."

Following Humphreys' departure, McCluskey soldiered on with the OMD name and an ever-changing round of production and songwriting collaborators, triumphantly returning in 1991 with the 2-million selling *Sugar Tax* album. Like *Architecture and Morality*, it was another high point in what McCluskey freely refers to as his "zig-zagging" career: the pattern then continued with 1993's poorly-produced (and poorly-received) follow-up *Liberator*. "The trick is to learn from mistakes or problems," recounts McCluskey philosophically, "and try to rectify what you did wrong. I've now had three really bad patches, which should have ended my career, but I'm still standing, and I like to think that I've now made an album which is as good as any of my peaks. But I would say that, wouldn't I?"

UNIVERSAL TRAVELLER

The new peak in question is *Universal*, OMD's latest offering and an album for whose recording McCluskey felt the need to depart the confines of his home city Liverpool, specifically the Ministry, OMD's former rehearsal and studio space [*see OMD feature in* SOS *August '93 — Ed*]. Andy had three years to work on this album, so before commencing work, he went travelling around the world, took trains across Asia, and drove across America. During this time, he made some major changes to the way he wanted OMD to sound: "I made a conscious decision, both style-wise and sound-wise, to change. It was important for me to abandon some of the electronic stuff: nobody in the mid-1990s really wanted '80s synth-pop any more, which is essentially how OMD were perceived, whether correctly or not. But the current alternative to synth-pop is ambient, which is not challenging enough for me, much as I like some of it. It hasn't got enough personality or interest factor for me. Call me old-fashioned and traditionalist, but I like songs that have beginnings, ends and choruses!". The other synth-based alternative was hardcore dance, but McCluskey felt no more comfortable with this style after the *Liberator* debacle: "On the last album, I made the mistake of trying to marry my pop sensibility with dance stuff, and ended up falling down the hole in the middle. In the end, I felt I had ▶

to be true to myself — I *didn't* take Ecstasy or stay up to eight in the morning, so why was I trying to 'techno-up' some of these songs? It was important for me to ask myself what the new album should be like, and what would appeal to me and make sense for a band that is essentially 18 years old. And I didn't want it all to be electronic — I wanted to use real drums, and less synths".

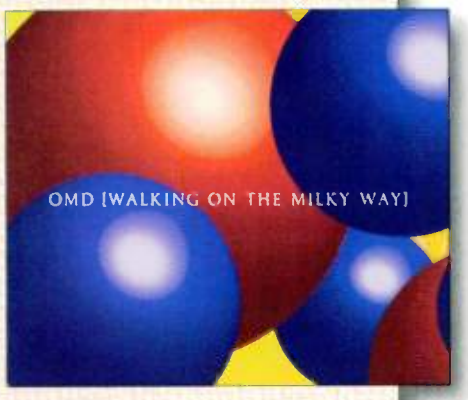
Having taken these far-reaching decisions, McCluskey commenced work on the album. But this didn't mark the end of his travels. First, he went to Eire for a year to write and demo material. "I rented a room at The Factory in Dublin, and took my gear over from Liverpool. It doesn't matter where I am — I take my desk, my speakers, my rig, and computer [see the 'Making Demos' box for more on the OMD demo rig]. There's a great vibe at The Factory, with good technical people downstairs working for Litton Lane [*local PA company — Ed*], so if something broke down, I could get some help."

After a fruitful but lengthy period in Dublin, McCluskey uprooted again, this time moving to Los Angeles to work there for seven months. The move obviously had the desired effect of raising the rate of progress (McCluskey: "My concern was that I was getting a bit laid back in Ireland") and the album demos were more or less completed there.

The final move in OMD's globetrotting recording tour was back from LA to the UK — not to Liverpool, where much of OMD's post-Humphreys material was recorded, but to The Townhouse in London, selected for its SSL desk and 48-track Sony 3348 digital recorder. As McCluskey goes on to explain, he changed his production team as well as his final choice of studio for the actual recording ▶

ELGAMS & ENO

The track 'The New Dark Age' on the B-side of the first single from *Universal*, 'Walking On The Milky Way' makes use of an old Elgam organ.



'Walking On The Milky Way', the first single from Universal.

McCluskey: "It's like one of those Bontempi home organs, with a drum box and bass and chord accompaniment. I used it in this song, and there was no way I could MIDI it up, so I bunged it in the Akai S1000, with the drums, bass and chords just as one mono sample — and I don't care! Sometimes, when you play to the weaknesses of your machinery, you cut down on lots of wasted questioning and attempted discovery, and you're much more efficient. When I was a kid, and had really crap gear, I read this article where Brian Eno said that you should play to the weaknesses of your own ability and instruments — that is your sound, and that's what makes you unique. Having no money at the time, that seemed like a great idea to me! So with the first OMD album, we had an organ, two cheap synths, one drum box and my bass guitar — and that was *our* sound, because that was all we could afford".

IT'S *LOGICAL*: MATTHEW VAUGHAN ON *LOGIC AUDIO*

During the *Universal* sessions, Matthew Vaughan was beta-testing Emagic's *Logic Audio* version 2.5.3: "As someone who switched from *Cubase* on the Atari to *Logic* on the Mac, I found *Logic* very difficult to understand at first, the main hurdle being the Environment. I've gradually learned more and more about it, and there's no doubt it's one of the most powerful aspects of the program, although it's not documented well enough to give new users much of a break. For me, version 2.5.3 of *Logic Audio* is a great improvement, because of things like track names, which I've been asking for for a long time. But one thing I'd still love to see is multi-record from different instruments, because I often set up lots of different master keyboards or devices. I'd also like to be able to set up one device as a dedicated transport controller. You can have 32 input devices with *Logic* at present, but the trouble is that when you record, everything goes onto one track, and the only way to configure it is to have every single master transmitting on a different MIDI channel — which isn't always practical. I've got all sorts of editors set up within *Logic*, like one for my JX8P, so that I can manipulate it easily. But if you change the MIDI channel of your JX8P, you've got major problems.

"I had *Logic Audio* set up with a program called *Now Save*, which saves automatically at regular intervals, so that you never lose very much when the computer crashes. It was handy when I worked on the Pulp album, because Chris Thomas would often say 'I want to hear it the way it was 15 minutes ago' — and it was good to be able to look in the Mac's Finder and say 'here it is!'. Overall, though, we had very few crashes with *Logic* — I suppose it's only when you set up something like *Now Save* that the crashes stop!"

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of the album: "When I got back from America, I had everything pretty much demo'd, and having changed the way I *wrote* the album, I wanted to change the way I was going to *record* the album; it was quite important for me to find the right people to work with. I loathe making records — I love the writing, and touring I really enjoy, but committing to that final product is really traumatic. Essentially, it's me programming and arranging, so I have a lot of trouble objectively balancing in the studio. I need a good engineer, somebody that I really trust, so that I can say, 'look, you do this, and I'll fine-tune it'. When you spend all your time doing the programming, you can get so bogged down in the minutiae of pitching the vocal, or making sure that a rhythm sample is looping correctly, that you lose the overall picture. The songs were 80 to 90 percent there — it was the last 15 to 20 percent, which is always the hard bit, converting the good-sounding demo into the great-sounding finished record."

In the end, McCluskey chose two collaborators, producer/programmer Matthew Vaughan (see the 'Producer & Programmer' box), and engineer David 'Chip' Nicholas, both noted for their work with legendary producer Chris Thomas on Pulp's 1995 hit album *Different Class*. "They were like the right and left-hand men for that record, with Chris Thomas sitting on the couch doing the crossword — and I thought, 'that's the way I want to do it!'. So *I* spent three months in The Townhouse doing the crossword on the couch! It took a lot of the pressure off me, because I could just delegate things to them and trust that they would do things I would be happy with — they were very much on my wavelength."

ORGANIC *AND* DIGITAL

Matthew Vaughan certainly paid his way as the project's Pro Tools and *Logic Audio* operator: as Andy McCluskey explains, hard disk recording proved invaluble during the making of the album, for example when positioning vocals in the final mix. "That's where Mr. Vaughan came into his own, because not only have you got to spin the vocals in, but nine times out of 10, the final version is sped up a few bpm, so you have to time-stretch them. Pro Tools was incredible — it allowed me to be more objective than I've ever been about making a record. It was also great to have somebody do all that spade work, but also add his own creative touches.

The Townhouse, where Universal was recorded.

MATTHEW VAUGHAN: PRODUCER & PROGRAMMER

Matthew Vaughan is a producer and programmer who has often worked with producer Chris Thomas. For the *Universal* sessions, Vaughan worked alongside engineer David Nicholas. Vaughan: "David and I started on two tracks, 'The Chosen One' and 'Very Close To Far Away'. Only 'Very Close' made it on to the album in the end; 'Chosen One' didn't seem to fit properly. I feel a bit sad about that; it's a huge sprawling Roy Orbison tribute which suited Andy's voice perfectly, but it was one of the tracks we had to lose in the final running order.

"After a long break, we went in to start the album. At first, it was just me and David sifting through Andy's demos, sampling, putting stuff into *Logic Audio*, and generally getting the songs to a stage where we could go into The Townhouse, hit Play on *Logic Audio*, and we'd have the songs as they were when the demos went down to DAT. Then Chuck Sabo and sometimes Phil Spalding [*session drummer and bass player used on* Universal —Ed] would play their tracks straight on top of that. We'd edit the drum and bass tracks if necessary — which with Chuck isn't often — on the Sony 3348 digital multitrack at The Townhouse. It would have been nice to be able to do this in Pro Tools, but I haven't got Pro Tools III, so I'm restricted at the moment to four tracks of playback. David is incredibly fast at editing drums on the 3348 anyway.

"We kept very large amounts of the original demos. We were generally tweaking Andy's original sequences, changing sounds, bumping up octaves, altering the melodies here and there, and just trying to make the whole thing sit a bit better. Andy had initially recorded vocals at another studio, all on the same piece of multitrack tape (see the 'Making Demos' box). I put all these into Pro Tools, so we always had the original vocals, and Andy would re-vocal some extra bits. In a lot of cases, the original vocals were used, but they were treated quite a bit, with bits of tuning here and there. With *Logic Audio* hooked up to the Sony 3348 digital multitrack [see separate 'It's *Logic*al' box], it was so easy pulling bits off the tape, adjusting them, and putting them back on, all in the digital domain. *Logic*'s Time Machine digital time-stretching is invaluable for this sort of work."

Although highly motivated and assisted by the latest technology, Vaughan is not adverse to resorting to more traditional production methods. "If it was possible to tune vocals effectively on the fly with something like an Eventide HE3000, I'd do it that way. I'd use whatever was the quickest way to get a result: there's always got someone sitting around waiting to do something else. If it was time to really sit down and get the microscope out on the lead vocal, then we'd send everybody else home. Most of the time, we'd do something like a drum track first thing in the day, nail that, and then start flying everything else in on top of it. Once everything was roughly down on tape, we'd take it back *off* tape to tweak it digitally; that way we had the big picture there on tape all the time. That was the idea behind working from Andy's demos."

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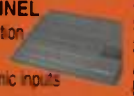

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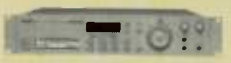

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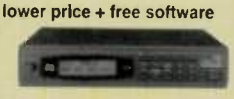

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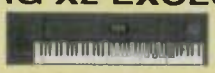

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MAKING DEMOS WITH THE OMD SETUP

McCluskey's personal setup is still very similar to the one he was using when he last spoke to *SOS*, and is centred around a Falcon computer running *Cubase*. This drives a Yamaha TX81Z, Emu Proteus, Korg M1 and Roland JD800, which are in turn all routed through a Studiomaster desk and Yamaha NS40M monitors. There's also an Akai S1000, which is fitted with the maximum 32Mb of sample RAM for the dual purposes of touring and memory-hungry CD-ROM usage. Despite being several years old, the S1000 hasn't been troubled by the threat of replacement yet, as McCluskey candidly confesses: "I used an S3000 once, but being a complete Luddite and impatient with technology, I couldn't be bothered to learn how the new buttons worked. I kept trying to do it the old way, and ending up on the wrong page. Next year, I'll probably get round to buying whatever the new version is, but I'm not really a great lover of technology in the sense that I don't really get off on new toys. My system is in many ways out of date, but it works for me".

McCluskey uses this setup for OMD demos: after working up a sequenced backing track, he dumps it all down to a DAT, and takes it to a studio so that he has something to respond to as he works on his vocal parts. His procedure for recording vocals on 2-inch tape is perhaps quirky, but at the same time effective and economical. "I actually divide the 24-track tape up into three, put the DAT backing for three different songs down onto tracks 1 and 2, 9 and 10, 17 and 18 — and use it as three 8-tracks running simultaneously. In that way, you can actually end up getting nine songs on a piece of 2-inch tape. And I can knock off a whole album's worth of demos, maybe eight or nine songs, in two days like that."

Andy McCluskey at The Pink Museum, Liverpool, where Universal's vocals were recorded.

"The making of this album went in two opposite directions. Matt's programming with Pro Tools and *Logic Audio* was beyond anything I've done. But that kind of technology took some of the pain out of the work, and allowed some of the other things on the album to be more organic; trying to combine live drums and bass with a lot of programming is quite hard, and used to be *very* hard. But the best stuff I've ever done has *not* been completely electronic, it's been half and half, and I like to believe it has a certain humanity and emotional content. So in terms of instruments for the new album, there are a few old organs that I've used, like Farfisas and Elgams [see the 'Elgams & Eno' box].

"Interestingly, with all the fabulous samples you can get from things like the Emu Classic Keys, you often don't actually have to go out and dust down your real Mellotron, or get out your Hammond organ and lob it through the Leslie. For example the 'pipe organ' on 'Walking On The Milky Way' was from a Yamaha TX81Z. And the big organ sound is from an Emu Proteus — but it was put through a real Leslie. There are lots of strings on the album, and most of those are samples, but 'If You're Still In Love With Me' has a real 10-piece string section [*arranged by none other than strings superwoman Anne Dudley — Ed*]. CD-ROMs are also great — you can now get things like a choir of nuns singing block chords [*from the Best Service CD-ROM* Hallelujah — *Ed*], which we used on the middle eight of 'Walking On The Milky Way'. Once again, you're using real organic sounds, but you're using technology to access them. I think we struck a really effective balance."

FROM PULP TO AMBIENT

Recording at The Townhouse took the form of a three-month block session, with the majority finished before Christmas 1995 — but then there were two last-minute additions. McCluskey explains why this happened: "We set out to — and did — record 16 songs, but I had so many that we first had to wade through what we were and weren't going to do for the album. 'Too Late' was one of the first songs I wrote in Ireland, and Chip and Matt ganged up on me and said they didn't want to record that — neither of them happened to get off on that song. Once we finished the album, though, I was adamant that something was missing, and that that track needed to be on too."

The other track added was 'The Boy From The Chemist Is Here To See You', which McCluskey wrote on holiday over Christmas 1995. "I just fancied doing another up-tempo one. Strangely, of all the songs, it's the one that sounds the most analogue and old-fashioned OMD." The track also seems strongly reminiscent of both Pulp's 'Common People' and 'Disco 2000' from *Different Class*. McCluskey doesn't wholly dispute the similarity: "With Pulp's mentality, and with Chris Thomas adding bits on that record as well, they do have this kind of cheesy pop '70s sound. I'm returning the compliment, quite frankly, because as far as I'm concerned, some of Pulp's stuff sounds like late Pulp playing OMD doing early Roxy

MATTHEW VAUGHAN: GEAR USED ON THE *UNIVERSAL* SESSIONS

SYNTHS
- Emu Proteus 1 (x2)
- Emu Proteus 2 (x2)
- Emu Proteus World
- Emu Classic Keys
- Korg M1R
- Korg 03R/W
- Oberheim Matrix 6R
- Oberheim Matrix 1000
- Quasimidi Quasar
- Roland Alpha Juno 2
- Roland D550
- Roland JD800
- Roland JV1080 (with Orchestral Vintage Synth Piano, and World expansion boards)
- Roland JX8P
- Roland MKS30
- Yamaha DX7S
- Yamaha TX81Z (x2)

SAMPLERS
- Akai S1100
- Akai S1100EX

RECORDING
- Alesis Quadraverb
- Digitech Vocalist (hired)
- Fairchild compressors
- Focusrite EQ
- Opcode Studio 4 MIDI Interface
- Pultec EQP1A EQ
- Urei 1176 compressors

COMPUTERS & SOFTWARE
- Apple Macintosh Quadra 650
- Digidesign Pro Tools II & 442 Interface
- Digidesign Sound Tools II
- Emagic *Logic Audio* v2.5.3

Music. So this is late OMD, doing late Pulp, doing early Roxy Music! 'Boy From The Chemist' — and a lot of Pulp stuff — has that two-chord piano, much the same as Roxy's 'Virginia Plain'."

The title track from the album had completely different origins, with its roots in the extended, proto-ambient synth tracks OMD specialised in until *Dazzle Ships*, like 'Stanlow' from 1980's *Organisation* album, or 'Sealand' from *Architecture & Morality*. McCluskey explains the return to this style: "When *Liberator* came out, a journalist said to me, 'One thing that disturbs me — when you were 21 you were doing these epic music landscapes, and now youre in your mid-30s, you're doing three-minute pop songs. You're almost growing up the wrong way round'. He was right — I used to throw a lot more caution to the wind when I was younger, and did things that in essence sound more mature than what I'm doing now. 'Universal' was a conscious decision to do a big, ambient soundscape". The first section of the track features a typically old-style OMD, analogue-sounding synth line — but as McCluskey reveals, it's not as analogue as you think: "It's actually a JD800 card sound called 'Korean Lead', but with its bell attack sound taken off. Essentially, it's a JD800 mimicking a Minimoog; and then, of course, it's been lobbed through loads of long repeats to give it that grandiose synth rock feel. You can imagine Rick Wakeman or Keith Emerson playing it in a stadium. I was having fun, basically, and trying to knock down some of my own personally-imposed boundaries with a prog-rock intro — but I always knew it would finish with a song somehow." The intro nevertheless hung around unconnected to anything for a long time, being one of the first pieces McCluskey wrote for the album. The main song eventually appeared nine months later. "In the end, we cut down the five-minute intro to two minutes, and added the song. The second part is in the key of C and the intro's in D sharp — it was really difficult to get one to slide into the other."

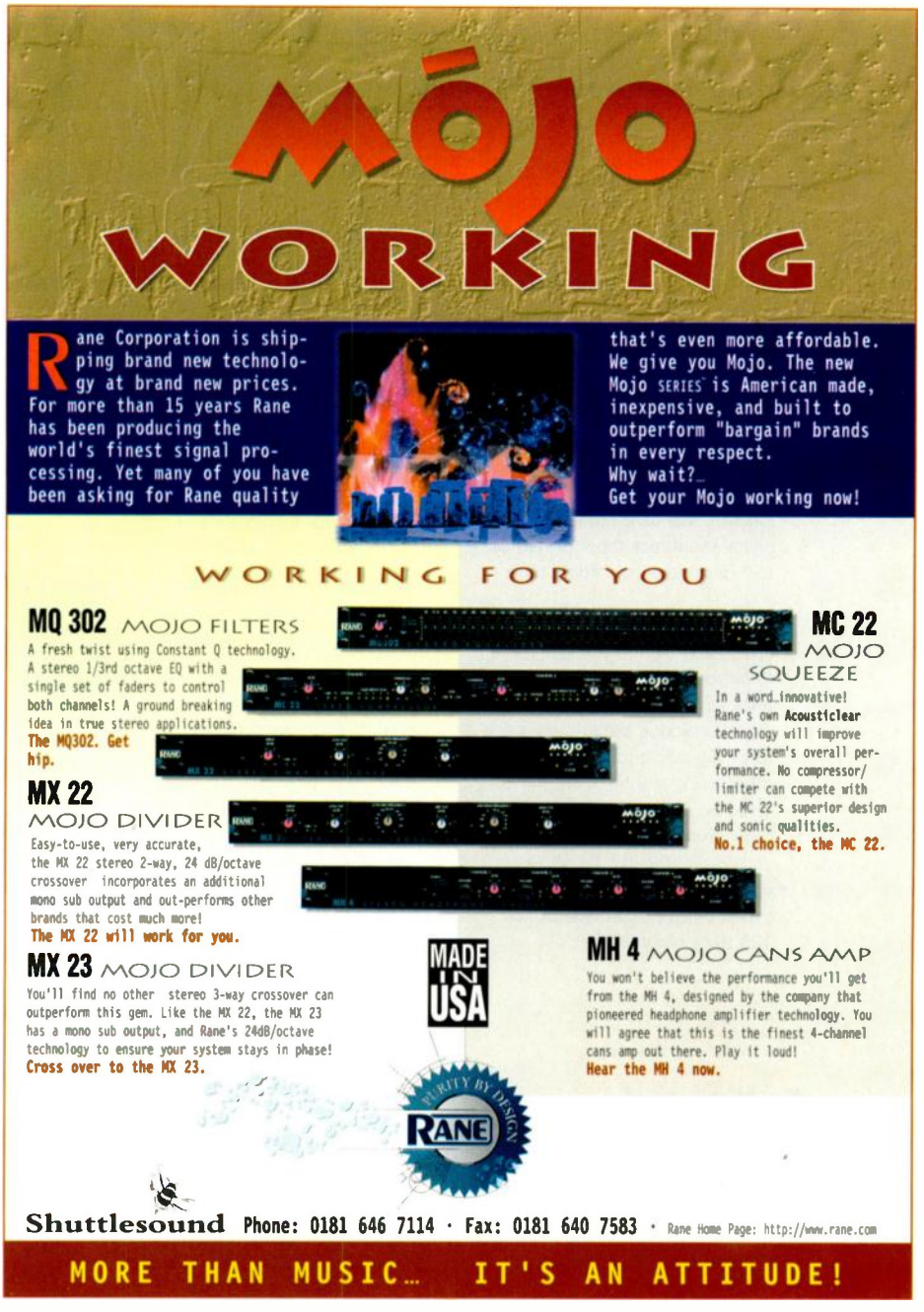
THE *UNIVERSAL* LOTTERY

Reasonably enough, McCluskey made no presumptions about how *Universal* would fare commercially (it was yet to be released at the time of our interview) — although as our conversation ended, he was confident that he had at least satisfied his personal standards, as he had intended. "I have a good feeling that I've done the right thing, and for the right reason. But as to whether the album will sell — that's still a lottery. It's 15 years now since *Architecture & Morality*, which a lot of people tend to regard as our *pièce de resistance*, never bettered since. I think that maybe in 15 years' time I could still listen to this and think of it being as good as *Architecture & Morality*. That's the real benchmark test." SOS

Universal *and the single 'Walking on the Milky Way' are out now on Virgin Records.*

PROPELLER ISLAND: NICE & MELLO (TRON)

Andy McCluskey: "I really enjoy getting CD-ROMs like Propeller Island's Mellotron one, which is brilliant. Some poor sad bastard has spent months sampling every single note from all the different Mellotron tapes he could find — and *then* he's gone to the trouble of trying to do condensed versions with nice loops in! I've never heard anything sound so like the real thing. Most samples have sounded either too thin because theyre not multi-sampled enough, or they're too nice and clean — you know they've been digitised. A real Mellotron is nasty and has a distinct sound. It's great that finally, somebody has taken the time to sample it properly."



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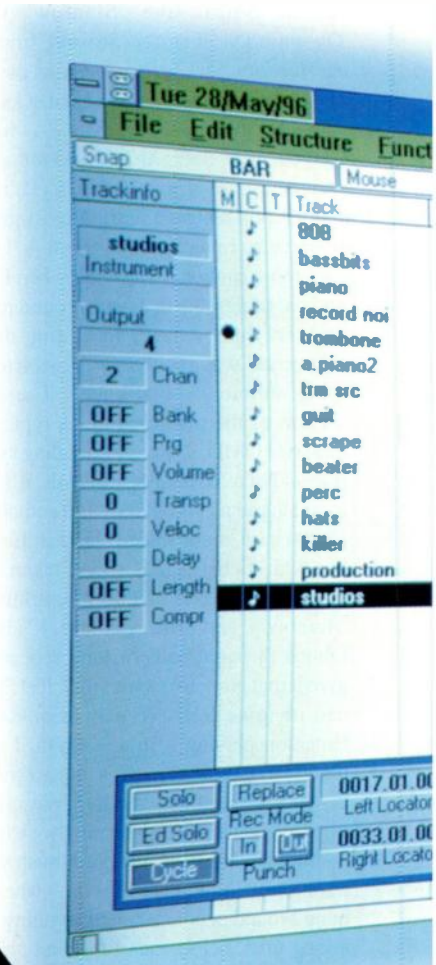

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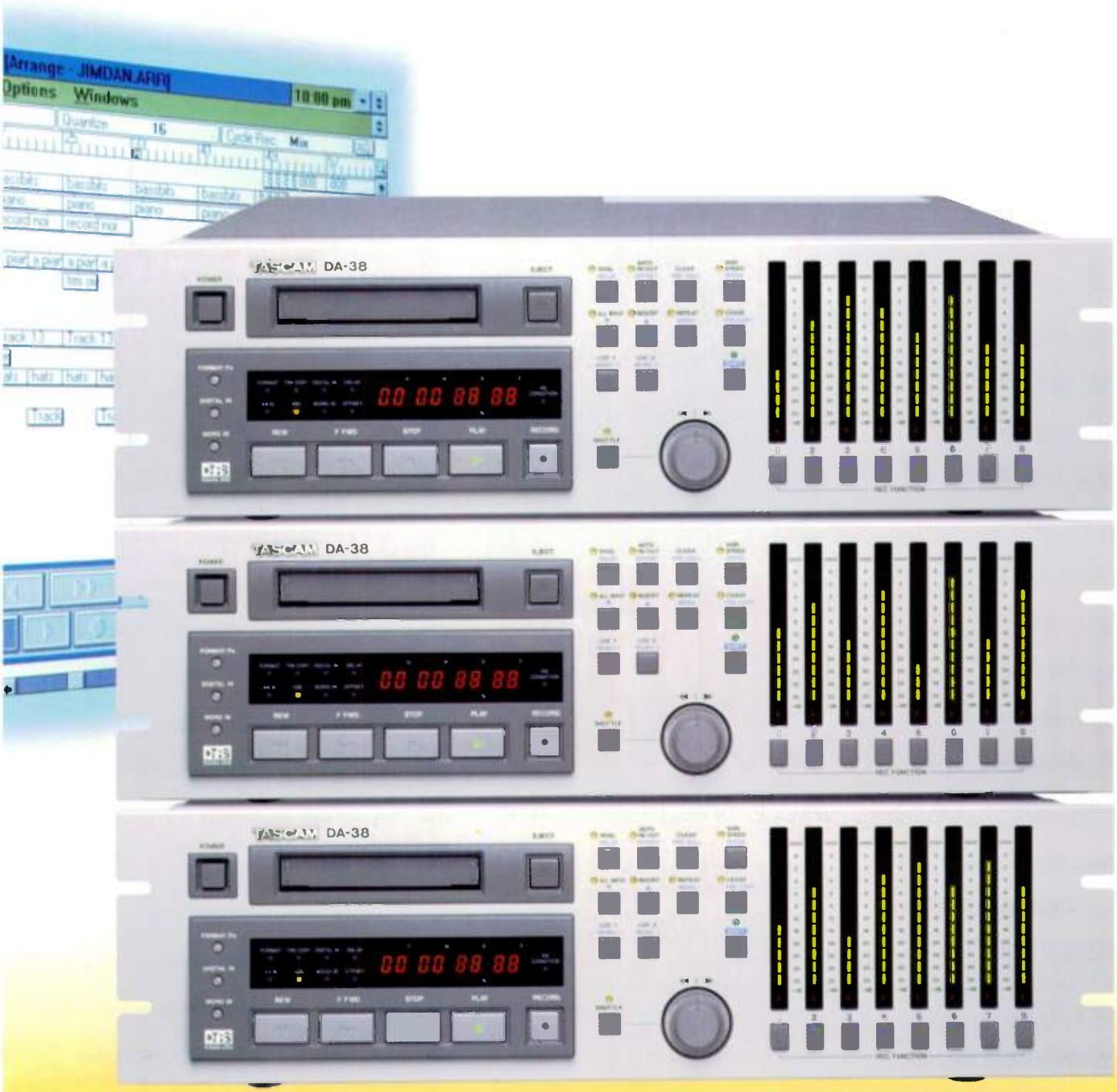

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RODE TO SUCCESS

RODE CLASSIC VALVE MICROPHONE

This imposing valve mic from Australian newcomers Rode looks and sounds expensive, but costs a lot less than comparable models from more familiar manufacturers. Jolly swagman PAUL 'BRUCE' WHITE looks down under, on top, and inside...

Australians have a reputation for saying what they think and for taking a no-nonsense approach to life. Likewise, the Aussie-designed and built Rode Classic mic pulls no punches. Rather than setting out to copy either the look or sound of an existing classic mic, Rode have taken the same approach as Groove Tubes and have created their own tube classic — the only concession to tradition is that the mic uses the same GE6072 twin triode valve as found in some other vintage mics. Apparently, this particular valve has been out of production for 15 years, but Rode somehow managed to stumble upon, then buy up, a previously undiscovered hoard of the things.

THINKING BIG

Essentially, the Rode Classic is a large-diaphragm capacitor microphone incorporating a dual-element, pressure-gradient transducer, allowing any traditional polar pattern to be reproduced under remote control. Because of the non-standard power requirements of valves, the mic has its own mains power supply, which also doubles as a remote control for adjusting the polar pattern, selecting the high-pass filter (bass roll-off) characteristics, and switching in either a 10dB or 20dB pad.

Everything about this microphone is big. The mic itself looks as though it's been built in a shell case — any bigger and it could be mistaken for a Thermos flask! The power supply also features huge front panel graphics, and Vox AC30-style, bakelite pointer knobs. A special multi-pin cable is included for connecting the mic to the power supply, and a standard XLR socket on the power supply is used to feed the signal to its eventual destination. No shockmount is provided, but a simple swivel bracket with threaded stand adaptor is built onto the mic body. Everything comes in a neat aluminium flightcase.

HARDWARE

Looking more closely at the microphone, the case is machined from solid brass, which has been hand polished and bead blasted before being nickel plated. Only the presence of a gold-plated screw on one side of the mic gives any real clue as to which end you should sing into. Via the remote control box, the mic's polar pattern can be set in nine discrete steps to provide omni, cardioid, or figure-of-eight patterns, as well as several in-between positions. The diaphragm assembly uses a 6-micron, gold-sputtered mylar film, and the entire capsule is hand assembled.

Unusually, there are no pad or filter switches on the mic — the remote control box operates tiny relays in the mic body to allow these functions to be controlled at a distance. Though two different low-cut filter settings are provided, in addition to a flat position, I couldn't find any reference in the documentation as to their characteristics.

WHAT THE SPEC

On the technical front, the Classic has a sensitivity of 13mV/Pa, which is not untypical for this kind of microphone. The frequency response is nominally flat (within +/-3dB) from 20Hz to 20kHz, but like most large-diaphragm mics, there are little bumps

SECOND OPINION

When we first plugged in this mic, we were mystified as to why we couldn't get much level out of it — until we figured out that I was singing into the wrong side. Do watch out for the gold-plated screw Paul mentions, which is the only way to quickly differentiate between the two sides.

Many people expect valve mics to sound conspicuously 'warm' in use — and some do, giving an almost 'fuzzy' effect to a vocal. The valve in the Rode Classic, however, lends such a natural warmth to its sound that you soon forget that it's a valve mic at all when singing through it. If you're at all competent as a vocalist, the Rode simply makes you sound as though you always thought you *should* sound, with a wonderful transparency and presence. Even switching off the reverb, which makes the average singer cringe, doesn't take the shine off the sound of this mic. Plugging in my usual mic, which I've always been very happy with, was a bit of a let-down after this! *Debbie Poyser*

and dips in the response, which are part of the mic's character. The flattest response is achieved in figure-of-eight mode, where there is just a hint of a presence rise above 5kHz, whereas in cardioid and omni mode, there's a definite peak centred between 10 and 12kHz. At this frequency, the peak is more likely to give a sense of 'air' than traditional presence. Music is art, and the purpose of art is to interpret life, not mimic it perfectly — otherwise Picasso would only have needed a camera and some odd-looking models with rare skin conditions! So it is with mics: some models are bought for their accuracy, others for the way they interpret sound. The Rode Classic falls squarely into the latter category.

The maximum SPL this mic can take without succumbing to excessive distortion is 130dB, which means that you can use it on drums and percussion if the mood takes you. However, I wouldn't dream of placing this mic where a drummer might accidentally hit it! The quoted noise figure is 32dB, and though there are quieter mics around, the chances are that this one is going to be used fairly close to the sound source, so noise should never really become an issue. Slightly higher noise tends to be the penalty you have to pay for any kind of tube circuitry.

THE VERDICT

Though this mic is in no way technically accurate, it has a seductive quality that leads you to believe that this is the way real life would sound if the world were in some way better than it is. The sound is intimate and warm, yet the top end creates such a sense of openness that perfectly respectable studio mics can sound quite nasal in direct comparison. The nearest I could get to matching the sound of this mic was an Audio Technica 4033A, though the Rode sounds just a hint 'thicker', no doubt because of benign valve distortions. I would imagine that most people would use this mic mainly for vocals — it sure flatters the hell out of most singers — but it also sounds stunningly good on acoustic guitar. Most of the tests were done in cardioid mode, but switching to omni reveals an extra degree of openness — an expected characteristic of omni mics.

When this mic first arrived at the office, we were under the impression that it cost around £1800 plus VAT, which would have made it comparable in price to other 'industry standard' studio mics. If this had been the case, I was prepared to say fair enough — it's expensive, but a serious studio could really get results from a mic like this. However, as we later discovered, the Rode Classic doesn't cost anything like that kind of money — in fact, it weighs in at a little under £1000, plus the inevitable VAT. This puts an entirely different light on what was already going to be a very positive review. It's still a lot of money for the semi-pro studio owner, but this is a dream of a mic, both to use and to look at, and given that good mics seem to go on forever, the weekly cost of owning one is actually quite small if you spread it over a 10-year period.

Several of us have taken the mic home and tried it in our own studios, and the phrase, "I must possess it!" has been bandied around rather a lot. Indeed, the effect the Rode Classic has had on the *SOS* editorial staff makes Golum's ring fixation seem like a minor affectation! I can't afford one — I can't justify having one — I don't do enough work to warrant one — I have enough good mics already — how much did you say it was again? Hmmm!

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summary
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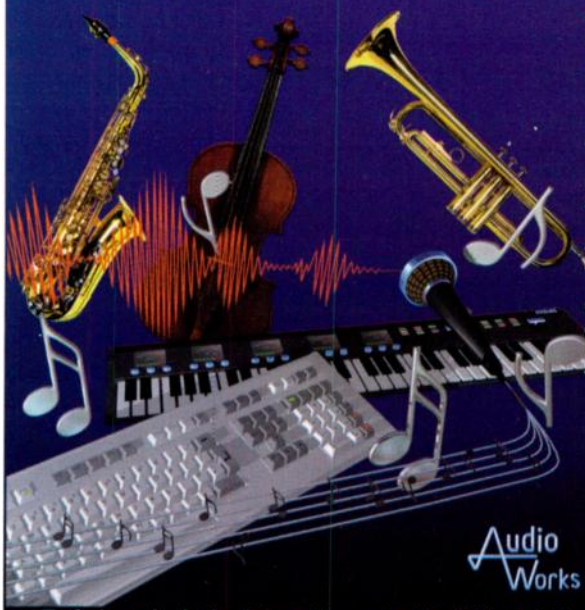

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Looping the Loop

Does looping drive you loopy? If you have a hard disk recording system, and currently spend hours hunched over your sampler trying to find perfect loop points, this article could be for you. SIMON JAMES supplies the foolproof method...

MAKING SEAMLESS SAMPLE LOOPS WITH YOUR HARD DISK RECORDER

I was recently approached by a couple of CD-ROM houses to come up with short loops of my own ambient music. My remit was to produce loops of no more than 16 seconds that would cycle seamlessly, with no obvious start or stop points. The idea was that when the loops were triggered by users entering a particular environment in the CD-ROM, the users would be encouraged to stay there, rather than leave as fast as possible to escape an obviously repetitive and irritating musical loop. I had two options for making the loops: one was to use my Ensoniq EPS16+ sampler, and the other was to use my Soundscape hard disk recorder.

For some people, looping on samplers comes as second nature, but for many, the results can be very hit and miss. Looping simple drum grooves usually presents no problem, but what about sounds that evolve over long periods, where the timbre and volume at the end of the sample can be radically different from the start? Conventional looping (whereby a section of the sample is looped to conserve memory after the initial attack of the sound has passed) is not appropriate here. The aim is to provide a loop that uses the entire sample and cycles to infinity without sounding like a broken record — so some sort of crossfading between the beginning and end of the sample is called for. Although my trusty Ensoniq has various crossfade options, the parameters are entered numerically, not graphically, making for a potentially long-winded trial and error process. With a tight deadline, I needed a process that was quick, efficient, and guaranteed to work every time. Enter Soundscape.

Although Soundscape is my system of choice, you should be able to adapt the instructions below to all the current computer-based hard disk systems (and with a little lateral thinking, to the stand-alone units too), since they all have the tools to do the job.

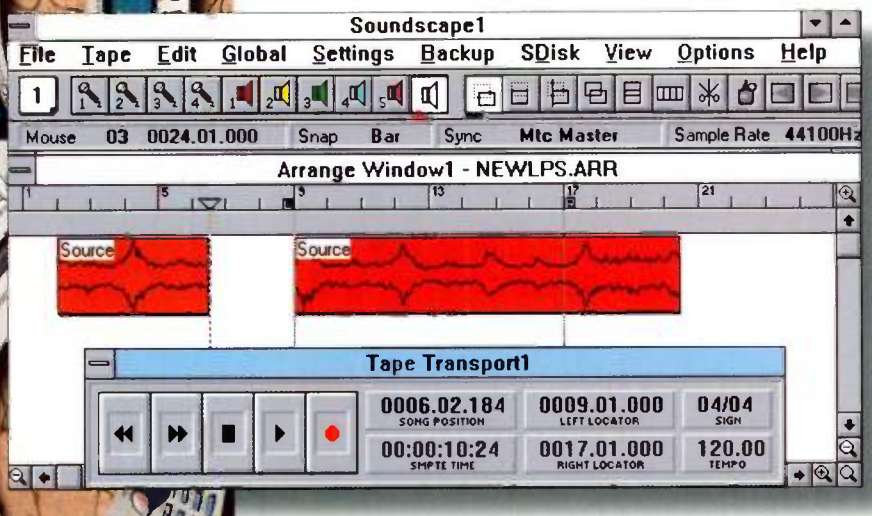

Figure 1.

LOOPING TEXTURES

• Once you have loaded the source material onto your hard disk, the first thing to do is locate the region you would like to loop and then cut around it, giving yourself a few extra seconds either side. Make sure that the time axis of your display is measuring bars and beats, as opposed to SMPTE time. For textures, the actual tempo and time signature is not critical — the bar lines merely serve as an accurate scale to help you cut segments of equal length. In my case, 120bpm in 4/4 was the optimum setting, since eight bars then gives exactly 16 seconds, the length of my required loop.

• If the loop start point is critical, locate it and make a cut here. Now set the snap value for your move tools to 'bar' and move the cut segment to the start of a bar line, so that your sample starts exactly on the bar. Figure 1 (left) shows the source material cut in this way, with the loop start moved to the beginning of bar 9.

• Now turn the snap value to 'off', move the section preceding the cut right up to the cut, and glue the two parts back together. Switch the snap ▶

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value back to 'bar', and indicate the segment you wish to loop (in my case, eight bars) with left and right markers. If there is no specific place you'd like the loop to start, there is no need to perform the cut and move operation — simply place markers on the bar lines that delineate the loop.

• Here's where the fun starts: you need to create a linear fade-in from silence to full volume near the beginning of the section you wish to loop, and a linear fade-out from full volume to silence near the end of the section. How rapid you make these fades depends on the nature of the material you are looping, as we shall see later (see 'Fine Tuning' below). However, there are two important points to note: firstly, the fades must be of the same duration at either end; and secondly, the start and end of the section you wish to loop must come *exactly* halfway through the fades you make, however long you decide the fades should be. You first cut the audio up into three chunks, so that you can impose the fades in the chunks at either end without affecting the middle section. (In my example, I decided the fades should be two bars long at either end, and therefore cut the audio into the following three parts: a 2-bar section at the beginning, cut so that the start of the eight bars I wanted to loop was halfway through this chunk; a 6-bar section in the middle; and a 2-bar section at the end, with the end of the eight bars I wanted to loop falling in the middle of this third chunk). You then place a linear fade-in on the first chunk, leave the central chunk as it is, and place a linear fade-out over the third chunk.

• Copy the set of all three chunks onto another track, and move the copied set of chunks so that its fade-in chunk exactly overlaps the fade-out chunk of the original set (remember, the fade-in has to be the same length as the fade-out, so this shoudn't be too difficult). Repeat the process a third time, so that the result looks something like the top section of Figure 2 (above). You now have three sets of three chunks each, and each set crossfades into the next. At this point, you can audition the crossfades to see if there's a smooth, inaudible transition from the end of one set of the three chunks to the start of the next.

• If you're happy with the result, place the left and right markers so that the left marker falls halfway through the fade-in on the second set of the three chunks, and the right marker falls halfway through the fade-out on the same set. In other words, the markers should delineate the section you wish to loop in the middle set of the three chunks. This sounds confusing, but don't panic — just take a look at Figure 2. The middle set of three chunks has been copied to another track, and all three chunks are marked 'Copy 1'. As described above, the dotted marker lines are positioned exactly halfway through Copy 1's fade-in and fade-out, giving in this case eight bars between the markers; the length of loop I wanted.

> "People spend years perfecting their looping techniques, but with this method, you can obtain perfect results in a couple of minutes."

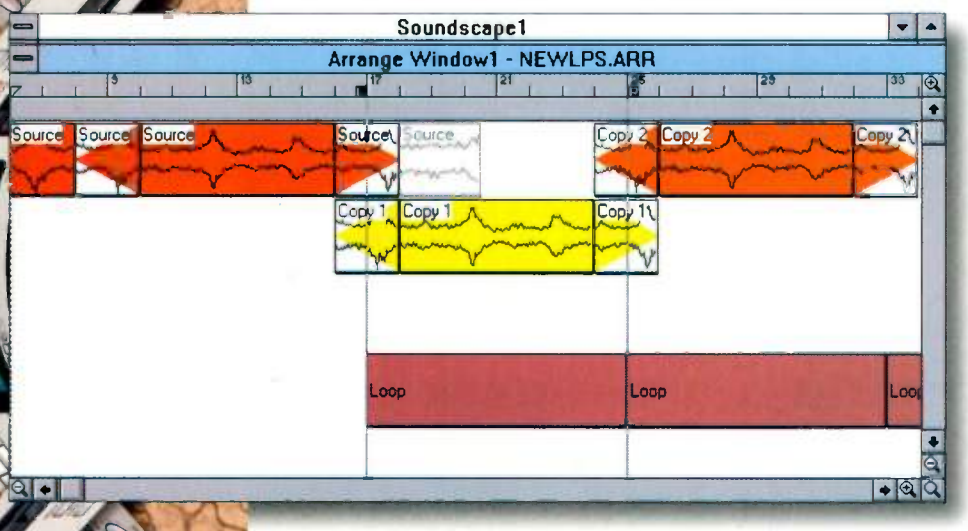

Figure 2.

• Providing all the pan, volume and EQ settings are the same for both tracks, the way the material has been copied ensures that the audio to the right of the left marker sounds exactly the same as everything to the right of the right locator. So, if you now digitally merge the material from both tracks between the two markers, you will have a section that will play seamlessly to a copy of itself — since the beginning is an exact copy of what followed the end. In other words, it will loop perfectly.

• All that remains now is to export the section between the markers to your sampler. There are a couple of ways of achieving this. If you have a sample editor such as *Recycle* or *SampleCell II*, save your loop on your computer's hard disk as a WAV file (on PCs) or an AIFF file (on a Mac), import it into your sample editor, and do a standard sample dump via SCSI to your sampler. The new Akai samplers have their own sample editing software for the Mac (and soon for PC), *MESA*. This reads AIFF files, which can then be

I GOT RHYTHM: LOOPING RHYTHMIC SAMPLES

Using crossfades to loop samples with rhythmic elements is much more hazardous than trying to loop non-rhythmic drones; if you try to loop sections without paying attention to the tempo of the source material, eight bars (say) on the grid will almost certainly not be eight bars of your music. You might get a result that seems to stay in time with itself, but more than likely, it will create a loop with an incomplete bar at the end, or there will be interference at the crossfade, with completely mismatched beats. In this situation, performing a 'compute tempo' operation as described elsewhere in this article (see 'Fine Tuning') is the only solution. Even then, if the rhythm hasn't been played with metronomic accuracy, you may get flams in the crossfades. If this happens, reduce the crossfade size to as little as a crotchet's worth (quarter note). As long as you use a small amount of overlap, you'll still retain some of the sound's natural decay and reverb at the end of the sample, avoiding the abrupt changes that can occur when you make loops without employing crossfades.

dumped to the sampler. Alternatively, simply record the merged section between the markers onto your sampler, then truncate it with the aid of your waveform display, so that there is no dead space either side of the sample, and set the loop start and end points to the start and end of the sample. If your sampler has no display, you will have to scrub through the sample numbers to listen out for the start and stop points before truncating.

FINE TUNING

As hinted earlier, there is no reason why the fade-in/fade-out chunks need to be two bars long, as in my example; they can be any length you like, provided they are equal. Depending on the material you are trying to loop, if the transition between loops sounds too abrupt, make the fades longer, ensuring above all that you keep the left and right markers in the middle of their respective fades. The longer the fade chunks are, the more material either side of the left and right markers will be incorporated into the final sample, so the resulting loop will sound less like the original source material. If the volume still seems uneven across the loops, try experimenting with different fade-in/out curves, using a convex curve for the fade-in and its inverse shape on the fade-out, for example.

You may wish to loop a section of music which is not a whole number of seconds long, so using 120bpm as a grid will not give an accurate stop point. By increasing the bpm of your time axis, you can home in on the source material with more accuracy, since you have more bar lines over a given period. Better still, if you have a 'compute tempo' facility, place the markers at the start and end of the section you want to loop, and tell the program that this section is (for example) eight bars long. Next, cut and move the section to the start of one of the new bar lines, re-glue the preceding section as before, and you are now ready to make your bar-accurate cuts.

Once you've got into the swing of making loops in the way I've described, you may find it difficult to go back to looping on the sampler. Besides providing seamless loops for CD-ROM environments, you could use the results to make complex drones and animated ambient washes for your compositions. If you are sampling wholesale from a track, looping in this way will stop your loops from sounding stilted, without the abrupt change as the sample jumps from the end to the beginning of the loop. By using a suitable *Java* program, you could even set up your web page to automatically trigger and loop your sample, so that every time someone visits your Internet site, they get a memory-friendly taster of your music.

People spend years perfecting their looping techniques on a sampler, but with this method, your loops need never go near a sampler, and you can obtain perfect results in a couple of minutes.

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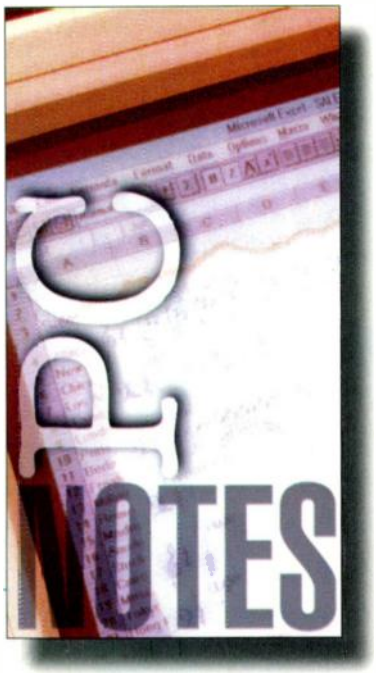
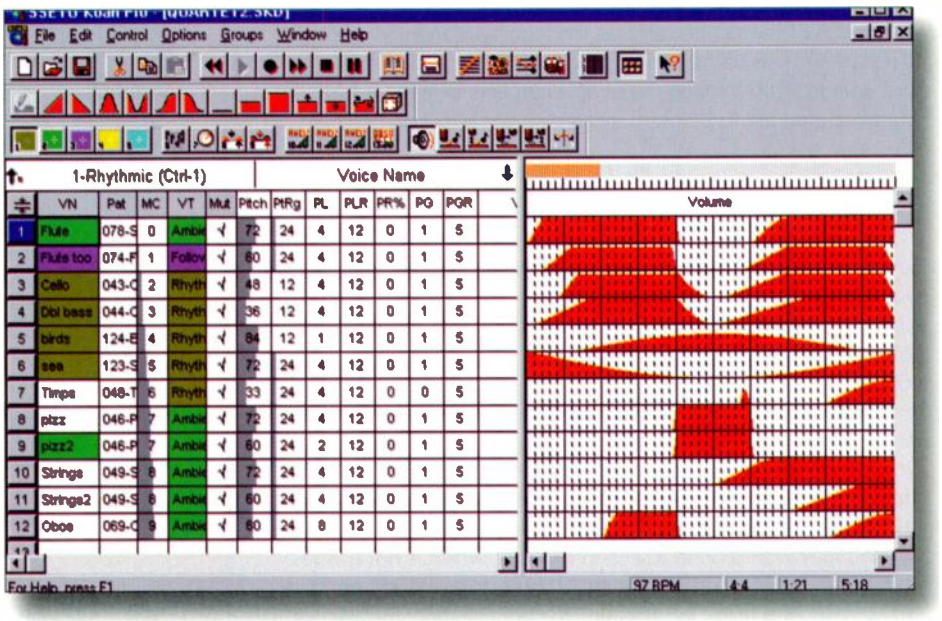


This month, BRIAN HEYWOOD explores the delights of 'generative' music with Koan Pro, and checks out a new, easy-to-use soundcard...

You may remember me mentioning Brian Eno's latest project — *Generative Music 1* — back in June's PC Notes. This work, which builds on Eno's philosophy of self-generating compositions, was created using a Windows application from UK-based company SSEYO called *Koan Pro*. I've been experimenting with this package recently, and found it most interesting. It looks a little like a traditional sequencer when you start it up, boasting a vertical arrangement of tracks all outputting MIDI data to your soundcard or other synths — but there the resemblance ends. You can think of each 'track' as instructions to virtual musicians explaining how each monophonic 'melody' line should be played. The instructions can either be very loose (one example could be 'play something ambient in a C scale using the Dorian mode for five minutes') or very specific, and thus more traditionally like a sequencer (for example 'play this defined note pattern at 120bpm until I tell you to stop'). The virtual musicians can even be told to harmonise in real time with each other, or follow one another. This makes the resulting musical output contrapuntal rather than chord-based, and it also tends to be based around a single chord — or rather a scale — instead of a chord sequence.

Rhythms can be set up by defining a pattern for each percussive instrument, and you can assign probabilities to whether a certain pattern will play at a given time, so that patterns don't necessarily repeat predictably. You can also allow the patterns to mutate, so that the overall output changes as time goes on, though due to the semi-random nature of the process involved, the rhythms tend to get more chaotic with time. There is a lot of depth in this package, since you can define virtually every relationship — for example the scales, how the next note in a pattern is selected, the harmonisation rules used, and so on. This approach seems to be particularly effective for producing ambient and modern classical-sounding music, and — perhaps strangely — techno as well.

There are actually two ways you can make use of *Koan Pro*; either as a compositional tool, or as a stand-alone random music generator. In the first case, you use the program to generate one or more MIDI files that you can then incorporate into your own MIDI compositions, while in the second case you target your piece at people who want to listen to the music on their PC directly using the *Koan Plus* player.



Koan Pro — it may look like a sequencer, but don't be fooled!

As a compositional aid, the software is fun to use, due to the number of parameters on offer, but what is difficult is creating pieces with a coherent feel. Some basic templates are provided, which you can either use directly or study to find out how they tick. You can then use the 'meta' design properties of *Koan Pro* to outline the basic parameters governing a musical segment, hit the go button and see what is churned out.

It is simple to produce a pleasing noise using this package, but its forte is slowly-evolving 'ambient' sequences. If you are writing for the *Koan* player rather than to output the results as a MIDI file, you can take advantage of the random elements to produce a 'unique' performance each time the piece is played. This latter point could be particularly important if the music is going to be used for 'Muzak'-type applications: for example to generate a looping music track to add to a web page. The non-repeating nature of a *Koan* 'performance' is what Brian Eno finds especially attractive in what he has called 'generative' music.

Koan Pro is a very interesting application, and could be a very useful tool, either to fill in the gaps in your musical armoury or to help you break out of a musical rut. The package costs £163.33 (inc VAT) — to find out more, contact SSEYO on 01344 712017. Alternatively, you can download demo versions of the company's software from their World Wide Web site, located at: **http://www.sseyo.com/**

NEW SOUNDCARD FROM TERRATEC

There are many wavetable-based soundcards available at the moment, but most tend to be marketed by computer types, and are aimed at the multimedia or games markets. This means if you are more at home with a musical instrument than a computer, you can quite often be confused by the techno-speak associated with soundcards and have problems working out what you really need, as opposed to what card vendors want to sell you. This is particularly true of musicians who have decided ▶

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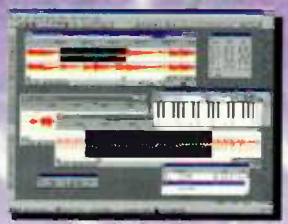

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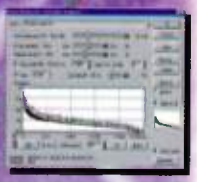

Now there's no need to slave away filtering noisy recordings. Sonic Foundry's Noise Reduction plug-in is designed to automatically remove background noise such as tape hiss and electrical hum. Click Removal is also included, allowing you to eliminate clicks and pops automatically.

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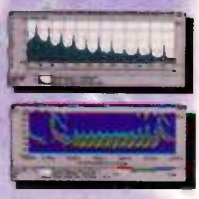

If you need to identify that particular frequency component, you'll find the Spectrum Analysis plug-in a great addition. Spectrum analysis includes Spectrum Graph and Sonogram display for easy frequency (or pitch) identification.

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Sound Forge XP, a general purpose sound editor, provides the same, easy to use interface found in the professional edition, and is intended for sound designers, multimedia developers and hobbyists requiring a powerful yet affordable sound editor.

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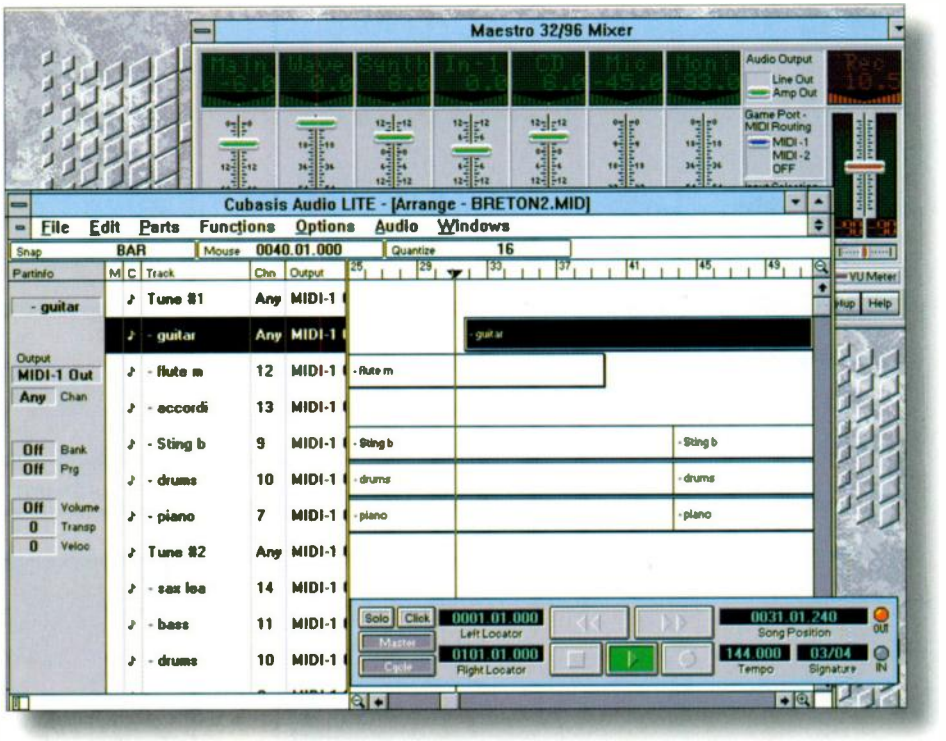
▶ to change from Atari STs to PCs, as the latter has rather more configuration options than the former. German-based company Terratec have designed their new Maestro 32/96 soundcard to make life easy for exactly this kind of person. The card is a 16-bit ISA buss (or AT buss) wavetable-based soundcard with a Plug & Play BIOS to simplify installation under Windows 95. The Maestro is based on the SoundBlaster specification, with connectors for a CD-ROM (Mitsumi/Panasonic IDE/Sony) and a daughter board, and a combined MIDI and joystick port with an additional internal connector for a second MIDI port. The audio side of the card is based on the Dream chip-set, and has simultaneous record and playback at sample rates up to 48kHz — and Terratec say that they've taken special care with the design of the converters to ensure a high signal-to-noise ratio. The wavetable side comes with 4Mb of ROM for the sound samples, which is comparable to the better-quality soundcards on the market, and the sounds are compatible with the Roland GS standard as well as General MIDI (GM). The card also has an internal 4W amplifier which can be disabled via software, a useful facility, as you don't need to open up the computer if you decide to switch between using speakers and an amplifier or a mixing desk.

The Maestro 32/96 has three external audio inputs rather than the usual two, in addition to an internal connector for the audio output of the CD-ROM drive. The card package includes *Cubasis Audio* or *Cubasis Audio Lite*, in versions modified by the chaps at Steinberg to take advantage of some of the features found on the Maestro. This means that a *Cubase* user swapping from the Atari will feel at home immediately, and get the additional audio features if they want them. The usual bunch of utilities are also included — for example, mixer applications, and .WAV file editors. The Maestro with *Cubasis Audio Lite* costs £249, but if you want the full version of *Cubasis Audio*, you'll need to raid your piggy bank for £349 (these prices include VAT). Both packages come with a stereo condenser microphone and a MIDI interface cable. To find out more, contact Digital Media on 0171 607 2727.



Two of the bundled software packages supplied with the Terratec Maestro 32/96 soundcard.

CYBERSPACE CORNER

Kevin De Souza from Arksoft emailed me recently about his company's new music web site, called The Ark. There are a number of different sections to The Ark (which is accessible at: http://www.arkangel.com/), each of which is a mine of useful information for musicians: for example, the Bureau Law Scrolls (http://www.arkangel.com/law/) offer legal advice from one of London's top law firms for artists entering into record, publishing and management contracts, to help prevent them being ripped off (as is often the case).

The heart of the site is the Music Session Bureau (MSB) which is an interactive site for musicians, producers, programmers, songwriters, engineers, DJs and vocalists. According to Arksoft, various famous people have visited the site (at http://www.arkangel.com/MSB/), including DJ Paul Oakenfold. Also part of the site are the rapidly-expanding WebSTAGE, a place for happening bands and artists, and a section for record labels and production companies (http://www.arkangel.com/labels/). Arksoft are planning to expand the site, and other sections will open soon, including:

• The Curve, a tutorial area (http://www.arkangel.com/curve/).

• The Music Mall, a section for vendors and retailer adverts (http://www.arkangel.com/musicmall/).

• A studio brochure area (http://www.arkangel.com/studio/).

Ark's help pages also have various useful resources (for example, GM/GS MIDI tables). This site's definitely worth checking out!

The Ark web site aims to be a valuable resource for musicians of all types and abilities.

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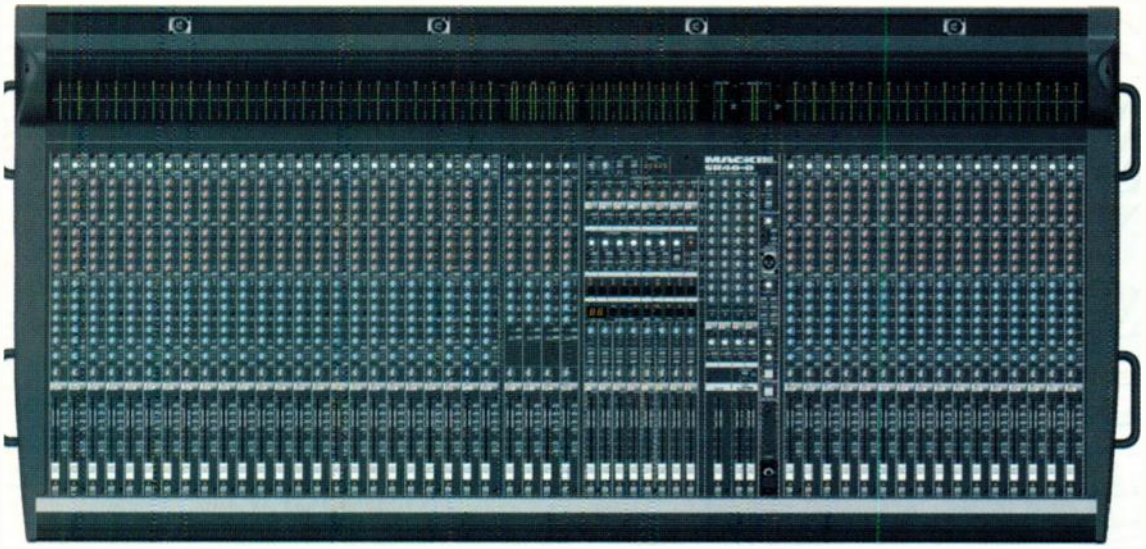

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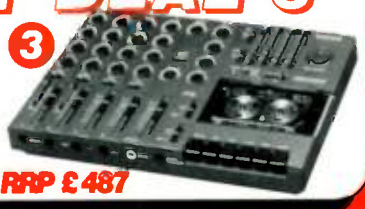

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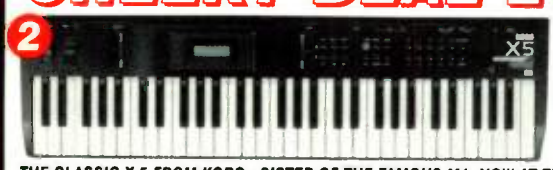

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WaveCraft for PC

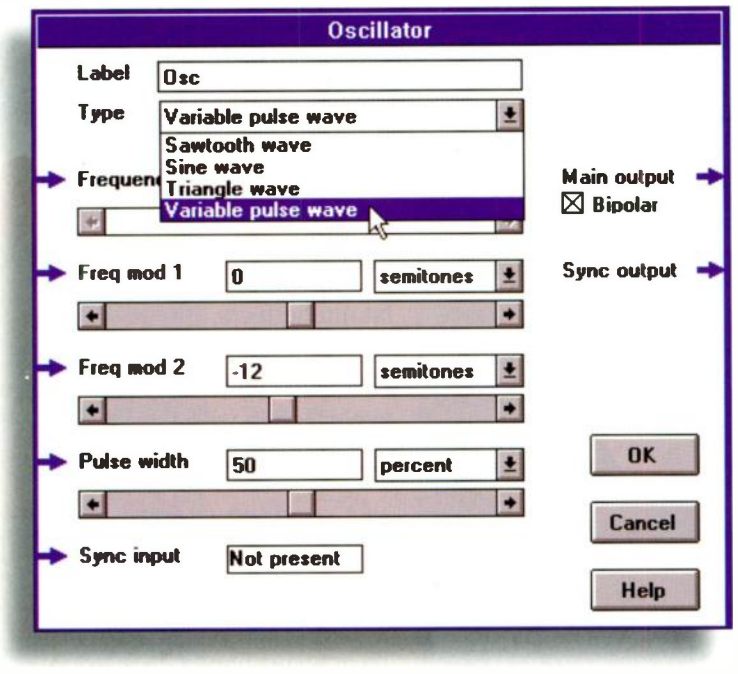
▶ create a wave file using the *VSE* compiler, so that you can hear the results. Finally, you use a sample-editing application (soundcards are generally supplied with one) to forge one or more of these audio files into a musical instrument that can be downloaded into your sample replay device (ie. your soundcard).

"*WaveCraft* can give you almost total control of the sound generation 'hardware', effectively letting you design your own instrument."

You don't have the instant gratification that you get with a physical instrument — it's not possible to just twiddle a knob and see what happens, so the whole process is far more cerebral. Consequently, you need to have a fairly good understanding of what you're doing, as well as plenty of time if you want to experiment. The pay-off for this effort, though, could be quite substantial, as *WaveCraft* can give you almost total control of the sound generation 'hardware', effectively letting you design your own instrument.

GRAPHICAL EDITOR

The 'front line' of the application is its graphical editor. This is laid out in a grid — rather like a spreadsheet program — with each cell containing an individual processing module. To select (or place) a module, click on an empty cell to get a list of those available and select an option. Modules can be moved around by dragging an existing module to an empty cell and then dropping it. Clicking on an existing module brings up a small menu that allows you to delete it, disconnect an input, or expand it to access the individual programming controls.



Expanding a module (an oscillator in this example) allows you to define how it will perform.

THE BASICS OF ANALOGUE SYNTHESIS

The distinctive sound we most usually associate with analogue instruments is generated by what's known as 'subtractive' synthesis. In principle, you take a harmonically-rich sound source — say a sawtooth wave — and then remove the frequencies you don't want. The alternative to this method is additive synthesis, wherein you add together sine waves of different frequencies to create the required sound.

The basic unit of frequency manipulation on an analogue synthesizer is the Voltage Controlled Filter (VCF), which can be used to remove certain portions of the frequency spectrum. The voltage control element is important on a performance synthesizer, in order that the filter can track the notes being played. Other control elements include Low Frequency Oscillators (LFOs), Sample and Hold circuits, ADSR (Attack-Decay-Sustain-Release) envelope generators, noise sources, and both audio and voltage mixers. By selectively combining these elements, you can create a sound program — known as a 'patch', since early modular synthesizers required that you physically connect the various elements with patch cables.

While the original synthesizers used electronic circuits to create and modify sounds, there is no reason why their operation can't be modelled mathematically, using a computer program — such as *WaveCraft*.

If you'd like to know more about analogue synthesis terminology and methods, take a look at two short series *SOS* ran in 1994. 'Sound Foundation', which aimed to give a basic grounding in the subject, appeared in the February and March issues, while 'Exploring Analogue', whch went into more detail and also covered modular synths, ran in the May-July issues.

There's a choice of 16 module types, which range in complexity from a simple control voltage source to a mini-sequencer. Each module has one or more inputs, according to its function — for instance, the oscillator has two CV inputs for controlling the frequency of its output waveform. It's very easy to link up various modules: just drag the source module's icon to the destination module and drop it. A small dialogue will pop up to allow you to select the input you want. Any inputs already in use are 'greyed out', and therefore not available. To remove an input that is already in use, simply click on the destination module's icon and use the 'Remove Input' option on the dialogue that appears.

The modules fall into a number of basic categories: control voltage sources, waveform generators, and signal processors, plus an extra module for actually creating the finished sound file on disk.

CONTROL VOLTAGE SOURCES

The control voltage sources are — in the main — used to generate movement in the output waveform. The exception to this rule is the Master control voltage source, which is simply used to ▶

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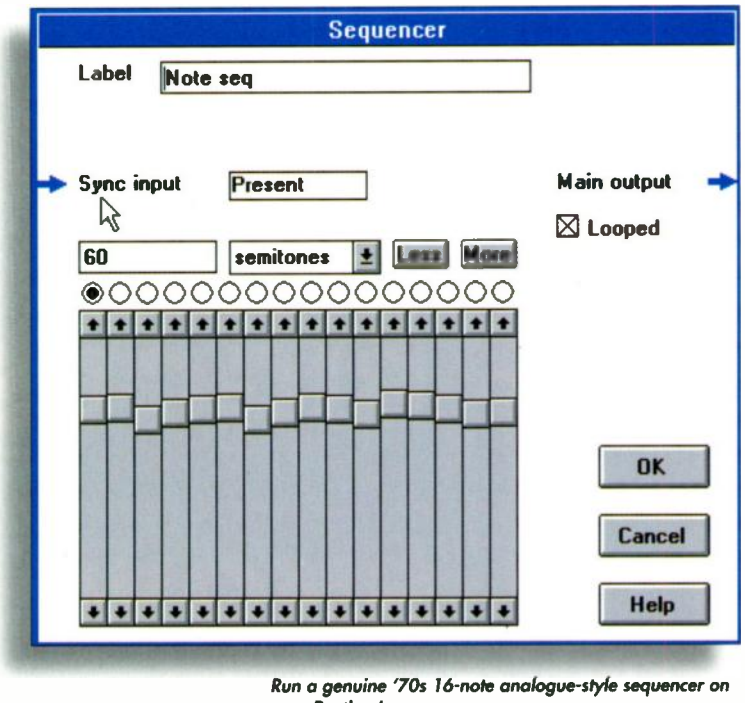
synchronise the pitches of multiple oscillators and/or filters. The other control voltage sources include Envelope and Glide generators, a Sample and Hold module, and a 16-note Sequencer, all of which can be used to control other modules.



Run a genuine '70s 16-note analogue-style sequencer on your Pentium!

These control elements are probably the most important part of the analogue synthesist's arsenal, in that they can be used to create movement in the sound. The dynamic control voltages can be used throughout the synthesizer, from the creation of the amplitude envelope of a sound, through to real-time modification of its frequency characteristic.

WAVEFORM GENERATORS

WaveCraft has five signal generation modules in all, with two of these being intended for control purposes. The main musical waveform source is the oscillator module, which can generate sawtooth, sine, triangle and variable-pulse (square) waves. The 'centre' frequency of the waveform can vary from 8.176Hz (semitone value of 0) to 8372.018Hz (semitone value of 120), with the pitch being displayed using the MIDI note-numbering scheme (ie. 60 = middle C). The frequency can be modulated using two control voltage inputs (say, for pitch modulation effects using the output from the envelope generator), and the oscillators can be synchronised with each other.

The Noise Generator produces white noise for percussive effects, or to provide a random element to the Sample and Hold module. You can select either a Pre-determined noise sequence, or a Random sequence which will be different each time. The Pre-determined option will allow you to reproduce a particular output sound for sample after sample, despite the fact that the output is always 'random' white noise.

WaveCraft offers the interesting option to pass an existing waveform file, from another source, through the program's virtual 'analogue' circuitry. A WAV sample input module allows you to use 16-bit, 44.1kHz mono samples as input waveforms. The sample can be looped, so you could generate quite complicated developing breakbeats from relatively short samples. You're limited to mono samples, but it would be feasible to process each side of a stereo sample independently.

The remaining two signal generators — the LFO and the clock generator — are meant to be used to control other modules. The LFO, for instance, could be used to provide continuously-varying control over the modulation input of an oscillator module, or over the depth input of an amplitude modulator, for vibrato or tremolo effects. The clock generator would be used in conjunction with the Sequencer module to create rhythmic patterns of notes.

SIGNAL PROCESSORS

There are six signal processing modules: Low-pass Filter; High-pass Filter; Amplitude Modulator; Voltage-Controlled Amplifier; Mixer; and Inverter.

The high-pass filter removes frequencies below the cutoff frequency, and the low-pass filter removes frequencies above the cutoff. Apart from this, they both behave in the same way and use the same controls. The Cutoff Freq control sets the master cutoff frequency for the filter, from around 8Hz to just over 8kHz. You can use either or both of the two cutoff mod inputs to offset the master cutoff frequency, or provide filter sweep effects. The filter

SYSTEM REQUIREMENTS

- 486DX2/Pentium PC (386SX minimum).
- Windows 3.1 or 95.
- CD-ROM drive.
- Sound Blaster AWE32 or other wavetable sound card with at least 512K user RAM (or hardware sample playback device and sample management software).
- 4Mb main memory (8Mb recommended under Windows 95).
- 50Mb free hard disk space (suggested for generated samples).

Resonance control sets the resonant quality (or Q) of the filter: a value of 0% corresponds to minimum resonance, while 100% corresponds to maximum resonance — which can result in continuous oscillation in some cases. One interesting effect can be obtained by connecting the output of the Sample and Hold module to a filter with a fairly high resonance, to give a rhythmic output.

The Amplitude Modulator is like a volume control that can set the output level of the module to any value, up to the level of the input set by the Depth control. If the depth is 100%, the output follows the input exactly; if the depth is 50%, the output is half the input, and so on.

The Voltage-Controlled Amplifier has a similar effect, except that it can be used to boost the

HOW DOES IT SOUND?

The retro synth craze probably has as much to do with fashion as art, but there is an essential idea at the core of the matter. Sounds generated by creaky old hardware with famous names on the front panels do have a unique quality that can't be recreated by digital means. To be honest, the reason for this is that the original analogue synths were less than ideal and the quirkiness that makes them sound individual was due to design compromises and the electronics available at the time.

***WaveCraft* uses mathematics rather than crusty old electronics to create sounds. So while the PC version doesn't sound like any particular flavour of synthesizer, it actually creates the sounds that all analogue synths try to achieve. This means that the resulting sound files have a family resemblance to all synths, without any of the built-in character of any particular hardware. So the generated WAV files are recognisably the result of an analogue process, but without the baggage — or the buzz — of any particular brand name.**

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WRH

"At just over £100, *WaveCraft* offers quite a bit of sophistication for the money..."

input signal. Using the Amp Factor control, you can set the amplifier gain to up to 100 to boost the main input, or you can attenuate the signal. With both modules, the output signal can be inverted by setting the gain control to a negative value.

The Mixer module is used to combine up to four signals or control voltages into a single output. The input signals are simply added together — and like any audio mixer, if the output is too high, clipping will occur. To help prevent this, you can use the Attenuation control.

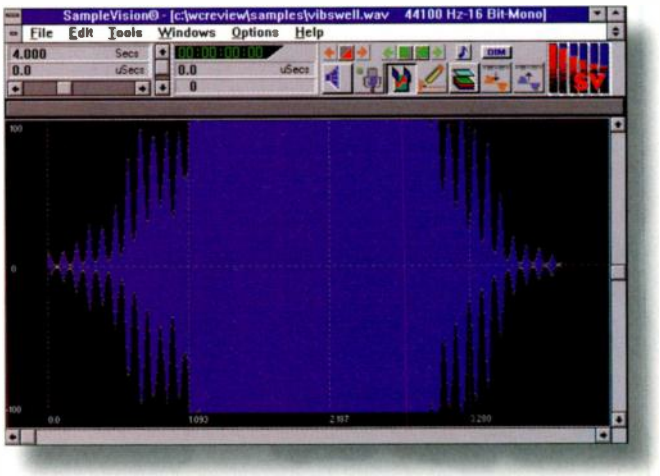
Finally, the Inverter turns the signal 'upside down', either around the zero point (Bipolar), or so that any value less than 0V will be clipped to 12V once inverted. Both the Mixer and the Inverter can be used to handle control voltages as well as audio signals.

CREATING THE FINAL PRODUCT

Once you've created your virtual analogue synthesizer on screen, you have to produce a wave file in order to hear it. To do this, you must add a File Dump Module, which allows you to define both the length and the location of the file on your hard disk. *WaveCraft* can generate Windows WAV files or headerless RAW files, according to how you set the 'Type' option. All files are 44.1kHz, 16-bit mono, which should be compatible with all wavetable soundcards with download memory, or current sampling instruments.

Hitting the Generate button causes the program to ask you to enter the length of the sample to be generated, in seconds, or as a number of samples. If the design incorporates any envelope modules, the default time will be the length of the longest envelope, but this can be overridden if required. Once you've sorted this out, the program starts up a DOS-based compiler, which takes the module design you've defined and creates a wave file from it. The time taken will depend on the length of the sample, as well as on the power of your PC.

You can then audition the sample by playing it back off the hard disk. If you need to make any changes, you have to go through the 'generation' cycle again. This could be quite time-consuming if the sample is long or you need to make a lot of changes. It's also necessary to repeat the process for different pitches if you're creating a multisample.

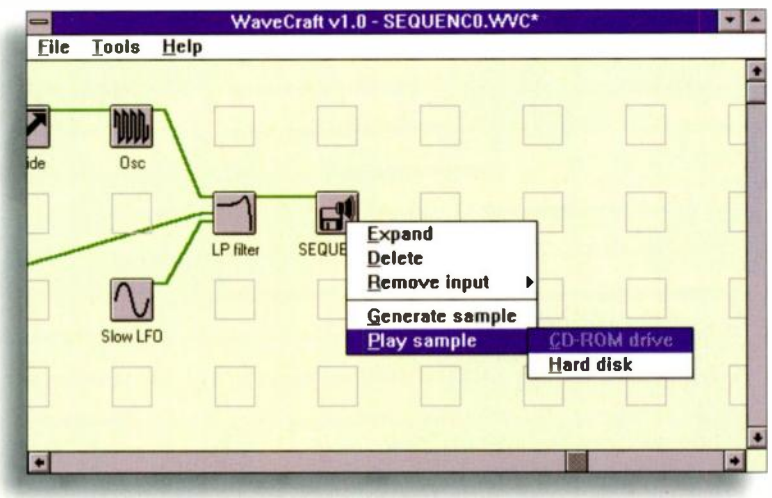


Once the sound file is created, you have to program it into your sampler or RAM-based wavetable soundcard using a program like SampleVision, especially if you need to add loop points.

CONCLUSION

At just over £100, *WaveCraft* offers quite a bit of sophistication for the money, but remember that the program is only one element of the 'analogue synthesizer construction kit'. In addition to the software, you need a RAM-based wavetable soundcard (or stand-alone sample player) and software that allows you to create multisamples for it. The latter wouldn't be so necessary if you were only using *WaveCraft* to generate rhythm tracks, but you'd still need a playback device of some sort. On the plus side, the alternatives — buying an analogue synthesizer or commercial sample CDs — would be far more expensive in terms of money or time.

To sum up, if you want to produce a sound that's unique and you have a sample replay device of some kind, you should definitely have a look at *WaveCraft*. There's a demo version available, called *WaveCraft Lite*, which should be available from a bulletin board near you by the time you read this.



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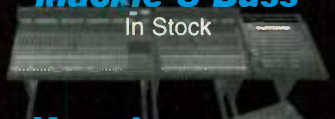

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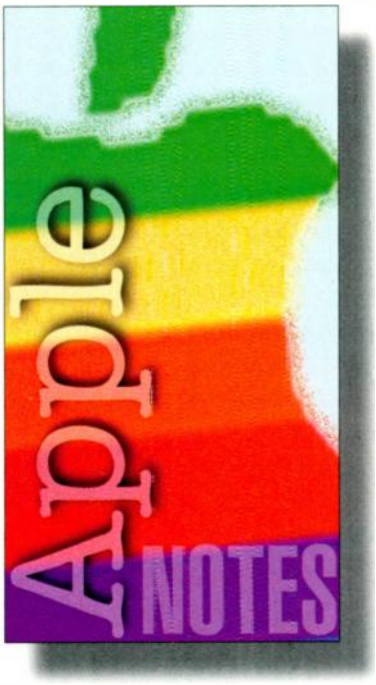
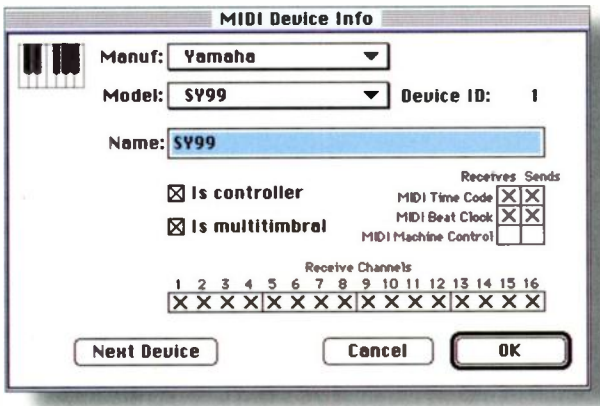


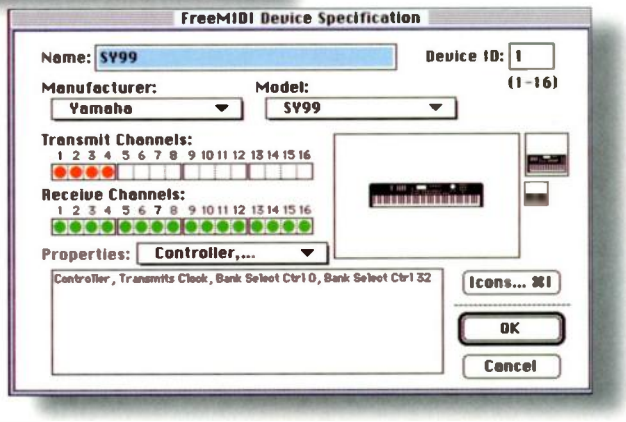
MARTIN RUSS investigates OMS and FreeMIDI compatibility, explains how you can protect yourself from copy protection, and rounds up more Mac news and useful 'net addresses...

While I was looking at Mark of the Unicorn's (MOTU) *Digital Performer* 1.7 for my *SOS* review (see the September issue) I used their FreeMIDI system to make the connection between the sequencer and my MIDI interface. This prompted me to look into what would happen if I had both MOTU's FreeMIDI and Opcode's OMS (Opcode MIDI System/Open Music System) in my system, so that I could use both programs — or even if I didn't have OMS and wanted to use FreeMIDI. This is what happened...

FREE & EASY?

The FreeMIDI documentation explains that it and OMS can co-exist, and that you can use the *OMS Emulator* to run OMS applications with FreeMIDI. This all sounds reasonable; in fact, I had no problems installing FreeMIDI with my standard MIDI interface, and I felt at home quite quickly. The auto-configuration routine detected some of my eclectic collection of equipment (about the same amount as OMS, actually!) and provided almost exactly the same sort of visual mapping of my MIDI system. Apparently, the automatic detection of the equipment in your MIDI system is improved if you disable the transmission of MIDI clocks — it makes all those test SysEx messages easier to decode.





Opcode's OMS (above) and MOTU's FreeMIDI (right) device setups.

But things became more complex when I tried the same thing with my Studio 5LX. The Studio 5 (and its smaller cousin, the Studio 4) is rather more than just a MIDI patchbay — it functions as a sophisticated MIDI processing device too. In order to be used with FreeMIDI, it needs to be in 'MTP emulation mode', which also disables its MIDI processing, since it is now emulating a MOTU MIDI Time Piece (MTP), which is an 8-port MIDI Interface dedicated to providing patching and synchronisation facilities only.

In order to put the Studio 5 into emulation mode, you need OMS, since the *Studio Setup* application provides the only way to configure the emulation, and this application only works when OMS is running. There is an *OMS Emulator* system extension provided with FreeMIDI, but the *Studio Setup* application does not work with it. It is not possible to have Opcode's OMS in the Extensions folder inside the System folder at the same time as FreeMIDI's *OMS Emulator* — OMS detects this and complains that there are two copies of OMS present. This is because the *OMS Emulator* replaces OMS, and so you need to disable the OMS extension.

I would normally try compatibility tests with the latest versions of software that I could obtain, but the current *Vision* version (3.0) requires OMS 2.0, and it does not recognise the *OMS Emulator* provided in FreeMIDI 1.2.4. In fact, version 1.2.4 of FreeMIDI does not recognise OMS 2.0 *Studio Setup* files either, which suggests that FreeMIDI is still working towards OMS 2.0 compatibility — and it highlights the perils of using non-Opcode software with Opcode hardware! So I removed OMS 2.0, installed an old *Vision* 2.08 and OMS 1.2.3, and then restarted the Mac. I then used the Studio 5 *Setup Application* to put the Studio 5 into MTP emulation mode — taking care to assign my MIDI devices to the ports (otherwise no MIDI input or output occurs — and you can't change the emulation configuration without reloading OMS!). Inside *Vision*, this gave me a Studio 5 which appeared as normal, since when OMS is running, the Studio 5 still behaves like a Studio 5.

I then removed OMS from the Extensions folder, replaced it with the *OMS Emulator*, and restarted the Mac again. This time *Vision* saw what appeared to be a MIDI Time Piece, as expected. When it does not receive OMS messages, the Studio 5 goes into MTP emulation mode. Within MOTU's *FreeStyle* sequencer, the Studio 5 also behaved like an MTP, and so now I had replaced OMS with FreeMIDI (but I still needed OMS in order to achieve it!). The price of this was the loss of the MIDI processing in the Studio 5, and no way of patching things from port to port on the emulated MTP — or was there?

I went to MOTU's web pages and got the latest version of the *MTP Console*, version 1.1, from:

http://www.motu.com/pages/DownloadMacConsoles.html

APPLE NEWS IN BRIEF

• A MAC FOR ALL SEASONS

You can already run MacOS on Windows and UNIX systems. And there are strong rumours that the next full release of the MacOS will be able to act as a front end to other operating systems. This could mean that MacOS 8 may turn out to be exactly what people have long been asking for: a mature and consistent user interface for *any* operating system.

• MISSING TIME

QuickTime 2.5 is out, but may be suffering from the same sort of distribution problems that affected QuickTime 2.1 — where the important bits for MIDI aren't included by default. I'm looking into this and will try to report back in a future Apple Notes.

• THE NEXT GENERATION?

Apple's headlong rush towards models which are outdated as soon as they are released is having an interesting effect. With some models coming with clock speeds of 200MHz, the 'Performa' name is fast losing its low-cost, cut-down image, and is changing to one of 'home power'. Mac musicians may not be too interested in the bundled *Cubasis* sequencer, but at under two grand, the 6400, with its mix of raw speed, 3D sound, and a curiously housed sub-woofer, may well be the machine to short-list.

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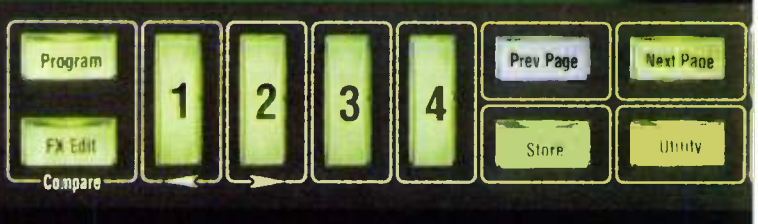

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Apple NOTES

This is the application which allows the setup of a real MTP to be configured. Of course, expecting a Studio 5 which is emulating an MTP to respond in the same way is asking a lot, and it didn't work.

If you're not completely confused by this point, let's see what I've learned. Firstly, FreeMIDI and OMS 2.0 compatibility seems to be flawed — although this will no doubt be 'fixed in the next update' from MOTU. Secondly, you appear to need OMS in order to be able to *not* use it, if you want to use a Studio 5 (or 4). Thirdly, both MIDI systems seem to peacefully co-exist if you do not use the *OMS Emulator* — and then you can change from one to the other as needed. I also discovered that this sort of investigation takes lots of time — and I didn't even try using the inter-application communication, or any of the more sophisticated features of FreeMIDI or OMS. And finally, after all this fiddling about, I discovered that the Studio 5 patches no longer worked when I returned to OMS. Don't panic if this happens: you just need to use the 'Rebuild All' option to restore normal working.

HOW IT WORKS: COPY PROTECTION

Or rather, how to help it work. My recent transfer from one Mac to another required me to de-authorise lots of programs, and then re-authorise them on the new machine. Now you're probably expecting me to say that I maintain a detailed database of my installs and where the master disks are — and consequently I can blithely say that everything went smoothly.

Not quite. Isn't over-confidence wonderful! For my major bits of music software, I keep the disks separate from all my working files and backups. So it was relatively easy to find the disks and do the de-authorise/re-authorise process. But there are several shareware utilities I use which were not quite so well organised. It took quite some time to find the postcard that told me the password for one program, and the sheet of paper containing the vital instructions only turned up when I was preparing my accounts for the taxman — it was stapled to the receipt for the Eurocheque which I used to pay the software registration fee!

In the course of sorting out my hard disks before I transferred things from the remains of the old machine to the replacement, I took a detailed low-level look at the contents, and found quite a few hidden files on the boot drive, with names which indicated that they were the keys for the authorised programs. Some of these were in the System folder, others were in the root (highest or top) directory of the drive where the application was stored, and yet others were in the folder with the application itself. With any software copy-protection scheme, these files usually contain some sort of record about where and when they were placed on the disk, so you should leave them well alone — which means that any sort of disk optimisation or defragmenting might upset them. And any attempt to move a folder around between drives may also cause problems. The trouble is that speeding up your hard drive, or moving a folder from a dying computer to a new one, is not the sort of thing that makes you think about de-authorising and then re-authorising later.

So here's the Apple Notes quick guide to maintaining your sanity about copy protection.

1. Keep your master or key disks in a place where you can find them easily and quickly.
2. Keep any passwords, registration or de-crippling documentation in a safe place, preferably with the master or key disks.
3. Keep a list of everything that requires anything other than a simple install from disks — ie. anything that is protected. Stick this list to your computer monitor.
4. Get into the habit of pausing before you rush ahead with major changes to your computer hardware, especially disk drive upgrades (I changed my boot drive from a 40Mb to a 540Mb, and then discovered that I needed to put the 40Mb back, de-authorise, and then re-install the 540Mb and re-authorise to that!), or optimisation and defragmenting. That pause is where you remember that you have loads of de-authorising to do — and you reach for that list!

ON THE NET

MAC MAGAZINES
UK edition of *MacUser*:
http://www.macuser.co.uk/
UK edition of *MacWorld*:
http://uk.macworld.com/

MAC CLONES
Power Computing:
http://www.powercc.com/
Umax:
http://www.supermac.com/

APPLE DEVELOPMENTS
QuickTime 2.5:
http://www.quicktime.apple.com
Developer support:
http://www.devworld.apple.com

TIP OF THE MONTH

There's a bottleneck in the hardware architecture of the Macintosh — the serial ports. With the exception of a few PowerBooks, all Macs give you a pair of ports intended for use with a printer and a modem: in fact, that's how they are named and iconised. This is adequate if you only need to connect a printer and a modem, but if you need to connect anything else, it is less than perfect.

If you're reading this, you probably already know about connecting MIDI Interfaces to Macs — about the switches that turn the MIDI Interface into a 'Thru', so that the printer still works, and how, if you forget to select it correctly, the printer doesn't work because you're trying to print to your MIDI equipment! In my case, because I use both serial ports to connect to my Studio 5 LX, I need to remember to change over if I use either my printer or my modem. And trying to use the modem when it's really a MIDI Interface means that I need to reboot the Mac!

To make matters worse, if you've got network printing or use file sharing via AppleTalk (*aka* LocalTalk), this can require reboots every time you need to restart AppleTalk after using MIDI. And I've had problems with *MacTCP* conflicting with Opcode's *Galaxy* universal librarian software too.

So this month's tip is really just an expansion of my old recommendation about not bloating your Mac System folder with non-essential fonts, extensions, Control Panels, INITs and other 'fun' add-ons. I now recommend that you should try not to mix music/MIDI and Internet/comms on the same Mac. Music and MIDI can make such high demands on your computer's processing power that expecting it to become a telecommunications machine as well may make it schizophrenic. Which prompts the question: so which of those files in the System folder aren't needed? As usual, I seem to have committed myself to finding out — more later.

Of course, what we really needed is extra serial ports. If this was the PC Notes page, this might be just a question of adding in another EISA or PCI card — but then there's the interesting problem of persuading the MIDI drivers to work with it. Did anyone mention 'Plug & Play'? Of course, in these PCI days, you might expect that plug-in extra serial port cards for the Mac could solve the problem — but you'd be wrong. You can buy the cards, but I've not found any that allow MIDI interfaces to work over them. One example of an extra serial card is the six-port SmartSerial card for PCI PowerMacs from AM Micro (01392 426473): a card plus connectors will cost about £700. At this sort of price, it is almost worth getting a second-hand Mac and using that — which I think I've mentioned previously...

The OMS AppleTalk dialogue.

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Cubase Audio for the Falcon gets an upgrade, there's a new shareware editor for Sound Canvas users just out, and controversy rages on the net about the place of the Atari ST. OFIR GAL presides...

I actually mentioned some of this month's news in my last Atari Notes column — a new version of *Cubase Audio* for the Falcon has been released. This month, I've space for a few more details.

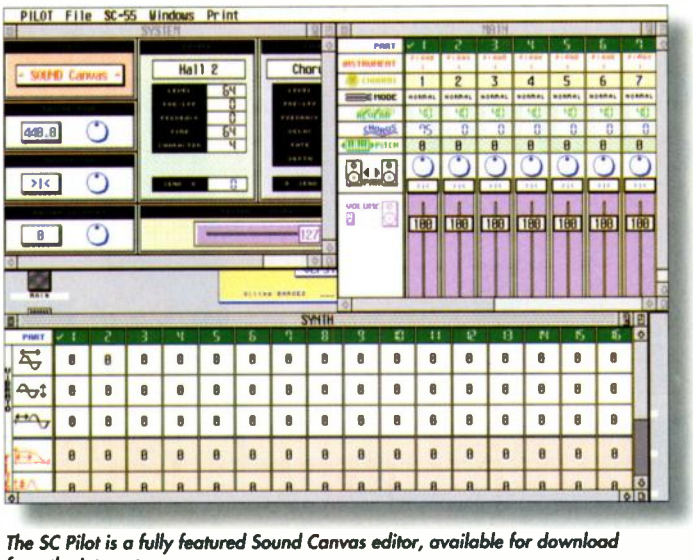
Cubase Audio Version 2.06 incorporates various undocumented bug fixes, and, significantly, the ability to record up to eight tracks simultaneously using a separate utility program and optional hardware, such as the SoundPool ADAT interface. The update is available freely on the Internet or from Harman Audio (0181 207 5050). There is no mention in the short 'read me' file of if and when the 8-track support will be added directly into *Cubase*, but at least Steinberg have managed to provide this facility.

Still on the software news front, owners of the Roland Sound Canvas or any of its variations can make use of a new shareware editor from France, called *SC Pilot*. The program is very comprehensive and allows full access to the complete range of parameters available on the synth for a minimal shareware fee of 100 Ff (about £15). You can download it from **http://www.compulink.co.uk/~gal/ccd/main.html**. I've placed it on my own page since it's only available otherwise via CIX.

Moving on to hardware, System Solutions (0181 693 3355) have several new items of interest to musicians, including the new SoundPool Digital Patchbay (£295). The device features four digital inputs and two outputs, and any input can be patched to any output, giving the digital musician or sound engineer the ability to connect all their digital equipment quickly and easily. The unit comes in a 1U rack package and includes a send/return facility, allowing you to patch additional devices into the system. Although it's not Atari-specific, it works well with the Falcon and the rest of the SoundPool range.

NEW ATARI MAGAZINE

The closure of *Atari World* and *ST Format* shocked many Atari users, and for several months discussions have been going on about reviving *Atari World* or starting a new enthusiast magazine. Finally, ex-radio DJ Mike Kerslake, former *ST Format* technical editor Frank Charlton and *Atari World* journalist Joe Connor have taken the plunge and announced the first issue of *Atari Computing* — a new subscription-based Atari magazine, written by users, for users. The first issue will boast 60 A4 pages including contributions from the likes of Graeme Rutt, Jon Ellis, Denesh Bhabuta and Kev Beardsworth. The launch issue will be on sale at the forthcoming Atari shows, which will be held on Saturday, September 28 in Birmingham and Sunday, September 29 in London. For more details about the shows, contact the organisers Goodman International (01782 335650). *Atari Computing* is aimed at all Atari users, including musicians, and you can order an evaluation copy from Mike Kerslake, 42 Larch Hill, Handsworth, Sheffield S9 4AJ (0114 2618940) for £3 including postage in the UK.



The SC Pilot is a fully featured Sound Canvas editor, available for download from the Internet.

OTHER GOODIES

PhotoLine is a new graphics- and image-editing package from System Solutions (contact number elsewhere in this column). Aimed at high-end users, it features both paint and vector-based drawing, and includes a host of options for colour correction. The various tools are fully configurable, and the application supports *GDOS* and *NVDI*, and uses a modern GEM interface. The program requires an 030 processor and an FPU, and therefore only works on the TT and Falcon, or an upgraded ST. The retail price is £169. Also new from System Solutions is *Infopedia*, the first CD-ROM encyclopaedia to hit the Atari market. The product is based on *Infopedia 2.0*, which includes the complete *Funk & Wagnalls New Encyclopaedia*, with almost 27,000 entries and 8000 photos and sound clips and retails at £49.95.

Positive Image, the image-editing package (see Atari Notes August '96) from Floppyshop (01224 586208) has just been updated to version 1.1. Among the many enhancements are speed improvements in both display and print times, and support for multiple masks. Various bugs have also been fixed, and the upgrade price is only £6 including postage and packing.

AND FINALLY...

My Atari Notes column about Atari emulation on the Mac and PC has managed to stir the emotions of many Atari users and has sparked a discussion on the *Cubase* users on-line conference on CIX. I also had several conversations with Atari dealers about the column and the general state of the Atari scene. It appears to me — and this may well be just a personal opinion rather than an objective truth — that some people get an attack of religious fanaticism whenever they feel their beloved machine is being criticised. The logic behind this behaviour is their belief that such public criticism automatically affects the support and development of products for said machine. This may have been true in the past, but the reality is that no major software or hardware developer is going to be greatly influenced by what I write in these pages. The moral of this story: make music with your Atari while it does what you want. Until then it's the music that counts, not the computer chips used to make it. SOS

Atari users should take a look at our three-page ST feature, starting on page 50, for the story behind one man's decision to stick with his Atari, and upgrade its capabilities, rather than changing platforms. There's also a roundup of useful Atari PD/Shareware contacts and Internet addresses.

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Sound on Sound, March '96:
"At the moment, I can think of no other machine that will produce anything like these results for the amount of effort expended."
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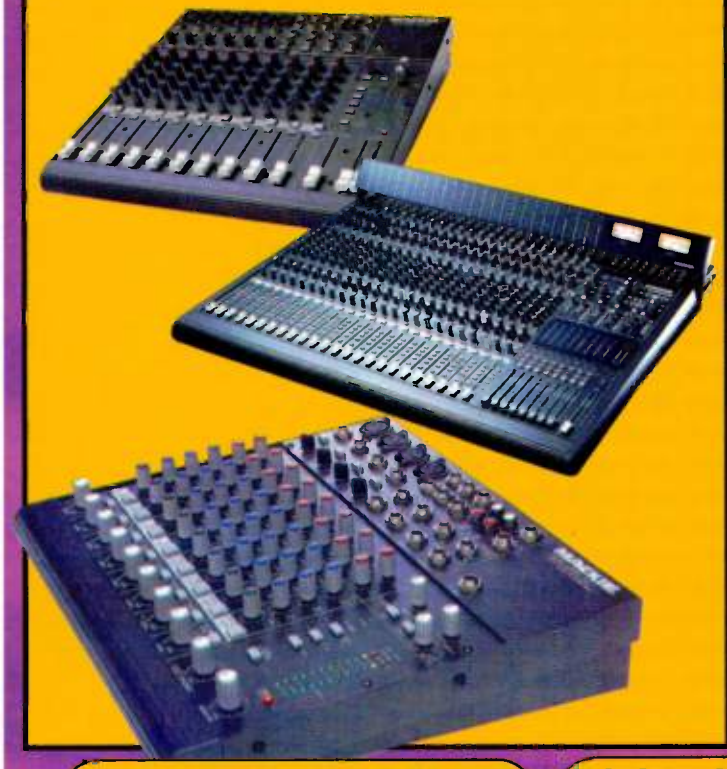

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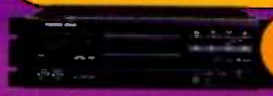

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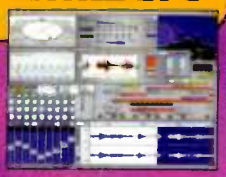

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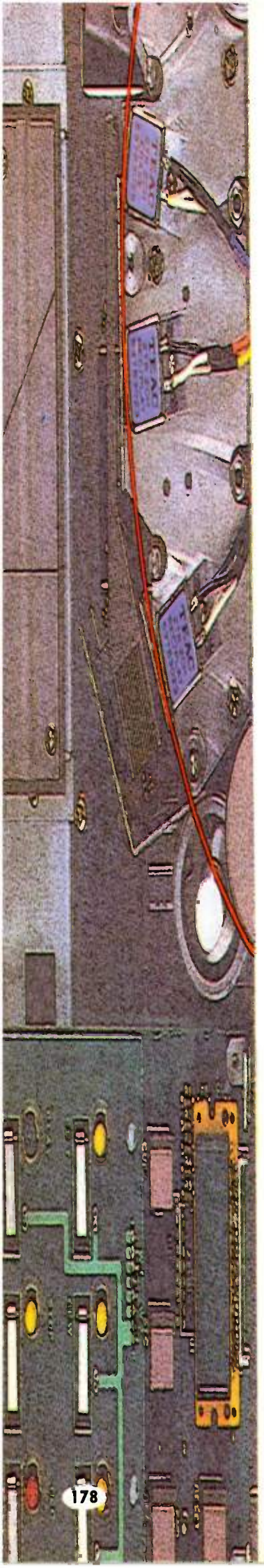

Head Case

ANALOGUE TAPE COMPRESSION FOR DIGITAL RECORDING

The flexibility of digital multitrack and hard disk recording is undeniable. But what if you yearn for the warm sound of your old analogue machine? CRAIG ANDERTON explains a trick which uses the playback head of a three-head analogue deck to give you the best of both worlds.

If you've been trying to get true analogue tape sound, with its warmth and tape compression, out of your modular digital multitrack (MDM) or hard disk recording (HDR) system, you're going to laugh when you read this article. You can get a true analogue sound more easily than you think — and no, it doesn't involve the messy process of sync'ing a digital deck with an analogue tape deck. Before I reveal The Big Secret, here are some specifics to whet your appetite:

- True analogue tape sound — not a simulation.
- Comparatively inexpensive.
- Ability to provide the sound associated with different tape types.
- Variable tape compression effects, from light to extreme.
- Unlimited undo if you decide you didn't get it right the first time.
- True stereo processing.

What would *you* pay for a signal processor that does all this? Well, read on.

THE SECRET SIGNAL PROCESSOR

The secret ingredient is a three-head analogue tape deck. This can be anything from a cassette deck to a smart Otari 2-track. I use a Tascam Model 32 open-reel recorder, which you can pick up used for a reasonable price (ever since DAT hit, the price of used 2-track reel-to-reel decks has plummeted in musical circles, although I'm told reel-to-reel remains popular in the broadcast industry). Of course, you might already own a suitable machine you can use.

THE CRUNCH FACTOR

Figure 1 shows how to patch the analogue deck into your system (I've used a picture of a reel-to-reel machine in this example). Here's the step-by-step procedure:

1. Feed the already-recorded tracks from your MDM or hard disk recorder, which you want to 'analogify', into the reel-to-reel recorder inputs.
2. Send the reel-to-reel outputs (monitor from the playback head) to two open MDM or HDR tracks. Set these to record.
3. Load a reel of tape with the preferred sonic characteristics.
4. Put the reel-to-reel into record mode, and roll tape.
5. Start recording with the MDM or HDR. The tracks to be processed play into the reel-to-reel, through the record head, and onto the tape, which imbues them with the required analogue sound and/or tape saturation effect. Milliseconds later, the thus-processed signals are picked up as the tape passes over the playback head, which then outputs the signals to the eagerly-waiting tracks of your MDM or HDR.
6. Do a trial run and adjust the reel-to-reel input level for the desired amount of 'crunch'. Remember, you have to monitor from the playback head for this to work.
7. After getting the sound you want, rewind to the beginning and transfer the tracks for real.

AVOIDABLY DELAYED

We're not done yet, because the crunched signal will be delayed compared to the original, non-crunched track. No problem: use the MDM or HDR track shift function to compensate. MDMs can delay but not advance tracks, so you have to delay the straight tracks to line up with the crunched tracks. With HDR, you have the option of advancing the crunched tracks in time rather than delaying all the straight tracks.

Monitor the crunched and non-crunched versions mixed together, then offset the original tracks until they line up with the crunched tracks

(you'll hear a flanging sound as you get closer; go for the flanging 'null' point). Now mute the original tracks, and you'll be left with pure analogue tape sound. You need to figure out the appropriate offset only once, unless you change speeds on the reel-to-reel.

I did this with an ADAT/BRC combination and found that the right delay time for a Tascam Model 32 was about 75.3ms at 15ips (inches per second). I also discovered the wonders of flanging via track delay, but that's another story for another time.

One more tip: delay effects obtained by mixing the straight and processed sounds together can sometimes sound very interesting. I generally prefer having the straight sound hit late compared to the processed sound.

2-TRACK MINED

Not only is this technique simple, it allows your 2-track to once more be a productive member of your increasingly digitised studio. As a bonus, as long as you keep your original tracks, you can always go back and re-crunch, should you decide you crunched too much or too little (this is what I meant in the beginning by 'unlimited undo').

And that's all there is to it. Now you don't have to give up

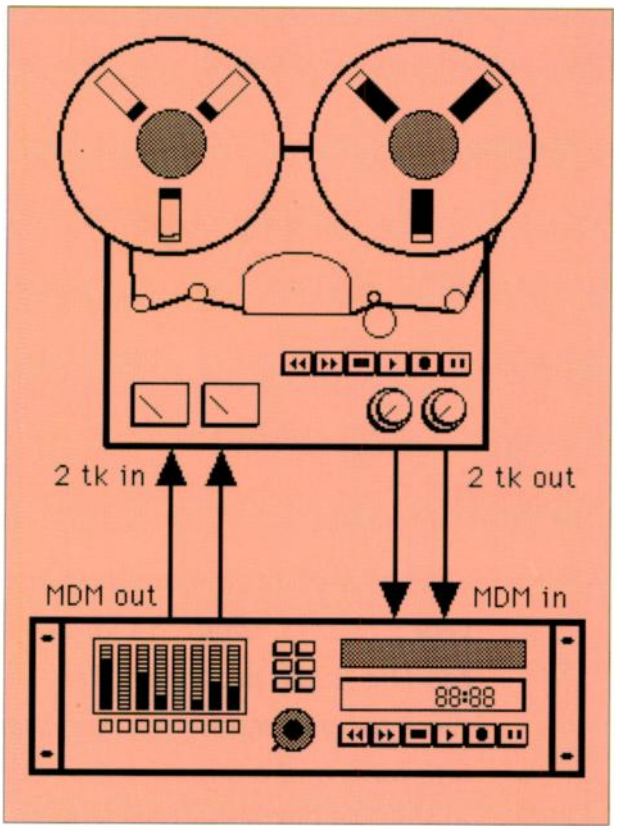

Figure 1: Connections between the analogue recorder and the digital system for the tape compression technique.

that analogue tape sound, and best of all, you won't erase some high frequencies every time you play it — and you can create as many digital safety 'clones' as you want.

Product opportunity alert: some enterprising manufacturer could come up with a cut-down, less intelligent tape loop-based transport for just this function. It may sound pretty wacky, but just think of it as an Echoplex for the '90s.

Quantum Leap

DIGITECH STUDIO 400 EFFECTS PROCESSOR

pros & cons

DIGITECH STUDIO 400 £800

pros

- Four independent effect processors.
- Up to eight effects available at once.
- Balanced XLR connectors.
- Imaginative presets, classy sound.
- Versatile.
- Digital connections option.

cons

- Operating system may confuse some, and the manual doesn't help much..
- Otherwise useful display has some rather small text.

summary

A high-class processor at a mid-market price. Highly recommended, because of its flexibility and sound quality, for serious project studio owners and professionals.

SOUND ON SOUND

Though it costs no more than last year's TSR24S, Digitech's latest top-line studio processor offers twice the power, an improved user interface, and a digital connections option. DEREK JOHNSON leaps into action.

It's now an established fact that anything based on digital technology has an evolutionary pattern that means you get more — often *a lot* more — for your money with each successive generation. It's true for PCs, it's true for sample-based synths, and it's true for digital multi-effects. This fact came particularly into focus for me with the release, in 1995, of Digitech's TSR24S, an enhanced version of their 1993-vintage TSR24, offering a better feature set for £100 less than the original. Most attractively, it also offered expandability — an extra couple of hundred pounds added a board that essentially doubled its processing power.

Now we're getting towards the end of 1996, and there's yet another generation of Digitech to examine. At first look, it's certainly fitting in with the trend, offering the power of two S-DISC (Static/Dynamic Instruction Set Computer) processors — as opposed to the TSR24S's one — for the same price as the latter unit, £799. There's more too: a host of new effects, and extra features such as four sets of inputs and outputs, on both balanced jacks and XLRs. That added processor power gives the Studio 400 the ability to behave as up to four separate multi-effects processors at once, utilising a maximum of eight effects simultaneously (the cheaper Digitech Studio Quad, reviewed back in February, also manages four independent processors, but with a maximum of four effects at a time). The 400 can be used as a single super-processor, as four separate processors (patched ▶

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DIGITECH STUDIO 400

into four auxiliary sends of a mixer), in-line with a stereo synth, or any combination of these. The choice is yours. It can also be upgraded to include digital connections, should you require them.

One of the really excellent features offered by the TSR24/TSR24S was the ability to freely create custom effects algorithms; this is missing from the new unit, Digitech instead choosing to provide a collection of preset 'Configurations' that almost approach this ideal — but I'm jumping ahead of myself.

LOOK & FEEL

In order to cram in a serious collection of connectors — eight XLRs and eight jack sockets require a certain amount of space for comfortable use — and to make room for the optional digital interface board, Digitech have chosen to package their new baby in a 2U-high box. This gives the Studio 400 a solid, imposing feel. Cosmetically, it reminds one of an older generation of rock-solid professional studio processors that cost many pesos more than this one. It also looks a little square, for my taste anyway. But looks aren't everything when it comes to signal processing — and inside the Studio 400 is a throbbing effects-processing powerhouse.

"If proof was needed that Digitech are a force to be reckoned with in affordable digital effects, the Studio 400 is it."

Upon switching on, your eye is quickly caught by the large, custom, backlit liquid crystal display. It immediately gives the appearance of being immensely informative, and so it proves to be. System navigation is undertaken by a small collection of large buttons and a big parameter-access knob, which offers a reassuring click every time you move it. This is a change from the multitude of buttons found on the TSR units, and is a similar approach to the Studio Quad's.

The 400 fires up in Program mode, wherein the chunky knob selects from the 191 preset Factory and 100 User Programs (the 100 User Programs are initially filled with duplicates of the first 100 presets). As you scroll through the Programs, you notice a number of things about the display, most significantly the miniature routing graphic in the lower right-hand corner — it shows you exactly how the various effects components are linked together. Excellent.

Editing a Program is simply a matter of hitting the FX Edit button to cycle through each of the effects (up to eight) in a Program, plus a few routing parameters. You then access the editing parameters for the effect you want to edit, using the Previous and Next Page buttons; these cycle through the several pages available (there can be up to 10) for each effect. Each page features up to four parameters, and these are selected via the four soft keys, labelled 1-4, in the middle of the button field. This is an odd place to put these keys, given that they would more sensibly be situated under the display — it's not as though there's no room there.

The remaining buttons are pretty self-explanatory: press the Store button when you're happy with an edit, and would like to name it and save it in a User Program position; press the Utility button to access a range of global functions, such as display contrast, MIDI channel, and SysEx dump; and use the Bypass button to turn the effects off. Finally, the In Levels button allows you to manually set an input level, or tell the Studio 400 to 'intelligently' choose the optimum level for you.

The back panel is almost more interesting than the front, for a change. In addition to the sea of balanced audio connectors, there's a switch that chooses between +4dB and -10dB (pro or line-level) operation, a pair of MIDI sockets, and a footswitch socket. As mentioned, one thing you do *not* get for the money — but which is available as an option — is a set of digital connections.

INSIDE STORY

Those of you familiar with Digitech products will be on fairly safe ground here, because although the Studio 400 is in many ways the most powerful processor yet made by the company, they have stuck to familiar ground when it comes to effects and routing. Accessing those effects is, however, a little different. The effects hierarchy can be tricky to get into at first, and is trickier to describe. This is one point where the manual lets the user down — the explanations are all over the place.

The heart of each Program is a so-called Configuration, one of 23 preset arrangements of 1-8 effects 'Modules', arranged in a simple chain, or in several parallel paths. The Modules are individual effects, and it's for you to decide which ones you want in a Configuration — as long as you stick to certain rules. A Configuration isn't the end of the routing story, since there are several input/output modes — from single or dual mono, to stereo and quad mono input — with a similar ▶

DIGITAL OPTIONS

It is possible, for £199.95, to add full digital connections to the Studio 400. The interface is user-installable, and allows the 400 to process entirely in the digital domain, providing you have suitable hardware (a digital desk, for example) with digital ins and outs. The board offers both XLR AES/EBU connections and S/PDIF phono sockets — you can switch between the two formats, but not convert between them. Sample rate is selectable, using a switch in the Utilities Menu on the 400, and the unit will automatically sync to external sample rates.

SPECIFICATION

- 18-bit, 128x oversampled ADC
- 20-bit, 64x oversampled DAC.
- 44.1kHz sampling frequency.
- Balanced Jack and XLR connectors.
- MIDI In and Out/Thru.
- Operating level switchable -10dBV/ +4dBu.
- 20Hz-20kHz frequency response.
- 191 Factory Programs, 100 User Programs.

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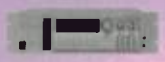

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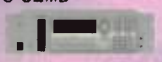

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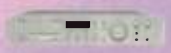

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collection of output modes. Not all options are available (or would be valid) for every Configuration, but they do help to stretch the preset nature of the Configurations.

The flexibility continues with the individual effect Modules. There are 50 altogether (plus bypass and through Modules), offering a variety of graphic and parametric EQs, compressors, delays, reverbs, flangers, and so on. And the choice doesn't stop there. When assembling custom algorithms with the TRS24S, it was necessary to keep juggling available processor power and RAM, choosing from a collection of effects Modules of varying power. This process is essentially invisible on the Studio 400. It works like this: Configurations make use of three different types of Module — full-, half-, or quarter-power (just like the Studio Quad). This means that many of the 50 available Modules come in full-, half-, or quarter-power versions, with differences in the range or variety of their parameters. A delay may have a longer or shorter delay time depending on what 'power' it is, for example. Some effects, such as the processor-hungry Dual Stereo Reverb and Stereo Quad Delay, are understandably available only in full-power versions.

Since Configurations are composed of slots which are pre-defined for certain Module types, you can't just shove in any Module type you want — if the Configuration is for eight quarter-power Modules, you can only use quarter-power Modules. So choose a Configuration with a collection of Module types that best suits your needs, and refer to the charts in the manual to see if a given effect is available in the desired power. The maximum available power adds up to two full-power effects, which means a maximum of four half-power or eight quarter-power effects, with loads of variations in between — one full, one half and two quarter, for example, would equal two full-power effects.

That's just about it, except that once you've slotted a Module into position in a Configuration, there are some more decisions to be made. Digitech have provided each effect with a collection of 'Defaults' — sets of parameters that give you good starting points for your own experimentation. All Factory Programs use these Defaults, so if you hear something you like and want to use in the Factory Programs, you can easily figure out which Default is being used and copy it to your own Program. Note that there are two banks of Defaults; Bank A is suitable for in-line applications, while Bank B is suitable for use with a mixer's auxiliary send loop.

Some of the Studio 400's reverbs have one further level of choice: a Type parameter allows you to choose from one of 10 different reverb types (Studio Room; Wood Room; Vocal Plate; Concert Hall; Plate Reverb; Chamber; Cathedral; Arena; Cement Shelter; or Infinite Spring), each of which offers a different decay range. Gated reverbs also have a choice, of 12 Types in this case. Matters are further confused by a pair of dual-effect Modules (chorus/delay and flange/delay), which are available in full, medium and economical versions — so when we say the Studio 400 can use a maximum of eight effects Modules, any or all of those Modules could be made up of a dual effect.

Easier to explain is the way in which up to eight parameters per effect can be controlled by 'Modifier' links. A Modifier can be a MIDI Continuous Controller, one of two LFOs (Low Frequency Oscillators), or 'Dynamic' Modifiers. This latter choice uses the level of the input signal to control the assigned parameter — the decay time of a reverb could change depending on the level of the input signal, for example.

In addition to the eight MIDI controllers that can be assigned to each Program, the Studio 400 offers a full MIDI spec: patches can be changed remotely, and the unit's memory contents can be dumped or retrieved via System Exclusive. It is also possible to fully edit the 400 using an external SysEx editor, although details weren't provided with the review unit — full SysEx data is available in a separate document.

THE EFFECTS

Describing the operation of the Studio 400 is not quite as easy as using it. A little breaking-in period may be necessary for some, since the display,

THOSE EFFECTS IN FULL

This is a list of all the effects Modules available on the Studio 400; not all are accessible in all Configurations, and some are available in various 'strengths'.

- **REVERBS: Reverb, stereo reverb, dual reverb, stereo dual reverb, gated reverb, stereo gated reverb, room echo.**
- **CHORUS: Dual chorus, stereo dual chorus, quad chorus, octal chorus.**
- **FLANGERS: Dual flange, stereo flange.**
- **PHASERS: Dual phase, stereo phase.**
- **OTHER MODULATION EFFECTS: Rotary speaker simulator, stereo tremolo, auto panner.**
- **DETUNING: Detune, dual detune, stereo dual detune, quad detune, octal detune.**
- **PITCH-SHIFTER: Dual pitch, stereo pitch, stereo dual pitch, quad pitch, octal pitch, smooth pitch, harmony.**
- **DELAYS: Mono delay, dual delay, quad delay, stereo delay, stereo dual delay, stereo quad delay, analogue delay, stereo analogue delay, pre delay.**
- **EQUALISERS: Mono PEQ6 (Parametric), stereo PEQ3, Stereo PEQ6, mono GEQ8 (Graphic), stereo GEQ8, mono GEQ15, stereo GEQ15, mono GEQ31.**
- **SIGNAL PROCESSING: Noise gate, compressor.**
- **DUAL EFFECTS: Chorus/delay, flange/delay.**

while generally clear, does contain some tiny text, and moving about the system with the FX Edit, Parameter and Page buttons may be initially confusing.

Once you're past this, and diving into the treatments offered by the 400, you'll be glad you persevered. Just running through the Factory Programs gives you an idea of what the unit is capable of — anything from big, realistic reverbs to outlandish, swirly textures come pouring out. Unfortunately, the manual declines to actually describe what the designers were after when developing the different effects Modules for the Studio 400, so this period of testing the water will help you familiarise yourself with what's available.

For some people, a multi-effects processor lives or dies on the quality of its reverb. The Studio 400's reverb algorithms have a natural feel to them that doesn't colour the input signal in an unpleasant manner, with none of the metallic edge detected on many cheaper units. Springiness and coarseness are also generally absent, which is good news for drum machine users. As for vocals, in my opinion it doesn't get any better than this until you start shopping in the £1500+ price bracket. Even the half- and quarter-power reverb Modules offer a feeling of quality and space.

Other effects are also of a high quality: the long delays are eerily exact copies of the input signal, flanges and choruses are rich and full, and the rotary speaker simulator is a welcome bonus. Pitch-shifting is also available in several interesting flavours, and is rather less crunchy than you'd normally expect from an affordable processor. It's still not up there with Eventide, but it's as close as most of us will get — as you'd expect, perhaps, given Digitech's acclaimed range of pitch-shifter/harmoniser machines. Most interesting is the Harmony effect, which provides harmonies depending on what key you're playing in.

In combination, the effects get even better: flanged reverbs, reverbed delays, autopanned pitch-shifting, and much more, are all possible, and sound excellent. Amongst the Factory Programs, I found a number of favourites: '20 So Many Effects' produces a wonderful melange of sound, no matter what the input signal; '81 Centerless Delay' and '82 Centerless Reverb' both offer a similar feeling of space without drowning the input signal or providing any clues as to where the effect is coming from — it just washes around the speakers; '173 Stereo Big Cathedral' seems to go on for ever; and '21 Leslified Room' gives you vertigo. An excellent set all round.

THE BAD STUFF

There is so much that is good about the Studio 400 that it seems a shame to point out any shortcomings. Luckily, they are few, relatively insignificant, and mostly in the 'missing' category. The Studio 400 lacks: a headphone socket; a sampler (a hold function on some delays is as close as you get); and front-panel input or output level controls. I found the contrast control for the LCD didn't have enough range — it's tricky to adjust it to be readable from all angles, and I missed true algorithm creation slightly — though the variety of Configurations and flexible input/output options amount to just about the same thing. The user gets last say on which effects Modules go where, after all.

CONCLUSION

While I wouldn't necessarily sell my house and all its contents in order to obtain a Studio 400, I might consider thinning out my effects rack to make a little spatial and financial room for it. And that's something I haven't been seriously tempted to do for quite some time by an effects unit. Some of you may find just under £800 to be a bit steep when you can take your pick of sub-£400 processors. However, if you think of the Studio 400 as four processors in a box — if you've got four auxiliary sends on your mixer, the 400 will take them — that works out as £200 per processor, which is pretty good going.

Digitech have been producing fine effects units for years, and the Studio 400 is arguably their best and most powerful studio-biased box yet. I can't recommend it highly enough. If proof was needed that Digitech are a force to be reckoned with in affordable digital effects, the 400 is it. There is little in this price range that offers such a range of exciting, musical and natural reverbs alongside potentially outlandish and unreal effects. The balanced XLR connectors may well cause pros in search of something different to check it out, and home and semi-pro studios should definitely pay attention. If your budget can stretch to anywhere near the £800 asking price, you owe it to yourself to have a listen. SOS

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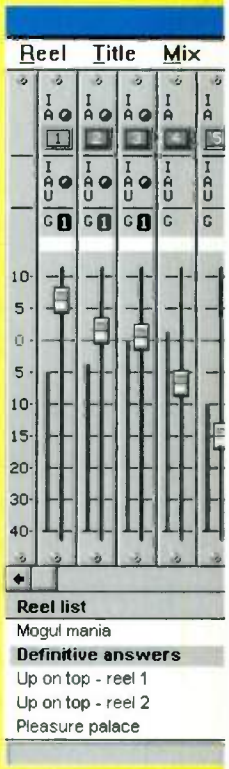

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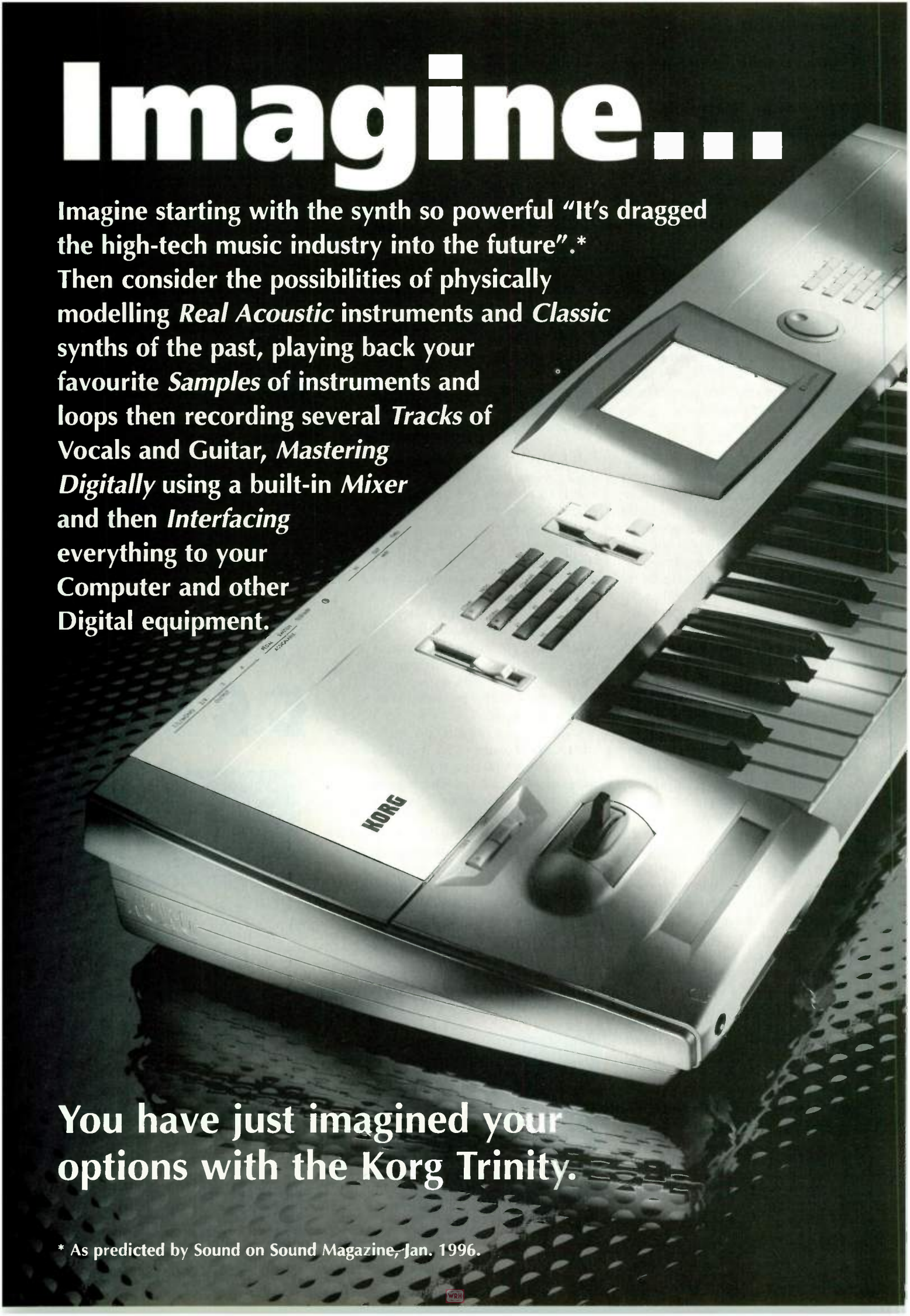
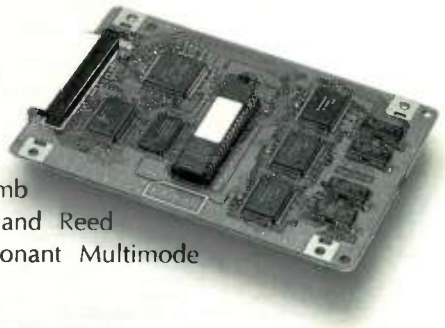


You have just imagined your options with the Korg Trinity.

* As predicted by Sound on Sound Magazine, Jan. 1996.

Solo TRI Option



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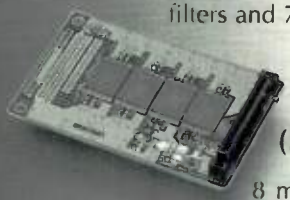

PBS TRI Option

(Playback sampler)

8 megabytes of memory that allows you to load samples in KORG or AKAI S1000 format. Being Flash ROM means that samples are not lost when power is disconnected. Adding this board also adds 2 extra banks of Programs and Combinations and adds 64 extra program locations to the Solo Board Bank if fitted.

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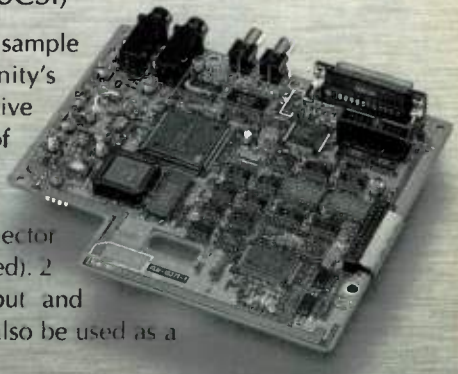
This enables you to connect Trinity digitally to any device with an ADAT Format digital interface. The option features an ADAT Digital output and a Wordclock input.

SCSI TRI Option

This board adds a SCSI port to the Trinity enabling you to connect the Trinity to an external hard drive or CD ROM drive. (This option is included in the HDR TRI Option.)

HDR TRI Option

(Hard Disk Recorder with SCSI)



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Changing Channels

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In addition to his respected solo work, Roger Eno has been involved in collaborations with brother Brian and other musicians, and is now part of Channel Light Vessel, also featuring the talents of Bill Nelson, wind player Kate St John, and zither player Laraaji. PAUL TINGEN talks to him about all his musical facets.

It's interesting to note how negatively we often judge those who become famous or successful by association — Yoko Ono and Linda McCartney, for example. People with a famous relation are apt to be unfairly treated even if their work is perfectly competent and successful in its own right. Comparison will always be made with the achievements of the better-known relative, which will usually be seen as superior.

Still, there *are* examples of famous relations respected in their own right, and not dismissed as having ridden to success on someone else's coat-tails — Tim and Neil Finn, for example, or Michael and LaToya Jackson. Or Brian and Roger Eno.

Roger has been living his career as a recording artist in the gigantic shadow of brother Brian for well over a decade now. Yet despite the fact that he came to prominence much later than Brian (he's 11 years younger), was undoubtedly helped by the association with his brother, and has enjoyed no more than a fraction of Brian's success, he has generally reaped critical acclaim. He may still be identified first and foremost as his brother's brother, but he's nevertheless respected for what he does in his own right. This is no mean feat, and what makes it even more amazing is that the two brothers have for a long time been associated with the same area of the musical spectrum, making what Brian Eno christened 'ambient music'. This makes it even harder to define the distinction between the music of the two brothers, and for ▶

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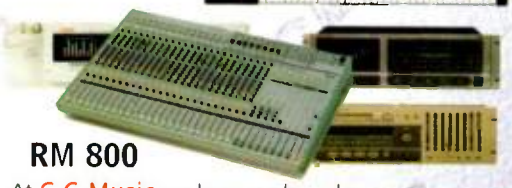

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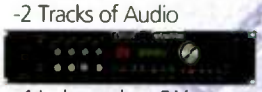

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VISA

Roger Eno

Roger to forge a public image and musical identity of his own. Moreover, Roger Eno's recording career was launched by two ambient projects on which he collaborated with Brian: the *Apollo: Music and Atmospheres* soundtrack (1983), and his first solo album, *Voices* (1985), an instrumental affair influenced by impressionistic classical music and featuring treatments by Brian Eno.

Soon afterwards, however, Roger Eno's work started to diverge from Brian's, when Roger began to put his classical music education (at Colchester Music College, where he studied euphonium and piano), to more extensive use on solo albums such as *Between Tides* (1988, produced by Michael Brook), *The Familiar* (1992, with Kate St John and produced by Bill Nelson), and *Lost In Translation* (1994). They all feature different forms of acoustic chamber music, occasionally enhanced by subtle electronic instruments and treatments.

Channel Light Vessel's second album, Excellent Spirits, *out now.*

SPONTANEOUS

During the last two years, there's been a further move away from ambient and semi-classical music. Firstly, there's his participation in Channel Light Vessel, a collaboration between Roger, guitarist Bill Nelson, Kate St John on wind instruments, zitherist Laraaji, and cellist Mayumi Tachibana. Their largely instrumental debut album *Automatic* (1994) is a bizarre cocktail of pastiched musical styles, held together by Nelson's busy drum programming and weird electric guitars, Laraaji's zither, and Eno's elegant, unhurried piano, accordion and horn playing. Early 1996 saw the release of a second Channel Light Vessel album, the excellent *Excellent Spirits*. More song-based and high energy than *Automatic*, it's a highly entertaining concoction of original musical ideas that has to be heard to be believed.

And then, this September, there's the release of Roger Eno's fifth solo album, *Swimming*. For the first time laying the emphasis on his voice, and playing all instruments himself, Eno opens the album with an uncharacteristic up-tempo folk dance on accordion, piano, banjo, mandolin, piano and drums, before moving into introverted, folk-influenced and acoustic guitar-based song territory, with the odd bit of synthesizer enhancement.

The pending release of *Swimming* resulted in Roger Eno and yours truly sitting themselves down at either end of a table in a North London pub, tape recorder and some drinks in the middle, for one of the inevitable round of promotional interviews that comes with a record release. Eno is in a cheerful, jovial mood. His dark hair tightly cropped, with a slightly rounder face than brother Brian, and eyes bright and alive, he comes across as younger than his 36 years. My first question concerns the striking transformation his music has undergone recently. Eno: "I felt it was about time that I delved into my love of English folk music. You know, it's easy to continually do what you're comfortable with, and in my case that would be simple, curious little piano pieces. So I was toying with the idea of doing another record like that, and thought, 'oh really, this is just boring, going over the same ground again.' Folk music has influenced me for ages, and I've never really exploited it very explicitly. I've always used folk music modes and scales, and early music has also been a big influence, so I decided to make those influences the basis of a whole album. And I also wanted to sing this time, which I'd only done a little bit on record so far, on *Lost In Translation* and with Channel Light Vessel."

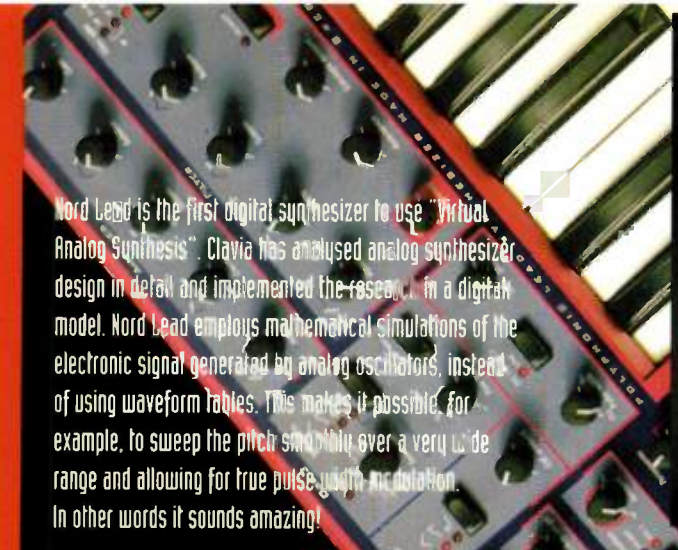
As far as his involvement with the latter is concerned, Eno explains that the band came together "by pure chance. I was doing concerts promoting *The Familiar* with Kate St John in Japan. Laraaji, Bill Nelson, and cellist Mayumi Tachibana were on tour with us, and we'd all play our solo spots. As an encore, we started to jam spontaneous pieces with all kinds of different influences thrown in. To our surprise, these were the bits that the audiences liked most. Things somehow melted together, and because they were encores we weren't over-extending ourselves. It was suggested to us that we make a record on that basis, and that was exactly how *Automatic* came into being, with everyone throwing in their influences: Bill's hi-tech electric stuff and serious guitar playing, Kate St John's love of French *chansons*, Laraaji and his spiritual zither, and so on. We put it all spontaneously together in the studio in about three weeks. The second album was also made like that, and with the same speed, though for that a few ideas had been prepared, like some rhythm tracks and tape loops, and a couple of songs. It's easy for me to depart from my own style in a situation like that, because the whole point is to be open to other people's ways of working and other people's influences. I think that's very valuable."

> "I'm not sure what attracted me to the M1, really. I think it was simply the first real synth I bought, and I never felt like getting another one."

SANDPIT FRUSTRATION

Channel Light Vessel's *Excellent Spirits*, which was made without Tachibana for logistical reasons, is an unexpected delight, made all the more amazing because of the incredibly short time span over which it was recorded and mixed (Eno: "Four weeks maximum"). It's also an interesting departure from Eno's own style. Though with such

nord lead V2.0



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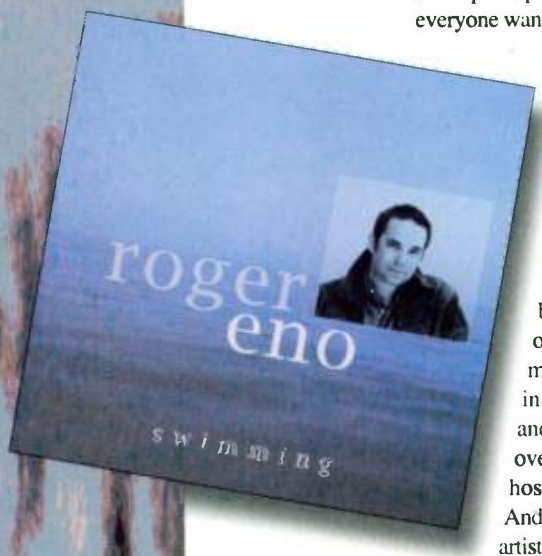
Roger Eno

"I always felt it was better to get to know an instrument really well, rather than jump from one instrument to another."

disparate influences as folk, medieval, impressionistic, chamber, classical, rock, ambient, and electronic music present in his solo work, one wonders how Roger Eno himself defines his 'own style'. He happily agrees that a lot of his solo work has many elements of pastiche, and partly consists of near-collages of other styles, interpreted in his own personal way, with added radical twists that enhance its Eno-esque identity. So *Voices* was "unashamedly influenced by my favourite composer, Eric Satie", whilst Roger Eno's sense of melody and Brian Eno's electronic treatments gave the album its identity. And *The Familiar*, for example, drew strongly from the works of Vaughan Williams and Delius. Roger comments: "When I started out with my recording career, I was strongly influenced by the music and ideas of Eric Satie. He wrote and coined the phrase 'furniture music', which is music that you don't really need to listen to, that you're not really supposed to notice. Brian had been developing ambient music, which was rooted in a similar philosophy. So when we worked together on *Voices*, our ideas were quite similar. But since then, our ideas have gone in opposite directions. I still like the idea of furniture music, but I've become more interested in music that you can listen to if you want to, that's not just designed to be in the background, but that does have a melodic content and curious harmonies and all that sort of thing. That's what I've tried to achieve with *Swimming*. It's quite a difficult balance to get."

Apollo and *Voices* are the two main musical projects that the Eno brothers have worked on together, and Roger has also appeared on some of Brian's records. Mention of his famous older brother does prompt the inevitable question, the one everyone wants answered, but usually is reluctant to ask: what's it like to have a brother who's that famous? Roger Eno laughs out loud: "Well, it's a real problem sometimes. You're always first and foremost 'brother of...' But I guess it's also opened doors for me. Ever since picking up a cornet at secondary school, I knew I wanted to make a living from music, but it took a long time before I found out what form that would be in. After music college I busked for a few months in London, and I played in restaurants and clubs as well. I also had a job for over two years as a music therapist in a hospital for the mentally handicapped. And then with *Voices* I became a recording artist and have made a living from that ever since, with the addition of doing concerts and composition for TV, theatre and advertising.



"I think my connection with Brian did help, because I don't know whether EG Records would have been interested in putting out *Voices* had it not been for that connection. But I knew that I would somehow be a professional musician one day, and this just happened to be the way it turned out. So I'm grateful. The other side of it is that he's so successful that, to be honest, I sometimes get quite envious. I don't like that in myself, being envious of anything. But Brian is in the remarkable position that he's wanted for everything that he does, whereas I get these short periods of people being interested in what I do, when a record comes out and I'm doing some interviews, for example, and then I'm left alone again for a year or so. And finances and your own enjoyment aside, the reason you make music is to communicate, to relate to other people. So there are also times of frustration during which I think: 'Oh, God, what am I doing, I'm playing in a sandpit'."

MORE THAN 8 TRACKS? WHAT'S THE POINT?

Eno's last remark, though obviously a figure of speech, does have some ironic relevance to reality, for the place where he records most of his solo music is the back garden of his house in Woodbridge, Suffolk, the village where both he and Brian were born. Roger Eno's home studio is affectionately called The Shed, and exemplifies his whole low-tech approach to music recording and composing. Inside this "tiny little place" are almost all Eno's musical instruments: lots of guitars — classical, acoustic, semi-acoustic — all his brass, accordions, piano, mandolins, harmonicas, whistles, and so on. Modern technology is represented by a Korg M1 and an Emu Proteus orchestral module, which, remarks Eno, is "fantastic. If you know how the actual instruments work, you can make it sound exactly like a real player. For example, if you're playing a flute with it, you can simulate the taking of breaths and get a really accurate sound. I program sounds on it as well, and use it for the harsher electronic noises, things that sounds like demented bagpipes or something."

Gentler electronic noises come from Eno's M1. It's an interesting parallel between the Eno brothers that they have both decided to focus most of their programming attention on one synth only — in the case of Brian, it's the DX7, while Roger favours the M1. The latter explains his involvement with the Korg: "I'm not sure what attracted me to the M1, really. I think it was simply the first real synth I bought, and I never felt like getting another one. A lot of what I do is acoustic-based anyway, so what I need is something that's good for atmospheres and beds, and these are quite easy to make on the M1. Just like Brian with the DX7, I've re-programmed almost all the noises on the M1. Some of my favourite noises appear on virtually every record of mine. I always felt it was better to get to know an instrument really well, rather than jump from one instrument to another. Bill Nelson thinks the same way, and it's partly why the Channel Light Vessel albums were so quick to make. He also only uses instruments he knows well. It cuts down on time. He often says: 'if you have anything that you know how to use, bring it'."

According to Eno, the most crucial piece of gear for the making of *Swimming* was a Roland VS880 digital hard disk recorder with effects. A recent addition to The Shed, it replaced a Fostex 8-track reel-to-reel and a mixing desk that had

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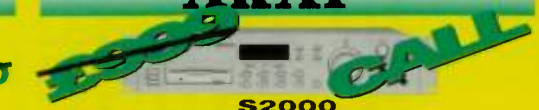

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Roger Eno

▶ been the heart of his setup ever since he bought it from the royalties of *Voices*. Eno: "It just wore out, so I got the VS880 instead. It has eight digital tracks and 64 virtual tracks, so Jon Goddard (the producer), and I could do a lot of different mixes. The effects are some of the best I've ever heard. It's a truly astonishing piece of gear. We didn't actually use the virtual tracks much to do vocals, comps and stuff. We actually used the VS880 very crudely. I generally found eight tracks to be enough. I thought: 'what's the point of more?' I mean, if eight tracks aren't enough to record these fairly simple songs on, there must be something wrong with the songs!"

BACKWARDS VOCALS

Roger is nevertheless planning to buy an Atari ST with sequencing software, for recording M1 and Proteus parts, keeping his eight tape tracks free for acoustic instruments. No sequencers were used on *Swimming*, with the exception of the internal M1 sequencer, just occasionally. Other than the VS880, there's remarkably little high technology in Eno's shed — a couple of DAT players, an Alesis Microverb ("noisy, and not half as good as the effects in the VS880"), a never-used Portastudio, and a few good microphones, such as an AKG C3000. And that's about it. Eno: "Modern music technology doesn't really interest me; the music I'm making doesn't demand it. I generally try to strip things away, rather than add things. I think a lot about what makes a piece, about what's essential, and what's not. The trap that you can fall into with technology is that the more things that are available to you, the more things you're going to use. So I restrict what I have in The Shed, and if I need something I'd rather make a phone call. But usually it's more a live instrumentalist or an instrument than a piece of gear."

> "The trap that you can fall into with technology is that the more things that are available to you, the more things you're going to use."

Eno is clearly very proud of the spartan simplicity of his home setup: "If you saw where the album was recorded, you would not think it possible", but insists that this is not the result of some deep-rooted Luddite tendencies, or fear of technology. An illustration of this is his readiness to embrace digital technology, and his bewilderment with the analogue lobby, who keep insisting that our current digital systems are inferior to analogue, because the resolution is too low and the frequency spectrum too narrow, and the sound quality cold — and so on, and so on. When I put these points to Eno, he shakes his head: "I have pretty good ears, and I can't tell whether something has been recorded on digital or analogue. I don't really understand these analogue people... they're forever working at improving the quality of analogue, with bigger tapes and faster speeds, all to get more clarity. And then when something like digital comes along, that's clearly better, they don't trust it. It's ridiculous. I'm not inherently interested in technology, but I'm also not anti-technology. But their arguments are *really* anti-technology."

Eno's relaxed attitude towards technology is also indicated by some of the technical tricks that went into the making of *Swimming*, such as on the beautiful, short accapella tracks 'Amukidi' and 'Hewendaway'. Eno: "'Hewendaway' sounds like a Hebridean folk song, with fictional words. I suddenly got the idea that it might sound good reversed. So Jon Goddard digitally reversed it, and it came out as 'Amukidi'. It's exactly the same piece, with a slightly different mix and a slightly different vocal arrangement."

The two Channel Light Vessel albums also feature an abundance of technological trickery, mainly due to Bill Nelson's busy drum sequences and weird tape loops. Eno remembered that there were computers used, but couldn't say which ones. Laughing: "I have no idea. It's not the sort of thing that interests me, so I'm afraid I'm not very helpful here... "

HEAVENLY ASPIRATIONS

Eno does nevertheless shed light on some aspects of the magic ingredients that went into *Excellent Spirits*. Bizarre instrument credits on the inlay, like 'spookshow keyboards', 'falling stars', 'space birds', 'lickety loops' and 'bagpipes from Venus' were the product of Bill Nelson's fertile imagination, while some of the wackier repeated vocal samples on the album, like "make your vision your mission", or "accordion night" were all courtesy of Laraaji, who apparently is heavily into spiritual things. The track 'Accordion Night', which features the aforementioned Laraaji sample, and is made up of Spanish and dance hall music elements, serves as a good example of how the four members drew all these disparate elements together: "Laraaji had to leave before the end, so we tried to get everything off him that we needed before he left, including several vocal samples. We took the "accordion night" one, then Bill would have a tape loop, I may have given a chord sequence, and Kate a melody.

"After that, one thing sparks off another. The pieces write themselves really, although I know that sounds a bit stupid. But we're really making it up as we go along. It's like knitting without a pattern, and then suddenly you realise it starts to look like a glove." [Laughs out loud.]

One last question. What's the significance of the name Channel Light Vessel, then? Eno grinningly reveals that it's the name of an automatic weather station in the English Channel, called Channel Light Vessel Automatic, which is read out during the shipping forecasts on Radio 4. This explains the title of their first album, *Automatic*. Eno adds that the shipping forecast is "one of the last traditional things on British radio" and with that, neatly ties Channel Light Vessel and his own solo music together, for the latter is inspired by "a kind of natural spirituality. I like country walks and quiet evenings, and in the town where I live is a lovely river. My music is closely related to the inspiration that the British landscape or weather patterns can give you." SOS

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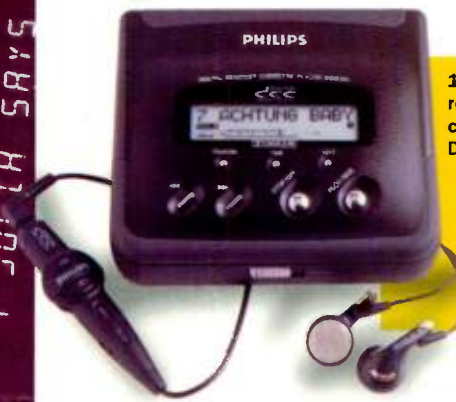

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'Philips allegedly invested £500 million in the research and design of DCC... the low-cost DCC730 could seriously challenge DAT's hold on the high-tech market. ...could encourage small studios to adopt the format over the increasingly expensive DAT alternative. ***Future Music***

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'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***

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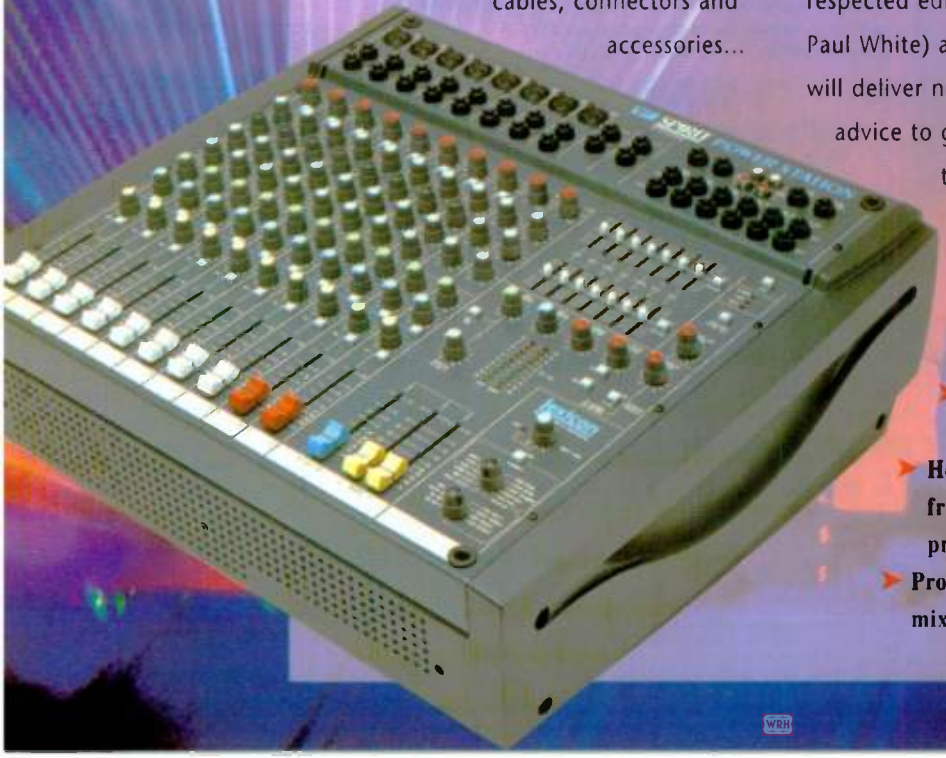

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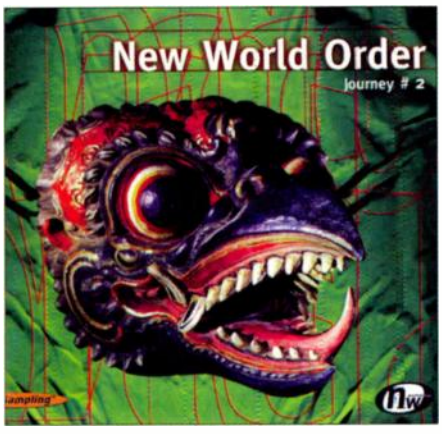

NEW WORLD ORDER JOURNEY 2

(DOUBLE AUDIO CD)

Following on logically enough from *New World Order Journey 1* (reviewed in last month's *SOS*) is *New World Order Journey 2*, available on audio CD only at the moment. This is a double CD set, following the '12 examples per track' format of its predecessor. Again, we're treated to a round-the-world trip, but this time the tracks are instrumental snatches and loops, rather than the percussive rhythms of the first CD.

The collection kicks off in fine style, with almost 100 excellent didgeridoo drones, squeals, and puffing, pulsating loops, followed by 120 gamelan loops from Indonesia. From the same country come moon lutes, sheng and shawms, while India offers us sabahars, sarods, and 96 examples of the inevitable sitar. These are mainly short loops or phrases which can be rearranged to form a well-known raga of your choice.

The middle east yields more buzzy stringed instruments, with names like oud, saz, tar, kamanche and santoor, but on one or two examples of these somebody was definitely trying it on. Though most of the sequences sound authentic enough, one or two included snatches from some well-known rock classics — I didn't actually hear 'House of the Rising Sun', 'Sunshine of your Love' or 'Smoke on the Water' (all Saturday morning at the guitar shop favourites), but it came pretty close!

Back in the Middle East, we're greeted by more plucked and bowed strings, as well as the strident shawm, after which there's a mixed selection of world flutes and two tracks of what sound like out-takes from the post-recording party. The flutes were, to my ear, rather disappointing — there are some wonderful world flute sounds, but so few seem to get onto sample CDs, and because of the nature of the phrasing, it's very hard to make anything very different out of what you do get.

The second disc jumps in with 'A' for Africa, and a nice selection of kora and riti loops, followed by a few riti licks. These all have the distinctive African metallic sound, whereas the galician bagpipe that follows can only be described as — too close! There's a nice selection of French hurdy-gurdy loops and effects, followed by penny whistle and innumerable mandocello loops and licks. For the non-folkies out there, this instrument uses paired strings and sounds not unlike a 12-string guitar, but with its own distinct tonality. Irish banjo and highland pipes are obvious enough, but what on earth is a cauldwind pip, a rommelpot, or a dudelsak? I couldn't tell whether the rommelpot was being played or whether someone was throwing up in it, but I guess it fits into the overall scheme of things somewhere!

The UK is credited with the Jew's harp, which I always associated with American westerns, then it's off to Scandinavia for another pluckfest. Did you know that even the Scandinavians have bagpipes — and they're on this disk! Russia volunteers the balalaika — just the thing for *Dr Zhivago* hip hop remixes — and they also introduce us to the zjaleika, dudka, and Russian flute, before a return trip to down-home USA, where the Banjo rules supreme.

Tracks 59 to 72 comprise world vocals; the extensive Russian monk collection is stunningly good. Kurdish vocals have the advantage that you can claim they belong to just about anywhere — and nobody but a Kurd would know the difference — while the Senegalese, Sudanese and Rai examples are all hauntingly cosmopolitan. That leaves only aero blasts, effects, a short but useful selection of hurdy gurdy and bagpipe drones, and 24 charming, but sadly not identified, bird calls.

The problem with this kind of disc is that you're bound to work with the phrases you're given, and there are few straight notes to sample, so there's little chance of improvising your own 'link' pieces. Some of the examples, however, are truly excellent, especially the didgeridoos, the Indian instruments, and the vocal sounds. The samples are consistently well recorded, and most will be easy to loop where appropriate. *Paul White*

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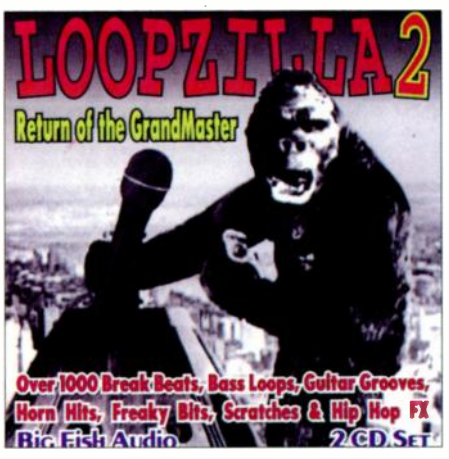
LOOPZILLA 2

(DOUBLE AUDIO CD)

This is a two-CD set from Big Fish Audio, a Stateside outfit. It seems that a group (or groups) of highly competent (if not exactly household name) session players/DJs have been assembled for a marathon jam session in a studio. Whenever they have a hot groove thang going, it goes down onto digital multitrack.

Instruments featured include synths and pianos, programmed and live drums, electric, synth, and acoustic basses, guitars, occasional vocals, and turntable effects. The mood is cool, credible, licence-free jazz/funk/soul.

Side 1 opens with 46 'Construction Kit' tracks, with tempos mostly in the 90s. Heading each track are one or two ensemble examples, followed by the individual instrument tracks and, in some cases, drum hits. Mono substrates are left panned where they were in the ensemble mix, an annoying US habit that assumes you can afford to stereo sample everything. If you want to sample mono voices in mono and apply your own panning from the sampler or an external mixer, you might find yourself selecting between left, right and both channels during the sampling process. There is absolutely no crosstalk between voices (with one or two weird exceptions), nor are the sounds ▶



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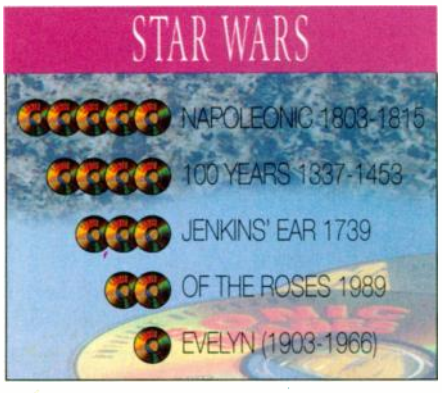
anything but immaculately clean and warm. Most pieces manage to combine two highly desirable (and, one would have thought, mutually exclusive) properties, each having their own distinctive character, yet being capable of sliding in seamlessly behind a new composition.

Next up are some 21 programmed/played, totally original stereo drum loops. Feel, playing, and programming is excellent, though I heard rather too much reverb for my taste. A good cross-section of beats are featured, vaguely centred on funk-hop, but no tempos are given. Hrrrumph!

Some 42 virtusoso scratching effects follow. These work well within the musical style, adding drama and colour to a laid-back, squelchy beat. Then come 13 conga and 18 percussion loops, uncluttered affairs designed to colour rather than propel a rhythm track, and again well recorded, in stereo. Once more, though, no BPMs are provided.

No funk workstation would be complete without some horn hits, and here you'll find 28, carefully lifted from antique recordings for your edification. Even better are the few filthy old jazz piano cuts, and there's also a smattering of new piano and organ licks, plus 20 interesting retro-esque synth lines. The latter are well worth taking out of their jazz/funk/soul context to mess about with.

The second disc opens in the same vein as the first, with 45 construction sets, followed by 30 more loops, then more scratching. At the end of this double CD come 39 bass and 30 guitar loops. At last, I *can* hear crosstalk — drums, way in the background of some simple but classy funky guitar chops, wahs, and chord patterns. I'd guess we're talking mic'd-up amps here, and a thick-pickup guitar like a Les Paul. The bass is deep — very deep. You can hear sub-fundamental frequencies in the attack of some notes. Finger-style pick and slap playing is in evidence, and a classic pedal effect sometimes adds a touch of vintage glamour. My only complaint is that the guitar and bass loops, together with some tones, would have justified a CD on their own — you're left wanting more. The synth bass loops, too, are a revelation — unexpectedly good and fresh.



To sum up, I loved the drum loops: some of the cut-ups of old favourites were among the best and most authentic sounding I've heard, and I have already sampled many and used some. I could moan about the applied reverb, but at least it's only used where appropriate. The cool funk on *Loopzilla 2* leaves plenty of room for your imagination, and the performers are doing what session musicians do best: playing a supporting role for your music. After all, you are the star, aren't you? And talking of stars, Big Fish Audio can count themselves lucky that I didn't dock one for the paucity of sleeve info (no keys, and no BPMs in the loop sections). *Wilf Smarties*

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JUNK PERCUSSION

(AUDIO CD)

This 96-track audio CD is a collection of samples taken from performances by Roger Turner, the renowned percussionist. Your idea of what a percussionist is, however, probably doesn't apply to the kind of stuff Mr Turner gets up to. There isn't a conga or bongo in sight. Tambourines, shakers, and most other kinds of conventional percussive instrument, have all been ditched in favour of the loudest, strangest, and most brutal-sounding bits of wood, plastic and metal that your local scrapyard could possibly provide.

The CD begins with a section called 'Long Ambiences'. These usually last about a minute, and the 23 tracks provided cover all types of sonic emotion, from painful, dentist's drill-type screeching, to more mellow and almost new-age ambiences. The fact that all of these performances are recorded 'live' really shows off not only Roger's obvious talents, but also his visionary way of banging, scraping, dropping and mutilating every conceivable piece of scrap.

The second section, entitled 'Grooves', is, for my money, by far the strongest on the CD. These 42 tracks are the percussive equivalent of the conventional drum loop, the kind of thing that you'd normally sample a bar or two of, and use as a backbone for the rhythm section of your track. Metal bars, tin cans, sheets of iron, bits of plastic, and perspex tubes are the kind of building blocks from which these percussive loops are constructed. They absolutely sizzle with movement, energy and bite, and are very reminiscent of the South American 'street

drumming' which inspired Paul Simon's *Rhythm of the Saints* album.

When using these loops, it becomes very apparent just how much most of us are stuck into the clichéd 'bass, drum and snare' approach to rhythm construction; the more I heard these grooves, the more I wanted to throw away my drum machine and wander round the house looking for things that I could beat with sticks and then sample.

'Single Ambiences' is the next section, and rather like the first, it utilises more sustained percussive sounds, such as bell and chime effects. These seem to have a much more atonal and harsh feel to them, and sensible mixing by Hamish Hutchison has added just the right amount of reverb or echo to enhance the overall effect, which is unmistakably one of atmospheric weirdness. The last section gives us a decent bunch of the single samples themselves. Most seem to be easily edited and chopped up for creating your own percussion loops and programmes.

Zero-G have obviously set out to give us a product the likes of which we haven't yet heard, and overall they have succeeded with flying colours. *Junk Percussion* is like a breath of fresh air to anyone looking for a new twist to their drum tracks. The performances are full of vigour, and the recording quality is good throughout. Whilst this CD may, in some sections, be a little too way-out or esoteric for some users, you have to applaud the originality and musicianship of the producers in bringing us such an exciting and unique CD. *Paul Farrer*

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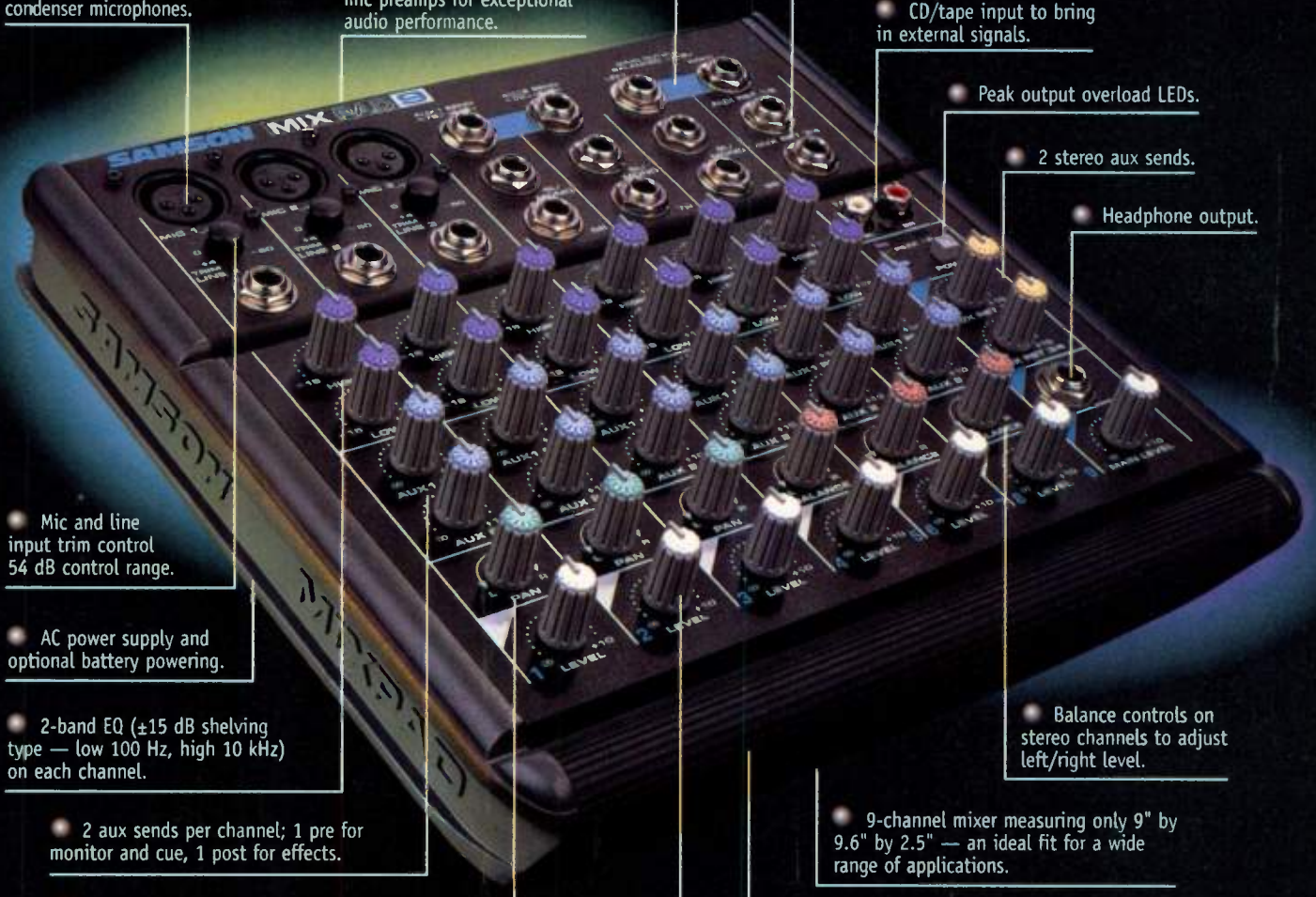

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African and Indian music who spent two years in Africa, recording local musicians and — by all accounts — jamming with them. Virtually all the material in this collection comprises snatches taken from actual performances, often by ensembles rather than individuals, and the recording quality varies from slightly noisy on some passages to exceptionally clean on others. In comparison with some other sample CDs, these samples aren't particularly bright, but this is probably a more accurate reflection of the way things actually sounded.

The first half of the CD is taken up by percussion, with and without vocal accompaniment, and the instruments vary from recognisable drums to improvised metal instruments bearing the acoustic signature of a car salvage yard. All tempi are listed where appropriate. We're also treated to the distinctive twanging of musical bows (which sound rather like a Jew's harp being played by a Cylon).

The 'Groovin' Drummers' section comprises 17 tracks of rhythms with a swing feel, while 'Dense Drums' showcases a more complex style of ceremonial drumming. Following are several examples of singing, including some very sad stuff recorded at funerals, though there are some nice work songs to help brighten the mood, including women singing as they

operate grindstones. At this point, the musical bows make a brief reappearance, leading into the final round of xylophones. These don't sound like orchestral xylophones, though — they're more like buzzy kalimbas or thumb pianos, and some of the phrases show a lot of creative potential.

According to the sleeve notes, a certain amount of editing and processing has been done to even out wandering tempo, and some of the apparently stereo tracks actually comprise different but complementary loops in the left and right channels. The loops are also said to be tempo-mapped to a system devised by X-Static Goldmine, so that you can tune any loop up or down by 50 cents to make it match the next tempo up or down.

As the title suggests, much of this CD is reminiscent of a travel documentary, and it would be difficult to use some of it far outside its original context. The high spots are the drum rhythms and the xylophones; the choirs are too obviously a part of a complete performance to be very flexible. In all, this is a mixed bag, and as it was derived from archive footage rather than material specifically commissioned for sampling, perhaps we shouldn't be too surprised. It's worth a three, nevertheless. *Paul White*

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BIG BAD SOUNDS
(AUDIO CD)

Big Bad Sounds is a 73-track audio CD stuffed to the brim with hardcore dance and techno sounds. The CD kicks off with nine tracks of classic TR909, 808 and other drum machine sounds, perfect for adding that all-important 'thump-thud' to any techno track. Although there can't be many sample CD owners who haven't got at least one set of these drum sounds, the samples provided here are equally as varied and just as powerful as any I've heard, and the inclusion of a sensible selection of cymbals and percussion makes it all the more impressive.

The main body of the CD, however, falls totally into the 'large weird noises' category, starting with a good collection of analogue sweeps, whooshes, and wind effects, and moving across almost the entire gamut of analogue heaven, right through to drones, vox sweeps, jet noises, and stabs.

The sound quality of the samples is very good, and nearly all of them, if not already in stereo, have been greatly enhanced with clever use of external effects such as phasing, chorus, and echos. However, though there's a wide selection of these sounds, they're not always categorised and listed as well as they could be, leaving the user with quite a trek before finding the required sound.

The next section, cunningly entitled *More Big Bad Noises*, gives the TB303 a jolly good airing. As if we hadn't heard enough of this powerful little synth already, here are another 28 tracks filled with acid riffs, licks, bass lines, and effects. This excellent collection goes to show that even after all this time there's life in the old TB yet! With an obvious bias towards hardcore and techno, and very reminiscent of bands like Underworld, The Prodigy, and Kraftwerk, all the riffs are listed, with not only their appropriate BPMs and key signatures but, very usefully, the bar length of each sample.

Moving on from the TB303 samples, there's another equally interesting selection of organ, bass and string riffs. Nearly all of these absolutely sparkle with originality and movement. The last few tracks feature a massive number of 'classic' bass sounds from the likes of the Bass Station, Juno, DX, and Moog synths. Unlike most sample CDs, however, these are very usefully given as three-note multisamples (F#2, C3 and F#3), and this, coupled with the sheer number of different noises you get for your money, makes *Big Bad Sounds* a very serious product indeed.

This is the debut sample CD from Ample Sounds UK. Retailing at the very attractive price of under £30, it gives the potential user a highly professional product for little more than half the price of some lesser releases. Of course, a single CD like this can't hope to cover all the areas of current dance music, but with a first disc of this quality we can expect great things from this company in the future. At this price you'd be totally mad to miss it!
Paul Farrer

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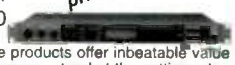

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TASCAM DA88 CARE AND MAINTENANCE

Getting the best performance from a digital tape recorder such as the DA88 depends largely on conscientious maintenance and cleaning. Tascam's chief service manager, Joe Fialho, tells PAUL WHITE what can safely be done by the user — and when it's necessary to call in the professionals.

Almost everyone who has owned even the simplest analogue tape recorder knows how to undertake the simple cleaning and maintenance required to keep it up to scratch. When an analogue tape machine gets dirty, you simply scrub the heads and guides clean with an alcohol-soaked cotton bud, and if its alignment starts to drift, a deteriorating top-end response gives you plenty of warning. The situation isn't so simple with the digital tape machines which increasingly form part of studios at all levels. Just what can the typical user do towards maintaining a digital tape machine? According to Joe Fialho, chief service manager for leading studio equipment manufacturer Tascam, if you're working with a machine such as Tascam's own DA88 digital 8-track, good working practice starts with the choice of tape.

"Most reputable DAT tapes will work OK in a DAT machine, but with the DA88, which uses 8mm tapes, there's a wide variation in performance, so there are only certain tapes we recommend. When the DA88 was launched, tapes were available from both Sony and 3M, but neither of them had been conceived specifically for digital audio use and I don't think many people realise the demands made of tape in a digital recording environment. Now there are two tapes designed to meet our needs, which we specifically recommend; the Maxell HMBQ metal-particle tape, and a new tape from Sony. The original Sony tape we recommended was an HMEX formulation, but although it works perfectly, it is a metal-evaporated tape. Metal-evaporated tapes give you a higher signal back off the tape, but the coating is incredibly thin (around a quarter of a micron) and therefore more prone to wear and damage than the metal particle types. In situations when there's a lot of shuttling and scrubbing, there could be problems. A metal-particle tape should be good for at least 1000 passes, whereas metal-evaporated tape is only good for around 300 passes. The Maxell tape has proven to be very reliable.

"The differences in the composition of metal-evaporated tape and metal-particle tape also influence the head life of a machine. Metal-particle tapes are generally more abrasive than their evaporated counterparts — typically by around 20%. This element has been designed into the tape formulation to reduce the likely effect of head clogging, so as to maintain consistent recording fidelity and performance. To balance this, they are usually cheaper than metal-evaporated tapes. Sony ▶

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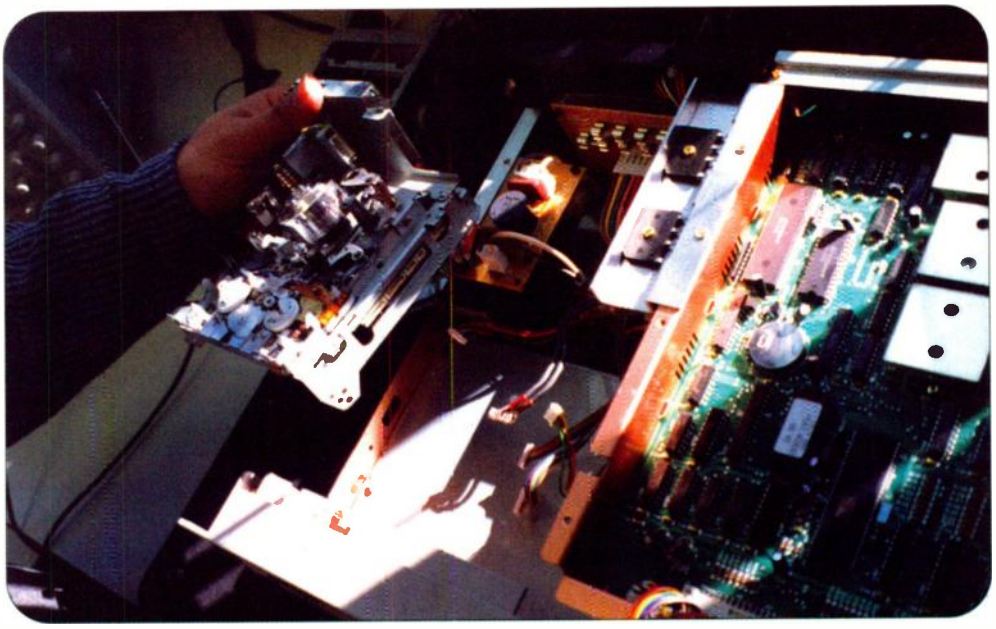
DA88 Care & Maintenance



The DA88's transport is quite accessible once the top cover has been removed. See overleaf for the correct cleaning method.

WHEN TO SERVICE

Because of the error correction systems used in digital tape machines, there's usually very little warning that something is wrong, so preventative maintenance is essential. Manual wet cleaning can be carried out every 50 hours or so, while dry cleaning tapes should be used no more frequently than every couple of hundred hours or so, because of their abrasive nature.

After 500 hours, the machine should be returned to an authorised service centre, where it can be professionally cleaned, lined up, and any worn parts (such as pinch rollers) replaced. Tascam offer a particularly fast turnaround (between 24 and 48 hours), with labour charges of £35 per hour for servicing. Heads should last around 1000 hours, for both DA88s and DAT machines. This figure is comparable to the life of analogue tape heads, and on a multitrack digital machine, they're cheaper to replace than analogue heads. Again, a full line-up is needed whenever a head is changed so it's not a job the studio technician can do without specialised equipment and training. Cleaning the machine on a regular basis, which is something you can do for yourself, will make it more reliable, as well as reducing the rate of head wear.

now have a new DARS dual-layer tape, which is a metal-particle tape with a special surface coating. It's claimed that this combines the mechanical benefits of metal-particle and metal-evaporated tapes. Fuji are also now making a dual-layer tape.

"Once you've bought the right tapes to use, you have to look after them. Because DAT and DA88 tapes are small, they tend not to get treated with the respect they deserve — I've seen tapes just lying around in studios. They really need to be put into their storage boxes when not in use, otherwise dust will get in. With an analogue cassette, a dusty tape will usually still play, but in digital systems, the dust can get between the tape and the head, which causes increased wear and dropouts. The DA88 has mechanical tape and head cleaners built in, but that doesn't mean you can neglect your tapes. These cleaners were not fitted to early machines but we fit them whenever a machine comes in for service or for a software upgrade.

"It's also important to wind the tape to the start and remove the tape from the machine at the end of a session — if you leave it threaded in the machine, once again dust can get in. Another recommendation is to wind a new tape through to the end and back again before use, because this can help to loosen it up and it also cleans the tape to some extent. With the DA88, you also have to ensure the tape is wound right back to the start before you format it, otherwise you can end up with a short piece of unformatted tape at the start, which the machine won't recognise.

"Only stick labels where they are intended to be fixed. If you put them somewhere else, you could foul the opening tape flap, or a label could curl up, allowing some of the adhesive to get onto a moving part. The cassette tolerances are also very tight, so a label in the wrong place could make the cassette too thick to fit in the mechanism.

"In the longer term, metal-particle tape holds the recorded signal better than metal-evaporated tape, so for long-term use, we'd recommend you use a metal-particle tape or a dual-layer tape. It's also wise to clone important recordings, even if you don't envisage any problems, because faults can occasionally occur in both tape cassettes and machines; the last thing you want is for your only copy of a DAT or multitrack master to get chewed up. Digital tape should be treated in the same way as you treat floppy disks — the data isn't completely safe until you have a backup."

DIGITAL ALIGNMENT: THE THREE STEPS

- When a digital tape machine is aligned, a test tape is used to check the high-frequency carrier signal, and the tape guides are then adjusted to produce a maximum output level. The level of the data bursts from the heads must also be reasonably even in amplitude, especially at the leading edge where the sync and ABS data is recorded. An error meter is connected at all times and the error count checked at every stage of the adjustment.

- Once the tape path has been mechanically optimised, the playback EQ circuits are adjusted. These circuits are not concerned with the audio EQ, but determine the shape of the waveforms being replayed. In the case of the DA88, separate adjustments are used for metal particle and metal evaporated tape types, and the machine automatically switches to the right one when a cassette is inserted. While the EQ is being adjusted, the waveform pattern of individual cycles is closely monitored on an oscilloscope, and the error counter is checked. When properly set up, the error rate on both playback heads should be virtually zero, and certainly within single figures.

- The third main setup check is the head current, which involves the use of a calibrated current probe. This current must be set to an accuracy of around 5%, so a very good oscilloscope is required. An experienced engineer should be able to complete these adjustments in less than an hour, and Tascam routinely check all these parameters whenever a DA88 is returned for service.

SMOOTH RUNNINGS

There are quite a lot of moving parts in a rotary-head, digital tape machine. Is it possible for the user to lubricate these parts?

"It is essential that the user does *not* attempt to lubricate any part of the machine, because of the danger of oil getting onto the tape path and being carried by the tape to the heads. There's a special molybdenum lubricant used for the cam gears, and specialist greases for the various pivots and slides. We recommend a 500-hour service on all digital machines and we'd lubricate the machine at that point. We've seen a few horrors where people have tried to oil the machines themselves, and oil has got straight onto the tape."

Which parts of a digital machine can go out of alignment?

"The tape guides, in the main, because the

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DA88 Care & Maintenance

rotating head is fixed, as is the capstan guide, which is set from manufacture. The pinch roller may need changing periodically, though. While almost anyone can line up an analogue machine using only a test tape, setting up a digital machine requires quite a lot of specialist equipment, including a very good oscilloscope and an error rate counter, as well as factory test tapes. You also need a current probe to verify the head current, which must be set up very accurately.

"Even the apparently simple mechanical servicing tasks, such as changing a pinch roller, are not as simple as on analogue machines, because the parts are so small and quite easy to bend. With the machine I'm working on now, the pinch roller has been changed, and the arm holding it has been bent slightly because it wasn't supported properly while the job was being done. This causes the tape to wander over the heads, and the error rate has increased because of that. We've had worse cases, where people have bent something without knowing it, then they've gone around and adjusted all the other guides to try to put things right. One was a nightmare to fix — we had to start right from scratch! Rotating-head digital machines are definitely not serviceable by your average studio engineer, even though he may be perfectly competent at fixing analogue machines."

CLEAN MACHINES

Having explained what we *shouldn't* do, could you tell us about the preventative maintenance tasks that *can* be carried out, with a little care?

"Cleaning can be carried out relatively easily and will go a long way towards maintaining performance. Dry cleaning tapes are only partially successful and are abrasive, so you don't want to use them very often. The most important task is cleaning the head drum. Once you've taken the top off a DAT machine or a DA88, it should be fairly accessible, and with the DA88, you can improve the access further by removing the loading cage from above the transport; this is fixed by only four screws and all the wiring is on connectors.

"We have a special cleaning cloth which is lint-free, and we can supply it to end-users if necessary — this is an alternative to the chamois leather pads sometimes used to clean video machines. This cloth is a fine material, almost like silk, which cleans and polishes at the same time. It should be used with a good quality head cleaning fluid: although you *can* use isopropyl alcohol, we have found a better commercial alternative made by EMMARC, which is far more effective, and we can supply this as well. Never, ever use cotton buds, as the fibres can clog up the gaps around the head. Don't even use them to clean the guides, as the tape can carry the fibres back onto the head." (See 'Cleaning the DA88' box for a full explanation of the correct cleaning procedure.)

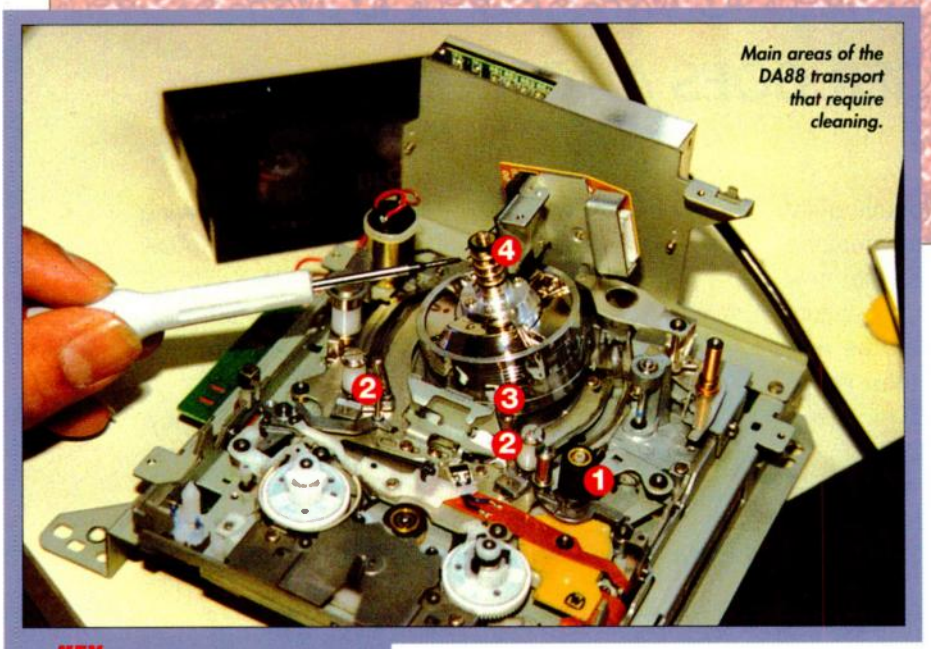
Is there anything users can do about the environment in which their machine is used, which may prevent trouble?

"Nicotine and tar from cigarettes poses a great danger to digital tape machines, because it coats the head drum and then abrasive particles of oxide and dust stick to it. In a professional broadcast environment, smoking near a tape machine would be a sackable offence, yet we still have users who

HEAD MASTER: CLEANING THE DA88

Joe Fialho demonstrated the correct DA88 head-cleaning procedure for the benefit of *SOS* readers.

- HEADS: Joe first wrapped a piece of the special cleaning cloth recommended by Tascam around his finger and dampened it with the cleaning fluid. The cloth-wrapped finger was then held lightly against each head in turn (the heads are identifiable as tiny dark windows about midway between the top and bottom of the drum), while the other hand was used to rock the drum gently back and forth by touching it on the upper edge, not on the face. About a dozen rocking motions per head is enough, finished off by a gentle wipe around the whole drum surface, and the whole procedure only takes a couple of minutes. Note that though the DA88 has four heads on the drum, DAT machines usually have only two.
- GUIDES: To clean the guides, Joe recommends cutting a thin strip (around 10mm wide) of the cleaning cloth mentioned earlier, moistening it with cleaning fluid, then passing it around the guide and gently rocking the cloth back and forth. The cleaner used by Tascam is also safe on rubber parts, whereas isopropyl alcohol will cause deterioration of rubber rollers in the long term.
- BRUSH SYSTEM: The third area that needs cleaning is the sliding brush system which transfers the signal to and from the rotating head. Joe: "There is a system of slip rings above the head, and fine, sprung-wire contacts touch these to carry the current. Over a period of time, they tend to accumulate a thin layer of oxide, and it's quite easy to remove the whole mechanism (which is held in by just four screws) for cleaning, if you wish. While you can dismantle the brush assembly to gain access to the slip rings, it may be safer (the brushes are easily bent), just to hold a moistened piece of cleaning cloth against the slip ring on the side opposite the brushes, and rotate the head by hand to clean it. Obviously, the machine should be disconnected from the mains before any cleaning or disassembly is attempted."



Main areas of the DA88 transport that require cleaning.

KEY

1. Pinch roller.
2. Guides.
3. Head (one of four).
4. Slip rings.

are indignant when we tell them they shouldn't allow smoking in their control room. Atmospheric dust is also an important factor, because you can't have a hermetically-sealed tape machine — there has to be a door for the tape to get in and out, and there are slots for ventilation. If dust does settle on the machine, particularly near the tape door, it should be removed using an anti-static brush, preferably in conjunction with a portable vacuum cleaner. Don't use a brush on the transport, though, as bristle fibres can get onto the head and guides.

"Obviously, the room should be kept as clean as possible, but it would help to cover the machines with a clean cloth when not in use. In recent months, we've devised a thin plastic shield which fits over the DA88's transport to help keep the dust off — but that doesn't mean you can work in dirty conditions."

RECORDING ON THE MOVE

I would imagine that taking a DA88 on the road is more likely to cause problems than using one in a fixed studio location.

"The main problem in a live situation is people taking a cold machine out of a vehicle and then using it in a warm room before the machine has had a chance to warm up properly. Under these conditions, condensation can form on the metal parts in the tape path, which is obviously undesirable. It's important that both the machine and the tapes be allowed to attain a stable room temperature before the tape is put into the machine.

"Physical vibration during transit can cause the mechanical alignment of the machine to drift, so proper packaging is important. A conventional flightcase transmits all the shock to its contents: the type we've found best is the type where an inner rack is mounted in solid foam rubber inside an outer case."

SOS

> "In a professional broadcast environment, smoking near a tape machine would be a sackable offence, yet we still have users who are indignant when we tell them they shouldn't allow smoking in their control room."

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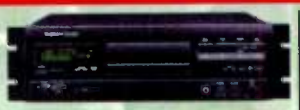

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SPL's Vitalizers work in mysterious ways to give added life even to good recordings. Now a new model incorporates valves, compressors, filters, and extra controllability, for yet more audio magic. PAUL WHITE opens a box of tricks.

Magical Mystery Tour

SPL TUBE VITALIZER PSYCHOACOUSTIC ENHANCER

We may claim to strive for accuracy when recording, but if there's a box we can plug in to make things sound even better, we tend to use it. In fact, it may be part of the human condition that we tend to be dissatisfied with real life, preferring instead the blue whitener in our washing powder, the rose tint in our spectacles, or the holiday snaps with vibrant, oversaturated colours.

EXCITING BACKGROUND

Nobody has really got to the bottom of psychoacoustics, as yet, and it's still not fully explained why taking a perfectly good recording and enhancing it using various processes (such as harmonic excitement or dynamic EQ) makes it sound somehow more real and alive. Perhaps it's a limitation of the stereo loudspeaker reproduction system that's being compensated for by the enhancement process, or maybe the lack of visual clues to reinforce what is going on in music makes it necessary to provide more audio clues. Whatever the reason for the effect of psychoacoustic enhancement, the original recording usually sounds quite flat and disappointing once the effect is turned off.

The first box to enhance audio in this way was the Aphex Aural Exciter, which was not originally available to buy, but had to be rented from Aphex and credited on any commercial releases on which it featured! The Aphex range has gone from strength to strength, but now there are lots of different makes and models to choose from, all working on different principles. Regular readers will have noticed my occasional references to a device called the SPL Vitalizer, which I use in my own studio. This works on a principle quite different to that of other enhancers — it doesn't generate new high-frequency harmonics in the way that the Aphex process does, and unlike other dynamic EQ-based approaches, the Vitalizer appears to produce an equalised side-chain signal which is added to the original to produce both summation and cancellation effects in frequency and phase. I've tried to get the German designer to explain the process to me on several occasions, but I still come away little the wiser.

WHAT'S NEW?

Before looking at the new Tube Vitalizer under review, it's probably worth outlining a couple of the features of the original solid-state model. Enhancement is applied right across the audio spectrum, rather than just at the top (as was the case with most early enhancers), and a unique bass control provides a deep, rounded bass boost when moved in one direction, and a tight, punchy bass when moved in the other, making it very flexible on all types of music. I believe that when the bass end is being boosted, phase cancellation occurs in the lower-mid range to prevent the effects of the bass boost spreading higher up the spectrum, where you don't want them.

The middle part of the spectrum is controlled using a Mid/High tuneable filter, but again, the operation of this isn't at all straightforward, as the effect depends both on signal intensity and on the setting of the Process control. A further stage of processing, based on a mix of the Mid/High filtered signal and the original input, is then filtered again to produce the necessary high-end sizzle.

As far as I can see, all these features have been retained in the Tube Vitalizer, but in addition to the tube output circuitry, several other new features have been added. Now there are two compressors in each channel, one for the high end and one for the bass end (but affecting only the side-chain portion of the audio signal), and the output stage includes limiters. There's also a pair of switchable LC (inductor/capacitor) filters, one for the high end and one for the low end, as well as a bypass switch for the tube circuitry. If all this sounds confusing at the moment, don't worry — there's a lot going on in this unit.

VITAL SIGNS

The Tube Vitalizer is a beautifully styled, 2U box dedicated to processing stereo signals — settings for both channels are made by the same set of controls. Behind the pale gold front panel glow three valves (ECC83s), which are clearly visible through black mesh windows. Rear panel connections provide balanced inputs and outputs, both on conventionally wired XLRs and balanced ▶

pros & cons

SPL TUBE VITALIZER £2349

pros
- Sounds wonderfull
- Great pose value.
- Very flexible.

cons
- Expensive.
- Controls initially confusing.

summary
So far, this is the most effective 'make everything sound better' box I've heard to date, but it's priced accordingly. It's also less than intuitive to operate.

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SPL Tube Vitalizer

jacks. The Vitalizer would normally be connected via console insert points or placed in-line between one piece of equipment and the next. If you decide to use it unbalanced, you don't lose half your signal, and since most consoles have unbalanced insert points, this can only be a good thing.

The main controls are located to the left of the machine, but until you've figured out what does what, they can appear rather confusing. The top three knobs relate specifically to high frequency enhancement, while the knobs on the bottom row relate mainly to low frequency enhancement and Hi-Mid tuning. To the right, there are separate attenuators for the two output channels, both fitted with lovely bakelite knobs, and switches to select between attenuation or limiting. The twin VU meters can be switched to monitor the input or output signal, and there's a button to bypass the tube part of the circuit if necessary.

After the unit is switched on, the power to the valves increases, in order to prolong their useful life, so you need to wait a minute or so before you can start work. To turn the effect on, you have to switch in the Process button, after which the controls need to be set up in a logical order to make sense. The Tube Vitalizer process is, to some extent, level dependent, so an input Drive control is used to match the unit to the device driving it. There's no absolute setting that you need to adhere to — the more drive you use, the more pronounced the effect. To start with, a setting near the centre is usually best. Turning the Bass control either way from centre will introduce either the Soft or Hard bass enhancement, but you'll only hear this if the Process Level is turned up. This control acts an overall 'effect amount' for the lower and mid frequencies, while the Intensity knob directly above it serves a similar function for high frequency enhancement — though, as with all aspects of the Vitalizer, not everything is quite as it seems. In addition to providing an 'effect amount' control, Process Level also affects the way in which mid-band frequencies are damped, so there's quite a high degree of interactivity between the various controls.

The Mid-High tune knob controls a broad-band shelving filter, which boosts frequencies above the filter point, while attenuating those below it. Much of how this works is tied up with phase relationships but, unlike the original Vitalizer, the Tube Vitalizer has a separate High Frequency knob, to give more precise control over the frequency range in which high frequency enhancement occurs.

The Process button acts as a bypass, and uses relay switching to route the input directly to the output, either when the effect is bypassed or in the event of a power failure. When the valves are switched in, they take over from the solid-state output driver circuitry, but from what I can understand from the manual, they also introduce a subtle amount of stereo width expansion. A limiter can be switched in, which gently holds down any signals that attempt to exceed the 0dB level.

As touched upon earlier, there are two compressors, which act separately on the bass and top-end components of the processed signal, without affecting the direct component. These are each controlled by a single knob, and an adjacent blue LED lights when gain reduction is taking place. The effect is to enrich the sound, making it seem smoother and more dense. The other newcomers are the LC filters, though the manual provides little information as to the filter characteristics. When these are switched in, there is a subtle difference in sound, but not so subtle that you don't hear it. At the top end, the sound becomes slightly more focused and open, whereas the bottom-end LC filter somehow conspires to round out the bass end a little more. Many old classic equalisers use LC circuitry, but because of the high cost of the wound inductors, most modern designs try to manage without them.

> "When the full Vitalizer controls are brought into play, it's as though everything becomes warmer and brighter at the same time."

IN USE

Having used a conventional Vitalizer for some years now, I felt I should have been able to jump straight in and use this box, but it still took me a few minutes to get used to the new controls. Because of the interactive nature of the controls, you really need to set them up in a logical order, and fortunately, an example is provided in the manual. However, the manual is pretty thin on practical information otherwise, preferring, rather, to present graphs of frequency response. Having said that, it's worth persevering, because every control on this box makes a positive contribution to the overall sound which, with a little practice, can be very finely crafted. For example, the tube output stage used on its own adds a noticeable amount of warmth.

When the full Vitalizer controls are brought into play, it's as though everything becomes warmer and brighter at the same time — it's a very comfortable effect, and if you switch the process out again, the original sound can seem very boxy or nasal. The compressors also help control the effect on signal peaks, while making sure that lower levels receive adequate amounts of treatment. If you can imagine all the best

DOES IT WASH WHITER?

One thing potential users will want to know is whether the Tube Vitalizer is noticeably better than the original solid-state model. They both produce the same type of effect, but the extra controls provided on the Tube Vitalizer do make it more flexible, and the inclusion of LC filters and a tube output stage results in a noticeable degree of tonal enhancement not provided by the original. Similarly, the compressors (based around the THAT 4301 VCA), provide a lot more scope for controlling how the process changes with signal level. Having experimented with the excellent BSS dynamic equaliser, I know what a huge range of effects can be squeezed out of such devices, and to have, in effect, elements of that process combined with the power of the original Vitalizer and the warmth of tube circuitry, makes this a very magical box of tricks indeed.

attributes of a really good tube EQ combined with a more conventional enhancer and a dynamic equaliser, you'll come some way to understanding what the Tube Vitalizer is all about. Where this unit scores is that as you increase one frequency, any others that might conflict with it are automatically decreased, making the whole procedure less hit and miss. Much of the process is linked to the way in which the human hearing response changes with signal level, but I think I'm also right in saying a lot of the Vitalizer principles were discovered almost by accident as designer Wolfgang Neumann experimented with some of his more radical EQ circuits.

SUMMARY

The Tube Vitalizer isn't something you can just pick up and expect to use immediately — it's essential to experiment for an hour or so to get a feel for what controls produce what effects. I feel the controls could have been better explained in the manual (indeed, they could have been given more logical titles in some cases), and it would also have been easy to use front-panel graphics to divide them into more logical sections, but even so, it doesn't take long to figure out what does what. And when you do get the hang of it, what a powerful tool this is! The amount of control you have over the tonality, weight, and balance of your signal is just wonderful.

If you want the Vitalizer effect at a bargain price, check out the dedicated stereo Vitalizer. If you really want the full works, however, this is the box to go for. It does sound smoother and richer than the solid-state models, as well offering far more control, but the trade-off is that you have more controls to juggle — and more figures to juggle when it comes to paying for it. This isn't a budget box, nor would I expect it to be. It's priced on a par with other esoteric equalisers, but for those doing serious recording, mastering or post-pro sweetening, it's well worth the cost. I'd happily upgrade my old model tomorrow, but as I'm in a similar fiscal position to most of you, I guess it's not going to happen. To those lucky ones who can justify a Tube Vitalizer, all I can say is that I think you'll like what you hear. SOS

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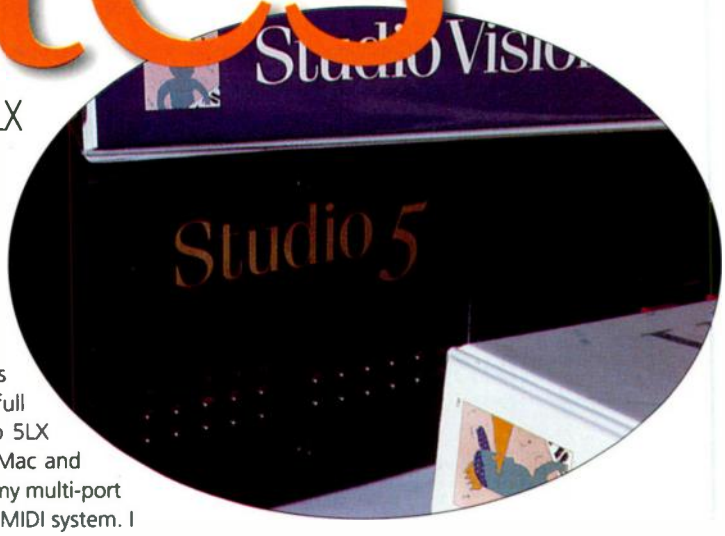
Going back to your Routes

USING THE OPCODE STUDIO 5LX MULTI-PORT MIDI INTERFACE & PATCHBAY

PART 1: MARTIN RUSS's Studio 5LX has changed the way he runs his studio. In the first of this two-part series, he explains how to set up a multi-port MIDI interface, and reveals some of the ways in which these useful devices can simplify your life.

Some time ago, I took my Opcode Studio 5 Mac MIDI interface to MCMXCIX in London to have it upgraded to the 'LX' version. While I was there, I chatted with a customer who had recently moved from Atari to Macintosh. He commented on the poor resale value of Atari computers, at which point I said that he should keep the Atari, and use it in his MIDI system. He replied that he now had a Mac and did not need the Atari any longer. An 'Atari Notes' column which I wrote in the June 1993 issue of *SOS* advises you *not* to sell your old Atari, but to use it with whatever you buy to replace it. This is what I do in my studio, making full use of the aforementioned Studio 5LX to fully integrate the ST with my Mac and the rest of my studio gear. In fact, my multi-port Studio 5LX is now the heart of my MIDI system. I use it so much that now I literally could not work without it. This feature aims to explore some of what is possible using a multi-port MIDI interface such as the Studio 5LX. Part 1 deals with the basic concepts involved in using it to organise a studio; Part 2, coming next month, goes into more detail and also explains how the Studio 5LX can help integrate an Atari into a studio running with a diffferent make of main computer.



MULTI-PORT MIDI

The only major required purchase for what I'm about to explain is a combined multi-port MIDI interface and MIDI patchbay. I chose the Opcode Studio 5 because it has just enough Ins and Outs to cope with my MIDI equipment, and some very powerful MIDI processing capabilities as well. Although it's expensive, I've been very pleased with it right from the beginning, and it's saved me lots of cable changing and rewiring effort. I say this because many MIDI musicians still use combinations of low-cost switching boxes and careful allocation of channels on a single-port MIDI interface, which may work — but there again, it may not. You'd be surprised at how many people call me to sort out problems which are caused by not having a multi-port MIDI interface and MIDI patchbay. I reckon that once you have more than four pieces of MIDI equipment, you should buy at least an 8x8 MIDI interface/MIDI patchbay before you buy anything else, for several reasons:

- Multi-port MIDI interfaces free you from having to map out the allocation of MIDI equipment to MIDI channels.
- You no longer need to worry about not being able to make the most of multitimbrality because you don't have enough free MIDI channels.
- Manual switch boxes are such a pain to keep track of (and use) that a patchbay repays its cost in increased productivity very quickly.

The problem is that most manufacturers are quite happy to sell you the hardware and software, but never really explain how to use them. You really can do a huge amount with a patchbay — it can make things much, much easier. Cue the rest of this article.

SETTING UP

The first thing to do when you start to use a patchbay is connect everything through it. This gives you a chance to sort out all those cables that you aren't sure about — and you might even label them clearly while you're at it. The software with most patchbays will give you a graphical 'picture' of how all your equipment is wired, but it's a good idea to check that this is how things really are — the Studio 5 LX lets you interrogate each port to confirm that reality matches the picture.

The MIDI setup of AYS Studios, the example used in the diagrams in this feature, is best described using the Studio Setup display from within OMS. This is a graphical version of the ▶

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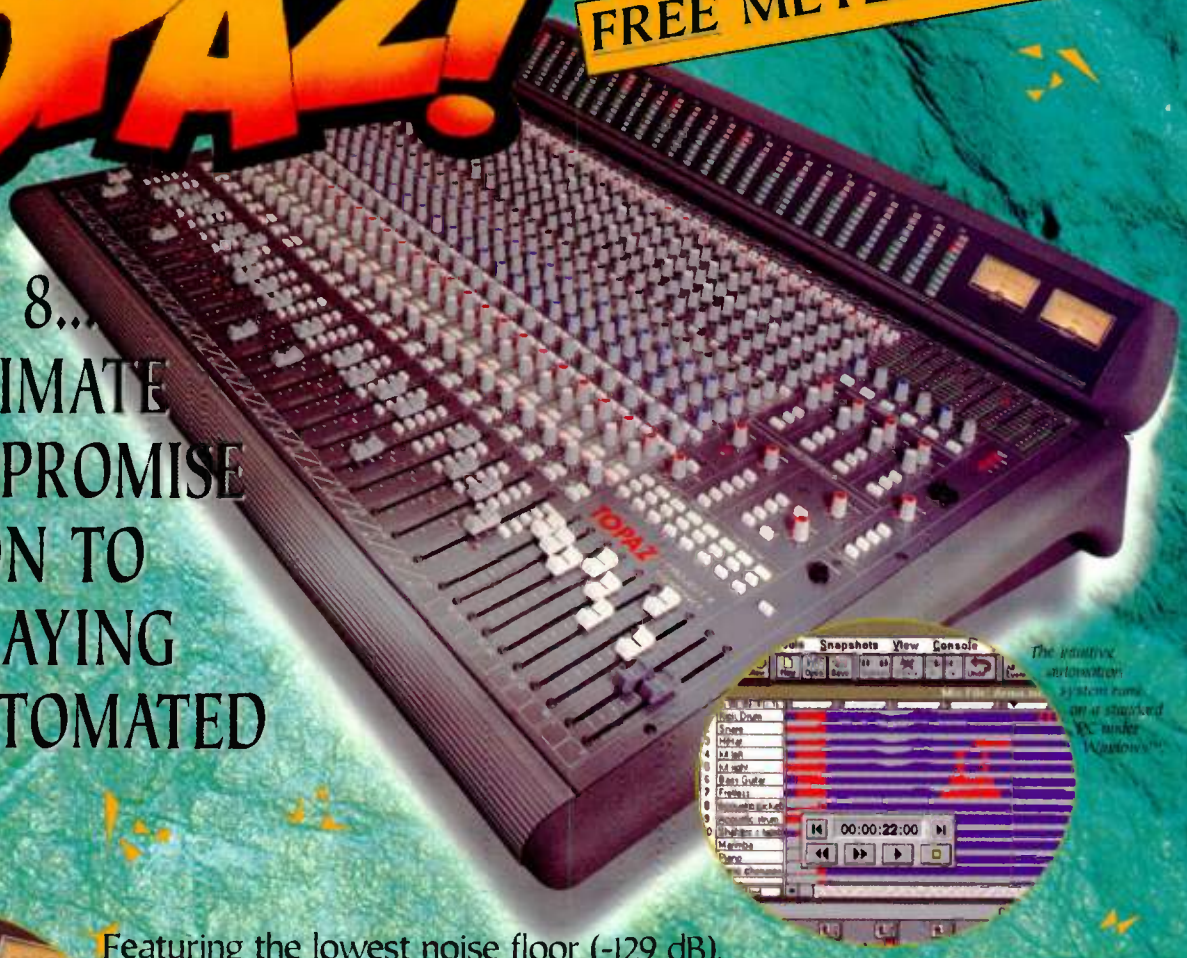

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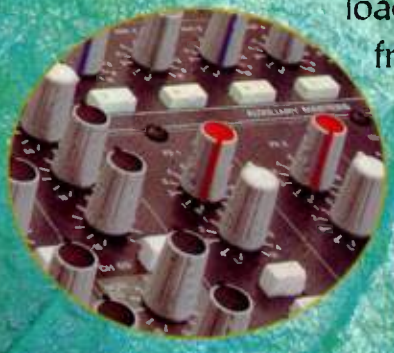

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wiring, and can be saved as a Studio Setup file (see Figure 1). On the left-hand side are numbered boxes for the MIDI port numbers — the Studio 5LX provides 15 separate MIDI In and Out ports. On the right-hand side are the instruments, modules, drum machines, and so on. When a second or third unit is shown connected to a port, this uses the Thru on the first unit — and for these additional units there is a small MIDI switch which selects which MIDI Out is connected to the Studio 5LX. These could be connected directly to a MIDI In port if a second Studio 5LX was networked to the first.

Because a Studio Setup file lets you set which channels your devices are assigned to, you can create different Setup files for different purposes. This can help to keep stuff like pop-up menus under control — if you have lots of multitimbral devices and you give each one 16 MIDI channels, you're going to get 16 numbered versions of each devices, which produces huge pop-up menus. A simple studio setup made from monotimbral instruments would produce only one entry per instrument in a pop-up 'instrument select' menu, whereas a studio setup with lots of 16-part multitimbral instruments could be up to 16 times as long! Why? It would be full of entries like TG77-1, TG77-2, TG77-3, TG77-4... (See Figure 2.)

Instead of defining everything to its maximum multitimbrality, I have two major setup documents:

• One is a 'monotimbral' studio, where each MIDI device is set up to receive on just one MIDI channel — that is, it produces only one part: I use this setup for orchestration and arranging of music, where I want to be able to quickly change sounds and adjust volumes on individual parts. Having one part/sound per channel/device makes this easy — even if it often wastes polyphony. The catch is that you need lots of instruments — which makes a good excuse to buy lots of expander modules.

• In contrast, for squeezing the maximum out of one MIDI device, I use the 'multitimbral' studio setup, where each device is allocated a realistic number of MIDI channels — typically the polyphony divided by four. Sixteen different monophonic

RULES

I'm afraid there are some rules:

- One port per multitimbral device. Thrus are only allowed for chains of monotimbral devices.
- Use the MIDI processing inside the interface (except if you're using Emagic's *Logic*).
- Never rewire or move your devices from port to port once you are set up. Leave them alone and use the patchbay to do the wiring changes.
- Label cables, and make a note of the wiring arrangement. If you ever do need to re-connect all your equipment (after upgrading a Studio 5, for example), this can save you lots of work.

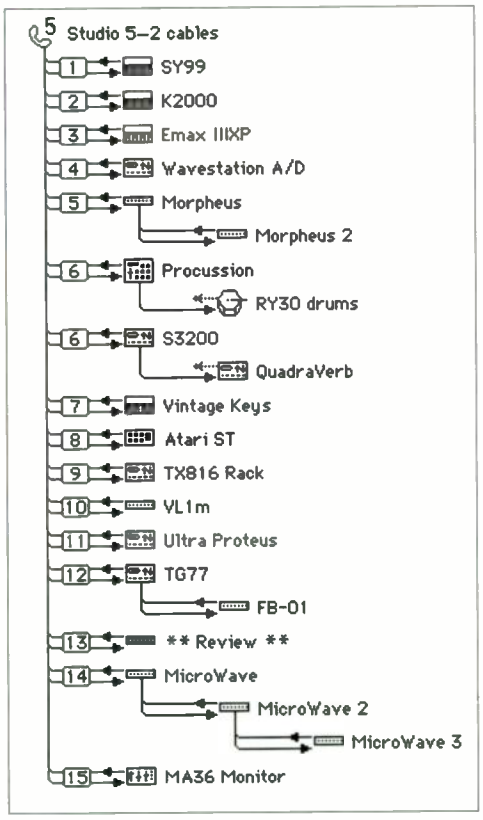
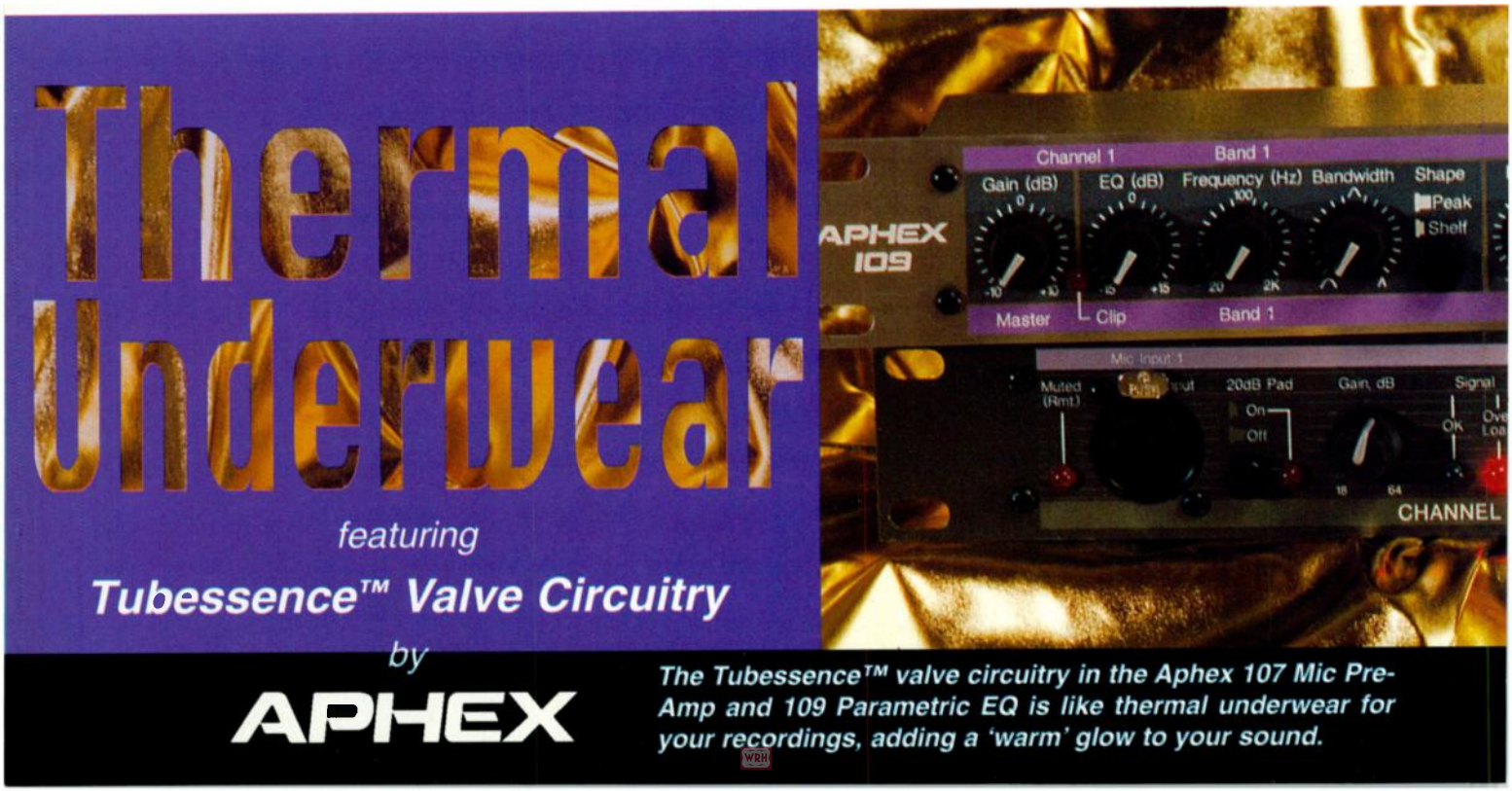


Figure 1: The MIDI setup of AYS Studios. The numbered boxes on the left are MIDI port numbers.



synthesizers may sound exciting, but it is a pain to try and avoid any overlapping notes which then steal notes from elsewhere. So a 16-note polyphonic module gets four channels, which keeps the pop-up menus reasonably short but provides enough scope for exploiting multitimbrality.

Initially, I used just one studio setup for my Studio 5LX — with lots of multitimbrality and huge numbers of patches to connect everything together. After several rationalisations, I now have a few specialist setups for doing the ubiquitous 'half a dozen impossible things before breakfast', but they are another story. For the rest of the time I use just the above two setups.

STUDIO SETUP HINT: *I use the '≈' symbol to indicate Studio Setup files and make them easier to find in a list of files on the computer's disk.*

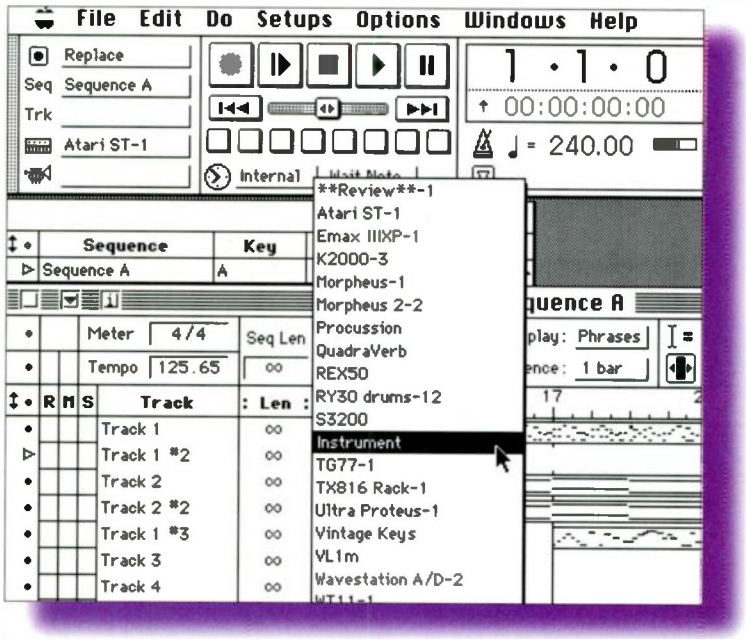


Figure 2: A pop-up menu in Opcode's Vision sequencer, showing how a monotimbral studio setup produces only one entry per instrument.

PATCHES

Patches are the key to using a patchbay. A patch sets the connections between the MIDI Ins and the MIDI Outs — but instead of real patch cables, you use 'virtual' ones, drawn on the computer screen. My Studio 5LX patches are organised into easy-to-remember groups, so that I can quickly select the patch I want without having to think too hard. This is especially useful when I'm using the MIDI system without my Mac turned on, because then the Studio 5LX only displays a two-digit patch number.

Because I tend to focus on specific manufacturers when I buy equipment, I have a fairly restricted set of MIDI devices. I have some Emu expanders, some Yamaha gear, and some ▶

The Studio 5's back panel.

miscellaneous items from an intentionally wide range of manufacturers. Not surprisingly, these are separated into four groups to keep them manageable:

- All (This group contains all the equipment.)
- Emu
- Yamaha
- Others

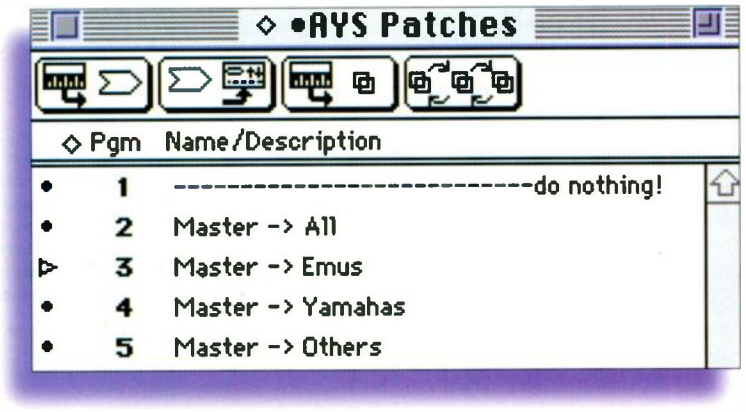


Figure 3: Basic Studio 5LX patches. Patch number 1 is deliberately set to do nothing.

The patches I use on the MIDI patchbay part of the Studio 5LX reflect this organisation (see Figure 3). If I want to send the output of my master keyboard to all the equipment, I use a virtual instrument called 'All' — and I just connect from the master keyboard to 'All'. This one simple patch is equivalent to about 20 real MIDI cables.

My basic Studio 5 patches are simple and easy to remember. Patch number 1 is deliberately set to do nothing: although this sounds crazy, it actually enables the playing of keyboards individually without any stacking, which can be very useful sometimes. Too much layering can be distracting!

All of the 'All' patches have '2' as their units digit (remember tens and units from school maths?) — Patch '1' is reserved for sequencer use, and so I never use numbers ending in 1. For just trying out ideas (and keyboard practice), I tend to select either the Emu or Yamaha setting, then use the sliders on my mixing desk to choose which of the sound sources are actually heard on the monitor speakers. This gives a large palette of timbres to work with, and makes layering a standard function instead of something which has to be specially set up. I find

STUDIO 5 LX UPGRADE

Quite a lot of the new features of the Studio 5LX (you can upgrade to this from the original Studio 5) make the techniques described in this article lots easier (such as debugging and testing using Source or Destination Muting, and especially the increased internal patch storage). So here's a quick recap on the new features:

- **Up to six Studio 5LXs can be networked together, which offers the potential for up to 90 MIDI Ins and Outs (or 1440 independent MIDI channels). Four Studio 4s can be similarly networked, which gives up to 512 independent MIDI channels.**
- **Four times the RAM (256Kb) as on the Studio 5 is now provided for internal patch storage. (If you start to use the ideas in this article seriously, you may soon need the extra space!)**
- **Muting of any MIDI Source or Destination in a Patch Edit Window.**
- **MIDI Controllers can be used to set note or velocity splits.**
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that the easier it is to use something, the less it gets in the way of creating music. For example, have you ever seen a guitarist pick up a guitar, check the tone and volume knobs, adjust the tuning, check the whammy bar, clean the fluff from the nut, polish the frets, set up the controls on their amplifier, adjust the pedal board, dig out a plectrum or two, do some warm-up exercises, and then get on with playing? I suspect you're more likely to have observed that most guitarists just pick up the guitar, wazz the volume up to 'loud', and get widdling...

Patches ending in '3' are used to connect to Emu equipment, whilst Yamahas end in '4', and Others end in '5' (see Figure 4). Not only can I remember this without much effort, but I don't need to put any major effort into reading the display on the Studio 5LX. I can cope with four things to remember, and if I'm unsure, the MIDI

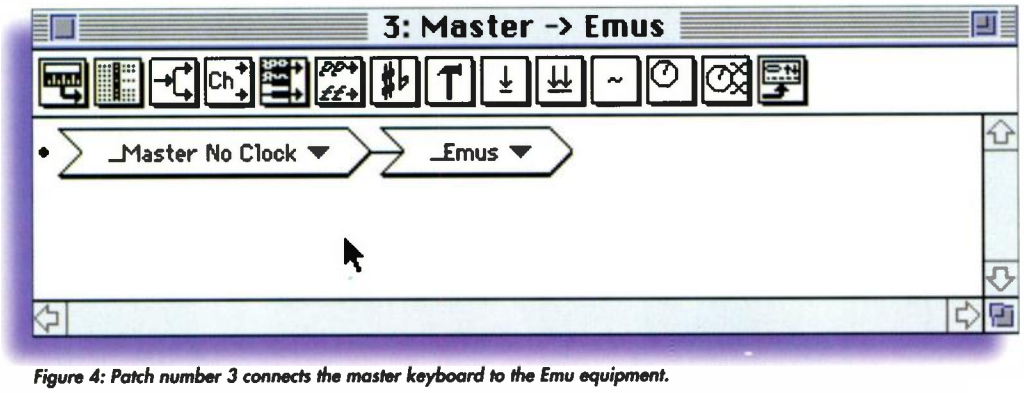

Figure 4: Patch number 3 connects the master keyboard to the Emu equipment.

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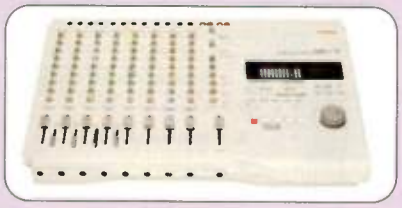

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activity LEDs on the front panels of most of my equipment soon show me what's playing.

Patches can also include clock routing. I use the 'tens' digit on the display to indicate what sort of patch is used: a '0' indicates a direct connection from the master keyboard to the destination, while a '1' shows that the MIDI Clock is also routed from the master keyboard to the drums and other devices which receive sync. Of course, clock routing can be different from the routing of notes. For example, in patch 14 (see Figure 5), the master keyboard is connected to all the Yamaha equipment (shown by the '4'), while the MIDI Clock source (usually the SY99 on-board sequencer clock) is connected to all the drum machines (shown by the '1'). You can extend this numbering system to cover any other requirements particular to your system. For example, all patches with a '9' as the tens digit could be set up to run via a MIDI analyser for troubleshooting.

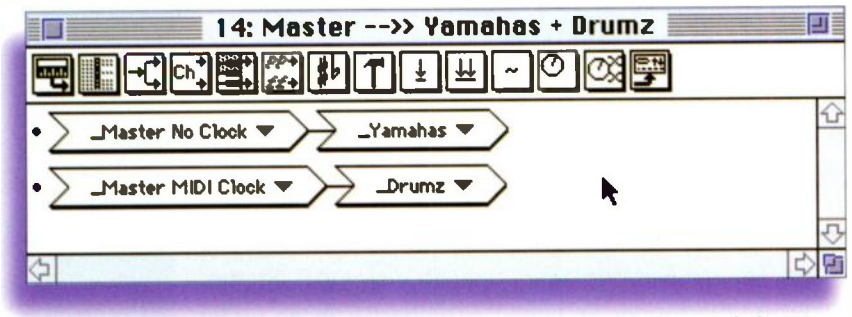

Figure 5: The master keyboard is connected to the Yamaha equipment, while the MIDI Clock source (usually the SY99 on-board sequencer clock) is connected to all the drum machines.

I deliberately use different types of arrows in patch descriptions, to show single and double patch leads. A '->' shows one connection, while a '-->>' shows a double connection. Visual clues like this help to avoid the need to open up the patches for editing all the time. Double-clicking and waiting wastes time even on a fast Mac — so the more information you can get into the text description of the patch, the better. Because I do the pruning at the audio level using my mixer, I don't have to think too hard about selecting patches on the patchbay.

Organising patches in this way not only keeps things neat and tidy — it also forces you to plan out what sort of connections you'll make. Just connecting devices together when the need arises will produce a random and confusing set of patches which you will later want to reorganise. And if you've already used the patches to automate the changes in a live set for performance, you can't change the order of patches without also editing the set plan as well. It really does pay to plan ahead when you're designing patches for patchbays.

PATCH HINT: *Don't worry about those one-off special patches you create for unusual circumstances. I have the lower patch numbers allocated in a formalised way, but higher numbers are left as temporary memories — just give them a number in the 80s or 90s and a descriptive name. And remember to always make backups of your patch files!*

PATCH CHANGES

If you play live using hi-tech instruments and you've never thought about automating your patchbay changes, you must be one of those busy people who spends lots of time pressing buttons in between songs — and who often misses their first cue!

The idea is that you configure your performance patches to suit the songs in your set, with suitable controllers and destinations (master keyboard to one set of expander modules, second/melody/lead-line keyboard to another set of expander modules, and so on), as well as program changes and volume controller settings, all stored away and retrievable with a single patch selection on the patchbay.

If you watch well-prepared keyboard players on stage, you'll notice that they often just press one or two buttons in between songs — and now you should know why! What automation does is allow you to make complex changes with minimum effort.

A basic patch chain might start with the master keyboard connected to all the expander modules for setting up and testing purposes during a sound check (see Figure 6). Subsequent patches might select just the Emu equipment for one song, then just the Yamaha... Moving through the patch chain can be done by any MIDI controller. In my case, two footswitches are connected to the Studio 5 LX (see Figure 7). Pressing the first of these will step through the performance patches one by one. (The other footswitch is used for controlling my

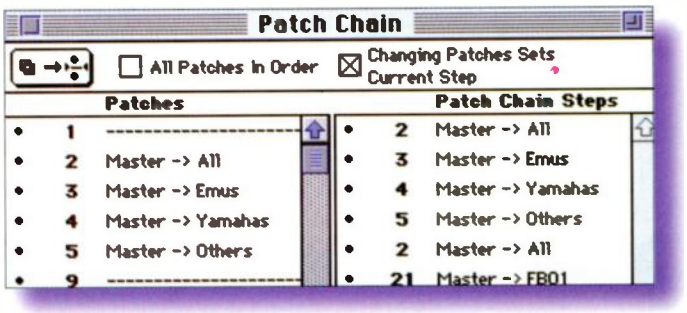

Figure 6: The patch chain, starting with the master keyboard connected to all the expander modules.

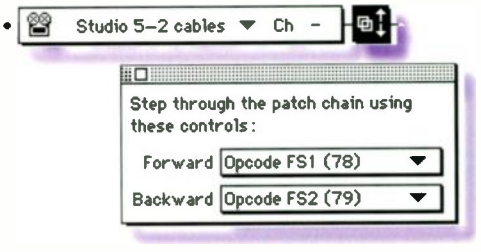

Figure 7: You can move through the patch chain with any MIDI controller. In this case, two footswitches are connected to the Studio 5LX.

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sequencer from the master keyboard.) Manual selection of patch changes needs to be set in such a way that accidental changes are avoided. Using the Studio 5LX control software, it is easy to specify that, for example, the patch changes from the SY99 will only happen if the portamento pedal is also held down.

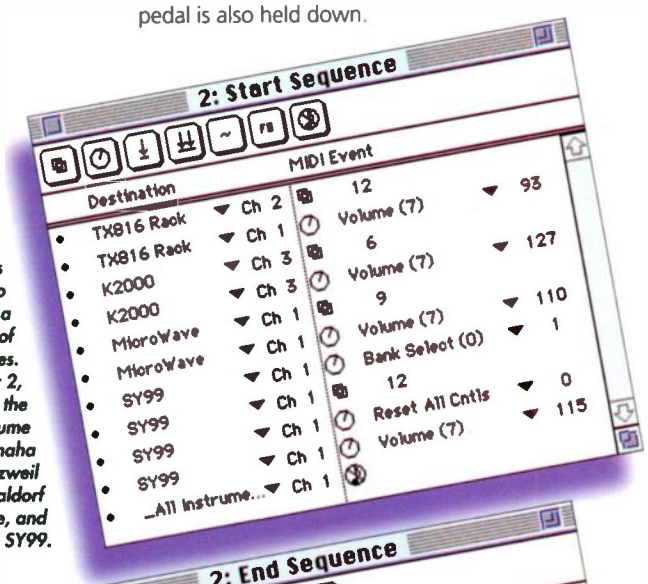

Figure 8: When a patchbay patch is selected, the Studio 5LX can output a short sequence of program changes. Patch number 2, above, sets the program and volume for the Yamaha TX816, Kurzweil K2000, Waldorf MicroWave, and Yamaha SY99.

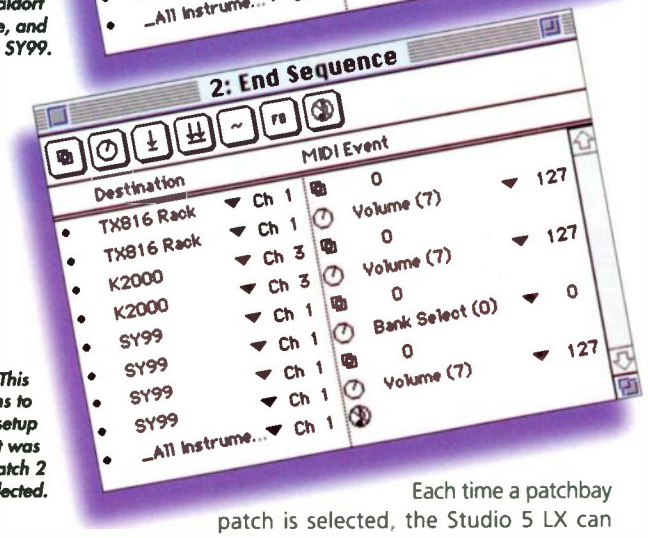

Figure 9: This patch aims to restore the setup to where it was before patch 2 was selected.

Each time a patchbay patch is selected, the Studio 5 LX can output a short sequence of program changes, controller values, and other useful 'housekeeping' settings. For example, selecting patch number 2 (see Figure 8) might set the program and volume for the Yamaha TX816 rack, the Kurzweil K2000, the Waldorf MicroWave, and the SY99 (including a Bank Change and Reset All Controllers, too). Finally, an All Notes Off is sent to All Instruments — this is Opcode's 'every note on every channel' variation on the real MIDI ANO message; whilst some instruments do not support the official ANO message, most support Note Off messages.

Finally, the last patch in the chain has but one purpose: it aims to restore everything to as neutral or 'default' a state as possible (see Figure 9).

PATCH/SETUP HINT: *Is that file a Patch or a Setup? I use a 'bullet' point '•' in front of the filename of patches so that they are easy to see in file lists. They all stay grouped together, and they are separate from my studio setup files, which start with '≈'.*

Figure 10: My 'Review' patch, with built-in filtering and velocity mapping so that any new arrivals in the studio can easily be adjusted.

REVIEWS

As you may have noticed, I've done one or two reviews of synthesizers and expander modules during the first 10 years of *SOS*. After doing major surgery on my studio for the first couple, I decided that I needed to be more organised, so I produced a patch specifically for doing reviews. The first available tens digit was 2, and 22 seemed to be memorable, so Patch 22 became my 'Review' patch.

When a synthesizer or expander module arrives for review, I connect it up to Port 13 on the Studio 5LX, and select Patch 22. I hope none of the review equipment is superstitious! My 'Review' patch incorporates filtering and velocity mapping so that I can adjust any new arrivals to my own tastes (see Figure 10). The master keyboard is connected to the review instrument, so that I can play it initially from a familiar keyboard. I put two asterisks in front of the device name — this automatically makes the review instrument appear near the top of the pop-up menus (which are sorted alphabetically).

Installing a review instrument in my studio involves connecting the audio leads, MIDI leads, and the power supply — it takes about two minutes. No rewiring. No figuring out how to connect it to a suitable Thru socket. No problem with examining System Exclusive information (I just patch it to a special SysEx analyser I wrote in *Max*). No hassle. And it's all down to having a combined MIDI interface and MIDI patchbay. Probably one of the best MIDI investments I ever made.

REVIEWING HINT: *Many studios also have a need to be able to quickly accommodate a new or hired-in instrument for a session, and this is one way of doing it with ease.*

MONITORING

Some sequencers have MIDI output monitors which can show activity on the 16 MIDI channels. With a multi-port MIDI interface, things are a little more complicated, since you can have lots more MIDI channels. I use the Studio 5LX to patch in my MIDI monitoring gadget wherever I need to see what is happening. Normally, patching cables so that the MIDI data passes through a MIDI monitor gadget, or even getting at the Thru socket, can be quite a problem, but because port 15 has the MIDI monitor gadget connected up, it is easy to patch it anywhere. This can be very useful for troubleshooting problems — especially because it is very quick to connect the monitor to different places and see what is going on. SOS

Next month, Martin deals with the Atari ST, master keyboards, and more...

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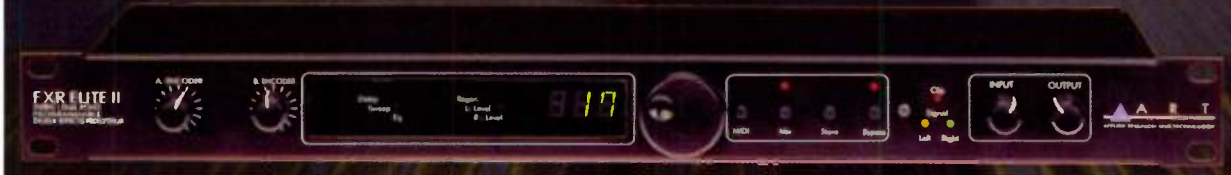

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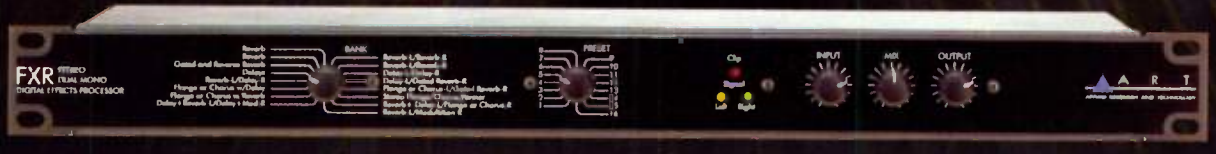

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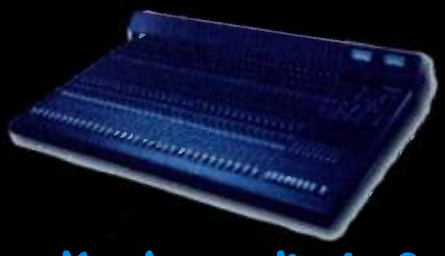

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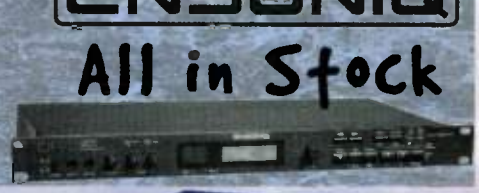

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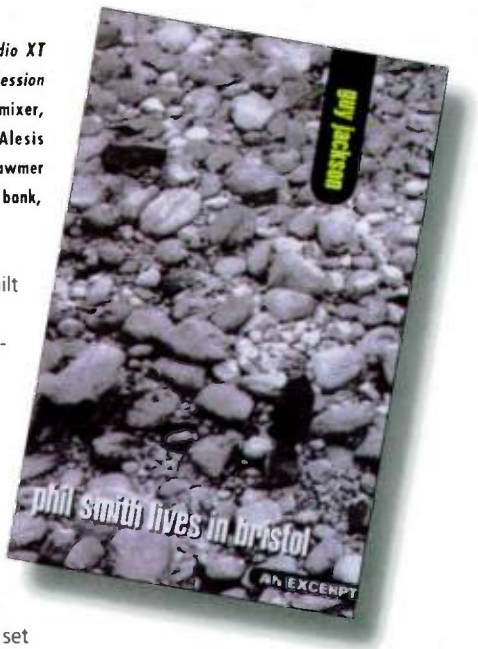
GUY JACKSON

Recording Venue: Home.
Recording Equipment: Steinberg *Cubase Audio XT* running on an Apple Mac Quadra, Digidesign *Session 8* and *Sound Designer* software, Seck 18:8:2 mixer, KRK monitors, AKG C1000 microphones, Alesis Quadraverb effects, Lexicon LXP1 effects, Drawmer gate and compressor, Analogue Systems filter bank, SPL Vitalizer enhancer.



An amusing first title, 'Rome was Built in a Daze', grabs my attention and proves to be a welcome slice of well-played, well-recorded jazz. Soprano sax and voice are provided effortlessly by Vivienne Soan. The sax is liquid, and the voice has been heavily treated with EQ, in the fashion probably made popular by Portishead. Occasionally, it might have been a nice idea to revert to an untreated voice, but the theme is set at the start of the piece by a child's voice with a telephonic quality, and continued from there. 'She is my Favourite Kolor' is a long but never boring song — or should I say 'composition'? The track is reminiscent in many ways of the earlier Thomas Dolby epics, with beautiful sound textures and a shifting focus in the arrangement. Lush strings start the piece, with a child's voice-over saying the names of different colours. This breaks into chorused, picked guitar over the strings, and a synthesized sea-wave sound which is rather beautiful. The piece then builds into a heavier section, complete with a '70s-style jazz rock guitar solo, joined by operatic singing. The vocals, from Kate McKenzie, sound suspiciously like Kate Bush, down to the severe telephonic EQ effect and the wailing low in the mix — a mix which must have been quite difficult and time-consuming to achieve, even with the aid of the technology! My only criticism of an otherwise excellent job is that there's just a bit too much echo on the lead guitar.

The standard of the musicianship and recording on all these compositions is extremely high, and when you've got a player of the standard of BJ Cole playing pedal steel, you've either got some very good friends or some money behind you. Special effects using the pedal steel and echo abound, from bowed-in notes to the sound of frenzied string and bar with loads of echo. Again, the composition leads effortlessly from one section to another, whether it's a string quartet or a slice of electro-acoustic music, always giving time for you to hear and enjoy both the sounds and the playing. Brilliant. ❑

SKINTONE

Recording Venue: Home.
Recording Equipment: Akai S900 sampler, Korg M3R synth module, Roland Juno 1 keyboard, Novation Bass Station bass synth, Yamaha DX100 synth, Emu Emax 1 sampler, Digitech TSR12 effects, Studiomaster 16:4:2 mixing desk.

Skintone are an Irish band from Bray, who I've reviewed before in these pages and thought were pretty good. Their influences are there for all to hear, and they don't attempt to hide them. Yes, there are shades of This Mortal Coil, Orbital, and Ultramarine here, but there's also some character of their own. This is found in the soft analogue synth sounds used to set up the groove and backing. The Novation Bass Station is a wonderfully warm and fat-sounding machine, and on the opening song, 'Lennox Avenue Butterfly', it really holds the groove together — and it does this while being high in the mix, too, without ever proving overpowering!

Ann Carroll's ambient vocals also have a lot to do with the general vibe of the band. These are invariably softly sung, placed low in the mix, and given a glassy reverb treatment. The production sound of the first two tracks, in fact, suggests late-night sessions when the rest of the world is asleep — the time of night where you can't bear to hear anything nasty and digital-sounding jump out of the speakers and assault the senses!.

In engineering terms, the pieces on this demo work because they have deceptively simple parts and the production is deliberately kept sparse. I say 'deceptively' because a lot of time has obviously gone into choosing the sounds, from the low bass synth and woolly kick, to the lazy upper-mid of snare and hat, and the warm pad filling the frequencies above the bass where necessary. Space for the vocals has been achieved using the ambient reverb. A sparse track, if the right sounds are chosen, also gives the illusion that all the sounds are big, because none of them have to fight for space in the sound 'picture'. ❑

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demo DOCTOR

MINTOBAG

Recording Venue: Home.
Recording Equipment: Apple Mac Performa 630, Emagic *Logic*, JL Cooper MacNexus MIDI interface, Fostex A8 8-track recorder, JL Cooper PPS2 synchroniser, Mackie 1604 mixer, Alesis Quadraverb GT effects, Shure SM58 mic, Phillips DCC730 DAT machine, Technics hi-fi amp, Sony SSG3 speakers.

Alan Waterfall recorded the tracks on this demo just after converting his garage to a home studio. He's also a recent convert to MIDI, realising that it can be a way to collaborate with the other musicians working on the same project at a distance. His working method involves starting, like many of us, with a basic drum rhythm, leaving fills and cymbals to the end. Unusually, he then works on a rhythm guitar part, as opposed to a bass part. Perhaps this is because he's still a novice on the keyboard when it comes to playing bass lines into the sequencer, and more confident on the guitar?

Alan was worried about noise on the cassette copy that was sent to *SOS*, but it's not really a problem, in my opinion. He does, however, need to pay attention to a few points on the mix of the first track on the demo. Firstly, the bass end of the mix is too heavy, which indicates either that the speakers he's using are small and bass-light, or that he's hearing a lot of treble in the converted garage and adding bass to balance the 'apparent' mix. Secondly, the guitar sound is pretty crunchy, and it actually sounds as if the Quad GT's input stage has been overloaded. This is certainly easy to do (being a Quad owner myself, I know) if you don't keep an eye on the level, as the Quad has very little headroom. It could also have been overloaded to tape, but this seems unlikely given the quality of the other sounds.

I like the vocals, which will probably surprise Alan, because he found them so hard to record! The performance shines through the layers of reverb, despite the relatively low vocal level in the mix on the first song. This is rectified on the second song, where the vocals are right up there, but it does expose the double-tracking, always a ploy for the vocalist who's not confident about his or her voice when recording. I notice a bit of a Peter Gabriel influence on the second song too, especially in the high vocal ad libs. This is pulled off rather well, and is probably worth pursuing in other tracks.

My favourite song is the next one on the demo, '2 of Us'. This has a good mood and a relatively straightforward production. The backing, following the sung melody line, works well, and the mix (with the exception of the bass end) is well balanced. ❑

COLIN JONES

Recording Venue: Home.
Recording Equipment: PC running *Cubasis* and *Cooledit*, Amiga 4000 computer with 8-track hard disk recorder/sampler, and sample CDs.

Colin Jones is a Welsh composer who produced his demo as a promo for TV and multimedia work. After recording, the original mixes were post-produced using Soundscape, at which point EQ and reverb was added where necessary.

Track one is a *Double Deckers*-type TV show theme from when "the world was a better place". This puts Colin firmly in my age group and makes me think of all those wasted summers watching morning TV! The theme is catchy enough and builds nicely, with toms being added to the rhythm section as a dynamic extra before the repetition of the theme. However, the rough mix makes it sound more like an idea than a finished piece. For example, the synth saxophone that plays the main theme is right out there on its own and really needs reinforcing with some other instrumentation — flute, for example. After the main theme has been stated, the backing track rambles a little before returning to the theme, and this is something which even the addition of toms can't help. Finally, it seems to me that the wrong type of reverb — around two seconds, with a long pre-delay — has been used for the sax. The pre-delayed reverb is swamped by the backing and the sax itself stands out very 'dryly'. A room reverb would have been better for this instrument in this context.

Ensuring that your mix levels are very dynamically even is a pre-requisite of mixing for TV and radio, and Colin's achieved a TV-friendly sound for his

second composition, which the first, incidentally, lacks. Entitled 'The Sin Eater', it attempts to musically illustrate the theme of the legendary Welsh figure who would be invited to Welsh funerals to eat bread placed on the body of the deceased, and hence his sins. Starting with a creaking door and followed by pizzicato strings, the additional oboe and spiky melody create a slightly whimsical feel for what I thought would have been quite a sombre piece. Colin obviously sees it differently, as the hammy Church organ chords in a major key on the play-out reveal. Still, it's a good-quality recording which, along with the final track, shows versatility. ❑

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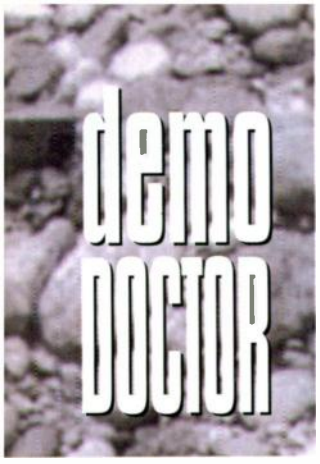
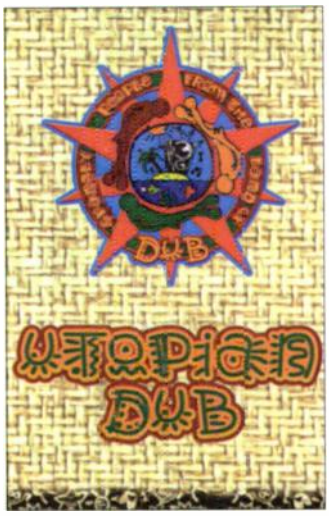


QUICKIES

This band's name, **SECRET ARCHIVES OF THE VATICAN**, is a bit of a mouthful, but they certainly give the listener a few things to chew on, musically speaking.The first composition is a lazy effort which lacks form, though some nice backwards effects on the breakbeat add sporadic interest. The bass sound, a hard, digital synthesized bass, doesn't sit well with

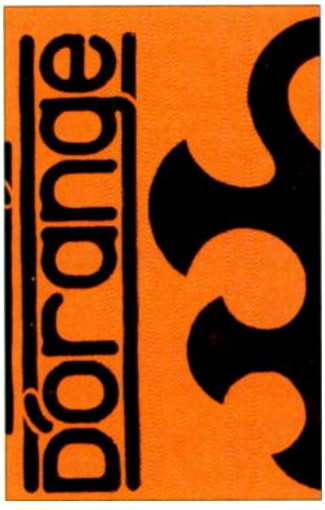
the softer mid frequencies of the breakbeat, however. On the second track, the sampled bass guitar is heavily treated with modulation, and works better with the harder sounds of the percussion. There are some nice touches from the guitar synthesizer, doing a lot of what it does best — pad strings and other slow-attack sounds layered with bells. All in all, this recording has a mellow sound with some nice Eastern flourishes in the melodies — it all just needs tightening up thematically. The best track is the third, featuring the Er Hu (from the Proteus World Module?) a Chinese bowed instrument that works beautifully with a touch of echo.

SPANGLY PEOPLE FROM THE LAND OF DUB probably thought the name was a good idea one night while completely stoned in University



accommodation — which is enough to turn anyone to drugs. The tape is well-recorded dub, and from the opening bars we're into familiar territory. The bass is recorded correctly for this style, being all low-frequency with barely anything above 800Hz, the guitar skanks along, and the keyboards provide the main interest in the backing, adding some of the ethnic sounds that have crept into dub over the last 10 years. Here, the didgeridoo works well (and is thankfully not overdone), as does the ethnic flute. The band have asked me for some suggestions on improving their rather hurried mix. Well, the guitar is too loud in the mix, jabbing the listener awake rather than settling him or her into the rhythm; the female and male vocals are a good idea — keep working on that; the bass sounds as though some of the lower frequencies have been cut out to avoid boom — not necessarily what's required for dub; and the drum programming, though excellently lazy, has just a bit too much sloppy reverb.

Styling themselves "Dance Mutant Musik", **D'ORANGE** are a Birmingham-based band currently gigging in that city. If machine-generated music, circa early '80s, featuring semi-spoken vocals



and loads of attitude, is your bag, catch a gig. Technically, the recording is a fairly straightforward affair, highlighting the dry drum machine mix so favoured in the early '80s before the mass availability of decent reverb. Drum programming is well handled, with some complex little rolls and occasional flams on the first track, the whole thing held together by broken sixteenths on the hi-hat. Bells and pad strings with a choral mix feature heavily in the backing, and the fairly dry vocals of Rez are a serious, dark study in the art of emphasis across the instruments. Sadly, the vocals get lost a couple of times on the opening track, as extra keys are added to the mix in certain sections. Always remember to leave a hole for the vocal — fairly easy in this case, as the vocal sound is quite hard, and the key sounds chosen when Rez is singing can therefore be of the more mellow variety. The mix also sounds a bit monophonic; some of the keyboard sounds, being run live on the mix from an Atari-based sequencer, could have been panned hard left and right.

PAUL COOK is in the same boat as many musicians — he's looking to get a release for his music, or some kind of support. It's a tall order these days! Really, he's got to get his garage- and house-orientated music played at the right venues, by making contacts and maybe getting a one-off CD of his mixes blown. This isn't so expensive these days, costing between £15 and £25, and is the same kind of approach as the old acetate idea, without the deterioration problems! To tackle the recording, there are plenty of good ideas here, particularly on the second song. The kick and hat sounds work well, but the snare sounds as though there's too much bass in it. Some low-frequency cut should do the trick, using the Spirit Folio's high-pass filter (set at 100Hz). The rest of the mix has some good use of keyboard stereo panning, and a decent arrangement. My major criticism is that the vocal sample needs to be made more expansive, using more reverb and delay effects to give the mix a classier sound. This would also increase the separation between the largely dry backing and the vocal in the mix.

YO YO are an Essex duo playing electro-ambient pop, and are currently looking for small venues to play in their area. On the evidence of the first song on their tape, it seems to me that the band would be suitable for smoky clubs and wine bars, with their sultry late-night sound. This is created by singer Suzy and a minimalistic backing. A low synthesizer bubbles and coils under the congas and pad strings, to add to the chill-out feel, and wah guitar joins in for the end of the song. We're into more familiar territory for the second song, but the four-on-the-floor kick is placed too low in the mix to be effective; the panning is also a bit erratic and so doesn't have quite the desired effect. Overall, the

band have good ideas, but are having a little trouble with the recording process, as the distortion on the first track shows. The cassette isn't recorded at too high a level, so it must have been in the copying process that the tape deteriorated. It really pays to check the quality before you send off your demo for a recording magazine review.

RAY PALFREYMAN's letter was a bit too short and to the point, with no information at all about his demo. Still, I dutifully put the DAT tape into the machine and was treated to some well-programmed, well-played jazz compositions. The saxophone playing on this tape is excellent, with the (unnamed) musician wringing out some really emotive screeching notes, and providing some stunning improvisational moments. The synthesized mute trumpet is pretty tame in comparison, but the programmed drums and bass made up for it. 'Cobra' is the title of the second composition, again featuring good programming, even if the mix is a bit drum heavy. Moving on, the third composition employs an up-tempo shuffle groove that works as the perfect foil for sax improvisation. This time the improvisation is shared, with clean, modulated electric guitar over a cool electric piano and synthesized bass backing. In general, the mix balances are good, with some useful keyboard panning when two keyboard parts are playing. This serves as a rhythmic stereo foil between the two and leaves space in the centre image for the commendable improvisational work. ❑

EVERY PICTURE TELLS A STORY

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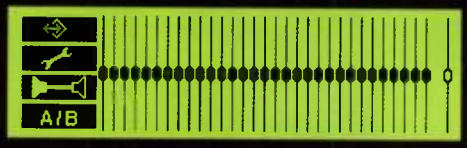

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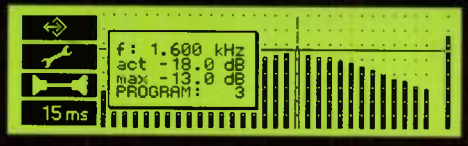

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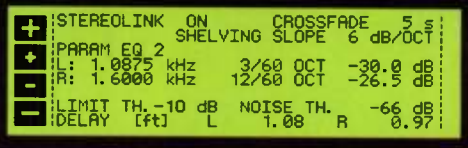

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4 Tannoy Monitoring with Dual Concentric NFM range. Also available are the PB range. Please ask for details.

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9 Emu Sampler. The immense EIV is here on demo with 128 voice polyphony and expandable by up to 128 Meg!

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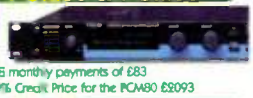

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With over 600 of the earth's most cutting edge samples and the introduction of new rhythmic features, Orbit blasts its way to the forefront as the dance music machine. **Orbit** features 32 voices of polyphony, 512 presets (256 ROM, 256 RAM), is 16 part Multitimbral and has 6 analog outputs. Edit and tweak Orbit's sounds to express your unique creative vision by using its powerful filters, MIDI synchronized LFOs, and MIDIPatch Modulation System. If that's not enough, Orbit is also equipped with plenty of user editable "beats". With its unique sounds and flexibility, you can alter Orbit's "beats" to fit your innovative style.

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DAWSONS

Version 2.0

What's new for Version 2.0 Software

The Version 2.0 software is available for EIV, e64 and the EIVK. Version2.0 includes features like Ro and Library Import, four new Z-plane® filters (providing over 90 different filter types including high pass, low pass and morphing types), SoundSprint™, a 16 Track sequencer, numerous edit and DSP enhancements. Trigger sampling via MIDI note event, and 12 dB output boost. Version 2.0 also supports Iomega Jaz Drive and many popular programs such as Recycle from Steinberg.

Now Roland CD load with the same ease as native E-mu® or Akai volumes. Expressive Z-plane filters add much more user control over beginning and end Morph frames. Time Compression can be adjusted in either percentage or BPM and is phase locked when processing stereo loops.

The sequencer allows standard Midi files (type 1 or 0) to be played back direct from a DOS disk as well as from the internal drive. Ideal for a gigging musician.

EIVK

Based on the EIV Sampler, the EIVK provides a 76 note velocity and pressure sensitive keyboard. Real time control has been increased to four faders and a Thumby Button™.

An internal 270 Meg Hard drive complete with 150 Meg of brand new Emu library provides a huge variety of sounds ready to be loaded in and played.

Sampling straight into the EIVK is possible through analogue jacks, S/P DIF Digital or even internal resampling. Timestretch, Parametric EQ, Gain Compression, Doppler, Reverse, exciter and transform multiplication are all present in addition to the usual Cut, Loop and Truncate. Any sound produced by the EIVK be it a single note, a sequence (even with internal FX) can be recaptured as a single wave.

A built in effects processor allows high quality 18 bit effects to be added digitally inside the keyboard with faders for each voice allowing complete control and expression.

A sequencer capable of reading Standard Midi Files (type 1 & 0) direct from a DOS floppy disk and also saving them to the internal drive (SCSI is provided for external drive transfers and storage).

Soundsprint™ allows you to browse through and play sounds from your hard drive just as if they were sitting in a virtual ROM bank. The big difference being that this ROM bank is nearly 200MB wide!

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Z-Plane filters™, 2 LFO's, 32 sample layers with individual access to variable loop and start points, tuning functions, and three fully independent six segment envelope generators provide the basic synth elements which are the targets for the patchbay cords. Control sources can be derived from some of these tools, or from realtime inputs such as the faders and wheels on the keyboard front panel.

64 Voice Expansion Option Card

E-MU

Music User '96

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WRH

Prophet or loss?

SEQUENTIAL PROPHET T8 ANALOGUE POLYSYNTH

The radical keyboard design of the Prophet T8, thought by some to provide the best feel and response of any synth yet made, had a heavy cost for manufacturers Sequential, delaying the T8's launch by two years and stunting potential sales. ROBERT ALEXANDER reflects on a synth which was ahead of its time.

It's the beginning of 1981. Sequential Circuits Inc are planning to launch a new synthesizer that they believe will push further forward the boundaries of analogue synthesis development. At the same time, they hope to continue to keep the company at the forefront of the electronic musical instrument industry.

The synthesizer that Sequential are pinning so much hope on is the Prophet T8, intended to be the successor to the very popular Prophet 5 series, nearing the end of its production run (of approximately 7200 keyboards, over three revisions between 1978 and 1984). The essential difference for the Prophet 5 is to be the addition of a touch-sensitive keyboard, which at this time is a rare feature indeed.

Unfortunately for Sequential, development problems mean that the keyboard is not to appear until 1983, and by this time, Yamaha's alternative plans for the domination of the market have taken off, with the release of what was (and still is), one of the most revolutionary electronic musical instruments of all time — the DX7.

PIANISSIMO

It was Sequential's commitment to excellence, along with several exhaustive technical problems with the keyboard itself, that brought the T8 to market some two years late. The company thus forfeited the considerable advantage that they would have gained had it been commercially available in 1981. What was so important to Sequential about the touch-sensitive keyboard? Why did they strive to make it so good?

With a touch-sensitive keyboard — a piano, for example — the force used in the initial keystroke determines the amplitude of the note produced. A synthesizer cannot normally hope to match all the nuances possible from a system as complex as a piano keyboard, yet this is what the R&D team at Sequential set out to achieve with the Prophet T8.

> "Some of its deep, distinctive bass synth sounds have become classics in their own right."

Sequential found themselves faced with a series of technical problems that dogged them throughout the development of the keyboard system. It soon became apparent that using force or pressure alone to dictate amplitude would not result in a sufficiently sensitive keyboard for the T8, and rather than compromise the flexibility of the instrument, the development team decided to design a completely new system based around optical sensors. This was a daring and expensive undertaking. Optical sensors were microprocessor controlled — cutting-edge technology in 1981. This adventurous attitude to design and development typified the kind of approach that the American musical instrument manufacturers had in the '70s and early '80s.

The reason optical sensors were chosen for the keyboard was that they would give a far more accurate indication of the travel of a key and the duration ▶

The Sequential Prophet T8 shown is serial No.000388 (numbers did not begin at 000001, but more unusually at 000100). It dates from July 1983 and is fitted with Rev 3.8 software. It is jointly owned by Robert and Simon Alexander.

THE ONLY REAL SALE

turnkey

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of a keystroke for the T8's central processor unit (Z80) to compute. Unfortunately for Sequential, putting all this into practice would prove to be easier said than done — hence the long delay. However, they did eventually iron out the development problems and get it right for the T8. It consequently has probably the most realistic pressure-sensitive keyboard feel of any synthesizer ever made — so good, in fact, that New England Digital decided to use it on the Synclavier, possibly the most elaborate, and certainly the most expensive, electronic musical instrument ever produced.

Curiously, the keyboard on the T8 is of the 76-note variety, rather than the full 88 notes of a piano. The keys themselves are made of wood, like a piano's, and are almost fifteen inches long — twice the length of the normal plastic keys found on most synthesizers. This was to help with the 'action' of the keyboard, giving an automatic feeling of weight due to size alone. The keystroke action is very similar to that of a piano, on which it is based, but perhaps just a bit lighter in the downstroke, and shorter in the return.

The initial pressing-down of a key initiates a levering action which moves the far end upwards to strike a second padded lever. This, in turn, registers with the optical sensor the amount of depression and the velocity of the keystroke, thereby indicating the amplitude of the note. It's a very complex system, with each individual note being independently sprung. One advantage of this, however, is that the T8 has individually pressure-sensitive keys — this sensitivity is programmable — a very rare feature indeed, only found on a couple of the very best synthesizers ever made, because of the incredibly high manufacturing cost.

The velocity sensitivity of the T8 is linked to the front control panel of the instrument by four rotary pots. The first two are for envelope rate control, and individually labelled Attack/Decay and Release. The second pair of pots are for envelope peak control, and are labelled Filter and Amp. These seemingly simple controls give the T8 an enormously flexible 'feel' when you play it, as each note can be fine-tuned to the kind of response the individual player wants.

SYNTHESIS FEATURES

Sequential had put so much effort into the design and construction of the keyboard itself that it's hardly surprising if the rest of the T8 bears a remarkable similarity to the Prophet 5 it was intended to replace. The same VCO configuration and filtering as found on the earlier Prophet is implemented on the T8, though the T8 is 8-note, rather than 5-note, polyphonic.

The features which made the 'Sequential sound' so popular are still there to be found on the Prophet T8, particularly the Sync function, which allows oscillator B to modulate the filter, frequency or modulation width of oscillator A. Oscillator B was also now able to offer the elusive triangle waveform that was so obviously lacking in the Prophet 5 (oscillator A on both synths already had the triangle waveform). The filter panel would now allow fully variable keyboard tracking, and an additional rotary knob in the LFO mod section gave control of the initial LFO modulation amounts.

Some brand new features were also added, namely: polyphonic glide; programmable volume (which allowed a patch to be stored at a pre-settable amplitude); and digitised envelopes, to allow more flexibility. (The essential sound-generation components — the oscillators and filters — remained analogue.) In fact, the T8 was given two central processors to cope with all the functions it offered. As mentioned, the keyboard scanning was taken care of by a Z80 CPU, while the remainder of the synth's functions (routings, presets, envelope generation, and sequencing) were handled by the newer Z8000 CPU.

"Sequential had put so much effort into the design and construction of the keyboard itself that it's hardly surprising if the rest of the T8 bears a remarkable similarity to the Prophet 5 it was intended to replace."

SEQUENCER

A rudimentary sequencer (even by 1983 standards) was included. This allowed 670 notes to be programmed, though unfortunately only in real time. (Sequential were, for reasons known best to them, not very keen on step-time recording until later on in their history). One of the most significant drawbacks of the sequencer was its inability to be clocked externally, especially in early software revisions of the T8. However, before Yamaha took over at Sequential on January 1st, 1988, the last software revision for the synth was released (Rev 3.8 upgrade) and this did, finally, offer full external sequencer control via MIDI.

The sequencer does have its redeeming factors, though. The notes stored include program information, as you would expect, but significantly they also contain the velocity information of each event — such an important part of the T8's design. This is vital to the use of the sequencer as a 'scratch pad' for songwriting (its only practical use), as without the ability to save the nuances of the work, when played back each sequence would sound totally different to how it was originally played. Once written, sequences can be saved into one of eight different sequence locations, or 'songs'.

SOUNDS

The Prophet 5, in its many revisions, went from an original 32-sound instrument, to 40 sounds, and lastly to 120 sounds. The T8 goes a little beyond this, with 128 factory presets, which can certainly be described as typically 'Sequential' in nature.

First impressions of the T8 sound is that it is warmer and, in some subtle way, *different* to a Prophet 5. The same Curtis 3340 oscillators and 3372 VCFs (Voltage Controlled Filters) were used, but Sequential upgraded the VCAs from 3280s to the newer 3360s. The T8 standard sound set consisted of the usual electric and acoustic pianos, strings, harps and wonderful Prophet brass sounds. There are percussive sounds too — marimbas, bells, and a passing attempt at Simmons electronic drums.

As ever, though, the best sounds that

OPTICAL ALLUSION

A word of warning here to the prospective T8 owner: the optical sensors on the T8's keyboard are prone to faults. If the keyboard doesn't work properly (press every key, and listen to the note produced), you have a potentially very expensive repair on your hands — beware. Luckily, in the UK we are blessed with a small band of genius repair people who lavish time and effort on making what was old and knackered, new and working once again. If you need really expert help, however, Dave Sesnak at Wine Country in California is the Sequential specialist that everyone goes to for advice.

Wine Country can be contacted at: 1572 Park Crest Court, Suite #505, San Jose, CA 95118, USA. Tel: 001 408 265 2008, fax 001 408 266 6591, email winecntry@aol.com.

Sequential instruments produced were those that only a Prophet synthesizer could make, and the T8 carries on this fine tradition in style. Some of its deep, distinctive bass synth sounds have become classics in their own right (listen to The Thompson Twins, Swing Out Sister, and some of the later Human League from the mid '80s). While all the preset sounds are mostly quite usable, it is in the hands of a good programmer that the T8 really comes to life, with the power and flexibility to create enormous, fat analogue sounds that growl when the oscillators all kick in.

CONCLUSION

In the end, sales of the Prophet T8 (or rather the lack of them), meant that it did not equal the success of the Prophet 5, as had been envisaged. Nor did it restore the market supremacy that Sequential had enjoyed earlier in the decade. However, this was in no way due to the quality of the instrument, which is without doubt one of the finest ever constructed. Sequential's problem with the T8 was due to the extraordinary amount of money that had been invested in its research and development, and this, of course, had to be carried across to the customer. In 1983, a Prophet T8 would set you back the quite staggering sum of £4727! You could buy three flightcased DX7s for that and still get a MacDonald's lunch and a taxi home!

While the DX7 did represent better value for money and was a remarkable instrument in its own right, did you long for one? Would you have considered a second mortgage for a DX7? Probably not. For me, there's no nostalgia in owning a DX7 (even though I did buy one in January 1985 and still have it to this day). But the T8? That's made of different stuff — it has wood, it has style, it has a monster sound, and very, very few people own one.

As part of the research for this article I contacted much of the original development team at Sequential in the United States (who incidentally, to a person, all said they felt it was the best synth Sequential ever made), and they tell me that there were only around 350 Prophet T8s ever made. That makes them amongst the rarest, and therefore most collectable, of the large analogue synthesizers of the early '80s. They rarely come up for sale in good condition now, but if you did want to buy one, a couple of years ago (like so much of the analogue gear) you could pick one up for £1000. Today, you'd better be prepared to pay £2000 to £2500 for one in reasonable condition, and perhaps as much as £3000 for a T8 in mint condition.

> "...it is in the hands of a good programmer that the T8 really comes to life..."

Sequential have long gone, but the legacy of the musical instruments they built remains with us to this day, and through a small number of determined collectors, these masterpieces of analogue circuitry will be kept safe forever. SOS

My thanks to Bruce Wismer, John Bowen, Dave Sesnak, and Dave Smith for their invaluable help and expertise during the research for this article.

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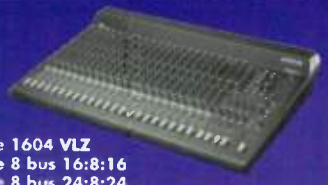

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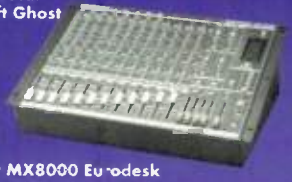

Mackie 24 channel extender
Mackie SR24-4.24:4
Mackie SR32-4 32:4
Mackie SR 40:8:3

Behringer MX8000 Eurodesk
Behringer MX2642 Eurorack
Behringer MX2802 Eurorack

RECORDERS

Roland VS880
Soundscape for PC SSHDR1
Tascam DA88

Akai DR4
Akai DR8

Akai DR16
Alesis ADAT XT
Alesis BRC

Fostex D80 affoedable direct to disk system with up to 1.7gig capacity, cut, paste & copy editing with removable wired remote control.

MASTERING

Marantz CDR CD recorder CDR 620 for CD ROM. Photo CD, Cdi

Marantz CDR CD trecorder CDR 615
Yamaha DC-R recorder

Fostex D5
Panasonic SV380
Panasonic SV4100
Tascam DA20
Tascam DA30 Mk11

SAMPLERS

Emu ESI32
Emu E64
EMU E 64

Kurzweil K2000
Kurzweil K2500
Kurzweil K2500X
Kurzweil PC88 master keyboard

Akai S2000
Akai S3000XL
Akai S3200 XL

KEYBOARDS

Korg Prophecy
Korg Trinity

Emu Orbit
Emu Proteus/2
Emu Ultraproteus
Emu Vintage Keys
Emu Classic Keys

Roland JV1080
Roland JV880
Waldorf Pulse

Fatar Studio 49
Fatar 2001
Fatar Studio 900

COMPUTER / SOFTWARE

Apple 7600 series
Apple 8200 series
Apple 8500 series
Apple 9500 series
Apple Powerbooks
Apple Performas

As an Apple Authorised Reseller we stock the complete Apple range, and can provide software packages from Opcode, Steinberg and E-Magic. We can provide you with a completely integrated system including SMPTE/MIDI interfaces from Opcode and Steinberg. We have a range of storage solutions including removable Syquest, Zip and Jazz drives, Fixed hard drives 1 to 8 gig,230 meg magneto optical drives and CDR recorde

OUTBOARD

Digitech Midi Vocalist
Digitech Vocalist 2
Digitech Studio vocalist
Digitech TSR-6
Digitech Studio Quad

Begringer Dualfex11
Behringer Ultrafex 11
Behringer Bassfex
Behringer Edison

Aphex 106 easy rider 4 channel compressor
Aphex 107 Tubessence Mic Preamp
Aphex 107

Behringer MX1200 Autocom
Behringer SR1000 2 channel de-noiser
Behringer SNR2000 multiband de-noiser
Behringer Multicom 4 channel gate
Behringer XR2000 intelligate
Behringer Autoquad 4xgate
Behringer Multigate
Behringer Suppressor
Behringer Ultracurve
Behringer MDX2100

Lexicon Alex
Lexicon Reflex
Lexicon LXP 15Mkii
Lexicon PCM80
Lexicon PCM90
LA Audio 4C quad compressor
LA Audio 4G

Mutronics mutator
SPL stereo Vitalizer

Alesis midiverb 4
Alesis Microverb 4
Alesis Quadraverb 2

MICROPHONES

Groove Tube MD1 Condenser cardioid
Groove Tube MD2
Groove Tube MD3 variable pattern

AKG C1000
AKG C3000
Shure SM58/57
Neumann TLM193

Audio Technica AT4033
Audio Technica AT4041
Audio Technica AT4050

MONITORS

Alesis monitor one
Dynaudio
Soundcraft Absolute 2
Genelec
KRK K ROK
Tannoy
Yamaha NS10

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http://www.bogo.co.uk/babel/babelhomepage.html

Excellent sounds, immaculate condition, boxed, manual. £850. ☎ Martin 0181 240 0769.

ROLAND JV1080 with vintage synth + dance expansion cards, all boxed as new, £1000; Roland R8M with five cards, boxed as new, cards include Power drums USA, Electronic, Jazz, Dry, + Jazz Brush. ☎ Dave 01726 870661.

ROLAND JV1080 with vintage synth card fitted, mint condition, one year o'd, £1100 or swap for a perfect condition TR909 and cash adjustment of £400. ☎ Ian 01736 753057.

ROLAND JW50 workstation 61-note, 16-track sequencer, 16-part Multitimbral 24-voice Polyphonic, mint condition JVC stereo amplifier Celestion speakers, £350 ono. ☎ Steve 01606 47398.

ROLAND JX1 Performance Synth, superb professional keyboard, as new plus extras, can deliver, £200. Roland MT32 sound module, manual, perfect condition, £100 ono. ☎ Andy 01438 314117.

ROLAND JX8P analogue, no box or manual but good condition, £325, Boss pedals, various, Alesis Microverb 2 , no adaptor, £50. ☎ Chris 0421 507144 (Mobile answerphone).

ROLAND JX10 and Fostex 4050 auto locator, sale or swap for Schoeps CMC5 or CMC6 mic with MK4 or MK6 capsules. ☎ Michael 0045 39 66 66 38 (Denmark).

ROLAND JX10 Roland's last analogue-poly - you know the drill! Bitimbral, basically two JX8Ps in one keyboard, good condition with manual, £600 ono. ☎ Bryan 0141 952 5807.

ROLAND MKS30 JX3P module, £250; Yamaha RX5 drum machine with ROMs and flightcase, £200; Yamaha QX3 sequencer, £200. All vgc. ☎ 01493 603614 (Norfolk).

ROLAND MKS50 with PG300 programmer, both with manuals, very good condition, £500. ☎ 01243 830697.

ROLAND MKS80 analogue synth module, excellent condition, data cartridge and manual. Polyphonic with MIDI. £850 ono. ☎ Johnathan 01204 63949.

ROLAND MT32 sound module with over 600 sounds on Atari disks psu and manual. excellent condition, £100 ono. ☎ 01283 210414 (Burton on Trent).

ROLAND PC200 controller keyboard, £100, Intel DX250 processor, £50, Yamaha TBX302 module, £90, Goodmans PC speakers, £20. ☎ Jeff 01925 291805 (office answerphone).

ROLAND SC88 Super Sound Canvas. 64 voice polyphonic, 654 sounds, 22 drum kits (inc 808 909 etc scratch on top, hence, £325. ☎ 01933 678608.

ROLAND SC88 superb GM sound module, 64-note polyphonic, 16-part multitimbral, excellent condition, £420 ono. ☎ Jason 0113 262 9212.

ROLAND SH3A classic analogue synth, immaculate condition, as new, £200; Korg Poly 800 module, vgc, £100. ☎ 0115 978 0982 (Notts).

ROLAND SH101 manuals, case, £225, Roland SH1000, case, average condition, £95, Korg M1, flightcase, stand, manuals, £575, 2-tier stand, £30. ☎ Mark 01782 849019.

ROLAND SH101 with DBM MIDI/CV converter, £250; Roland SC155 Sound canvas, £300. ☎ 01472 824196.

ROLAND SH101 mint condition, £225; Korg MR, very good condition, £375, Emu Classic Keys, mint condition, box manual, £375; Roland MVS1 vintage module, mint box, manual, £275. ☎ 0116 283 5455.

ROLAND SH101, boxed, £190, Korg EX8000 module, £200, Fostex 2016 rack mixer, £150, BBE 322 Sonic Maximiser, £120; Soundtech ST200CL compressor, £100. ☎ 0141 339 0344.

ROLAND SH101, £250 offers, Roland SH1000, £100 + cases. International musician mags 1984 onwards, £30. Two tier stand, £30 must sell. Kerrang, issues 1-50. ☎ Mark 01782 849019.

ROLAND SH1000 analogue mono synth, 3 octaves, excellent condition, £175. ☎ Dave 0114 236 9260.

ROLAND U20 plus two sound cards, £450 ono; Ensoniq SQR, £250 ono; Roland JD800 with three sound cards, £1500 ono. Home use, mint condition. ☎ Rob 0116 251 0405, 0116 276 1242 eves.

ROLAND U20 keyboard, £400; Korg 05R/W MIDI sound module, £350; Carlsbro Colt 100W keyboard amp, £250, all home use and hardly used. ☎ 01372 361761 (Surrey).

ROLAND U20 mint condition, with sustain pedal, manual, hard case and stand, £350; Yamaha DX7, mint with cartridges, book of patches, manual and box, £250. ☎ 01305 774367.

ROLAND U20 keyboard, mint, manual, £400; Fostex R8 with MTC1, Footswitch, manual, £1000; Studiomaster 16:8:2 desk manual, £500 - No Offers ☎ Mick 01705 371018.

ROLAND U20 with sustain pedal, hard case and manual. Mint, £350; Yamaha DX7 with 2 cartridges, mint, £275; Amiga A600, £125. ☎ 01305 774367 (Dorset).

ROLAND XP10 synthesiser 338 sounds, 16 drum kits, 128 performances + brilliant arpeggiator. Perfect condition, £425. ☎ 01933 678608.

ROLAND XP50 as new, £1099 ovno, or exchange for Hammond XB2. ☎ Michael 01438 728743 (Stevenage).

SEQUENTIAL PRO ONE boxed, manual, mint, £400; Moog Rogue, mint, £200; Korg Poly ensemble, £50; Roland TR707, £120. Possible swaps for sampler FZ10M, S1000, S950 etc offers. ☎ 01626 862425.

SEQUENTIAL PROPHET 5 Rev2. £550. Cheetah MS6, £175; Roland JV880 rack synth, mint, boxed with Atari editor and sound, £375. ☎ Brian 01752 550199.

TECHNICS PX66 digital piano 88 keys, very realistic piano sound, £1000. ☎ Kieran 01904 423862.

YAMAHA CBX K1 3 octave controller keyboard, tons of control options, touch sensitive as new, £85. ☎ 01833 678608.

YAMAHA DX7S classic digital FM synth, good condition, with sound cartridge, manuals and programming book. £300 ono. ☎ Jeff 01803 526987 (Devon).

YAMAHA DX11 with RAM card, manual and book, good condition, £300 ono. ☎ 01543 490103.

YAMAHA MU50 synth module 737 sounds, 22 kits, FX performance mode etc, £225; Yamaha CBX K1 mini-key controller keyboard. Velocity sensitive, £80, both as new. ☎ 01933 678608.

YAMAHA PSS51 keyboard, vector synth, 100 sounds, 70+ rhythms, 8-track sequencer, MIDI, £150; Yamaha RX8 drum machine, no manual, £100; Microdeal Replay 16 sample cartridge and software for Atari ST, £50. ☎ Robin 01305 785675.

YAMAHA SY22 multitimbral synth, touch sensitive and after touch sensitive, top sounds, bargain at, £250. ☎ Colin 01282 603553.

YAMAHA SY35 good condition, £280; Fostex R8, £650; Fostex 2016 line mixer, £150; RAM 10.4.8.2 desk, £250; Yamaha RBX350 bass guitar, hardly used, £180. ☎ Roger 01450 870225.

YAMAHA SY35 synth, three months o'd, two hours home use, boxed with X-stand, PSU, manuals, £325 ono. ☎ Richard 01904 653102 (York).

YAMAHA SY55 boxed manuals, mint condition, home use only, £400 ono. ☎ 01754 811167.

YAMAHA SY77 boxed as new, £600 ono. ☎ 01749 812579.

YAMAHA SY77home use only, hard case, 1000s of sounds and one sound card, £850; Alesis Quadraverb, new version, boxed with manuals and rack, home use only, £250. ☎ Steve 01293 588741, 01293 516245.

YAMAHA SY85 2.5Mb sample RAM. Sample disks and aluminium flight case, £650 ono. ☎ Chris 0113 226 1183.

YAMAHA SY85 2.5Mb sample RAM. Stand, Leads, Manuals, £700 no offers. ☎ 0115 960 4327.

YAMAHA TG55 £330. TG100, £120, Peavey T12 guitar amp, £100; Ibanez Strat copy, £100. ☎ 01352 763500.

YAMAHA TG100 sound Module, £200; Yamaha R100 reverb processor, £90; Steinberg Cubase Lite with MIDI interface for PC, £90. All boxed, as new. ☎ 01705 455894 (Havant).

YAMAHA TG300 sound module, 450 voices, fully editable, GM compatible, PC host, effects, large screen, £300; Yamaha TG100 expander, GM, £150. Both as new with PSU and manuals. ☎ Ged 01773 828379.

YAMAHA TQ5 8-track sequencer, £160; Akai S700 sampler, £160; YS100, £160, Marantz DCC92 digital mastering deck, was £800, sell for £240 ☎ Phil 01782 634476.

YAMAHA TQ5 sound module plus sequencer, £80; Yamaha MT120 4 track, unused, £150; Akai S900, £450; Yamaha SY35, £300. All ono. ☎ 01932 348848 eves.

YAMAHA W5 workstation synth, home use only, perfect condition, original warranty, manual, stand, sustain pedal, box, £900. ☎ 0171 328 5573 (London NW6).

RECORDING

ACES 24-BUSS MIXER 48 inputs, modular, 5-band EQ, 5 auxiliary sends, LED and YU meters patchbay, professional reliable mixer, £1400, consider p/ex outboard FX, mics, guitars, etc. ☎ 01482 448767.

ACOUSTIC 3312 monitors, 150 watts 33Hz-22KHz, 12-inch woofers 5 inch mid-range 3 inch tweeters, protective metal grills, retail, £800 each, brand new 2 year warranty, all offers considered. ☎ 0181 923 5946.

AIWA XDS1100 DAT solid free standing excellent condition with remote, manual and box, £550 ono. ☎ 01273 709029 Brighton.

AKG C1000S mic, Alesis Micro enhancer, quartet inch patchbay. Offers ☎ 01372 361761 (Surrey).

ALESIS ADAT less than a year old, boxed, excellent condition £1495, MQX32 PC MIDI card £145, Denon DTR2000 full-size DAT, £475. ☎ Paul 01302 538304.

ALESIS ADAT V4.03, four available, £1500 each; BRC V2.03, £700; AI1 digital interface, £470; EDAC/XLR looms, worth £400, included, very good condition, boxed with manuals. Low hours with private/archive use only. ☎ Adrian or Peter 0181 964 9696 days.

ALESIS ADAT V4.03, only 150 hours on head motor, £1450. ☎ 01302 832420.

ALESIS ADAT V4, low hours, excellent condition, full demo with pleasure, complete with remote control and manual, Two machines availab'e at only, £1350 each. ☎ Mike 0161 832 5868.

ALESIS ADAT V4, two at £1700 each; Alesis BRC, £650; Digidesign SMPTE Slave driver, £650; Studio 3 MIDI Interface, £100, all perfect condition, never used because hard disc preference. ☎ Andy 0181 883 2073.

ALESIS ADAT good condition, £1495; Soundcraft spirit Rack Pack mixer, £545 or both for, £1995. ☎ Richard 01494 674424.

ALESIS MIDIVERB II £150; Alesis 3630 compressor, £160; Alesis D4 drum module, £250; Zoom 9120 effects, £210; Steinberg AC1 ADAT sync box, £300; Roland Experience expansion board, £25. ☎ Dave 0181 902 9784 (NW London).

ALESIS QUADRAVERB in mint condition, for sale, £750 ono. ☎ Ben/Marc 01273 685179.

ALESIS QUADRAVERB PLUS, £180; Alesis Quadraverb plus, boxed, £220; Yamaha SPX50, £180; Aphex C.2 Big Bottom exciter, boxed, £200. ☎ 01633 880858 (Gwent).

ALESIS RA100 amp pristine condition, box, manual, 9 months old, home use only, £199. ☎ Dave 0410 054702 (London).

ALESIS RA100 studio reference power amplifier 100W RMS per channel. The Industry Standard for clean accurate sound, immaculate condition, boxed with long original warranty, £225. ☎ 01952 260064 (Telford).

ALLEN & HEATH GS2 24:8 mixer with automation, £1850; Tascam MSR16 multitrack recorder, £2000. Will consider swap for Alesis ADAT in good condition. ☎ 01462 678685.

ALLEN & HEATH GS3 16 track mixing desk with automatic MIDI muting, excellent condition, home use only, Boxed with manual, £950. ☎ Mark 01306 731358.

ALLEN & HEATH GS3 16:8 MIDI muting, great graphic, immaculate condition, boxed, manuals, £1400 ono. ☎ 0181 240 0769.

ALLEN & HEATH 24:16:2 40 inputs mixdown, meter bridge, £950; BBE Sonic Maximiser, £150; MIDI sockets for Amiga, £10; Patchbay for above mixer with loom, £50. ☎ 0802 782069 mobile (East Sussex).

AMPEX 2" 456 grand master tape on metal nab spools, used once as safety copy, guaranteed, good condition no edits, boxed, £45 each. ☎ 01482 448767.

APHEX AURAL EXCITER with b.g bottom, boxed with manual, can deliver, £200. ☎ 0117 975 4107 (Bristol).

ART MULTIVERB LTX 250 programs, stereo in + out, MIDI 3 effects combination, internal power supply IU rack, £120. ☎ James 01978 351230.

BEHRINGER ULTRAFEX 1 , £150; Cheetah MS6 Synth, £285, Alesis D4, £250 ☎ 01603 617459.

BEHRINGER ULTRAFEX 2, psychoacoustic processor for adding depth width to your mix, an exciter with a difference, cost £229, sell £125. ☎ Paul 01422 204479 or 0374 900334.

BEL 24:16:2 mixer £1000; Bel 8-channel dbx, £100; Tascam ATR60 1-inch 16-track £2000; Sony PCM701 200, ADAS HD Recorder £250; MIDI patchbays, PC Sound cards, Roland DM80-8 and more. ☎ 01767 631544.

BOSS SE70 effects unit, excellent condition with box and manuals, £370 ono, JL Cooper PPS2 sync unit, £70 ono. ☎ Jason 0113 262 9212.

CROWN AMCRON D75 pro power amps, three available, 1U rackmounting, all three for, £1100 or £400 each. ☎ Mark 0171 223 1169.

DIGITECH STUDIO QUAD new, boxed, manuals, £340, Alesis Quadraverb+, well-gigged but perfect working order, £190. Both, £500. ☎ William 01623 843366 (Notts).

DIGITECH VHMS, £380. Lexicon LXP15, £720. Soundcraft Spirit Folio 4, £750; Sennheiser 2MD 427, £280 each, 2MD441, £350 each, all immaculate condition as new, boxes and manuals. ☎ 0181 771 6045.

FOCUSRIGHT RED2 stereo EQ, 3 months old, £175 ono. A-frame stand, black, £70. Sequential Prelude synth, tatty, hence £40. ☎ 0171 242 1757.

FOSTEX 160 4-track cassette multitrack, one track faulty but can used as sync track, £80. ☎ Gary 0121 445 5274.

FOSTEX A8 Model 350 mixer, cabling and remote control, £600, Roland TR626 rhythm composer, £150, both light home use only, with manuals. ☎ Chris 01273 363946 or 01273 387889 (Brighton).

FOSTEX E16 with rackmount kit, excellent condition, £1750 ono. Alesis Microverb III, £140, Midiverb III, £2235. ☎ 01483 277708.

FOSTEX E16 immaculate, £1950, Phonic 24.2 desk, £450, Yamaha TX802 Module, £400, Yamaha 75X75w power amp, £190, Alesis HR16 drum machine, £120. ☎ Steve 01227 455809.

FOSTEX E16 tape machine, excellent condition, home use only, with manual. Fostex rack mounting kit and Teac E3 demagnetizer, £1650. ☎ Mark 01306 731358.

FOSTEX G16 with looms and extension cable for remote operation, all excellent condition, £2750. ☎ 01726 870661.

FOSTEX M80 8 track, immaculate, used to record two albums only. Selling up with loom and 10 Ampex reels, £590. ☎ Ian 01785 212115 (Stafford).

FOSTEX R8 Fostex 812 mixer with JL Cooper PPS2 synchroniser. Wiring looms, tapes, Teac demagnetiser, immaculate condition, boxed with all manuals. ☎ 01482 505551 Hull.

FOSTEX R8 with looms, manual and box, £700. ☎ 01223 234850.

FOSTEX R8 with remote extension and Studiomaster Proline gold 16.8.16 desk with loom and manuals plus 3 mew reels Ampex 457, £1300. ☎ Ernie 01702 471114 (Essex).

FOSTEX 4-track recorder, Dolby S noise reduction, vgc, £430; 32-way patchbay, £25, 12U flightcase rack on wheels, £35, box of MIDI and jack leads, £35. ☎ Carl 01507 606956.

JPW MINI MONITORS and sub bass unit, ideal for small studio, £80; Crest Audio FA601 power amp 225W per channel, great for monitoring, clean sound, £275. ☎ Reg 0115 950 4052.

LA AUDIO 4G quad gate, mint, boxed with manual, can deliver, £225. ☎ 0117 975 4107 (Bristol).

MACKIE CR1604 mint, £650, Studiomaster Diamond 16.2, £400; Yamaha MT2X Porta, £200; Seck 6.2 MKII Mixer, £100; Atari Mega 4 plus SM124, £600; Technics SV360HD DAT, £750. ☎ Mark 01753 535321.

MACKIE CR1604 mixer boxed with rack light, £650; Roland EP3 digital piano, MIDI, £125, AKG C410 headset mic, powered condenser, £120. ☎ John 0171 539 6978 day.

MACKIE SR24:4 VLZ desk, as new, fab sound, £1000. May swap for Mackie CR1604 plus £200 - I need space. ☎ 01902 20381, 679030.

MARANTZ DD82 digital cassette recorder, superb mastering machine also uses standard cassettes, 5 months old, full remote control with all manuals, £175. ☎ Dave 0115 939 7354 (Nottingham).

MB HYPERCARDIOID MICS pair, phantom or battery power, £195; Soundcraft Spirit Folio 10.2 mixer, £195, Lexicon Alex, £195. All very good condition. ☎ Paul 01562 710801 (Worcs).

MTR 16:8:2 mixer, 34 channels on mix, three aux, mid sweep, £550; Boss RCL10 compressor/limiter, half rack, £70; 60-way 19-inch balanced GPO patchbay, heavily built, £100. Offers? ☎ 0181 509 9886.

MXR DIGITAL DELAY rack mounting, immaculate as new, flanging, chorus, ADT, long delays and much more, £250. ☎ 01482 448767.

PHONIC PEQ 3400 2x 15 band graphic equaliser as new. Only, £90; Yamaha SU10 sampler as new, £195. ☎ 01933 678608.

ROLAND M240 24 channel mixer, £250; Vestax MR44 four track, £200; Atari 1040 with software and 32 MIDI support, £100; MD16 drum machine, £75. ☎ George 01582 761470 (Herts).

ROLAND VS880 digital workstation with Jaz drive for, £1500 or on its own for, £1000, both mint, boxed - no offers. ☎ 01925 269404 (Warrington).

SAMSON MPL2242 MIXER vgc, boxed with manual, comes with rack ears & wrist rest, must sell hence, £530 ono. ☎ Bryan 0141 952 5807.

SECK 12:8:2 12 mic/line/tape/inputs with inserts, 8 group outputs 48v Phantom power vgc with manual, £300. ☎ Robert 0115 962 4369 (Notts).

SECK 18:8:2 good condition, power supply recently serviced, £500. ☎ Ian 0171 320 7659, 0181 470 1725.

SENNHEISER MD441 multi purpose mic, excellent spec and condition, with case and spec sheet £150; Drawmer LX20 soft knee compressor, excellent condition, £100. ☎ 0113 278 7180.

SILVER 5L monitors, never used, £49; Behringer SNR202, £150 100 Aluminium Case extra deep, £95. ☎ Nathan 01254 676166.

SIMMONS SDS9 BRAIN as new with manual, 6-triggers own sound sample capability. Fully MIDI controllable, built in echo, etc, £225, or swap or p/ex Zoom 9050s guitar processor. ☎ 01482 448767.

SONY 701 digital mastering processor, the same quality as professional DAT machine, £150. ☎ 01482 448767.

SONY JH110C8 8-track one-inch analog multitrack. Excellent condition. Complete with manual and remote. Very well maintained. New head block. Plus five tapes, £1850. ☎ Julian 0181 549 5252.

SONY TCD D10 DAT machine, £750; PCM2300, £400; PCM2700A, £1500; Tascam 388 8-track, £350; TC Electronics TC2290, £1200. Rack Pack mixer, £500; Akai S1100EX sampler, £500. ☎ Kevin 0121 414 5785.

SOUNDCRAFT 760 MKII 24-track two-inch with remote control, £1500; TAC Scorpion 28.12 mixer, £1500; Revox B77 MkII, two available, 15ips, £299. ☎ 01753 542720.

SOUNDCRAFT STUDIO 24:8:2 mixing console, excellent condition, home use only, complete with manuals, £1250. ☎ 01622 741226 eves only.

SOUNDCRAFT SPIRIT 16.3 live mixing desk, excellent EQ 4 aux, chassis damaged but excellent sonic condition, £850 ono. ☎ 01883 713688.

SOUNDCRAFT SPIRIT 16.8.2 studio desk, two months old, unwanted gift, £990 with shop receipt, no offers. ☎ Chris 01708 670017 (Essex).

STUDIOMASTER DIAMOND 16.2 mixing desk, excellent condition, never gigged, £300. No offers. ☎ Anthony 0181 675 7136.

STUDIOMASTER MIXDOWN GOLD 24:8:2 MIDI muting, 42 inputs at mixdown, bargain, £1000. A&H System 8 large 16.8.2 desk with meter bridge, flightcased, £550. ☎ Grant 01273 327888.

STUDIOMASTER MIXDOWN GOLD 16:8:16:2, with MIDI muting, £900; Tascam 32 half-inch reel to reel mastering machine, £400. ☎ John 01822 854389.

STUDIOMASTER PRO LINE 16:8:16, light home use only - great EQ excellent value, £750 ono. ☎ John 0181 505 6782 eves.

TASCAM 38 8 track 1/2" , good condition with 9 tapes, £500; Seck 12.2 mixer, £200; Art Multiverb 20 bit multiple effect, £100. ☎ 01535 657698.

TASCAM 488 8-track portastudio, home user only, £550. ☎ Keith 01895 234594.

TASCAM 488 12-input, 8-track portastudio, very light home use, only £700 ono. ☎ Nick 01635 42110.

TASCAM 488 MKII 8-track portastudio, 20-30 hours use, immaculate, boxed with manual, £890 ono. ☎ Graham 01423 771440 (N Yorks).

TASCAM 688 programmable MIDIstudio, home use - serviced, manuals, £900. ☎ 0181 941 5100.

TASCAM M2516 desk 16:8:2 MIDI muting, £850; Boss BX16 line mixer 2 effect, £220; Ensoniq EPS 16+R rack sampler 2Mb + library, £750. ☎ 01932 874682 eves (Surrey).

TASCAM M3700 24:8 automated mixer plus Alesis ADAT digital 8-track recorder 18 hours use, sell together for £4, 500. ☎ 0131 549 5630 days, 0131 663 3248 eves.

TASCAM MM1 20.2 MIDI mixer as new hardly used, boxed, £300. ☎ 01494 448419 (Bucks).

TASCAM TSR8 half-inch professional 8-track with remote, practically unused, boxed manuals, mint condition, £1000 ono. ☎ Michael 0161 798 0581.

XRI SYSTEMS XR03 SMPTE to MIDI synchroniser, good condition with box and manual, £100. ☎ 01223 234850.

YAMAHA AM802 mixer, six mono, two stereo inputs, 3 aux, very compact, ideal for home studio or live, excellent condition, manual, £199. ☎ Daniel 0171 359 7825.

YAMAHA MT2X 4-track, £250; Uher Report 4200 2-track, £195; Reddmix 8.2 rack mixer, £95; Voyetra VD11 Parallel port MIDI interface, £65, Roland MC50 sequencer, £250. ☎ Kyt 01208 831069.

YAMAHA MT8X 8-track cassette multitrack, excellent condition, recent service, boxed with manuals, £650 ono. ☎ 01327 71568 Rob.

YAMAHA MT8X, £725; Zoom 9120, £175, both as new, boxed with manuals; Siel Cruise synthesizer, £45; Steinberg Pro24 software for Atari, including dongle, £50. ☎ 0181 808 1126.

SAMPLERS

AKAI CD3000 8Mb RAM, analogue sampling board, 10 outputs, £1500; Tascam 688 MIDIstudio, 8-track recorder, 20-channel mixer, £1100. ☎ 0181 840 7029.

AKAI S01 1Mb, hardly used, immaculate, boxed with manual, £375. Roland SPD8 with internal sounds and clamp, £225, Akai XE8 drum expander, £75. ☎ Nigel 01361 890279.

AKAI S950, £700. Roland Juno 6, £225. Yamaha TG33, £225, Alesis MIDIverb 2, £80, Boss SE50, £225; Simmons SOU 8.2, £150; Atari 1040 STFM with monitor and cubase, £200. ☎ 0181 348 4415 after 7pm.

AKAI S1000HD 10Mb, super condition, £1400. Roland TR606 drum machine, £655. Roland TR727 Latin drum machine, no power supply, £80. ☎ Eddie 01622 858300 eves.

AKAI S2000 10Mb, EB16 effects board, Syquest EZ135 drive, as new, £1200. Yamaha V50, £375, Roland Juno 6, £200. ☎ Steve 01222 486146.

AKAI S2800 2Mb, mint condition, boxed with manual, original disks and receipt, £900 ono. ☎ Rich 01494 763774.

AKAI S2800 sampler 10Mb DAC rackmount optical drive, Apple CD ROM drive, CD ROMs including full Akai library, optical discs, etc, home use only, £2000 ono. ☎ 01270 820012.

AKAI S3000I 8Mb SCSI, effects board, excellent condition, boxed, manuals, £1650 ovno. ☎ Martin 0181 240 0769.

CASIO FZ10M 16-bit sampler, over 30 seconds sample time, large graphics display for easy editing, 8 loops , filters, cross-fades, vgc, manual, large library, 8 outs, £650. ☎ Tom 01633 880946.

EMU EIV the ultimate 128 voice, with 32Mb bays free for full 128Mb, absolutely brand new, reluctant sale due to house deposit, £3500 ovno. ☎ Darren 0181 959 4659.

EMU E4K sampling synthesis workstation, Huge internal library and hard disk, latest software version SKB flightcase. Genuine reason for sale, £2650 ono. ☎ 01373 462193.

EMU E64 10Mb Boxed, £1950. Yamaha ProMix 01 fully automated 18.2 24-bit digital mixer, two internal stereo effects, three compressors, boxed, six months warranty, £1300 ono; Roland JV1080 super synth, £850. ☎ 01332 297797 days.

EMU EMAX II keyboard sampler, SCSI 420Mb hard disk, triple speed CD-ROM drive, entire Emu four CD-ROM library, floppies, manual, boxed 100% mint, £1300, may split. ☎ 01484 865137.

EMU ESI32 with SCSI, mint, boxed with manual, £840; Novation Bass Station rack, mint, boxed, manual, £275. ☎ MArtin 01244 376446 eves (Chester).

EMU ESI32 SCSI V2 upgrade, 50 library disks, manual, boxed as new, £950, Roland Juno 106, excellent condition, boxed, manual £475. ☎ Richard 01305 782554 after 6.30pm.

EMU ESI32 8Mb RAM, SCSI, still under warranty, excellent condition, boxed with manual and disks, £1100. ☎ Carl 0181 245 0925 after 6pm, 0171 482 1692 days.

ENSONIQ EPS16+ sampling workstation, synth, 24 bit effects, 16 track sequencer, boxed manuals. As new - offers. ☎ Kristian 01273 205863 Brighton.

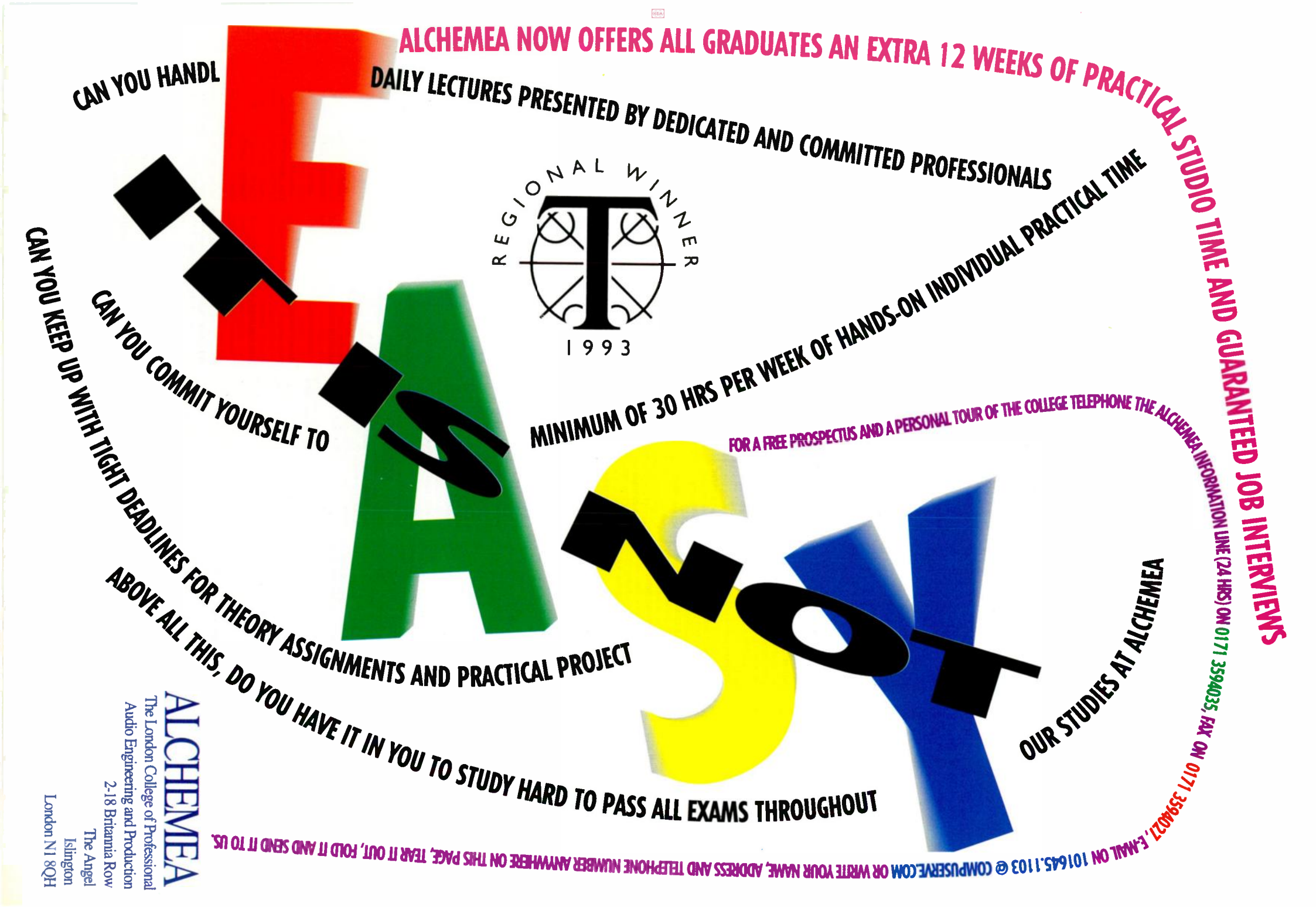
ENSONIQ EPS16+ rack, expanded with Flash ROM, library, manual, on board effects, sequencer, perfect condition, £800 ono. ☎ 0161 225 1166.

ENSONIQ EPS16+ workstation, excellent condition 50 disks, manual, flightcase, £850 ono. ☎ Kamal 0115 978 6318 (Notts).

ENSONIQ EPS16+ rack workstation with effects, loads of disks and MC202 CD, mint condition, £800 ono; Ensoniq SQR, £250 ono; Roland U20 and cards, £450 ono, JD800 and cards, £1300 ono. ☎ Rob 0116 251 0405, 0116 276 1242.

ENSONIQ EPS16+, two available, Roland R8 Mk2, Studiomaster Diamond 8.2 mixer, two A-frame stands, three X-frames, £2300 the lot. May split. ☎ 01964 622638 (Hull).

ENSONIQ MIRAGE DSK sampling keyboard with advanced samplers guide, MASOS disks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PEAVEY SP/SX with 8Mb upgrade in 4U flightcase. £625 ono. Roland PC200 MkII controller Keyboard, £125 ono. or, £700 the lot. ☎ Andy 0191 2570665 or 0191 2571121

ROLAND W30 superior operation, high class sequencer, digital sampler, larger memory capacity. £750. ☎ Martin 0181 577 5974

ROLAND DJ70 4Mb, £750. MC50 sequencer, boxed, manuals. £250. TR808, good condition, manuals, £400. Wanted: cheap MV30. ☎ 01273 676153

ROLAND MS1 16 bit sampler, boxed as new with manual & sample library, £260. ☎ Steve 01235 814772

ROLAND DJ70 8Mb expansion, manuals, excellent condition, £850. ☎ 01772 626025

ROLAND S760 10Mb, CD ROM and disk, box of samples, £1190 ono. Digital Boy double S760 CD, £190, Casio VZ10M synth module, three sound cards, £225. ☎ 01483 571866 (Guildford)

ROLAND W30 sampling workstation, £700, Tascam 464 portastudio, £400, Atari ST 1Mb, £100, Aria steel string acoustic guitar, £200 ☎ Oli 01337 34736

ROLAND W30 sampling workstation, £600, Novation Bass Station, £200, Boss DR660 drums, £200, Behringer Ultrafex II, £140, Alesis Microverb II, £80, Zoom 9001 multieffects, £80. All perfect. ☎ Rick 01757 701010

YAMAHA SU10 sampler filter ribbon controller, 48 samples, up to 54 seconds sampling time, as new, £200. ☎ 01933 678608

YAMAHA SU10 sampler, only four weeks use, £235 ono. ☎ Paul 0191 383 0509

COMPUTERS & SOFTWARE

486 DX4 multimedia PC, 8Mb RAM, 256Mb cache, 420Mb hard disk, Quad speed CD ROM, 1Mb PCC 64-bit graphics card, 16-bit sound card, 14-inch SVGA monitor, Windows 95, Cubase, SAW, MIDI interface, vgc, £650. ☎ 0181 740 0906.

486 DX266 8Mb RAM 15-inch monitor, full multimedia and audio capability, too much to list, £700 ono. ☎ Neil 01427 891044

APPLE MAC II with Cubase, including all manuals, and Apple MIDI adaptor. 8Mb and hard drive, £300. ☎ Jason 01772 736645 (Lancs)

APPLE MAC IIvi, 4/80 14 inch Trinitron monitor, keyboard, mouse, performer V3, 64, Alchemy V2.5.1, all boxes and manuals. Immaculate complete Pro MIDI setup. £750 ono. ☎ Rich 01494 763774

APPLE MAC LC475 8/160, 14-inch Trinitron monitor, Stylewriter II printer, US Robotics modem, MIDI interface, MOTU *Freestyle* sequencer, Microsoft *FoxPro* database and extras. £800. ☎ 01248 723916

APPLE MAC QUADRA 800, good condition, ideal for NuBus Digidesign cards. £850 ono. ☎ 01 864 188618

APPLE QUADRA 950 40/500, Rasterops, 24XLTU video in/out, Apple external CD300 2x CD ROM drive, £2200. ☎ 01225 319662 (Bath)

ATARI 2Mb SM124, 40Mb hard drive, £250, Dynamix 24:2 mixer, £395, Sech 24V psu, £25, Sony DTC1000, £450, Peavey Autograph plus PVR1, £350, Goldstar GK49 keyboard, £95. ☎ Alan 02379 676670

ATARI 2.5Mb hi res monitor, £200, Boss Dr Synth, £150. ☎ 01926 465593, 419355.

ATARI 520STE 1Mb, no monitor, good condition, could be easily upgraded to 4Mb, £100. ☎ 01354 695239.

ATARI 520STE 2Mb, 40Mb hard drive, 14-inch hi res monitor, sequencers, universal editor, WP, DTP, comms etc, £300 ono. ☎ Mike 0121 705 0535 after 6pm.

ATARI 520 STFM, 4Mb, recently serviced, 4-month old Data Systems 14-inch hi res mono monitor, mouse, leads, etc, £250. ☎ 0181 998 5325 (Ealing)

ATARI 520 STFM with Marpet RAM expansion board, 1Mb, can be easily upgraded to 4Mb, no monitor, £90. ☎ 01354 695239.

ATARI 520 STFM upgraded to 4Mb with 14-inch mono hi res monitor, mouse and all leads, £300. ☎ 01305 788560 Eves.

ATARI 520 STFM 4Mb, SM124 monitor, extra MIDI out, £270. Atari Falcon 030 colour monitor, SMP11, Cubase 3.02, £650, Notator Logic 2.5 PC, £200. ☎ Chris 0121 356 9636.

ATARI 520 STM 1Mb RAM, mono monitor, Cumana disk drive, printer, books, more, £100, buyer collects. Patchworks JV880 editor, £10. ☎ 01843 586913 (East Kent)

ATARI 1040ST and SM125 monitor, Cubase V3, manuals, home use only, £350 ono. ☎ 01628 526469 (South Bucks)

ATARI 1040STE with hi res monitor, £150. ☎ 0115 978 0982.

ATARI 1040STE 2Mb, hi res monitor, sequencing software, games, manuals, joysticks, £250. Swap for outboard effects unit, compressor, etc. ☎ Dave 01933 270930.

ATARI FALCON 4Mb modified for Cubase Audio. Free software including Papyrus, ease, MyDI, Diamond edge, True paint etc. £450 ADD, £399 for Cubase Audio. ☎ Norbert 0171 402 2241.

ATARI FALCON 14Mb RAM, 350Mb hard disk, £800, Cubase Audio 16, £500 FDI digital interface, £150, external SCSI 540Mb hard disk, £200 The lot for £1500. ☎ 01702 616961

ATARI FALCON 14Mb RAM, 350Mb hard drive, £800, 540Mb external hard drive, £200, Cubase Audio 16, £500, FDI digital interface, £150. The lot for £1500. ☎ Ian 01702 616961.

ATARI MEGA 4STE 350Mb hard drive, keyboard, mouse, joystick, no monitor, software and games included, very good condition, £325 ono. ☎ 01732 762872.

ATARI ST hi res and colour monitor, printer, Pro24, some other software, 350 disks, ☎ 01635 869933

ATARI ST with hi res monitor, mouse, cubase, all cables, extras, everything included for music production, boxed, mint, £250; Roland MS1 sampler, £190. PC200 controller keyboard, £90 ☎ 01252 370550.

ATARI STE 4Mb, TOS 2.06, mono monitor, software, £220; 300Mb hard drive plus link cable for Atari, £150; Unitor 2, £90; external floppy, £25; Fostex R8 and tapes, £700. ☎ 0181 287 4947.

ATARI ST SOFTWARE Hi Soft Lattice C V5, £45. Atari ST Basic, by Metacomco, £5, Mandarin STOS games creator, STOS Compiler, STOS Sprites 600, £35 the set. All boxed, original disks with master disks. ☎ 01354 695239.

DAYSTAR POWER PRO 601 100MHz Power PC upgrade turns almost any NuBus Mac into a Power PC, £800. ☎ 01225 319662 (Bath).

DIGIDESIGN SMPTE SLAVE DRIVER as new, £745. ☎ 0171 209 0869.

EPSON GQ5000 laser printer, Class 1, needs printer drum, spare toner, vgc, £250 ono. ☎ 01732 762872.

GELVA EZE sample editor for Ensoniq EPS, requires 1Mb Atari ST for on-screen waveform and synth parameter editing, mint, £75. ☎ Chris 0421 507144 Mobile answering service (Cumbria)

MICRODEAL REPLAY 16 Atari 16-bit sampler, £60 with manuals, X-frame keyboard stand, surplus and unused, £16. ☎ Mark 01772 888314.

MOTU PERFORMER 5.02 MIDI sequencer for Mac, complete with master disk, manual, £99 ☎ 0171 435 2326

PENTIUM 120 16Mb RAM, 1.2Gb drive, CD ROM, Tahiti sound card, *Cubase* V3, 17-inch monitor, Windows 95, mouse, keyboard, floppy drive, speaker, four months old, £1500, or swap for 16-track recorder. ☎ 01795 580747.

PENTIUM PC 106MHz CPU, SAW, capable of 16 tracks hard disk recording, MIDI, 1.2Gb hard drive, 512K cache, 24Mb RAM, 6X CD ROM, Sony FST monitor, Cubase & SAW, all new, £1639. ☎ Nev 0181 471 1153.

RENO PORTABLE CD-ROM brand new, in box, SCSI cable, PC and Mac software, cost £429, sell £210 ono. ☎ Jason 0181 904 4782.

SONY 650Mb OPTICAL DRIVE in DAC switchable 3U rack mount needs overhaul, therefore only, £199. Ten 5.25-inch 650Mb optical discs, used once as archive, £300. ☎ 01225 319662.

STEINBERG AVALON 16-bit D/A stereo converter plus *Avalon* V2.1 universal sample editor for Atari ST/STE computers with dongle and manual, cost £700, sell for £295. ☎ 0181 883 4329.

STEINBERG AVALON sample editor for Atari ST/STE, full registered version, £95. Wanted: K2000 ROM blocks, Cuetrax and Studio modules for Cubase ST. ☎ John 01603 787216

STEINBERG CUBASE V2.6 for Windows, boxed, manuals, copy protection key, Midiquest MIDI card, £175 ono. ☎ Richard 0121 323 4390.

STEINBERG CUBASE AUDIO XT V3, £400 ono, Philips DCC mastering machine, £150 ono, 44Mb Syquest with 4 cartridges, £75 ono. ☎ Steve 0181 301 0777

STEINBERG CUBASE AUDIO for Falcon, dongles & Manuals. £499 add. £349 for a 4Mb Falcon with free software, including Papyrus, Ease, NVDI etc. ☎ Norbert 0171 402 2241.

STEINBERG CUBASE SCORE VSTfor Mac, genuine package, MIDI score and audio on a Power Mac, still with registration card, £350. ☎ 01993 812739.

STEINBERG CUBASE AUDIO V2 for Macintosh, £300; Digidesign Audiomedia II card for Mac (NuBus), boxed with manuals, £350. ☎ Neil 01222 886521.

STEINBERG PRO24 V3 sequencer for Atari ST, vgc, with manual and dongle, £25. Wanted: Korg RAM card, SCSI for Ensoniq EPS16+ sampler. ☎ Steve 01270 820393 eves/weekends (Stoke).

STEINBERG SYNTHWORKS editor/librarians for Atari ST. Roland D5/D10/D110/MT32/D20, £60; Kawai K1/K1 MkII, £60, both for £100. Dongles and manuals included. ☎ 0181 883 4329 x

VIRTUOSO SEQUENCER for the ST, better than Cubase, fully registered in box with manual and dongle, bargain, £75; Blitzer disk duplicator for Atari, £10. ☎ 01736 67531.

SEQUENCERS

AKAI ASQ10 sequencer, 99 track 4 MIDI out 2 in SMPTE, vgc, £500; Roland MC202 sequencer with manual, £250. ☎ 01473451839

AKAI ASQ10 pro hardware sequencer, £450, Moog Rogue,analogue keyboard, £150, Roland TR707, £150. All excellent condition, boxed with manuals. ☎ Kris 0151 523 8110.

ROLAND MC50 sequencer, home use only, £350 ono. ☎ Anthony 0115 939 1197 (Notts)

YAMAHA QY10 portable workstation, superb sounds, 8 track sequencer and small enough to fit in your pocket. Fancy writing songs wherever inspiration hits you? ☎ Stephen 01633 858576.

YAMAHA QY10 sequencer and composer, boxed, excellent condition, £100 ono. ☎ Gary 0121 445 5274.

YAMAHA QY22 8-track MIDI step/real time recording, mint, boxed, manuals, AC adaptor, highest offer secures. Write to: John Auld, 2 Brook St, Stoke, Staffs ST4 1JN.

DRUM MACHINES

ALESIS D4 drum module, still boxed, hardly used. £225. ☎ Stephan 0860 931 838 eves (Oxon/Bucks/Berks)

ALESIS HR16 drum machine, hardly used, £90. ☎ 01372 361761 (Surrey)

BOSS DR660 includes effects and 250 sounds, £250, Drawmer LX20 expander/compressor, £180, Alesis Quadraverb multieffects, £195, ART Multiverb LT, £125, JX3P, excellent MIDI controllable analogue, £275. ☎ 0117 927 7226

ALESIS SR16 boxed as new, with manual, power supply and extra drum patterns, £150. ☎ 01763 838722

BOSS DR660 drum machine, brilliant sounds, in excellent condition with box and manual, £270 ono. Roland PC200 MkII control keyboard, £90 ono. ☎ Jason 0113 262 9212

EMU SP12 TURBO sampling drum machine, 8 outputs, external disk drive, amazing hands on real time editing, manual, loads of sounds, rare, classic beatbox, £750. ☎ Ian 01432 266752 (Hereford)

ROLAND OCTOPAD 2 fully programmable, 64 memories, immaculate and as new with manual £325 or swap Zoom 9050s or outboard effects. ☎ 01482 448767.

ROLAND R8 drum machine with cards & case, manual, immaculate, £300. ☎ Rob 0117 924 9891 (Bristol)

ROLAND R8 Human Rhythm Composer, eight separate outs, full MIDI spec, Electro sound card, flight case, manual, vgc, £425 ono. ☎ Chris 01484 545057

ROLAND R8 with 808 card, mint, boxed, manual, hardly used, £300. ☎ Michael 0161 798 0581

ROLAND R70 with effects and bass sounds, plus and manual, £280 vgc, Viscount RD70 MIDI filer, £130; Alesis Microverb II reverb, £50. ☎ Tony 01222 238670.

ROLAND TR606 mint condition, no duff buttons, probably comes with original box and 606/303 carry case, £120. ☎ Bryan 0141 952 5807.

ROLAND TR707 drum machine, £120; M64C memory cart, £15. £150 together, Roland PC200 Mk4 MIDI controller keyboard, £120. ☎ Leo 0161 448 9778 (Manchester).

ROLAND TR808 and Junio 60 plus MSQ100 to sync 808, £650 ono. ☎ 01865 202681 (Oxford)

ROLAND TR909 perfect condition, serious offers. ☎ 01344 642034 (Bracknell)

SEQUENTIAL DRUM TRAX analogue beatbox with MIDI, £140 ono. Evolution EVS1 module, £100 ono. Swap for Casio CZ1000. ☎ Steve 01526 323468 (Lincs).

SEQUENTIAL DRUM TRAX tunable sounds and velocity, MIDI, many interfacing options, excellent condition with manual, £195. TR606 with soft case, manual, vgc, £120. ☎ 01432 266752

SIMMONS SDS1000M drum brain, trigger inputs, fine individual audio outputs plus stereo outs MIDI in and outs, great analogue drum sounds, £100 ono. ☎ Nick 0121 525 1832 or 0402 305181.

YAMAHA RX8 drum machine, no manual but easy to use, swap for QY10, TG100, Korg DW8000, Casio VZ10, or anything interesting, modules, synths or effects. ☎ Robin 01305 785675.

MISCELLANEOUS

AKAI ME80P programmable MIDI patchbay 8-in/10-out, merge & filtering capabilities, handles SysEx, 1U rackmount, mint, boxed with manuals. £150. ☎ Andrew 0191 295 1604

ANATEK POCKET PEDAL £25, Roland MT32 module, £100, Shure X4 mic cartridge, £60. ☎ Brian 01524 485089

BOHM DESKTOP MIDI controller, all the functions of a high class MIDI keyboard in a box, comes with comprehensive user manual and Atari compatible editor, £225. ☎ Ken 01235 831391.

CARLSBRO 1200W AMP 18 months old, as new, 600W into 4Ω each side, 2000W bridged. ☎ Kelly 01553 764842 (Norfolk).

CARLSBRO COBRA 90W keyboard combo, very good condition with cover and foot pedal, £140 ono. Wanted: SCSI upgrade for Ensoniq EPS16+ sampler. ☎ Steve 01270 820393 eves/weekends (Stoke).

CELESTION K15H speaker chassis, two available, 15-inch, 4Ω, costs £90 each, accept £130 the pair. ☎ 0116 262 8446 (Leics)

HH VX900 stereo amp, 450W per channel, 900W linked, into 4Ω, fan cooled, £450 ono. ☎ Imogen 01932 854566.

HH 100 WATT 1X15 loaded bass extension cab, £100 ono; 50W 1X12 wedge monitor with horn and L pad, £70 ono. ☎ Steve 01326 240401.

SAMSON BR3 broadcast standard true diversity radio mic system, balanced or jack outs, dbx noise reduction, 12 channels, two transmitters, £715, or p/ex Akai S3000. ☎ 01234 272919.

KIT SELECTOR for drum 2, £75 or PX for drum rack. ☎ 01993 812739.

KS SORABJI two rare, out of print books by eccentric composer 'Around Music' (1932), 'Mi Contra Fa', in wrapper (1947). Both clean, complete. Serious offers. ☎ 01354 695239.

LUDWIG DRUM KIT black, immaculate, Rolls Royce of drums, very large Ludwig stands, pedal etc, £1200. May p/ex or swap recording equipment. ☎ 01482 448767.

PAIR YAMAHA S20X MONITORS flight cased, £175; 10U flight rack, £85; 8U SKB, £80; Zimmer Rack, £60; Fujiha D9E, £220; Soundcraft Powerstation, cased, £700. ☎ 0121 356 9636.

PA SYSTEM 1k, swap for MIDI keyboard synth or a 12-channel desk. Anything considered. ☎ 01908 520245 6.30-7.30pm (Milton Keynes)

PEAVEY CLUSTER CL1 PA speakers 300 watt, handle all your mid and hi range, £400 the pair with stands. ☎ 01993 812739 (Oxon)

PEAVEY PV8.SC power amp, 550W stereo, £370, Bose 802E, active EQ for 802 speakers, £120, Teac S300 bookshelf monitors 50W dual concentric speakers, £85 pair. ☎ Reg 0115 950 4052 eves.

PEAVEY XR600C PA with speakers/stands 600 watts total power, 6 channel mixer, balanced mic inputs and graphic equalizer, suitable for bands/DJs, £599. ☎ 01296 25066 (Aylesbury)

RACK FLIGHTCASE 19-inch, 30U, aluminium finish, front and back removable, ball corners, butterfly catches. Sprung handles, mounted platform H.D. castors with brackets, excellent condition, £190. ☎ 01208 873649

RACK FLIGHTCASE 16U on wheels, front and back lids with vents and handles, black, vgc, £200. ☎ 01992 812739 (Oxon).

RACK UNITS 36U, over six feet high, buyer collects, £90 each Marshall JMP1 rack mount valve MIDI preamp, excellent condition, £325. ☎ 0181 680 9099 (Croydon)

ROLAND SH101 mod grip for red SH101, very rare, £35. ☎ 0181 540 0083.

ROLAND PG300 programmer for Juno 1/Juno 2 and MKS50, transmits SysEx for real time sound altering, boxed, manual, £150 ☎ 01273 561023, 324995 (Brighton)

SLINGERLAND CONCERT TOMS 13-inch and 16-inch chrome, plus stand, £75 ono. ☎ Gary 0121 445 5274.

STEINBERG AC1 ADAT sync box. £350. Alesis 3630, £195. Akai S3000 2Mb board, £70, Zoom 9120 effects unit, £250 all boxed as new. ☎ Dave 0181 902 9784.

STEINBERG AC1 ADAT computer interface with software, excellent condition, £250. ☎ 0171 624 8219.

STUDIO ITEMS to clear. Please call for details ☎ 0181 248 3391.

STUDIOMASTER TRACMIX modules, including front panels, £20 each, P&R patchbays, three, £30 each, Roland TR606 Drumatrix, separate outs, £85. ☎ 01493 331400.

TECHNICS SL1200 MK2, two available, plus two Stanton EL cartridges, good condition, £650. ☎ Pat 0171 252 6149.

TWIN NECK MAPLE STRAT vintage trem, 12+6 string, inc hard case, worth over, £800, swap for sampler or desk or R8/M80. ☎ Dave 01733 315813.

VIOLECTRA ELECTRIC VIOLIN five string, as used by Jean-Luc Ponty, amazing sound, sea-blue sunburst body, absolutely as new, high quality blue bow included, £1800. ☎ 01232 838875.

PERSONNEL

A&R AGENCY representing a range of dance labels, require artists with good quality demos. All dance/electronic genres. Replies guaranteed, send SAE. Fu-Phonic PO Box 10503 London N22 6TQ.

ARTIST? PRODUCER? DJ? do you make quality techno trance/hardcore tracks? Then we want to hear them. Trancemission Records, PO Box 4314, 6202VA Maastricht, Holland (Please enclose IRC).

ENGINEER/PRODUCER moving to Norwich area, seeks work, anything considered. HAve broad knowledge, practical experience. ☎ Andy 01327 341421.

FEMALE VOCALIST needed for dance music group with own studio and industry contacts. Co writing opportunities, serious enquires only ☎ Lee 0114 266 9073 (Sheffield).

INDIE PUBLISHER/LABEL wide ranging roster (rock, r&b/swing/world jazz/triphop) seeks collaboration with owner of 24-track studio with live room on points split/share of publishing basis. ☎ Nick/Kim 0171 263 6989.

INNOVATIVE TECHNO required by established label, pressing, promotion, distribution and export all sorted. Send demos to: Acruacree Records, 6 St Hilda's Terrace, Thornbury, Bradford BD3 7AB or ☎ 01274 406087.

LONDON BASED SINGER producer seeks to form/join band. D REAM style, but more NRG. ☎ Russ 0181 540 0083.

FEMALE SINGER/SONGWRITER co-producer wanted for commercial dance music in London area. ☎ 0181 540 0083.

MALE VOCALIST keyboard player wanted for soul/swing projects, for record company Future Releases. ☎ Paul 01302 538304 after 6pm.

MANAGER/PROMOTER required by programmer/vocalist. Loads of original material already recorded, can go live, can also arrange and programme demos. No timewasters. ☎ Dave 0181 478 6876.

SMOOTH TALK RECORDS currently seek Happy, Melodic tunes with no orig nal flavour. All styles considered on good quality demos, send SAE to 5 Sun Square, Hemel Hempstead, Herts HP1 3AW.

LIBRARY MUSIC composers required, showtapes etc to Sound Service, Apple cottage 21 Ilford Lane, Bournemouth BH6 5RD.

VORTEXT RECORDS require experimental grooves for monthly releases, starting in November, Todd Terry need not apply. Send demonstration recordings to: Vortext Records, 79 Widemarsh Street, Hereford HR4 9EV.

WANTED

AKAI S1000 sampler, Roland Jupiter 6, Roland R8 with 808 and 909 card. ☎ 01444 871260.

AMIGA BARS and pipes music sequencer and extra fast 32-bit RAM required. ☎ 01452 720381.

ANALOGUE GEAR NEEDED TR606, TR727, £75; SH101, MC202, CR78 Wasp, £150, TR808, £300; TB303, £425, Oscar Jupiter 6, £500; TR909, £600. ☎ Kevin 01353 663613 eves/weekends.

APPLE MAC MONITOR wanted, cheap, any size, cash waiting. Extended keyboard for Mac also wanted. ☎ 01354 6925239.

ATARI 1040STE preferably with disc drives, HiRes monitor, Steinberg cubase inc manual/dongle. ☎ Colin 01634 231838 after 6.30 (Kent).

BOSS DE200 rack ears wanted. Cash waiting for right price. ☎ 01354 695239.

BOSS DR660 drum machine wanted cheap, cash waiting. ☎ 01354 695239.

BOSS MICRORACK RAD10 19-inch rack shelf (2 required) or BMR5 micro rack unit. Also rack ears for Boss DE200 delay. Cash waiting for right price. ☎ 01354 695239.

CHEETAH SX16 sampler, will pay between £240 and £300, depending on condition. ☎ Jason 01442 832592.

CHEETAH MQ8 sequencer wanted, will pay around £40. ☎ Gordon 01225 761360.

GERMAN MUSICIAN pays for TB303, £500; TR808, £250; TR808, £350; TR909, £500; SH101, £150; MC202, £150, ☎ 0049 5152 61676 or fax 0049 5152 8179.

KORG MS10 for CV/gate control use. ☎ Sam 01225 481641 eves.

KORG 01/W or 01/W FD synth, must be reasonable price. ☎ 01224 639450 Gerry (Aberdeen).

KURZWEIL K2000 V3 keyboard with sample option. Will pay £1500 cash. ☎ Kris on 01273 205863.

LESLIE CABINET WANTED preferably model 122, 147, 715 or 815 but will consider any with treble and bass rotors. Will collect. ☎ Kenny 01236 767133 (Glasgow area)

MOOG SOURCE Oberheim OB1, Korg Poly 6, Oscar and JV1080 vintage expansion board wanted urgently, cash waiting for reasonable offers, please call eves or weekends ☎ 0171 787 2547 or 0181 904 3990.

ROLAND SH101, MC202, TB308, TR808, TR909, System 100M, JD800, Juno 106. Cash waiting, no dealers, good price. ☎ 01252 375025.

NOVATION BASS STATION RACK Cheetah SX16, Akai S01. ☎ 01733 371773.

ROLAND ALPHA JUNO 1 wanted, will swap DX21, Akai S700, MT32, all with PSUs. Wanted SH101 mod grip and battery cover. ☎ Robert 01475 686743 weekends (Glasgow)

ROLAND D70 PCM CARD set SPLA03, and other PCM card set, ROM cards. Write to: John 10 Lynwood Road, Redhill, Surrey.

ROLAND XP80 and R8 MkII drum machine, cash waiting. Roland JV1000 for sale, mint, £950 ono. ☎ Dan 01603 421814 room 23.

ROLAND SH09 for CV/Gate control use. ☎ Sam 01225 481641 eves.

ROLAND TR606 Drumatrix wanted, cash waiting for right price. ☎ 01354 695239.

SOPHIE/PETER JOHNSTON ALBUM mid-80s, and any albums by Portion Control, Mobiles from the early 80s. Good price paid. ☎ Steve 01526 323468.

STEINBERG CUBASE full version for PC must be complete. ☎ David 01933 270930.

STEINBERG CUBASE AUDIO for PC and Digidesign Session 8 wanted. For sale: Barcus Berry enhancer, £150. Emu Procussion, £275, Octava MK219 mic, £150. ☎ 0151 526 2178.

STILL DESPERATELY LOOKING for Yamaha DX7 ROMs, Bass ROM, C Lab X-RAMs, 128 one and two SX ROMs one and two Skyslip ROM chips. ☎ Duncan 01214 442681.

TANNOY GOLDS and Marshall Time Modulator, money waiting. ☎ 0161 998 9487.

WALDORF MICROWAVE V2, will pay £900. Yamaha MTAX 8-track, will pay £700 if excellent condition. ☎ 0181 998 5325 (Ealing)

WHITE PLASTIC D Key for Moog Prodigy and switch caps for Korg Lambda. ☎ 01942 814818.

YAMAHA DX27/100 required for spares, cash paid for faulty units in any condition. ☎ Michael 01903 219695 (Worthing)

YAMAHA RY30 CARDS house and rap urgently required, good price paid. ☎ Rob 01484 847914.

YAMAHA SY85 Kenton Pro solo MIDI/CV converter. Yamaha TX7, 8-track reel to reel recorder. ☎ James 01484 865137.

YAMAHA SY99 sounds wanted. ☎ Gareth 0181 549 2425.

YAMAHA TG500 module wanted cheap. ☎ 01354 695239.

AKAI MACKIE E-MU YAMAHA TANNOY DENON AKG DigiTech EMAGIC

EUROPE'S LOWEST PRICES GUARANTEED*

2 Tracks

SONY TCD8 — LIMITED STOCKS

Turnkey bring you the first stocks of Sony's brand new portable, the TCD-D8. Sturdily built with a back-lit display, the unit features 48 and 44.1 kHz recording. Initial supplies will be very limited, phone now to reserve yours. The ultimate Walkman !

RRP £599 **£529** NEW BOXED

DAT PRICE CRASH

We have exclusively secured a small supply of the Sony DTC790 to bring you the cheapest full size DAT machine on the market, but this is not at the expense of features! SPDIF coaxial input and optical in and out, digital and analog recording at all three sampling rates (32 kHz, 44.1 kHz, 48 kHz), as well as all the usual ID functions and a full function infra red remote control. Also available with Digicon SCMS stripper for only £599. Another DAT exclusive from Turnkey.

SCOOP RRP £699 **£529** NEW BOXED

NEW, USED & EX DEMO

Arbiter Isoracles	£49	Sony DTC790	£499
Denon DCD315	£149.99	Sony DTCA8	£849
Denon DCD625	£199.99	Sony MDS302	£479
Denon DCD715	£234.99	Sony MZR3	£399
Denon DN770R	£529.99	Sony TCDD10 PRO(2)379	
Denon RMK	£46.94	Sony TCDD7	£399
Fostex D10	£2696.63	Sony TCDD8	£499
Fostex D5	£749	Sony WMD6C	£349
Marantz PMD320	£433.58	Tascam 102MKII	£249
Marantz PMD321	£511.13	Tascam 112MK2	£599
Marantz PMD502	£499.38	Tascam 202MK2	£349
Marantz PMD510	£703.83	Tascam CD401MKII	£775
PanasonicSV3700(x1643.83		Tascam DA20	£599
PanasonicSV4100	£2579	Tascam DA30 mk2	£999
Philips DCC170	£249.99	Tascam DA60	£4663
Philips DCC951	£279.99	Tascam DA88	£3200
Revox B77	£2499	Tascam SYD6	£504.08
Sony DTC1000ES	£549	TEAC V375	£99
Sony DTC60 ES	£799	TEAC W416	£99.95
Sony DTC690	£627.16		

SONY DTC A6 — ALL NEW SONY DAT

Sony have done it again! A full size, full spec DAT machine at a bargain price! Just look at the list of features: SPDIF coaxial input and optical in and out, digital and analog recording at all three sampling rates (32 kHz, 44.1 kHz, 48 kHz), as well as all the usual ID functions and a full function infra red remote control. Sony's exclusive Super Bit Mapping process can also be switched in, cramming the sound of 20 bits into 16! Initial stocks are limited - get your order in now!

RRP £699 **£649** NEW BOXED

FOSTEX D5 — DAT PRICE CRASH

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

RRP £1299 **£849** NEW BOXED

TASCAM DA20 — 19" RACK DAT

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

RRP £799 **£699** 5 FREE DATs

Mixers

SOUNDCRAFT SPIRIT FOLIO — OUTSTANDING OFFER on 16 or 24 CHANNEL DESKS

Almost everyone involved in music production at some stage dreams of owning a Soundcraft console - The legendary sound quality, reliability and ease-of-use, means that a Soundcraft equipped studio must be taken seriously. The SPIRIT Studio range represents a minor miracle, produced in Britain using the world's most advanced production technology and revolutionary manufacturing techniques to bring you Soundcraft quality at a previously unimaginable price!

Just take a look at the spec: 16 or 24 channels (inline providing 40 or 56 Inputs at mixdown), legendary EQ, (4 bands with 2 sweepable mids and shelving high and low band), patented IC pre-amps with individually switchable phantom powering, 6 true auxiliaries etc. etc.

With top artists like M people and Portishead joining the impressive list of users, there's no reason to miss this unrepeatable opportunity to invest in on one of the few pieces of music technology that has really made a difference.

RRP £1499 **£1189** NEW BOXED

RRP £1999 **£1589** NEW BOXED

SPIRIT FOLIO — AVAILABLE IN 10 or 12 CHANNELS

3 band mid sweep EQ, 2 aux buses (1 switchable pre-post fader) professional grade Neutrik connectors, superb clean signal path and compactness make them unbeatable value for money, phone for unbeatable price!

NEW, USED & EX DEMO

Alesis MATICA500	£499.99	Fender PX2210	£1737.83
Alesis MATICA900	£649	Fender SIDEKICK	£99
Amcron Powerbase I	£249	Fender SPL118S	£550
Bose 502	£1215	Fender SPL215S	£825
Bose 502P	£1399	Fender SPL2912	£642
Bose 802	£1756.63	Fender SPL2915	£737
Bose 802 (pair)	£1069	Fender SPL4000	£574.58
C Audio RA2001	£1218.48	Fender SPL9000	£750.83
C Audio RA3001	£1339.5	Fender SPLM300	£421.83
C Audio ST400	£703.83	Fender SR4150	£379
Dynamix 12" PA Cab	£89	Fender SR6300P	£469
Dynamix DPA400	£199	Fender SR6520P	£599
Dynamix Powered PA Cab	£149	Fender SR6520PD	£734
Dynamix Spkr Control	£19	Fender SR8300P	£549
Ev S200x (pair)	£899	Fender SR8520P	£699
EV S200XEQ	£369	JBL 8SR	£429
Fender 110ELC	£129	JBL EON15	£999
Fender 112ELC	£146	JBL M330MKII EACH	£703.83
Fender 115ELC	£166	JBL M350MKII EACH	£821
Fender 8520PD	£808	JBL M35SMK2 EACH	£763
Fender ESPL3001	£319	JBL MR825	£680.32
Fender ESPL3002	£499	JBL SR4715A	£1244
Fender ESPL3801	£329	JBL SR4726A	£1526
Fender ESPL3802	£550	JBL SR4733A	£2032
Fender LX1504	£289	Kam GM50	£99
Fender LX1506	£349	Kam KCD850	£399
Fender MX5200	£366.6	Peavey CS1000X	£799
Fender MX5216	£1820.68	Peavey CS400X	£569
Fender MX5224	£2348.83	Peavey CS800X	£649
Fender MX5232	£2995.08	Peavey EUROS1PM	£279
Fender PCN2	£374.83	Peavey EUROS1TM	£180
Fender PCN4	£468.83	Peavey EUROSYS1	£124.5
Fender PX2208	£1232.58	Peavey EUROSYS1PM	£294.5
Fender PX2208D	£1408.83	Peavey HiSys 2XT	£349.5
Fender PX2212D	£1585.08		

SPIRIT Powermation PA mixer — R.R.P. £1299 CALL

Another winner from Soundcraft, their first foray into the powered mixer market is sure to be a success. Based around the well-known Folio 12, and also featuring a 2x300w amplifier, dual 7-band graphic and a built-in Lexicon Alex! Check out these amazing package deals:

Powerstation + 2 x JBL MR825 £1599
Powerstation + 2 x Peavey Hisys2 £1549
Powerstation + 2 x Electrovoice S200X £1949
Powerstation + 2 x JBL M330 £1849
Powerstation + 2 x Bose 802 £2149
Add 4 Slil58s + stands, spker stands and cables for £499

SONY PCM-800 — PRO 8 TRK DIGITAL

The definitive statement in 8 track digital machines ! The Sony PCM800 is based on Tascam's DA88 but has the added advantages of balanced XLR connections and AES / EBU. Buying power makes our offer cheaper than the DA88 ! Limited quantities only available at this price. Buy now before stocks are exhausted !

RRP £5349 **£3499** NEW BOXED

AKAI DR16 — INC. 1GIG HD

First there was the DR4, then the DR8, and now Akai bring you 16 tracks of no-nonsense hard disk recording in a single box! 8 Inputs and 16 individual outputs are provided making it perfectly suited for full blown multitrack recording. Amongst the options available is a video output board to give a full colour display of all the tracks, which makes editing a breeze. Buy now from Turnkey and we will include a free 1 gig hard drive!

NEW DR-16 **£3699** INC. 1GIG HD

XRI SYSTEMS XR300 EXCLUSIVE

Long the benchmark of choice in professional studios, we now exclusively bring you this industry standard unit at an unheard-of price. Features include true SMPTE at all standard stripe-rates, MIDI clocks / Song Pointers or MTC for compatibility with all MIDI sequencers. Large LED time-code display. Merged MIDI Input, Straight-forward operating system. Full 19" rack unit.

RRP £299 **£159** NEW BOXED

See the rest of our ad on pages 28 - 37

NEW, USED & EX DEMO

AKG B9	£52.88	AKG C408PP	£158.63
AKG C1000S	£179	AKG C4098	£135.13
AKG C12VR	£523.83	AKG C499PP	£158.63
AKG C3000	£249	AKG C410B	£175
AKG C401B	£76.36	AKG C410PP	£233.83
AKG C401PP	£111.63	AKG C414BULS	£1115
AKG C402B	£92.83	AKG C747	£445.33
AKG C402PP	£116.33	AKG CK91	£175
AKG C407B	£77.5	AKG D112	£217.38
AKG C407PP	£117.5	AKG D130	£133.95
AKG C408B	£116.33	AKG D3700	£123.38

Mics

AKG C3000 Large Diaphragm Mic — INC FREE BOOM STAND

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

RRP £399 **£299** NEW BOXED

AKG D70S	£57.58	AKG WMS50	£349
AKG SE300B	£175	AKG WMS5G	£398.33
AKG WMS100HTCV	£880.08	AKG WMS5H	£457.08
AKG WMS100HTDV	£880.08	AKG WMS5P	£433.575
AKG WMS100PT	£938.83	Audio Tech AT4033	£399
AKG WMS100PTB	£938.825	Audio Tech ATM11	£79
AKG WMS100PTG	£938.83	Audio Tech Pro8HEB	£112.92
AKG WMS100PTP	£938.83	Audio TEchnica MB1000	£35
		AUDIX CI	£29

FOLIO LITE The biggest little mixer — SPIRIT BY SOUNDCRAFT

Soundcraft's Spirit Folio must have more features per square inch than any other mixer. Ideal for any small recording setup, it has up to 16 inputs including 4 mono mic/line channels (with phantom power), 4 stereo channels and 2 returns, 2 band EQ and 2 aux. sends - 1 switchable pre or post fade. If you need to rack it, optional ears are available. Mega deal only at Turnkey!

RRP £312 **£199** NEW BOXED

NEW, USED & EX DEMO

A&H GS1	£599	Sndcrft Ghost24	£4347.5
AUDIO LOGIC SC610	£69	Sndcrft Ghost24E	£3642.5
Behringer Eurodesk	£1799	Sndcrft Ghost24EXMB	
FOSTEX 2016	£406		£575.75
FRONTLINE 8:2	£99	Sndcrft Ghost24EXST	£423
Mackie 16	£2875	Sndcrft Ghost24MB	£634.5
Mackie 24	£3590	Sndcrft Ghost24ST	£428.88
Mackie 24E	£2749	Sndcrft Ghost32	£5170
Mackie 32	£4395	Sndcrft Ghost32MB	£740.25
Mackie BRIDGE16	£649	Sndcrft Ghost32ST	£440.63
Mackie BRIDGE24	£699	Sndcrft LIVE3/12	£1173.83
Mackie BRIDGE32	£799	Sndcrft LIVE3/16	£1432.33
Mackie CR1202	£230	Sndcrft LIVE3/24	£2090.33
Mackie CR1202VLZ	£349	Sndcrft LIVE3/8	£868.33
Mackie CR1604	£550	Sndcrft LIVE3EXP	£683.85
Mackie LM3204	£899	Sndcrft Powerstation	£1367.58
Mackie MBE	£799	Sndcrft Protracker	£785.45
Mackie SC 8 SIDECAR	£269	Sndcrft RACPAC	£925.84
Mackie SR24:4	£1495	Sndcrft SpiritAuto16	£3739.85
Mackie SR32:4	£1999	Sndcrft SpiritAuto24	£5471.9
MIDIMAN minimixer	£69	Sndcrft SpiritAuto32	£6607.97
NICHE audio cntrl mod	£99	Sndcrft SPIRLC16	£1819.58
PHONIC 62	£89	Sndcrft SPIRLC24	£2420.5
PHONIC BKX 8800	£169	Sndcrft SPIRLC32	£3291.88
PHONIC MM122	£249	Sndcrft SPIRST16	£1099
Samson MIDIPAD9	£169	Sndcrft SPIRST24	£1400
Samson MPL1204	£449	Sndcrft SPIRST32	£2783.58
Samson MPL1502	£239	Soundcraft Folio 10	£299
Samson MPL2242	£499	Soundcraft Folio 12	£349
Sndcrft DC2000 24	£16790	Soundcraft Folio 4	£849
Sndcrft DC2000 32	£11138	Soundcraft Power Station	£899
Sndcrft DC2000 32plus	£24057	Soundcraft MACRO14	£429
Sndcrft DC2020 32	£23488	Soundcraft MAXI24	£1699
Sndcrft DC2020 32plus	£27600	Soundcraft MAXI32	£2290
Sndcrft DMIx500	£882	Soundcraft MINI12	£323
Sndcrft Folio 10:2	£380.02	SoundcraftTopaz32	£4228.83
Sndcrft Folio 12:2	£325	Speck XTRAMIX	£2999
Sndcrft Folio 12:2R	£446.58	SRes NEM 24.2	£149
Sndcrft Folio 4	£1209.04	SRes stage mix 8:2	£199
Sndcrft Folio LITE	£220	Sndmstr Diamond	£502
Sndcrft Folio SI	£540.07	Sndmstr Diamond	£338
Sndcrft Folio SIRACK	£540.07	Sndmstr Diamond 12:2	
Sndcrft Ghost16MB	£528.75		
Sndcrft Ghost16ST	£423		

FOLIO SX Multitrack recording console — BRAND NEW DESIGN

Brand new mixer from the superb Soundcraft Spirit range - call for details.

NEW PRODUCT **£599** NEW BOXED

FOSTEX MIXTAB package — UNDER HALF PRICE

This has to be the best value mixer on the market! Fostex's DCM100 is a fully MIDI controllable rackmount mixer with 8 stereo inputs, 2 aux sends, 2 band EQ, mute, pan and level. An additional 2 stereo aux returns and a stereo master/sub input give a maximum of 22 inputs. This alone would be incredible value for money, but the MixTab also gives hardware control of every function of the mixer via MIDI. The MixTab can store up to 100 snap-shots of all the parameters of the mixer, and multi-colour LEDs allow resetting of all the hardware controls to the current position. MIDI output from the system can be recorded into any sequencer giving totally automated mixing and recall - come back to exactly the same mix weeks later! Cubase and Logic maps also available. Under half price (Total RRP £779). Very limited quantities - last units ever!

RRP £779 **£249** NEW BOXED

SHURE SM58 — EUROPE'S LOWEST PRICE

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

INDUSTRY STANDARD RRP £169 **£99** NEW BOXED

AUDIX CD7H	£19	DB tech VHF receiver	£169
AUDIX OM2	£99	Groove MD1	£599
AUDIX SCX 1	£129	Groove MD2	£989
AUDIX ST 2	£89	Groove MD3	£1369
AUDIX UD360	£39	NADY 201	£149
AUDIX UEM 81	£29	Neuman KM184	£629
Beyer M300TG	£79	Neuman TLM170	£2029
Beyer M88TG	£351.33	Neuman TLM170R	£2028.05
Beyer MC740	£1173.83	Neuman TLM193	£1057.5
Beyer MC834	£821.33	Neuman U87	£1595
Beyer S150N	£169		

Guitars

YAMAHA — LOWEST PRICE EVER!

The Yamaha PAC112 was voted Number One budget guitar for the past two years. Massive bulk purchase makes this unbelievable value for money. Order now to avoid disappointment.

PRICE CRASH RRP £199 **£159** NEW BOXED

ZOOM 4040 — FX PEDAL BOARD

Megadeal on top quality FX pedal board features including 25 digital and analog effects, 6 effects simultaneously plus compression and ZNR noise reduction. Built-in expression and volume pedals, MIDI out, built-in tuner, 80 patches, switchable input gain, buy now while stocks last !

RRP £379 **£239** NEW BOXED

MARSHALL DRP1 — DIRECT RECORDING PRE AMP

The Marshall DRP1 makes getting a fantastic sound through any system a cinch. Now you can have Marshall tone straight through a PA, studio monitors or direct onto tape (it also makes a great headphone practise amp. Controls include pre-amp volume, gain boost, bass, middle and treble, master volume and line output level. An LED indicates battery strength (unit can also be mains powered by a DC adaptor). These units are the last ever - incredible price.

RRP £109 **£49** NEW BOXED

GUITARS 0171 379 6766

NEW, USED & EX DEMO

BOSS ME8	£275	Hmrfield Dr. Bass	£299
Crate G40CXL 2CH	£199	Korg DTR1	£139
Crate G40CXL 2CH	£199	Korg DTR2	£89
Crate G40XL combo	£3199	Marshall 8080	£329
Digitech BP10	£46.88	Reuter 2408	£169
Digitech RP5	£299	Rickenb360	£1179
Epiphone Les Paul	£369	Rickenbacker 360	£769
Fender 4X12 cab	£149	Roland GI10P	£499
Fender Jap Strat	£399	Roland GP100	£739
Fender USA Std Strat	£799	Squier LSG 15W AMP	£79
Fender USA Strat	£599	Squier Prec.Bass	£199
Gibson ES335	£1699	Squier Strat	£129
Gibson LP Classic +	£1649	Trace Road 1X12 Combo	£349
Gibson LP EB	£1099	Yamaha diversity sys	£99
Gibson LP Studio	£1899		
H + K Tubeman	£199		

D. J.

KAM GM50 Sampling DJ mixer — SPECIAL OFFER

End of line clearance deal brings you this digital sampling mixer at an unbelievable price. Features include 2 line inputs, 2 phono inputs, XLR mic input with talk-over auto-ducking feature. Removeable cross-fader, dedicated monitor fader and digital sampler with large stop start button. Main channels feature 110 mm proline faders and master section has 10 LED meters. Starter pack with 2x KAM DDX380 direct drive decks, stanton carts and headphones - £649

RRP £229 **£99** NEW BOXED

TECHNICS SL-1200 Mk2 / 1210 — MEGA DEAL

Still the club standard after many years, SL1200s are still going strong. This incredibly low price includes a free Stanton cartridge. Package deals available with many mixers, please call to enquire.

RRP £529 **£399** INC CART

ATM4033 by Audio Technica — EXCLUSIVE SCOOP PURCHASE

For years the Neumann U87 dominated the large diaphragm condenser mic market, but at a price. That was until the advent of the Audio Technica ATM4033. For about one third of the price, it offered superb sound quality - sparkling vocals and acoustic guitars, and all the kind of qualities you would expect from this kind of mic. Now Turnkey have secured a quantity at a new unbelievable price, which even includes the shock mount. If you're in the market for a serious microphone, you can't afford to pass this one by! This price available on current stocks only.

TURNKEY SPECIAL RRP £699 **£499** NEW BOXED

OKTAVA MK219	£311	£2291.25	
REALIST PZM	£49.95	Sennheiser HD25	£99
RODE NT2	£499	Sennheiser HD25SP	£59
Senheisser 531	£149	Shure BETA57	£207
Senheisser K6	£188	Shure BETA58	£195
Senheisser MD421	£287.88	Shure BG1.0	£39.95
Senheisser MD441	£460.6	Shure SM57	£79
Senheisser MD504	£92.83	Shure SM58	£99
Senheisser ME64	£135.13	Sony ECM909A	£69.99
Senheisser MKE46	£69	Sony ECM999	£399
Senheisser MKH80		Soundcraft DM01	£320.72

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Korg X5 £579
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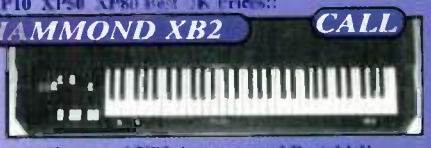

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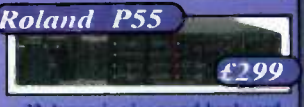

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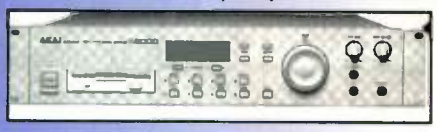

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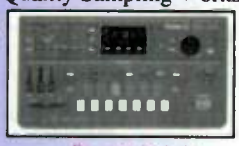

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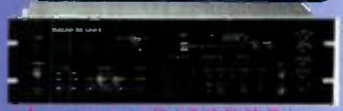

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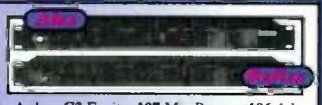

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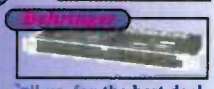

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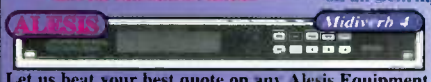

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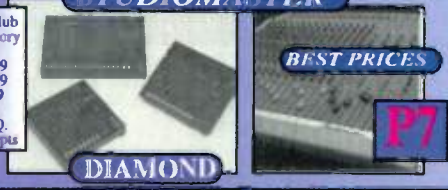

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SPECIAL READER OFFER!

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, shuttling 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 inc VAT.**

Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET MAPPER

• 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.

Order Code: PP006 **£69 inc VAT.**

Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET MAC

• Economical Macintosh MIDI interface • No external power supply required • 1 MIDI In, 2 MIDI Outs • LEDs indicate MIDI In/Out data • Uses serial or modem port • High speed CMOS design • Improves signal to minimise data errors.

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.**

Postage: UK £2.50 Europe £4.95 ROW £8.95

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 'master'. 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-tiered, 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.**

Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET CURVE

• Modifies MIDI velocity response • Controls keyboard sensitivity • 6 tapered curves • 6 velocity increase curves • 6 velocity decrease curves • 6 constant levels • Special DX7 velocity curve

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.

Order Code: PP005 **£69 inc VAT.**

Postage: 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 Omni mode.

Order Code: PP008 **£69 inc VAT.**

Postage: UK £2.50 Europe £4.95 ROW £8.95

LONG DISTANCE MIDI

• 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

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.

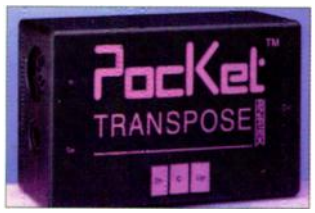
MIDIMATCH works through ordinary balanced microphone cable so you can connect keyboard controllers to MIDI sequencers or lighting controllers to dimmer packs through your existing snake! Studios already wired for audio can connect MIDI through the cabling already in place. MIDI signals could even be run through a balanced patchbay!

The price includes transmitter and receiver. (Please note: requires two 9V AC adaptors.)

Order Code: PP001 **£115 inc VAT.**

Postage: UK £2.50 Europe £4.95 ROW £8.95

solve your MIDI headaches!



HOW TO ORDER

Join the group of satisfied customers worldwide who have found the solution to their MIDI problems with Pocket Products from Anatek, now available direct from SOS.

To order, just fill out the Order Coupon at the back of the Mail Order section (remember to add postage for each product) or simply call our Mail Order hotline on 01954 789888.

DON'T DELAY ORDER TODAY!

Please allow up to 28 days delivery on Pocket Products.

USE YOUR YAMAHA BREATH CONTROLLER WITH NEARLY ANY MIDI SYNTH!

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 pre-programmed 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 wheels 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 control 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 **£85 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 Code: PP009 **£69 inc VAT.**
Postage: UK £2.50 Europe £4.95 ROW £8.95

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 Code: PP012 **£29 inc VAT.**
Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET SPLIT

• 8-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 **£69 inc VAT.**
Postage: UK £2.50 Europe £4.95 ROW £8.95

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 **£69 inc VAT.**
Postage: UK £2.50 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 assignments and be set to two separate MIDI channels.

Order Code: PP014 **£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 Code: PP010 **£35 inc VAT.**
Postage: UK £2.50 Europe £4.95 ROW £8.95

ABOUT POCKET PRODUCTS

Pocket Products are handy MIDI 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.

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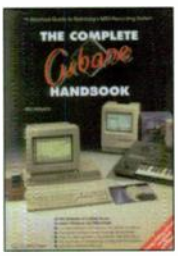
THE COMPLETE CUBASE HANDBOOK
2nd Edition



by Udo Weyers

After a short break, the definitive Steinberg Cubase Hanbook is back in print. This *new edition* is once again filled with real world applications and down to earth explanations of how to use all the powerful features offered by Cubase in all its many forms. *The book is now relevant to all three platforms (Atari, Mac and PC)*, and the main attraction of the revised text is its focus on Cubase Score. The Complete Cubase Handbook is a not-to-be-missed purchase for users of Steinberg's highly popular software.

CODE B195 **£29.95**
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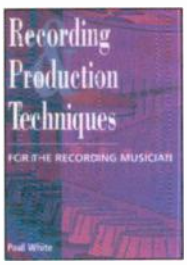
RECORDING & PRODUCTION TECHNIQUES



by Paul White.

This highly informative book by SOS's own Editor demystifies the techniques used by professionals in the recording of contemporary music.

It reveals how to make full creative use of all manner of studio effects and signal processors. These techniques can be utilised both in the home and commercial studio. The book concludes with an invaluable section on master tape formats and an overview of the various processes and vinyl records.

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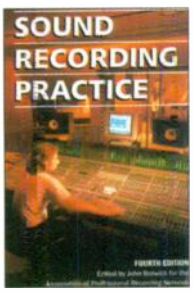

by John Borwick

This now classic text reaches its Fourth Edition, and has been *enlarged and revised* to cover up to date developments in the recording industry. The contents of this 600+ page is too diverse to summarise in such a short space. Suffice to say that every serious recordist, whether amateur, semi-pro or professional should have a copy of this book.

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RECOMMENDED READING

INTRODUCING DIGITAL AUDIO
2ND EDITION *by Ian R Sinclair*

Explains digital audio – CD, DAT and sampling – non-mathematically. The updated 2nd edition adds information on oversampling and bitstream techniques, plus a glossary of technical terms.

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GOOD VIBRATIONS
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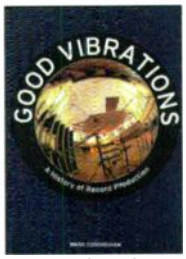

by Mark Cunningham

Good Vibrations — A History of Record Production features a foreward by BRIT award-winning Best Producer of 1996, Brian Eno. The book chronicles the development of recording techniques and music technology, from the invention of sound-on-sound (multitrack) tape recording in 1949, to the current dramatic advances in digital technology. Also highlights the changing role of the producer and engineer, with quotes from George Martin, Brian Wilson, Tony Visconti, Trevor Horn, Hugh Padgham and Pete Waterman. Recordings discussed in detail include The Beach Boys' *Pet Sounds*, The Beatles' *Sgt Pepper's Lonely Hearts Club Band*, Pink Floyd's *Dath Side Of The Moon*, Queen's *Bohemian Rhapsody*, David Bowie's *Heroes*, and U2's *Zoompa*. Includes around 100 photos and illustrations, many previously unseen, plus extensive reference section.

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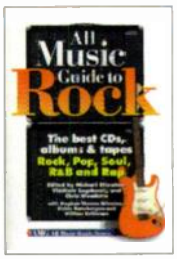
ALL MUSIC GUIDE TO ROCK



From doo-wop to hip-hop, this is the most complete guide to the best CDs, albums and tapes in all genres of this music, both mainstream and alternative. Compiled by dozens of top music critics, 15,000 recordings by 2,500 performers are listed, rated and reviewed — including bootlegs, imports, out-of-print albums, and "cult" artists.

Easy to use and fun to explore, the All Music Guide to Rock also gives you major artist bios and discographies, essays exploring dozens of rock styles and influences, music maps, and more.

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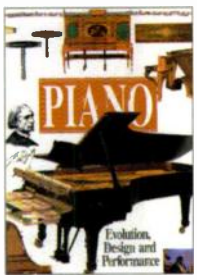

By David Crombie

This is the most spectacular and informative book ever assembled on the history of the piano. At its heart is a stunning collection of more than 150 pianos ranging from the instruments's earliest roots to today's magnificent upright and grand pianos. This important new book is an essential purchase for every piano player and every musical instrument enthusiast, bringing alive the most fascinating and wide-ranging collection of pianos ever seen in one book.

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by Gabriel Jacobs & Panicos Georghiades

Forward by Vangelis. A thorough guide to creating music with today's music technology. Covers music theory, MIDI and electronics principles, computers, what gear to use in your MIDI studio, and most modern MIDI production techniques. Ideal for beginners and advanced readers alike.

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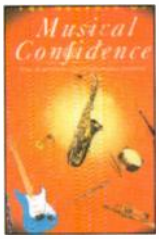
THE SECRETS OF MUSICAL CONFIDENCE - How to Maximise Your Performance Potential



By Andrew Evans

Written by a musician and psychologist, this is claimed to be a first for musicians:
a book aimed at maximising performance potential and increasing confidence.
A series of questionnaires and exercises allow you to analyse your abilities and needs and allow you to deal with stress, creativity and career management, amongst other topics.

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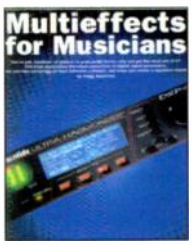
MULTI-EFFECTS FOR MUSICIANS



by Craig Anderton

Occasional SOS contributor Craig Anderton adds to his long list of music technology-based books with this comprehensive look at multi-effects units. The book helps you with what to look for when buying a new unit, how to use it when you've got it home, and provides a collection of tips to help you get the most out of your device. 137 Pages.

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TAPELESS AUDIO DIRECTORY

(5th Edition) *By Yasmin Hashmi*

Completely updated, this 4th edition is the only international buyers guide to over 200 professional digital audio workstations and systems aimed at cart replacement and broadcast automation.
The comprehensive listings include target markets, hardware and software specifications, operational features, networking and file translation, future development plans, training and customer support, costs and suppliers details for USA, Europe and Far East. The Directory not only covers all existing systems, but those soon to be launched and those on which development has been halted. It also provides a comprehensive explanation of the terminology, with useful tips for potential purchasers.

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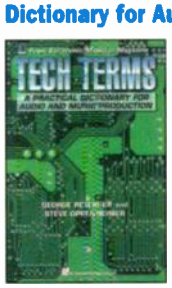
TECH TERMS - A Practical Dictionary for Audio and Music Production



by George Petersen and Steve Oppenheimer

This is a concise collection of definitions of electronic music and recording terms; 300 words and phrases are given quick accurate definitions in plain English. So if you're new to recording, synths, samplers and MIDI, this book could be a big help in getting your mind into the terminology.

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HARD DISK RECORDING FOR MUSICIANS

by David Miles Huber

More of a digital recording overview, this book looks at digital audio in all its forms. Huber discusses the equipment, the techniques and processes of digital audio. Computer-based sound editing, digital audio workstations, digital signal processing techniques, sampling and real-world applications in music, film, video and broadcast environments are covered plus multimedia. The text is designed to be understood by newcomers, while delivering information of value to professionals. *182 pages.*

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SOUND FOR PICTURE

Edited by Jeff Forlenza and Terri Stone

Covers all aspects of film and TV sound, dialogue, music, effects recording, and editing and assembling the result into a final soundtrack. Technical and creative aspects are all covered, and a comprehensive glossary is provided. A good proportion of the book is also taken up with a selection of case studies (including Malcolm X, The Abyss, Northern Exposure and Twin Peaks) that provide hands on information.

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STUDIO MUSICIAN'S JARGONBUSTER

by Godric Wilkie

If the terminology of musical technology and recording leaves you gasping, then this is the book for you! With clear explanations of 1500 terms and concepts, amidst illustrative graphics, the whole work is extensively cross-referenced, and worth its weight in gold.

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THE COMPOSER'S GUIDE TO MUSIC PUBLISHING (2ND EDITION)

written & compiled by Annie Gunning

This book has been produced by the Association of Professional Composers and examines the business of musical copyright and music publishing from the composer's point of view. It aims to educate composers of all kinds of music in the operation of the music publishing business to help them obtain, negotiate and benefit from publishing agreements and avoid expensive mistakes. Apart from publishing, the book also covers copyright legislation, performing and mechanical rights, the royalty administration societies, music in film, broadcasting, theatre and ballet and commissioning agreements. There is also advice for composers setting up their own publishing companies. An exhaustive and useful book.

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CREATIVE RECORDING EFFECTS & PROCESSORS

by Paul White

The first in this major series, Effects and Processors is a complete guide to the outboard equipment which has today become an integral part of popular music.

A comprehensive analysis of studio effects and signal processors, it provides detailed coverage of each piece of equipment: how it performs its respective task, what effect it has on the sound, and its role in creative music production.

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CREATIVE RECORDING TWO MICROPHONES & RECORDING TECHNIQUES

by Paul White

A complete guide to understanding and using microphones in a recording environment.

In plain English, it explains how the different types of microphone work, discusses the advantages of the various different types, and shows how they can be used to get the sound you want onto tape.

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CREATIVE RECORDING THREE ACOUSTICS, SOUNDPROOFING & MONITORING

By Paul White

Soundproofing, Acoustics and Monitoring is designed to take the mystery out of studio design, whether you run a bedroom studio or a commercial recording facility.

In plain English, it explains how soundproofing works, how you can change your room acoustics to give the optimum monitoring environment and how to choose and use your monitor system.

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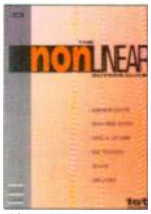
NON LINEAR BUYERS GUIDE 1st Edition



New from Sypha is the Nonlinear Buyers Guide. Known especially for their definitive digital audio-focussed Tapeless Directory (look out for the 4th edition in the future), Sypha have applied the same comprehensive approach to digital video systems.

The first edition of The Nonlinear Buyers Guide is the only international source of information on over 150 nonlinear video systems. Products included in the Guide are nonlinear editing systems, mixed mode editing systems, plug in cards and software for editing, disk recorders and servers. The information is provided in an easily accessible format and includes operational and technical specifications, future developments, costs and suppliers details. The Guide also gives useful pointers to those considering investing in a system.

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AUDIO

by F.A Wilson

Volume 6 of the Elements of Electronics series, *Audio* offers a comprehensive guide to the physics of sound, its recording and its reproduction. There is a lot of physics used in the book – in fact, this aspect makes the book a good basic text for those with a serious interest – but the text in between the formulae is clear and informative. Not bad value for £3.95 – a total of 308 pages.

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SAMPLERS

WHAT'S A SAMPLER?

By Freff

Ideal starter book for sampling novices. Whether you are serious about sampling or merely curious, this book is for you.

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RECORDING

HOT TIPS FOR THE HOME RECORDING STUDIO

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Learn how to lay down music the way you want it to sound, with advice for getting the best from your mixer, multitrack, compressor etc. Discover tricks and what traps to avoid, unlock the mysteries of timecode, prevent noise problems. Packed with sound advice.

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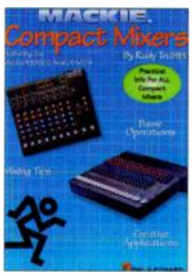

by Rudy Trubitt

Journey through the design and features of mixers so you can maximise the use of this essential and very flexible audio component. Using Mackie's wildly popular MS1202 and CR1604 mixing desks as a foundation, the book explains general concepts as well as model specific operating tips. Topics include: mixing basics, real world applications, hooking things up, mixing tips, block diagrams and a glossary.

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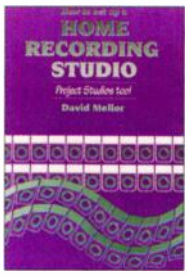
HOW TO SET UP A HOME RECORDING STUDIO



UPDATED & EXPANDED

By David Mellor

If you are thinking of setting up a home studio, a project studio or a DJ studio, this book is the place to start. It takes a highly practical 'nuts and bolts' type of aproach to help you produce an efficient and productive studio. It covers soundproofing, keeping the sound in and the noise out, acoustics, studio layout, and studio equipment, and advice on the kit you are likely to need. The book ends with an invaluable questions and answers section, a glossary of terms and a list of contacts.

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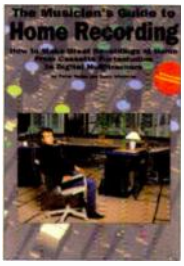
THE MUSICIANS GUIDE TO HOME RECORDING



by Peter Mclan & Larry Wichman

(Revised and Updated)

This is the book every serious songwriter, musician, and home recordist needs, with a new chapter on MIDI and the lastest digital recording technologies. A problem-solving guide as well as an instructional text, it is designed to expain in simple terms how professional recording techniques can be applied at home.

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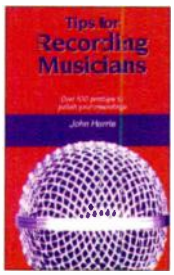
TIPS FOR RECORDING MUSICIANS



by John Harris

Today's studio equipment is affordable but sophisticated, and it takes a lot of know-how to use all this technology effectively. This book details the equipment you need - mics, effects, tape machines, etc. It has separate sections on recording of vocals, electric guitar, drums and acoustic instruments, as well as the use of MIDI in the recording process. You will learn how to get the best from delay and reverb, as well as effects like compression and gating. There are some useful tips on using the mixing desk and post production work. All in all it's a handy guide that will improve your recording techniques at a stroke.

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PRACTICAL STUDIO TECHNIQUES

by Tom Misner

This book and audio CD package comes from the School of Audio Engineering's Tom Misner. It's an excellent source of basic recording facts and figures, and if you want concrete examples of the subjects discussed, then listen to the free mixdown demonstration CD.

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RECORDING TECHNIQUES FOR SMALL STUDIOS

by David Mellor

This well written, user-friendly book is designed to offer accessible and helpful tips on how to get the most out of the equipment in your studio. Chapters cover: mic techniques; musical arranging for recording; 4-track recording; the mixer; preparing for an running a session; recording drums; recording vocals; integrating MIDI; using effects and signal processing; location recording, and digital recording. The book is rounded off with an "any questions" section, a glossary and a list of recording studios in the UK. As you would expect from a book based on an SOS series, this is a *must have*!

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THE MASTER TAPE BOOK

Alan Parsons, Bill Foster & Chris Hollebone

The definitive guide to the creation and management of audio master tapes. With 'Master Tapes' literally flying around the world being copied, cloned or re-cut for seemingly endless variations of compilation albums, it is terrifying to think that there is no standard set of procedures for labelling and maintaining master tapes. Until now, that is.

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MUSIC BUSINESS

YOU CAN WRITE GREAT LYRICS

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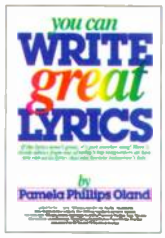

by Pamela Phillips Oland

This book helps you develop your own philosophy and style. Its plentiful techniques, combined with practical advice and exercises, will have you writing great lyrics before you know it!

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MUSIC PUBLISHING

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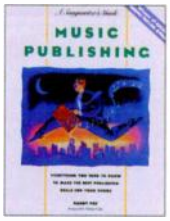

by Randy Poe

This book demystifies music publishing, explaining what it's all about and what it means to a songwriter. Learn what your publishing options are, from a single song contract to a staff writer to a self-publishing operation. By the time you have finished this book you will never make an uninformed decision about publishing your songs that you will later regret.

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SONGWRITERS MARKET 1996

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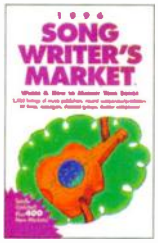

To get your songs published and produced, you must know who the music industry's players are and how to approach them. This directory identifies those seeking the work of songwriters. Lists 2500 lyric and music markets, clubs, associations, contests, workshops and songwriters publications. Includes 'The A & R Roundtable', where pros discuss their role in a songwriter's career, business side of songwriting, music industry trend report, and interviews with music industry professionals.

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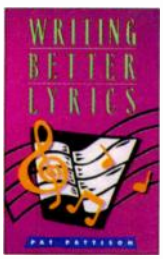

by Pat Pattison

In-depth approach to lyric writing examines 17 songs to discover what makes them so effective. Learn a warm-up exercise that will revolutionise your songwriting imagery, how to use a rhyming dictionary to unlock fresh, unexpected rhymes, avoid cliches and create imaginative metaphors and similes.

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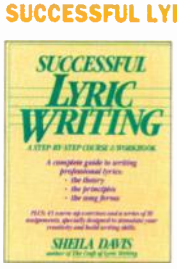

by Sheila Davis

Superb guide to the art of writing words to music. Learn how to create a memorable song title, choose the best music form for each idea, apply writing principles and avoid common pitfalls, write with both sides of your brain, find your voice. Includes songwriter's bibliography and lists over 60 songwriting organisations to help you connect with your chosen marketplace.

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THE SONGWRITER'S GUIDE TO COLLABORATION

NEW

by Walter Carter

This book describes what to expect when entering into a co-writing situation and how to make the arrangement work. Covers the pros and cons, how to find a partner, publishing your songs, who writes what, money matters, sharing success and rejection, growing together or apart plus co-producing and pitching.

CODE B323 **£8.95**

Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

CREATING MELODIES

NEW

by Dick Weissman

Learn how to create memorable melodies, from love ballads to film scores and jingles. Using lots of examples of popular songs and styles by top-name musicians, Weissman covers the full range of melody writing. Learn how to marry music to lyrics, relate rhythm to the message of your song, read and write musical notation, write instrumentals for films, TV, commercials and theatre, and put together a demo tape.

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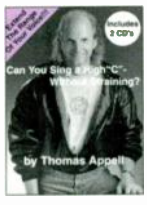
CAN YOU SING A HIGH "C" WITHOUT STRAINING



by Thomas Appell

This book features extensive coverage of the vocal cords and explains clearly how to sing high notes without going into falsetto, and without straining. You'll learn how to extend the range of your voice, and why most singers either strain or "break" into falsetto when attempting to sing above their normal range. It comes with 2 CD's jam-packed with over 2 hours of vocal examples and exercises that you can practice with. Many singers have increased their range by several notes after the first week of practice. If you can't sing high notes without straining, but would like to know how, then this book is for you. 122 pages.

CODE B319 **£24.95**

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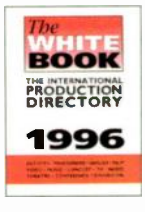
THE WHITE BOOK INTERNATIONAL PRODUCTION DIRECTORY 1996



This is the latest edition of the essential source of contacts for artists, performers, venues, services and facilities associated with music, concerts, shows, festivals, film, TV, video, conferences, exhibitions and corporate hospitality - there's even a comprehensive international section. The layout is logical and an index makes fact finding an easy task - altogether an indispensable 864 pages. The new edition once again comes with a complementary copy of The Little White Book, which distils the contents of the larger volume to a pocket-sized list of names and phone numbers.

CODE B259 **£46.00**

Postage: UK £4.75, Europe £8.50, R.O.W. £16.95

THE MUSICIAN'S GUIDE TO READING & WRITING MUSIC

It's an entertaining but practical introduction, well, to reading and writing music. This is as friendly as it comes. Learning to read and write music isn't easy, but at least the process is lightened up with considerable doses of wit.

CODE B224 **£8.99**

Postage: UK £1.50, Europe £4.95, R.O.W. £7.50

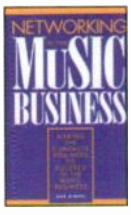
THE ARC MUSICIANS' DIRECTORY

The new Musicians' Directory from Arc Publishing aims to provide all things to all musicians: whatever your style of music, the comprehensive listings offer you the contacts you need, whether it's labels, studios, venues, music shops or management - and that just scratches the surface of the dozens of topics covered by the book. Apart from being a directory proper, the Handbook also includes a selection of useful articles, including subjects such as how to be a session player (by SOS's very own Paul White), music publishing, releasing your own record, copyright protection, accounting, legal advice and more. The Musicians' Directory offers over 380 information-packed pages for little more the price of a new CD.

CODE B219 **£14.99**

Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

NETWORKING IN THE MUSIC BUSINESS



by Dan Kimpel

Think of this book as a popular psychology course for musicians. If you feel you could benefit from developing a positive attitude to getting ahead in your area of the music business, then *Networking* is for you. There's nothing like it for good, sensible advice: it's often not enough to have talent. To be successful, you'll need to persevere, have good "people skills", and exercise good networking skills. Success depends on what you know, who you know, and perhaps most importantly, who knows you. An essential book, and a snip at £11.95. Hardback.

CODE B251 **£11.95**

Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

THE SONGWRITER'S MARKET GUIDE TO SONG & DEMO SUBMISSION FORMATS

From the Editors of Songwriter's Market

If you've got the songs and you've got the contacts, this book will help you to choose a format that will get your demo heard as well as overall packaging and presentation and dealing professionally with publishers, A&R reps and other industry people. Plenty of example documents (lyric sheets and letters) are given, and the book is nicely rounded off with a glossary and index. Hardback.

CODE B258 **£12.95**

Postage: UK £2.50, Europe £5.95, R.O.W. £9.95

SONGWRITER'S WORKSHOP

Edited by Harvey Rachlin

If you want to work systematically at improving your songwriting skills, then try this book: it's divided into four individual 'lessons', each of which is backed up by audio material on cassette. This allows you to listen in the car or walk around with your personal stereo and still absorb useful information. The four sections are: On Songwriting by Janis Ian (yes, *the* Janis Ian); Making Demos by John Barilla; Understanding MIDI by James Becher; and The Art of Pitching Songs by Teri Muench (ex-A&R director with RCA and publisher). Also included is an intro, a quick and breezy glossary and an index. Includes two cassettes.

CODE B260 **£15.95**

Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

MUSIC BUSINESS AGREEMENTS

by Richard Bagehot

Written by a practising music business solicitor, "Music Business Agreements" can be seem as a legal textbook for the UK music industry. Don't let the formal tone put you off: this book is a mine of information with reference to real-life problems and examples, and a helpful question and answer appendix. Expensive, but invaluable. 522 Pages.

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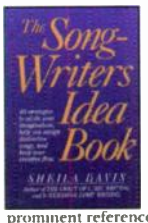
SONGWRITERS IDEA BOOK



by Sheila Davis

If you want a textbook, this is it: 250 pages of serious, intelligent insight into songwriting. Loads of good advice and a friendly tone make this a useful read to anyone, whether beginner or seasoned pro. The focus is firmly on lyrics rather than music, and the prominent references to poetry terminology shouldn't really be a surprise. Use Davis' 40 strategies and you to could soon be "designing distinctive songs". Hardback.

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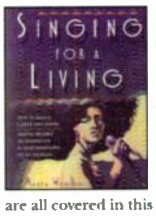
SINGING FOR A LIVING



by Marta Woodhull

The title says it all. If you're already a singer, this book gives you everything you need to know in order to exploit your talent further: looking after your voice and voice exercises, business advice and marketing and audience interaction are all covered in this straightforward book.

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SHOWCASE INTERNATIONAL MUSIC BOOK 1996

The music industry equivalent of *Yellow Pages*! over 500 pages crammed with all the latest information, including new phone and fax codes for record companies, recording studios, music publishers, equipment manufacturers, artist management, producers, PA and lighting hire, and more. Plus a USA section.

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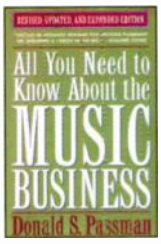
ALL YOU NEED TO KNOW ABOUT THE MUSIC BUSINESS



by Donald S Passman

This book is a must: the author manages a portfolio of high profile clients and teaches music business law at the University of Southern California, and has produced a clear overview of the music business. He starts at the beginning of your career, with advice on choosing a manager, lawyer and agent, and moves through getting a record deal, songwriting and music publishing and finishes with details of copyright, mechanical royalties, songwriter deals, films and more. An exhaustive and entertaining read. 415 Pages.

CODE B302 **£19.99**

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THE BROADWAY QY10

by Peter I. Alexander with Bobby Maestas

Charts and musical examples for re-creating Broadway songs with your QY10 using only the internal patterns. Includes useful set-up information. 77 pages.

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TG33 QUICK OPERATIONS

by Bobby Maestas

Instant access to Yamaha's neat little Vector Synthesis sound module. Loads of examples, well illustrated. 115 pages.

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by Bobby Maestas

A good helpful look at this arguably overlooked instrument; technicalities are explained in context of music throughout. 153 pages.

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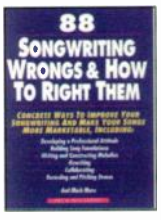
88 SONGWRITING WRONGS & HOW TO RIGHT THEM



by Pat & Pete Luboff

This is a real workbook for songwriters, dealing with both the craft and art of songwriting. Song structure, rewriting, matching lyrics to music, collaboration, making the right demo, pitching the final result, and business matters.

CODE B254 **£11.95**

Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

BEGINNING SONGWRITER'S ANSWER BOOK

by Paul Zollo

If you're just starting out as a songwriter or haven't progressed very far, perhaps you have questions about the art and business of songwriting that you can't find answers for. Chances are, they're covered in this book. Over 200 of the questions songwriters most often ask are answered in this book. There are 11 chapters, covering subjects such as lyrics, theory, song structure, collaboration, demos, publishing and the music business. Some answers - such as "What makes a professional-sounding demo?" are actually mini-articles - and an index allows you to target subjects without wading through the text. A friendly, informative read.

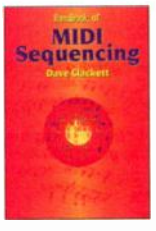
CODE B253 **£10.95**

Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

MIDI INFORMATION

HANDBOOK OF MIDI SEQUENCING

NEW



by Dave Clackett

Hands On MIDI Software's Dave Clackett has boiled his knowledge into a collection of tips for getting the best out of hardware or software sequencers. Dave covers the hardware and software you need to get sequencing, and introduces the basics of sequencing and notation, with particular emphasis placed on using General MIDI/GX/XG sound sources.

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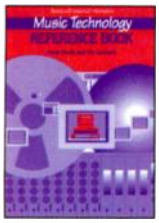


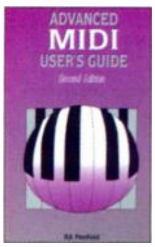
by Peter Buick & Vic Lennard

Written by Peter Buick and Vic Lennard (author of SOS's Atari Notes column), this book offers information at your fingertips and is an indispensable reference source for the musician or sound professional in the recording, broadcast, live, video, computer, multimedia, post production and theatre industries. It includes comprehensive MIDI spec, General MIDI, MTC, MSC, and SysEx information. It also includes charts, check lists, useful hints, tips, and ideas, plus a glossary, list of contacts and a comprehensive indexed, it is also organised into convenient sections. 150 Pages.

CODE B305 **£12.95**

Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

ADVANCED MIDI USER'S GUIDE (2nd Edition)



by R A Penfold

Most MIDI users do no more than scratch the surface of MIDI's potentialities. But dare to dig a bit deeper and you'll find a whole new world of creative possibilities.

With the Advanced MIDI User's Guide, you'll learn how to optimise your MIDI system to get the best results from your particular setup, and you'll find out how to use gadgets like switchers and mergers to enhance your system. If you want to incorporate a multitrack tape recorder into your MIDI system there's a section on synchronisers, SMPTE and MIDI time code, and retro freaks will learn how to hook up that dusty old analogue synth to their MIDI systems.

CODE B152 **£10.95**

Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

MAKING THE MOST OF MIDI

By Paul Overaa

This is a MIDI book unlike any other. It explains the fundamentals of MIDI and MIDI sequencing for the beginner, and it goes much further, dealing with issues that will be of help to more established users. Advice on MIDI fault finding, help for musicians using sequencers with live bands, MIDI messages and MIDI files, plus programming material. So if you are a keen first time user or a MIDI veteran, there will be something in this book to interest you.

CODE B321 **£14.95**

Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

A BEGINNERS GUIDE TO MIDI

by RA Penfold

The title says it all: all aspects of MIDI are explained, and many common beginner's problems are discussed.

CODE B287 **£4.95**

Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

MIDI FOR THE PROFESSIONAL

by Paul D Lehrman and Tim Tully

Co-written by SOS contributor Paul D Lehrman, this substantial, exhaustive work covers pretty well any aspect of MIDI that you could think of. As an overview of what MIDI is and does in 1994, this 239 page book couldn't be better.

CODE B227 **£11.95**

Postage: UK £3.95, Europe £7.50, R.O.W. £14.50

MIDI SURVIVAL GUIDE

by Vic Lennard

Whether you're a beginner or a seasoned pro, the 'MIDI Survival Guide' shows you the way. No maths, no MIDI theory - just practical advice on starting up, setting up and ending up with a working MIDI system. Contains over 40 cabling diagrams, and how to: connect synths, sound modules, sequencers, drum machines and multitracks; how to budget and buy secondhand; using switch, thru and merger boxes; transfer songs between different sequencers, get the best out of general MIDI , and understand MIDI implementation charts.

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Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

PRACTICAL MIDI HANDBOOK (3rd Edition)

by R A Penfold

This book is completely updated, and features a section on General MIDI. It provides a "straightforward, non-mathematical introduction to MIDI", and features a full glossary of MIDI terms.

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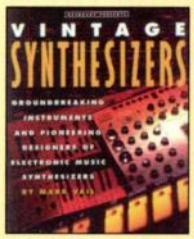
SYNTHESIZERS

VINTAGE SYNTHESIZERS



By Mark Vail

This well-illustrated, 300 page book covers synth history, interviews with designers and overviews of important instruments. Mark Vail's book could be the most entertaining and useful synth book yet – check out the definitive history of the Minimoog, complete with pre-production designers' sketches. While not strictly a buyers' guide, there is a comprehensive section to sourcing, valuing, upgrading and servicing classic instruments.

CODE B199 **ONLY £16.95**

Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

KEYFAX 2

by Julian Colbeck

1989 version of Keyfax provides individual summaries and specifications of the last of the great mono synths, digital pianos, and classic polysynths like the Roland JX10 and Prophet VS -forerunner of the SY22 and Wave Station. Early Keyboard and rack-mount samplers are covered in this indispensable guide. Still a great buy.

CODE B096 **ONLY £5.99**

Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

THE MUSEUM OF SYNTHESIZER TECHNOLOGY

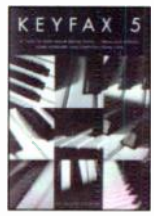
by Martin J Newcomb

If you liked our feature on the opening of the Museum of Synthesizer Technology in October, but haven't got the time or the cash to visit in person, then the next best thing has to be the museum's guide book. This 118 book is printed on glossy paper and contains full-colour pictures of a large selection of exhibits from the museum, together with some descriptive text and company backgrounders. The text reads a little like a fanzine, but the hardcore synth fanatic will want this book for the pictures. In these pages you will glimpse instruments that you are unlikely ever to experience in the flesh: an exceedingly large Roland System 100 modular set-up, an EMS Synthi 100, an ARP 2500, a large Emu modular and what must be the comprehensive collection of Moog equipment anywhere.

CODE B291 **£12.95**

Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

KEYFAX 5



by Julian Colbeck

The latest instalment in the intrepid Keyfax series offers potted specifications and concise mini-overviews of digital pianos, home keyboards, General MIDI modules, stage organs and computer sound cards. Look out for company backgrounders, contact details and cross-references to earlier Keyfaxes.

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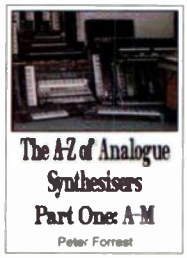
THE A-Z OF ANALOGUE SYNTHS PART ONE: A-M



by Peter Forrest

The author has aimed to make his book a complete rundown of all the major analogue synths and keyboards ever made, and on the evidence of this first volume, he seems to have succeeded. The book is useful and detailed, and shows evidence of the massive amount of research and effort put in by Peter. He gives pocket company histories and detailed data on the instruments produced - but note that a few entries for a few particularly obscure instruments and companies are limited due to lack of data. The book also provides a comprehensive overview of the qualities of various instruments; charts and tables assess second hand values and maintenance levels necessary to keep a given instrument playable as well as such intangibles as sound quality, collectability and user interface. The A-Z of Analogue Part One, which is limited to 8000 copies worldwide, also features 96 colour pictures of classic instruments.

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DRUM MACHINES

DRUM PROGRAMMING — A Complete Guide to Program and Think Like a Drummer

By Ray F Badness

Coming from a publisher that has a good range of real drum texts, we'd expect this book to be a little different. And it is: it gives plenty of insights into how real drummers approach their job, and there are plenty of example patterns to help translate these ideas to a drum machine.

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DRUM MACHINE RHYTHM DICTIONARY

By Sandy Feldstein

For use with Roland drum machines or any grid-based pattern system. First 75 pages on programming huge range of rhythms in rock, latin, jazz and funk styles. Remainder analyses styles and patterns of world's top drummers - Phil Collins, Billy Cobham, Steve Gadd, Stewart Copeland, etc. Highly recommended.

CODE B110 **£16.95**

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RHYTHMICAL GROOVES & PATTERNS

By Siegfried Hoffman

Looks at how drummers compose rhythm patterns to add emotion, swing or groove. Contains examples for you to programme into your drum machine or sequencer.

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260 DRUM MACHINE PATTERNS

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200 drum patterns and breaks presented in one-measure grid notation. Funk. R'n'B, ballad, pop, reggae, afro-cuban and many other styles.

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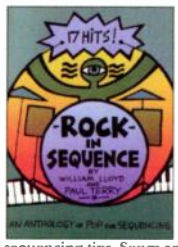

by William Lloyd & Paul Terry

The latest book from the authors of Music In Sequence and Classics In Sequence is now available: Rock In Sequence offers detailed scores of 17 rock and pop hits from the '50s to the present day, alongside a collection of helpful sequencing tips. Songs are included from the likes of the Beatles, Led Zeppelin, Abba, Eurythmics, Blur and more. Rock In Sequence 112 pages.

CODE B320 **£14.95**

Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

CLASSICS IN SEQUENCE

by William Lloyd & Paul Terry

Takes concepts behind Music In Sequence and applies them to all-time favourite classical music scores. Authors show how to make fresh, exciting interpretations of classic scores. Info on reverb and effects, interpreting scores, editing synth voices. Highly creative—an ideal workbook for the music classroom. Covers Medieval, Renaissance dance music, Bach's Toccata in D minor; Vivaldi, Purcell, Handel; opera excerpts from Rossini, Verdi, Borodin; Mozart, Schubert, Tchaikovsky, music from Carmina Burana; Debussy, Satie, Steve Reich's Piano Phase and more. Highly recommended.

CODE B193 **£12.95**

Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

MUSIC IN SEQUENCE

by William Lloyd & Paul Terry

Still one of our best-selling books. Easy to follow, practical guide to making real use of your sequencer, written by people who really understand music and how to create it using today's technology. This brilliant, unique book carries the SOS seal of approval.

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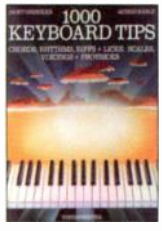
1000 KEYBOARD TIPS



by J Dreksler & Q Harle

The hi-tech musician's guide to the basics of music, scales, chords and harmonies. 256 pages covering chord relationships, improvisation, suggested drum machine patterns, plus comprehensive chord table. Too good to miss!

CODE B113 **£13.95**

Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

SOLID GROOVES

By Dieter Petereit & Herb Quick

128 pages dealing with both bass and drums, the 'heart' of the pop group, together. Although written primarily for drummers and bass players, anyone interested in understanding rhythmical music in popular styles will find this book invaluable.

CODE B172 **£11.50**

Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

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COMPUTERS & MUSIC

THE COMPLETE SOUND BLASTER

by Howard Massey

Explains in simple, non-technical terms: how to install the Sound Blaster hardware and software for use in both the DOS and Windows environments, the two sound processes used by the card, MIDI, the Sound Blaster's MIDI capabilites, and the many different applications for the Sound Blaster, including the various software utilities provided with the card, and many of the third party support products that enhance its operation.

CODE B313 **£10.95**

Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

MULTIMEDIA ON THE PC

By Ian R Sinclair

If you want to know what multimedia is and what it can offer you, then this is the book for you. Much of the information is general enough for everybody, but as the title suggests, the book is aimed at PC users. The book explains the installation and use of a CD ROM drive and a sound card and covers all key concepts behind multimedia. As an added incentive, if you buy this book, you can send away for a free copy of *Picturebook*, a multimedia authoring package.

CODE B272 **£11.95**

Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

PC MUSIC HANDBOOK 2nd Edition

NEW!

by Brian Heywood & Roger Evan

This book will show you how to turn your PC into a creative music making machine. It explains how you can create very sophisticated music on your PC by running sequencing software, how to create your own sounds with a soundcard, how to use your PC as a sound librarian, or a sample editor, or even use it as a hard disk recorder or a sound sampler. All these things are possible with today's sophisticated PC.

The use of sound in multimedia applications is also covered, and there is a chapter on PC hardware with advice on which type of PC is best for your particular needs.

There's advice too on getting connected to the Internet, where you can contact other PC music aficionados world wide!

CODE B332 **£10.95**

Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

COMPUTERS AND MUSIC

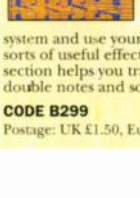
By R A Penfold

2nd edition. Covers hardware and software applications. Excellent glossary of jargon, and now bang up to date.

CODE B098 **£8.95**

Postage: UK £1.50, Europe £4.95, R.O.W. £7.50

SEQUENCER SECRETS



Ian Waugh

Ian's book aims to "go beyond the manual" in telling you how to get the best from your sequencer. The book features 29 hands-on sequencing projects and is suitable for use with all software sequencers. The book hopes to help you optimise your MIDI system and use your sequencer to create all sorts of useful effects. A troubleshooting section helps you track down stuck notes, double notes and so on.

CODE B299 **£6.95**

Postage: UK £1.50, Europe £4.50, R.O.W. £6.50

MUSICAL APPLICATIONS OF THE ATARI ST's

By R A Penfold

Includes a general introduction to MIDI, a handful of MIDI add-on circuits (Thru box, MIDI switcher and so on), plus a collection of programs, in Fast BASIC, that allows you to use the ST's internal sound generator and create little MIDI applications.

CODE B280 **£5.95**

Postage: UK £1.50, Europe £4.95, R.O.W. £7.50

MULTIMEDIA ON YOUR PC

by Francis Botto

A practical guide to multimedia specifically on the PC. Botto's book is once aimed at users, educators and developers, and comprehensively discusses the hardware required to take advantage of multimedia in a PC environment as well as the hardware and software necessary in a multimedia authoring situation. The book is provide with comprehensive appendices covering a glossary and comprehensive product and manufacturer lists.

CODE B296 **£10.95**

Postage: UK £1.95 Europe £5.50 R.O.W. £8.50

LIVE SOUND

SOUND REINFORCEMENT HANDBOOK

by Gary Davis and Ralph Jones

From recording to broadcast, fixed installations to touring, this 400 page reference covers live sound setups, equipment, techniques and jargon.

CODE B105 **£27.95**

Postage: UK £3.95, Europe £7.50, R.O.W. £14.50

CONCERT SOUND AND LIGHTING SYSTEMS

Written by John Vasey.

How to set up and operate sound / lighting equipment for the performance of amplified music or any kind of touring production.

CODE B247 **£14.95**

Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

LOUDSPEAKERS FOR MUSICIANS

CODE B284 **£3.95**

Postage: UK £1.50, Europe £3.95, R.O.W. £4.50

LIVE SOUND MIXING

by Duncan R Fry

This is a hands on, friendly introduction to all aspects of mixing live. It hails from Australia, and is an SOS Bookshop exclusive. The author is an experienced live sound engineer and has packed his book with loads of information, diagrams and hints to take you from basic principles through to trouble shooting when things go wrong.

CODE B256 **£19.95**

Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

INTRO TO LOUDSPEAKER& ENCLOSURE DESIGN

by V Capel

The book provides both useful background to speakers and enclosures in general, plus practical information on crossovers and full details on constructing the so-called 'Kapellmeister' design of speakers.

CODE B281 **£2.95**

Postage: UK £1.50, Europe £6.95, R.O.W. £9.50

THE FOCAL GUIDE TO SAFETY IN LIVE PERFORMANCE

Edited by George Thompson

This book provides an authoritative look at safety matters for workers in the live entertainment industry. It is edited by the Standards Officer of PLASA (Professional Lighting and Sound Association), and provides good solid information in an easily digestible, well-illustrated form. Topics covered include audience and crowd control, fire safety precautions and engineering, electrical safety, laser safety, sound levels and noise control and much more.

CODE B271 **£19.95**

Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

PUBLIC ADDRESS LOUDSPEAKER SYSTEMS

by V Capel

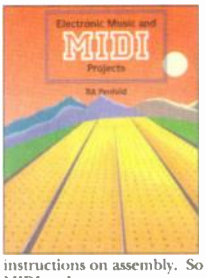
All aspects of PA speaker systems are covered in this book, including low-impedence matching, 100V systems, transmission lines and how to install inductive hearing aid loops. At the heart of the book is the Line-Source Ceiling Array, a system that is claimed to improve clarity, even coverage and reduce feedback. Full step-by-step construction and installation details are given.

CODE B283 **£3.95**

Postage: UK £1.50, Europe £5.50, R.O.W. £8.50

ELECTRONIC PROJECTS

ELECTRONIC MUSIC AND MIDI PROJECTS



by RA Penfold

Want a MIDI THRU box, patchbay or switcher? Well they're all here. And you don't need a degree in electronics either. All the projects are explained in detail, with full instructions on assembly. So if your into MIDI and you want to expand your system without taking out a second mortgage, fear not. Here's the book to help you build up your MIDI system without laying out thousands on hardware.

CODE B203 **£9.95**

Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

DIGITAL AUDIO PROJECTS

by R A Penfold

A two part book, with the first section looking at the basic principles involved including converting an audio signal into digital form and then converting it back to an analogue signal. The second part contains some circuits – for the moderately experienced only.

CODE B279 **£2.95**

Postage: UK £1.50, Europe £3.95, R.O.W. £4.50

HIGH POWER AUDIO AMPLIFIER CONSTRUCTION

By R A Penfold

Much useful background to amplifier design, speaker matching and more is included in the first couple of chapters, while the last section contains a selection of high power amp circuits plus suitable PSU circuits. Copper track patterns are also provided to allow you to make your own PCBs. While the circuits aren't too difficult as such, those with limited constructional experience should note that due to the high supply currents and voltages involved, even minor mistakes could be extremely dangerous.

CODE B282 **£3.95**

Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

ELECTRONIC PROJECTS FOR MUSICIANS

CODE B068 **£10.95**

Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

MIDI PROJECTS

by R A Penfold

A comprehensive collection of simple MIDI projects, including CV and gate converters and a MIDI Thru box. A lot of the book is taken up with interface various obsolete computers to MIDI (Spectrum, CPC464, Commodore 64, BBC B, ZX81 and so on), but the general information is basically sound. Could prove a boon to musicians who are *really* broke!

CODE B278 **£2.95**

Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

PRACTICAL ELECTRONIC MUSIC EFFECTS UNITS

by R A Penfold

Another selection of musical effects, with more of a guitar angle. Projects include distortion, sustain, parametric EQ, graphic EQ, treble and bass booster, envelope modifier, wah wah effects and more.

CODE B290 **£4.95**

Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

ELECTRONIC PROJECTS FOR VIDEO ENTHUSIASTS

by R A Penfold

Projects for the video and camcorder user, including dynamic noise limiter, automatic audio fader, video faders, video wipe and video crispener.

CODE B288 **£4.95**

Postage: UK £1.50, Europe £6.95, R.O.W. £9.50

PRACTICAL ELECTRONIC MUSIC PROJECTS

CODE B289 **£4.95**

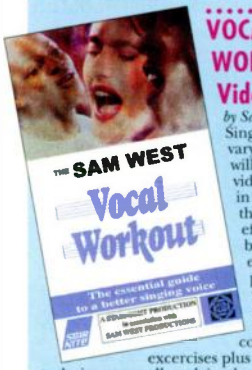
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

ELECTRONIC MUSIC LEARNING PROJECTS

CODE B286 **£4.95**

Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

NEW VOICE TRAINING NEW



VOCAL WORKOUT Video

by Sam West

Singers of varying abilities will find this video a great aid in assisting their vocal efforts. It begins by explaining the principles of voice production. Breath control excercises plus general vocal techniques are all explained and visually demonstrated. All the exercises are written out in an accompanying booklet, with piano accompaniment.

VIDEO CODE V067 **£22.95**

Running time approx 59 minutes

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

VOICE BUILDING Cassette/CD

by Sam West

Although geared towards singers of varying abilities, voices and styles, the contents of this recording are often challenging even to the professional singer! The video (code V067) goes into more technical detail, whereas the CD or Cassette concentrate on more intensive practising. First of all the exercises are sung, in various keys and then with musical accompaniment and melody line, so you can concentrate more on your voice while practising (karaoke style).

Vocal exercises can be boring, but this studio recording has been produced and presented to a very high standard, with interesting musical accompaniments to the exercises.

CASSETTE CODE MC001 **£6.95**

CD CODE CD037 **£9.95**

Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

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SOS Videos

ROLAND MS-1 VIDEO MANUAL

This video manual has been produced by Roland Corporation US, and has been designed to provide the user with tuition, and examples of how to apply your new found knowledge in various applications. There is also a comprehensive "Tips & Tricks" section to give you that extra edge!

CODE V047 **£24.99**

Running time: 50 minutes (approx)
Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND GP100

Presented once again by Nick Cooper, this video manual for the Roland GP100 covers every aspect in detail with many practical demonstrations. Everything you need to know is covered; topics include; an explanation of COSM, layout, typical setups, initialisation, global settings, use of the tuner, selection and editing of patches, and use of the FX loop and harmonist.

CODE V062 **£19.99**

Running Time 45 Minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND TDE-7K DRUM SYSTEM

Roland's TDF-7K Compact Drum System Comprises the TD-7 Percussion Sound Module, MDY-7 Cymbal Pad Holder, FD-7 Hi-Hat Control Pedal, MDS-7 Drum System Stand, PD-7 Drum Pads & KD-7 Kick trigger. You may have a different configuration to what is shown in the video, but no matter!, Roland Product Specialist Gary 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 multi-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.

CODE V045 **£19.99**

Running time 65 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

YAMAHA PSR6000 ELECTRONIC KEYBOARD VIDEO MANUAL

Yamaha's PSR6000 is a home keyboard with a difference, and offers many professional features plus excellent sound quality. Tim Walter starts at the beginning and makes the instrument look easy and fun. His enthusiasm is catching, and, yes, the PSR6000 is a very capable instrument. The tape runs to 75 minutes, which makes for excellent value.

CODE V029 **£19.99**

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND GR-1 GUITAR SYNTH

These two video manuals have been produced to help the user get the most out of Roland's sophisticated GR-1 guitar synth, the first covering all the basics from mounting the pickup and getting tuned up to selecting sounds and using the on-board sequencer. Each step is patiently explained and demonstrated by Roland's guitar synth specialist, Jay Stapley.

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 favour and order these indispensible videos.

CODE V014 **ONLY £29.99**
FOR 2 VIDEOS

Total Running time: 4 hours. Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

STEINBERG CUBASE

This manual is presented by Chris West, Steinberg expert. It's very much a practical, 'get up and running' video, showing the novice user exactly how to install and begin using Cubase, whether they're running the program on an ST, Mac or PC computer — there's even a basic background on using the computers themselves! All of Cubase's controls are shown, explained and demonstrated in depth. Once you're familiar with the basic controls, Chris takes you slowly through recording your first session, followed by overviews of the various edit screens. It's rather like having an expert tutorial that you can run again and again in the comfort of your home, until you can use Cubase like a true pro.

Topics covered include; the main screen, customising names and outputs, copying and pasting between arrangements, MIDI filter, cycle mode recording, the tool box, all edit screens.

CODE V011 **£29.99**

Run time: 1hour 30 minutes Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

KORG AX30G TONEWORKS VIDEO MANUAL

The Toneworks series 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 explanations of how each units works. And to put the units into context, there's lots of footage of Steve showing off the sonic capabilities of each processor (not to mention his prowess as a guitarist).

ORDER CODE V028 **£19.99**

Postage: UK £1.75, Europe £4.95, R.O.W.£6.95

BAND IN A BOX 6.0 BASICS FOR WINDOWS

Designed to get the new user, and those less familiar with Band In A Box, up and running quickly and easily. Experienced users can also benefit from the in-depth tutorials which cover Basic MIDI, MIDI Connections, Custom Patch Maps, Screen Layout, Juke Box, Printing, Recording & Editing Melodies, Importing & Editing Styles, Drum Editor, Masks, Assigning Instruments.

CODE V031 **£34.99**

Running time: 88minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

3 CAKEWALK 3.0 VIDEO MANUALS

CAKEWALK 3.0 For Windows

A collection of three videos on the Cakewalk Professional system for Windows, covering just about everything you would need to know to become totally proficient with Cakewalk. If you own Cakewalk Home Studio — no problem! The videos cover everything Cakewalk Home Studio is capable of and more...

BASICS

Basic MIDI, Step & Realtime Recording, Playback Features (on the fly), Editing Features, Graphic Views, The Inspector Menu, Menu Overiew, The Control Bar.

CODE V032 **£34.99**

Running time: 120 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

BEYOND BASICS

This video explains Customising Cakewalk, Extrack Merge, more graphic Views, Advanced Editing, the Settings Menu, Synchronisation, Embedding Wav Files and more...

CODE V033 **£34.99**

Running time: 113 mins
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

CAL

Programming Fundamentals, Creating a Program, Creating a CAL Program, How to use CAL Programs, CAL Examples, Automating Tasks, Tips on working with CAL, Creating Computer Music, Troubleshooting.

CODE V034 **£34.99**

Running time 90 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

JUST ARRIVED!

MACKIE 8•BUS VIDEO MANUAL NEW

Almost 60 minutes of fun-packed, detailed explanation of the various features of Mackie's popular range of 8 buss mixing consoles (16•8, 24•8, 32•8, 24•E) and how best to utilise them. Onscreen numbers allow quick searching to desired topics.

CODE V068 **£9.95**

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND G800

Presented by Roland UK's product demonstrator Sara Reybould, 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 recourse to many practical examples and close-up shots of the LCD screen. The video was produced in association with Roland USA and Roland UK to ensure that the content is accurate and informative.

CODE V060 **£19.99**

Running Time 92 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

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, covers every function completely. Covered topics include; the GK2A Synthesiser Driver, pickup sensitivity, use of the tuner, what a patch consists of, 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 sequencer & more.

CODE V061 **£19.99**

Running Time 57 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND JV-1080 VIDEO MANUAL

Roland's amazing JV-1080 synthesizer module is covered in detail in this informative video. Presented by Tim Walter the video the video guides you through the basics, and leads you painlessly onto the advanced features. The video even shows you how to fit the expansion boards & gives demonstrations of some of the wonderful sounds they contain. Once again this video has been produced in association with Roland UK & USA to ensure that everything it contains is accurate, and relevant to the new and more experienced users alike.

CODE V046 **£19.99**

Running time: 80 minutes Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND XP-50

This XP-50 video owners manual is produced by Roland Corporation US and covers all the major features of the instrument in detail. This is an application based video that provides many examples of how your new found knowledge can be applied. Just a few of the 30 separate topic areas covered are: Effects, Choosing Sounds, Loading a Song, Loop Recording, Copying a Track to Pattern, Making an RPS Set, Track Editing, Multitrack Recording, Patch Editing, Creating Splits & Layers in a Patch.

CODE V063 **£24.99**

Running time: 63 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

WINDOWS 95: WHAT WILL YOU LEARN TODAY?

This video is aimed at new Windows 95 users and goes from basic to in-depth advice, covering topics such as minimum hardware requirements and common problems, and providing useful tips and tuition. The video also features Labyrinth's Video Index System to help the user locate particular topics, by means of on-screen timecode and an index booklet.

The video is written by computer journalist Ian Waugh.

CODE V065 **£19.99**

Running time: 74 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

EVERYTHING YOU WANTED TO KNOW ABOUT PCs BUT WERE AFRAID TO ASK!

Written by Ian Waugh

This video has been produced in response to the number of potential PC buyers and existing new users who do not fully understand the jargon and basic operating procedures associated with PCs.

It covers everything from 'What is a PC' to the 'Internet'. There is even a Windows tutorial, and a DOS basics section. (Over 120 different sections.)

It includes a booklet listing all the main and sub sections along with their respective TimeCode number for easy access when used as a reference tool.

CODE V048 **£19.99**

Running time 91 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

KORG PROPHECY VIDEO MANUAL

Written 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 the Prophecy before they make a purchase.

CODE V049 **£14.99**

Running time: 36 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

MACKIE ULTRA MIX VIDEO GUIDE

This highly informative video for the Ultramix automation system, clearly demonstrates how to set up and use Ultramix's many time-saving features to get the best from your system. The cost of the video may be redeemed against the purchase price of an Ultramix system, making the video a good way to try before you buy!

CODE V066 **£9.99**

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

BOSS ME-8

Nick Cooper (Roland UK product demonstrator) explains every single feature and function of the ME-8 in detail. The unit is clearly explained in a logical sequence with examples given of how the functions effect the available sounds, a perfect aid to new users of the ME-8 and those who would like to get that little bit more from it. Just some of the main points covered are: What is a Patch?, Selecting a Patch, Copying a Patch, Edit Mode, Using The Effects, Control Effects, The Tempo Function, Manual Mode, and lots more.

CODE V064 **£19.99**

Running time: 72minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

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SOS Videos

EMAGIC NOTATOR VIDEO TRAINING MANUAL

This video manual is detailed and helpful, and is presented in a most friendly and approachable manner by session musician Tim Walter, whose tone throughout the video encourages and inspires confidence. If you are new to Notator and are still in awe of its power, this is the video to bring you down to earth. An introduction and 28 tutorials take the user from the absolute basics - including plugging in the dongle - to working with Unitor and SMPTE, and synchronising to video. As well as actual recording of MIDI data and sequencing, comprehensive coverage is given to using the score layout and printing facilities that are so much a part of Notator. Topics covered include; sequencing page, score editing, lyrics and text, graphic arranger mode, hyper edit, the printer page, using the part box.

CODE V012 ONLY **£19.99**

Running time: 2 hours 20 minutes Format:VHS(PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

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 Audio Connections* • *Getting Around the X3* • *Factory Disk* • *Disk Drive Modes* • *Selecting 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.

CODE V018 **£19.99**

Running time: 55 minutes Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

HOW TO GET A RECORD DEAL

The facts you need from the people who know. How To Get A Record Deal contains vital information and insight that you will not find anywhere else, from artists and executives who have made it and know what it takes.

On this video music industry pros give you the straight facts on how to break into this extremely competitive business. Because sometimes the difference between success and failure is information.

Presented by the National Academy Of Songwriters

CODE V003 **£14.95**

Running time: 1 hour 7 minutes
Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

BOSS DR-5 DRUM MACHINE

Presented by Nick Cooper (Roland UK Product Specialist) this video covers all the functions of the DR-5 in a clear and concise manner. Produced in association with Roland UK & USA. By using the information gathered from Roland 'helplines', particular attention has been paid to the areas that many users find most difficulty in. This makes it of interest to beginners and experienced users alike. Nick imparts the information with ease and a professional manner, making it enjoyable and entertaining.

CODE V043 **£19.99**

Running time 57 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND JV-90 SYNTH

Roland's JV-90 synthesizer gets the treatment in this informative Labyrinth production. Virtually every facet of the JV-90 is covered, from the basic functions to more advanced programming. Chris Allen guides you through the powerful features this instrument has to offer. Produced in association with Roland UK & USA to ensure that everything it contains is accurate, and relevant to new and more experienced users alike.

CODE V044 **£19.99**

Running time 70 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ANALOGUE HEAVEN

Remember our feature on the opening day of the Museum of Synthesizer Technology which we ran back in October 1994? Wish you'd actually been able to attend?

Well, now you can have the next best thing: the museum has released a fascinating 50 minute promo video that features footage shot on the day as well as a lightning tour of the facility. The program is hosted by SOS contributor Julian Colbeck. The tape opens with synth pioneer Bob Moog making the inaugural speech and officially opening the museum, followed by a nostalgic run through one of his old modular systems. Analogue Heaven makes diverting viewing for anyone interested in vintage synths, represents good value, and offers the perfect companion to the Museum's guide book, also available from SOS Bookshop.

CODE V026 **£12.95**

Running time: 50 minutes Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

MASTER TRACKS PRO 4/5 BASICS

FOR WINDOWS & MACINTOSH

All the basic functions of Master Tracks, from installing the software to advanced editing. Everything you need to know to get you started and beyond in easy to understand step-by-step instructions.

Basic MIDI, Track Editor Window, MIDI Settings, Screen Layout, Conductor Window, Transport Controls Window, Inserting Measures, Step & Real Time Recording, Event List Editor, Piano Roll Editor, Quantising, and much more.

CODE V041 **£34.99**

Running time 105 minutes
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KORG X5 SYNTH

Korg's new X5 synthesizer, reviewed in SOS' January 1995 issue, now has its own video manual. Presented by Tim Walter in an entertaining and lighthearted manner, and explains all basic aspects of Korg's highly affordable instrument in very clear terms. If you're in any way daunted by your new purchase, or want to get a feel for the instument before laying out your cash, this is the video for you.

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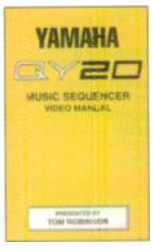
YAMAHA QY20 MUSIC SEQUENCER VIDEO MANUAL



by Tom Robinson

Yamaha's popular QY20 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 Yamaha, the video 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 it".

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This is, in our opinion, the *best ever* guide to the equipment and skills needed to produce high quality results from a home studio.

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Writer/ presenter Julian Colbeck packs the programme with professional tips, allowing musicians of all kinds to get the most out of their home studio.

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This video is packed with information and professional tips on advanced MIDI applications in the home studio, including interfacing with sequencers, which sync code is best for which application and why. Hit producer Martyn Phillips (Erasure, London Beat) discusses modern recording techniques, and top programmer Paul Wiffen examines the opportunities and benefits offered by hard disk recording.It offers practical advice on sampling - how to save time and tracks; plus professional tips on advanced arranging and mixing techniques, including spectrum mixing.

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With plenty of musical examples, tips and inside information, the video offers clear, concise explanations of the instruments features and operating procedures, helping you to greatly expand your dexterity and creativity across he whole range of this world-beating instrument.

Comes with a FREE exclusive custom library of fabulous new M1 sounds on Atari format floppy disk (100 Programs, 100 Combinations) created by ABWH/Yes programmer Chris Macleod.

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THE EMAGIC LOGIC TUTORIAL 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 informative, but for now Volume 1 takes you through the first steps of getting the software up and running, and covers virtually all the controls you'll need. *This video is valid for all versions of Logic, whether being run on an ST, Mac or PC.* Presentation is rather intriguing, with a mobile camera that helps to hold the interest more than the average training video and some interesting graphics that aid comprehension and help to quickly find specific tutorials and bits inside tutorials. Contents as follows:

- Tutorial 1: The Arrange window and basic sequencing
- Tutorial 2: Playback parameters & Toolbox
- Tutorial 3: Controlling MIDI data flow
- Tutorial 4: Manipulating sequence data
- Tutorial 5: Moving around in Logic
- Tutorial 6: Windows and key commands
- Tutorial 7: More sequencing
- Tutorial 8: Score
- Tutorial 9: Looking at the Event List
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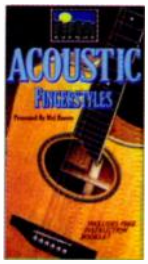

Presented by Mel Reeves

In this video there are 5 major instrumental studies to work through including country, classical and blues. Each style is broken down into small sections allowing you to learn more quickly and efficiently. Each piece is demanding, but great fun to play.The final section looks at styles and techniques used by players such as R.E.M, The Eagles, Sheryl Crow and Paul Simon, and provides an insight into creating new and interesting fingerstyles of your own.

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Presented by Mel Reeves

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YAMAHA QY300 VIDEO MANUAL

Complete overview of Yamaha's new QY300 sequencer/sound source. Presented by Joe Ortiz of Heavenly Music, the video offers a hands-on tutorial on what is potentially a very powerful piece of hardware. Starts off with a runthrough of QY300 features, followed by a clear, step-by-step tutorial that introduces you to creating your own sequences and styles. As a bonus, the video comes with a free disk loaded with 6 new QY300 styles and 6 demo sequences.

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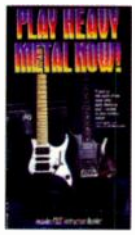

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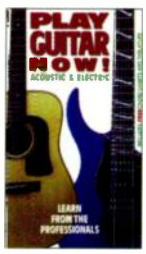

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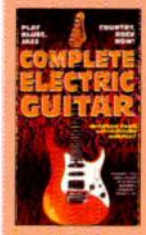

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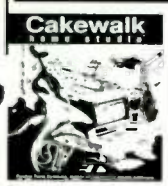

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*only for E-64 and E-IV	
Ensoniq ASR-10	
2Mb	£LOW
8Mb	£LOW
16Mb	£LOW
Kurzweil K2000/K2500	
8Mb	£LOW
16Mb	£LOW
32Mb	£LOW
64Mb	£LOW
Roland DJ-70	
2Mb	£LOW
Roland S-750	
8Mb	£LOW
16Mb	£LOW
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8Mb	£LOW
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32Mb	£LOW
Roland S-770	
2Mb	£LOW
4Mb	£LOW
8Mb	£LOW
Yamaha SY-85	
2Mb	£LOW

Second User / Ex-Demo Analogue & Digital

Akai S2800	Mint condition, boxed, 2Mb & SCSI	£995
Kenton Pro-Solo	Single channel professional MIDI to CV Converter	£95
Korg Mono Poly	Four oscillator monosynth, CV/Gate	£375
Korg MS-20	Analogue monosynth, two oscillators, excellent condition	£395
Korg Wavestation SR	1U Rack module, wavesequencing synthesizer	£445
Roland Jupiter 6	Analogue polysynth with MIDI, mint condition	£695
Roland JX3-P	Analogue synth with MIDI, classic sound	£199
Roland MC-202	Analogue microcomposer	£295
Roland PG-200	Programmer for the JX3-P and MKS-30 synth	£95
Roland PG-300	Programmer for Alpha Juno series, and MKS-50 synth	£195
Roland R-70	Digital MIDI Drum machine with 808 & 909 sounds	£345
Roland R-8M	Digital Human Rythm Composer in a 1U rack	£299
Roland SH-09	Analogue monosynth, fat oscillators	£245
Roland SH-101	Grey, mint condition	£285
Roland TB-303	Classic acid box, excellent condition, as new	£795
Roland TR-606	Analogue drum machine, mint condition	£145
Roland TR-808	Analogue drum machine	£495
Spirit Absolute 2	Mint condition monitor speakers, hardly used	£195
Will Systems MAB-303	Identical TB303 clone from Germany, unbeleivable	£395

The above items are availble on our database.

Some are in stock at the time of printing, some are on their way to us.

Please call for latest updates and prices.

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Secondhand

If you're after secondhand stuff then try Music Control for. Here is a list of stuff stored on our database at the moment - over five of each of these items!

Akai
ASQ10 AX73 DR4d MPC60 S01 S1000 S1000 KB S1000 PB S1100 S2800 S3000 S700 S900 S950 VX90 XE8

Alesis
1622 3630 Adat D4 Datadisk HR16 Microverb Microverb II Microverb III Midiverb II Midiverb III MMT8 Quadraverb Quadraverb + SR16

ARP
Axxe Odyssey Omni II Quartet

Atari
1040 + Monitor

Boss
DR660

Casio
CZ101 DA7 FZ1 FZ10M RZ1 VZ10M

Chase
BIT01 BIT99

Cheetah
MS6 SX16

Crumar
Stratus

Drawmer
DL221 DS201 LX20

EDP
Wasp

Emu Systems
Emulator II Morpheus Proteus 1 Proteus 2 Proteus 3 Proteus FX Vintage Keys

Ensoniq
DP4 EPS EPS16+ ESQ1 Mirage

Evolution
EVS1

Fender Rhodes
Stage 73

Fostex
812 816 E16 G16 R8

Hammond
C3 XB2

Kawai
K1 K1 II K1 M K1 R K4 K4 R

Korg
01/W 01/WFD 01R/W 05R/W 8X3 Delta DS8 DSS1 DW6000 DW8000 KMS30 M1 M1 R M1 REX M3 R Monopoly MS10 MS20 Poly 6 Poly 61 Poly 800 SG1D T3 Wavestation WSIEX WSIR WSSR X3 X5

Kurzweil
K2000

Lexicon
LXP1 LXP5

Mackie
CR1604

Moog
Mini Moog Opus III Poly Moog Prodigy Rogue

Oberheim
4 VOICE M1000 Matrix 6 Matrix 6R OBXA

Octave
Cat

OSC
Oscar with MIDI

PPG
Wave 2.3

Quasimidi
Techno

Revox
B77

Roland
A30 A80 CR78 D10 D110 D20 D5 D50 D550 D70 DEP5 Dimension D DJ70 JD800 JD990 JP4 JP6 JP8 Juno 1 Juno 106 Juno 2 Juno 6 Juno 60 JV1080 JV30 JV80 JV880 JV90 JW50 JX1 JX10 JX3P JX8P MC202 MC50 MC500 MC500 II MKS100 MKS20 MKS30 MKS50 MKS7 MKS70 MKS80 MSQ700 MT32 Octapad II P330 PG200 PG800 R5 R70 R8 R8M RE201 RE501 RS09 S330 S760 SH09 SH1 SH1000 SH101 SH2000 SRV330 SVC350 TB303 TR505 TR606 TR707 TR727 TR808 TR909 U110 U20 U220 W30

Seck
1882

Sequential
Drumtrax Prol Prophet 5 Prophet 600 Prophet VS

Sony
DTC1000ES DTC750

Tascam
488 688 MM1

Vox
Continental

XRI
XRI 300

Yamaha
CS01 CS1E CS5 CS60 DMP7 DX100 DX11 DX21 DX27 DX5 DX7 DX7 II DX7 IIFD DX7 S FX500 KX88 MT8X NS10M QX5 QY20 R1000 RX5 RY30 SPX 90 SFX 900 SY22 SY35 SY55 SY77 SY85 SY99 TG33 TG55 TG77 TX7 TX802 TX81Z V50

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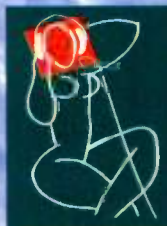

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sounding Off

Equipment manufacturers frequently boast that with their gear, your creativity will be limited only by your imagination. Electronic musician IAN BODDY explains how *increasing* his limitations actually enhanced his work.

While on holiday in Canada recently, I checked out a store advertised as 'The Biggest Book Shop in the World'. As a keen reader, I expected to find much to excite my interest, but after about an hour wandering up and down great avenues of books, I grew disillusioned — there was simply too much to choose from. In the end, I left, credit card balance significantly unchanged, and convinced that I could have spent a far more interesting time in a pokey old sci-fi bookshop.

I think the lesson I learnt from this can be applied equally to the process of hi-tech music making: very often your music can suffer as a result of you being presented with too many options. Consider, as modern musicans, the bewildering variety of sounds and samples available to you these days, and all the equipment and software crammed with features, many of which you will simply never use. This degree of choice isn't a bad thing in itself — but you have to discipline yourself to use just those functions or sounds that are needed if you are ever to finish a particular job.

In my own studio, I use a sequencer and a hard disk recorder, but I purposely restrict my use of this technology to enable me to work faster. The sequencer I use most of the time is an Akai MPC3000, and whilst this doesn't have all the bells and whistles that my version of *Cubase* does, it's actually quicker to use because it doesn't afford me as many opportunities to fiddle with things. If tracks sound OK to me, then they're finished, and if I make a mistake when playing, I just play it again. In a similar vein, I've decided I'm not bothered about seeing loads of waveforms whilst I'm recording to hard disk: it's not until I actually come to edit a track or CD together that I want to indulge in squinting at the waveforms on a computer screen — particularly as I'm only using the HDR like a tape recorder for my analogue gear anyway. This leaves me with more time for actually making music, which is after all, the idea behind having all this equipment!

I recently made use of this deliberately restrictive approach at an unusual concert in an art gallery, where I was asked to play continuously for eight hours, as part of a Comic Art festival. Obviously, there was no way I could play a 'normal' gig for that length of time — after all, I would need food, drink and the loo at some point! With this in mind, I restricted the number of sounds I had available for the day, and decided on an improvised ambient-style approach to the music. I set up a bank of about 20 to 30 sounds in each of the synths I was using, plus a couple of volumes of sounds on my sampler's hard disk drive. Together with just a few pre-prepared sequence lines and a couple of drum kits on the MPC3000, I had a reasonably manageable amount of data that I could grab off the various bits of gear as the fancy took me, and it then simply fell to me to play, compose and improvise throughout the day. The eight hours went surprisingly fast, because I had a great time — I was primarily playing music, and not having to worry about the technology.

After this gig, I have tried more and more to work this way in my studio. Rather than work on a track piecemeal, synth by synth, I've been using all the equipment together live as one big instrument. I have to admit it beats step editing and staring at waveforms, and I can always go back and tidy up a track later — *if* it's necessary.

I've found this self-disciplined approach to technology liberating, and it could work for you too. Try restricting the sounds and features you use at any one time, and it may enable you, as it did me, to produce music faster and have fun doing so. After all, if you can't achieve that, what's the point? SOS

If you'd like to air your views in this column, please send your ideas to: Sounding Off, Sound On Sound, Media House, Burrel Road, St Ives, Cambs PE17 4LE. Any comments on the contents of previous columns are also welcome, and should be sent to the Editor at the same address.

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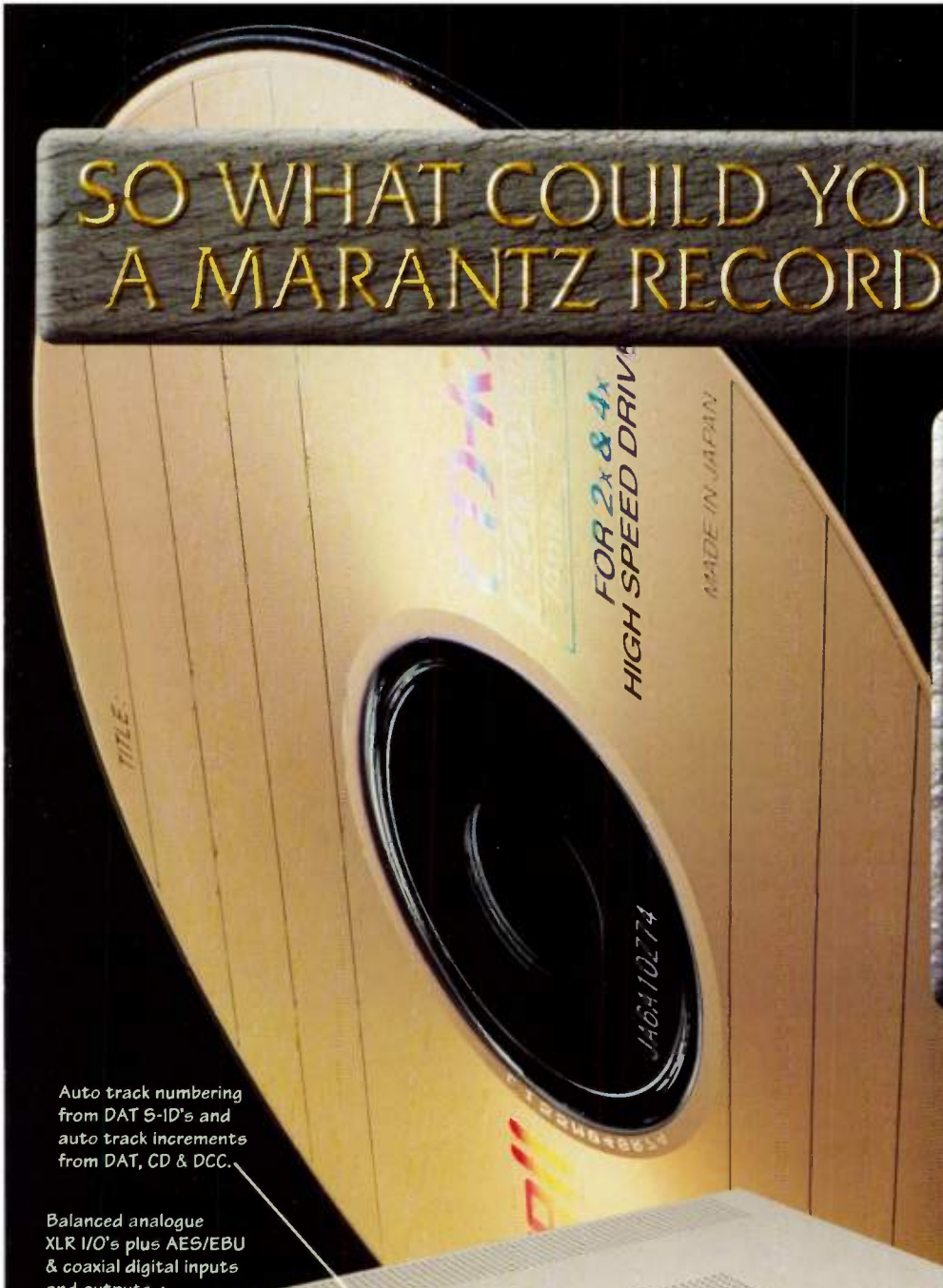

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