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Preview of Ensoniq's Transwave synth

THE SYNCLAVIER STORY
Review of latest models

ON TEST
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Opcode Vision Macintosh Software
Technart Pitch-to-MIDI Converter
dbx SNR1 Noise Reduction Unit
MIDIDrummer Atari Software
Yamaha RX8 Drum Machine
Yamaha TQ5 FM Expander
Aphex Feel Factory

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POSEUR'S PROGRESS

PUBLIC PERFORMANCE AND imagery are inseparable. Whether we're talking about a politician delivering a speech or a guitarist delivering a solo, the performance is incomplete without the appropriate imagery. In the case of the politician, the imagery may be invoked by generous waving of hands and accusatory pointing of fingers. The guitarist, meanwhile, has one of the best documented of all phallic symbols in his or her(!) hands. Then there's the modern keyboard . . . Not really a lot to commend it, is there – an ironing board with a few switches along one edge? Is it any wonder that the keyboard hero is dead? I guess they call it progress. That's what I'm going to call it, anyway. That way it may also help explain why more musical innovation has taken place around the keyboard player than the guitarist in the last decade.

It was progress that took music from its vocal origins and brought instruments into being. Progress that took the keyboard concept of the pipe organ, piano and harpsichord and endowed it first with the sounds of tonewheels and tines, and then with the assorted oscillators that give us analogue and then digital synthesisers and samplers. Now progress is pushing us forward once again.

The day of the synthesiser "wizard" has passed. The banks of keyboards that used to obscure their players and raise the heartbeat of a progressive rock audience have given way to MIDI controller keyboards that give no visual cues to their power. The young keyboard fan has come of age (although I hear the drumbores are still counting cymbals). As the 1980s draw to a close, what raises heartbeats is a computer screen crowded with pull-down menus and a sampler with a lifetime's worth of memory – not the most visual of instruments, I'm sure you'll agree.

Instead of posing around a stage with the rest of the kids, 1989's music technology enthusiast has chosen the solitude of a bedroom to explore methods of music composition no longer dependent on playing techniques, sight reading or understanding of music theory. That's one way to escape the 12-bar blues jam that's closed far too many rehearsals and passed as music at far too many gigs.

Now, certain persons are sure to point out that most of the best popular music is the result of collaborations between musicians, and that all this "one man and a computer" stuff is simply unhealthy. And, to my mind, they're right; there're aren't many musicians capable of producing their best work in isolation. But why must we accept that this new breed of musician works alone? What's wrong with a studio built for two? And there's another side to this – one that's sure to go down badly with the narrow minds. These "new" methods of composition often draw on existing recordings of music. Like it or not, a solo composer is already dealing with a musical "partner" in the form of the artist whose material is being incorporated in, or used as a basis of, a new composition. Like any revolutionary idea, making music out of other peoples' recordings is controversial. It has its advocates and its detractors, but that's progress.

So what are we going to do with the most powerful and most quickly evolving technology in music? Keep the images and limitations of the past or accept the musical challenges that progress offers us and map out the rules for a new generation of musicians? The answer, and the choice, are yours and mine. ■ *Tg*

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Multi timbral L.A. synthesis at a budget price PLUS DRUMS! Fat, warm sounds. Almost a necessity for survival in a post industrial society.

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Modular versions are available of all the above keyboards.

SAMPLERS

Roland W30
What do you get if you add an S50 to an MC500 sequencer? That's right, an angry bank manager. Buy a W30 and you get both for **under £1600** plus access to our huge library.

CASIO FZ1/FZ10M
How can this company produce a two megabyte 16 bit sampler for less than a grand? We haven't the faintest idea, but are awfully glad they do.

AKAI S950/S1000
If you've been locked in a cupboard for the last few years, you probably don't know that Akai samplers are the studio standard. Well they are and welcome back.

EFFECTS AND DRUM MACHINES

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Roland R8/YAMAHA RX8/ALESIS HR16
These 16 bit machines are all worth a listen. Each one has it's own character. A bit like the seven dwarves really, except there's only three.

YAMAHA SPX 1000/SPX 900
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C-LAB CREATOR
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the keyboard shop

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CONT

Comment 2
"You can't stand in the path of progress" goes the saying, but just what represents progress in the fields of music and high technology?

Newsdesk 7
Armadillo sampling board for the Archimedes computer . . . Music of the Spheres music course . . . Cord Control Kit . . . name change for Steinberg's Cubit program . . . The MT news teleprinter is never silent.

Communique 10
When it's driving you mad and nobody will listen, it's time to write a letter to Communique – it may not change the world but it'll let people know what you think and it may even win you a free subscription for a year.

Competition 41
If your MIDI equipment is getting out of control, you're not alone – ask Wesley. But help is at hand as an Akai MX76 MIDI controller keyboard is the star prize in this month's competition.

Free Ads 92
Read about it . . . heard it . . . seen it . . . Now pick it up cheap in Music Technology's regular Free Classified section.

APPRAISAL

Yamaha TQ5 15
It's small, grey and made by Yamaha – it must be an FM MIDI expander. Ian Waugh checks out the latest application of Yamaha's favourite synthesiser technology.

Roland A50 & A80 22
As MIDI equipment becomes more and more sophisticated, the job of a MIDI controller keyboard becomes more and more demanding. Simon Trask takes the A train with Roland's latest MIDI controllers.

Opcode Vision 32
Opcode's latest sequencing software for the Apple Macintosh aims to include all the facilities of other sequencers and add some more of its own. Carter Scholz believes he's seen the light.

Bit By Bit MIDIDrummer 64
If you're currently using a software sequencer you'll almost certainly remember the days of drum machine programming as sublimely simple. Ian Waugh investigates a program that returns to basics.

Ensoniq VFX 68
"A new synth, a new style of synthesis" could be Ensoniq's motto as they unveil their new VFX and its Transwave synthesis. Simon Trask previews the sound of things to come.

Technart TUK 200 72
The search for an alternative to the keyboard as a MIDI controller continues – with a system from a new British company called Technart. Debbie Poyser tracks down the TUK 200.

Yamaha RX8 84
Two years on from their impressive, RX5 drum machine, Yamaha have slimmed down their flagship to give us an affordable 16-bit beat box. Chris Many reckons it could be a hit.

ENTS

Front 242 76

Belgian sampling innovators Front 242 have been accused of encouraging a fascist following – where does the sampling stop and the politics begin? David Bradwell brings news from the front.

STUDIO

dbx SNRI 20

There are more sources of noise in a studio than recording tape –and a noise reduction unit ought to be able to cope with all of it, right? Vic Lennard thinks he's found one that does.

TECHNOLOGY

Time Exposure 28

Quietly but surely, synchronisation codes have become an essential part of MIDI recording, but what's all this SMPTE and FSK stuff really about? Chris Many looks at the different sync codes and why we need them.

Patchwork 38

A review of the Desert Island sample library for the Ensoniq EPS joins a selection of readers own patches for the Korg M1, Ensoniq SQ80 and Yamaha TX81Z in this month's Patchwork.

The Small Print Part 2 52

In spite of MIDI's promise of compatibility between hi-tech musical equipment, few of us have found this to be the case. Vic Lennard takes his second look at MIDI Implementation charts and how they can solve your MIDI problems.

The Synclavier Story 56

As Fairlight fight for survival the mighty Synclavier undergoes a dramatic upgrade. Chris Meyer takes us on the first of three tours of the new state-of-the-art Synclavier.

Korg MS20 80

This month's trip down memory lane takes us to Korg's MS20. Greg Truckell reacquaints himself with an analogue synth that may be better suited to use in 1989 than 1979.

Aphex Feel Factory 88

American company Aphex bring us a new concept in the "humanisation" of machine-generated music, in the form of their Feel Factory. Robert Rich finds himself in the world of grooves and Feel Algorithms.

MUSIC

OutTakes 16

Music Technology's music critics turn their attention to vinyl from Coldcut, Virgo, Mr Fingers, Rhythim is Rhythim and Donna Allen, and a live outing from New Order, while readers' demos attract the attention of Skum.

Soul II Soul 42

From a clothes and record shop to an electronics company to a sound system to an excellent album and charting single, London's Funki Dreds are on the move. Tim Goodyer talks tech to Soul II Soul's Jazzie B.

Cutmaster Swift 60

Winning the '89 Technics World DJ Mixing Championship has allowed Cutmaster Swift to plough the prize money into his own studio. Simon Trask talks samples and scratches with the Champion.

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Opcode's new Studio 3 is a MIDI interface for the Mac with two ins, six out and SMPTE sync.

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Mac Software

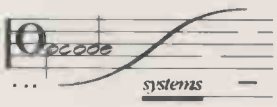
BLANK ALCHEMY 2.0 is the fastest and most powerful 16 bit stereo editor available today. Version 2.0, compatible with the Akai S1000, offers time compression and expansion and enables samples to be auditioned directly from disk.

New Casio DAT

Casio's new DA-2, successor to the very popular DA-1 (pictured), available in June.

Call us now for advanced details.

OPCODE VISION is the new sequencer which has taken the US by storm. Easy and fast to use. Vision includes all the best features of Performer and Master Tracks.



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*The new generation of Big Macs, the IIX and SE/30 are now in stock at Syco, together with **Big Screens** and **accelerators** from Radius. And with the recent price reduction, Big Macs are even more affordable.*

Macs now start at only £1195.00!

SCSI Peripherals

*Our hard disk peripherals for studio samplers **Akai S1000/S950, E111, Ensoniq EPS, Roland S-50/550** and of course the **Apple Mac** -range from 40 Mb to 4 Gigabytes. Our most popular? The new **45Mb removable hard disk** and the **20Mb super floppy**. All SCSI peripherals available in either 19" rack mounting or free standing formats*

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Sound Tools

***Digidesign's Sound Tools** turns the Apple Mac into a **digital audio workstation** for **sample acquisition/editing, signal processing** and low cost disk recording. Polish your digital 2-track master, create jingles and commercials, layback sound effects to film and video, turn your 3 minute single into a 12"dance mix!*

Ensoniq EPS

Designed both as a complete workstation and performance sampler, the EPS-M features 20 note polyphony, full multi-timbrality and a 16 track, full feature sequencer. Performance facilities include polyphonic key-pressure sensitivity, 'play-while-load' and a SCSI interface for mass-storage and fast access to stored data.

Sound Modules

*The best sound modules from **Casio, Kawai, Korg, Kurzweil, Oberheim, Roland** and **Yamaha.***

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*Syco are the UK distributors for the AFX library of sounds for the S1000 which includes the **"Poolside Drums"** the finest drum sounds we have ever heard from a sampler.*

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NEWSDESK

CUBIT NAME CHANGE

Following a name clash with ICL Computers, Steinberg have decided to change the name of their eagerly-awaited sequencer program Cubit. The new name for the program is **Cubase**.

ICL Computers market a business package for mainframe computers under the name Cubit, and it was felt that customer confusion might be caused if a music software program was also marketed under this name.

Cubase is, Steinberg distributors Evenlode assure us, in all respects the same program as before and will be released as planned in mid-May. The upgrade scheme detailed in last month's Newsdesk (by which current Pro24 owners will be credited the full cost of their Pro24, less an administration charge, against Cubase) will still be available for three months from May 31st.

More info can be obtained from your local Evenlode main agent, or direct from Evenlode Soundworks, The Studio, Church Street, Stonesfield, Oxford OX7 2PS. Tel: (099 389) 8484. ■ D*p*

ON COURSE

The course season is well and truly upon us. Starting in June in Kilburn, London is a series of one-day seminars on technology and performance. The course, which will be based at the Music of the Spheres Centre, aims to attract anyone who wants to learn how to use the studio as a creative environment, and at instrumentalists who would like to use music technology in a more exciting and performance-orientated way. Topics covered will include Total MIDI recording concepts; Using MIDI for Improvised arranging and Conceptional writing; the benefits of MIDI for your instrument (stop smirking at the back); Multi MIDI jams; Sound Perception; Sound Design; MIDI and rhythm, and what sounds as though it could be a dangerously tie-dye sort of session, Spirit, Mind and Body Playing.

The course tutors are Mizarolli (gutarist and guitar synthesist, producer, songwriter, experience with Ginger Baker, Steve Winwood and Don Airey); Stuart Martin (guitarist, acoustic designer, researcher in musical perception and psychophysics); Robin Parry (keyboard player, programmer and writer with experience ranging from work for Bronski Beat to Thames television); Lyn Edmenson (bass player and guitarist, engineer, composer and producer).

Seminars will be held for beginners, intermediates and advanced students and topics will vary according to what the people present at each seminar need or want to discuss. To ensure individual attention, the maximum number of people at each seminar will be ten. The cost will be a mere £100 per seminar day (11am-8pm, weekdays and weekends), which includes a course manual. Discounts will be available for follow-up days.

For more specific information, contact Music of the Spheres, 79 Park Avenue North, Willesden Green, London NW10 1LE. Tel: 01-372 6428. ■D*p*

THE SAMPLING SCIENTIST

A new sampling add-on designed and produced by Leicestershire-based company Armadillo, is now available for use with the Acorn Archimedes computer. Both eight and 16-bit sound sampling packages are available, and the 16-bit package includes Armadillo's Highnote software. This software makes use of Acorn's power to provide a multitasking facilitity – calculations started in one window can be left calculating while another window is used. The 16-bit package is aimed at the professional musician and will be priced at £1200 plus VAT.

The 8-bit range of sound samplers comes in three versions; The Mono A448, Stereo A448b and the Stereo/MIDI A448b. The mono system comes complete with Armadillo's ADIT editing program, providing nine different sampling rates, with other features including storing, deleting and loading to disk, and inserting and copying sample sections. The stereo version has two input sampling channels for stereo sampling and uses the new Highnote software. The Stereo/MIDI software includes a built-in MIDI port and a MIDI version of the Highnote software. Prices of the 8-bit systems start at £135 plus VAT.

Further information from Milton J Wynne at Armadillo Systems Ltd, 17 Glaston Road, Uppingham, Leics LE15 9PX. Tel: (0572) 822499. ■D*p*

TRACKMAN GETS A FRIEND

Following the success of the British-designed and made Trackman sequencing software for the Atari, Hollis research, the makers of Trackman are about to launch the MIDIMan Universal Editing Controller. MIDIMan can be used with almost any MIDI synth, and runs as a desk accessory. It can coexist with any program that supports desk accessories (Trackman, Creator/Notator, Super Conductor, Master Tracks Pro, Pro24, and so on), so patches can be edited without leaving the sequencer environment. If MIDIMan is used in conjuntion with Trackman, dynamic editing allows synths to be adjusted whilst playing a sequence and edits may be recorded. The editing parameters can be assigned to any MIDI controller for performance control, expanding the capabilities of your MIDI system.

Currently supported synths include Yamaha DX5, DX9, DX7, TFI, TX7, DX21, DX27, DX100, TX81Z, FB01, Prophet VS, Roland Juno 1 and 2, Juno 106/106S, HS60, JX8P, DI0, D20, D50, DI10, MT32, Korg MI. The list is expanding and requests for additions to it are welcome.

MIDIMan can be obtained for £79 including VAT, and the people to contact are UK distributors First Rate Ltd, La Ramee, St Peter Port, Guernsey CI. Tel: (0481) 23169. ■ D*p*

DATA OVERLOAD

MCM swamp the office in press info once more . . . We've selected one or two gems to interest you, including the new Cord Control Kit from US company Get Organised. This is a novel new way of tidying up your studio or stage setup and consists of a length of flexible tubing split from end to end. Up to ten cables can be kept together and tidy in these tubes, and to remove a cable, you simply open up the split and take it out.

The tubing comes complete with a set of ties and clips so you can secure it to your stands and costs £19.95. Sounds like a good idea to me.

MCM also have available version 2.0 of Blank software's acclaimed generic sample editing program, Alchemy (reviewed MT, May '88). New features for V2.0 include time compression and expansion of samples without affecting pitch, and support of the Akai S1000 through SCSI.

We've all known the frustration of running out of space on our hard disk and having to buy another (I know I have). Well, an answer to the problem of studios littered with hard disks could be the PLI Infinity Turbo 40 hard disk. When this drive is full, you simply take out the CD-sized cartridge and put in a new one. Each cartridge holds 44Mb of information and is priced at £150. The system also allows you to make backup copies of your data at a reasonable cost. Clever stuff.

More from *MCMXCIX. 9 Hatton Street. London NW8. Tel: 01-724 4104.* ■D*p*

MORE MIDI GIZMOS

XRI Systems are announcing availability of the new XR400 MIDI Mate automatic routing controller. It's a 19" rackmounting control device which combines 3-way MIDI merge, 5 MIDI inputs, 11 MIDI Thrus and a 3-way input selector in a way designed to eliminate the need for MIDI lead changing or configuration programming. Facilities include auto-routing of MIDI signals, wherein the XR400 analyses the information being sent to it and routes it to the right output device. Hence keyboard or sequencer play and System Exclusive information is correctly merged and routed automatically without having to change leads, patches or configurations.

The price of the XR400 is £200 including VAT, and for further information on stockists, contact XRI Systems at 390-394 Birmingham Road, Wylde Green, Sutton Coldfield, West Midlands B72 1YJ. Tel: 021-382 6048. ■ Dp

MASTER CONTROL

New from JL Cooper is the FaderMaster MIDI Command Controller, a labour-saving device for the studio. This table-top remote unit features eight user-programmable faders to control all types of MIDI data, and though designed for use with a MIDI sequencer (soft or hardware), digital effects processor or keyboard, it is capable of controlling many other types of MIDI equipment.

Used with a sequencer, FaderMaster can "mix" MIDI volume using the eight faders simultaneously in real time; a special delay mode may be assigned to any fader that allows MIDI note data to be delayed by up to 15 milliseconds. MIDI clocks can also be delayed up to 15 milliseconds.

With a digital MIDI effects processor, it's possible to use any or all of the faders for simultaneous control of any parameter in real time – useful for mixdown. FaderMaster can also be used to program, edit or manipulate the parameters of a MIDI synthesiser.

Twenty-five factory banks come ready-programmed onboard FaderMaster, including setups for the Korg M1, Oberheim Matrix 1000, Kawai K1 and K4, Roland D50/10/20 and MT32, Yamaha DX series, E-mu Proteus, Kurzweil K1000 and many others. Digital effects banks include settings for the Alesis Quadraverb, ART MultiVerb and Digitech DSP128 Plus. MIDI mixing presets for the sequencing musician have also been programmed.

FaderMaster's programming options are comprehensive; each fader can be individually programmed to send MIDI Volume, Pitchbend, Aftertouch, Program change, MIDI notes, Continuous controllers, Non-registered controllers . . . The list goes on.

An optional software program "D/A", for the Apple Mac or Atari is also available for off-line programming and storage of banks.

FaderMaster will be available from May 30th and can be procured for the modest sum of £299 including VAT. Start saving your pennies now.

More from *Sound Technology, 6 Letchworth Business Centre, Avenue One, Letchworth, Herts SG6 2HR. Tel: (0462) 480000.* ■ Dp

SOUND TECH TIME

New equipment debuted at Frankfurt is just beginning to make its appearance on these shores. From the prolific Alesis camp come the 1622 mixer and MEQ230 Dual 30-band graphic equaliser, both utilising the new Integrated Monolithic Surface Technology (which you might recall seeing mentioned in the Frankfurt report back in the March issue of MT). We're told that the process used allows the production of higher quality, more compact and less expensive analogue circuitry with greater reliability. We can certainly testify to the compactness of the 1622 mixer.

Sound Technology are also announcing another instalment in the Aural Exciter saga with the Aphex Type III, which includes new processing features and a special noise elimination circuit. Also from Aphex are the Aphex Studio clock, a full-function SMPTE/MIDI converter and Human Tempo mapping device with integral Apple Mac MIDI interface, and the Impulse, a 12-input analogue to MIDI trigger system for use with percussion. Aphex' other new launch, the Feel Factory, is reviewed elsewhere in this issue.

Version 2.1 of the popular C-Lab Creator and Notator is also expected soon, giving access to laser and inkjet printing, 1/1536 note internal resolution, lots of Unitor support features and other enhancements. Other C-Lab programs available now include Explorer M1 (ed/lib for the Korg M1), Explorer 32 (for the Roland D range) and Explorer 1000 (for the Oberheim Matrix range).

Hard disk recording systems are gaining in popularity. From Digidesign comes the new Sound Tools stereo digital recording and editing system for the Apple Mac, offering hard disk mastering and editing at at 44.1kHz sample rate. Recording on this system is limited only by the hard disk drives used (for example, a 100Mb hard disk would give ten minutes of recording time) and Digital In/Out will also be possible for direct to CD mastering. Full SMPTE/EBU timecode facility means that the system can be sync'd to film, video or any tape machine or MIDI sequencer.

More info can be had on all these goodies from Sound Technology, 6 Letchworth Business Centre, Avenue One, Letchworth, Hertfordshire SG6 2HR. Tel: (0462) 480000. ■ Dp

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COMMUNIQUÉ

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Dear MT

Black & White

I refer to "The Final Frontier" editorial on page two of April's issue of Music Technology. The situation is a good deal simpler than stated here: one is either a musician or one is not.

If one is a musician then it will have become apparent from an early age and one's subsequent dedication to one's gift will have developed one's playing technique, musicological education and artistic sensitivity to a fine art. Therefore the writer of the article either likes the resultant music or he doesn't. It is extremely misleading to write in such a didactic manner about such a subjective matter.

I've heard paragraph two 'til I'm blue in the face with it. In my experience, the so called "anti-self-indulgence lobby" are inevitably jealous non-musicians who can't play. If you can play, then you will play; you will make mistakes and you will learn from them. If you can't play, then you won't play; you won't make mistakes and you won't learn anything.

■Andy Sykes
Musician
Lancs

I bet I can play the scale of F# minor over five octaves faster than you can, Andy. Is that the sort of thing you want to hear? If it is I'd respectfully suggest you're in a minority – possibly of one.

Why is it that some people want exclusive control over whatever interests them? Why do you believe you have some God-given right to be involved in music and that (possibly) less talented people than yourself have not? A good many people dabble in all sorts of music without believing they'll ever become rich and famous or that they'll become virtuoso players or prolific songwriters. It gives them pleasure; where's the problem? And if you want to compose and record tedious self-indulgent music are they going to object?

It also might be worth bearing in mind that the money spent by the people you resent on hi-tech equipment helps fund further research and development and helps keep the cost of your own equipment down.

A parting thought: there are more cameras and fewer "photograhers" around today than ever before. Does this mean that the pro photographer is producing lower quality photographs or that his or her work is any less appreciated? In fact, the opposite is probably true because more people have some understanding of what is behind a photograph than when it was some "black art".■Tg

Dear MT

Radio Daze

I wonder if your readership realise quite how staggeringly biased the pop charts in Britain are. It is curious enough that Radio 1 has been allowed to exercise its music monopoly for so long. The prejudice and corruption that this alone lays itself open to is scary to say the least.

What I find grossly unfair is the horrendous stacking of the odds in favour of major record company product. The official system is that each major record company has an allotted time, once or twice a week generally, to go into Radio 1 and plug their records to the relevant producer. This may mean anything from the plugger dressing up as a teddy bear to, well, gawd knows what. Fair enough.

So what happens to your record if you're not on a major label? You must ring the producers at a set time to make an appointment to see them. In practise what this means is that every independent record plugger in the country is ringing at the same time to arrange a meeting with a producer who, quite honestly, has better and more pressing things to do.

I'm a singer in a band called The Pleasure Thieves who currently have a single out on an indie label. We believe we have genuine mainstream appeal and would not sound out of place on daytime Radio 1. We can't afford a professional plugger so we're doing it ourselves in the optimistic belief that hard work and persistence will pay off. So far this week (it's only Wednesday) we've had one producer whose appointments have all gone; after five minutes of engaged tone, one producer who was on holiday with no replacement; and two others who "weren't making any appointments this week", apparently for no reason. It's been the same story for the last month.

One indie plugger I spoke to said it's very common not to get to Radio 1 before the record is three or four months old. Even the most hardened optimist could be forgiven for becoming cynical and jaded at such circumstances.

We, as a musical group, come into contact with many musicians at "roots level" and we believe there is a great creative lust there. How many fall by the wayside through having to deal with such a narrow-minded industry?

As musicians, to be successful, we must negociate the lack of adventure on the part of the Great British Institutions – the record company, the radio, the TV and so on – and it seems their blinkered view is self-perpetuating. Do I smell an old boys' network here?

You know, I suspect the funny thing is that the people within these institutions also think the system unfair. Well, it's time to stick your neck out folks. The general public deserve BROADcasting to be BROADminded.

■Simon Li
The Pleasure Thieves

Dear MT

The New Gentry

I refer to Keith Gentry's letter in last month's Communiqué concerning the state of popular music.

Well Keith, your comments were certainly ignorant, lightweight and throwaway (which A&R department do you

work for?). You're about as deep as a puddle, man. There's little in your letter actually worthy of a reply so I'll give it to you straight and simple, you trite-minded little wallington.

Be it painting, literature, music or any other form of art you care to mention there is good and bad, right and wrong. A knowledge and understanding of said subjects allows you to discriminate objectively between the good and bad. Let's take songwriting and draw up a list of, say, a hundred aesthetic morals that a composer should possess. We'll place at the top of that list originality, diversity and being prolific (get the idea, wally, my man?). Out of the hat come Stevie Wonder, Bob Dylan and George Michael. Which one rates more highly, Mr Elementary Gentry?

Well, we'll sling out Gorgeous George as he has none of the above virtues. Super Stevie and Brill Bob are as good as each other but Bob wins because of his prolific output. Easy.

Moving on, briefly, to Smock, Aching & Watered-down, their records are destined for the charity shops long before their sell-by date. So Mr Gentry, if I may quote from one of my own compositions aimed at you and your sort . . . "You take a long time/ making up your mind lately/you're easy to read/sometimes you're crystal clear/you've polished your prose/and now you're nearly a spokesman for youth pepped up inside your eccentricities/personal ambition/ going on and on/about the goings on of so and so.

■ L-Dopa
Pluto

Dear MT

The Music System

letter of the month

This probably sounds corny, but last month's letter from Keith Gentry so angered me that I felt impelled to put pen to paper. Is this guy living in the real world? I quote: "At the end of the day it doesn't really matter whether it's genius or whether it's banal - because you're never forced to listen to it". So people aren't forced to listen to music, eh, Keith? Think about shops and other places of work where Radio 1 is the order of the day, all day and every day. Think about supermarkets and hotel foyers where muzak is piped out all day long.

Speaking as someone who has, in the past, had to put up with muzak day in day out in my place of work, I think I can say with authority that people are forced to listen to banal music (even if it's in the background, it's still there). What was I supposed to do, Keith? Stick cotton wool in my ears? Listen to my Walkman? No more muzak, but also no more job.

Many people like to listen to music as an accompaniment to their lives, and this usually means turning on the radio. Most people hear their music via daytime Radio 1, the Top 100 radio chart shows and Top of the Pops. In fact, many millions more people hear music in this way than actually go out and buy records. Think about it for a moment, Keith. What do they get to hear? In the case of Radio 1, records from a playlist compiled by a very small group of people who wouldn't know a good record if it hit them in the face, people who once said that they didn't play black music because it didn't "come across well" on the radio. It's only because dance music has come up through the clubs and into the charts (with no help whatsoever from Radio 1) that they've been forced to play it.

Keith, there's a system which decides what music the majority of people can and can't hear, and that system has nothing to do with musical values and everything to do with financial values. Why do we need a national chart? Can you imagine Radio 1 scrapping their playlists, sacking those inane daytime DJs and throwing open the airwaves to all types of music, played by DJs who have a real knowledge and love of music? Of course it won't happen, because there are simply too many interests vested in preserving the present setup.

I believe that people are capable of liking a much wider variety of music than the self-appointed regulators of the airwaves will ever allow them to hear. And because I take music (rather than myself) seriously, that makes me both sad and angry. I might even get in a tizzy about it.

■James Pierce
Wellingborough
Northampton

Kate Bush declines another interview

Photography *Tim Goodyer*

Dear MT

Question Time

Try these ten intriguing questions:

1. Why are Casio CZ synths so brilliant, so cheap and yet discontinued?
2. Why are remote keyboards not made any more?
3. Why is equipment getting lighter and flimsier, and having more facilities but fewer knobs?
4. Why do AB piano teachers say a Yamaha Clavinova sounds more like a piano than a Roland SAS piano?
5. Why is a Roland D110 so difficult to use?
6. Why is a Roland U110 impossible to use?
7. Why did Elka synths flop?
8. Why doesn't Joe Public buy good records?
9. Which synth played the wonderful solo line in 'Running Up That Hill'?
10. Why can't I have a proper job like waxing bikini areas as opposed to demonstrating keyboards in a London shop?

I look forward to reading your answer.

■Hugh Jampton
London

Ten for you, Hugh:

1. Why is Mrs Thatcher looking to discontinue the National Health Service?
2. Why does a keyboard player look so ridiculous posing around a stage with a piano around his/her neck?
3. Why is the traditional hairy 14-stone roadie being replaced with a new "intelligent but wasted" model?
4. Why do manufacturers insist on using phrases like "better than the real thing" in their advertising?
5. Why do modern-day keyboard players want everything on a plate?
6. Why aren't they prepared to sit down and learn about something before they try to use it?
7. Why did Hot Chocolate make an Elkarhapsody string synth such a regular part of their *Top Of The Pops* appearances?
8. Was it Paul Weller who penned the line "the public gets what the public wants"?
9. Why doesn't Kate Bush hurry up and release another album so that she can answer the questions we've been waiting years to ask her?
10. I'm thinking of buying a computer so that my Moog Satellite will sync up with my WEM Copycat, which one should I buy? ■Tg

Trackman

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(MT, March '89)

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(Sound On Sound, December '88)

John Hollis

HOLLIS RESEARCH is the brainchild of guitarist John Hollis, who made his name in the hectic world of computer games before returning to his first love – music. Careers as a gigging guitarist and synth hardware designer led him into games programming, where a series of gold and platinum sales awards helped set up his sixteen-track MIDI studio based on the Synthaxe MIDI guitar controller. The shortcomings of available MIDI sequencers soon drove him to write his own software – two years later Trackman was launched.

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Currently supported synths include; Yamaha DX5, DX9, DX7, TF1, TX7, DX21, DX27, DX100, TX81Z, FB01, RX-11, Sci Prophet VS, Roland JU-1, JU-2, JUNO-106, 106S, HS-60, JX-8P, D10, D20, D50, D110, MT32 performance, Korg M1, DS-8, Ensonique ESQ-1, ESQ-M, general purpose MIDI control, and more to come!

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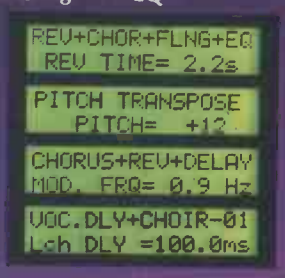

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Yamaha TQ5 FM Tone Generator

YAMAHA SEEM TO have forsaken the 'X' in their instrument names of late. Either that or the boffins have run out of prefixes to put in front of it or numbers to put after it. So, by way of a change, meet the TQ5.

On first acquaintance it looks rather different from your average expander - in fact it looks as though the fascia was dropped onto the box and given a ten degree twist to the left before being fixed into place. On more intimate examination, however, you get a sense of *deja vu*. What have we here? Why, it's our old friend the YS200 -in a box.

The TQ5 seems to be aimed firmly at the home market - otherwise, I assume it would have been housed in the more familiar rackmount box (is a TQ5R likely?). The TQ5 is a four-operator, eight-algorithm, eight-note polyphonic and multitimbral instrument, not totally unlike the TX81Z and DXII, but the TQ5 has ten built-in effects including reverb, delay and distortion, which beef up the thinnest FM voices. It doesn't result in quite the same breathy quality as the current crop of "warm" digital instruments, but it beats the hell out of straight FM sounds.

The TQ5 has 100 presets, room for another 100 in RAM (user memory) and provision for 100 more in an optional RAM card. For four-operator DX synthesis the presets are impressive - thanks largely to the effects section.

There's a fair range of preset sounds with perhaps a surfeit of "Syn Basses". The pianos are still FM thin but the effects work well on strings and brasses. The percussive sounds at which FM excels benefit, too. The sounds are velocity sensitive and respond to aftertouch.

Further evidence of the TQ5's "home appeal" can be found in its Easy Edit system. This revolves around a large LCD and five buttons labelled EG, Tone, LFO, Name and Effects. Most parameters can be altered by plus or minus ten values - there's not an operator or algorithm in sight. It's a doddle to tweak a sound, although you don't have as much control over the sound as you do on an 'X' machine.

The design of the TQ5 is such that you can't really get lost in a edit function. But should you manage the impossible, the Exit button will take you back to the last voice.

Multi Mode is the TQ5's multitimbral mode, which lets you play eight different sounds at the same time. It's equivalent to the TX81Z's Performance Mode and the FB01's Configurations but unlike these instruments, the TQ5 only has one such setting. This is its most significant limitation and will probably deter many semi-pros - especially if they do much sequencing.

Speaking of which, the TQ5 has a built-in sequencer capable of storing 999 bars of music (about 10,000 notes). You can record in real time or step time from a Master keyboard. It's quite a powerful sequencer but operation is a little fiddly and it's not quite as friendly as voice editing. Perhaps I've been hanging around software sequencers too long. Seven Part Types (Multi Mode settings) are supplied preset to help you with multitimbral sequencing.

The major differences between the TQ5 and the YS200 are minor, if you see what I mean. The TQ5 has a clock and calendar function which displays the current time (in 24-hour format), date and day of the week (this had not been set on the review model). It pops up if you don't touch the machine for a minute - reminds me a little of the White Rabbit. This would have been doubly useful if it could have been extended to tell you how long a sequence had been playing.

The only other major/minor difference lies in the naming of voices. With the YS200 each key on the keyboard represents a letter - like a giant typewriter. As the TQ5 has no keyboard you have to step through the letters one by one in usual expander fashion.

The sound quality of the TQ5 is squeaky clean - I'd have no hesitation in recommending it for recording and there's really no reason why it couldn't be used by the pro or semi-pro (apart from the restrictive Multi Mode).

The manual is quite thorough and all its 130 pages are in English (sic) although 30 pages are given over to its MIDI data format.

As a method of sound synthesis, FM has its own distinctive strengths and weaknesses, and the effects section of the TQ5 go some way to covering for these weaknesses.

Yamaha see the TQ5 as an add-on to an electric piano, and I have no hesitation in saying that it would compliment such an instrument well, especially if you want to experiment with sequencing. And not a mention of the word "workstation" in sight.

For more details check out the YS200 review in MT, November '88. ■ *Ian Waugh*

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Coldcut
What's That Noise?
Ahead of Our Time/Big Life LP

From experimental cutups to chart-topping success, Coldcut have established themselves as creative and versatile musicians. There aren't many people who can bring out a commercial dance track like 'People Hold On' and at the same time produce a hardcore hip hop track like The Black Radical MkII's 'Monsoon', *and* carry both off with equal conviction.

'People Hold On' opens this album, and is followed by a track called 'Fat (Party and Bullshit)' which is in fact a reworking of the 'Monsoon' backing track. Next up is '(I'm) In Deep', an off-the-wall collaboration with Mark E Smith of The Fall which, to me, comes across like a late '80s version of '70s German rock experimentalists Can. Can were always open to the sounds and rhythms around them, just as Coldcut are now with their typically late '80s scratch 'n' snatch philosophy and manic, humorous experimentalism.

You'll also find on this album examples of Coldcut's TV theme work, with the themes from 'Reportage' and 'Big World Cafe', the latter in a reworked version as the title cut of the album. The duo seem to have an urge to rework, to find a new angle, as if there's no such thing as a final version.

The singles 'Stop This Crazy Thing' and 'Doctorin' the House' are both included on the album. Coldcut have added a sample of Adonis' house classic 'We're Rocking Down the House' to the end of the latter, making clear just where they got their inspiration for the title line from, for those who hadn't already realised. Similarly, on 'My Telephone' the duo acknowledge the influence of legendary New York mixer Steinski by sampling his answerphone! Who says samplers don't acknowledge their sources?

Included with the album on a limited edition basis, and making it excellent value for money, is a six-track 12" which includes a remix of 'Stop This Crazy Thing' by respected producer Adrian Sherwood, he of the renegade Tackhead Sound System, and an early and classic Coldcut cutup 'Beats & Pieces', together with some more Coldcut-style combinations of beats and samples.

If you're at all interested in modern dance music you should have this album in your collection, if only to see how samples can be used intelligently and, above all, creatively. ■ *SI*

Mr Fingers
Ammnesia
Jack Trax UK LP

If you're a fan of Chicago house musician/producer Larry Heard you'll know that Mr Fingers is one of his pseudonyms. This double album of house instrumentals is a one-man show produced, written and arranged by Heard. If nothing else it's worth the asking price for side one alone. This contains three tracks -'Can You Feel It', 'Washing Machine' and 'Beyond the Clouds' - which first appeared as a 1986 Trax Records US 12", possibly the most influential 12" in house music history. Why? Well, 'Can You Feel It' was the precursor of deep house (minus the vocals), 'Washing Machine' was the precursor of acid house, while 'Beyond the Clouds' could be considered the precursor of "new age house".

In fact, looking at the cover of this album you could be forgiven for thinking you'd stumbled across a new age album. But what is new age, anyway? This record could be considered dance music for a new age. Whatever, *Ammnesia* is one man with his synths and his drum machine (not a sampler in sight) producing music which is strictly what he wants to produce, without particular consideration for commercial mores. Much of it could be considered abstract, at least as far as what's on top of the house rhythms goes. Certainly if you prefer vocals and song structures you'd be better off investigating Heard's earlier Fingers Inc double album *Another Side*, a deep house masterpiece which sadly got overlooked as the nation caught acid house fever last year. In fact, investigate it anyway.

But *Ammnesia* is fascinating because it throws up so many ideas, if not always fully-developed ones - it's rather as if you're listening to a work in progress. Broadly speaking, the tracks divide into those which have a melodic texture, such as 'Stars' with its floating synth sound and rapid sequenced arpeggios, the delicate, almost oriental-sounding 'Let's Dance All Night', and 'Bye Bye' with its dancing filigree electric piano patterns (coming across like a late '80s version of Lonnie Liston Smith), and more abstract tracks like the bass-led 'Slam Dance' and 'Waterfalls' and the noise attack of 'The Juice' (incidentally, 'Mystery of Love' and 'The Juice' are listed in reverse order on the sleeve). A good variety of tracks, then, and an album worth buying if you're interested in synth-led instrumental dance music. ■ *SI*

Rhythim Is Rhythim
Strings of Life
Model 500:
Off to Battle
Jack Trax UK 12"

Now here's a record well worth getting hold of if you don't have the originals. Two classic Detroit techno tracks from Derrick May and Juan Atkins, each presented in several mixes, together with another, lesser known Rhythim Is Rhythim track 'Kaos'. What with Inner City's massive success at the moment, this is a timely release and your opportunity to check out the roots of the Detroit techno sound. Don't miss out. ■ *SI*

Donna Allen
Joy and Pain
BCM UK 12"

Donna Allen's cover version of the Maze classic 'Joy and Pain' gets a typically light and airy Nick Martinelli remix on the A-side, in the form of the dance version and the edited dance version, while the B-side contains a more bass-heavy edited remix from one Eric Schilling plus the LP version. It's the Nick Martinelli version(s) which really capture the spirit of the Maze original. Martinelli's trademark understated TR808 beats make a pleasant change from the sledgehammer beats popular in much current American soul music. And this version is infinitely preferable to Rob Base and DJ EZ Rock's current hip house 'version'. ■ *SI*

Coldcut
People Hold On (Blaze remix)
Ahead of Our Time/Big Life UK 12"

New Jersey production and remix trio Blaze are one of the best arguments in favour of remixing that I know of, as their We Are The World remix of Womack and Womack's 'Celebrate the World' and this New Jersey Jazz Mix of Coldcut's 'People Hold On' demonstrate. In fact, "cover version" would probably be a more accurate description of what they do, because a Blaze remix is in effect a total reworking. Only the vocals survive, and they are restructured to fit in with the extended versions that Blaze prefer.

In the case of 'People Hold On', you would never know that Lisa Stansfield originally sung the song to a Coldcut backing track, so well does Blaze's track fit around her vocals. An object lesson in creative remixing.

If you like Blaze's breezy, jazz-funky productions then you'll love this remix. And if you already own the Coldcut original you needn't feel shortchanged, because this version is so different. ■ *SI*

Virgo
Virgo
Radical Records UK LP

Virgo are two Chicago musicians, Mervyn Sanders and Eric Lewis. Any connection with the one-time Marshall Jefferson pseudonym is presumably unintentional, though Jefferson and Larry Heard influences abound on the eight tracks which make up this album. Understated synth atmospherics bubble and glide over a sparse house beat, producing a cumulative hypnotic effect. This album is definitely a grower, and is far more interesting than Tangerine Dream's disjointed pseudo-classical rhythmic ramblings as evidenced on their recent 'Optical Race' album. If you're a disenchanted Dream fan, why not defect to the *new* synth music? ■ *SI*

Various Artists
Techno-1
KMS Records US LP

This compilation album on Kevin Saunderson's KMS label comes straight from the heart of Detroit techno-land, and has been devised by Saunderson as a showcase for up-and-coming Detroit talent. Well, on the evidence of this album there's talent aplenty, and fortunately it's not merely derivative of the techno Big Three.

The production is excellent: clean, unfussy and well-balanced, with a good sense of musical space, allowing all the musical parts to come through clearly. 'Definition of Love' by KOS (Chaos) makes for a strong opener, with its catchy melody line and insistent vocal hook, while Damier's 'Just a Matter of Time' comes across well with its bubbling synth bassline, restrained electric piano chording and pounding techno beat (though unfortunately the track is spoiled by some painfully out-of-tune singing in places).

Techno founder Juan Atkins contributes one track, 'Yeah Yeah Yeah', under the guise of Magic Juan, but unfortunately it's not one of his best; however, Derrick May's two tracks are spot on. Rhythim is Rhythim's 'Beyond the Dance' has been released previously (on the Rhythim is Rhythim 'Feel Surreal' 12"), but there's also a new track from a new collaboration, R. Tyme's 'Illusion', which is something special. If you're a follower of the Detroit techno sound then *Techno-1* should be in your collection. ■ *SI*

demoT·A·K·E·S

► Sigh resignedly. Haul ass to the hessian sack that watches you from the corner of the room. Roll up a frayed shirtsleeve. Hesitate one last time before plunging a reluctant fist into a writhing sea of cassettes. Yes, it's time to start the demo reviews ...

Initial shock over, **Ken Peel** kicks off his three-song demo with a thoroughly dodgy ballad, 'Love in Your Eyes' dedicated to "a beautiful person called Emma Harriss" (was I supposed to mention that, Ken?). This one is wet enough to slide off the oxide

and any self-respecting A&R person would have turned off and slung the tape on the reject pile before the second chorus. Which would be a bit of a shame, because the second song, 'Go' is a vague improvement – and judicious use of the fast-forward button is rewarded by the third and last, and by far the best song, 'It's not over'. This is a mournful, mysterious, yet upbeat mover in almost Bowie-esque ('Let's Dance' era) style, enhanced greatly by the inspired guitar work of "a good friend" of Ken's. Shame on you Ken, how about a name-check for your talented friend? This song is even good enough to carry Ken's crippled (or do I mean crippling?) vocal delivery, somewhat in the Matt Johnson vein but completely under-projected. Sing up, Mr Peel, sod the neighbours. Since this song is really the only one worth listening to, here's how it was done: recording was to a Fostex X15 series II, producing surprisingly clean results, through a Frontline X8 mixer (look ma, no effects). The simple, insistent sequence that serves as a backdrop to Ken's mate's distorted widdlings – I mean that in the nicest possible way – is courtesy of the omnipresent Yamaha CX5 through a chorus pedal, and for a change it doesn't sound too dreadful; basic but functional rhythm programming was executed on a Kawai R50, and Ken's vocals were immortalised via a Tandy mic. The result is one track showing a lot of potential.

The moral of this story is one all you demo merchants had better learn and learn good: put your best song first. It's a good job there was nothing good on the telly or else I might not have stuck it out to the bitter (better) end.

Brett Nagy, Charles Sterling and **Steven Johnson**, the band with no name, this month submitted the tape with no name. Five luscious instrumental tracks (with no names), sexy chord changes, clever, minimal rhythmic underpinnings with a slightly ethnic feel, all combine to make an offering of consummate elegance and restraint.

And the average age of these prodigies? Just 18. And the gear? Fostex X15, Casio CZ101, Boss DR220A, Yamaha R100 reverb, and a clarinet. (look ma, no sequencing) from which they make nothing short of aural magic; ambient, yet arresting, sophisticated without being slick. Limited gear is used to its very best advantage, CZ101 patches are made to sound appropriate and diverse, reverb enhances and extends the curiously natural atmospheres. Perhaps the fact that everything bar the drum machine was actually played live has a little to do with the restrained and natural feel of these tracks – no 64-track sequencer, less temptation to generally overdo it?

With a name and a couple more years of experience, these boys could go a long way. Couldn't you just be sick?

From the sublime to the strange. A bit of a weirdo, **Trefor Goronwy**, late bassist/vocalist of semi-famous This Heat, offers for our delight *Six Songs* (possibly an even worse title than meesers Nagy, Sterling and Johnson managed to come up with), a brief compilation of his solo material. The opening track 'Grab' is intro'd by a catchy ascending marimba riff, (reminiscent of Tears for Fears' 'Change'), but quickly takes on a harder edge, steam-driven by punchy rhythm programming, presumably from his MT32 or D110, and his distinctive, haunting, almost menacing vocals. This is urban angst personified and is guaranteed to get right under the skin. By total contrast, 'Good Morning Britain' unravels a delicate koto patch to reveal a heartfelt and heart-rending vocal. I can see the students swooning. With such consistently intriguing and unique material, there must be a niche for Trefor Goronwy somewhere.

The gear used to produce this quality stuff includes Roland MT32 and D110, Casio CZ1000, Teac four-track and Stylophone (is that MIDI?), sequenced with the ubiquitous Steinberg Pro24. Instrumentation and voicing is subtle and intelligent, and complements Trefor's unusual vocal delivery, which really stands out for me; a good range is demonstrated by octave doubling of many vocal parts, and this man delivers with conviction. His past recording and playing experience also shows (one LP and two EPs recorded, plus touring).

Trefor reckons 'Six Songs' was "recorded in a hurry, mixed in a rush". The young cynic also reckons his tape's destined to be recycled in my telephone answering machine but thinks he's got the better of me anyway – I quote, "Tough luck, I've snapped the lugs off". Tough luck Trefor, I haven't got an answering machine.

Just time for a couple of quickies.

Rob Norman sent a charming letter that (temporarily) quite disarmed me – you see, it does matter what you say in your letters, executioners are human too – in which he confesses his ambition to write music for nature documentaries. The music on his unnamed tape is competently produced and arranged, mostly engaging, occasionally uplifting and with a vaguely Andean feel. A compact setup of Roland Juno 2, Korg Mono/Poly, D110 and Kawai Q80 creates the sounds, which are put down straight onto stereo – efficient, if unremarkable production, suffering slightly from sequencer madness – too many twiddly bits. Nature documentary stuff.

Andrew Finley *wants* to be Japan. He wants to so much it hurts (me anyway). He sends his inept demos around on tapes which used to be home to Ry Cooder and Billy Idol albums and he doesn't seem to know that there are in fact two channels on a stereo tape deck – with the net result that his masterpieces only issue forth from one speaker on my hi-fi. He writes his explanatory notes on crumpled bits of receipt paper, and assures me that the five songs on the tape will improve when he acquires his EPS. I'd cry if I wasn't so busy laughing.

■ *Demo Reviews by Skum*

Send your demo-tape, along with some biography/equipment details and a recent photo if you have one, to: DemoTakes, Music Technology, Alexander House, Forehill, Ely, Cambs CB7 4AF. Contact addresses or numbers will be printed on request.

liveT·A·K·E·S

New Order

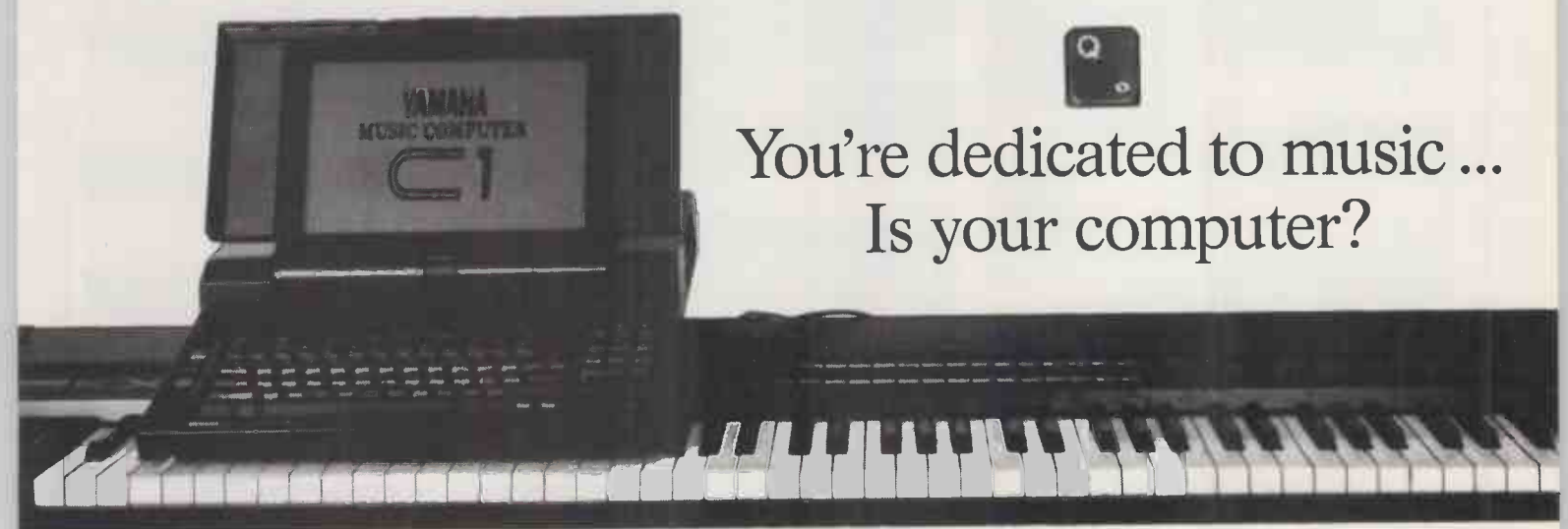
Birmingham NEC

"Will you please welcome four people from Altrincham", announces the compere, and before any one of the ten thousand or so assembled could say "Altrincham? I thought . . .", New Order had launched into 'Touched By The Hand Of God', a seething bubbling tapestry of sound triggering their one and only concert in this country on the '89 mini-tour. The constant reminders of New Order's Northern provenance makes it all the more extraordinary how utterly "un-Northern" they now seem. Even the NEC, so barren, so sterile, so . . . full of scaffolding only minutes before positively glowed with the pulse of New Order's touch. It was a show of singles lacking the mystery and growling anger of early days. An uplifting and satisfying testament to all the young fresh faces who had come clad in their many coloured Concert t-shirts. Songs like 'Vanishing Point' and 'True Faith' created audience reactions only normally associated with the U2s and you know whos of stadium rock 'n' roll. Yes, there was dancing in the aisles.

Underneath all the new-found competence and familiarity however, Bernard Albrecht still treads a pretty thin line between inept and inspiring with his peculiar voice whisper intermingled with elastic pinwheeling arm movements and cries of "Woo!" when the mood really takes him. His voice may have dominated *Technique*, but there was the usual lacklustre and grumpy tone to it on stage, even to the point of neglect. Whether he forgot or simply didn't want to remember the words to '1963' is something we'll never know, even if we wanted to. His revised lyric in 'True Faith' though was immaculate; "When I was a very small boy very small boys talked to me/ Now that we've grown up together they're all taking drugs with me . . .". Stage left meanwhile was occupied by "axe-man" Peter Hook, up to his usual stage histrionics, relentlessly wielding his oversized bass guitar around his knees and ankles whilst the subliminal half of New Order, Stephen and Gillian, just played their stuff.

As we've come to expect from their intermittent public appearances, New Order don't make a habit of playing the part of Rock Gods, they let other people do it for them. Perhaps it's their candour in refusing to do what is expected that induces their live audiences to clutch onto anything that comes their way, like sanguine hand clapping to an over-extended bass drum beat or reaching fever pitch over incidental guitar riffs between songs. No other audience would tolerate it or understand it.

'Ceremony' and 'Bizarre Love Triangle' sound as if they'd been written for this night alone, effortlessly entertaining the masses yet retaining their precious private joy and personal sorrow. Even Albrecht, usually so conscience-stricken you almost expect him to apologise between songs, was showing signs of ease and volubility - even asking which song everyone wanted to hear next. Did someone say 'Blue Monday'? No surely I was mistaken. Albrecht and band couldn't have heard at any rate as they cruise through encores of 'Fine Time' and 'Perfect Kiss' instead. What follows the sheep bleeting and the choruses of frogs croaking sounds to me like a Tardis, signalling the band's return to the Elysian fields of Altrincham. New Order get it right when you least expect them to, but somehow you always knew they could. They didn't even say thankyou, they left that to us. ■*Chris Williams.*



You're dedicated to music ... Is your computer?

The new Yamaha C1 portable represents a major step for computers in music. Being the first dedicated music computer, it features eight MIDI outputs (plus two ins and one through), two KX88 style programmable sliders and keys conveniently marked with music symbols. As well as reading and writing all SMPTE formats, the C1 has a separate music clock to liberate valuable processing power for creative purposes.

ON THE ROAD OR OVER THE ROAD

The C1 weighs only 8kg and has an integral backlit screen. The 3½" floppy and 20Meg hard drives are shock-mounted making it the only real choice for the touring musician or the artiste who composes in the Cotswolds and masters in Montserrat.

LOADSA SOFTWARE

Apart from the purpose-written software included, the C1, being IBM compatible, gives you access to thousands of the most advanced MS/DOS programs. An extensive range for music from people like Voyetra, Dr T, Passport, Turtle Beach and Soundquest to name a few. Steinberg 'Cubit', Master Tracks 'Pro' and Coda 'Finale' are coming soon. And if you have any time left for business you can take your work home on the C1 - chances are your business runs on IBM compatible.

ART STATION

The world certainly doesn't need another Work Station but the C1 defines this latest buzz word, eliminating the need for synchronizers, MIDI patch-bays, interfaces and yards of cables, enables you to work uninterrupted at what is fast becoming the most popular MIDI controller: the computer keyboard. And with ports for modem, printer, external monitor and memory expansion the C1 is truly open-ended.

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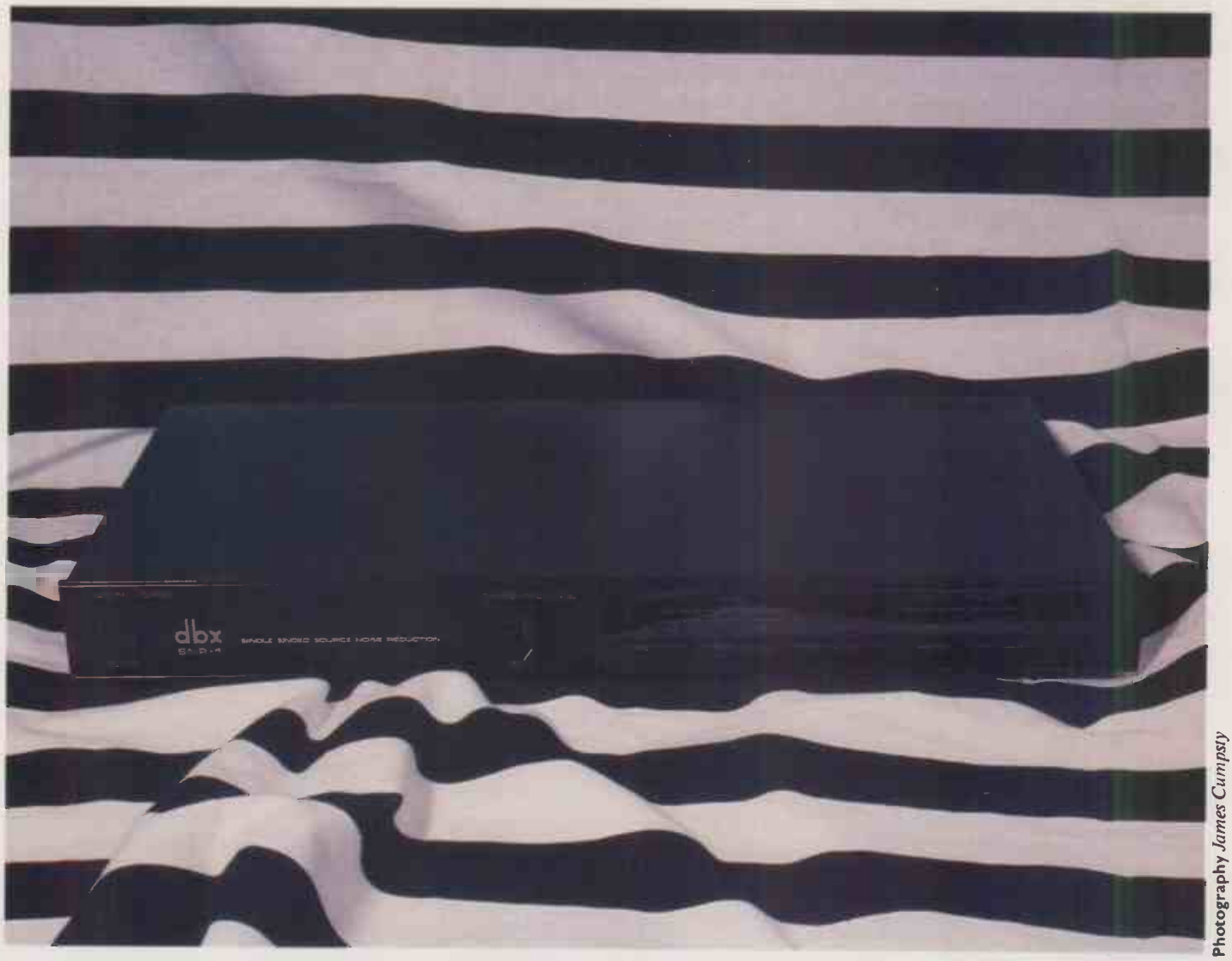

Photography *James Cumpsty*

One of the most useful pieces of equipment in a small studio is one that can be put to many uses – when those uses involve the elimination of noise, the SNR1 is invaluable. Review by Vic Lennard.

THE NAME OF dbx is synonymous with tape noise reduction, as anyone with a Tascam recorder will tell you. However, the use of compression on recording followed by expansion at playback is only suitable for reducing tape noise at the *recording* stage. If the program content is high in noise, especially at the top end, then this will show up on the final master, and while the use of noise gates will keep quiet passages under control, they are not program conscious.

The alternative approaches to this system lie firstly in downward expansion – which increase the gating effect as the program level decreases, so reducing noise when the program content is low – and secondly in dynamic filtering – which rolls off the top end once the input level has fallen below a certain threshold, so masking the high-frequency noise present throughout the audio input.

Units employing these operations do exist, the most well-known one being the Symetrix 511 which incorporates both. This still changes hands for £300-£400 secondhand, while the newer version, the 511A (Reviewed MT, February '89), retails at £569. Consequently, there is room in the market for a cheaper model, and this has now been introduced by dbx in the form of the dbx SNR1.

Description

THE SNR1 WAS originally intended to be a hi-fi add-on, hence the two sets of phono sockets on the rear. One of these is for interfacing to the tape output/monitor return of your amplifier, and the other for connection to a tape deck. This means that you can either use the noise reduction on recording or playback, and use the Pre/Post buttons on the front to determine whether you are effecting the signal pre-tape deck or post-tape deck. A bypass button allows you to hear the signal on input to the SNR1 or after noise reduction has been applied, and two toggle buttons for Tape and Source make the most of any recorder with three heads for monitoring off tape.

A Threshold rotary control sets the level at which dynamic filtering commences, and ranges from −70dBV to −30dBV. This, along with the permissible input voltage, makes this unit suitable for the semi-professional market with a system level of −10dBm.

The manner in which the unit is set up is of paramount importance if good results are to be obtained with it, especially from an input level point of view. The Threshold control on the SNR1 dictates when the noise reduction

comes into effect and is related to the high frequency content of the incoming signal. To monitor this input, there is a nine-segment level indicator with a central green LED sandwiched between four each of yellow and red. Each LED represents 10dB of signal level and if the red LEDs light, then the level is above the threshold and no filtering will occur. It would appear that, as the unit is stereo, it responds to the higher level shown on either the right or left input channel.

The other meter on the front panel shows the frequency range at which filtering is taking place. It does this with the help of seven red LEDs representing from 800Hz up to 20kHz. These LEDs light up from the upper frequency downwards.

In Use

FROM THE ABOVE, it is clear that the Threshold setting and the high frequency content of the incoming program are the factors which govern the cutoff frequency of the SNRI. The lower the threshold, the more difficult it is to induce noise reduction – for example, if the Threshold is set to the maximum of −30dBV, any signal below that level will reduce the cutoff frequency from its maximum of 20kHz down to a value directly proportional to the amount by which the input is less than the threshold.

Consequently, there are two different ways to use the unit: set the Threshold low enough to leave the majority of the signal unaffected, so that the filtering occurs in areas where the program level drops, or ensure that the noise reduction is adequate at the quietest point of the music. The former method may mean that the degree of noise reduction is insufficient, while the latter method may well entail a degree of filtering is taking place throughout. Your choice of which approach to adopt should be dictated by the noise content of the audio program, although it must be said that poor engineering will inevitably lead to poor results, no matter what equipment is used subsequently.

The review SNRI was first tested on some rather noisy pre-recorded cassettes to see how much of the inherent copying noise could be extracted. This was attempted using both of the above techniques. Setting a high Threshold certainly caused audible rolling-off of the high frequencies while a low threshold didn't really handle hiss in the quietest parts. Removing dolby B – which these cassettes were supposed to be encoded with – and so increasing the inherent high-frequency component of the music gave totally different results. Happily, the SNRI seemed to be more at home. I would have expected to hear a degree of "pumping", but found it to be minimal and very much subject to the Threshold setting. Now I'm not suggesting for a moment that you turn off dolby noise reduction when using the SNRI, but I have found that the quality of the "chrome" cassettes sold in the pre-recorded market often leaves much to be desired, and the ferric ones are quite atrocious in many cases.

The next situation the review SNRI found itself in was during a mixdown with a Roland MKS70 Super JX. The MKS70 has a great sound, but a noisy output (which has been the bane of my studio for the past year or so). In a moment of despair I patched the SNRI into the module, set quite a low Threshold value and sat back to listen. The sound in use was one with a lot of high harmonic content and I have to admit to being impressed with the result.

Continuing this line of investigation, the SNRI was set up to be compared with the Symetrix 511 in masking the output noise from an Axxeman guitar processor. In Clean mode, the SNRI scored over the Symetrix unit in hiding the high-frequency hiss, because its 800Hz frequency cutoff point is lower than that of the Symetrix. However, in Lead mode (we're talking distortion here, for anyone not familiar with widdly-widdly terminology) the downward expander on the 511 was necessary because the noise exists at a far lower frequency and a dynamic filter cannot handle this on its own.

How about using the SNRI across the outputs of the mixing desk on mixdown – lots of top end there? The results obtained were pretty good except during a controlled fade out, where the lack of high frequencies was particularly apparent. Pressing the Bypass button gave an audible click, but rotating the Threshold control to minimum didn't produce any unwanted audio side-effects and defeated the SNRI. Inherent noise from the unit itself was nil and I could not detect any shifting of the stereo image.

Having got me into the mood for eliminating noise from problem sound sources, the review SNRI found itself in the company of a Yamaha SPX90 – which has to be one of the noisiest digital effects units of all time. The pitch-change programs in particular often demand the top end be boosted on the effects return on the mixing desk, yet the signal noise makes this rather unsavoury. The SNRI provided a good answer as the top-end boost on the desk no longer accentuated the SPX90's high end output noise.

Another area of experimentation the SNRI was subjected to involved samplers.I sampled a voice from a Fostex E16 into an Akai S950 with the intention of repeating it further on in a song with a sequencer. I first tried sampling through the SNRI to remove any tape hiss but found the noise generated by the S950 to be greater than that generated by the E16. So, having sampled the voice straight from tape, I then replayed it through the dynamic filter. This vocal section had a couple of quiet patches with a little headphone breakthrough, and the SNRI was most useful in hiding this. I also tried gating the section, but found this to be less natural. In this context, the SNRI was found to have a very fast reaction time,

"In a moment of despair I patched the SNR1 into a noisy Roland Super JX and sat back to listen – I have to admit to being impressed with the result."

which is a good reason for having limited the front panel controls to threshold only.

Finally, the overworked review SNRI was interfaced between the mixer outputs and the input of an aural exciter. These tend to dislike a lot of high-frequency noise and consequently function in a less than satisfactory manner unless this type of noise is removed. In the time I spent using the SNRI, I found that the aural exciter lost the harshness which had previously stopped me using it across a full mix.

Verdict

AS YOU MAY have gathered from the review, I was more than impressed with the SNRI. Performance-wise, it is very difficult to knock it in any respect except that it's a shame that it can't be used as two separate mono units – but this would raise the retail price of £279 to unreasonable heights. This aside, the SNRI is one unit which can provide many of the tools required for reducing the noise and hence improving the quality of recordings made in a small studio. ■

Price *£279.90 including VAT*
More from *Soundtec Marketing Ltd. Unit 9, Belfont Trading Estate, Mucklow Hill, Halesowen, West Midlands B62 8DR. Tel: 021-550 7387*

ROLAND
A50 & A80
MIDI Keyboard Controllers

Photography *Adam Jones*

This is a story about control; control over what you do. Are you ready? It's all about control and Roland have got lots of it. Review by Simon Trask.

THE SILENT KEYBOARD controller and the keyboardless expander module are both natural consequences of the MIDI way of doing things, the basic premise being: why have multiple keyboards when you can get away with one? By dedicating that keyboard to MIDI performance control, manufacturers can concentrate on getting both the control facilities and the keyboard right, unencumbered by the strictures of their synthesis and sampling systems.

Unfortunately, the cost of a MIDI keyboard controller can all too often seem out of proportion to its silent status. Only Cheetah have made serious attempts at producing budget keyboard controllers, with varying degrees of success. Roland made one foray into the budget controller market with the five-octave MKB200 (reviewed MT, March '87), but on the evidence of their new A50 and A80 MIDI keyboard controllers it seems they subsequently felt – with some justification, perhaps – that it was better to up the cost and produce a sophisticated and really solid keyboard controller.

Command Action

FOLLOWING IN THE tradition set by the company's original MKB1000 and MKB300 MIDI controllers (reviewed in E&MM, October '84), which were internally the same machine with two different keyboards, Roland's A50 and A80 are the same as each other in every respect bar the keyboard.

The A80 is the bigger and by far the heavier of the two instruments, sporting an 88-note piano-style keyboard, while the A50 has a 76-note synth-style version. Both are sensitive to attack velocity and polyphonic aftertouch (you can switch in channel-aftertouch "emulation" for the majority of instruments which don't respond to the superior poly version).

Personally I prefer both of these keyboards to the uncomfortably bouncy keyboard action of Akai's MX76 controller keyboard (reviewed in last month's MT). However, the A80's firm action and deep travel are

perhaps trying too hard to be piano-like, and consequently the keyboard ends up being a little on the sluggish side. As if to emphasise the difference between Roland's two controllers, the A50's keyboard has a shallow, fluid action which nonetheless manages to avoid feeling flimsy. To my mind, a good synth-style keyboard makes a better all-purpose keyboard than the piano-modelled alternative, and for this reason I would go for the A50. There again, with the A80 it's possible to have the best of both worlds – for a simple reason which I'll come to later.

Incidentally, for the sake of convenience I'll refer only to the A50 from now on, but all references apply also to the A80 unless specifically indicated.

Command Layout & Routing

THE A50'S FRONT panel has a healthy complement of low-profile buttons (with red pinpoint LEDs to indicate on/off status where appropriate), giving it a sleek, uncluttered appearance. You'll find Roland's familiar pitch/mod lever in its usual position to the left of the keyboard, but the company haven't stopped there. Above the lever are separate pitch and mod wheels for those musicians who prefer them; all that's needed is a Korg-style joystick and then everyone would be happy.

Like Akai's MX76 controller, the A50 has been given a generous 8X40-character backlit LCD window (with adjustable contrast, courtesy of a small knob located on the rear panel). This has allowed Roland to organise the controller keyboard's parameters into a hierarchy of software "pages" which are selected using five "soft" buttons located below the LCD window. Each page lists, in inverse video along the bottom line of the LCD, the other pages that can be accessed directly from it. You move around each page using four cursor buttons, then use increment/decrement buttons to adjust parameter values.

To the left of the LCD window are four sliders and four buttons which can be assigned any combination of MIDI controllers. Rather ingeniously, the sliders can be induced to perform a second function when you latch the Edit button: most of the LCD pages are limited to a maximum of four parameters, so moving each slider both selects and edits the relevant parameter. However, you can still edit only one parameter at a time.

The four sliders also come in useful when you're entering a name: moving each one selects a space, numerals and miscellaneous characters, upper-case characters and lower-case characters respectively. It's an approach which certainly makes life easier, and that's what the A50 is all about operationally. The result of Roland's ingenuity and clever organisation is an instrument which is extremely user-friendly. Wasn't it always meant to be like this?

As you might expect, the A50's rear panel sports a healthy complement of sockets: two MIDI Ins, four MIDI Outs, a MIDI Thru, and two Patch-shift inputs (up/down) together with four foot-controller inputs for sending MIDI controller data in performance (you can use any combination of footswitches and footpedals). And now for the good news: MIDI In 2 accepts MIDI data on all 16 MIDI channels (Omni on/Poly mode) and then modifies it according to all of the A50's current parameter settings before retransmitting it to the four MIDI Outs. In other words, it treats the output of an external MIDI instrument as if it was coming from the A50's own keyboard. So if you decide to buy the A50's bigger brother for its piano-style keyboard, but you'd also like to use your DX7's keyboard sometimes, all you have to do is plug your DX7 into the A80's MIDI In 1 and suddenly, as if by magic, the humble DX has all the control facilities of the A80. On the other hand, if you already own an electronic piano, you'd be better off combining it with an A50.

Both keyboards are active at the same time, so you can easily switch from one to the other, or even play them both at the same time (but only if you wear your very best Rick Wakeman cape). Incidentally, Akai's MX76 controller keyboard echoes its MIDI In data unchanged by its onboard control facilities.

If you're using the A50 for playing live – that's live as in no sequencing is involved – the value of having four MIDI Outs is clear: it reduces the need for chaining MIDI instruments. However, as soon as a sequencer enters the picture, things become a little less clear. Let's say you're routing MIDI Out 1 to your sequencer and MIDI Outs 2-4 to your slaved MIDI instruments. How do you get sequenced parts to these instruments? You hook your sequencer up to MIDI In 1. This accepts MIDI data on all 16 MIDI channels and passes it on to the four Outs and the Thru, along the way mixing in any data from the A50's keyboard and MIDI In 2. Unfortunately there's no way of specifying which MIDI Outs the sequencer data will be sent to, which means that it'll be sent back to the sequencer. If you've been foolish enough to enable your sequencer's MIDI Thru function, you'll find you've got a MIDI feedback loop.

"The result of Roland's ingenuity and clever organisation is an instrument which is extremely user-friendly. Wasn't it always meant to be like this?"

Even if you disable MIDI Thru on the sequencer, you're still faced with the impossibility of recording a new part while looping back already-recorded parts to the A50, because the sequencer will re-record whatever it's playing back.

This unfortunate state of affairs could have been avoided if Roland had included a facility to selectively disable MIDI In 1 throughput to the MIDI Outs. As it is, hanging your slave instruments directly off the sequencer is a preferable option – and if your sequencer can independently address more than one MIDI Out, you get the benefit of more flexible routing anyway.

Command Zone

THE A50 ALLOWS you to create up to four keyboard Zones, each of which can be assigned its own independent MIDI transmit channel and MIDI note range. This range can be anything from a single note to the entire MIDI-communicable span of 10½ octaves (beyond the A50's span, but there are potential uses for those extra notes). You can use the Zones to create a four-way split, a four-deep layer, or any overlap configuration in between. These and other control-parameter settings are stored in 64 Patches, and can be recalled from the instrument's front panel, the Patch shift up/down footswitch inputs on the rear panel, or MIDI patch changes received via MIDI In 2. In the latter case, you can define the MIDI receive channel (1-16) or disable reception on a global basis.

"Perhaps the most reassuring button on the A50's front panel is the Panic button – this sends Note Off commands for every note on every channel."

The output of each Zone is transmitted on all four of the A50's MIDI Outs; however, you can solo a particular Out, or mute any combination of Outs, from front-panel buttons much as you would solo or mute channels on a ►

► mixing desk. These settings are stored automatically as part of the current Patch. Similarly, you can solo or mute individual Zones at any time, with settings stored as part of a Patch. The A50 gets round the potential problem of hanging notes by simply not allowing you to solo or mute an Out or a Zone while notes are active over MIDI.

Each Patch can be given its own 16-character name, making it easy to identify when you step through the catalogue of Patches in the LCD window (up to eight

Patches at a time can be displayed). Individual Zones within a Patch can be transposed +/−3 octaves in semitone steps, and each Zone can be given its own MIDI patch number, volume level, modulation amount and pitchbend on/off state (the first three of these being transmitted when the Patch is called up).

Each of the A50's physical controllers (the four foot, slider and switch controllers) can be assigned a MIDI controller (0-121), auto tune or MIDI mode functions per Patch. What's more, each of these can be programmed with the same or a different controller for each Zone. In this way you can, for instance, control MIDI volume for all four Zones from a single slider, or control the volume for each Zone from a different slider for live mixing; use a single footswitch to sustain two Zones in a four-Zone layer; and use two footpedals to bring in separate modulation on fretless bass and lead synth sounds in a two-Zone split. Call up a new Patch and you can have a

"When you buy one of Roland's new controllers you're effectively adding its control facilities to whatever MIDI instrument you care to plug into it."

completely different set of MIDI controller assignments at your fingertips (not to mention your feet).

A MIDI controller keyboard has to be able to contend with playing a wide variety of sounds on a wide variety of instruments. Consequently, on the A50 Roland have allowed you to define velocity and aftertouch curves and associated parameters for each Zone within a Patch. There are seven curves to choose from for attack velocity, including one inverse curve, while the associated parameters allow you to scale the curve (from 50% to 200%), add a fixed offset (0-127) and introduce a "holdoff" (effectively a minimum velocity transmission value). By selecting different curves for two or more layered Zones and playing around with the other parameters, you can introduce all manner of velocity mix and velocity crossfade effects. To output a constant velocity, regardless of the actual keyboard velocity, set a scale value of zero and add an offset; the A50 will then output notes only at a velocity equal to that offset.

A similar set of parameters exists for aftertouch, again for each Zone within a Patch. The only differences are that there's no inverted curve, and no offset parameter. However, additionally, for each Zone within a Patch you can select polyphonic or channel aftertouch transmission, or, alternatively, disable transmission (after all, if a sound doesn't require aftertouch, why transmit it unnecessarily?).

Perhaps the most reassuring button on the A50's front panel is the Panic button. When you press this, the controller sends Note Off commands for every note on every channel – guaranteed to silence any hanging notes. Some witty soul at Roland has programmed a popup window on the LCD screen which bears the message "Zzzzzzzzzz"; I take it this means the A50 is putting your MIDI instruments to sleep.

Like both the MX76 and Oberheim's Systemizer stand-alone controller unit (reviewed MT, April '89), the A50 allows you to send patch changes on up to four more MIDI channels per Patch. These are collectively known as Effector Channel Program Changes, and if enabled are sent whenever a Patch is called up. The "Effector" label recognises that the most likely use for these extra patch changes is to call up different effect settings on MIDI'd signal processors, but this is by no means the only use – you could, for instance, dedicate one MIDI channel to calling up "snapshot" mixes on an automated mixing package.

Also potentially useful is the A50's ability to accept (via MIDI In 2) and store SysEx dumps within each Patch, up to an overall total of around 13,000 bytes. The data within each Patch will then be transmitted automatically to the relevant slaves when the Patch is called up.

Chain of Command

THE A50 ALLOWS you to create your own Patch sequences in up to 32 Chains, each of which allows you to link together a maximum of 32 Patches. Chains can be stepped through using the front-panel cursor buttons or the Patch shift up/down footswitches. As well as being able to give each Chain a 16-character name, you can give each step within the Chain a 32-character comment, so you can describe its position in a song – "verse two", "chorus" – or perhaps refer to the sound(s) it calls up.

I do have one quibble with Roland's implementation of the Chain facility (and with Patch selection per se). The A50 won't step to a new Patch while notes or a sustain pedal are held down, so consequently you can't "overlap" sounds in different Patches. There are so many instances where it would be advantageous to have such a facility that its absence is positively anti-musical. For some reason, American companies such as Ensoniq and Kurzweil have always paid attention to this matter, while the Japanese companies haven't. A minus point for Roland on this one, I'm afraid.

From the Chain Play page you can Start and Stop a sequencer or drum machine using "soft" buttons four and five, and send a Song Select command (1-128) by pressing the Song button and using the Group/Bank/Number selector buttons. These commands are sent on all the active Outs.

However, the A50 provides no tempo facility, nor can you Continue a sequence, which makes Roland's implementation of remote sequencer control a bit half-hearted. If you're going to control a sequencer from a keyboard, how about being able to create a master tempo track for each Chain? Sounds interesting? Well, you won't find such a feature here (nor on any other controller keyboard that I can think of offhand).

The A50's Patch and Chain data remains in memory through power-down, but nonetheless if you find yourself ►

Capture your inspiration

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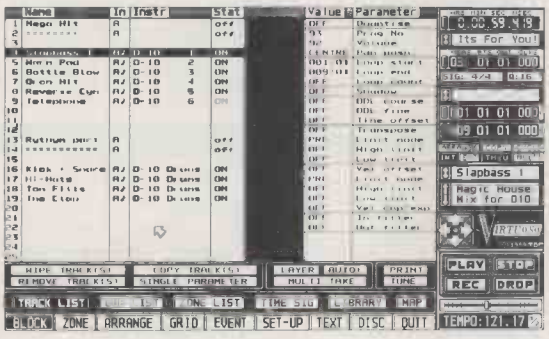

The Block Page display of the tracks in the current block giving output routing and extensive non-destructive real time processing for up to 99 tracks.

But achieving that meant squeezing every drop of performance out of the Atari's 68000 processor.

We did it by writing our own operating system, completely by-passing the computer's sluggish GEM system.

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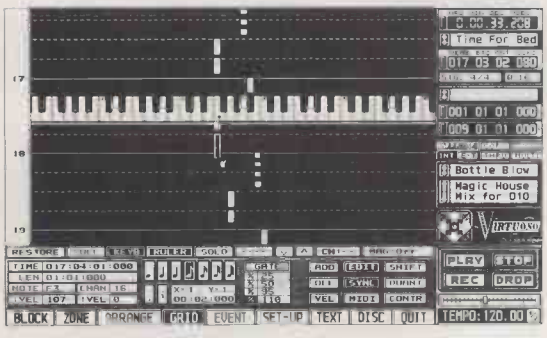

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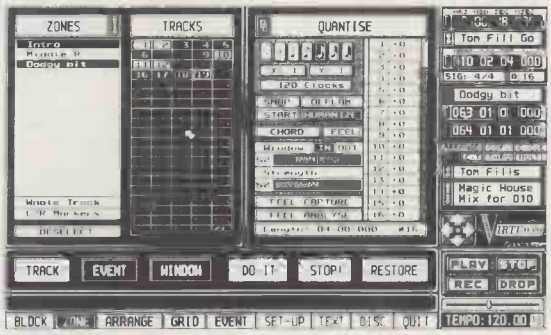

The Zone Page offers complex conditional processing of tracks. Here the quantize facility is ready to operate on the chosen tracks.

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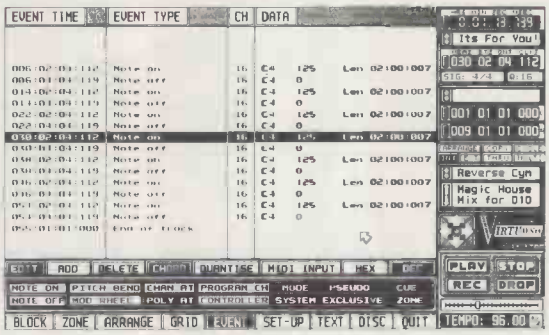

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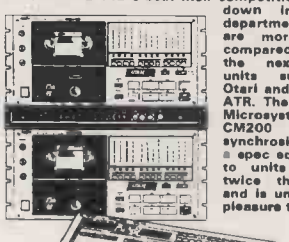

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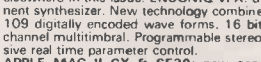

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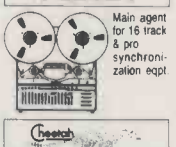

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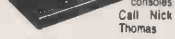

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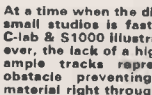

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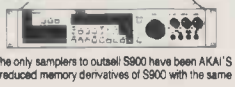

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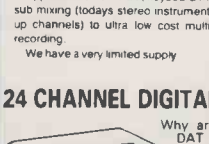

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needing more than the controller's onboard storage capacity, you can store the internal memory to RAM card, or transfer it via MIDI SysEx to remote storage. Using a RAM card doesn't double the A50's memory capacity, as you have to load the data off the card before you can use it. Unfortunately, you can only bulk dump the A50's memory. Do Roland truly think that in the real world no-one will ever want to combine Patches and Chains from different memory dumps? Another minus point, chaps.

Finally, on a more positive note, I must for once heap praise rather than scorn on the accompanying manual. Not only have Roland included an index, but the standard of English has improved considerably, as has the standard of proofreading. Also, the inclusion at relevant points throughout the manual of photos of the A50's LCD pages is a good idea.

Verdict

TRYING TO SUM up in my mind how I feel about the A50 and the A80, I keep coming back to one word: comfortable. Comfortable with the keyboard(s), comfortable with the sturdy construction, the chic design, the well-conceived control facilities, the user-friendly operation – even with the manual.

In contrast, Akai's MX76 is, to me, an *un*comfortable instrument. Uncomfortable edges, uncomfortable keyboard, uncomfortable operation, uncomfortable buttons and sliders – and, yes, an uncomfortable manual. Sorry Akai, I have to be honest about this.

But there's no getting around the fact that Roland's latest keyboard controllers don't come cheap. And so the perennial question arises: should your next purchase emit sounds or remain silent? For instance, Roland's new W30 Music Workstation includes a sampler and a sequencer within its casing, yet it retails for the same price as the A80. I guess the answer to the question depends on what you've already got in the way of sound-producing instruments, and whether or not you feel your playing could benefit from the attentions of an A50 or an A80.

Bear in mind that when you buy one of Roland's new controllers you're also in effect buying its control facilities for whatever MIDI keyboard or other MIDI instrument you care to plug into it. Yes, that old DX7 *can* become a sophisticated MIDI controller after all. In this way you can buy an A80 and double it up with a synth keyboard, or buy an A50 and double it up with a piano-style keyboard (an electronic piano, for instance).

There are many clever and thoughtful touches on the A50 and A80 – as you might expect from an instrument which has been a long time in development (the A50 was debuted at last year's BMF). But that makes it all the more surprising when certain lapses show up, such as the fact that the four MIDI Outs can't be individually addressed, or the fact that notes can't overlap a Patch change. It's also a shame that you can't have layered MIDI channels per Zone, as on Oberheim's Systemizer; with the growing number of budget multitimbral instruments making composite sounds ever more practical, it would be a useful feature to have.

But none of this detracts from the sheer quality and professional feel of the A50 and A80. In the final analysis, they are very impressive instruments, and I for one am sold on them (well, I would be if I had the money).

Warning: if you enter the comfort zone you might not want to return. ■

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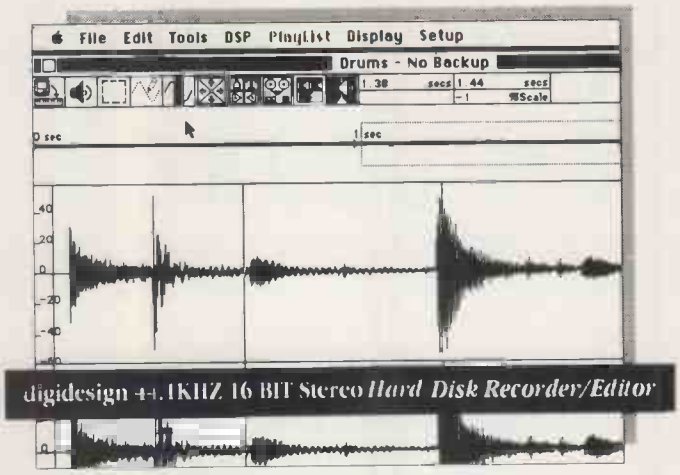

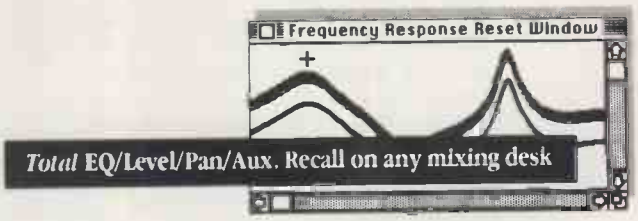

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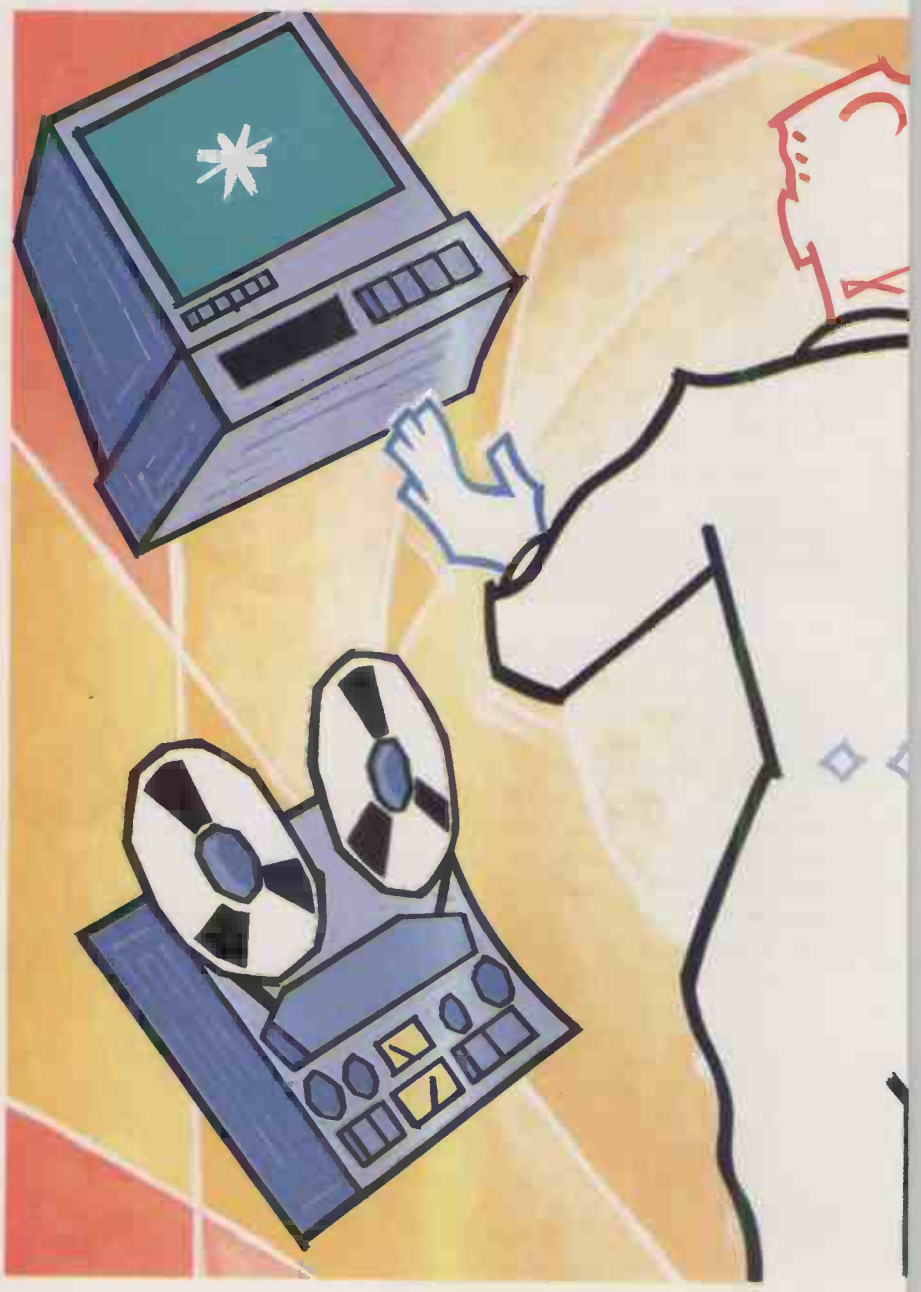

These days we tend to take equipment synchronisation for granted, but just how do sequencers, drum machines and tape recorders stay in time? *Text by Chris Many.*

IN THE MIDI era, it's not enough that a musician or composer knows how to create a haunting melodic phrase, killer dance groove or the next Top Ten hit. It's not even enough to know the Ins and Outs of synthesisers or how to get a good, clean sample, much less the real difference between 12-bit and 16-bit samplers (besides the price tag, that is). We all know that the length of the list of subjects a musician is required to know is long and extends beyond mere matters of music. Synchronisation usually tends to be low on the list, and rightly so. After all, it's just a matter of turning on the tape and locking up a sequencer. Or is it?

Clearly Defined

LET'S GET A couple of definitions out of the way first. What do we mean by "synchronisation"? My pocket dictionary defines "synchronise" thus: *1. Occur at the same time; agree in time. 2. Move or take place at the same rate and exactly together.*

Orchestras normally require a conductor to synchronise their performances, getting all of the musicians to play together and agree on a common tempo, interpretation, dynamics and so on. A computer or dedicated sequencer actually takes on the conductor's role when used to perform music, causing different tracks to start at the same time and perform exactly together at the same tempo.

But what would happen if our conductor was unable to communicate his directions to the musicians in the orchestra? Then we have chaos. Fortunately, musicians have a common language in music. Whether or not individual performers within an orchestra speak French, Italian or English, the language of a conductor setting the pace and dynamics of a piece is understood the world over.

This analogy holds up well when we apply it to the field of synchronisation. Let's say we have a 24-track tape recorder, a ¾" video deck and a sequencer, all made by different manufacturers, all working happily, but independently, and we want to connect them together to form an audio-visual composition suite. By imposing a senior communication protocol on all these machines we can get them all working in sync with one another.

FSK and Clicks

THERE ARE TWO main categories into which synchronisation languages fall: click or pulse types, and time reference types. Click types are basically electronic pulses occurring at a regular rate that can be read by two machines so that they can run at the same speed. In other words, codes that ensure two machines start at the same time and run at the same speed, and so stay in sync. The problem with this type of sync is that there's only one reference point to work with, namely the starting point.

Many sequencers use this kind of sync

Illustration *Clive Goodyer*

signal, known as FSK (Frequency Shift Keying). It's an audio signal in which the frequency of one sine wave tone is modulated between two distinct values by a square wave (a little like like simple FM synthesis). For example, in Roland FSK on the MC500 MkII, the frequency of the primary tone is modulated between 1.3kHz and 2.1kHz. These modulations, or shifts between frequencies, are performed a certain number of times per quarter note – 24, 48 or 96 are the standard frequencies – and so drum machines and sequencers are ideally suited for this type of sync. Of course, each modulation, or pulse, is identical to every other pulse, so there's no way to identify any specific part of your music.

FSK is one example of a click-type sync, but there are several others – Roland's Sync 24 (or DIN sync), Oberheim's "O" sync, and a few other proprietary sync codes adopted by various manufacturers. There's also another type of pulse or click sync called Control Track, that is used extensively in video applications. Control Track is a series of electronic pulses that are recorded on the bottom part of a videotape, separate from the two audio tracks. These pulses are used for editing purposes in conjunction with a Control Track Editor, allowing clean edits using video tape. By finding a blank space between selected video frames (called the vertical interval), a Control Track Editor lets you make electronic splices without causing visible jumps. Again, the pulses used with Control Track are all identical, so such editing is not 100% accurate because there is no distinction between different points on the tape. The machines being used have to count the pulses, so they are only accurate to within two or three frames.

And synchronisation doesn't end with pursuading one machine to run in sync with another – the same principle can be applied to running machines in sync with tape. A simple example of a click-type tape sync signal is the Click track used by musicians when multitracking. Although the tempo can change and a different audio pitch could be used to delineate the start of a new series of clicks (*click*, click, click, click . . .) the clicks are essentially identical. Once again, there's no location reference using a click track (the music might give you a reference as to where you are in a song, but the click itself doesn't).

All the electronic click-type sync codes are suitable for recording onto tape to allow sync'ing to tape. However, the click type of synchronisation does provide an agreed-upon method for locking the performance of two machines together, as long as they both start from the beginning of the music each time you run them. By counting and comparing the electronic pulses, two or more machines can be reliably sync'd to each other.

SMPTE Timecode

ALTHOUGH CLICK-TYPE synchronisation is a workable system, it's inconvenient to have to rewind to the beginning of a recording every time you want to slave one machine to another – especially if you're working with a long piece of music or video. Enter SMPTE timecode, an audio signal developed by the Society of Motion Picture and Television Engineers (hence its name). SMPTE code is based on the internationally accepted concept of time (Hours:Minutes:Seconds) and provides a great number of pointers or location references. SMPTE is not based on counting pulses per quarter note, but instead it sets the tempo against a real time standard. So when you record SMPTE timecode onto video tape, each frame is stamped with its own individual reference point in time. This is true for audio tape as well – every point on the tape is uniquely marked with a precise identity (Hours, Minutes, Seconds, Frames and Sub Frames). This means that moving to any location is simply a matter of requesting the machine to find that identity.

There are two kinds of SMPTE code: Longitudinal Time Code (LTC) and Vertical Interval Time Code (VITC, pronounced "vit-see"). LTC, commonly used by most musicians for sync purposes, is the audio signal recorded on audio or videotape. VITC is recorded in the vertical interval between video frames on video tape. One of the big advantages of VITC is that, when using the appropriate hardware, you can read code while in very slow motion or in pause mode. For the most part, LTC cannot be read at very low or high speeds because there are frequency changes due to playback speed.

Now, if you didn't know that there was a blank space between video frames, you're not alone. VITC, although used daily in a wide variety of video ▶

► applications, is largely unknown in the music field. Why? Because VITC cannot be recorded on audio tracks. Therefore LTC must be used when running audio hardware, such as a multitrack tape machine or a sequencer. In order to synchronise these different types of machines (video and audio) we must find the common ground between them, and LTC is it.

Just to make things a little more complicated, there are four different types of LTC: Non-drop frame (30 frames per second, or fps), Drop frame (29.97fps – it requires the code to "drop" or skip a frame number once in a while to stay in sync), and 25 and 24-frame SMPTE. Simple, eh? Twenty five-frame is the standard used by the European video community and 24-frame just happens to coincide with the standard film (as opposed to video) frame rate. American video uses the drop frame-rate of 29.97 fps. The 30-frame rate is used for audio applications, such as synchronising sequencers to multitrack tape recorders. In order to synchronise things using LTC then, you must make sure that the type of code used is the same for all machines, otherwise you'll wind up with some very confused machines.

Other Formats

ANOTHER TIME-BASED synchronising code can be found in the MIDI specification. Song Position Pointer (SPP) is one method used by sequencers, drum machines and assorted MIDI machines of locating a particular point in a song. Using a code based on numbered beats in a song to identify specific points, SPP is useful in providing a simple cueing system for MIDI instruments.

MIDI Time Code (MTC) was recently adopted for use in similar applications, and uses the same method as SMPTE timecode (Hours, Minutes, Seconds, Frames and Sub Frames) for location reference. The drawbacks of MTC are the additional information it adds to the MIDI data stream, the need for special conversion boxes to change true SMPTE code to MTC, and less accuracy than SMPTE itself. However, it does currently provide the best method of time-based synchronisation available for MIDI users without SMPTE. However, MTC by itself cannot be used for synchronising MIDI gear to multitrack tape machines or VCRs since it cannot be recorded onto tape.

Recently, yet another form of synchronisation code has been developed, which is a bridge between the pulse and time methods: Smart FSK. Essentially, Smart FSK is an FSK-type clock with MIDI Song Pointer embedded within the signal. This allows devices designed to read and write this kind of code to use an inexpensive but reliable type of pulse code (FSK) that incorporates one of the main strengths of time-based code (locatability). JL Cooper's PPSI and Synhance's MTSI are the only two machines that use this kind of code, so it's quite a way from becoming an industry standard. Consequently, it precludes itself from being widely used to lock up VTRs and MTRs (Video or Multitrack Tape Recorders). However, it is an alternative synchronising method worth considering if you're on a budget.

MIDI itself is a communication protocol, designed to work with the microprocessors in synths, signal processors, sequencers and so on, but not meant to be recorded on audio tape. As a result, additional conversions to other communication languages (FSK or SMPTE) are required in order to use MIDI with other non-MIDI machines such as VTRs and MTRs. Even with the latest advances (like Fostex's R8, a multitrack machine that syncs to MIDI clock), there are still hardware and software requirements to translate the different languages into one common communication protocol.

Summary

TO SUMMARISE, THERE are two categories of synchronising languages: click or pulse types, and time formats. The click/pulse type of sync code is characterised by the fact that each pulse is identical to every other pulse, requiring you to start from the beginning of the recorded data every time to get an accurate coordination between machines. All that's being communicated by electronic (frequency modulation) or audible (click track) means is a continuous stream of countable pulses, each one following the previous in a predictable, timed fashion.

Time reference code, such as SMPTE, allows for electronic information to be recorded on audio or video tape that uniquely identifies each point on the tape. These signals represent the passage of time in Hours, Minutes, Seconds, Frames and Sub Frames. This allows machines to locate to any given point on a piece of tape and is used to instruct the machine to move to a specified time stamp. ■

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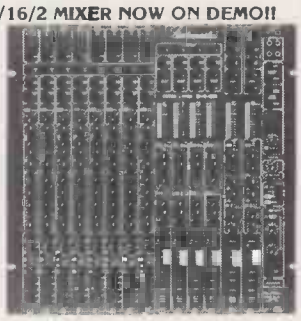

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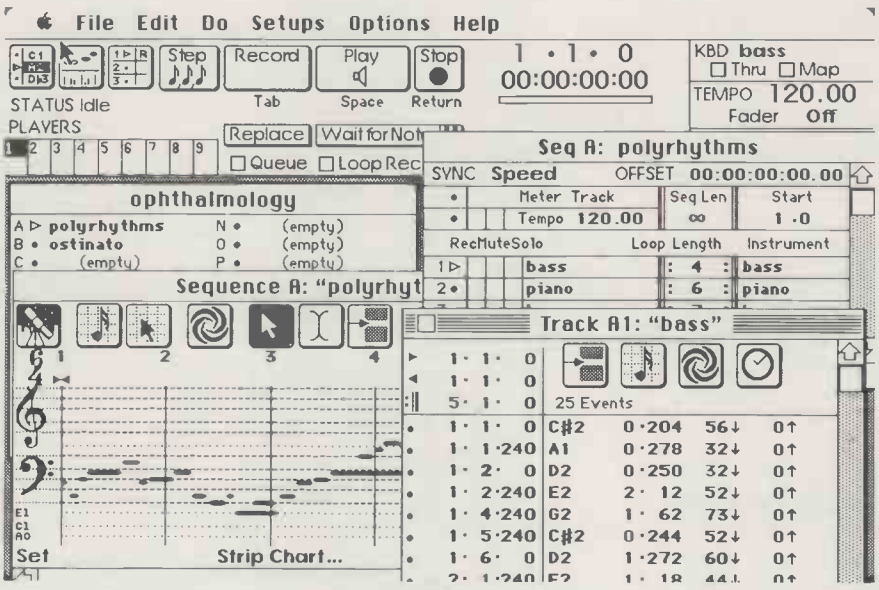
OPCODE VISION

Software for the Apple Macintosh



Graphic and List Windows

After a long wait, Opcode's newest look at MIDI sequencing for the Apple Macintosh has arrived – in all of its thorough, complex, intimidating glory. Review by Carter Scholz.

THE NEXT GENERATION of software sequencers has arrived. Vision is more than an upgrade of Opcode's own Sequencer 2.6, it's just about every good idea that's appeared in a sequencer to date, plus a few new ones. It's more evolutionary than revolutionary, confirming the impression that MIDI software is currently at a stage in which consolidation and refinement, not innovation, is the order of the day.

Interface

OPCODE HAVE COME up with what's perhaps the most versatile user interface yet. Every turn reveals another well-thought-out innovation. Entering and changing data is a dream. Every number can be changed by typing in a new value, or by dragging the mouse like a slider on the parameter. Note pitches can be changed by touching a MIDI key and menus pop up everywhere. If you see bold type on screen, click on it and you'll get a local menu of options. For instance, if a rhythmic value needs to be set, it appears as a musical note. When you click on it, a menu of 21 common values appears around it. Or you can use keys dedicated to rhythmic values on the numeric keypad if you prefer. It's also possible to select other values by typing in the number of ticks. Touches like this provide both ease and flexibility.

The Mogrify icon (Opcode admit the name's silly) appears wherever you're faced with enough menu choices to make life difficult. Clicking on Mogrify prompts a list of commands from the Do and Edit main menus. Quite a convenience.

Recording modes include: real-time (on multiple channels, with the option of splitting different channels to different tracks), step-time, looping (where you can keep layering notes during each subsequent pass), punch-in and overdub. Recording may begin with a variable count-in, or with the first received MIDI event. In step-record you can sustain a note by holding it down. So easy, so obvious, so long overdue. Chords are entered by playing notes "almost" together, or by holding down the sustain pedal.

You may also customise the display and editing windows. Sometimes a piano-roll display is perfect for editing; at other times you really need an event list. Vision has both – windows can be open side-by-side and any changes to one are instantly copied to the other. The left margin of the graphic window labels the notes vertically, when there's no room it displays a piano staff. If you're uncertain whether middle C is C3 or C4 (Yamaha call it C3, the MIDI spec calls it C4), Vision lets you choose. The upper margin contains bar and beat numbers. If a track contains more than one MIDI channel, you can select which one(s) you want to see.

You can open a "strip" below the graphic display in which any MIDI controller, or note velocity (including release velocity), can be edited with the mouse. You can view any of the 128 defined MIDI controllers. But instead of forcing you to remember and type in the proper number, or giving you a fixed, incomplete list of common controllers, Vision lets you save your own list of "favourite" MIDI controllers as a user preference. In addition to MIDI data, Vision-specific types of "events" can be displayed here, including lyrics, cue points, markers, and tempo.

Any MIDI key can be mapped to any Macintosh key combination. This permits remote operation of the program from your MIDI keyboard. This is accomplished with the "MIDI shift" feature: define any MIDI controller (such as a footswitch) as the MIDI shift, and while it's pressed, the keys on your MIDI keyboard activate the Mac keyboard equivalents you've defined.

Architecture

WITHIN VISION, YOUR music is organised in up to 26 Sequences, each of which can contain 99 Tracks. Tracks in a sequence can be looped independently, and loops can be of any length regardless of bar lines. Each Sequence can also have its own tempo map. Sequences can themselves be looped, and they can be triggered from within a Track. ►

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ABC music

► Finally, you can capture the MIDI output of any Sequence (or Sequences) to another Sequence.

When you embed a Sequence in a Track it becomes a Subsequence. If one Track in a Sequence is designated as a Song Track, its Subsequences are played end-to-end, like a drum machine. Otherwise they can overlap, each one starting at the time you designate. The same Sequence can be started more than once, and a Sequence can start other Sequences – including the one that started it. However, a Sequence can't start itself. If you have looping Tracks within a looping Sequence, the Sequence length takes precedence, restarting all Tracks from the top when it loops.

Each Subsequence is really a copy of an original Sequence, and each can be edited individually. Changes to the original Sequence will affect all copies unless they've been edited individually. There are actually six types of Subsequence, including Gated, Stop, and Transpose, but there isn't space to describe them all here.

A Vision Instrument defines a MIDI channel on either of the Mac's serial ports, plus MIDI key range, overall velocity shift values and transposition, if you want to get fancy. This is not just plus/minus transposition – you can actually map any MIDI key to any other. Once you've set up an Instrument, you can refer to it by name when assigning it to Tracks.

A Vision Player (there are up to nine) plays a Sequence in real time from the Mac keyboard. Sequences can be set to sync to a beat or not. The same Sequence can be started independently by different Players. This is primarily a live performance feature, but a "live performance" may occur in the privacy of your studio, capturing the performance in a Track. Each of the Sequences you trigger during the performance becomes a Subsequence in the Track, where it can be edited. Since Track records the entire performance, each Track actually has nine of its own Players. It can then play back as performed, without other Sequences getting in the way.

If you're the simple type, you can just use Vision as a track-based sequencer, putting your whole song into one Sequence.

Editing

THE FULL POWER of any sequencer lies in its editing functions, especially those that operate on a group of events. Correcting single notes is an essential function, but being able to move, transpose, quantise, and time-scale large chunks of music is where real power lies.

Vision has all the usual group-editing functions, with enough bells and whistles for a small circus. For instance, quantisation uses what Opcode call "the five S's". Imagine a track of notes as a set of dots on a page. Quantisation lays a grid, like graph paper, over the dots, and automatically pulls each dot to the nearest grid line. This gives a mechanical, drum machine feel.

Sensitivity (0-100%) adjusts how close to a grid line a note must be in order to be affected. Say you've set the quantise value to a crotchet (quarter-note). With sensitivity at 100%, any note within a quaver (eighth-note) of a grid location will be pulled to it. A sensitivity of 50% will leave notes further than a semi-quaver from the grid location unaffected. Strength (0-100%) determines how closely quantised notes approach the grid line. A value of 100% pulls them onto the line; 50% pulls them halfway there. Swing (50-100%) shifts every other beat forward or back in time. A Swing value of 50% yields no change, while 75% would change steady quavers into dotted quavers plus semi-quavers. Smear (0-100%) adds a random element to the result. While we're on the subject of subtle timing changes it's also worth mentioning that Vision has an impressive 480ppqn resolution.

Vision's Transposition functions begin with your standard "shift everything up 'n' semitones". You also have a comprehensive set of harmonic mappings that cover many scales and modes from any root. In addition, you can remap any MIDI key number to any other, and you can save any such mappings you create for later use. To use this is to love it.

Time scaling stretches or contracts the selected events in time. This is extremely useful for syncing music to film – if your cue is a second too long, Vision will compress it by the appropriate amount. It's also a fascinating musical tool. Look up "mensuration canon" in the nearest music dictionary. Time reversal is also available in order to play the selected section backwards.

Note velocities, durations, and controller values can be set to a fixed value, scaled by a percentage, offset by a fixed value, clipped to a minimum and/or maximum, or randomised within a user-specified range. Durations can be "legato-ised", which moves all note-offs to coincide with the next note-on. A repeat-paste function lets you copy selected data any number of times with one action. I've often wished for this in other sequencers. Good work, Opcode.

Now, how do you specify a group? You can just draw a box around it on the graphic screen, or select a start and end time with the mouse, but there are many more options. The options for event selection are daunting – a group of notes may be selected (bracketed by time in bars or by event type) if it matches a value or falls within a range you specify – or if it doesn't. Once the selection is made, any group-edit function (quantisation, transposition, time scaling . . .) will operate only on the selected notes.

Any other MIDI message (pitchbend, aftertouch, controllers) can be selected with the same detail. Moreover, you can define your selection brackets (the events in time between which the selection is made) in equal detail. You can further restrict the selection to operate on a particular instrument.

It may seem like overkill, but when you have several thousand MIDI events in a file, and you have to isolate some of them for editing, every available tool helps and Opcode are to be applauded for not trying to second-guess what "important" musical relationships are.

You can select as many discontiguous notes as you want, one at a time or added to a group selection by shift-clicking on each. If you move to the list window, only those notes selected are highlighted. Very convenient. Finally, Vision records and plays System Exclusive MIDI data. You can edit this data in hexadecimal format only.

Goodies

AFTER YOU'VE RECORDED and edited your tracks, why stop? You can extract the rhythm and/or the melody of a Track and use them in what Opcode call a "generated sequence" (a little window that performs M-like algorithmic variations – forward, backward, note-alternating, and random – on the elements in various combinations). There's too much to explain fully, but let's say I had a lot of fun with this.

If you don't want to leave the final result to chance, you can capture all the notes of the generated sequence to a separate Track for precise editing.

Something *tres chic*: 32 on-screen faders (only 20 on the smaller-screen Mac Plus & SE) are available for your mixing pleasure. Each one can be used to fade the MIDI velocity of an instrument or to send a MIDI continuous controller message on a specific instrument. One fader can also be ►

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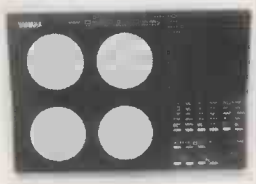

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Korg SQD8 Dig Seq.	£199
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Yamaha RX7 Drums	£350
Korg P3 16 note Piano Mod	£295
Yamaha QX21	£150
Yamaha RX11 drums S/H	£275
Yamaha RX21 drums S/H	£139
Roland MC500 Seq & turbo	£595
Yamaha CX5 computer system	£175
Korg Poly 61	£275
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New Yamaha TX1P 16 note AWM piano	£395
Kawai SX-210 prog 4 oct, 8 note synth & case	£175
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Roland Cube - 40 watt keyboard combo	£175
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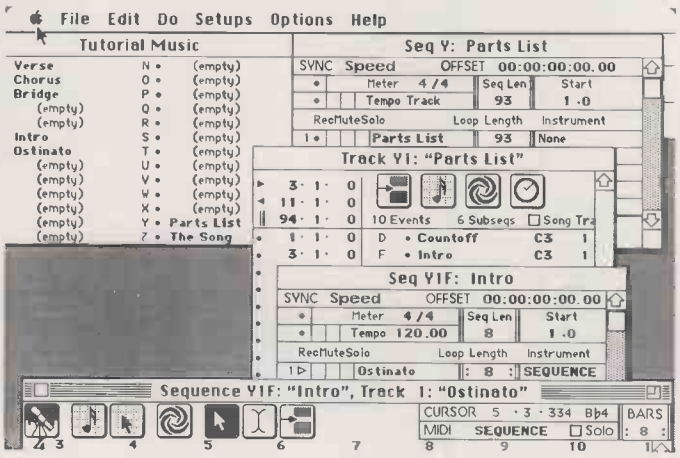
assigned to control overall tempo. You can move these while music is playing with the mouse or remotely from any external MIDI controller. You can remap any MIDI controller input to any other MIDI controller output (you could use the mod wheel to control pan position, for instance). In addition, you can record and edit all your moves, giving you automated mixdown via MIDI volume changes. However, velocity-fade moves are not recorded.

Vision will read or write notation files directly in Professional Composer or Deluxe Music Construction Set (DMCS) Format, as well as Standard MIDI File format. Yes, read or write. So you can write a piece using standard notation in Composer or DMCS, and play it using Vision, or record it in Vision and print it with Composer or DMCS. I think that a lot of Composer/Performer users who got tired of Mark Of The Unicorn dragging their feet to support MIDI Files (Performer 2.41 does support MIDI Files, at last) are going to be very happy that the Composer/Performer relationship is no longer monogamous.

As far as documentation is concerned, the manual gets a "B" and the tutorial an "A−" By all means work through



Vision's hierarchical architecture

the whole tutorial, lengthy though it is. There are many sides to Vision, and you're liable to miss some if you don't take the complete guided tour. Some manual sections are a bit disorganised, and there's too much reliance on cross-referencing, but the info's all there.

Studio 3

STUDIO 3 IS a one-unit rack-mount MIDI interface and SMPTE-to-MIDI converter supported by Vision. Vision will run with any generic MIDI interface, but there are some distinct advantages to using Studio 3: SMPTE and MIDI Time Code, for example. Studio 3 uses both the modem and printer ports of the Mac independently, permitting up to 32 virtual MIDI channels. There are six separate, configurable MIDI Outs. In its Direct-Time Lock mode, Studio 3 can be used with MOTU's Performer. Jam Sync enables Studio 3 to regenerate fresh SMPTE code from a weak tape.

Very enticing is a switch labelled "audio in". Opcode promise that a future version of Vision will be able to sync to external audio, meaning that you can drive the sequencer's tempo from a live or taped performance. But it's not happening yet.

Glitches & Wishes

FOR VERSION 1.0 of a program, Vision is remarkably solid. It crashed on me just once, when I pushed its timing to the limit by playing 16 simultaneous tracks of continuous demi-semi-quavers (32nd) notes. Vision kept chucking out the notes, but the keyboard and mouse went to sleep, and I had to reboot. I also got a "you are running dangerously low on memory" message while working on a 140K file, but then I found that you can set the number of "maximum playable tracks" from the default of 144 down to 32 in order to free up some memory.

There are a few minor inconsistencies in the user interface, such as the Jump To Selection command not working in both edit windows at once. If you select a note, "jump" to it in the graphics window, and switch to the list window, you're not at the note you jumped to. You have to jump in the list window separately. And you have to remember that Select All doesn't clear the selection criteria. (Good thing, too. Otherwise you could accidentally wipe out a few minutes worth of setup work). So if your Mogrify commands aren't Mogrifying as expected, look at your selection criteria.

There's no way to turn one type of controller into another after recording. You can't even cut the data from one controller type and paste it to another. You *can* remap them during recording using the faders; you just can't change your mind after you're done.

Vision's architecture isn't as open as it could be. Why 9 Players and 26 Sequences? The answer is that 9 numerals and 26 letters are used to trigger them from the Mac keyboard. True, these limits are more than enough for conventional songs, but they do sell short the full potential of the Sequence-calling metaphor. Opcode have simply decided that a Sequence is a fairly complicated unit (with up to 99 Tracks), not many of which (26 maximum) are needed to make up a piece of music. In reality, it could just as easily be the other way round - in my own music it usually is. I seldom have use for anywhere near 99 tracks, but I often need more than 26 sequences, and I don't care whether I can trigger them from the Mac keyboard. Finally, you're warned not to play more than 16 Sequences simultaneously if you have less than two megabytes of memory.

Last gripe: Vision is copy-protected. You can install it on your hard disk, which makes efficient backups difficult by requiring that you uninstall the program before undertaking these chores. You can also insert the master floppy when you start the program. Most Mac sequencers are like this, more's the pity. At least with Vision you can quit the program and come back to it without inserting the master disk again, as long as you don't turn off your Mac.

Verdict

VISION IS A winner. It's the most complete sequencer I've seen yet. It sets new standards in power, versatility, and friendliness for the next generation of Mac sequencers. It's not so revolutionary that it's going to take the Mac market overnight, but it certainly ups the ante for all the other guys. In the too-short time I've spent with Vision, it proved convenient, capable, reliable, and, above all, rewarding - not something I'm accustomed to finding in a sequencer. Although there are things I wish Vision could do that it can't (yet), these concern its architecture more than its features. I might like to redesign the room, but it's well-lit and has all the amenities. ■

Prices *Vision. £399; Studio 3. £349.Both prices include VAT.*
More from *MCM. 9 Hatton Street. London NW8. Tel:01-724 4104*

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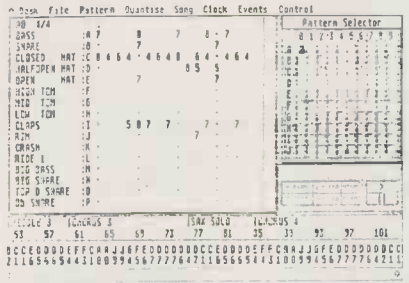

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The address to send sounds to: Patchwork, MUSIC TECHNOLOGY, Alexander House, Forehill, Ely, Cambs CB7 4AF. ■

KORG M1

Celtic Brass

Paul McNamara, London

PROGRAM PARAMETER PAGE. POSITION – OFFSET TABLE

(TABLE 5)

PAGE SGL	PAGE DSL		PARAMETER	POSITION A	B	C	D	E	F	G	H
PROGRAM MODE											
				(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(0)	(0)		(PERFORMANCE EDIT)								
EDIT PROGRAM MODE											
				(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(0)	(0)	0-1	OSC BASIC	DOUBLE	POLY				OSC MODE		
(1)	(1)	2	OSC 1 (MULTISOUND)	32	BRS1		L89	8'			
	(2)	3	OSC 2 (MULTISOUND)	45	WIND BELLS		L05	8'	+00	-07	37
(2)	(3)	1-1	OSC 1 PITCH EG	+98	00	-17	00	05	00	00	00
	(4)	2	OSC 2 PITCH EG	+05	00	00	00	00	00	00	00
(3)	(5)	2-1	VDF 1 (CUTOFF/EG INT)		00			99			
(4)	(6)	2	VDF 1 EG	00	+98	81	+41	99	-32	36	+83
(5)	(7)	3	VDF 1 VELOCITY SENSE		+55		00	0	+	0	0
(6)	(8)	4	VDF 1 KBD TRACK	45	-54		00	0	0	0	0
	(9)	3-1	VDF 2 (CUTOFF/EG INT)		69			91			
	(10)	2	VDF 2 EG	00	+99	64	00	00	00	40	+67
	(11)	3	VDF 2 VELOCITY SENSE		+00	-	00	0	0	0	0
	(12)	4	VDF 2 KBD TRACK	C-1	+00		00	0	0	0	0
(7)	(13)	4-1	VDA 1 EG	42	+99	74	+67	83	+50	81	-
(8)	(14)	2	VDA 1 VELOCITY SENSE	-	+61	-	20	+	0	0	0
(9)	(15)	3	VDA 1 KBD TRACK	63	00		00	0	0	0	0
	(16)	5-1	VDA 2 EG	00	+49	67	+99	69	+36	72	-
	(17)	2	VDA 2 VELOCITY SENSE	-	+00	-	00	0	0	0	0
	(18)	3	VDA 2 KBD TRACK	C-1	+00	-	00	0	0	0	0
(10)	(19)	6-1	PITCH MG	Δ		58	00	00	OFF	SYNC	OFF
(11)	(20)	2	VDF MG	Δ		53	00	00	OFF	SYNC	OFF
(12)	(21)	7-1	AFTER TOUCH	00	02		00	00		00	
(13)	(22)	2	JOY STICK	+01	+03		03	0		01	2
(14)	(23)	8-1	EFFECT 1 (TYPE)	06	LIVE	STAGE					
(15)	(24)	2	EFFECT 1 PARAMETER	2.4	20	60	00		+03	+05	80/20
(16)	(25)	3	EFFECT 2 (TYPE)	10	STEREO	DELAY					
(17)	(26)	4	EFFECT 2 PARAMETER	247	414	+80	00		00	+03	70/30
(18)	(27)	5	EFFECT PLACEMENT					P3	OFF	P4	OFF

*12 See P. 18
*13 See P. 40

Another new presence in Patchwork is the Korg M1, and this sound from Paul shows the synth to good advantage. It's a warm brass patch with an intriguing hint of wind bells; velocity on the bells is switched off so that the bells sound clearest when the brass is quietest. The sound can become more controlled by adjusting the release and effect values on the performance edit panel. ■

YAMAHA TX81Z

Eurythbass

Laurence Fenn, Aldershot

'Eurythbass' for the ever-popular TX81Z is so named because it was created to duplicate the bass sound on the Eurythmics' 'Sweet Dreams'. It's a warm, full sound with an analogue sizzle which really does the job. ■

VOICE DATA LIST

VOICE NO./ NAME

ALGORITHM	5			
FEEDBACK	7			
FREQUENCY	1.49	1.49	1.51	1.51
OSC. WAVE	2	4	3	4
DETUNE	+3	-3	-3	+3
OUT LEVEL	99	77	95	76

EG				
AR	31	31	22	31
D1R	9	9	7	8
D1L	15	15	15	15
D2R	0	0	0	0
RR	5	5	6	5
EG SHIFT	OFF	OFF	OFF	OFF

SCALING				
RATE	0	0	0	0
LEVEL	0	0	0	0

SENSITIVITY				
PITCH	5			
AMPLITUDE (0-3) (ON/OFF)	0			
	OFF	OFF	OFF	OFF
EG BIAS	0	0	0	0
KEY VELOCITY	1	1	0	0

LFO	
WAVE	TRI
SPEED	32
DELAY	0
P MOD DEPTH	0
A MOD DEPTH	0
SYNC	OFF

FUNCTION	
MODE	POLY
P BEND RANGE	7
PORTAMENTO	FULL
PORTAMENTO TIME	0
FC VOLUME	99
FC PITCH	0
FC AMPLITUDE	0
MW PITCH	50
MW AMPLITUDE	0
BC PITCH	0
BC AMPLITUDE	0
PC PITCH BIAS	0
BC EG BIAS	0
MIDDLE C	F1
REVERB RATE	4

ENSONIQ SQ80
Rich Bass
Jason Offen, Humberside

The Ensoniq SQ80 makes its first appearance on these pages, with this realistic deep bass patch, which combines elements of fretless and acoustic upright bass. Jason points out that the realism of 'Rich Bass' is increased by the sound which occurs when the key is released – a sound not unlike fingers moving around on a bass fretboard. ■

SQ-80 PROGRAM SHEET

PROGRAM:

	OCT=	SEMI=	FINE=	WAVE=	MOD #1	DEPTH	MOD #2	DEPTH
OSC 1	-1	00	05	DIGIT 2	LFO 1	+02	LFO 2	+01
OSC 2	-3	00	03	PIANO	LFO 3	-63	LFO 2	+02
OSC 3	-1	00	00	VOICE 3	LFO 1	+01	LFO 2	+01

	LEVEL=	OUTPUT=	MOD #1	DEPTH	MOD #2	DEPTH
DCA 1	10	On	ENV 3	+63	OFF	
DCA 2	10	On	ENV 3	+63	OFF	
DCA 3	10	On	ENV 3	+57	OFF	

	FREQ=	Q=	KEYBD=	MOD #1	DEPTH	MOD #2	DEPTH
Filter	037	00	23	ENV 3	+63	ENV 2	-46

	FINAL VOL (ENV 4)	PAN=	PAN MODULATOR	DEPTH
DCA 4	63	08	LFO 3	+08

	FREQ=	RESET=	HUMAN=	WAV=	L1=	DELAY=	L2=	MOD=
LFO 1	22	On Off	On Off	TRI	00	01	20	PRESS
LFO 2	22	On Off	On Off	TRI	00	01	20	WHEEL
LFO 3	07	On Off	On Off	TRI	63	00	00	OFF

	L1=	L2=	L3=	LV=	T1V=	T1=	T2=	T3=	T4=	TK=
ENV 1	+16	00	00	30L	00	15	19	03	20	09
ENV 2	+33	+63	+63	00	32	00	00	00	00R	09
ENV 3	+62	+52	00	24L	22	00	33	58	38	54
ENV 4	+63	+46	00	00L	00	00	44	60	05R	46

	SYNC=	AM=	MONO=	GLIDE=	VC=	ENV=	OSC=	CYC=
Modes	On Off	On Off	On Off	00	On Off	On Off	On Off	On Off

	SPLIT/LAYER=	SPLIT/LAYER PROGRAM	LAYER=	LAYER PROGRAM	SPLIT=	SPLIT PROGRAM	SPLIT KEY=
Split/ Layer	On Off		On Off		Off Lower Upper		

Desert Island
EPS Library

In the last couple of months, Patchwork has looked at sample disk libraries for the Ensoniq Mirage. Now it's the turn of the same company's EPS sampler, and in particular the library on offer from Desert Island Disks. At the time of writing, the Desert Island Library is the largest known professional EPS library in the world, comprising around 130 disks, and increasing by 20-30 disks each month. They have been produced in the company's own studio, and, like the Desert Island Mirage library, the majority have been digitally transferred from other samplers via Sound Designer software.

The disks sent in for review cover a wide range of timbres, from choirs and drums to Korg MI presets and Digidesign 'SoftSynth' concoctions. Disks contain anything from two to eight instruments up to a maximum of 1600 EPS memory blocks. Certain disks derived from the Casio FZI (097, 098, 102) require the optional memory expansion board. Of course, if you've got an EPS-M, you're laughing . . .

The best place to start is with the manual, which details the files on every disk along with a short description. Some of these are more useful than others, for example "more Korg MI sounds" doesn't quite compete with "Mouth drums and eight bass drums and snare drums on keys CI and DI of no longer than 100 blocks each". Some of the file names in the catalogue are different to those on the actual disks, although this doesn't really present a problem.

To begin at the beginning, disk number 002 (aka ARRI) is a high quality, sharp, breathy vocal sound ideal for moody Depeche Mode-like riffs. The TR808 samples on disk 013 feature the machine at its housey best, although the bass drum is maybe a touch too boomy. The 'S900 Choir' on disk 015 is particularly atmospheric in the lower registers, while 'Matrix 12 FX' on disk 023 is a dark, spacey background sound which falls in pitch when the key is held but rises when it's released.

Other disks of note include 035, which features a superb MPC60 kit, 049 on which you find an Akai S1000 kit, rightly hailed as the most realistic set of drums you will ever hear, and 063, the mysteriously titled 'Dirty Disk', including orgasms (1-8), burps, farts, sneezes, coughs and some especially entertaining vomit. The 'ESQI Lament' on disk 039 actually sounds warmer than my doctored ESQ, although 'ESQI Vox Strings' from the same disk is mysteriously absent.

If you like Jean Michel Jarre you will like 'Polymoog I' on 087 and the aptly named 'Rendezvous' on 042. Both are the sort of sounds said Frenchman uses to great effect when creating atmospheres, although 'Polymoog I' is very much more at home in the *Oxygene/Equinoxe* era. Finally there's 'HR16 Perc' on 088, ideal for clicky dance remixes and 'Clockwerk', again on 042, which brings to mind the word 'electropop'.

In general then, the disks are of the high standard we've come to expect from a company like Desert Island. Quite often the sounds don't stretch across the whole keyboard, but that's the personal preference of the makers who don't like sounds which go out of range. In any case, the keyboard range can be altered and saved if you so desire, but this doesn't really seem to be worthwhile. A demo tape of sounds is available for 80p, or in return for a blank C60 tape and an SAE. This would seem a good investment, to give an overall guide to exactly what's available. The library contains some sounds that are inspiring and others that are just kind on the ear. But overall they're the kinds of sounds you'll want to use, and are very easy to recommend. ■*David Bradwell.*

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DOGS IN CONTROL

IT'S A DOG'S life being a musician – at least it is according to Wesley, seen here recording his latest new age album. Actually, Wesley's been having a spot of trouble with his MIDI setup lately. The problem is that his two-manual tonewheel organ (with built-in graphic EQ and flanger) doesn't have a MIDI Out socket on it.

Wesley's been reading about MIDI controller keyboards lately. In fact he's taken quite a shine to Akai's MX76 because its 76-note keyboard suits his paw span and its front panel sliders and buttons are easily operated with a wet nose. (Not quite what Akai had in mind when they designed them, but it does show off the versatility of the MX76.) All in all, Wesley can't wait to get his paws on one.

So when we told Wesley we were about to give away an MX76 in a Music Technology competition he couldn't wait to enter. Unfortunately we've had to exclude dogs from taking part in competitions after a few unsavoury scenes at previous prize presentations. As usual, it's the bad behaviour of a few that's spoilt it for the rest.

In consolation we've agreed to let young Wesley be part of this month's competition. He sent us this photograph of himself at work and suggested we ask you to provide a suitable caption. We, of course, agreed.

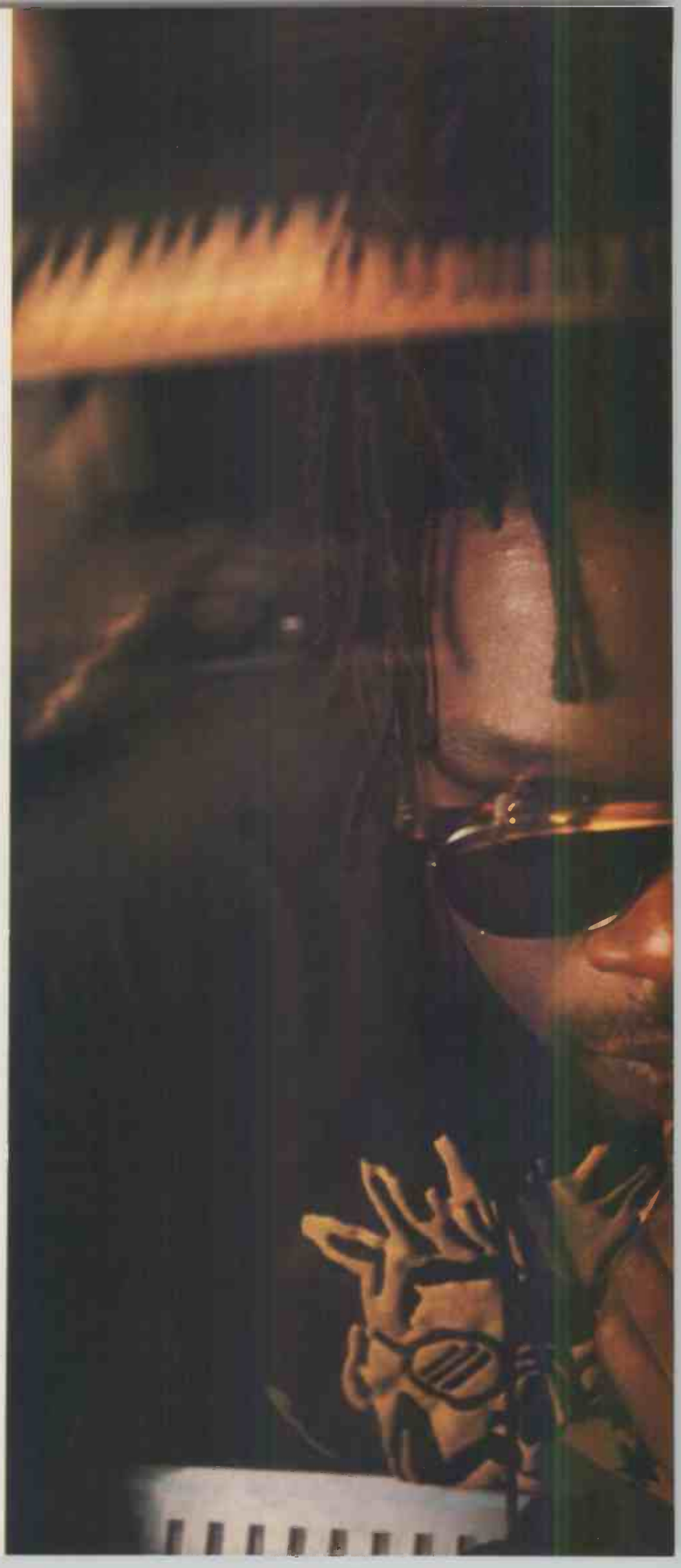
So there you have it. A brand new Akai MX76 MIDI controller keyboard, worth £1300, could be yours if you submit the most imaginative and entertaining caption for the above photograph. Captions should not be more than 30 words in length. No sexist, racist or doggist entries will be accepted.

ENTRIES SHOULD BE sent on a postcard please, to arrive no later than **Monday 3rd July.** Please remember to include your name, address and daytime telephone number with your entry. Usual MT competition rules apply: no multiple entries, employees of Music Technology Publications and associated companies are ineligible for entry as are their canine companions. Any attempts to bribe Wesley with dog biscuits will result in instant disqualification. Send your entries to ***"Dogs In Control", Music Technology, Alexander House, Forehill, Ely, Cambs CB7 4AF.***

Wesley has entrusted the judging to the MT staff, but has agreed to arbitrate in the event of a tie.

SOUL SEARCHING

Anyone with their ear to the radio and their eye on the music press will have heard Soul II Soul's 'Keep On Movin" and read about clothes shops, funki dreds and sound systems. But who or what is behind Soul II Soul? Interview by Tim Goodyer.



A UNIQUE MOOD accompanies every interview with a musician. It might be one of respect, perhaps for an artist whose music has influenced you strongly. It might be one of excitement, as surrounds a band experiencing success for the first time. It might be one of apprehension, for a wide variety of reasons . . .

Music Technology's encounter with Soul II Soul took place almost too late to appear in the magazine you have in your hands now. In the weeks that preceded my meeting with Soul II Soul's Jazzie B, the strains of their single 'Keep On Movin" pursued me with unnerving consistency. From radio play to party to demonstrations of studio mixing desks and monitors, Soul II Soul seemed to have discovered a formula that appeals to more than the nightclub DJ. As I am writing this, my CD player is counting off the seconds of Soul II Soul's LP debut, *Club Classics Vol One*.

As the interview took a while to come together, so did Soul II Soul themselves – establishing a clothes shop, an electronics company and sound system on their way to landing a contract with 10 Records and putting together what will certainly be a contender for Album of the Year '89. The story begins in the late '70s somewhere between Jazzie B's DJ'ing and his employment as a tape op at London's Nova studios. Here he gains a grounding in music technology and an appreciation of the creative side of recording.

"Engineering wasn't something I wanted to do", he explains at the Camden HQ of Soul II Soul, "it was a foot in the door to making my own records. I was always fascinated by sounds, how they work and what creates them. To be honest with you, I don't think I'd ever have made a great engineer because I didn't work how any of the others worked. I just didn't have the ability to be the kind of engineer that was told what to do and worked on the principle of a robot.

"Fusing my knowledge of the studio with my sound system was the common link in terms of me making music today. I guess I just held out until I was in the right place at the right time."

Another aspect of the Soul II Soul operation is the production company established between Jazzie B and Nellee Hooper, Silent Productions. Not only did the partnership play an essential part in the recording and production of *Club Classics*, but only a few minutes of conversation with Jazzie B reveals the importance of his partnership with Hooper.

"There's something about when we work together that's unique", he explains. "I think it's because a lot of the things we're frustrated about we can unleash together. We've worked totally on our own in places and come up with results, we've worked with different people and come up with results, and when we work together it's a combination of our experiences and our techniques that equals the production sound of Silent Productions."

Hooper also takes the credit for encouraging Jazzie B to take the step from DJ to recording artist. But it wasn't love at first sight.

It was him that gave me the real push", he agrees. "Maybe I'm a bit more fronty than he is, he's real quiet. I can't remember the exact year we met but I can remember the encounter: it was a sound clash. The Wild Bunch came to London to DJ at a place where we were meant to be ►

► DJ'ing as well. We were blown out and everybody thought it was a little bit unfair and groups of people – I wouldn't say gangs or posses but groups of people, the way they are . . . bit of friction . . . But we discussed things and we said 'alright, we'll meet another time, another place'. And that's what happened and it was a good meet, you know? We got on together and when he came down to London to live he checked me out and we did things together."

LIKE SO MANY of today's generation of producers, Jazzie B's interest began with other people's music – first listening to it, then playing it as a DJ.

"DJ'ing is my first love" he admits. Eighty-nine will make 11 years I've been DJ'ing. My sound system's been running for seven of those years."

The evening after our conversation the Soul II Soul frontman is to play the first night of a residency the outfit have just secured at the Brixton Fridge. His understanding of music is to be proven when he has the audience dancing to an a cappella version of his new single 'Back to Life'. He puts this skill down to his knowledge of recorded music which he describes as "really, really deep across the board". Where many aspiring musicians would have invested their money in instruments, Jazzie B went for speaker cabinets.

"I used to have a little setup in my house a long time ago" he recalls, "and pulling down the kitchen ceiling with my bass bins was something I did through trying to make music, as it were."

Challenge him for details of the record decks and PA system that make up the present Soul II Soul sound system and you'll elicit a knowing smile and a polite refusal to "reveal all". You'll also uncover another aspect of Jazzie B's career.

"I worked for Court Acoustics for a little while. The secrets lie in the fact that we build all our own equipment. We load our own cabinets

"The music in the charts governs the whole music thing in this country – maybe there should be a vetting procedure on who buys equipment."

using certain firms and certain pieces of technology. My technician, Bruce Francis, built my first sound system and he still maintains this present sound system.

"I take my sound system very serious, more serious than anybody else could probably think of, that came before anything else. Nurturing it, understanding it, understanding how important the length of your cable from your amplifier to your speakers is, to your turntable, to the arm that's on the turntable, to the cartridge, to the needle that you use on the decks, to what kind of graphics with what kind of electronics are in there . . . Understanding that you start with the basics before you start EQing everything . . . I have to put all those things down to the technical guys making me understand things like that when I worked in studios. But there's some severe secrets that I obviously can't reveal 'cos that's Soul II Soul's secret."

One of the many strengths of *Club Classics Vol One* is the sound Jazzie B and Nellee Hooper have managed to get onto vinyl. In the recording studio the monitor speakers play as large a part in determining how the final record pressing will sound as any piece of hi-tech electronics. But studio monitors are supposed to have a flat frequency response – a far cry from the stacks of speakers of a PA system designed to move a dancefloor. Talking of his sound system Jazzie B sketches a history that takes in HH, Feng, Goodman, Celestion before coming up to date with the Wembley-based Pilot speakers. He talks about the preference for 12″ bass drivers in rock circles and his own for 18″ drivers ("I'm really really a mad bass-head, you know? I love good bass, good mid and good treble . . . "). He talks of the reluctance of the industry to make quality speaker systems a more affordable commodity. Of the importance of the PA system in a nightclub ("The breweries get into the decor, which is important, but the most important is the reproduction of sound and no one really deals with it . . . ").

Then he talks with equal authority about his satisfaction with Yamaha NS10Ms as nearfield monitors, his liking for Quested monitors and his love for Westlake monitors. He talks about Tannoys and Meyers. But how do you successfully translate the sound of kiloWatts of bass to the studio environment?

"By using speakers you understand. The NS10s are pretty good for that. The whole thing about reproducing a sound is very personal anyway, and in a studio it's particularly difficult. The only way to interpret it is that each stage of mixing and production is different. Maybe when I'm eccentric enough or I've made enough money I'll have a setup where I'm monitoring through my PA. I think it really is that important."

But Jazzie B is eager to point out that the cutting of a record is as important as monitoring its recording.

"We've managed to cut exactly what we've got on our DATs or on the F1 so when we go into the cutting room there's no EQ. If there is any EQ it might be the failure of the monitoring at the studio.

"I've got a small fetish about how they do things in Japan. I've heard some stuff being cut out there that's really good. They've all the right elements: it's crisp, sharp, precise and very natural, something that's lacking in this country and America. The only thing I'd knock in this country is the cutting; I don't think there's enough people cutting dance music. The up and coming man is Chris at Music House and he cuts a lot of my acetates.

"But there's a lot of development time still to come in reproducing sound. Knowing what you like and understanding it, I belive, are two different things. I've studied the reproduction of sound and there are loads of different things which equal creating *this* type of sound, but if the human ear can only distinguish *this*, what's the point of creating *that*? It's very personal and I go more on the basis of what my sound system will deliver in volume as opposed to EQ. When you go into a club and they've got a really wak system, you tend to over-EQ and it's just like a lot of distortion. And again, it's only when you're playing a club that has two different systems – one in one room and one in another – that you can distinguish that the crowd appreciate one more than the other. At the end of the day it's what the crowd appreciate, though to be honest with you, most of the crowd are probably deaf because they listen to their Sony Walkmans too loud!

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► "Soul II Soul are looking for sponsorship from a British company as opposed to an American or Japanese company because I really do believe the British build the best speakers."

GETTING BACK TO the music itself, Soul II Soul do justice to their name in the soul influences they embrace. But strong elements of rock, reggae, hip hop, and jazz have gone into the songs on *Club Classics*.

"I've set out to use all the influences from all the records that I've bought over the years", Jazzie B explains, "all the different artists and producers. My idea is fusing them all together and making a real positive British sound which has the elements of the Americanos – because that's where the music initially came from – but still fusing various rock 'n' roll elements because that's probably what this country's most famous for.

"The groundwork I have done as a DJ has obviously helped. The music myself and other DJs were responsible for playing and breaking is evident in the music I'm creating now, and hopefully there'll be other people trying it too. But let's hope they don't try and jump on the bandwagon, I hope other producers will further the whole British scene because there needs to be more of us."

The subject of influence and imitation is another that is close to Jazzie B's heart.

"You can't be a narrow minded person and make music. I listen to a lot of music – from Big Bam Boo to Augustus Pablo. I don't think I end up copying note-for-note anyone's material because I'm not that narrow minded."

He turns to face the cassette recorder recording our conversation as if to address those who are to read this interview personally.

"Yes, all those people who say 'but it's this', 'but it's that', –you try it. It's not as easy as it appears to be. For you to make something unique out of something everybody knows is not an easy task at all.

"But I think narrow minded people will copy other peoples' music, especially with the aid of the technology, especially with a sampler. Certain things I hear people make tunes out of . . . It's disgusting. If something is yours, man, you must deal with it properly –don't bullshit the public. Sometimes I feel I've been conned when I buy certain peoples' material. You hear music in the charts, right, and half of that governs the whole music thing in this country. Maybe there should be some kind of vetting procedure on who buys what equipment and is allowed to use it."

Jazzie B is happy that his influences are sufficiently diverse to remain influences and absolve him from any allegations of stealing.

"When you're talking about writing new material and new lyrics and still holding all the influences of the greater people before, that's where the difference between us and a lot of other people lies. I haven't done a cover version yet, I've used various breaks of obvious material for the obvious reasons because sometimes, when you go too far, people can't comprehend what you're doing."

Not surprisingly, hip hop artists appear high on the list of influences.

"My music has been heavily, heavily, heavily backed by hip hop. Nellee and the Wild Bunch were out of that end of the disco era into the early hip hop stage. He's from the old school, but Nellee's programming is heavily influenced by the newer material we hear now. And we've got great geezers like The 45 King, who's using his abilities as a DJ to produce records. It can only go forward, there's no stopping hip hop. Now you've got people like Latifah who're vocalising hip hop, which is going to be something crazy. And then there's Smith and Mighty . . . You can see the progression, and it will continue to progress and more and more people will hear it.

"I guess my personal abilities lie as a writer, as a creator. It's funny, a lot of my old friends have been kind of shocked when they've read the credits on the album. I've been involved in the writing of every track, and to write is a hard thing. I say this loud now because I'm getting a lot more contact with the people who are dissin' me and I'm trying to find out why. And a lot of it's just jealousy.

"When I take it from people who have taken something as a musical piece and enjoyed it, it's really nice to be appreciated like that. It's especially nice to be appreciated by big artists who have asked me to write with them or for them. I've been scared meeting half of the people who've asked me because I've bought their tunes from time, and I've read the credits and they were involved in the stuff I loved. The most recent one was meeting David Grant today. 'Cos guys like that paved the way for us. There's no doubt about it, when they were around and done their business they were held back because no one here would take them seriously and the American market was going through its problems . . . Grace Jones, Paula Abdul, Will Downing, Pieces of a Dream are big on my list, and it's weird – I bought all those peoples' tunes and they're asking me to write stuff for them. We're obviously doing something right.

"The best thing is the team of talent we have here under our own nose. We're making further developments towards other things that I can't really talk about yet. There's are going to be something serious happening in this country; I'm talking about people who are a lot older than me to people who are half my age."

Being a businessman as well as a musician,

producer and DJ, Jazzie B is happy to deal with the subject of categorisation.

"Yeh Man, I'm a black man. If we have to categorise things, and I think we do to make it easier for people to be able to understand, I would call Soul II Soul black music. But my origins are white, man, so it's really a fusion of British sounds. You have to make music for a market. That's why I said if you need to categorise Soul II Soul it'd be black British dance music because that's what it's got to be. And I'm very proud of it and all the people involved in it. We've done it ourselves and it's our shit."

MOVING ON ONCE more to the equipment behind Soul II Soul's music we come back to Jazzie's B's business sense.

"Part of the reason I'm here today is because the technology was available to me", he explains. "Basically, in the early days, instead of rushing around in fast cars and expensive jewellery from the money we were making, you can see where it was spent. Tony Addis at Addis Studio in Harrow Road made things available to us and gave us our first break. I still have in our museum a four-track Yamaha cassette that was one of the first four tracks around, now we own our own E16. We own our own pre-production suite – my last pre-production suite was that four track!"

"The availability of technology will lead to one of two things: things will either get better or they will get worse – like for the musos that got lost in their own little worlds because they'd banged on their guitars for too long without any direction. What happens to us at about five, six in the morning when we're in the programming suite is we end up getting out the video games. Technology will either lead to people making more advanced music or it'll fuck 'em up even more. At the end of the day, if you know what you want and you're strong enough to hold on to it, then you can only do something constructive."

It turns out that most of Jazzie B's writing takes place on a DX7 II – a fact of which he is not overly proud.

"I'm about to purchase a music workstation" he announces in his defence, "probably the Korg M1, but I've been told to wait because Roland have just bought out the W30. At the moment I'm using the DX7 because it's the most familiar system."

A new Status bass guitar has also been a source of writing inspiration.

"I'm not a brilliant bass player but I can write grooves on a bass which my programmer, Gota, can then interpret. I have, throughout my career used every kind of natural musical thing that can be played from a bass to a guitar to a wind instrument. String, wind, the technical end, I've been there and back."

The Reggae Philharmonic Orchestra have provided Soul II Soul with the rich strings that grace both the 'Keep on Movin" and 'Back to Life' singles and helped add depth to *Club Classics*. Strings, it seems, are a weakness of Jazzie B . . .

"That's from the old days of me working at Nova with orchestras" he explains. "I really adore strings. I could have anyone playing a violin or something and I'd just sit there and listen because there's something about the sound that resonates through the wood. And it can be very, very funky. Hence all the strings on the album. That was a real find for me, the RPO."

After the interview is over, a short walk will take us to Jazzie B's pre-production suite where he will pose for photos in front of a new Fostex E16, Soundtracs MIDI desk and Akai S1000 and S1000PB samplers. The remainder of the equipment reads like a choice selection of currently desirable technology: Yamaha NS10M monitors, Atari 1040ST, Yamaha TX802 and TX16W, Korg DW8000, Oberheim Matrix 1000, Roland Octapad, Roland A110 and A880, SRC AT sychroniser, Fostex 4050 SMPTE synchroniser/autolocator, Lexicon LXP1 reverb and a Sony DAT machine. A Yamaha QX3 lies discarded underneath two Technics SL1210 turntables and Phonic mixer.

"We've just got a 24-track MIDI/16-track setup now" comments Jazzie B. "We've set it up with Gota, who was with the Japanese band Melon and now does a lot of our programming for us.

"We're just getting to grips with it at the moment. Ideally we'd like a setup with an SSL desk but I guess we'll have to save up a bit more first. We're saving up, literally, to buy little bits and pieces. It's basically a pre-production suite at the moment."

Although a TR808 put in an appearance shortly after the interview, it's a Casio RZ1 drum machine that is chosen to co-star in the photo session. Strange when you consider that most of Soul II Soul's drum sounds come from the two Akai machines . . .

"It's usually samples these days", confirms Jazzie B. "We don't have *a* drum machine, although in my early days I used the inevitable 808 or 909. Now it's a combination of various sounds – we keep all our own samples of sounds which we've gathered over the years from various records of musicians that we know."

You see, that's the point: while many other artists are looking to use the hippest technology to give their music credibility, one of the most credible and musical albums of the year has been put together with a healthy disrespect for the technological details.

"Maybe in music lessons in schools now they should teach sequencing and using equipment like the Fairlight", muses Jazzie B. "Look at the huge catalogue of music there is in the past to influence you; you're jesterin' if you don't use that to your advantage. When I think that the first tune I made, 'Fair Play', was made just cutting up two records – I didn't even have a sampler then –cuttin' up beats it was, with a guy playing bass over the top. I played that tune for two years and it all snowballed from there. These things can happen, you know? In my wildest dreams I would never have thought it could happen to me. It can really happen to you. You've just got to believe in what you do and make something a little bit more constructive than the bullshit we continue to hear on national radio and TV. Power to the pirate stations."

A suitable note on which to close an interview. Unless there's anything you'd like to add, Jazzie . . .

"To the people who are making music in their own studios, if they live in the kind of places I've lived in, be careful, man – somebody upstairs is biting you!" ■

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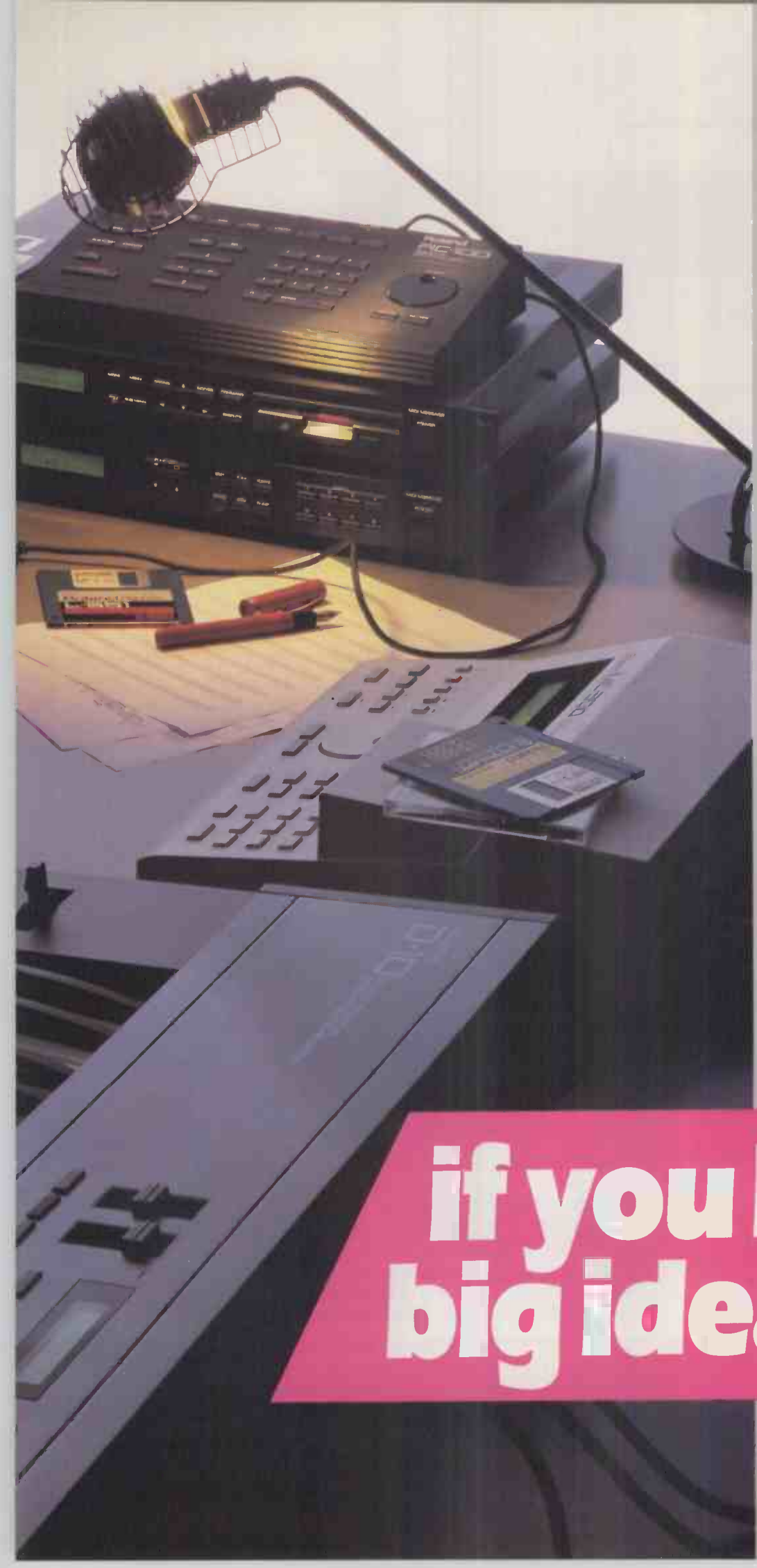

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This is the real workhorse of the system. A 61-key velocity-sensitive controller, with pitch bend and modulation, it features an internal sound module capable of playing 8 simultaneous tracks of superb LA Synthesis sounds. Add to that an internal Drum/Percussion section which can be programmed like a self-contained drum machine or accessed as a drum module via MIDI. No need for outboard effects either – the D-10 has an in-built Digital Reverb. Control data is sent from MIDI Out to the MC-300. Playback data is received by the internal sound module via MIDI In.

MC-300

More than a simple 16-channel MIDI recorder, the MC-300 is a complete copying and editing suite. All MIDI Performance and Exclusive messages, in addition to Note and Velocity information, may be recorded either in Real-Time or Step-Time Mode. Both Modes may be combined within a single Track, and Punch In/Out permits correction of specific passages. There are two Edit Modes. The first handles sections of one measure or more, offering features which are the musical equivalent to a powerful Word Processor. The Microscope allows individual events to be examined, altered, deleted, inserted or time-shifted. Provision of a separate Tempo/Conductor and Rhythm Track gives complete Step-Time or Real-Time control over Tempo and Time Signature Changes and MIDI clock as well as Tape Sync are included for use with additional sequencers and Audio Click Tracks. An internal memory of 25,000 events is supplemented by a built-in Disk Drive, each standard 3.5" Floppy Disk storing a further 100,000 MIDI events.

P-330

Electric pianos from a punchy 'Suitcase' to a soft Synth-Rhodes, mellow Bechstein Grands and brilliant Steinways, brittle uprights and biting Clavinets – the P-330's S/A synthesis system can supply the exact piano sound for your tracks. With 8 selectable velocity curves available to match touch response to your style, and adjustable Attack Mute, Release Time and EQ settings, you can design your own personal instrument. MIDI Bender, Aftertouch and Modulation can be assigned to Pitch, Chorus Depth or Tremolo Depth, giving a degree of control never before experienced by pianists.

The P-330 receives information from the MC-300's first MIDI Out socket viat the MIDI Thru port of the D-10. Meanwhile the MC-300's second MIDI Out jack is connected to the S-330 Sampler Module.

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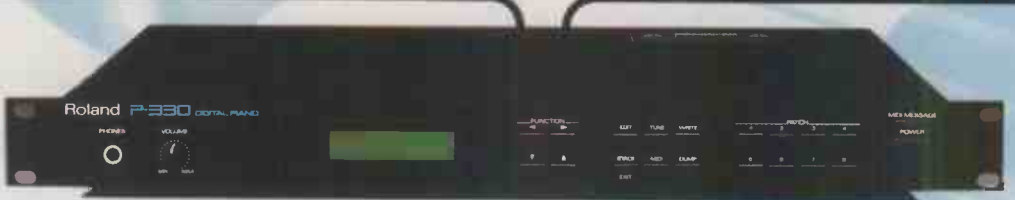

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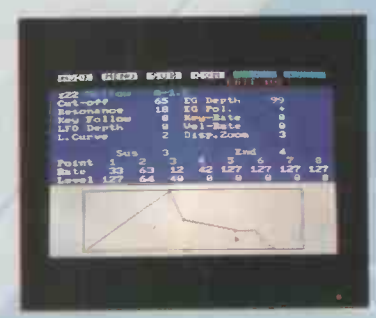
RC-100

User-friendly operation of the S-330 is enhanced by the optional RC-100 Remote Controller enabling the main unit to be rack-mounted for more efficient use of desk space.

S-330

Roland's Differential Interpolation (DI) system and Fixed Sample Rate ensure superb quality. The S-330 features 16-note dynamically assignable polyphony, with all 32 internal tones accessible across the controlling keyboard over 8 MIDI channels. For maximum flexibility 8 separate outputs are provided. Auto/Manual Looping plus a smoothing function make it very easy to develop custom samples while digital Time Variant Filters allow creative processing/synthesis without loss of quality. Naturally TVAs and a Wave-Drawing feature are also included. A comprehensive library of instrument and Special Effect sounds is available to anyone purchasing the S-330 from participating Roland dealers. In addition to its high quality sampling the S-330 supports SYS-333, a pattern-based sequencer package with an internal memory of 15,000 events. During operation of SYS-333 most S-330 editing functions are still available. And when you expand your MIDI system extra channels can be freed by slaving SYS-333 to the MC-300's clock signal.



. . . We could go on for another two pages explaining what this system can do for you. Instead, why not visit your local Roland Dealer for your personal hands-on demonstration. And if you'd like to know more about these or any other Roland products, clip this coupon and mail it to: Roland (UK) Ltd., Amalgamated Drive, West Cross Centre, Brentford, Middlesex TW8 9EZ, or call 01-568 1247

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THE small PRINT part 2

Illustration *Clive Goodyer*

In this second and final article on reading and understanding MIDI implementation charts, MIDI controllers, SysEx, System Common and System Realtime make up The Small Print.

Text by Vic Lennard.

LAST MONTH WE looked at what a MIDI implementation chart is, why all MIDI instruments carry them in their documentation and how they can be used to solve MIDI compatibility problems. Let's now continue our tour of the "small print" with a look at MIDI controllers.

Control Changes

A CONTROLLER HAS the ability to alter MIDI data other than that for notes, pitchbend or aftertouch. Each controller is allocated a number between 0 and 127. For example, a sustain pedal becomes MIDI controller No. 64.

Controllers are divided up into three main sections: 0-31, 32-63 and 64-128. The first two groups are continuous controllers (such as MIDI Volume, conroller No. 7, and Modulation, No. 1) with the second group being used to provide greater resolution where required – a more detailed description is unnecessary here. Controllers 64-95 are switches and include the likes of Sustain pedal (No. 64) and Soft pedal (No. 67).

Beyond these are controllers which are rarely found within Implementation tables but include Data increment/decrement (+/−) and Registered/Non-registered parameters. These are related to the sound parameters of MIDI instruments. The MIDI spec does give a degree of compatibility between manufacturers of MIDI musical instruments – instances of which are generally few and far between.

So much for the theory, how does this all show up on the MIDI implementation chart? The function column has a list of all controllers while the next two columns state whether they are transmitted by the instrument in question, recognised by it or both. The remaining column should contain an explanation for their use..

As usual, life isn't simple. Controller No. 64 has been called "Damper pedal" (Akai S950), "Hold 1" (Roland D550) and "Sustain" (Korg M1 and Akai S900) – amongst other names. Once outside the MIDI spec, the manufacturers have chosen to go their own ways once again. To my mind, calling controller No. 64 a damper is taking the comparison with a piano too far, as a piano cannot indefinitely sustain a note. Meanwhile, controller No. 1 is referred to as either Modulation (on most MIDI devices), Pitch MG (Korg M1) or Vibrato (Casio CZ101).

Another thing to look out for is whether your synth recognises MIDI Volume (No. 7). If it does, its overall level can be tailored from the volume slider on a MIDI master keyboard. This doesn't mean that this slider will actually transmit MIDI volume in all cases – again, look at the chart. The Korg DW8000 is an example of a keyboard which will happily change its sound level when receiving controller No. 7 information and will also respond to its own volume slider but will not transmit the latter's level changes. The frustrations involved in attempting to perform real-time fade outs and finding that some modules are not responding are best left to your imaginations!

Finally, beware of manufacturers bearing MIDI gifts. An "innovative" controller section will almost inevitably lead into trouble – ask any Prophet VS owner.

Patches & Programs

THERE ARE TWO fundamentally different approaches to patch changing. The first is to simply to send a number between 0 and 127 from a remote device (like a master keyboard) which will either access programs 0 to 127 or 1 to 128 depending on the numbering scheme employed on the MIDI module. This system has its shortcomings; if the module has more than 128 program locations, these will not all be accessible and it will not be practical to use a single patch change to alter the programs on more than one device.

This (in part) has led to the development of a second method of patch and program selection – the "program table". This will assign internal programs to MIDI patch change numbers. For instance, MIDI patch 0 may call up program 56, MIDI patch 1 may call up program 31, and so on. The only disadvantage of this system is that the table has to be set up in the first place. Some devices, the Alesis MIDIverb II, for instance, will allow you to use either method of remote program selection.

The MIDI implementation chart will show the patch number range which can be transmitted and recognised by a unit. The recognition table may also show the true range of program/patch numbers if a table is being used. It's worth bearing in mind here that few synths use tables, while most MIDI effects units do.

By now you should have come to expect that nothing is standard where MIDI is concerned. Some devices number their programs from 0 but use this first program as an automatic bypass, such as the Alesis Quadraverb (although no MIDI Implementation chart is provided with this unit) while others require you to set up your own bypass program by physically turning on a bypass switch while in a blank program and saving that program.

Another problem is that many master keyboards (especially Roland's) which can send patch changes work in octal, (base 8) and begin numbering from 11. All goes smoothly until you hit patch 18 – because it's followed by patch 21. Patch 28 is followed by 31 and so on up to the 64th patch: patch 88. This is fine if you're controlling a MIDI unit with the same method of numbering but is headache-inducing if the numbering systems are not similar.

System Information

THE NEXT THREE sections of the MIDI implementation chart all deal with how a MIDI device interfaces with the outside world. System Exclusive information is so named because each manufacturer has both a MIDI identification code and individual codes for each piece of equipment. This makes each MIDI unit unique and allows it to obtain its parameter values from a stream of data without accidentally reading someone else's. This is like having a variety of locks on boxes containing information, and only being able to obtain access to that information if you have the the correct key. The main use of SysEx is to transfer the internal voice data to and from a computer or suitable sequencer for storage.

Unlike System Exclusive, System Common information is applicable to any MIDI device. MIDI Song Position Pointer is used for marking a specific position in a song by keeping a count of how many MIDI clocks (there are 16 to a crotchet) have passed since the start of the song. MIDI Song Select specifies which song is to be played when a start command is received (see next section) and Tune Request is normally associated with analogue synths for oscillator tuning.

System Real Time information concerns timing data – which is of paramount importance to the synchronisation of sequencers and drum machines. When a sequencer is put into play mode, a "start" command is sent out, followed by a continuous stream of MIDI clock information to keep everything in sync. Stop the sequencer and a "stop" command is issued, followed by "continue" if the song is restarted from the point at which it was stopped – providing the sequencer is capable of supporting such commands. All these are shown under Messages in the implementation chart.

"Controller No. 64 has been called Damper pedal (Akai S950), Hold 1 (Roland D550) and Sustain (Korg M1 and Akai S900) – amongst other names."

Any device connected to the other end of a MIDI cable will respond to these orders if they are within its MIDI specifications. Consequently, the chart should show which commands a sequencer is able to send and respond to but usually just shows an "0" which can be ambiguous if only some of the commands are implemented. For instance, neither the Oberheim DX drum machine nor the original E-mu SP12 respond to Continue commands and so must be started from the beginning of the song each time. Even more strangely, Sequential's Drumtraks can recognise Continue commands but won't transmit them. The joys of early MIDI machines.

Odds 'n' Sods

THE FINAL PART of the MIDI implementation chart, labelled Aux(iliary), puts all the bad MIDI apples into one basket. Local Control, All Notes Off, Active ►

► Sensing and Reset cause more problems between them than all other aspects of MIDI put together.

Local Control is the ability of a keyboard to divorce itself from its internal sound generators (Local off). The point of this is to allow the keyboard part to play notes into a sequencer while the internal sounds are being played by existing data. Take the situation of an Ensoniq Mirage with drum sounds loaded and a Yamaha EMT10 MIDI piano module. If you record the drum part onto the sequencer first and then attempt to play the piano sound from the Mirage keyboard, the piano will have the odd drum voice sounding along with it. To prevent the drums from sounding you must turn down the Mirage volume control – after which you can't hear the recorded drum track.

"Neither the Oberheim DX drum machine nor the original E-mu SP12 respond to Continue commands and so must always be started from the beginning of the song."

I can hear Mirage owners saying the Mirage doesn't have Local on/off – the MIDI chart says it doesn't, the user group say it doesn't but the truth appears to be that it does. Parameter 31 is mentioned in later manuals as being the Local switch (which defaults to Local on) but appears to exist in earlier versions as well.

The absence of a Local off switch does not preclude an instrument from behaving as if it has – Kawai's KI can assign the control of its internal sounds to the keyboard or to MIDI, the latter of which simulates Local off. But of course, this won't show up on the MIDI chart.

The MIDI All Notes Off command is another golden turkey. Should a note on command lose its associated note off command, the note will drone on endlessly. If All Notes Off is implemented, it is the equivalent of having 128 note off events on the current MIDI channel each time you release all keys. So what happens if you're playing two parts on the same MIDI channel? The releases for the second part will be dictated by those for the first. Fortunately, most sequencers can filter this out. For the record, there are four different versions of All Notes Off, one for each MIDI mode.

Active Sensing is another curiosity. Some master keyboards send out a signal every 0.3 seconds when no other MIDI data is being generated –this dates back to the dawn of MIDI when the inventors were concerned about the effects of lost data, especially as MIDI is a one-way system as opposed to a "handshaking" system. If a device receives this signal, it expects to continue to do so and will shut off its internal sounds if it does not. However, if the signal is never received, the MIDI device doesn't miss it. This message is optional and usually serves only to clog up MIDI lines.

Finally we come to System Reset. This is equivalent to turning the machine off and then on again and is rarely, if ever, used.

The Bottom Line

SINCE THE OUTSET of MIDI, the system has become much more reliable and manufacturers seem to have become happy to adhere to it. It is also true to say, however, that some manufacturers treat the MIDI sockets on a piece of equipment as a proprietary 5-pin DIN interface. While offering advantages to users loyal to one company, this also means that there's little chance of one piece of gear being 100% compatible with another. This attitude to MIDI is often most apparent in implementation charts which are muddled, confusing and sometimes simply wrong. It seems a shame that there isn't a central authority with the power to check and correct them, especially after updates have been made to a piece of equipment. But until someone sets up such a body, let's hope this guide goes some way to helping you understand what your equipment can really do. ■

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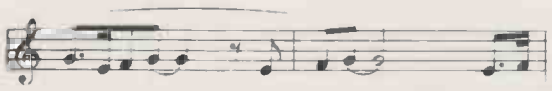

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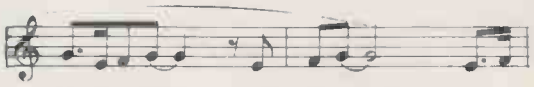

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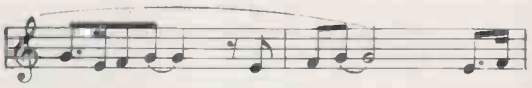

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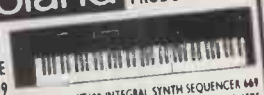

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FUTURE MUSIC

the SYNCLAVIER story

Twelve years after its launch, the world's most sophisticated sampler/synthesiser/digital recording system finds itself in its fourth revision – adapted for dedicated post-production and Macintosh-based systems. *Text by Chris Meyer.*

MENTION THE WORD "Synclavier" to your average music tech-head and they'll immediately think of the Rolls Royce of music workstations. They'll think of decadent rock stars like Michael Jackson and Sting. They'll think of more money than you and I will see in our combined lifetimes. First unveiled in 1977, the Synclavier is over a decade old, and there are several stereo 16-bit samplers and Macintosh-based hard-disk recorders available that we *can* afford (not to mention elegant software-based sample editors and sequencers). Consequently, it has become fashionable to knock the Synclavier as being something of a dinosaur.

Nonetheless, New England Digital have installed over 600 Synclavier systems. It's still grudgingly considered the most complete system you can buy today and, if anything, worldwide sales seem to be picking up. There must be something to it. Indeed, though you might find fault with any single section of the Synclavier, it's hard to match it in overall capability and system integration.

Over the next three months we'll be going over the newest breed of Synclaviers and you can decide yourself if the ends justify the means. In this instalment, we'll discuss the hardware and sampling basics. Next month, we'll talk

about sequencing and notation. And we'll finish up with some of the old and the new – the synthesis option (yes, the Synclavier really was originally a keyboard-based synthesiser) and the Tapeless Studio/PostPro multitrack hard disk recording systems. Although the Tapeless Studio package can be added to either base Synclavier system, we'll hold a lot of details of that system until then. It won't be the same as owning one yourself, but hopefully we can go some way towards understanding what makes the Synclavier tick.

Hardware

THE LAST THING anybody could ever blame New England Digital for is planned obsolescence. The original Synclavier had a multi-button front panel and continuous rotary controller just like the top system today, and all along the way NED have tried to make upgrades as smooth as possible for existing owners.

Although this has been an enormous boon to those faithful early customers, some of this dedication to evolution has arguably hampered the Synclavier. Add-ons often meant using the existing buttons and functions in non-intuitive ways, and the hardware has sometimes taken on an ungainly appearance. Sampling was particularly hard to add, because the original system was synthesis-based. Also, sampling was only monophonic for a couple of years before polyphonic sample playback became available. However, the new systems are comfortably modular and allow the Synclavier to be neatly split into multiple systems and easily expanded.

The main control processor, or the brain of the system, is the NED-designed "Able" 16-bit computer, better known to some as the "Model D". Based on a RISC (Reduced Instruction Set Computer) architecture, the latest incarnation of the NED CPU features 256 times the memory capacity of the previous Model C, and the ability to keep track of up to 396 voices and 128 channels of MIDI data before losing track of timing (the Model C could only handle 40 voices). It runs the control programs and manages the user interface. Conversations with the various pieces of user interface hardware – the Synclavier keyboard, Mac II graphics workstation, the new Controller/Editor/Locator hardware interface, the MIDI module, the guitar controller interface and so on – is performed over RS422 serial links. These links (called "DAWN," for Digital Audio Workstation Network) pass information such as motion control, system status, and file management from one part of the system to another.

Using its current software version, the Model D actually draws almost all the graphics you see appearing on the Mac II's high-res colour screen. As part of the "let's not alienate the old users" program, a graphic representation of the hardware button-and-rotary-controller panel is even recreated on the Mac, and can be accessed via trackball (this is the only screen currently being controlled by the Mac). Future plans include putting more of the user interface burden on the Mac II, but all the actual sound production will stay on the Synclavier side.

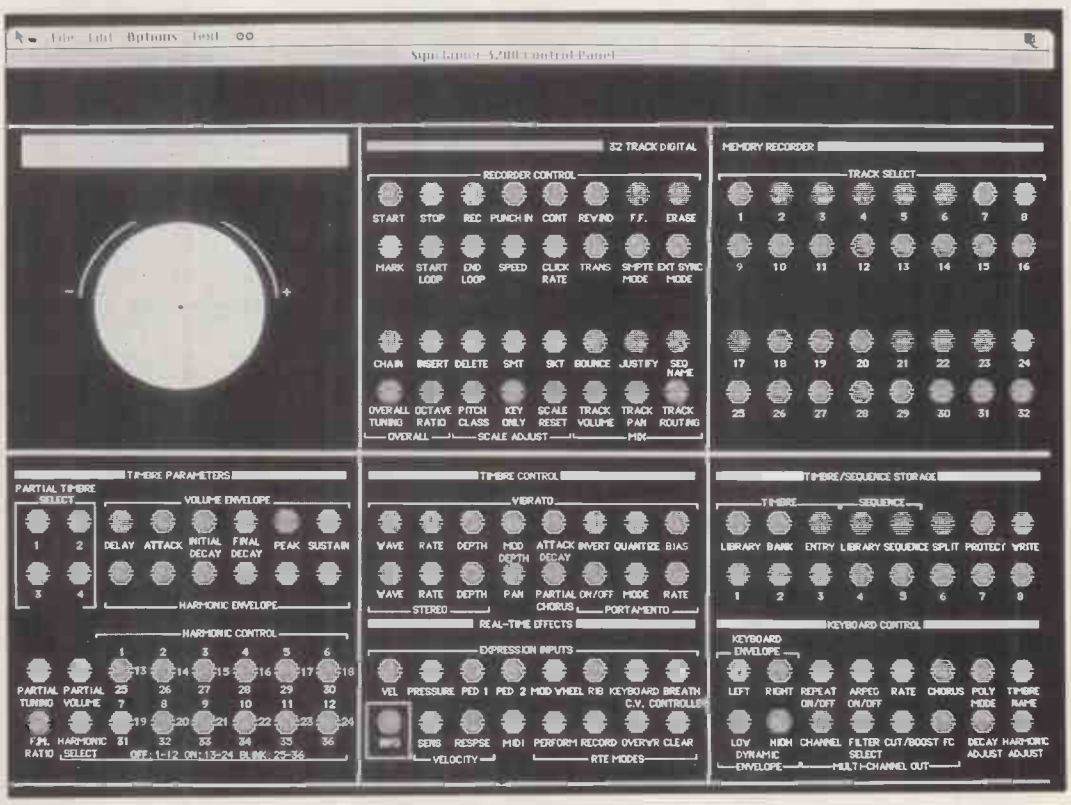
Using a Mac II allows Mac-based MIDI programs to run concurrently with the Synclavier under Multifinder. These programs can drive the Synclavier by running MIDI cables from the Mac II to the Synclavier itself. Unfortunately, applications running on the Mac II cannot take advantage of the Synclavier's built-in SMPTE and VITC synchronisation capabilities (see Time Exposure feature elswhere in this issue). Although there are no current cross-links that I'm aware of, NED are hinting that Mac-based applications will be able to edit Synclavier sound files and exchange sequencer files eventually. The Mac II comes with all systems (3200, 9600, and PostPro) complete with 2Mb of RAM and a 20Mb hard disk. The 3200 comes with a 16" monitor; the 9600 and PostPro come with a 19" monitor.

The main sound processor is the Polyphonic Synthesizer, whose purpose in life is to play up to 32 channels of sampled audio out of RAM – synthesis requires a different card. Sampling voices can be added four at a time, synthesis voices (a combination of additive and FM) can be added eight at a time, and RAM can be added 4 or 16Mb at a time up to a maximum of 32Mb for the 3200 and 96Mb for the 9600. A 3200 can have up to 32 sampling voices, but cannot have any synthesis voices. The 9600 can have from 32 to 96 sampling voices and from zero to 32 synthesis voices with a combined total of 96 sampling and synthesis voices max. Multichannel outputs may be added eight or 16 at a time for the 3200 and 9600. The PostPro comes with eight audio outputs that can be expanded to 16 in groups of four.

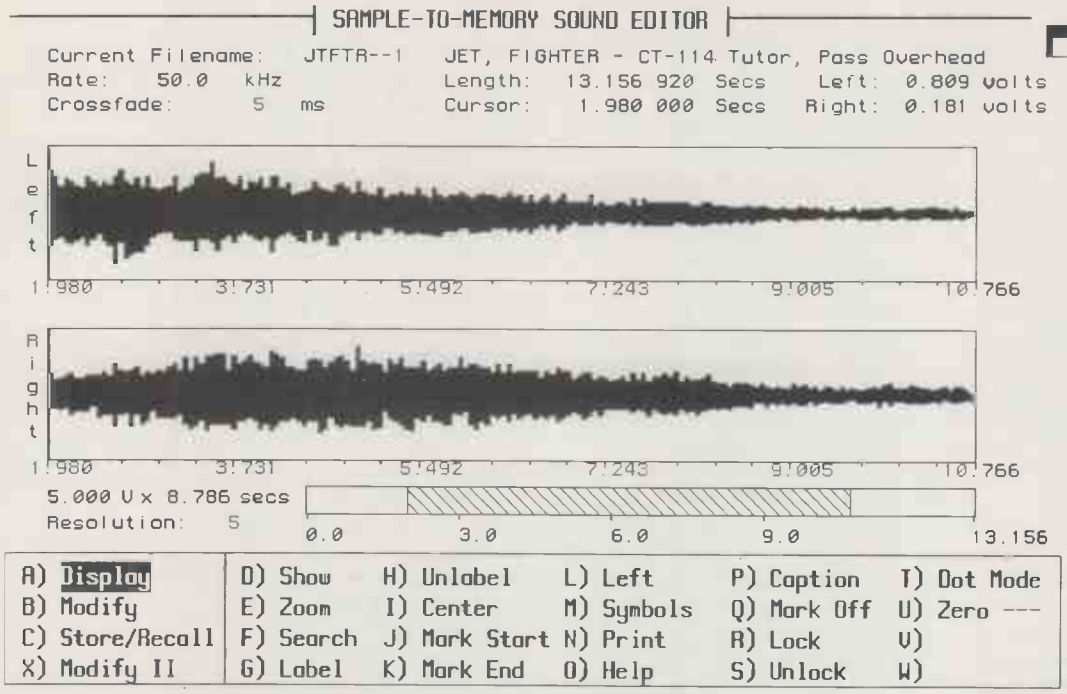
RAM cards for the Synclavier used to be outrageously priced (over $10,000 in the States for a 4Mb card). Not surprisingly, bootleg memory cards started to appear. All was fine for the bootleggers until someone left a bootleg card in a machine sent to be serviced. This discovery was followed by a stern memo from NED that the next revision of software would self-destruct a system if it detected an alien board. No system ever did away with itself, but by the same token, official RAM boards have come down drastically in price since.

"Input anti-aliasing filters are not the oversampling digital variety, but good old inductors and capacitors, which don't add nearly as much noise".

Mass storage is truly massive for all systems. The 3200 comes with an 80Mb hard disk; the 9600 comes with a 320Mb drive. Both can handle multiple 320Mb hard drives, a Kennedy tape drive, and a 2 gigabyte WORM (Write Once/Read Many) optical drive. The PostPro comes with an 80Mb drive for the "system", and a minimum 50 minutes of record time at 50kHz/16 bits (we'll get more into that in due course). Connection to the external storage is done over SCSI. Connection between the control processor and the two central audio processors in the PostPro system is also performed over ▶



The Synclavier 3200 includes one Mac-generated screen that replicates the front control panel of the Synclavier keyboard.



A screen from the Synclavier's sample editing software page.

► SCSI. You can chain hard disks out to the limit of SCSI.

An additional processing board for the Synclavier has recently become available – the DSP card. Using the Motorola 56001 DSP chip (as used by Digidesign, NeXT, WaveFrame . . .), it will be the driving force behind future sound modifications. The first application – time compression – is described below.

The Ins and Outs

HOW DOES THE outside world speak to these units? For starters, the 3200 and 9600 come equipped with a 2 in/8 out MIDI card. This card may be added to the PostPro as an option. Also on the horizon is MIDInet – "an 8 in/8 out MIDI processor featuring simultaneous processing on all channels with any combination of available algorithms (filtering, channelisation, echo, transposition, merging, keyboard mapping and scaling) married to a 16 in/16 out patchbay". You can stack as many of these 16X16 patchbays as you like onto a system. Considering that they're touting the 3200 as the ultimate MIDI control centre, this will be a welcome addition.

"The time compression algorithm seems to have been created more for dialogue editing or as an abstract exercise in data compression than for music."

The 9600 comes with the famous 76-key piano-response, poly-pressure keyboard first seen in the Sequential Prophet t8, along with the traditional button panel and rotary encoder carried over from the very first Synclavier. For those wondering what NED were going to do for a keyboard now that Sequential are no more and Pratt-Reed don't make synth keyboards anymore (well, I was wondering), NED inform me that they have recently been granted a patent on a new keyboard design that looks the same on the outside, but is totally different on the inside. Look (inside, I guess) for it this Autumn.

The Synclavier has synced to SMPTE timecode for some time now, and after some initial timing problems with their sequencer, they report that their SMPTE interface has recently won a Monitor Award for technical excellence from the ITS (International Teleproduction Society). A VITC SMPTE interface is also now available that will allow video editors to crawl frame by frame through a paused video with the Synclavier in tow.

Fine – but how do you get sound in and out of these beasts? NED pride themselves on having some of the highest sound quality in the world. You can sample in mono or stereo in 16-bit linear format at almost any rate 1-100kHz. Audio input enters all three systems through a custom Analogic ADC that runs at up to 200kHz – two channels are multiplexed through one ADC. Input anti-aliasing filters are not the latest oversampling digital variety, but actually good old passive inductors and capacitors, which don't add nearly as much noise as op amps, and rival the low distortion levels induced by some digital designs. The output DACs are 16-bit linear with a 12-bit amplitude envelope for pretty smooth dynamic shaping. There are no output filters of any kind for sound reconstruction or alteration. Apogee input filters (the current favourites in the digital multitrack world) will be offered as an option "in the imminent future".

Why bother with sampling rates higher than 48kHz? Well, you actually gain something by distributing sampling noise and distortion over a wider (and mostly inaudible) frequency range. Also, it takes some of the load off the anti-aliasing filters, and it means you can transpose downwards over an octave without having to worry about imaging and clock noise. Yes, the Synclavier is still a variable-clock system, as opposed to the newer fixed-clock systems like the WaveFrame.

Because voices running at variable clock rates cannot be mixed cleanly in digital, submixing is actually done in the analogue domain. You can buy "multichannel outputs" in increments of 8 or 16 voices for the 3200 or 9600. The PostPro comes with eight standard and can add outputs in increments of four. There is also a digital I/O card available that complies with SDIF (Sony 1630), ProDigi (Mitsubishi), and AES/EBU standards. If the PostPro is locked to SMPTE timecode and house sync (a very stable clock that runs at twice the frame rate – common equipment in all video studios for aligning equipment) and the house sync speed changes, the speed of the digital transfer stays in step.

One curious aspect of the new Synclaviers is how stereo imaging is done on the 3200 as opposed to the 9600. The 9600 has an analogue panning circuit after the DAC – nothing special. What's different is that the 3200 actually uses two voices (one left, one right) playing identical information to create a stereo field. The relative loudness of the two voices determines the stereo position. The two voices are locked tightly enough to avoid phasing problems. This approach eats up voices twice as quickly, but some users have actually reported that the 3200 sounds better since the audio signal is going through one less analogue stage (the panner) than the 9600 on the way to the outputs.

So is digital mixing out of the question from NED? They're rather sly about the answer, but no – when asked at a recent AES show where their digital mixer was, they replied to the effect "we have no related product announcements at this time". A more recent reply was "New England Digital are developing technology to address all aspects of an integrated digital recording environment". We'll just have to wait and see.

Sample Editing

ALL THE HIGH-END samplers I've worked with or seen demonstrated do not have sample editing features as sophisticated as the earliest versions of Sound Designer, Sound Filer, or Alchemy – let alone the most recent versions. Sound Designer itself came into being because the main people in Digidesign (then called Digidrums) looked at the Fairlight and were appalled by the relatively primitive sample editing features. Such is life.

The Synclavier's sample editing isn't actually all that bad. You have a wide range of view resolutions, a scrub wheel for locating sections of the sound, and all the usual reverse, cut, paste, extract, delete, exchange, combine, mono, cross-fade, copy, fill, loop, scale, normalise, reverse, mix, invert commands you'd expect from a stereo sample editor. You

can even trim DC offsets that may have existed in the original sample. All previous edited versions of the sound are stored in sample RAM as long as there's memory available.

Nonetheless, some things are still a little clumsy. For example, you have to type in values for some edit functions and you cannot audition a loop before committing to a crossfade or discard the remainder of the sample past the end point. The Synclavier has an autoloop-detect function, but the manual only claims 50% success. If you don't get the loop points just right on sight, you have to retrieve the last version of the sample and try again. This is an area where further Mac-based screen developments will be very welcome (let's hope the Synclavier can eventually cope directly with Sound Designer or Alchemy).

Sounds are stored in directories that more closely resemble the IBM school of file management rather than the friendly Macintosh interface. Soundfile names are also pretty short and semi-cryptic. On the other hand, search functions are available and whole sets of multisamples can be called up with one name. In other words, the filing system is antiquated but functional and thorough.

As mentioned, a 56001-based DSP card is now available, but the only currently implemented DSP function is time compression. And it's an odd time compression algorithm at that. It seems to have been created more for dialogue editing or as an abstract exercise in redundant data compression than for music. (To be fair, many people use the Synclavier for dialogue editing and the like). As opposed to uniformly compressing or expanding the sound, it looks for silences, such as a pause between words, or repeated data, such as a vowel sustained too long, or a sustained portion of a musical sample, to remove. How much it removes and how large the spaces are between extractions are partly under algorithm control – there are three algorithms that are mainly differentiated by their speed and precision – and partly under user control, such as the largest segment to remove, and a guess at the pitch of the sound. Since a DSP board was not installed in the unit I got to play with, I didn't try this out.

The next application being developed for the DSP card is sample rate conversion – already a feature of higher-end sample editing software and a useful function of E-mu's EIII. Hopefully, other applications such as digital filtering are to follow.

Performance Control

AS I AM typing this, I have beside me a 1981 ad declaring the Synclavier II to be the most powerful synthesiser ever made. Kind of quaint, when you think that today the Synclavier is primarily a sample-based system. But when you start to work with one for a while, you realise that the old synth framework proved to be a good home for samples too. I confess I'm as quick as anybody to call the Synclavier a dinosaur. But I'm also willing to admit that all sampler manufacturers could learn from NED when it comes to animating a sample upon playback.

Each key can play up to four samples (previously known as "partial timbres"). Each sample can have a different velocity response curve and range. All partial timbres are started in perfect phase synchronisation, making things such as velocity crossfades really workable. The lack of phase locking on most semi-pro samplers results in horrible phase cancellations if the sounds are similar at all.

Each partial timbre can be affected by a wealth of modulations. For starters, there's a standard ADSR volume envelope, with delay and *real exponential decays* – very natural-sounding. Attacks can be up to 15 seconds long; decay and release can be up to 30 seconds long. There are six vibrato waveshapes, including random, adjustable from 0-50Hz, and each can be inverted. Vibrato depth can be up to two octaves deep and it can be quantised to act in steps as opposed to a smooth glide. Vibrato attack can be up to ten seconds long. Tremolo (amplitude modulation) is just as versatile, and tremolo can be synchronised for effects like Leslies or vibes. Tremolo, by the way, is also a perfect example of how the old button panel has become non-intuitive – the Stereo Wave, Depth and Rate buttons access tremolo. More Mac screens . . . Portamento can be up to a minute long, and is smooth.

Partial timbres (individual samples) can be tuned against each other in 0.1Hz increments. The Synclavier creates chorusing by playing two samples for every partial and allowing detuning between the doubled samples in FM-type harmonic intervals (frequency multiplication factors) from 0.000-10.000. Stereo positioning of each partial can be specified and modulated by keyboard position or a number of LFO waveshapes – including the ability to synchronise panning motions to keystrokes. And yes, you can set up the nominal volume levels for each partial, along with positional crossfades across selectable sections of the keyboard.

All this would be fun even if you couldn't modulate them in real time. But you can. Called "real time effects", you can patch velocity, pressure, either of two pedals, mod wheel, ribbon controller (9600), breath controller (9600), and keyboard position to modulate the envelope parameters, partial tuning and volume, all vibrato and panning parameters, portamento rate, chorus depth, envelope amount, and even the parameters of the Synclavier's built-in arpeggiator (even the Synclavier has a built-in arpeggiator).

"The main sound processor is the Polyphonic Synthesizer, whose purpose in life is to play up to 32 channels of sampled audio out of RAM."

"The 9600 Synclavier system comes with the famous 76-key piano-response, poly-pressure keyboard first seen on the Sequential Prophet t8."

That covers the basics of the new systems. Next month we'll look into making some music with the Synclavier, and the following month we'll look into some of the more unique functions – multitrack hard disk recording and FM/additive synthesis. May the Force . . . ■

Price List

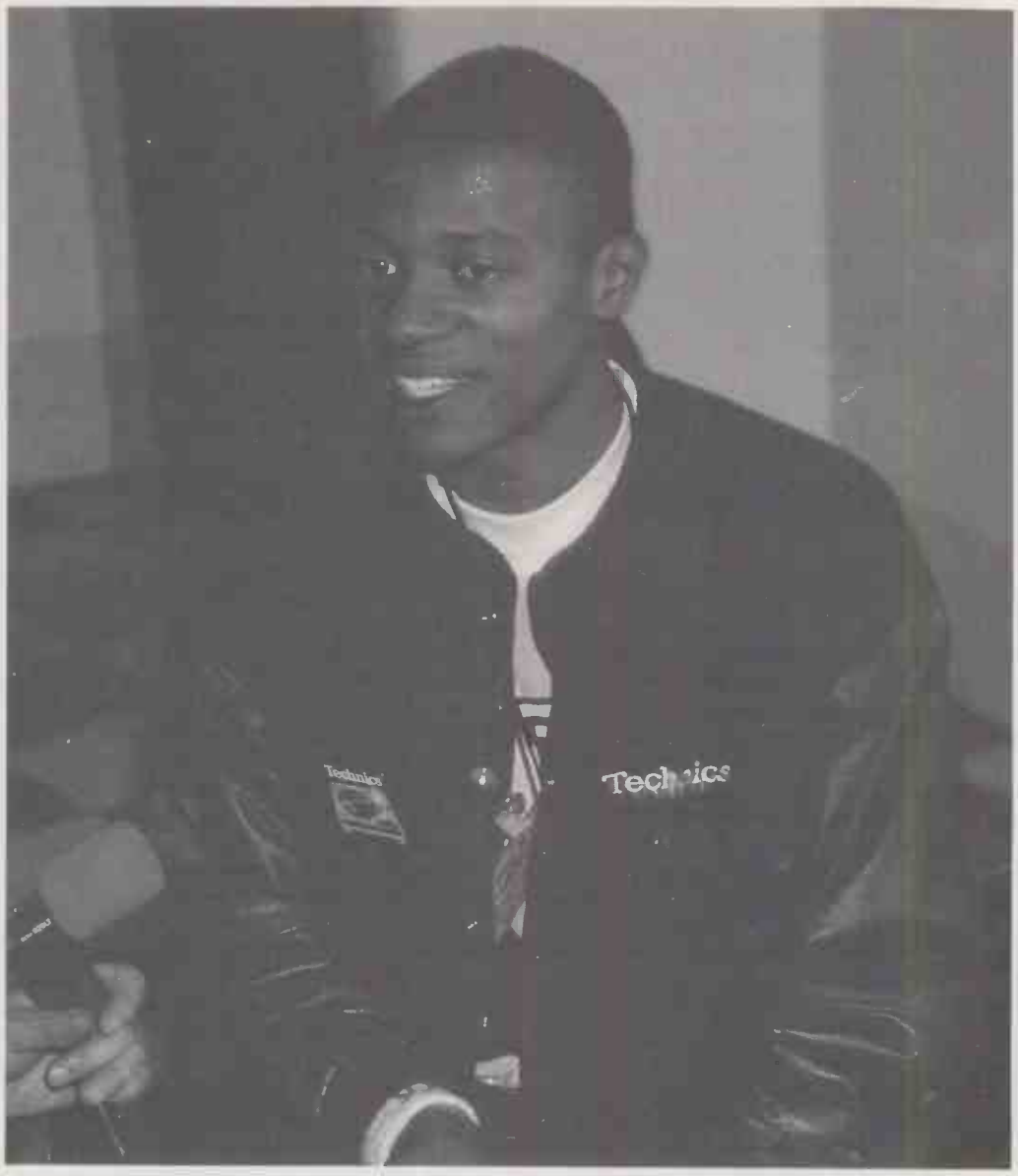
Below is an abridged price list for Synclavier systems and options (prices for the Tapeless Studio and PostPro systems will appear in the third instalment). Prices shown are valid when ordering options at the same time as a core system. Options ordered as upgrades tend to cost about 10% more.

- **Core 3200 System:** Includes CPU, two channels of ADC, Mac II with 16" colour monitor and internal 20Mb hard disk, 80Mb system hard disk, high density floppy disk, 2 in/8 out MIDI interface, SMPTE reader card, sound library, software, documentation: $57,105 European price.

- **Core 9600 System:** Includes CPU, two channels of ADC, 76-note keyboard with button panel, Mac II with 19" colour monitor and 30Mb hard disk, 320Mb system hard disk, high density floppy disk, 2 in/8 out MIDI interface, SMPTE reader, sound library, software, documentation: $148,108 European price.
- Four voice sampling card (for 3200): $1822
- Four voice sampling card (for 9600): $6075
- Eight voice synthesis card (9600 only): $6075
- 4Mb RAM card: $6075
- 16Mb RAM card: $24,300
- Eight-channel output card: $6075
- Sixteen-channel output card: $12,150
- Optical disk: $35,842
- 320Mb hard disk: $15,187
- Kennedy tape backup: $6,986
- DSP module: $9112
- VITC (software and firmware): $1397
- VITC (with reader): $3766
- Music Engraving Option: $2126
- Sound Ideas Sound effects library (optical): $2126
- Denny Jaeger master Violin Library (optical): $15,187

All European prices

DJ technology



Photography *Normski*

Earlier this year, Cutmaster Swift's DJ'ing skills brought him the DMC World Mixing Championship title. Now he's investing his £5000 prize money in his home studio. Interview by Simon Trask.

NOT MANY PEOPLE can claim to have earned the title of "World Champion" in any field before their 21st birthday. But this is precisely what Cutmaster Swift has accomplished as winner of this year's Technics/DMC World DJ Mixing Championships.

Swift, known to his parents as Johnny Oakley, is no newcomer to DJing. He started out in the early '80s with cheap belt-drive BSR turntables before eventually graduating to Technics SL1200s, and has honed his skills over the years by performing live at hip hop jams. Swift is part of DETT Inc, a London hip hop crew which includes rappers Monie Love and MC Mell 'o' and fellow DJ Pogo.

"We all started out with little dreams that we would make it one day, and now it looks like '89 is the year it's going to be happening", the 20-year-old DJ tells me a couple of days after his Championship win. We're sitting in the offices of DMC's PR company Positive Publicity, which are located, rather unusually, above an amusement arcade in the heart of London's Chinatown. Swift is a quietly-spoken, polite and instantly-likeable person with the undemonstrative confidence of someone who has proved his worth. He and his fellow rappers and DJs have "paid their dues" over the years, and winning the DMC championship is only the latest stage for Swift in gaining the recognition he feels he deserves.

"Now", he says, "I'm going to go into the New Music Seminar in New York to test myself one more time, and hopefully bring back the title. From then on I want to make records, but I'll still want to tour and do PAs."

DETT stands for Determination + Endeavour = Total Triumph, and there's no doubt that determination and endeavour are qualities which British hip hop artists have needed in abundance. Winning respect from the home(boy) crowd has never been easy, as UK hip hop fans have traditionally tended to idolise just about anybody who comes out of New York at the expense of homegrown crews. If anything, this has forced UK artists to become stronger. In fact, performing live is something that Swift relishes.

"I like showing the crowd that I've got something new", he explains. "The applause I get feeds me, and drives me to keep going. That's what's vital. If everyone's quiet and just staring at you, you've got reason to be nervous."

However, practising at home is just as important, and whenever he has time to spare, the young DJ can be found cutting up records on his Technics decks.

"I have to come up with something new every day, like a new scratch pattern. I try to be as new as I can all the time. To tell the truth, I do so many new things now that people expect it of me.

"I might be out in the street thinking about something I'm going to do when I get home, but I never sit down and try and think something out. I'm strictly technical – I'll get on the decks and just go crazy. That's what I've always been known for.

"It's not something where you say 'What shall I be today? I think I'll be a DJ'. You've got to want to prove something, and you've got to convince other people that what you're doing is to be taken seriously."

Swift is very serious about what he does, and for him it was a logical progression from testing himself at hip hop jams to testing himself in the DMC competition. Last year he won the UK Championship and went on to get his first taste of competing against the world's DJs, including the hotly-tipped American DJ Ca$h Money, the eventual winner.

"I've been DJing for six or seven years, and I was an underground name, but I presented myself in the DMC competition, I put myself on the line. It doesn't matter who you are, you should be able to test your ability. You can be dynamic when you're mixing in your bedroom, but you're not guaranteed it when you're out performing, 'cos you'll always be nervous.

"Last year, winning the UK championship was what I really wanted to do. When I was in the World Championship, I thought 'Hey, wait a minute, what are you doing here? My God, you're going up against somebody you really admire'. I looked up to Ca$h Money, 'cos he was an idol from way back. It wasn't like I really wanted to beat him. When I knocked the needle, I just wanted to get it over with, I wanted to go backstage, and that wasn't professional at all. A year of touring with DMC has taught me that; it's also improved my performances and made me come up with my own style where people don't really know how technical I am, they just see something visually and think 'Yeah!'."

This year the World Championship was a close-fought battle between Swift and the American DJ Aladdin. Swift explains why in the judges' eyes he had the winning edge.

"I think it was because what Aladdin did was too similar to Ca$h Money last year. The judges aren't looking for people who can do something that someone else has already done, they're looking for something different. It's easy to see what someone's doing and then copy them, but it's very hard to originate something. That's what a lot of the other competitors have to do.

"Once you know you're doing something that's yours, no-one can ever trouble you. You put yourself instantly on your own pedestal; it's your category, you're controlling it. Now other people can do what I've created, but unless they take it a stage further they'll be living in my shadow.

"My whole aim in winning the World Mixing Championship was to get recognition for being someone who has persisted with mixing and done it in my own form, not just taken what someone else can do and won the competition on that. I've done it in my own style. I came out with my own presentation, my own package."

MOST PEOPLE ARE aware of how the DJ's manipulation of records led to a new use for the digital sampler, but the subsequent influence of samplers on the DJ's technique is less appreciated. Swift explains how he was influenced:

"At one time I was hyped up on scratching, but then I started hearing how fast and complicated records were getting through the use of sampling. After Ca$h Money started doing all that speed-cutting, I took it a step further and developed a style called 'copycat', which is where you echo a phrase using two copies of a record. It incorporated a lot of faster noises, like delaying sounds for a lot longer. That came out of listening to what could be done with sampling."

So how much better can mixing get?

"It can always go further," comes the Cutmaster's confident reply. "There's so many DJs in the world, and so many DJs still to be born. It's never going to stop."

And he feels the same way about hip hop, as he explains:

"The way I see it, hip hop music consists of every type of music, so it can always be different. It's got a style, but it's always changing. That's the good thing about it."

And that's why it leads pop and rock music, because it's inherently more experimental and open-ended as a musical form.

I wondered what Swift as a DJ rather than a musician felt about musicians who don't really respect DJs.

"I see what I do as being just as creative as them. When I'm on the decks I try to be as creative as possible. Everybody's got their own opinion; maybe they feel intimidated, 'cos the DJs have got a lot of respect, they're getting bigger every year. And they can only get bigger."

Let's talk DJ technology for a moment, and in particular the little mixer which has proved so popular ever since Ca$h Money used it to win last year's World Championship, the Gemini MX2200.

"Everyone thought that because Ca$h Money was using the Gemini, if they got one it would make them a better DJ. But a mixer doesn't really make you a better DJ, you can use anything. A mixer is just a mixer; it's the turntables that are important. You do use 1200s, there's nothing else.

"People think that because the Gemini is small you can mix faster with it, but to tell the truth it's very uncomfortable working in a small space. But no matter what size the mixer is, it's for you to practise and adjust; I can go on a GLI, like I did last year, and still mix just as good. What matters is having the determination to make sure you do what you want to do.

"But the Gemini is very well-built, and the sliders are very sharp. Also, it's cheap, so if you break one you can just go out and buy another. I could spend £500 on a nice powerful mixer and then break the crossfader and half the time it's going to be in service."

Now, there speaks the voice of experience.

PRESTIGE AND PRIDE are not the only consequences of becoming World Mixing Champion. In clinching the title, Swift also won for himself a gold-plated Technics SL1200 turntable, Technics SX-AX5 MIDI keyboard and, last but not least, the tidy sum of £5000. For the young DJ there was never any question about where most of the money would end up: invested in his home studio.

"The money I won from the World Championship, it's basically spent now," he reveals. "I'm going to still have something to fall back on, though; I'll fling a grand into the bank. I've never really done all this for the money side of it. I only do something because I enjoy doing it. The money's the least problem, but of course you do need money to survive!"

Now the proud owner of an Akai S950, Swift's ▶

"At one time I was hyped up on scratching, but then I started hearing how fast and complicated records were getting through the use of sampling."

"If you sample old records you're making them sound like a whole new thing – when I mix a record as a DJ, I'm expressing how I feel that record should go."

► exploration of sampling had humbler beginnings with a Casio SK1 and a Portastudio. Instinctively he was interested in sampling bits off records, because that was what he was used to from hip hop and DJ'ing. He subsequently graduated to another low-end Casio sampler, the SK5, and from that to an Oberheim Prommer. By this time he had joined forces with a friend who owned a Prommer, and after a while the two of them decided to pool their resources and try for something better.

"I'd had enough of buying stuff that I was going to have to change in a year or two. So we had this idea that if we got rid of one of our TR909s and got rid of a Prommer, we might be able to get a second-hand S900, but it didn't work out. I notice with most things that never work out, it's only for the best."

In the end, the pair's next move was to invest in a 1040ST and C-Lab's Creator sequencing software, but the thought of owning a decent sampler was never far from Swift's mind.

"This year I said to myself 'Yeah, if I win the UK title again I'll make sure I invest the money in a sampler'. I'm the sort of person, I'll spend and I'll have nothing by the end of the day, though what I've invested my money in can make things better for me. I know I can make it all back on one record.

"So I told my mum I was going to go for the S950 and it was over a grand, and she said 'What! You're going to spend that money already?'. I had to show her that it was worth it. It's like when I began the DJing: 'How come you're buying a turntable for £200 when there are turntables all over the place that are much cheaper?' You know what parents are! But now whatever I say I'm going to do, I say 'Just trust me' and they believe in me. The only problem now is where to put everything. Also, the neighbours complain that there's too much noise."

Now *that* sounds familiar. The DJ's next step is to consider some soundproofing, buy the S950's optional memory boards for more sampling time, and decide whether to go for an eight-track cassette or reel-to-reel recorder.

"What I'm trying to build up at the moment is just for demos, for working out ideas. Having the equipment at home means that if I'm inspired to do something I can record it straight away."

IT'S NOT SURPRISING that a digital sampler should assume such a central role in the young DJ's studio. After all, sampling is effectively what DJs do when they play, cut up and otherwise manipulate records. Consequently samples are an integral part of the DJ's creative process, as Swift explains:

"People say that sampling is stealing music, but the music today is too 'computery'. If you sample old records you get that natural feeling, but you're still constructing the music in your own way; you're taking something and you're rearranging it and making it sound like a whole new thing. It's like when I mix a record as a DJ, I'm just expressing how I feel that record should go."

And it's this innate creative desire to rework existing records which has led so many DJs to progress from being a mixer to being a remixer and subsequently a producer – from mixing the finished product to producing the finished mix.

While he has been observing and learning from the mistakes that some of his friends have made, Swift is all too aware that "you still have to make your own mistakes to know what's really going on". And although he may not yet know exactly what to do, he knows what he wants to do and has his working philosophy clear in his mind.

"Once you're producing your own stuff, you have a better understanding of what a remix needs, of what should be taken out or put in. You understand what the artist was doing. If you understand that and you remix a record just the right amount, that person will respect you and maybe even want you to produce them.

"It's the same with production. A producer's got to be able to listen to what the artist is aiming for, and be able to package it just right for them; that's what makes a record a hit. If you understand that, you're going to make a success of whatever you're into."

The DJ aims to make versatility in production and remixing his hallmark.

"Why not be a Todd Terry, why not be a Les Adams, a Paul Dakeyne, doing as many things as you can, remixing as many things as possible? I don't really want to be poppy, but I want to give off a positive image for people to aim for. Since Jazzy Jeff and the Fresh Prince have gone platinum and shown that hip hop can be into those categories, I want to be able to reach those categories and do something that everyone can relate to. Not to water it down, but whatever you go into, you've got to aim as big as you can."

Cutmaster Swift has already shown his propensity for aiming as big as he can by winning the DMC World Mixing Championship, and in doing so he has also demonstrated his belief in the virtues of originality. But there again, when someone uses words like "presentation" and "package" in referring to the results of their creative impulses, I wonder if DJs are hard-wired to think commercial worth first, out on a limb second. The evidence suggests that it really depends on the individual DJ. And what will this individual DJ end up producing? We can but wait and see. ■

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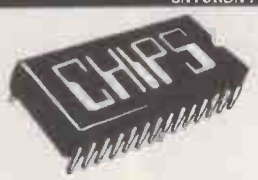

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BIT BY BIT

MIDIDRUMMER V.2

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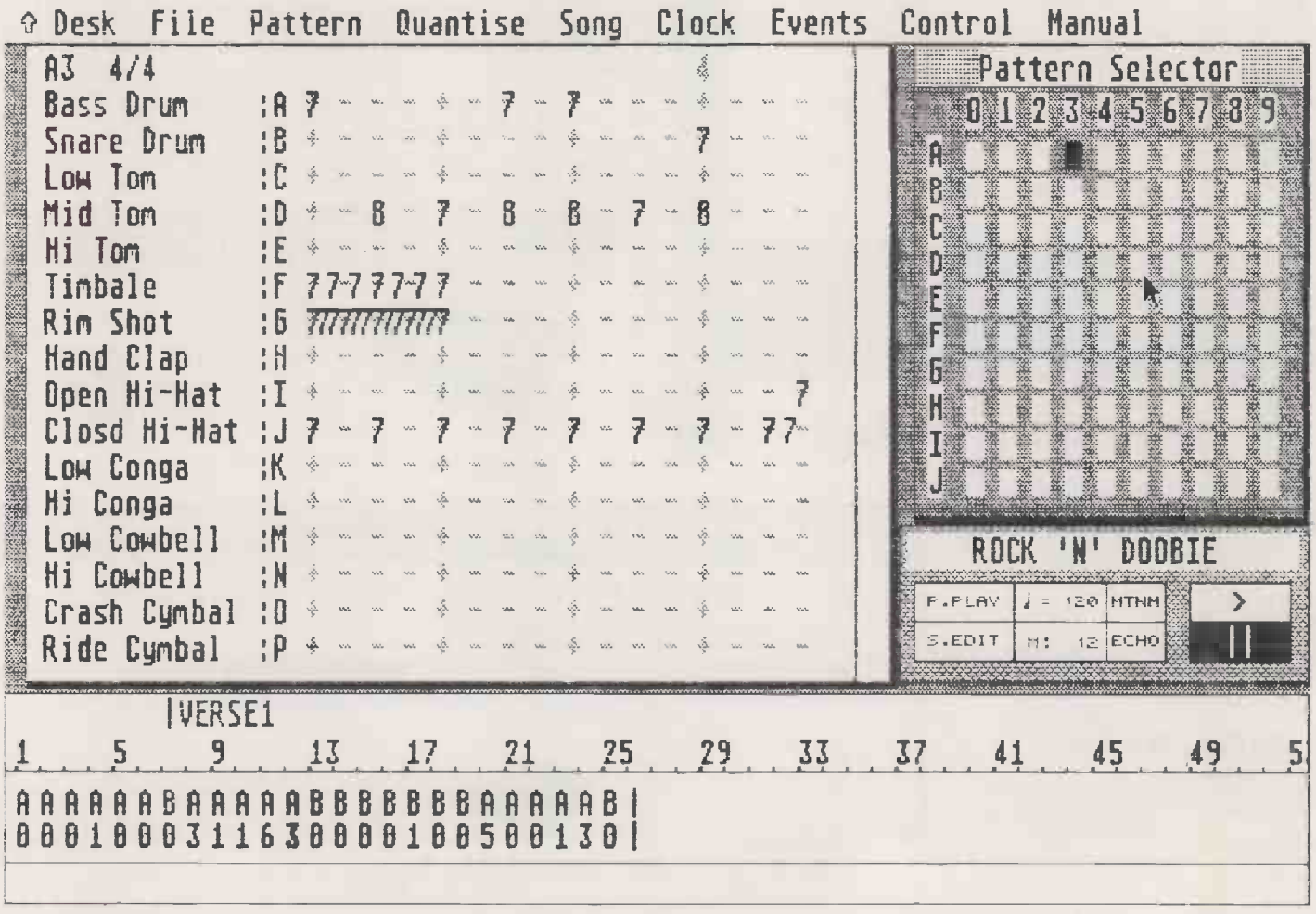


When you're sick of forgetting which keys you've assigned your drum voices to and wishing for a simple way of writing drum patterns into your sequencer, you're ready for MidiDrummer. Review by Ian Waugh.

MIDIDRUMMER ORIGINALLY GOT the MT once-over back in February '88 when, whilst receiving a cheerful thumbs up, it was found to be suffering from several shortcomings. It has now undergone a considerable revamp – and a corresponding price increase. For those of you who might have missed the original review, here's a (very) brief resumé.

MidiDrummer is basically a grid editor for creating drum patterns. It runs on colour or mono monitors and will work on a 520. It has been likened to the Fairlight's Page R and shares similarities with the Drum-Edit page in Steinberg's Pro24 III, although the original release of MidiDrummer predated this by several months.

Patterns are constructed on a grid which occupies most of the screen. Up to 100 Patterns can be created, and these are selected by clicking on the Pattern Selector grid in the top right of the screen. Patterns are strung together to produce a Song and the program can store ten songs at

once. Simple, eh?

Let's see how the new MidiDrummer (review version v2.06) fares in practice by working through the process of creating a song.

Voice Assignment

THE FIRST THING to do is assign the drum sounds on your equipment to the instruments on the grid. The original MidiDrummer supported only 16 voices but v2 can handle 32 in two sets of 16. Each drum can be given a 12-character name and allocated a separate MIDI channel and MIDI note number for both transmission and reception. Setting these to different values can be useful as we'll see when we come to enter a pattern.

A useful time-saving feature is MIDI Note Assign. If you press a drum pad on your drum machine – or a key on your keyboard – it automatically allocates the note number and MIDI channel to the currently-highlighted name. Voice assignments can be saved to disk.

Out of Time (Signatures)

NEXT YOU SET the time signature. This can be a global value for all patterns or each pattern can have its own. However, there are several common time signatures which MidiDrummer doesn't support. The greatest miss is 12/8 and it has the cheek to convert 6/8 into 3/4. Odd time signatures such as 5/4, 7/4 and 9/8 (the original time signature of 'The Impossible Dream') are missing, although it does allow 5/8 and 7/8 and, believe it or not, 0/4. These anomalies are a leftover from the original MidiDrummer.

Actually, the time signature only sets the pattern length, blocking off extra hits, so why haven't the boys at Bit By Bit adopted the method used by commercial drum machines and let us decide how many steps the pattern should contain: 8, 16, 24, 32 – or any number? As it is, we're stuck with unnecessarily restrictive pattern lengths.

Pattern Making

AND SO TO work. Select P.PLAY in the control area under the Pattern Selector, select the Pattern number you want to program, click on Start, and off we go. The Pattern loops automatically to allow you to build up patterns drum-machine style, and there's a metronome option if you need a hand keeping time.

The resolution of the grid is determined by the current Quantise setting. MidiDrummer v1 had a resolution of 32 hits per grid but v2 ups this to 96. The full range of Quantise settings are: 1/8, 1/8t (triplets), 1/16, 1/16t, 1/32, 1/32t and 1/96.

You can click hits onto the grid with the mouse or enter them in real time by pressing keys on the ST's keyboard – A to P in both upper and lower case. MidiDrummer also allows you to mute voices.

You can enter Patterns in real time via MIDI – this is where the receive note settings come in. You could, for example, make the reception values match a convenient group of notes on a master keyboard and enter a pattern by playing it manually – many musicians now work this way to avoid creating mechanical rhythms. During play, however, the sounds still follow their transmission settings. Good, eh?

I began by entering a few basic rock patterns in real time from my master keyboard using the 1/16 quantise setting. If you want a really rigid pattern you can correct selected lines to any of the quantise values.

Then I thought I'd get clever and try a couple of complicated fills. Actually I chickened out and clicked these into place with the mouse using the 1/32t quantise value.

The left mouse button inserts hits and the right one is supposed to delete them. If you click exactly on a hit it does – if you don't it inserts another hit. Why? I wondered. This problem is more apparent when working with finer resolutions.

Echo allows you to insert Flams with the mouse. You can stipulate the spacing (in 1/96th steps), the number of repeats and the velocity difference between hits and whether they rise or fall. This is excellent.

"When entering hits via a MIDI instrument, the nearest velocity value is shown but the actual value is used – MidiDrummer is pretty hot on velocity."

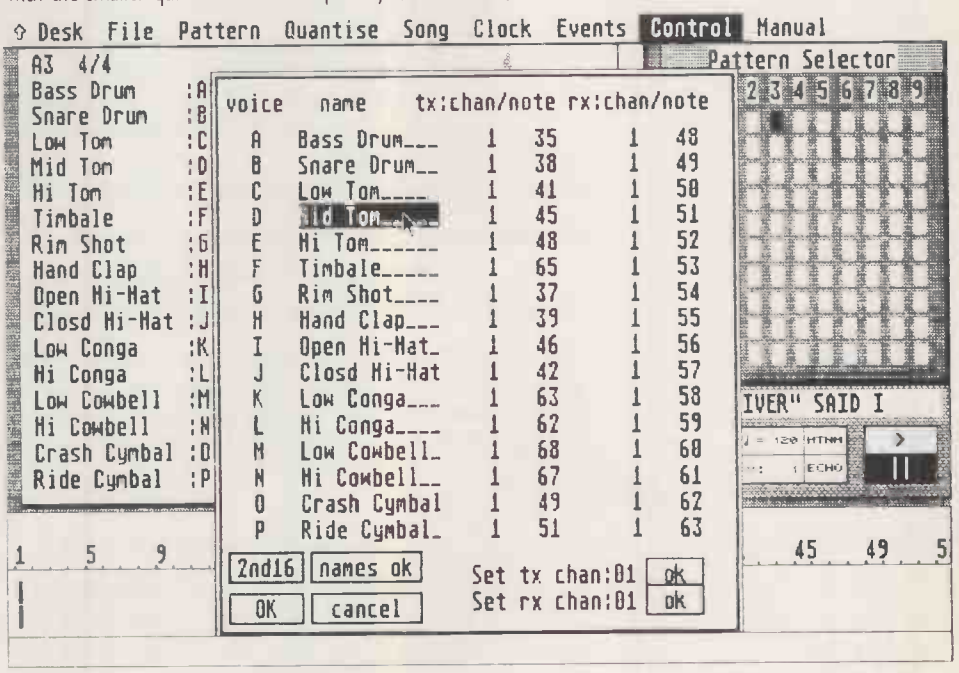
Now, having constructed my drum track with MidiDrummer, I remember that my drum machine happens to contain a killer Latin fill which would fit neatly into the scheme of things. Will MidiDrummer allow me to import it? Yes, easily.

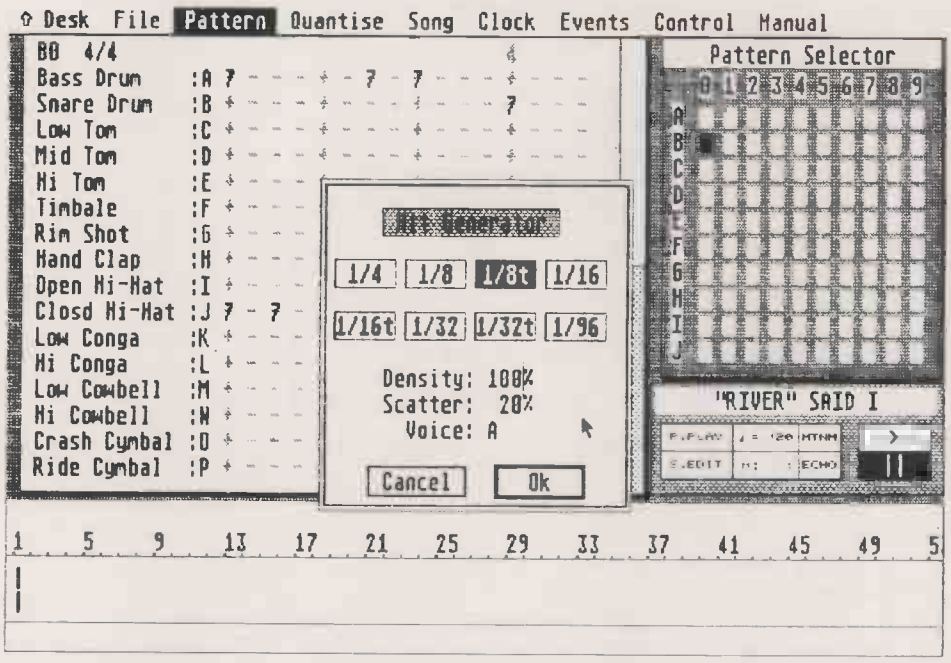
Slave MidiDrummer to the drum machine's MIDI clock and click on Fill under the Song menu. The patterns played by the beat box are now recorded by the software in the sequence they're played. You now activate the Scrunch function (love the name) which removes duplicate patterns leaving a nice tidy Song. This assumes that the Patterns and time signature in MidiDrummer are the same. If they're not, the information will go in but the Patterns won't match. The program can only record 100 consecutive patterns in this way but you can copy patterns from one Song to another.

Using a similar technique you can record a complete Song (well, up to 100 patterns/bars), in real time using drum pads or a master keyboard.

I just wanted to extract one pattern from my machine and that was relatively simple. When MidiDrummer records a track in this way it overwrites the existing patterns so first you must save anything you've created. You can save and load individual patterns, however, so mix 'n' matching is no problem.

The note entry processes are flexible and quite painless. However I did encounter some difficulty when dealing with the smaller quantise values – especially 1/96. This is ►





► due in part to the limited resolution of the ST's display. Consecutive hits entered on the same line with resolutions smaller than 1/32t just blur into each other. You probably won't be entering many consecutive 1/96 bass drum hits, but it is extremely difficult to see exactly where the hits fall in the pattern with such a fine resolution.

Velocity

WHEN A NOTE is entered on the grid, it's shown as a digit between 0 and 9. This represents one of ten velocity values which are set in the Velocity Defaults window. The current value can be changed by pressing a key on the numeric pad making it an easy matter to change velocity during the creation of a pattern.

When entering hits via a MIDI instrument, the nearest default value is shown. However the *actual* velocity value is used and this can be altered by double-clicking on a hit. MidiDrummer is pretty hot on velocity.

Editing

THERE ARE MANY editing facilities to assist in Pattern creation –Copy Line, Copy Pattern, Clear Line and Clear Pattern, to name but a few. You can also Humanise a pattern by applying random 1/96 offsets which can be effective in small doses.

If your imagination is running a little low try the Hit Generator. This adds hits at random to a specified drum line. You can set the quantise value and Density and Scatter percentages. This really needs further development in order to become practical but you can have fun with it.

"If your imagination is running a little low, try the Hit Generator – this adds hits at random according to quantise value and Density and Scatter percentages."

Song and Square Dance

OK, THE PATTERNS are in; now to string them together to form a Song. In Song mode you click on the Patterns you require in the Pattern Selector grid with the right mouse button. The Pattern numbers then appear in the Song Window at the bottom of the screen. Continue clicking patterns into the Song until it is complete.

This is a very simple and intuitive way of working. Patterns can be tried and inserted on the fly. There's no messing about with repeat bars, coda signs or whatever. You can, of course, end up with a rather long list of Patterns – up to 1053 – but you can move around the Song very easily. To help with Song creation you can rubber band a block of Patterns and perform Cut, Copy and Paste operations.

And in case you think you'd get lost looking at a list of 1053 Patterns, you can attach labels above the patterns in the Song Window. These can stay with the Patterns they are attached to or remain fixed to the point in the Song to which they refer. Very flexible.

MIDI & Manuals

IF YOU USE a software sequencer you will not relish the thought of tying up your ST to play the drum track as you had to do with the original MidiDrummer. Version 2, however, allows you to Export the Song in MIDI file format – you may think the program's gone to sleep during this process but I can assure you that it hasn't. I loaded files into sequencers which support this without a hiccup. And in case you're thinking of moving on to v2, files created with v1 are upwardly compatible.

The instructions supplied with MidiDrummer are a mere six and a half photocopied sheets of A5 with no diagrams – skimpy to say the least – although a new manual is currently in production.

The program contains several help screens, although the latest version, v2.11, which should be available by the time you read this, has had to drop these to make way for other facilities. These are to include Rotate Voice (to move a line forwards or backwards in relation to the pattern) and Voice Gain (to change the overall volume of a voice).

Verdict

MIDIDRUMMER IS A flexible and versatile program. My gripe about the grid only becomes a major problem if you're not working in 4/4 time.

The disk contains some demos for Roland's MT32 and these highlight one of MidiDrummer's most useful areas of application – with equipment containing drum sounds but no means of creating drum tracks.

Of course, MidiDrummer can be used with standard drum machines and I reckon you'll find it intrinsically easier to create tracks with than the programming facilities of many drum machines. And there's the bonus of being able to store the drum track with the music, which removes the risk of the track being overwritten on the machine. And it's very easy to re-configure the voice assignments to run with other equipment.

One final question to help you make up your mind – if you find you have to refer to your machine's instruction manual whenever you create a new drum track it's probably time you looked at MidiDrummer.

Existing MidiDrummer owners can upgrade for the difference in price between their version (this could range from £39.95 to £59.95) and the new version plus £2.00. ■

Price *MidiDrummer v2. £85.00 including VAT; Demo disk. £5.00.*
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Ensoniq VFX

I'VE GOT TO be honest: this Preview almost didn't get written. Why? Because for the couple or so days' access I had to a VFX I didn't want to stop playing the damn thing. Er, let me rephrase that: Ensoniq's new synth is not only set to be Synth of the Year 1989, it represents the most serious competition the Japanese have had since . . . Well, since the Americans last had something worth calling a synth industry.

What makes Ensoniq's new synth so impressive? Certainly not its workstation status. Ensoniq have not only forgone the onboard sequencer which has been a regular feature of their instruments since the Mirage, they've avoided that other workstation staple, the dedicated "drumkit" section. But, to me, Ensoniq have made the right decision in concentrating on the VFX's synthesis capabilities, because it is these rather than any workstation aspirations which will make the synth stand out from the crowd.

And stand out it does. On first acquaintance the VFX impresses through the sheer range of sounds which it handles with equal competence, from full, warm analogue-style sounds to bright, breathy digital sounds and realistic acoustic sounds. In addition Ensoniq have introduced onboard stereo digital effects processing capable of adding reverb, chorus, delay, flanging and rotary-speaker effects, individually and in combination, to the VFX's sounds (more on these later).

The VFX's factory Programs show off the scope of its synthesis abilities to excellent effect, and there are many sounds I could single out for mention. For instance, there's 'Inspired', a rich, shimmering electric piano; 'My Desire', a warm synth brass sound with a soft breathy edge; the assorted "ethnic" percussion sounds of 'Afrique'; 'Double Reed', which sounds like a cross between a bassoon and an oboe, and captures the characteristic hollow, reedy sound of these instruments very effectively; the delicate chorused 12-string guitar of 'Strum-Me'; the eerie 'El-Encanto', a thin, shimmery sustained sound which works well for chordal accompaniments; 'Saw O Life', a dark, warm, swelling sustained horn sound with a very analogue-y buzzing edge; 'Flugel Strg', which starts out with a horn attack and then crossfades smoothly into a subdued strings sustain; the realistic acoustic sounds 'Solo Trumpet', 'Alto Sax' and 'French Horn'; the soft, breathy 'Cool Flutes' (actually more like panpipes); 'All Waves', which is complete mayhem; and 'Play-1-Note', which will play with itself, so to speak, for as long as you hold down a note, in an orgy of self-modulation which reminds me of Oberheim's Matrix 12. In fact, there's much about the VFX which reminds me of Oberheim's classic analogue synth, but at the same time Ensoniq's new (and all-digital) synth is capable of producing sounds which the Matrix never could.

Now what about the VFX's 61-note attack velocity and poly-aftertouch keyboard? Reports suggesting it would be the same keyboard that Ensoniq used on the SQ80 and EPS had me groaning - I hate that keyboard. Well, if it is the same keyboard then it's undergone a metamorphosis: the notorious "clacketty-clack" action has given way to a smoother, more substantial and altogether more comfortable feel. In fact, it's a pleasure to play.

The VFX's front panel bears a certain similarity to previous Ensoniq instruments, with its 2X40-character fluorescent display, six "soft" buttons and multiple-Program-name display capability. To the left of the display are volume and data sliders and inc/dec buttons; beneath are buttons for selecting the mode and the Performance Presets (of which more later), while to the right are buttons for editing the Programs and Performance Presets. The buttons have a more substantial feel than those on

previous Ensoniq instruments, contributing to the overall professional aura of the instrument.

Meanwhile, lurking on the rear panel are left and right audio outputs, separate stereo headphone output (at last), a single/dual footswitch input, a pedal/control-voltage input and MIDI In, Out and Thru sockets.

Perhaps not surprisingly, the VFX draws on elements of both the SQ80 and the EPS. However, it is first and foremost a synthesiser, despite including many samples as part of its raw sound material. It also represents a significant advance on the SQ80. For a start, it has 16-bit fidelity and a 96dB dynamic range. It also uses first-order linear interpolation to give a wider transposition range for its samples (fancy words, I know, but they mean fewer multisamples and consequently more room in memory for a greater variety of samples).

The VFX has 109 basic waveforms stored in 1.5 Mbytes of waveform ROM. These divide into multisampled acoustic instruments arranged as 15 String, six Brass, five Breath and six Bass sounds; 13 looped tuned percussion and 16 unlooped percussive sounds (the latter including various attack transients); 23 looped single-cycle waveforms (sampled and synthetic); five inharmonic multi-cycle looped waveforms; a rather unusual "waveform" called All Waves which allows you to create loops consisting of multiple waveforms; and what is perhaps the most significant development: 17 TransWave spectral interpolation waves. These are akin to the old PPG Waveterm, in that they are wavetables consisting of up to 100 consecutive single-cycle waveforms which can be read through from any position in the table, for any number of waves. This offers a tremendous degree of harmonic motion which in turn makes possible a wide variety of effects, and that's even before you start modulating the waves in real-time from VFX controllers such as velocity, aftertouch and mod wheel. This really opens up endless possibilties for the adventurous synthesist. And that's before you even think about reversing waveforms.

While the SQ80 and EPS both featured a form of pseudo-reverb which could be generated by setting second-release time and level parameters, with the VFX Ensoniq have introduced onboard high-quality stereo digital effects. Far from being an afterthought, these are an integral part of the VFX's sounds, with the same sort of sophistication that can be found on Korg's M1, plus the ability to control effect parameters dynamically in real-time – the sort of thing you've up till now only been able to do with some stand-alone digital effects units via MIDI.

The VFX uses a new custom 24-bit VLSI chip, the cunningly-titled Ensoniq Signal Processing (ESP) chip, to perform the necessary calculations. Fifteen effect combinations are available, offering various types of reverb and combinations of reverb with chorus, flanging and delay, and a rotary speaker effect. Each of the VFX's Voices can be routed to one of three stereo busses, providing routing to a dry signal output, to Effects 1 and to Effects 2 respectively.

A Voice in VFX terminology is a digital oscillator which plays one of the 109 waves, with associated parameters governing pitch, trigger delay, filtering, envelope generation, LFO, 15 modulation sources and even more destinations, a pitch table for alternative tunings, modulatable panning, and output routing to one of three stereo effects busses (dry, FX1 or FX2).

Up to six Voices can be assigned to a Program, with the Patch Select buttons to the left of the keyboard allowing you to instantly change between four combinations of Voices. This was a neat feature on Ensoniq's EPS sampler, but on the VFX it's even neater, because you can latch the Patch selections for two-handed playing.

Programs can be layered by double-clicking on the soft buttons which edge the central display. Up to three Programs can be combined into a Performance Preset, in which case each Program can be independently zoned across any area of the keyboard. Additional parameters for each Program within a Preset are volume, panning, transposition, timbre (actually any parameter or group of parameters assigned to the data slider), release characteristics, Patch Select number, aftertouch response (channel, poly or none), sustain pedal on/off, MIDI assignments (channel, transmittable patch change and local on/off status), and global effect (with different routing for each Program if required).

Ensoniq have capitalised on this "two-tiered" arrangement of Programs and Presets to provide two distinct editing sections on the front panel. You can work at the Preset level of combining existing Programs to create new sonic configurations, or delve deeper by editing existing Programs. The VFX's front-panel layout provides a button for each logical set of parameters, which not only ►

Photography *James Cumpsty*

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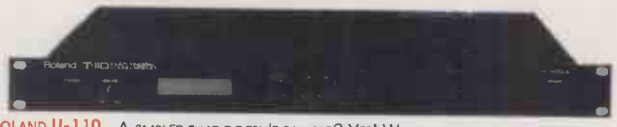

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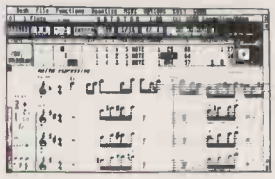

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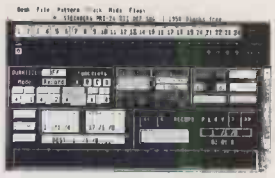

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IN TOUCH WITH TIME

► makes it easier to understand the parameter organisation in Program and Preset modes but also makes all parameters equally and readily accessible.

The VFX's Multi mode gives you 12 "tracks" for multitimbral reception and transmission (that's four more than on previous Ensoniq instruments). Each track allows you to define the same parameters as for Preset mode, which means that in addition to multitimbral sequencing applications you can layer and split up to 12 Programs on the keyboard. You can program a single effect for all 12 tracks, with independent routing for each track. Bearing in mind that you have two stereo effects busses and a dry-signal buss, you do get some flexibility here. Providing more effects busses would require further ESP chips, and that would inevitably mean more money.

Ensoniq's new synth has 21 digital oscillators which are dynamically assignable across the Programs in Preset and Multi modes (remember, each Voice requires one digital oscillator). The synth does its level best to be intelligent about what Voices it should silence when required to do so; most of this is hidden from the user, but one thing you can do is set one of three "snatch levels" for each track. After all, ultimately you know best which Voices should and shouldn't be silenced first.

The VFX stores 120 Programs and 40 Performance Presets onboard (divided equally between ROM and RAM), with a further 60 Programs and 20 Performance Presets on a cartridge which plugs into the VFX's front panel. You can also transmit and receive Programs and Presets via MIDI SysEx.

Any self-respecting new instrument has to have some demo sequences, nowadays. In contrast to those instruments which have demo sequences blown into an internal ROM, the VFX is able to have a range of demo sequences provided for it because it plays its demos off cartridge. The four sequences I heard show off the synth to great effect, and are certainly worth listening to.

The VFX's sounds exhibit a special combination of depth and breadth which no Japanese synth has, and it is for this reason as much as for its inherent merits that Ensoniq's new synth will shoot straight into the big league. There appears to be plenty of depth and complexity in the VFX's synthesis architecture, too, and despite the absence of knobs and sliders I believe the VFX will appeal to programmers of the old analogue school.

At the same time, the two-tiered approach to editing ensures that you can create plenty of sonic variety at the Performance Preset level without having to delve into the synth's deeper mysteries. What's more, it's apparent from the many subtle but neat touches included on the VFX that Ensoniq have really *listened* to musicians.

I don't believe there's such a thing as a universal synth, capable of producing every type and quality of sound you could possibly want. But maybe with the VFX Ensoniq have created a unique winning combination nonetheless. Certainly at the price Ensoniq are asking for the VFX you owe it to yourself to check it out; initial shipments are expected around about the end of May.

I should emphasise that this is a preview based on two-three days' experience with the VFX and a very thorough and competent run-through of the instrument from Ensoniq's American demonstrator. Nonetheless, the VFX has made a very strong impact on everyone in the office during this short time. As to how versatile it truly is, and what its shortcomings (if any) are, next month's in-depth review will reveal all – that is, if we can prise another VFX out of Ensoniq UK. Now, what was their new phone number again . . . ■ *Simon Trask*

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TECHNART TUK200

Pitch-to-MIDI Conversion System

Photography *James Cumpsty*

Since the adoption of the MIDI standard, a variety of units have become available to turn almost any instrument into a MIDI controller – the latest is the TUK200. Review by Debbie Poyser.

PITCH-TRACKING SYSTEMS, designed to give musicians other than keyboard players access to synthesised sound sources, have been around for quite some time now. They take various forms and work with varying degrees of success. Some, like the Synthaxe guitar controller and Yamaha WX7 wind controller, are used instead of the player's usual instrument, while others derive pitch information from "conventional" instruments, which is then converted to MIDI information.

Much research has gone into developing the best of the systems currently available, and any new arrival on the scene is going to encounter stiff competition from the like of Roland, Casio, Canada's IVL Technologies, and many others. With this in mind, British company Technart UK's TUK200 is about to enter the race.

What it is

THE TECHNART TUK200 is a monophonic pitch-to-MIDI system with accompanying chord generator. It's primarily designed for guitarists, though it can be used successfully with other instruments (wind instruments, for example). The end result of using the TUK200 should be that a guitarist (or acoustic instrumentalist) would be able to play monophonic melody lines via MIDI and accompany him or herself with the integral chord generator running from another (or the same, if multitimbral), MIDI sound generator.

The device consists of two parts: a control panel with rotary pots to adjust the various functions, and a matrix of switches representing one octave of a keyboard (though some of these switches also have dual functions); and a pedalboard of seven footswitches which activate the system's other feature: a chord and arpeggio generator.

Both control panel and pedalboard are hand-made and don't conform exactly to the usual matt-black, hi-tech rackmounting box image we've all come to know and love (haven't we?). Slick wouldn't be the word I'd use to describe them; perhaps we could settle on quaint. The casings are sturdy, however, and meant to stand up to the vagaries of live work – it is possible to put your full weight on the pedalboard without reducing it to splinters, although it's not recommended that you make a habit of it. The control box especially is thoughtfully designed, with the controls well-spaced and towards the front of the panel so that if the TUK200 is stacked below a keyboard in a stand they are still visible and accessible. On the rear of the control unit are two seven-pin DIN sockets marked A and B, which must be connected to similarly-named sockets on the footswitch board, two audio inputs, one for high- and one for low-impedance input, a signal output socket marked OUT (providing a pre-amplified version of the input signal), and a five-pin DIN socket – the magic MIDI Out.

Controls on the panel consist of Gain (for input level), OP Level (adjusts volume of input instrument's own audio output), Velocity Adjust, Decay (matches the TUK200 to the natural decay characteristics of the input instrument), a pot marked AB which adjusts the degree of conditioning of input signal by the TUK200 (helps to eliminate brief instabilities like fret buzz on a guitar), and two controls named Mark and Space – these adjust the length of notes and rests when the arpeggiate function is being used. The

matrix of switches to the right of the panel represents the middle octave of a keyboard and is used to assign chords to the controlling footswitches, for use with the chord generator. Some of these switches have dual functions, which include K (Keyboard), allowing the switch matrix to be played audibly as if it represented the middle octave of a keyboard; WR (Write), which is pressed to write a chord being held down into the TUK's memory; B, to activate the Bass function, which derives bass notes from the input notes; R (Root), which enables the root note input to be output over MIDI – these two switches, if activated, will "double" the input note (though both must be played on the same patch from your sound generator); V (Velocity), which, when activated, takes velocity data from the level of the input signal – if not activated, velocity byte data is constant at 60; finally, 16 of the 19 switches are numbered from 1-16. These switches allow you to choose which two MIDI channels you would like the Root and Bass and the Chord functions respectively, to be assigned to. The TUK200 transmits on two channels only, but you can choose which two of the 16 MIDI channels you want it to transmit on. Channel 1 on the TUK200 (assigned by the CH1 switch on the matrix) carries the Root and Bass together and Channel 2 (assigned by the CH2 switch) carries the Chord function. So, say, if you wanted the Root and Bass (or just the Root or Bass) to be transmitted to your sound source on MIDI channel 12, you would need to simultaneously press the CH1 switch which assigns the Root and Bass, and the switch marked 12, and Root and Bass notes derived from your input would then be transmitted on MIDI channel 12. The same goes for the Chord output, assigned by the CH2 switch.

The Generation Game

THE TUK200 WILL simply provide monophonic MIDI control from an input instrument if you like, but having laid out hard cash for one of these systems, it would be a shame not to take advantage of the chord generation facility. As previously mentioned, this is controlled mainly from the pedalboard. Five of the seven rocker switches are "address" footswitches, to which chords can be written; the other two are "special function" switches labelled U (Up) and D (Down). Logically enough, these determine whether the sequence of notes in the currently selected chord arpeggiates up or down. If you hit both U and D switches (an LED will light up on the left-hand side of the board to show which of the special function switches is activated), you can access something called "Strobe". This gives a pseudo-delay effect on each of the notes of the chord that can be quite interesting.

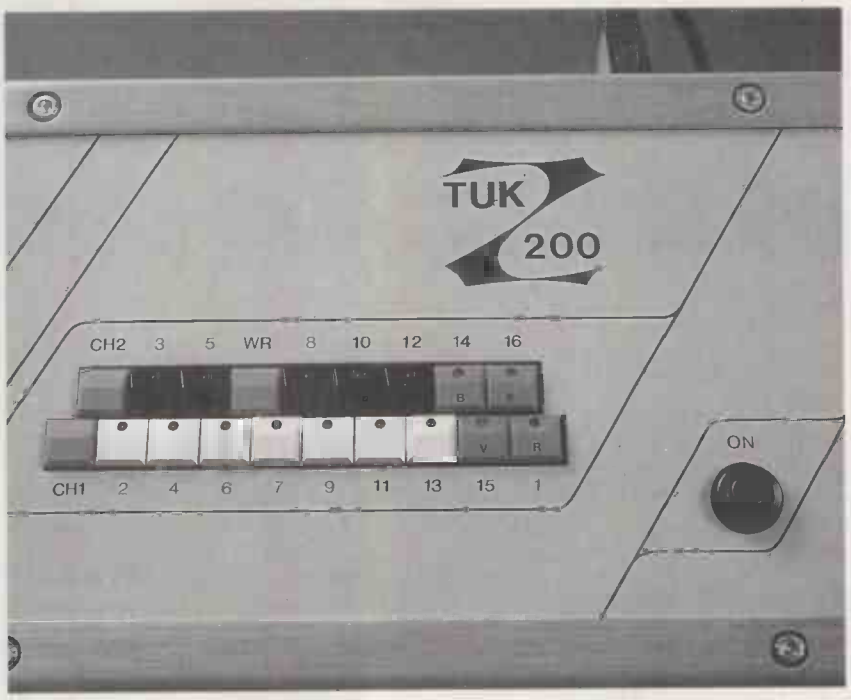
The mechanics of assigning chords to the address footswitches are quite straightforward; with a foot on one of the address switches, form the required chord structure (with your fingers) on the control unit switch matrix and press the WR switch briefly at the same time. LEDs will light up and the chord will be written to that footswitch. In this way, it's possible to, for example, assign a major chord to footswitch 1, a minor chord to footswitch 2, a seventh to number three, and so on up to five chord stuctures, all of which can be used as accompaniment.

When the required chords are assigned, a melody line can be played into the TUK200 and chords derived from the pitches of the melody will be generated according to which footswitch is depressed – in the lower position of each footswitch, the chord generator will generate a new chord for every change in pitch played on the input instrument. In itself this could be of limited usefulness, as you don't usually want a chord change for every note you play. However, the footswitches are of the rocker variety and the "address" set of switches have an alternative position at the top labelled H (Hold). This means that if you don't want the chord to change every time a new note is played, the Hold position of the switch can be used to ensure that a new chord is generated only when the switch is re-depressed. So all you widdly-widdly guitarists can jam away over held chords 'til you're blue in the grass. Using the TUK200 in this way, it's possible to derive quite a complex accompaniment, though the foot/brain co-ordination required to do it smoothly is no mean feet . . . er, feat.

The final two functions of the footswitch board are L (latch) and M (Manual). In normal use, the footswitches are momentary in action; a chord will only be generated for as long as your foot is on a switch. The Latch function, if activated, allows the last chord generated to sustain until either this function is turned off or another address footswitch is pressed. The Manual function allows you to use the footswitch board completely independently of input pitches – depressing a footswitch will result in a chord being generated even if nothing is being played on the input instrument. However, in this mode any chord written to the switches will be treated literally as if it were played in the middle octave of a keyboard. Input notes are ignored as regards chord generation but the Root and Bass functions are free to track these notes as usual.

In Use

PITCH EXTRACTION AND tracking on the TUK200 are very good when the Gain and Decay levels have been set to suit the input instrument. The delay between plucking a string on a guitar, say, and hearing it sound on your source, is minimal and, given a little practice, not enough to cause problems (unless you play very quickly indeed). Setting of the Gain control in particular, is critical – too high and the TUK200 picks up harmonics instead of the central pitch. When this happens, you sound like Sparky's Magic Piano on acid. With Gain correctly set, tracking is even OK on the lower strings (traditionally a trouble area for pitch tracking systems), though it has become almost axiomatic with a pitch extraction system to say that playing technique needs to be modified. The TUK200 prefers a clean attack to a note to begin tracking, and this means it responds patchily to tonguing on a wind instrument. Guitar ►



► pitchbend is another problem area as the TUK200 rounds up a bent note to the nearest semitone.

The chord generator is quite fun to use, though the degree of co-ordination required to play the desired notes cleanly and step on all the right footswitches to accompany them at the right time, is considerable. It can be done, as demonstrated by the unit's developer, if you're sufficiently determined.

The aspect of the TUK200 I enjoyed most was the arpeggiation function, which produces immediate, manic changes in direction and arpeggio depending on what notes you input, which footswitch is held down and whether the arpeggio is scanned Up or Down. Never mind Sparky, this is Philip Glass on acid. However, it's worth bearing in mind that it's not possible to clock the arpeggiator to or from anything, so you can't, for instance, record interesting arpeggios into a sequencer with any degree of rhythmic integrity. Incidentally, the manual mentions that the TUK200 is good for vocal training. I can vouch for this being true - you need to be constantly and superhumanly in tune to make it track properly.

Verdict

WHILE IT'S FUN exploring the TUK200, I can't help asking myself whether it will make the grade in the big vicious world. Alternative guitar controller sytems now proliferate - consider the Casio MG guitars and the more recent PG380, all of which provide a conventional guitar, respond to pitchbend and string glissando, have tremolo arms, and are polyphonic into the bargain. Other dedicated systems include the K-Muse Photon, also polyphonic (and incidentally, also with an arpeggiate function and an 8-track, real-time sequencer with 400-note capacity), though the above do come more expensive than the TUK200. True pitch-to-MIDI systems include the Roland GM70 guitar-to-MIDI interface, which, though now superseded by the GR50, has sophisticated MIDI implementation and 128 program memories; it is also polyphonic and at £700 or so comes reasonably close in price to the TUK200. The IVL Pitchrider pitch-to-MIDI converter (designed for wind players and little more expensive than the TUK200) adopts a similar design to the TUK200, with a control unit and footswitch board, is six-voice polyphonic with a hold function for chord generation, and once more, has a comparatively sophisticated MIDI spec. The systems available are really too numerous to mention.

Originally developed for the personal use of its designer, the TUK200 is out-classed in some ways by the competition, but has the advantage of being accessible and very easy to use. And since its MIDI spec is quite basic, it shouldn't allow you to get into too much of a mess. This could be a boon to its target market, which I'm told is mainly the pub musician.

The arpeggiate function is interesting, and would be even better if it could be clocked from some external source - MIDI drum machine or MIDI sequencer. The pitch-tracking is very good to excellent when the correct technique is developed. The chord generation facility is simple to comprehend and put into operation, though it takes practice to use properly for musical accompaniment. In short, I can't find a lot to pick fault with apart from its targeting. However, it's worth remembering that the TUK200 tracks monophonically and will only transmit on two MIDI channels - and that bearing in mind the comparative sophistication of the competition, the price may look steep to the prospective buyer. ■

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FRONT LINE

Front 242: fascist agitators or sampling stylists? When do samples lose their meaning and become art? Interview by David Bradwell.

FRONT 242 ARE a complex case. On stage they appear to be three angry young Belgians with very little hair and a capacity for danger. On vinyl they become doom-laden sample merchants who make quirky dance records often classified as "new beat". In the flesh they have been known to partake of vast quantities of rock 'n' roll mouthwash and be impossible to interview. Add to this rumours of unsavoury political persuasions and a recent British TV interview which was conducted entirely in French, and the prospect of interviewing them could hardly be described as "inviting". Nevertheless, prepared for the worst, I arranged to meet the band's Daniel B at a hotel on the day of their biggest London concert to date, to discuss music, technology, and the problems of being a Belgian.

Daniel B is the mysterious fourth member of Front 242. He never appears in photographs, and when the band play live he is never to be seen onstage, preferring instead the safety of a chair behind the mixing desk. Despite his low profile, he plays a key part in defining the Front 242 sound. His manner is so far detatched from the Front 242 the public have grown to know and fear, that for the first ten minutes I genuinely thought I was in the wrong room . . .

Daniel B formed Front 242 in 1981 when he was working in a music shop. The band come from a non-musical background, stemming from an interest in the low end of technology. Together they saw synthesisers as a way for them to make sounds as non-musicians, and have since expanded their music directly in line with the technology available. Their working method is unusual in that they seldom work as a group, preferring instead to compose either singly or in pairs, passing cassettes and data disks to each other as tracks take shape. As well as Daniel B, both Patrick Codenys and Richard 23, the band's other two musicians, have home studios based around a sampler, rhythm programmer and four-track cassette machine. The Front 242 line-up is completed by Jean-Luc De Meyer, whose unique vocal style and views on the role of emotion in music have done much to place his band in the media spotlight.

The other reason people are talking about Front 242 is the musical movement known as new beat. This originated in Belgian nightclubs and has filled the void left by the passing of acid house. The media have been quick to point a finger at Front 242 as the leading exponents of new beat, but the band themselves have a very different view.

"People are linking us with new beat because we are both from Belgium and they have discovered us at the same time, but we've existed so long that you can't really associate us with it", Daniel B explains, in a soft French accent. "If you want to, you could say that we initiated the new beat in Belgium, but that's all, we have nothing musically in common. I feel more affiliated with acid house and house in music terms."

FRONT 242 PREFER to think of themselves as making "electronic body music", a term they invented for the sake of distancing what they do from new beat. They were recently quoted on TV denying any space for emotion in electronic body music, but opinions on this differ within the band.

"That was Jean-Luc's point of view because, as the singer, he doesn't get involved with the machines we use, and my opinion is very different", Daniel B asserts. "Because we are non-musicans, we see everything apart from acoustic drums as a machine, even electric guitars. And machines *can* pass emotions. You can treat the sound of a synthesiser so badly that it can inspire fear in people, and fear is an emotion.

"Associations of sounds can make you think of images and an image of people who are in love is indirectly an emotion. We don't try to humanise machines because that would be pointless. They make so many mistakes on their own that we don't need to. MIDI makes mistakes because it slows down if you transmit too much information at once, and with sampling, if you don't cut right on the first byte there is a delay. When you get all of these things happening together the result is not machine-like anyway because there are so many faults. Our basic philosophy is that we like very heavy emotions – like fear and war –but sometimes we just try to create craziness."

The synthesisers Front 242 are using to create these feelings date from 1981, due to their policy of never discarding equipment. Daniel B reels off his list:

"From the early days we have things like the Roland System 100 Modular system, Korg MS20s, and British equipment like the Wasp and Gnat. Then, more recently, we have DX7s, and an Oberheim Matrix 1000. We did throw away the Akai S612 sampler because it was too small, and we have tended instead to stick to S900s and now S1000s. We still have one Emulator II, although I don't know why we keep it because it's always broken. As New Order said, it breaks when you need it, but when you don't it works.

"We buy the latest things if we think they can provide us with something new. We think of ourselves as a very low-tech band and use things that are available to anybody. For effects we use Quadraverbs, Roland reverbs and so on; in fact around 50% of our work is based on the effects we've used. Basslines are originated by a reverb quite a lot, where we only use the wet signal. For example, the bass on 'Headhunter' is only reverb, and if you hear the real bass track of it it's quite different."

On the sequencing side Daniel finds favour with the tried and tested Atari/Pro24 combination. In recent years all Front 242's rhythm tracks have been programmed on their sequencer, as drum machines have been replaced by samplers, although they still retain their Sequential DrumTraks. Sampling is now the single most important element in the Front 242 sound. Daniel B explains what he aims for when sampling.

"We look for quality – not in terms of whether or not it's 16-bit, but what the sample can do musically. We have 30 channels of TV in Belgium from all the countries around us, so you can sample a lot of different feelings and atmospheres from all those countries. When you do that a lot you take the sounds for the sounds themselves, and not for what they could be in a particular piece. We sample a lot from movies, but rarely from other bands. Sometimes you're in the car and you turn the radio up really loud until everything is distorted and you put the Pearlcorder on. You don't remember what you recorded because it's very distorted, but when you loop the sample you can get some really nice sounds.

"We also pass films amongst us, and on 'Never Stop' you can hear samples from *Predator*. Patrick is into noises and things that don't fit anywhere until you put them into a piece of music. I want a beginning and end to my samples – I don't just take anything, but we complement each other. I can't define how Richard samples, but when we get together and listen to everything we've got, everything fits as if it was built by one person, so it's a perfect way to work. We even get cassettes from people in America who like the work of Front 242 and who record samples for us that they would like to see in our music.

"If I don't see people onstage move I can't do the job behind the mixing desk, and if they feel I have my hands in my pockets they think it's a bad concert so they take it easy."

"The meaning of the sample is not that important, although what is said and what it inspires in people is. We try not to give a meaning to the words, because we use anything, there are no taboos. If we have to use communist propaganda we do it, but if we have to use fascist propaganda we will do that as well. There are no borders for us – if it sounds OK we use it. When you use propaganda or politics you have to be aware that the message that those people intended may not come across in your music. When Jean-Luc writes words, they get corrected by the other people and if three people decide a song is about something else he has to begin again. If you take 'Welcome To Paradise', we are speaking of something, but people can't say if we are speaking bad or good of it."

The political side of Front 242 is something that has been causing concern wherever they appear. They employ Nazi imagery based around the colours red, white and black and seem to encourage aggression in their audience. Again, Daniel B seems far removed from the controversy, calmly explaining why they use such political references.

"The meaning of the sample is not important – if we have to use communist propaganda we do it, but if we have to use fascist propaganda we will do that as well."

"It's art, it's like information. I don't know if you have the same feeling in the UK because you don't have the same information we've got in Belgium, but you can't get away from it. When you are in the USA there is a lot of information but it's all USA information. You can switch channels, but it's the same thing said another ▶

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► way. When you are in Belgium you get the German opinion, the French, the UK and the Belgian. That's when you get so informed, because it's four different opinions. You have to make your own mind up because you know none of the four is right. We try to emulate that in the music. We try to put so much information into it that some people tend to get lost. I think in the songs you can find politics, but so much politics that you don't know what is true."

FRONT 242 SONGS begin with the rhythms and work up. While it is easy to spot influences from the likes of Depeche Mode on some of the tracks, Daniel B denies any direct plagiarism. His own influences include Kraftwerk and Can, although he considers it more as conditioning, and prefers to name movements rather than individual groups.

"When we compose, if you can call what we do composing, there are no frontiers or barriers. On 'Never Stop' there is a riff that reminds me very much of something by Depeche Mode, but when you're working on it you have no time to feel that, it's only afterwards that you realise what you've done.

"The way we work on a track depends on who initiated the song, and even then there are no rules. On 'Welcome To Paradise' we used a lot of preacher samples. When I work I tend to always start with a tempo. I tried 120bpm, and I saw that the majority of the preachers in fact spoke and sang at 120. All of the song was built around that tempo, and all of the samples in the song were chosen to fit that pattern.

"We've never started a song with the voice, it's always been the bassline or a rhythm track. 'Blend The Strength' is purely rhythm. We also have our own studio, and that cuts out the need for demos. It's based around a very low-tech 16-track machine with DAT for mastering, but it does the job for us. We feel at ease with what we have and we don't want the big sound of the big studio.

"More specifically, 'Headhunter' was conceived in terms of the effect on the bass and the heavy rhythm, but we didn't think that it would become a song. Then, after Jean-Luc had put some text on it and it had gone round amongst us a few more times, we realised it could be something more than what we call an intro. We see music as long intros, but we never say that this will be the next 12", we never know what it will become even until we cut the master.

"For the moment, my personal opinion is that we don't succeed very much, we only achieve maybe 50% of what we would like to do. I see other people, like Bomb The Bass, S' Xpress and Adrian Sherwood working with the same kind of idea succeeding much better. But you always like more what other people do, and I have a relation with my work that is not a relation of love. I never like what I do. I don't think we do anything we could realise with what we have, but time is our major problem."

Commerciality is something Daniel B actively tries to avoid. The band's latest single, the reasonably commercial 'Never Stop', was originally conceived as one track for a CD, but record company pressures and Daniel B's persistence meant it finally emerged as one part of a five-track package.

"Combined with the other songs it takes another dimension because even if there are influences, the other things should erase what is too commercial", he explains. "There is an interaction between the songs in the minds of the people who are listening, because you can't listen to one song without thinking we also did the other one. For us, what we do onstage or on record sounds soft and it's only when other people describe the music that you begin to realise that you do something very hard. We don't try to avoid commerciality as a group, but I do personally. I hate it, although I'm not sure why."

Sometimes what the band and public see as commercial or otherwise can be wildly different things. For example, Front 242 have a reputation for playing hard, aggressive concerts which can be very intimidating to attend. Because the band are so close to what goes on, they see things very differently. Maybe, after nine years, they have just become accustomed to it. On the whole, playing live is very important to Front 242, but as Daniel B explains, it is not something he is particularly enthusiastic about.

"On stage we use an eight-track recorder because we've had bad experiences with live sequencers – they fail all the time. The Emulator II is the basic sampling machine onstage, but that fails from moment to moment. The Emulator plays a collection of noises, and an S900 does drums and percussion. On top of that, I have a collection of cassettes of different movie noises that I mix in. The basic tracks pass through eight or nine stereo effects, which we change via MIDI. I see playing live as something I really want to avoid, although the opinions differ within the band. When you have the idea for the show, you would like to play up to ten gigs, but if you play three months the challenge goes. We never rehearse, so our state of mind is very important. We've done gigs that were fiascos, but we're not afraid. If I don't see the people onstage move I can't do the job I must do behind the mixing desk, and if they feel that I have my hands in my pockets and they don't hear the sound moving, they think it's a bad concert so they take it easy. In the beginning Front was better onstage than on record, but for the moment it's the contrary, because we cannot pay for the technology we want onstage."

"We even get cassettes from people in America who like the work of Front 242 and who record samples for us that they would like to see in our music."

For the future, Daniel B can envisage working with third party producers, preferably someone working as far away from Front 242 as possible. Particular names he has in mind at the moment are Matt Johnson of The The and David Ball, formerly of Soft Cell, although neither have yet been approached. Whatever the future holds in store, you can be sure Front 242 will outlive the hype of new beat, or whatever the next dance craze may be, continually moving in step with advancements in technology. And as a band they are going to be increasingly hard to ignore. ■

ALTERNATIVE — analogue —

While the major manufacturers play digital mix 'n' match with their gear, the hip musician is moving into analogue technology – and discovering there's more to old synths than the Minimoog and Bassline. *Text by Greg Truckell.*

SOME MUSICAL INSTRUMENTS, particularly synthesisers, are instantly appealing. Others, it must be said, are instantly appalling. As far as first impressions are concerned, the Korg MS20 comes closer to the latter category than the first. I can remember going through the handbook and setting up all the patches of my new synth and being increasingly impressed by how unlike anything else the Korg MS20 sounded – particularly when it was supposed to sound like something else. But after living with my MS20 for about seven years, I've become convinced that it really is a remarkable machine. It's come in for a fair bit of criticism over the years; "thin", "nasal", "reedy" . . . You've heard it all before, and all it tells you is that the MS20 doesn't sound much like a Minimoog. Well, I've yet to hear a fat-sounding oboe, but that doesn't keep them out of the orchestra or the recording studio. Forget easy big fat bass and solo lines for a while. Even in the minimalist pop musics of today, there's space for sounds other than "fat" basses and "thick" lead lines. You can get fat sounds out of the MS20 – if you work at it –but where the little Korg excels is in a different sort of cutting timbre: a thinner sound capable of getting through a smaller gap in the mix.

Introducing . . .

THE MS20 IS a distinctly odd beast to look at; three octaves of keys and a generous 35 knobs to twiddle on a steeply-angled front panel. To the left of the keyboard is a single modulation wheel and a small button. There's also a rather intimidating 35-hole jackfield. This can be quite confusing at first, and is printed with an array of interconnecting lines, arrows and little boxes to ensure it remains a mystery for as long as possible.

The Korg MS series approach to synthesis is probably best described as semi-modular. "Conventional connections" are made by hardwired internal connections, but these can be overridden or supplemented by plugging a patch lead into the relevant socket – like the system you might find on a normalised audio patchbay. The diagrams printed on the jackfield are supposed to explain what the hardwired connections are. While less flexible than a fully modular system, the Korg system is easier to get to grips with, less expensive and more compact. It doesn't make the MS20 a pretty machine, but it makes good practical, technical and ergonomic sense.

Like many odd beasts, the MS20 comes from an odd family. The MS10 was a little brother in all respects (though it would make a useful addition to an MS20). The MS50, a single-oscillator job like the MS10, had no keyboard (one of the earliest expander modules), but did have a few unusual modules – for example, a voltage divider, voltage inverter and a voltage-controlled LFO, where a CV from any source could control the frequency of the LFO. Another relative was the SQ10 24-step analogue sequencer, a useful enough box of knobs with a clock inside it, and a number of modulation pedals, with and without LFOs. The SE500 was a tape echo unit with a CV input for the tape speed – seriously whacky, though sadly guaranteed to glitch if you sent it anything other than very gradually changing CV signals. One of the most useful black boxes was the MS02 interface, which converted both ways between the standard 1Volt/Octave system used by most other manufacturers and Korg's more stable Volts/Hz system, also converting between positive and negative-going gate signals. Although Korg's MS02 handbook said that you should give the MS02 a ten-minute warm-up and expect the occasional need to re-tune, I found mine to be perfectly stable – as were the MS series in general. Korg got round the problem of using inherently unstable log/amp circuitry by using a different keyboard algorithm.

While the MS02 interface opened up the possibilities of using the MS20 with, for example, Roland sequencers (like the MC202 and TB303) there was another little module, called the External Signal Processor (ESP), which was available separately, but was also a standard feature on the MS20. This module was used to amplify and analyse any input signal, allowing the MS20 to derive CV information from other instruments – but don't be tempted to think you could take your Strat and double it with exciting synth lines for the ultimate in pre-MIDI solo; acoustic events in particular, and even electronic instruments like guitars, are too complex for proper conversion into a bunch of analogue CVs. Pitch-to-CV conversion requires analysis of the input

Photography *Malcolm Harrison*

in terms of simple waveforms, where the loudest harmonic by far is the fundamental. In practice you might get away with just under one octave of control, if you play slowly and only one note at a time. Play two notes or more at a time and you get garbage.

The ESP section's most interesting and useful applications lie in deriving a trigger from any input, whether it be acoustic, such as from a click track or a kick drum off tape, or electronic, such as a trigger from a drum machine or sequencer. Using this method to trigger the MS20's filters and envelopes, they can be used to process any audio input – there is an external audio input before the filters and envelopes. You could also use whatever your source of spikes might be just to trigger the MS20, and control the pitch from the keyboard, or from a sequencer. Suppose you had an MC202 controlling the pitch of the MS20 via an MS02 interface, but with the MC202 running independent of the tempo of the song. With the MS20 triggered from a spare drum machine output, or a spare audio output, and a handful of pitches derived from the main key of the song programmed into the MC202, you'd have instant pseudo-random selection from a user-defined range of pitches, coming in precisely on the beats you want. This is an example of the sort of effect you can get from algorithmic composition software like Intelligent Music's M or Dr T's Programmable Variations Generator – only with knobs.

It's also possible to regard the MS20 as an analogue signal processor. Effects like swept resonance gates, or resonant phasing, are easily set up. Effects quite unlike anything possible with other techniques are also worth exploring. For example, take any input which has some sort of sustain to the sound. Send this through the MS20's ESP section and trigger the MS20 from a sequence using whatever techniques you fancy to control the filter cutoff frequency. With short envelopes and resonant filters, this can create stuttering, staccato timbral sequences, chopping up your source instrument and creating something quite new. Having mentioned timbral sequences (in which the interest derives from rhythmic changes in timbre rather than pitch), it's worth adding that the MS20's filters respond to CV signals in the range −5 to +5V, which means that a CV from any analogue sequencer or micro-composer can control the filters, without the need for accurate conversion required for pitches. There's nothing to prevent you connecting the MS20 to anything with CV sockets. Rope in an adding amplifier (as found on the MS50) and you can even hook into the CV pedal input on Ensoniq's ESQ1 and generate streams of MIDI continuous controller data from your analogue system. Watch out for the warranty on the ESQ, though.

Have You Met . . .

THE MS20 HAS two VCOs with waveforms including saw, square, variable pulse, narrow pulse, triangle and white noise. Regrettably perhaps, there is no facility for CV control of the pulse width, which makes it even less likely that you'll get thick, lush sounds from your MS20. VCO2 can be finely and coarsely detuned against VCO1, while both can be tuned over four octave settings. Ring modulation is available for metallic sounds. There are two 12dB/octave filters, one low- and one high-pass, both with resonance from zero to self-oscillating. There are two envelope generators; EG2 is the main envelope, controlling the main VCA, and is a standard ADSR affair with an extra Hold ▶

► parameter, which delays the release stage after key-release. EG1 has three time controls, Delay, Attack and Release, and is most often used in conjunction with the modulation VCA for effects such as delayed vibrato, where the vibrato is not only delayed, but builds up over the attack time rather then just starting at full level once the delay time has elapsed. The modulation VCA allows some fairly clever effects to be created; it has a control input, source input and output. To create delayed vibrato, EG1 is the control input, the LFO is the source, and the VCOs are the destination. Both EGs sport reversed polarity CV outputs on the jackfield, and both of these usefully have a zero volts sustain level. This means you can apply them to the VCOs to obtain a pitch envelope without having to worry about the sustain pitch of the patch being out of tune – but watch out when you release the key.

The modulation wheel is unusual in that it isn't centre-sprung. This means that if you intend using it for pitchbends, you either have to be very careful and keep feeling for the rather weak centre click position, or you only use pitchbend in one direction, and tune the synth so that the maximum travel of the wheel in one direction gives an unbent pitch. For wheel-controlled vibrato, use the modulation VCA with wheel as the control input, LFO as the source and the VCOs as the destination.

Next to the modulation wheel is that little switch – this generates a trigger signal and holds until released. Applications for this tend towards the odd side of things. One that springs to mind is to trigger EG1, with this envelope modulating the VCOs, for an envelope-controlled pitch-sweep. This is handy for wide-ranging pitch-sweeps such as from sub-audio up to the pitch of the held key. A pitchbend like this would be very tricky to execute smoothly with a wheel, especially if it occurred over a second or two. Using an envelope to modulate the pitch smoothly, some really dramatic performance effects can be obtained.

Other features include white and pink noise generators and a sample and hold module. Most people think of sample and hold as being a periodic random CV, usually sent to the filter at a rate determined by the LFO, creating a gurgling filter effect. You can do this on the MS20, but it's only one possibility. What a proper sample and hold module does is to sample the input wherever it's triggered, and hold its output CV at the discrete value obtained from the sample until the module is triggered again. The input could be noise, as is the case in most preset sample and hold modules, but it could equally be an envelope, LFO,, modulation wheel or whatever. Suppose you use the LFO as a source; the MS20's LFO has two waveforms available separately and simultaneously. The LFO waveforms themselves are continuously variable. In one case, you can vary the waveform from a falling sawtooth, through triangle to rising sawtooth. In the other case you can vary from a wide pulse, through square, to narrow pulse. If you're triggering the MS20 from an external source (sequencer, drum machine), then you can trigger the S&H unit on every new note of a particular sequence, and with the LFO set to a slow rising sawtooth, and the modulation destination set to the lowpass filter, the result would be sequences of notes with increasingly open filtering. Since the LFO frequency is independent of the tempo of the music, these timbral sequences would tug against the beat in a shifting manner. Fascinating to hear, easy to control and, again, the sort of thing even sophisticated algorithmic composition software and clever synthesiser programming might be hard pressed to imitate.

See You Soon . . .

THERE AREN'T MANY two-oscillator analogue synths you can pick up for less than a hundred quid these days – few of these will have two filters (four if you count the two in the ESP section). Still less of these two-figure bargains are also sophisticated analogue signal processors.

To me the MS20 *is* like a Minimoog: in a class of its own. When synths were synths and only for synth music, the MS20 wouldn't earn you hero status. But those days are gone – today the more discerning producers have tired of the search for the ultimate snare drum, and are looking for something different, something they haven't heard before. They may hear it in the MS20 – so may you. ■

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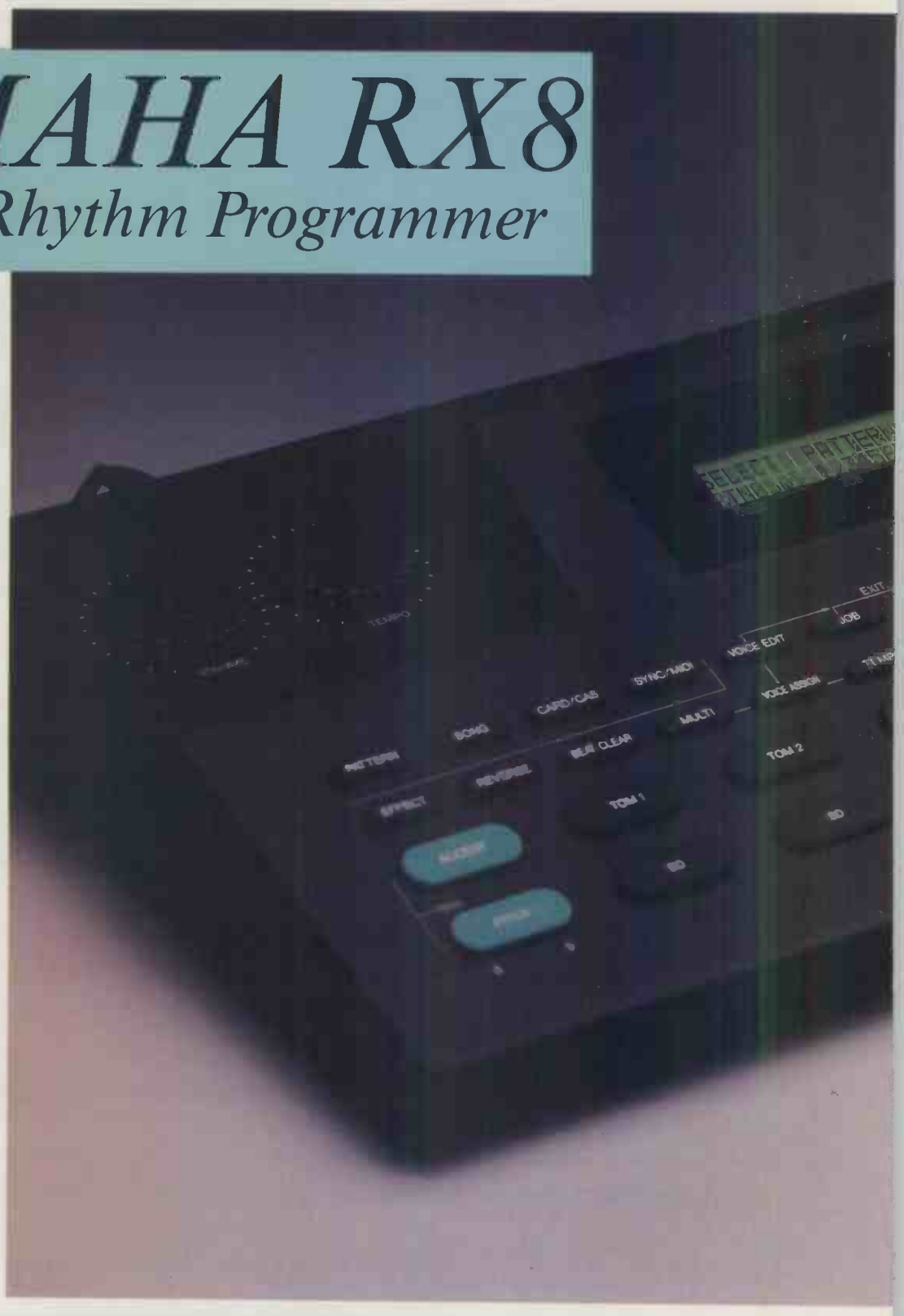
BELONGS TO GIGSOUNDS

YAMAHA RX8
Digital Rhythm Programmer

Yamaha wish to announce an addition to their RX family of drum machines; RX8 takes after his older brother, RX5, but has his own character and costs less. Review by Chris Many.



IF YOU'RE GOING to introduce a drum machine into today's marketplace, it had better have 16-bit samples, a relatively low price tag and a few tricky features to separate it from the competition. That's undoubtedly what Yamaha had in their corporate mind when they planned their new RX8. Offering many of the capabilities found in the company's RX5 (reviewed MT, April '87), their newest drum machine takes a stab at the low end of the market.

Let's get one thing clear from the outset: most drum machines have a unique sound – would you confuse a TR808 with a Kawai R50? So it is with the RX8; it's undoubtedly a Yamaha drum machine. The toms have that recognisable "chunk" at the top end, the hi-hats sound a bit tinny, and so on. The quality of the sounds has been improved since the RX5 due to the 16-bit resolution, but don't expect to hear massive differences. I didn't. To my ears, the RX8 combines 16-bit clarity with a good part of the drum sound of earlier Yamaha drum machines. So if you're familiar with the sound of an RX11 or RX15, you'll have a good idea of what the RX8 sounds like.

Sound Lowdown

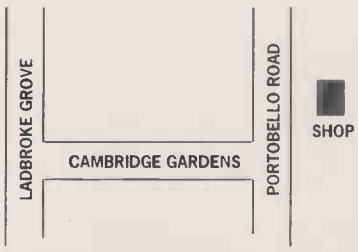
THE RX8 COMES loaded with 43 voices: five kicks, five snares plus a rimshot, eight toms (four acoustic and four electronic), open and closed hi-hats, ride cymbal (cup and edge), claps, tambourine, shaker, congas (high muted, high open and low), bongos (high and low), timbales (high and low), agogo (high and low), cuica and whistle. In addition to these percussion voices, several tuned instruments are included: bass guitar (pull and thumb slap), marimba and orchestral hit.

The unit itself is simply laid out, with 16 rounded rectangular pads used for programming patterns. The

drum sounds are assigned to 12 of these pads, two are used for accent and pitch or for panning adjustments, and the last two are used as Start and Stop/Continue buttons. Above the pads are 26 additional thin rectangular buttons that are used by themselves or in various combinations to access the features of the RX8. A small LCD is placed above these buttons in the top centre of the machine, along with two partly recessed knobs to the left. These control Volume and Tempo respectively. The back of the unit has ¼" jacks for headphones, stereo (or mono) audio output plus two individual audio output jacks, MIDI In and Out (no Thru), a socket for the external DC 12V-15V power supply, and interfaces for both cassette and cartridge storage.

The buttons have a rubbery spring to them so you can tap out your rhythms without getting sore fingers. However, you don't have to worry much about playing the pads with different velocities as there is no provision for velocity sensing on the keypads except in the most rudimentary way. This is one of the major drawbacks with the RX8 as far as I'm concerned, and it alone prevents the machine from sounding like anything but just that – a drum machine.

The one concession made on the RX8 towards achieving ▶



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NASHVILLE CORNER

variety in its output is the Accent button, which basically allows you to increase the velocity of a note when you press it as you program. Adoption of this method of programming guarantees patterns with few dynamics. All in all, it's a rather primitive approach to rhythm programming for 1989. (A comparable unit, the Alesis HR16, has fully velocity-sensitive pads). More encouragingly, if you use an external controller with the RX8 – MIDI drum pads, or a suitable MIDI keyboard – it will record incoming note velocity data, so there is a way to generate dynamic patterns.

Features

YAMAHA'S NEW DRUM machine includes all of the basic features you'd expect a drum machine to have. Programming Patterns and chaining them together into Songs, step editing and quantisation are all to be found somewhere in its spec. Rather than cover each individual feature, I'll try to concentrate on the things that set the RX8 apart from other rhythm programmers, or at least those that are outside the standard list of beat box functions.

First off, I'll give the machine credit for ease of use. I worked just about everything out without recourse to the manual, simply by pressing buttons and following the structured menu paths in the display that are associated with each function. The manual itself is easy to read and has an improved TQ (translation quotient). Given the complexity and sheer number of facilities that can be found on drum machines these days, it's reassuring to be able to pick up a unit and, with no prior experience of it, program a complete track with a minimum of hassle.

Once you've learned your way around the RX8, there are a number of simple short cuts you can use. These are invoked by pressing the "Job" button and another key in combination. This prevents anyone familiar with the unit from having to constantly search up and down menus (annoying when you become expert at operating a machine) and directly access the desired function or feature with a few button strokes. Result: it doesn't take long to become a competent programmer of this machine.

There's a choice between polyphonic and mono playback of notes. This comes in handy when you want snare or cymbal rolls and you don't want the voice cutting off every time you re-strike the note. In poly mode, it will continue to ring out even while you're triggering the same sound.

Simple effects can be programmed through the use of an Effects/Detune button. Essentially, when you press this button while playing a voice, a second, detuned voice is triggered along with it to produce a flanging effect. The amount of detuning is adjustable to suit your taste or intentions.

Even though there are only 12 pads available for programming, you can reassign voices and add different sounds into Patterns as you go. Although it may not be practical to have all 43 voices included in one Pattern, it is certainly possible if that's what you want to do. You don't have to exit from Record mode to reconfigure voices, either. Just keep the Pattern going and press the requisite buttons, change voice assignments and program them in. One other feature unique to the RX8 (at this price level, anyway) is a "reverse" function. By pressing the appropriate button at the same time as a sound button, the sample is reversed, making it easy to create backward cymbal effects or, by combining the effect with a normal sample and timing it a little later, an interesting snare.

MIDI assignment of notes is functionally implemented, allowing each voice to be accessed via MIDI. If you're going to play the machine from an external controller, be it a keyboard or a sequencer, just assign each voice to the desired MIDI note (it doesn't have to be assigned to one of the 12 keypads on the RX8, thus giving you access to all 43 sounds from one external controller).

Multiple quantisation values are allowed within a Pattern as well. You can record your basic kick-n-snare pattern in eighths, say, and then change the quantisation value to program a ride cymbal with a triplet feel without changing the placement of the kick and snare. Unfortunately, the machine's maximum resolution is a paltry 1/48th note, not really enough for subtle timing variations.

A feature included on a few machines, and nicely implemented on the RX8 is the "Multi" button. This takes one sound and spreads it out over all 12 pads, varying the pitch on each one. This allows you to program a simple bassline, or a variety of percussion tones. As long as you're in Multi mode, the entire pad layout responds to pitch, overriding any other sounds you might originally have set up. As soon as you exit from this mode, everything returns to normal. You can also set the pitch range over −12 to +12 semitones (the pitch range is limited to one octave up or down from the original pitch).

Moving on to that cartridge port on the RX8's rear panel, don't get too excited – it's not for additional 16-bit drum samples. But it is a convenient method for storing your drum machine Songs and Patterns. The RAM cards store up to 32K, and partition things off in banks of four. This is plenty of room for four complete memory dumps. You also have the option of traditional cassette storage for the same information, and if you have a sequencer that receives and transmits bulk data, you can store your Pattern, Song and voice information via System Exclusive.

There are three sync modes: internal, MIDI and FSK. All work equally well in terms of what they do, and the RX8 does respond to MIDI Song Position Pointer.

Stereo panning is fairly comprehensive, with the RX8 permitting you to assign any sound to one of 15 different positions in the stereo field. Plus, there are two additional audio outputs to which you can route specific sounds, making it simple to process a single voice independently of the rest of the mix. You can also determine whether or not these sounds appear in the stereo field as well.

Verdict

YAMAHA HAVE DONE a good job of translating their RX5 into a more affordable home studio unit. Its strong points include an easy to learn user interface, a variety of high-quality 16-bit sounds, a cartridge port for storing Songs, Patterns and voice assignments (especially handy for live gigs) and it has a few special effects thrown in for good measure. Programming is very straightforward, although features that allow tracks to be "humanised", or offset during playback to adjust the feel of a pattern aren't on the list of features. The machine's one big drawback, the lack of dynamic programming from its playing pads, can be overcome if you want to program from an external, velocity-sensitive keyboard or other MIDI controller.

I can't fault the sound of the RX8, but due to the lack of dynamics, you're likely to wind up with drum tracks that sound like they've come out of a drum machine . . . not that that's necessarily a bad thing, but it's something to take into account.

So, if you like the sound that Yamaha's drum machines make, can live within the framework of an easy-to-use rhythm programmer, and don't quite have the budget for a more expenive drum machine, check out the RX8. ■

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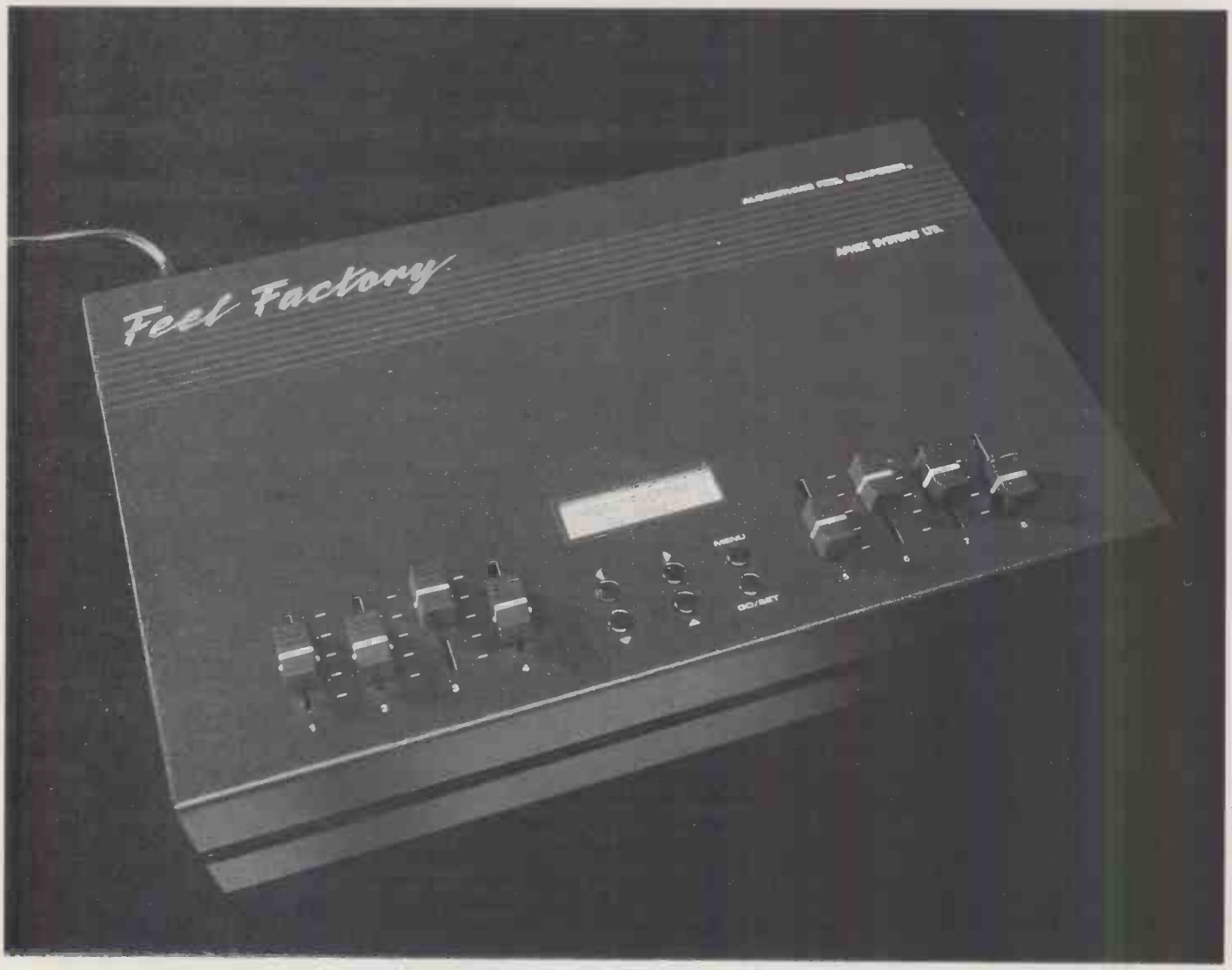
More from *Yamaha Kemble (UK) Ltd, Mount Avenue, Bletchley, Milton Keynes, Bucks. Tel. (0908) 71771.*

"The simple accenting adopted by the RX8's programming system prevents the machine from sounding like anything but just that – a drum machine."

APHEX
FEEL FACTORY



Photography *Melodie Gimple*

The latest revolution to come from Aphex is a box that allows you to adjust the timing and dynamics of MIDI sequences to alter the music's feel. Review by Robert Rich.

WHAT'S THE DIFFERENCE between good musicians and great ones? Michael Stewart thinks that the answer to this question lies in their "feel". Michael Stewart has spent many years trying to capture the essence of feel, and he's invented several gadgets to help us capture that elusive groove. All his MIDI processors share a common goal: to breathe life into sequenced music. Stewart first brought us the Kahler Human Clock which synchronised a sequencer to a live drummer. His latest creation is Feel Factory, a "groove laboratory" that offers control over the "feel" of sequenced MIDI notes.

Theory

SO JUST WHAT is feel? Well, here's the basic theory behind Feel Factory: feel is a combination of timing and dynamics. Imagine a drum pattern in which the kick drum keeps a steady pulse and the snare defines the feel. Snare hits that occur slightly ahead of the beat tend to "push" the rhythm, imparting "drive", "snap", or "nervousness" at the extreme. When the snare hits fall slightly behind the beat, the rhythm tends to sound heavier, "in the pocket", more like an R 'n' B groove.

One factor that probably contributes to feel is called the "precedence effect". When two sounds occur very close together in time (less than about 70 milliseconds apart) we tend to suppress the later sound, hearing the first sound as being louder. The timing of events affects the perception of loudness. It seems reasonable that we could alter the perceived dynamics of a rhythm by changing its timing, and perhaps alter the perceived timing by changing the dynamics. Feel Factory specialises in just this sort of manipulation.

Most musicians probably don't intellectualise too much about feel –it's just one of those mysterious parameters that contribute to a musical performance. Some musicians may even feel threatened at the prospect of analysing such musical subtleties, but whether we like it or not, electronic music gives us control over all sorts of parameters that we've never had to think too hard about before. This degree of control formed one of the founding ideals in early electronic music experiments. (You could argue that MIDI has caused us to take a backward step from these ideals, inviting laziness through its limited assumptions about the nature of musical information.) Alas, it's very easy to create lifeless electronic music. By thinking a bit

about this question of feel, we can hope to regain some of the control hidden within our technology.

I must admit that, at first, I wasn't convinced that feel was such a predictable and quantifiable quality. So when I first came up against Feel Factory I tried a little experiment. I entered the values provided in the manual for a "reggae groove". Instead of feeding it a reggae rhythm however, I tried a quantised rock pattern. To my amazement, the groove of my pattern shifted. It sounded more relaxed, with a definite, though subtle, reggae touch. When I switched Feel Factory to an "R 'n' B groove", the reggae feel disappeared. Hardly a controlled experiment, but it was enough to change my attitude about the validity of Feel Factory's approach.

Practice

SO WE TURN from theory to practice. Feel Factory is a flat metal box designed to sit on a table top, with eight short sliders, six programming buttons and a backlit 32-character LCD. The rear panel of the box holds all the communications connections: One MIDI In, four MIDI Outs, SMPTE in and out, MIDI clock out, Macintosh serial interface, power switch and 9V power input. There are also two extra ports labelled Mac data and MIDI data that are "reserved for future Feel Factory products".

This list should give some hints about the capabilities of Feel Factory. At its most basic level, it can accept incoming MIDI data, process it and spew it out of its four MIDI Out ports. The Mac serial port lets the unit double as a MIDI interface for the Apple Macintosh computer. (Unfortunately, this wasn't working on the review sample, although Aphex assure me that it was working when it left the factory.) Feel Factory can control an external sequencer using MIDI Sync and Start/Stop messages, with an internal tempo of 60-200bpm, and it can also stripe and read SMPTE at 24, 25, 29.97 (drop frame) and 30 frames per second.

There were still some bugs in the user interface of the review sample, but ROM upgrades are promised after the initial release of the unit. However, I doubt that Feel Factory will ever satisfy those in need of instant gratification. The learning curve is fairly steep, and it took a good few hours before I could get it to do anything useful.

In Use

USING FEEL FACTORY involves two steps. First, you have to set up "feel algorithms" and apply them to the appropriate note ranges and MIDI channels. That's the hard part; once you've defined a few presets, recalling and using them is pretty intuitive.

The algorithms themselves provide timing and/or velocity shifts from note to note within a track. Each algorithm provides up to eight values that are used to perform these shifts. These values range from −9 to +9, with each step representing a number that is three times the value. For example, a value of +2 will boost a note's velocity by six, or shift its timing forward by six resolution steps (with an internal resolution of 0.832 milliseconds, this translates into about 5msec).

Different types of algorithm apply these values to the timing or velocity of incoming notes in different ways. The three types of algorithm are called Placement, Frequency and Randomisation. The Placement algorithm acts on different points within a bar of music. Each of the eight values affects a different quaver (8th note) within each bar. Value No. 1 affects the first quaver, value No. 2 affects the second quaver, and so on. The Frequency algorithm measures the time between incoming notes. In this algorithm, the first value affects notes separated by a quaver length, the second number affects notes separated by a crotchet (quarter note) length, and so on up to the eighth value that affects notes separated by a semibreve (whole note) length. The Random algorithm simply cycles through its values, applying the next number in its list to the timing or velocity of the next note it sees.

By applying all eight values in a Placement algorithm, you are by definition processing a 4/4 rhythm. You can reduce the list to correspond to smaller time signatures, or to achieve compound rhythms. For example, applying six Placement algorithm values to a 4/4 rhythm could create a three-against-four accent. I wish that these algorithms could cycle through more than eight values, however. The eight value limitation makes it impossible to add non-random feels to rhythm with more than four beats to the bar. This restriction is unlikely to be a real problem to anyone, however, because the Random algorithm can add life to just about anything.

The eight sliders on the front panel of Feel Factory can be assigned independently to timing or velocity, letting you slide notes forward or backward in time or change their dynamics in real time. You can assign a slider to a particular MIDI channel or a range of notes. These ranges can be applied to continuous notes or separate notes scattered across the keyboard.

A slider can control a range of 127 values, from −63 to +63, but it can only access a range of 64 values at any time. Feel Factory determines these ranges on power-up by defining each fader's current position as zero (this feature is called "auto null"). If a slider is at the bottom of its range when you turn the power on, it will span 0 to +64. If it's in the middle, it will span −31 to +31. You can adjust these ranges in a utility screen or by turning the power off, moving the slider and turning the unit on. Although a little confusing at first, the auto-null feature makes sense once you get used to it. I wish the faders were longer, though, and covered the full range.

The sliders control global changes, like shifting the timing of an entire MIDI channel. For more microscopic changes, you assign one of the three types of algorithm to each of the eight Feel Algorithm locations. You can assign two of these algorithms to each of the sliders (their effects can be additive - a very useful touch), although you can't really control the algorithms from the slider. What you're really doing is assigning two algorithms and one slider to the same MIDI channel or note range. This does restrict your assignment possibilities, but it also makes the assignments a lot easier to understand.

Feel Factory has three kinds of memory. Online memory chews on MIDI data, with eight slider assignments, eight range definitions, and eight algorithms. Recorder memory saves every change that you make to the Online memory. Thirty-two Preset memories let you store your setups. Rather than saving the complete set of machine parameters, a Preset saves only the changes that are stored in the Recorder memory -all the changes you've made to Feel Factory's power-up state. When you recall a Preset, its contents are combined with the Online memory, allowing you to combine the effects of different algorithms. The parameters not replaced by the recalled preset remain unchanged. (By the way, you can recall Presets with MIDI program change commands on channel 16, and you can adjust all Online parameters with SysEx.)

This memory scheme allows you to process all 16 MIDI channels despite having only eight sliders. If you set timing values for channels 1-8 then recall a preset that affects channels 9-16, the values for channels 1-8 will still operate, ►

► although your real time control of the faders will only affect channels 9-16. The intricacies of this memory overlay structure can make the mind swim, but it does have a certain elegance.

Timing & Sync

YOU MAY HAVE wondered how this box can make a note play before it was supposed to. The answer is deceptively simple – it delays *everything*. Its nominal processing delay is around 32msec, which is roughly equivalent to a single SMPTE frame. With a time-shift range of +/–32msec from its 32msec "centrepoint", Feel Factory actually creates delays from nearly instantaneous (with a 1msec processing lag) to 64msec. In effect, Feel Factory is able to push notes ahead of the beat by pushing them ahead of their delayed neighbours.

This delay raises the following question: if you have a tape already recorded with music and SMPTE, how do you "feel factor" a sequence that syncs to this tape via SMPTE without introducing a noticeable time lag? The trick is to nudge your SMPTE start points. Just follow these steps. First, record the sequence without processing your notes with Feel Factory. You can still use the unit as a SMPTE reader to sync the sequencer to tape while recording, but if you monitor your playing through its MIDI connections, the delays will wreak havoc with your own natural feel. Then for playback, if you're using a SMPTE box other than Feel Factory, set the sequencer to start one frame earlier than when you recorded the track. If you're using Feel Factory as a SMPTE reader, it will automatically start one frame earlier than its setting states. As long as you remember that Feel Factory always reads SMPTE one frame early, but processes MIDI one frame late, you can keep track of your delays and avoid confusion. Note that you won't run into delay problems if all your tracks are sequenced and you run them all through Feel Factory – processed or not. Its delays are at least consistent and predictable.

Because so many of Feel Factory's applications involve SMPTE, its internal SMPTE read/write functions will prove quite handy for those without a SMPTE interface. But before you get too excited about its SMPTE capabilities, I should point out that it doesn't actually keep tempo maps or perform some of the other handy housekeeping chores that we have come to expect from a fully-featured SMPTE box. Feel Factory takes a bit more time than usual to catch up to a stripe, and it's a bit finicky about poorly recorded signals. To avoid the slow catch-up time, the manual recommends striping for each song individually and giving at least five seconds lead time before the song starts. I didn't actually encounter any problems while using SMPTE until I tried pushing the limits. Michael Stewart explained that Feel Factory was not intended to be a fully-featured SMPTE interface and to include features like tempo maps would have required extra memory and therefore a higher price tag.

On the subject of timing, I should mention again that Feel Factory has a maximum internal resolution of 832 microseconds (equivalent to two SMPTE bits), about as fine as anyone should need. The sliders give full access to this resolution, while the algorithms work at a coarser 3:1 resolution.

The Future

FEEL FACTORY HAS an interesting future. Aphex, and Michael Stewart in particular, want to see it become the springboard for a new area of musical development. The algorithms themselves may grow more sophisticated with future ROM updates, possible additions including programmable mod-wheel variations and algorithms that modulate each other. As for peripheral developments, the first one I'd like to see would be a screen editor to provide relief from endless button-pressing.

Stewart also says he hopes that people will use Feel Factory not only as a production tool, but as a tool for researching the whole question of "feel". He wants to see people sharing their discoveries with others, and trading Feel Factory presets. If nothing else, the ideas behind Feel Factory may inspire musicians to listen more closely to some very subtle musical qualities.

Do You Need It?

FEEL FACTORY IS not your simple "plug in and jam" sort of gadget. It takes some time to learn. It invites an analytical approach to timing and dynamics. Some might complain that feel should stay in the realm of intuition, and that Feel Factory requires too much pre-planning before you can use it correctly.

However, once you've climbed the steep learning curve required to set up your own feel algorithms, the actual "performance of a feel" is fairly intuitive. Once you have a good setup, you can push sliders back and forth while listening to the subtle (or drastic) timing effects in the music. No other piece of equipment that I know of offers such immediate feedback with this degree of subtle control. Of course, many sequencers will let you do what Feel Factory does, but they won't usually let you hear the changes as you make them. To replicate some of the effects of Feel Factory's algorithms could take hours of individual note editing. Finally, the unit's timing resolution far surpasses that of almost any sequencer.

I would not recommend this device for every starving MIDI musician. Get the essentials first – a good synth, mixer, reverb, multitrack or whatever. If you're a good musician, you can get a good feel without Feel Factory. But if you're looking for that extra something, check it out. This is a learning tool, a research tool, a post-production tool, and now that I've heard the difference, I just might become addicted. ■

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CZ5000 and EZ-Score plus, swap for CZ3000 and Alesis MIdiverb or TR505, London only. Tel: 01-376 4405.

ENSONIQ ESQ1, f/case, £700; Yamaha TX81Z, boxed, £280; Yamaha PF10 piano, £280; Yamaha RX21 drum machine, £150. Gordon, Tel: 01-653 6334.

ENSONIQ SQ80 crosswave synth, multimbral, 8-track seq, disk drive, 4mths old, piano multisample, exc cond, £880. Tel: (024 029) 8145, eves.

FENDER RHODES Stage 73 Mk1 piano, home use only (honest), pristine cond. Tel: Hull (0482) 708863.

KAWAI K1 module, never been used, £325 ono, 7mths guarantee. Tel: St Albans 32228, eves/afternoons.

KORG C2500 PIANO, just over 1 yr old, 76-note wooden, weighted keyboard, 2 pianos, 1 harpsichord, built-in chorus, excellent sounds, MIDI In and Out, studio use only, immac, £850 Tel:(03543) 5239, eves and weekends.

KORG DW6000 synth, flightcase, £375; TB303 Bassline £95. Both good cond. Tel: Nottingham (0602) 817834.

KORG DW8000, good cond, flightcased, manual, 3 cassettes of sound data, bargain, £600. Tel: (08675) 3127.

KORG DW8000, exc cond, £575 ono. Steve, Tel: (0704) 29896.

KORG DW8000 £450 ono; Akai VX90 module £150 ono, Sequential Drumtraks £250 ono; Boss DSD2 pedal £80 ono. Alex, Tel 01-582 8548.

KORG EX800 MIDI expander, Poly 800 without the keyboard, a mere £100. Tel: (0353) 666149 (Cambridgeshire).

KORG EX800 module, £150; Yamaha RX15, £150; Solton Leslie 200W inc horns. Tel: Worthing 690043 after 7pm.

KORG M1, £1200; Korg DDD1 with percussion ROM, £300. Both boxed. Gary, Tel: 01-856 4210, between 6-7pm.

KORG POLY 61, exc cond, £249 ono. P/X + cash for Bit 99. Steve, Tel: (0782) 262286.

KORG POLY 61, incl f/case, £300 ono; ARP Axxe, £75 ono. Tel: Oxford (0865) 776828.

KORG POLY 61, mint cond, hard case, manuals, £300 ono. Steve, Tel:021-230 2068, days.

KORG POLY 61 analogue synth, £250; Yamaha VSS1 sampler, £75; cases, manuals, samples, vgc. Tel: (0204) 693365.

KORG POLY 800 II with DDL, sequencer, f/cased, manuals, exc cond, £220. Mike, Tel: 01-946 4490.

KORG POLY 800 II, superb cond, manual, f/case, MIDI, adaptor, £260. Tel: Coventry (0203) 315122.

KORG POLY 800, s/case, X-stand, leads, manual, perfect cond, £240 ono. Tel: 051-928 4954.

KORG POLY 800II and large f/case, as new, £360. Tel: Bridgend (0656) 63683.

KORG POLY 800, perfect cond, £200. Tel: (0222) 565444.

KORG POLY 800 + case, £175; Korg SQ8 seq (8-track velocity sens), £90; Boss stereo reverb, £65. Tel: 01-393 5368.

KORG POLY 800II, case, £300; DX100 and breath controller, £200; Yamaha CX5MII, disk drive, software, YK01, £450, all onos. Tel: (0276) 20994.

KORG 707 8-part multitimbral synth, home use only, mint, £300. Ashley, Tel: (0604) 34946.

MELLOTRON M400, ex-Cocteaus, needs some work, offers or swap MIDIVerb II, buyer collects. Alan, Tel: (0292) 316608.

ROLAND ALPHA JUNO 1, exc cond, flight case, volume pedal, £350 ono. Tel: Rotherham 540336.

ROLAND ALPHA JUNO 1, immac cond, home use only, £350 ono. Tony, Tel: Shrewsbury 67551.

ROLAND ALPHA JUNO 1 synth, programmable, exc cond, £225 ono. Tel: 051-220 2016.

ROLAND D10 multitimbral LA synth, unused and boxed, as new, £600. Tel: (0582) 401968.

ROLAND D10 £595, unused and boxed, as new. Tel: Sean (0582) 574714.

ROLAND D10, AZ1 remote, QX21, DX7s, Midiverb II, all as new. Offers? Andy, Tel: (0582) 607265.

ROLAND D10 immac cond, 2mths old, £550 ono. Tel: Worthing (0903) 504930.

ROLAND D10 boxed, £600; Tascam Porta Two, £400; Yamaha REX50, £250. Regan, Tel: 021-747 8107.

ROLAND D110, as new, £450 ono. Tel: (0877) 30528.

ROLAND D20 for sale, mint cond, £900 ono. Glyn, Tel: Reading 343819.

ROLAND D20, swap for D10 and K1M or D10 and S700. Tel: 01-857 5572.

ROLAND D20, £799; Tascam Porta Two, £425. Tel: (0483) 578204.

ROLAND D50 + PG1000, £1000; Roland Super JX10, £750; Akai XE8 drum expander, new, boxed, £400. Tel: 01-586 0438.

ROLAND D50, £900; Roland D110, £400; Yamaha FB01, £120; Roland TR707, £225; AKG D12, £96, all as new. Tel: Reading (0734) 584934.

ROLAND JUNO 106 MIDI polysynth, superb fat sound, swap for Amiga or £350. Mark, Tel: (0663) 43388.

ROLAND JUPITER 6, MIDI, £450; also Vocoder wanted. Tel: Sheffield (0742) 334139.

ROLAND JX8P, exc cond, £490 ono. Tel: Rochdale (0706) 351698.

ROLAND JX3P, manuals, boxed, £199. Martin, Tel: 01-751 1603.

ROLAND JX3P with manual, £240; Wurlitzer electronic piano, low-tech classic sound, £150. Tel: (0202) 749778.

ROLAND MT32 with Steinberg Synthworks, £370; Yamaha DX11, as new. Tel: 01-736 5842.

ROLAND MT32, £260; Yamaha TX7 (many sounds extra), £185, swap both for Atari 1040. Tel: (0633) 365758, eves.

ROLAND P330 piano module, £500 ono; Roland DSP2000 presence reverb unit, £275 ono. Jonathan, Tel: 01-603 4907.

ROLAND RD200 digital piano, tremendous sound, home use only, £600. Tel: Bedford (0234) 45920.

ROLAND SH101 together with leads and instruction manual, £85 (other synths offered). Tel: 01-670 2348, after 5pm.
ROLAND SH101 with modulation grip, strap and manual, vgc, £100. Matthew, Tel: 01-550 1451.
SEQUENTIAL PRO ONE, £85; MC202, £75; MC4B, £65; XR01, £35, vcg, swaps? Wanted, CX5M. Jason, Tel: (0525) 717557.
SEQUENTIAL PRO ONE monosynth, exc, £99 ono; Digi-tec b/drum module, £30. Andy, Tel: (0604) 844043.

SEQUENTIAL SIXTRAK polysynth, MIDI, sequencer, arpeggiator, voice stacking, programmable with hard case, £300. Tel: (0272) 426804.
SCI SIXTRAK synth, Oberheim DX drums, DR220E drums, Casio SZ1, cheapest this issue. Pete, Tel: (0382) 50273, after 5pm.
SIEL DK80 5-octave velocity-sens synth, exc cond, £160. Tel: (0462) 51142.
YAMAHA CP70B, £960; Yamaha DX7 Mkl with Syco MX1 expansion, £670, both immac. Tel: 051-356 0019.
YAMAHA DX5, £799; Hammond M100 with Leslie, £250; Mellotron, £250; Yamaha QX7, £99. Tel: Blackburn 47199.
YAMAHA DX7, Syco superchip, 128 internal sounds, £495; Alesis HR16, £295. Tel: (0474) 824104.
YAMAHA DX7/TX7 librarian program for Atari 1040ST with 3600 sounds, £15. John, Tel: (0709) 815644.
YAMAHA DX7, home use, ROM cartridge and stand, boxed, £625 ono. Tel: (0625) 619491.
YAMAHA DX7, exc cond, ROM, manuals, home use only, £650. Marc, Tel: 061-443 1217.
YAMAHA DX7, flightcased, RAMs, ROMs, stand, assorted pedals, mint cond, £550 ono. Ray, Tel: 091-258 0690.
YAMAHA DX7, Syco superchip, 128 internal sounds, £495; Alesis HR16, £295. Tel: (0474) 824104, eves.
YAMAHA DX7, 7 ROMs, complete, boxed, exc cond, home use only, £650. Tel: Rayleigh (0268) 773405.
YAMAHA DX7, good cond, flightcase, sustain, RAM, ROM, cartridges, stand, extras, £680 or offers. Tel: (066 33) 2722.
YAMAHA DX7, superb cond, hardly used, with case and manuals, £575. Tel: 01-907 8400.
YAMAHA DX7 Mkl, perfect cond plus 2 ROMs, 60-voice RAM and DX7 book, £500. Dave, Tel: (0274) 390618.
YAMAHA DX7, 4 cartridges, 2 pedals, manuals, perfect cond, £600 ono; Hohner Clavinet D6, £50. Tel: (0452) 26910.
YAMAHA DX7IID, £950; Roland D110, £450, both boxed, ungigged and mint. Adrian, Tel: (0332) 515320 after 6pm. Can deliver.
YAMAHA DX11, multitimbral, 8-note polyphonic synth, the business! £490. Neil, Tel: Hull (0482) 795413.
YAMAHA DX11, boxed, 5mths old, home use only, £500, no offers. Tel: 01-202 7068.
YAMAHA DX11 synth, all leads, manuals, mint cond, hardly used, £440. Tel: 01-660 3449, eves.
YAMAHA DX11 plus accessories, £450; MV802 mixer, £250; QX5, £250, vgc. Simon, Tel: 01-467 0879.
YAMAHA DX21, boxed, manuals, tapes. breath controller, as new, £300. Tel: Chelmsford (0245) 355194.
YAMAHA DX21, £300; DX27, £270. Both boxed, exc cond, manuals. Tel: (0376) 552484 or 83407.
YAMAHA DX21, exc cond, voice cassette, case, manuals, £350 ono. Tel: (0388) 730512, after 4pm.
YAMAHA DX21, exc cond with manual, offers around £350. Tim, Tel: (0564) 776484.
YAMAHA DX21, boxed, perfect, £300; Yamaha CX5 Mkll plus software, voices, £200 quick sale. Daniel, Tel: (0325) 357104, eves.
YAMAHA DX21, mint, £350; Korg MS10, £50; aluminium stands, 3-tier, £75, 2-tier, £45. Tel: (0625) 33687.
YAMAHA DX21 with hard case, vgc, £290. Tel: (0245) 72572.
YAMAHA DX27, £250 ono, home use only, immac. Andy, Tel: 01-883 4871.
YAMAHA DX27, £300; Roland MKS100 plus 20 disks, £350. Mark, Tel: (0772) 267912 days, (0706) 218056 eves. Delivery N/W.
YAMAHA DX27, good cond, footpedal, manuals, flight case, home use, £500. Peter, Tel: (0742) 348659.
YAMAHA DX27, perfect, part exchange for Casio CZ5000, CZ3000, Akai S612, S700. Tel: (0375) 373221, eves. Buyer collects.
YAMAHA DX100, boxed, manuals, psu, 48 extra voices, immac cond, little use, £180. Tel: (0925 72) 7183.
YAMAHA DX100, boxed, manuals, vgc, £170 or p/x for Korg Mono/Poly. Tel: (04023) 70981.
YAMAHA DX100 synth, vgc, with hard case, hardly used, boxed and with manuals, £235. Tel: (029 671) 2411.
YAMAHA DX100, exc cond with manuals, £180, will swap for Alesis MIDIVerb II. Tel: Stafford 46059.
YAMAHA DX100, immac cond, boxed, manuals, £200 or offers. Jamie, Tel: (0685) 871849 (S. Wales).
YAMAHA FB01 expander, never used, £120. Malcolm Mayo, Tel: Crawley (0293) 776795, worktime or ansaphone.
YAMAHA FB01, Cheetah mother keyboard, £150 ono; Yamaha PSR70, MIDI, boxed, exc cond, £375. Tel: (0684) 40220.
YAMAHA FB01 MIDI sound module, loadsa sounds, boxed, £85. Tel: (0592) 759252.
YAMAHA FB01 multitimbral expander, £160. Tel: 051-678 8564 (Merseyside).
YAMAHA KX1 remote keyboard, cost £1000 but never used, accept £600. Tel: 01-675 0651.
YAMAHA KX5, very rare remote keyboard £175 ono. Iain, Tel: (0450) 73178.
YAMAHA PORTATONE PS6100 with stand, £600, MIDI, touch-sens, 64 preset rhythms, headphones, pedal. Tel: 01-668 7337.
YAMAHA PSR70, immac with stand, still boxed, an excellent keyboard, just £350. Tel: (023 57) 3160.
YAMAHA PSR90, multitimbral, 5-track sequencing, MIDI, 100% customisation, Incredible multitrack recording system, £460. Tel: (0652) 33231.
YAMAHA PSR6300 1yr old, boxed, could swap multitimbral synth, bargain, £625 ono. Tel: Peterborough (0733) 210358.
YAMAHA PSS560, exc cond, boxed and manual, £85 ono. Robin, Tel: Winchester (0962) 65613, eves.
YAMAHA PSS560, exc cond, boxed plus manual, £85 ono. Robin, Tel: Winchester (0962) 65613, eves.
YAMAHA TX7, perfect cond, custom DX7 sounds, £180; Studiomaster 6:2 desk, £185. Tel: 061-429 9323.
YAMAHA TX802, £750; Yamaha TX81Z, £240; Yamaha REV5, £795; E-mu SP1200, £1275. Tel: (0689) 54797.
YAMAHA TX802, £850, boxed, hardly used. Ross, Tel: (0494) 443418 days, or (024 027) 352 eves.
YAMAHA TX802, £800; TXIP, £325; Roland piano P330, £425. Bought Feb/March 89, guaranteed. Tel: (0977) 42270/49100 (West Yorks).
YAMAHA TX81Z programmable synth sound generator, £240. Tel: (0922) 407967.
YAMAHA TX81Z, as new, £235. Tel: (0424) 218711 (East Sussex).

Samplers

AKAI S700, as new, £400 ono. Tel: (0877) 30528.
AKAI S900, boxed, home use only, £850. Ayo, Tel: 01-608 0965 or 01-340 2850.
CASIO FZ1 plus memory upgrade and big library, £950 ono; Atari plus sampler plus Pro24 V3 and disks, £450 ono. Tel: 01-661 7824.
CASIO FZ1, mint, superb library, £850. Tel: Reading (0734) 668709.
ENSONIQ MIRAGE RACK, £495, a diamond piece of machinery in marvellous condition, includes library and Atari editing software. Tel: (0353) 666149 (Cambridgeshire).
HOHNER HS1/E digital sampling synth, cost new £1095, unused, £500 including disks. Tel: (029) 17366 or (02912) 6949.
ROLAND MKS100 sampler, 12-bit, up to 8 secs, boxed, manual, disks, £299. Steve, Tel: (0753) 40243.
ROLAND S10 sampling keyboard, immac cond, home use only, £350 ono. John, Tel: (0474) 323404.
ROLAND S50, mint cond, disks, sequencing software, £1250; colour FST/TV monitor, £200. Dave, Tel: (0249) 713396.
ROLAND S330, boxed, as new, 50 disks, £950 or offers. John, Tel: (0709) 815644, after 6pm.
SEQUENTIAL PROPHET 2000, exc cond, superb sampler keyboard, £650. Tel: 01-249 3727.
YAMAHA TX16W stereo sampler with new easy-to-use v2.0 software and full library, cost £1850, accept £1050. Tel: (0638) 660040, eves or (0860) 545790.

Sequencers

ALESIS MMT8 sequencer, as new, still boxed, £180; 6:2 mixer (Amdeck) by Roland, £80. Tel: (0909) 566695.
CASIO SZ1 MIDI sequencer with manual and psu, exc cond, £80. Tel: Newcastle 091-276 3598.
KORG SDQ1, £199; SQ8, £75; D50 128-voice PA Decoder ROM, £49. Tel: 01-641 6808.
ROLAND CSQ600 plus Roland SH09 monosynth, £200 the lot, will split. Gary, Tel: (0924) 464086.
ROLAND CSQ600 sequencer, 600 notes, step or real time, perfect cond, £75. Tel: (0322) 54877.
ROLAND MC300 sequencer, £475; Roland S10 sampler, £360 or swap expander/drum machine; Yamaha CS70M analogue, £195. Tel: Portsmouth 253275.
ROLAND MC300, absolutely as new, £485; Seiko MR1000, new, £35. Tel: (0440) 707610.
ROLAND MC500 sequencer, perfect cond inc manuals, £550. Paul, Tel: 01-751 0280, eves.
ROLAND MC500 and Super MRC software, £500; Alice 10:4 mixing desk, £250. Jon, Tel: 01-365 0105.
ROLAND MC500 sequencer, perfect cond, including manuals, home use only, £399. Tel: (0202) 512981.
ROLAND MC500 sequencer, perfect cond, including manuals, £550. Paul, Tel: 01-751 0282, eves.
ROLAND MC500 microcomposer plus disks and MIDI leads, £550 ono. Tel: Reading (0734) 664043, after 6pm.
ROLAND MC500 with Super MRC and performance s/ware, £540 or swap for Atari 1040 plus software. Tel: (0633) 365758.
ROLAND MC500 Mkl, flightcased, immac cond, £550 ono. Si, Tel: (0268) 45200, after 6pm.
ROLAND TB303 bassline box, £90; Yamaha DD10 touch-sens drums, £70. Mark, Tel: (0564) 772402.
ROLAND TB303 bassline, Acid house favourite, best offer or trade. Tel: Canada 1-416 862 0056.
ROLAND TB303 bassline, will swap for TR606 drum machine or TR505. Paul, Tel: (0623) 793769, eves.
YAMAHA QX1 sequencer, 80,000 note storage, disk drive, 8 MIDI Outs, boxed, manuals, RRP £2500, sell £450. Tel: (0240) 298145, eves.
YAMAHA QX5, £165; Yamaha RX5, £520; pair Artiste full-range cabs, £225. Tel: (0246) 204291.
YAMAHA QX5, £170; Roland TR707, £190; Yamaha CX5 Mkll, £190; Casio CZ101, £140. Kenny, Tel: (0294) 823691.

Drums

ALESIS HR16, mint cond, boxed, £285. Dean, Tel: 01-979 7931, after 8pm.
A MUST FOR knob-twiddlers, biscuit-tin drums from the analogue Soundmaster SR88, only £25. Tel: Bath (0225) 444285.
BOSS DR220E drum machine, programmable, boxed with manuals, as new, £70. Tel: 01-855 5973.
CHEETAH MD8 drum machine, new, boxed, £130 ono. Tel: (0935) 814911.
KAWAI R50 plus extra soundchip, £240. Tel: (0423) 868876.
KAWAI R50E drum machine, £200, unused and boxed, as new. Sean, Tel: (0582) 574714.
KORG DDD1 with Latin ROM card, exc cond, £275. Chris, Tel: Leek (0538) 382006.
KORG DDD1 with sampling board, like new, £350. Clive, Tel: Bristol 681571.
KORG DDD1 sampling beat box, £350; MKS100 sampler, £325; ART reverb, £100. Pete, Tel: 01-367 1720.
LINNDRUM II, extra soundchips, £550; Roland PG1000, £120; DT100, £85; Yamaha R1000 digital reverb, £75. Tel: 01-446 3098.
MUSIC PERCUSSION COMPUTER, 8 drum pads, 10 sounds, all tunable, separate outs, Spectrum interface, £100 ono. Tel: (0322) 54877.
OBERHEIM DX drum machine, MIDI, separate outs, £200; Tandy 6-channel mixer, only £50. Dean, Tel: (0689) 28055 (Kent).
OBERHEIM DX with extra TR808 chips, MIDI tuning, £195 ono; MIDI sequencer plus interface, £125 ono. Tel: (0342) 323094.
ROLAND R8, CD-quality digital drums, immac, 3 weeks old, boxed, manual, MIDI lead, stunning sound, £630. Tel: Oxford (0865) 721643.
ROLAND TR505, £150, 16 PCM sounds, another diamond piece of machinery, exc cond, Tel: (0353) 666149 (Cambridgeshire).
ROLAND TR606, £69; wanted, Roland TR505, TB303 and Yamaha FB01. Tel: (0803) 294807.
ROLAND TR707, £230; Yamaha RX21L, £100; Tascam Porta One, £240; Roland MC202, £100 onos. Paul, Tel: (0532) 865197.
ROLAND TR707, £220; Yamaha RX21L, £80, both immac, boxed. Steve, Tel: (0386) 792854.
ROLAND TR707, MIDI, sep outs, tape sync, boxed and manuals, immac, £160. Steve, Tel: 051-653 4546.
ROLAND TR707, £195; CX5 Mkll Clone, £95; Accessit Compressor/gate/psu, £75. Swaps?? Tel: Bradford (0274) 488356.
ROLAND TR727 latin drums, mint with psu, MIDI/DIN sync, great sounds, £180. Tel: (03543) 5239, eves and weekends.
ROLAND TR808 beatbox, very good cond, £299. Tel: 01-789 6095, after 6pm.
ROLAND TR808 drum machine, mint cond, exc sounds, buy it now! £250 ono. Tel: (0259) 212743.
ROLAND TR909 48-track drum machine, reluctant quick sale needed, hence £250. Tel: Bath (0225) 742037.
ROLAND TR909, vgc, boxed, £260; M64C (X3), £35 each; SH101 and MGS1, £65. Neil, Tel: Southampton 268523, eves.
ROLAND TR909, Boss BX600 6:2 mixer, offers. Frank, Tel: (0734) 470208, 7-9.30pm.
SCI DRUMTRAKS drum machine with MIDI and individual outputs, bargain, £195. Tel: (0803) 554716, eves.
SEQUENTIAL TOM drum machine, £150; Oscar synth, £180; Simmons SPM 8:2 mixer, £200. Huw, Tel: Oxford 777380.
SEQUENTIAL CIRCUITS DrumTraks, £275; Yamaha RX11, £150, both boxed. Tel: 01-608 0965 or 01-340 2850.
SIMMONS MTX9, good cond, boxed, manual, 3 pads, 2 Pearl heavy-duty double tom stands, Boss DRPII sampled sounds, £500 ono. Tel: Oxford (0865) 721643.
SIMMONS SDS9, McGregor 200+200 amp, Cutec 12:2, TR505 (sep outs), 2 Ohm 15" speakers, stereo 10-band graphic. Mike, Tel: (0253) 826906, after 6pm.

SIMMONS SDS9, black, 5 pads, Pearl twin tom stands, exc cond, offers. Mike, Tel: 01-370 0217.

SIMMONS SDS1000 sound module, vgc, £185; Roland TR727, boxed, vgc, £175. Neil, Tel: Southampton 268523.

SIMMONS SDS1000 plus SDSI rack system, £650; MTX9 expander brain, £250, both for £800. Phil, Tel: (0204) 884482.

SIMMONS TMI 8-channel MIDI drum interface, £180. Frank, Tel: (0734) 470208, 7-9pm and weekends.

YAMAHA RX5, mint, catridge, £550; X7000, as new, disks, boxed, £500 ono. Steve, Tel: (0909) 771581, eves.

YAMAHA RX5, catridges, boxed, £525; RX11, £185; RX21L, £70, home use only. Tel: Swansea (0792) 589296.

YAMAHA RX11, £180; Boss CE3 chorus, £150; Roland SIP30 bass preamp, £80. Tony, Tel: (0429) 869121.

YAMAHA RX17, 26 brilliant drum and percussion samples, once again a diamond piece of kit, exc cond, £145. Tel: (0353) 666149 (Cambridgeshire).

Recording

ACES HS 24-track, serviced, auto-locate, £5000 ono; Aces ML 32-channel console, £2000. Tel: (0359) 31800.

ACES B18/16 console, manual psu, hardly used, £1200 ono. Mark, Tel: (02216) 2450 (Bath area).

ALESIS MiDIFEX, as new, £150, no offers, will mail. Robert, Tel: (0726) 64809 (Cornwall).

ALESIS MIDIVERB II, £180; Roland TR505, £130; CZ101, £110, plus other equipment. Tibor, Tel: Luton (0582) 581997.

AMDEK PEDALS: compressor £29; stereo chorus £39; exc cond. Tel: 01-833 4609

AR122 SPEAKERS 5mths old, £100; Linn Axis turntable, basic arm/ATF5, £250. Tel: 01-736 5842.

ART DR2A digital reverb, £100, swap other gear; Korg DDDI plus sampling board, £325. Tel: 01-367 1720.

ASC 2-TRACK plus remote, £150; Teac 6-channel mixer, £125; Mirage sampler, £650; Yamaha sync MIDI unit, £75. All exc cond. Tel: (0225) 316924.

CASIO ASI0 small 10W powered monitors, battery or mains, good cond, £60 the pair. Tel: (03543) 5239, eves and weekends.

BOSS DE200 digital delay, as new, boxed with manual, £150 ono. Steve, Tel: Horsham (0403) 68292.

BOSS GE10 graphic Equaliser, in good condition. Tel: 01-833 4609.

BOSS RCL10 compressor, £70; Bell mains ADT, £40; Shure Unidyne, £45. Tel: (0594) 37117.

BOSS DMI delay machine, stereo analogue echo up to 400mS, £39. Tel: 01-833 4609.

BOSS KM60 6:2 mixer, rackmounting or free standing, 1 aux, stereo return, stacking buss, insert points, good cond, £75. Tel: (03543) 5239, eves and weekends.

CD QUALITY MASTERING? Super hi-fi video, £295; Roland VP70 voice-MIDI and four pitch-shifters, £495. Tel: (02576) 2609.

FOSTEX A8, complete package, immac cond, accessories, effects, synth included, £1050 ono. Andy, Tel: (0224) 486636.

FOSTEX A4 four-track, 7" reels, recently serviced and aligned, exc cond, good heads, service manual included, £400 ono. Tel: (03543) 5239, eves or weekends.

FOSTEX A8 plus flightcase, good cond, home use only £1000 ono. Tel: Milton 961 0847.

FOSTEX B16, mint cond, hardly ever used, £2550. Mike, Tel: Durham (0740) 51364.

FOSTEX B16; Seck 18:8:2, looms, £3500. Wesley, Tel:(0424) 715761.

FOSTEX B16, second user, good cond, bought 3 months ago, £2300. Tel: (074 62) 2971 (Shropshire).

FOSTEX E16, only a few months old and as new, exceedingly low head wear, £3200. Will haggle (a bit). Paul White, Tel: (0684) 561397.

FOSTEX E16, £2900; Soundtracs 16:8:16, fully wired with patchbay, £1150; REV7, £600. John, Tel: 01-640 7007.

FOSTEX E16, almost new, little used, £4450. Tel: (0202) 743394.

FOSTEX M80, never used, 2mths old, £995 for quick sale. Tel: 021-357 3502.

FOSTEX M80 6 month guarantee, £950; Canary 12:4:2 £250; Aces BM10:8:2 £245. All ono. Tel: (09066) 6450.

FOSTEX M80 8-track, Dolby C, auto-locate, pitch control, exc cond, hardly used, boxed, manuals, £880. Tel: (024 029) 8145, eves.

FOSTEX MN1S 4:1 mixer with compressor (designed for X1S), boxed, mint, instruction sheet, £30. Tel: (03543) 5239 eves or weekends.

FOSTEX X1S multitracker, Yamaha DX100, sell or exchange for 8:2 mixing desk or TX81Z. Tel: 061-789 1550.

FOSTEX X15, battery pack, AC adaptor, A01 mic, all mint & boxed, £200. Tel: Surrey (09905) 8036.

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ABC 33
ARC 35
Audio Software 54
Audio Software (Virtuoso) 25
Axe Music 75

Bonners 35

Chips 63
Company 55 30
Computer Music Systems 45
Creative Recording ..... IBC

Dougie's 9

Elka 40
Executive Audio 45

Future Music (Chelmsford) 55
Future Music (Chelsea) 70

Gigsounds 83
Groove Electronics 63

Harman (A.R.T.) 14
Hybrid Arts UK 62,90

Keyboard Shop 3
Korg UK ..... OBC

London Soundcentre 86

Metra Sound 67
Midi Music 31
Miditec 31
Music Craft 31

Noble's 35

Peps Music 40
Project Electronic Music 37

Quadrant 27

Roland UK IFC/48, 49, 50, 51

Soho Soundhouse 19, 26
Sound Business 45
Square Dance Audio 37
Studio Express 37
Syco Systems 6
Symphonic Software 82

Technics Phone Line 63
Thatched Cottage Audio 91
The Synthesiser Company 1
Tonic Audio 82
Trackman 12, 13

2001 40

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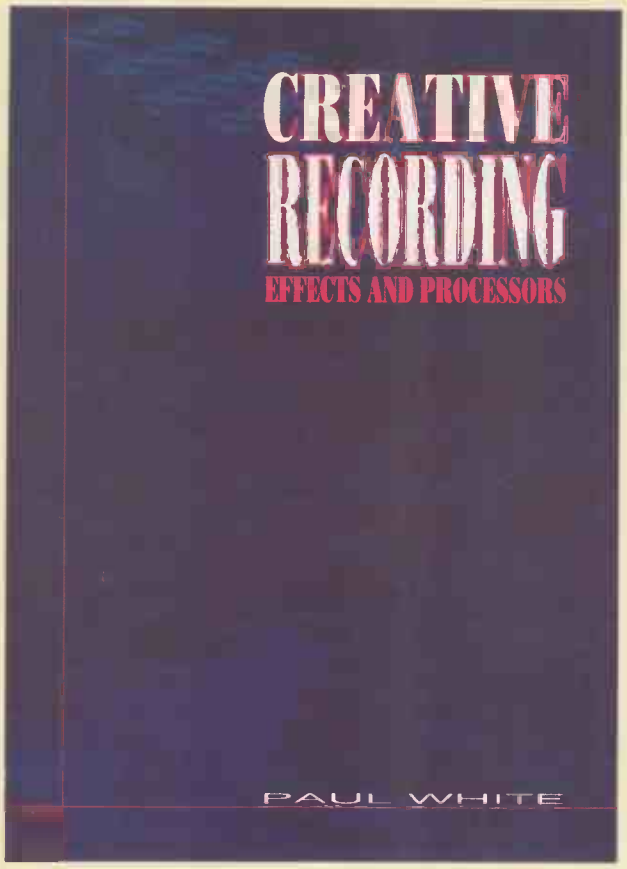

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