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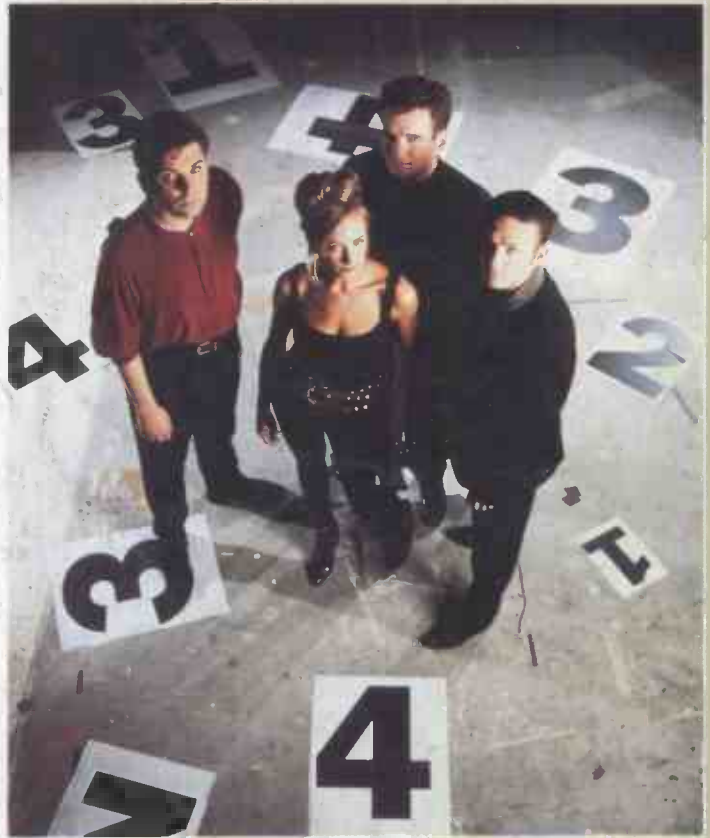
THE WORLD'S PREMIER HI-TECH MUSIC MAGAZINE

July 1990

£1.50

Propaganda

life after
trevor horn



ON TEST

Alesis 1622 Mixer

Tascam 644 MIDiStudio

Roland S770 Sampler

Armadillo A616 Sampler

Magnetic Music Prism

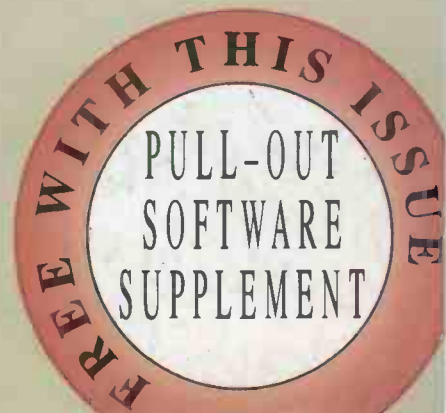
Passport Mastertracks Pro 4



YAMAHA SY22
dynamic vector synthesiser

A NEW MASTER
the ins and outs of DAT

WIN
PC music software



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PROPHET 5 RACKMOUNT

The Studio Electronics range of classic synths have proved to be some of our best sellers. New to the range which includes the Midimoog, Oberack and Harvey 808 is the P5, a rebuild of the original prophet five into an 19" rackmount with extensive midi capabilities. If you already have a rev 2.3 or higher Prophet 5 we can send this to America for rebuilding alternatively a limited quantity of units will be available from June on a first come first served basis. We already have a waiting list for these units, so if you are interested please contact our sales department.



ROLAND S770

4 years in development the S770 sets a new standard in sampling quality. The bottom end is unreal from this 24 voice 16 bit digital sampler with 20 bit D/A converters. The S770 comes as standard with an internal 40 m/b hard drive, digital and SCSI interfaces, output to mono and RGB monitors and is expandable to 16 m/b of waveform ram. An extensive library already exists on both Optical, removeable 45 m/b cartridge and CD rom.



KORG WAVESTATION

Co-designed by Dave Smith of Sequential Circuits fame it would take pages to describe how this synth works. It is suffice to say that it sounds absolutely brilliant. First shipments are due in May and the price will be £1575.00 inc vat.

- KEY DEALS**
1. Roland SBX10 sync box was £200.00 we have limited stocks at £29.00 first come first served.
 2. S/H Emax HD keybd £1295.00 + vat
 3. S/H Emax HD Racks £1295.00 + vat.
 4. Casio VZ10M synth £199.00
 5. S/H AKAI S1000 £1650.00
 6. Casio DA1 ex demo £450 + vat
 7. Apple Mac plus & EZ vision £999.00
 8. Emu Proteus plus FREE editor
 9. Soundtracs Midi PC's from £ 3200.00
 10. S/H Fostex B16 £1495.00.



SOUNDTOOLS FOR ATARI

For all you Atari owners who don't want to invest in a Mac system. Digidesign have announced the release of the Soundtools direct to disk recording and editing system for the Atari Mega 4. Offering most of the features of the Mac system Soundtools ST will sell for £1995

1. Roland S770 stereo sampler
2. Waldorf Microwave synthesizer
3. Yamaha SY22 synthesizer
4. ZOOM 9002 gtr effects processor
5. Apple MacPortable computer
6. Midimoog synthesizer
7. Akai S1000 sampler
8. Russian Dragon timing display
9. Diki Devices RMCD removeable hard disk/cd rom combo
10. Roland D70 Synthesizer
11. Opcode Vision mac
12. Emu Proteus

HITLIST



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8. Optical drives frpm £2995.00 + vat
9. Diki Devices 760 meg drives
10. CD ROMS from £260.00 +vat

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THE ART OF REPETITION

FOR MANY "OLD pros", the distinction between musicians and the charlatans currently attempting to pass themselves off as musicians is the ability to repeat work to order. Not only can the traditional pro musician play in a variety of styles, sight read music and turn their hand to playing at least two instruments, they can structure their music and performance in such a way that they can be reproduced at will - in any situation, from the recording studio to the stage. In contrast, the new wave of "non-musicians" has limited musical technique, little or no grasp of music theory and tends to rely heavily on electronic playing aids like sequencers - consequently the music is difficult, if not impossible for these "musicians" to reproduce without the assistance of their machines. Fair comment?

Claims of new-found "musical expression without musical training" seem to cut no ice with the old-school musician. But does a musician have to be able to reproduce his work to order for it to be acceptable? There's no doubt that the ability of a "classically-trained" musician to employ his or her dexterity and understanding of musical structure to perform in a variety of situations is an enviable skill, and it's an ability sadly lacking in many contemporary artists. But this aspect of repeatability around which much controversy is based troubles me.

It's true, you can stumble on combinations of musical events that make exciting music without understanding why. And a sequencer is perfectly suited to helping you work with music in this way. In this context the sequencer is being used as a substitute for an understanding of the music being made. I'd argue, however, that there's a direct comparison to be made between this and the use of a sequencer in "enhancing" playing technique.

But more than this, I'd question this perception of the value of "repeatability". Isn't the quintessential aspect of a performance its uniqueness? Isn't that what we pay for when we go to see someone play live - that "moment of divine inspiration" in which the band (collectively or individually) surpass themselves, driven by the "moment"? And we've all seen musicians attempting to reproduce solos that have worked well on record in a live situation - and failing miserably. Yet Mark Knopfler insists on playing his studio solos live. . .

But spontaneity has a greater role to play in music, and art in general. To keep this discussion within fairly close limits

let's just mention improvised jazz and performance art as an indication of its importance and variety - neither of these art forms are readily repeatable, yet both are valuable and acceptable.

Chance composition methods have been closely associated with electronic music throughout its development. Although music composed using such methods (anything from dice to computer programs) are open to analysis after the event, the nature of their composition dictates that the composer relinquishes control of at least part of the compositional process to the laws of chance. It could be argued that the composition itself is a performance in its own right - and as such, it is an unrepeatable one. Subsequent replaying of the music is just that - there is no question of recreating the conditions of the original composition in the name of performance, only the finished recorded work remains.

Until now anyone adopting this approach to their music (artists ranging from Brian Eno to Tangerine Dream) have worked largely with multitrack tape rather than computers and sequencers, but computer sequencing offers a more flexible medium at considerably lower cost. And until now the styles of music have tended to adhere quite faithfully to the esoteric/experimental vein. But the explosion of computer sequencing has meant this approach has been adopted by musicians working in many other areas - and it's here that the controversy appears to have arisen. While an unstructured approach appears acceptable in experimental music, it seems to become offensive when applied to more mainstream music. But does it actually make the music any less (or more) valid?

ON A SLIGHTLY different note, you can't have failed to notice that a software supplement accompanies this issue. The reason for our compiling this is to help guide you through the jungle of software that's grown up since computers got a firm foothold in musical circles. The sheer numbers of sequencers, editors, librarians and so on, make it difficult to know what there is to choose from when, let alone make the best choice for your needs. This guide is designed to help put you in the picture.

This supplement is the first of a pull-out-and-keep series that is designed to help you get the most out of hi-tech gear, MT and your music. Keep watching, and remember who your friends are. . . Tg

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With thanks to Master Rock Studios · London.

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If you haven't got your copy of MT's ST virus killer, turn to the Software page immediately - you're not properly dressed without it. And you might find some interesting demo software while you're there.

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As musical interest in PC-compatible machines grows, more American software is finding its way into the UK. Harvey Newquist sequences the PC way.

YAMAHA SY22 40
As the new Yamaha SY family of synths grows, so does its diversity. Simon Trask checks out a junior member with some interesting tricks up its sleeve.



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ROLAND S770

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If Roland samplers have previously been under-recognised by the music industry, the S770 may be about to straighten things out. Simon Trask returns to Roland's super sampler to "delve deeper".

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Passport's Mastertracks has been one of the leading Macintosh sequencing programs for several years. Mike Collins boots up the latest version to check on its progress.

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In 1985 Propaganda produced a seminal electronic music album - then they vanished. Five years on they've returned to pick up where they left off. Michael Mertens talks to Tim Goodyer about technology and the German tradition.

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Readers' own recordings come under scrutiny in MT's demo review column. This month guest reviewer Jonathan Miller stands in for the ever-popular Skum.

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From the manufacturers of the first cassette multitracker comes the Midistudio: a single unit integrating MIDI into a four-track cassette recorder. Nigel Lord calls it "revolutionary".

ALESIS 1622 MIXING DESK

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Already renowned for producing high-quality budget equipment, Alesis have introduced a new 16-channel mixer. Ian Waugh discovers Monolithic Circuit Technology is behind the 1622's amazing performance.

Technology

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No time to lose when it comes to odd metres. Nigel Lord takes a look at "difficult" time signatures in this month's instalment of MT's rhythm programming series.

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50

With Digital Audio Tape becoming widely used for mastering, it's important to know how it differs from its quarter-inch predecessor and how it can benefit you. Vic Lennard acknowledges his new master.

ARMADILLO A616 SAMPLER

64

Still largely neglected by the software houses, the Acorn Archimedes is the host machine for the Armadillo sampler. Vic Lennard investigates a powerful sampling package for a powerful computer.

MARTIN REX

70

In engineering and production - as in musicianship - flexibility and adaptability are precious qualities. Martin Rex has covered artists as varied as Neneh Cherry, Fela Kuti and Michael Nyman - Ollie Crooke listens.



BEAM ME DOWN



Another new arrival from America is Sound Source Unlimited's "Downloaders". Downloaders are sound collections that cater for a variety of popular synths and samplers - currently available are collections for the Roland D50/D20/D10, Yamaha DX7 and SY77, Korg M1, Ensoniq EPS and Kawai K1 (as well as other machines). The sounds come on cards (as

for Roland's D-series and Korg's M1) or on 3.5" floppy disks suitable for loading from an Apple Mac, Atari or IBM via MIDI system exclusive. Watch out for reviews in MT soon.

For more information contact Executive Audio Ltd, 159 Park Road, Kingston Upon Thames, Surrey KT2 6DQ. Tel: 081-541 0180.

OUT IN THE BRIX

Brixton Exchange Mart are pleased to announce the opening of a new 16-track recording facility at their Brixton premises. The studio will be equipped

with Digidesign Sound Tools for the Atari ST, and though it's aimed mainly at the development of local talent, it will also be available for commercial hire.

MT wishes the staff at Brixton the best of luck with the new studio venture. More info from Frank or Chris on 071-733 6821. **Dp**

It seems likely that the IBM-PC and compatible sector is one of the faster growing areas of music software today; there are many IBM-compatible machines in circulation - usually purchased for other purposes - which can usefully be pressed into service for those who want to venture into computer-based music-making without too much in the way of extra financial outlay. Music software, which has been on the scarce side, seems to be on the way up, and one of the latest IBM-compatible packages to hit our news tray is PC-Replay from Luton-based Audio View. As its name might imply, this package is a sampling system consisting of software and a hardware add-on designed to plug into a standard PC

A PC OF THE ACTION

expansion slot to provide sound digitisation. A MIDI interface is incorporated, so that samples can be played either from the PC keyboard or an external MIDI keyboard.

The Sampler/MIDI Interface is an 8-bit system contained in a highly integrated PC half card, providing both sampling and MIDI input and outputs to the rear of the PC. Mono sampling input and twin outputs are provided at standard line in/out levels on standard phono sockets. The MIDI interface is bought out via a 9-pin D-type connector and the package provides the necessary

extension cable for MIDI In, Out and Thru connections.

The software provided with the system consists of a sample editor which gives 'direct-to-disk' sampling and editing. The length of samples is limited only by the amount of free space on the hard disk. The editor supports full cut and paste editing, with sample, play, loop, clear, delete, insert, duplicate, goto, fade, volume, overlay, reverse, read and write facilities.

Incoming samples may be monitored in real time with the on-screen oscilloscope, and samples

held in memory can be analysed using FFT to produce 3D graphical displays of frequency. Sample rate can be varied from 5 to 50kHz on most PCs, depending on processor speed. The MIDI software can handle up to ten samples in memory at once and each can be mapped onto a MIDI keyboard.

System requirements to run PC-REPLAY are: IBM PC or compatible with a minimum of 512K RAM, at least one spare half card expansion slot, hard disk and EGA or VGA graphics.

And the cost of the system? A très reasonable £149.95 including VAT. Further details and ordering info can be had from Audio View Ltd, 2a Russell Street, Luton, Beds LU1 5EA. Tel: (0582) 457348. **Dp**

AMP IN A NEW AGE

AMP Records are to hold two New Age/Synthesiser music evenings. The first, featuring Clifford White, Kevin O'Neill, Mark Jenkins and Thomas Krarup, takes place at Cardiff University music department, Corbett Road, Cardiff on Saturday June 30th from 6.30 to 10pm. The second takes place on Saturday, July 7th from 6.30 to 10pm at the Central Church, Torhill Road, Torquay. This evening features Michael Law, Julian Marshall, Mark Jenkins, Ashok Prema and/or Daniel Biry, and Growing Concern.

Both events include discount record, CD and cassette sales stands and a spectacular video/computer graphic light show. Both venues are within walking distance of BR stations, and access maps will be provided with tickets.

Tickets are priced at £4.50 each from AMP Records, PO Box 387, London N22 6SF, or £5 on the door. If you order a ticket by post, please enclose and SAE and make cheques payable to AMP Records. Tickets for the Torquay event are also available from Never Never Land in Totnes and from Savemore Photos, 13 Crossways Shopping Centre, Paignton. Tel: 081-889 0616 for details of ticket sales in Cardiff or for any other information. **Dp**

Thatch's Third

The third issue of Thatched Cottage's recording magazine, *Foldback* is now out - and it's free. For your copy, call Thatched Cottage on (0223) 207979 or write to Thatched Cottage Audio, North Road, Wendy, near Royston, Herts SG8 0AB. **Dp**

HEY, TEACHER!

Readers of MT in education might be pleased to hear that this year's British Music Fair will focus strongly on promoting the use of music to enrich education. Friday 20th to Sunday 22nd July have been designated education days at the BMF.

The especially good news is that all teachers and musical advisers who pre-register will get free admission (normally £5) to the Fair during the public days (20th-22nd July). It is essential to pre-register - if you don't the full admission price will be charged.

The main focus of the educational theme will be the Learn to Play centre, established to provide information to teachers, parents and anyone else interested in finding out how to learn or teach a musical instrument. The centre will be organised in conjunction

with the Incorporated Society of Musicians and will include representation from various music colleges and teachers. These representatives will be able to advise on how to go about choosing a musical instrument, the type of courses available for teacher and student alike, and even advise on career opportunities in music. All teachers will be provided with a Teacher's Pack on arrival and a separate lounge has been incorporated into the centre for rest and relaxation. Many exhibiting companies have expressed great interest in Education Day and will be preparing information packs for teachers.

For pre-registration forms, contact BMF Teachers, 23a Kings Road, London SW3 4RP. **Dp**

BLAST FROM THE PAST

Joy for impoverished musicians wanting access to every synth under the (usually rising) sun has arrived in the shape of Masterbits' new sampling CDs - high quality stereo samples of the latest synths, samplers and drum machines. All CDs are recorded DDD and available for £29 each or £75 for all three (prices include VAT and delivery).

Sampling Collection 500 boasts 528 samples, including M1, D50, PPG Wave 2.3, Moog, TR808 and

Alesis HR16. *Sampling Collection 600* contains over 600 samples, including Waldorf Microwave, T1, Proteus XR, VFX-SD, Prophet VS, Oberheim Xpander and CR78. Finally, *Sampling Collection 800* features 830 sounds including, Emulator II, Kuzweil PX1000 Plus, Matrix 1000, Roland R8 and MKS70.

More information from AMG, Hurst Farm Barns, Hurst Lane, Privett, Nr. Alton, Hants GU34 3PL. Tel: (0252) 733343. **Jm**

In The BIZ

Yet more education, this time from London Popular Arts, who are running their fifth annual round of songwriting and record business seminars from August 4th this year.

The Comprehensive Songwriting seminar (£69 including VAT) deals with every aspect of songwriting - music and lyrics - from the initial idea to the release of a record. Topics covered include: structure and form, chords and the details of shape, lyrics, melody, song publishing/copyright, and selling your song. Guitar/piano and excerpts from songs on cassette will be used to illustrate the points made, booklets from the various societies and companies mentioned on the course will be provided, and notes listing the basic points from each session will

be issued. The other seminar offered by London Popular Arts, The Record Business (£86.25 including VAT), is tutored by people currently holding positions with both major and independent publishing companies; it covers areas such as The Major Record Label and how it works, How to Become a Record Mogul, The Media and how it works, management/agencies, and song publishing. A full contact list will be supplied.

The courses take place at weekends, Comprehensive Songwriting on Saturdays, The Record Business on Sundays, at 20 Bedford St, Covent Garden, London WC2.

More info and booking forms can be had from London Popular Arts on 071-281 0018. **Dp**

Pen - Pals

Composit software have announced the arrival of two new items for Amstrad's range of PCW computers: Composer's Pen II and Composer's Pen 24.

Both programs are based on the original Composer's Pen, a notation program which was designed "to provide musicians with the freedom that writers have had for many years". Feedback from users has led to the development of Composer's Pen II and 24.

Composer's Pen II has all the facilities of its predecessor, including handling up to 99 staves, 7 clefs, and 20-note chords, cut and paste, text and standard music symbols, full control note and staff

spacing, and comprehensive beaming and flagging. The quality of the printed music has reputedly been improved by no less than 50%. Composer's Pen 24 has the same features as its counterpart, but with a 24-pin printer drive for a higher quality printout.

Composer's Pen II and 24 retail for £74.75 and £89.95 respectively, excluding VAT. Composit Software are operating a special offer until April 30th, whereby the programs can be bought for £69.99 and £84.95 respectively, excluding VAT.

Details available from Composit Software, 10 Leasowe Green, Lightmoor Village, Telford TF4 3QX. Tel: (0952) 595436. **Jm**

ON THE BOARDS

Cambridge University Music Faculty is to be the venue for two evenings of electro-acoustic music early this month. The concerts have been arranged by AGM Digital Arts with the support of the University and your own Music Technology magazine, and will take place on Sunday and Monday, 1st and 2nd July. Amongst the lineup of artists appearing will be Andrew Lovett, Tim Souster, Dr Dennis Smalley and Rodolpho Caesar. One piece of particular interest is that from Anthony Morris, which will involve live ballet and video projection. Mr Morris warns it will be "very loud".

Another notable aspect of the event is the use of the newly-developed CSP Ambisonic environment system and active

soundfield speaker system. This promises to add another dimension to the audience's experience of the pieces being performed.

Of the two evenings, Sunday is intended to contain lighter pieces, while Monday should suit the genre's purists. The event is guaranteed to be bullshit free (a frequent problem with such events) and members of MT's staff will also be in attendance should you wish to buy them a drink.

Entrance by programme is £6 (£4 for concessionary entrance, block bookings of four or more tickets qualify for additional discount). Further information and telephone bookings available on (0353) 667707. **Tg**

ACCESS UNLIMITED

Recording Access for Music Production for the disabled (RAMP) is a charity which aims to bring music playing, composing and recording within the reach of the disabled.

Using the latest technology and MIDI systems linked to computers, synthesisers, and recording equipment, disabled students, even those with minimum mobility, will be taught to compose, conduct and perform their own creative ideas. Motor van units will be equipped as compact mobile recording studios, and those

disabled who are not mobile will be catered for at their own centres.

Trustees have a wealth of musical experience and dealing with the disabled, one being severely disabled himself, and can demonstrate the above projected aims.

Considerable financial assistance is needed with equipment, vehicles and money - please contact Paul Monaghan, Roy Cramer or Howard Davies at RAMP, 14 Challis Road, Brentford, Middlesex TW8 9PR. Tel: 081-568 5266. **Jm**

► Back in MT November '89 we ran a feature on US company Lone Wolf's networking protocol MediaLink, which promises to take MIDI into a new era of communication side by side with digital audio and video data. Last month

Argent's music store in central London provided the venue for the UK launch of MIDI networking using Lone Wolf's MidiTap and FiberLink boxes.

MediaLink, to quote the advertising blurb, "draw on the networking practices of the computer industry and combines them with the fibre-optic technology that has revolutionised telecommunications over the last decade".

In fact, MediaLink's ability to transmit MIDI data via fibre-optic cable is a significant development in itself, before you even get to the networking. This is because, where standard MIDI cables can't be run over more than 50 feet without the risk of data errors, MediaLink's fibre-optic transmission allows MIDI data to be passed error-free over distances of up to 2.5 kilometres. That might seem a trifle long for the typical bedroom studio (unless you

NETWORKING MIDI

fancy working in the garden) but for live stage applications, or for studio complexes which want to run MIDI data between different studios, it's got to be a hit. In fact, a pair of Fiberlinks were used recently on a Tina Turner tour to enable a rack of MIDI gear located offstage to be hooked up to a MIDI grand piano onstage.

For long-distance MIDI communication without the networking capabilities, a pair of Fiberlink boxes and a suitable cable are all you need. The boxes are small and unobtrusive, so they can be tucked away easily, and all you have to do is make the appropriate MIDI In/Out and MediaLink in/out connections on each box and you're away.

The 1U-high 19-inch MidiTap unit is rather more ambitious - not to mention rather more expensive. With four MIDI Ins and Outs, it can be used by itself as a routing and merging box. Alternatively you can hook it up to another MidiTap if you

want to get into networking. Argent's three-storey shop layout provided the ideal setting for demonstrating both the long-distance and the networking capabilities of the MediaLink system. When you can hear a Roland U20 on the second floor and a MIDI grand piano on the ground floor both being slaved to one another, and a rack of MIDI gear on the first floor being independently slaved to both instruments in a manner remotely controlled from a MidiTap unit situated on the second floor, you realise that this is a significant step forward for MIDI.

MidiTap and Fiberlink aren't replacements for MIDI but a means of extending its range and enhancing its capabilities - though it's quite feasible that at some point in the future we'll see MediaLink implemented directly on high-end instruments, not to mention digital recording equipment. MediaLink isn't an industry standard, but by virtue of the fact that Lone Wolf have gone ahead and done it and nobody else

seems to be competing with them, it could quite conceivably become one - Lone Wolf are prepared to do licensing deals with other manufacturers who might want to incorporate MediaLink into their own products.

MidiTap comes fitted with an RS232 interface for communication with a computer. One advantage of this is that you'll be able to download system software upgrades via modem from Lone Wolf and then transfer them via RS232 to the MidiTap(s), where they are automatically blown into an EEPROM chip. Neat. Another advantage is that you'll be able to use visual editing software as opposed to a poky LCD for editing MidiTap's LANscapes - in fact, Opcode Systems are working on editing software at the moment.

Fiberlinks cost £470 per pair including a 100ft fibre optic cable, while MidiTap costs £1795 including a 12ft cable (both prices exclusive of VAT).

More from Plasmec Systems Ltd, Weydon Lane, Farnham, Surrey GU9 8QL. Tel: (0252) 721236, fax: (0252) 712718. **St**

SAMPLE AN ATARI

If the Atari's your particular studio workhorse, you may be interested in the AVR Pro-Series 12 sampler, a new 12-bit sampling system for all Atari STs. The package is a hardware/software combination consisting of an externally-mounted cartridge and Drumbeat and MIDIPlay software. Sampling is performed by the cartridge, using its own inbuilt 12-bit converter and output is provided by a 14-bit device to ensure that polyphonic output does not degrade the quality of the samples.

The software provided offers a sample editor featuring cut and paste and all the other useful doobries you'd expect to find. In addition, samples may be digitally enhanced using Special Effects such as Echo, Reverb and Flange. The editor can also load and edit ADAP I 16-bit samples, with other formats to follow.

The Drumbeat software is a MIDI-compatible sampling drum machine program, with 15 kit positions, into which can be loaded customised sample kits. Patterns can be edited on-screen with the mouse in a grid edit fashion. Drumbeat also allows the loaded kit to be played from external MIDI drum pads and can assign the samples to three levels of velocity split.

Using the MIDIPlay software it's possible to turn your ST into a polyphonic extension to an external MIDI keyboard or sequencer. Memory permitting, MIDIPlay can store up to 128 samples and assign them to any MIDI note or range of MIDI notes. All samples can be mixed and can be tuned and programmed to respond to pitchbend, MIDI loop, instant key release, and so on. Maximum polyphonic response is four notes or voices and is selectable.

All this will set you back the sum of £245 including VAT.

More info from Audio Visual Research Ltd, 2a Russell Street, Luton, Beds LU1 5EA. Tel: (0582) 457348. **Dp**

KORG POCKET ANATEK

Korg UK have taken over the UK distribution of the exceedingly dinky Anatek range, including the Anatek Pocket range of MIDI accessories. Anatek have also introduced the Studio Merge, a rackmount 8-In, 8-Thru, 1-Out professional MIDI merger, and more launches are scheduled for the coming months.

More info from Korg UK at 8-9 The Crystal Centre, Elmgrove Road, Harrow, Middlesex HA1 2YR. Tel: 081-427 3397. **Dp**

DIGITAL GATEWAY

The Gateway recording school have announced a new week-long course on digital technology, commencing this July.

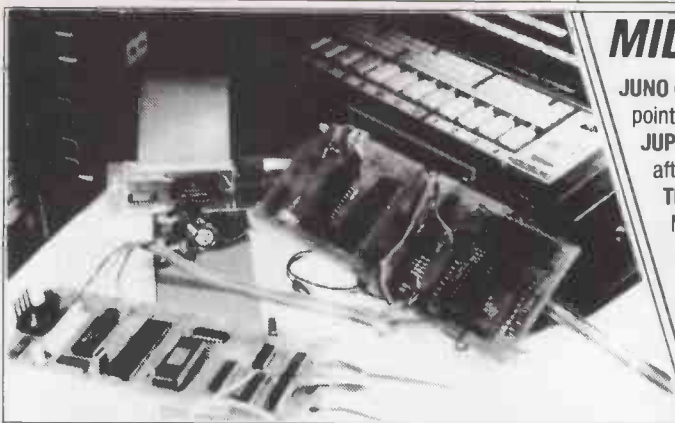
The course is entitled *An Introduction to Digital Audio Systems*, and will cover both the basics of digital theory and "short-term" recording systems such as samplers and effects. Other days of the course are devoted to signal processing, direct-to-disk recording and digital editing.

The new Gateway one year full-time courses are also up and running and the second intake began their course at the beginning of May. The next one-year course will start in January 1991 and already there have been many applications for places - if you're interested, apply soon, as each intake is restricted to only ten people.

Gateway are adding a new 16-track teaching room to their existing facilities and this will give them a total of three 16-tracks, two 4-tracks and three rooms devoted to the study of MIDI and sequencing. Another room has been set up for anyone who is interested in the study of analogue synthesiser systems.

For more info on any of the above, contact Gateway at The School of Music, Kingston Hill Centre, Surrey KT2 7LB. Tel: 081-549 0014. **Dp**

MUSIC TECHNOLOGY JULY 1990



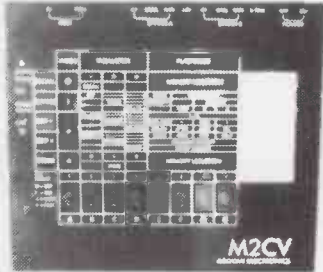
MIDI RETROFITS

- JUNO 6/60** MIDI IN, THRU, OUT. Assignable MIDI channels, Transmit split point, patch changes etc..... **£95.00**
- JUPITER 8** MIDI IN, THRU, OUT. Note information, velocity, controller and aftertouch. System dumps, Patch changes, splits and more **£115.00**
- TR808** MIDI IN & THRU. Receives note data with velocity on assignable MIDI channel and/or MIDI clock (Start, stop and clock) **£95.00**
- DRUMULATOR** MIDI IN & THRU. As per TR808..... **£95.00**
- PF10&15** Turn your PF into a useful Mother Keyboard, with split, notes with velocity, patches, sustain and channels..... **£115.00**

THE KITS

Each kit consists of all parts to complete the modification. All are internal updates requiring some soldering. Step by step instructions.

MIDI CONVERTERS



M2CV

MIDI to CV converter for 1 Woct Monosynths. Assignable receive channel & trigger type. Unit receives Pitchbend, velocity and aftertouch each in varying amounts. Add to this basic single CV converter the following options to suit your needs and you will have the ultimate in control in one self powered box.

- OPTIONS** **£110.00**
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- WASP Control and EDP WASP on a third MIDI

- channel..... **£20.00**
- BGRAM Retention of all programmable parameters..... **£20.00**
- Other analogue MODS..... **£35.00**
- TB303 Bassline CV/GATE inputs..... **£35.00**
- SH101 Filter INPUTS..... **£35.00**
- LINEAR CONVERTERS for Hz/Volt monos..... **£35.00**
- MSYN24 Standalone clock converter 24 & 48 ppqn..... **£85.00**

M4CV

4 channel 1U rackmount MIDI to CV converter. 4CV Gate and Filter outputs on independent and assignable MIDI channels. Each receiving pitch bend, velocity, aftertouch and Med wheel information. Each channel can respond to any or all in varying amounts. Options available as M2CV but fitted with DINSYNC and 12 trigger outputs as standard **£275.00**

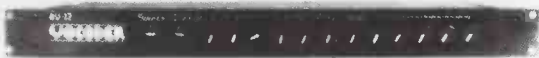
M-TRIGGER

1U 19" Rackmount unit having 6 trigger outputs for SIMMONS, UP5 Drum 'Brains' Triggers 0-10 Volt outputs and are variable in accordance with Velocity information. Receive MIDI channel and trigger notes are programmable **£175.00**

MIDI PROCESSING

MIDI Data Merger having 2 INs, 2 THRUs and 2 OUTs. INs are routable to OUTs and data can be filtered from either stream selectively. Filtering of Note, pitchbend, controller, aftertouch patch, realtime and exclusive information at the push of a button. Also for synths with early or limited MIDI specs. Ability to set split points on synths without ie DX7 I, DW800. Ability for synths receiving all MIDI channels to receive on any MIDI channel ie JP6, Prophet 600. Ability to have 3 thru outputs fitted to MERJ unit. Filtering of controller data on specific channel etc..... **£115.00**

SPEECH



BV-12 VOCODER

A general vocoder with source and control inputs and 12 taps for Filter level control. 1U 19" Rackmount format, at a price you can afford **£799.00**

ORATRON

ORATRON is a speech synthesis system aimed specifically at the music market. The unit is under MIDI control permitting sentences to be constructed within the machine and the triggered or synced to specific MIDI data. Pitch of the voice can be changed using the Pitchbend wheel and volume is under velocity control. Add to this metering (rhythm) control and you can create realistic speech without uttering a word, and all storable in your sequencer..... **£199.00**

MIDI LIGHTING

If you need an interesting light show for your act, but don't have a spare pair of hands, let the MIDI LITES turn that spare sequencer channel into a display with variety and interest. Just add the Lamps and this 2U 19" rackmount unit will take control of 8 power channels of up to 1KW per channel.

(Loading can be lamp or spot lamp loads.)

Control of channels is through note ON data or the MIDI clock.

Lamp on time is assignable as is the receive MIDI channel. An internal light sequencer is also available for syncing to the MIDI clock.

Add to this a further 8 channels of power on another MID channel and slave the POWER PACKS together and you are left with a complete lighting system in perfect time.

MIDI GATE

This controller is aimed at acts that already have a lighting desk. The control has 6 output triggers with 0-10 Volt outputs.

This permits the brightness of lamps to be controlled from velocity and allows gate on time to illuminate the lamp for a time representative of note on/off data.

The unit is 1U rackmounting and can be set to receive on any MIDI channel and be set to receive any MIDI notes.

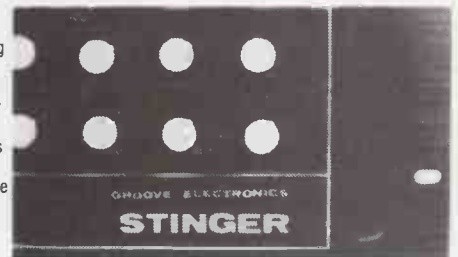
Ultimate control over MIDI for existing light desks.

- MIDI LITE CONTROLLER **£325.00**
- POWER PACK **£215.00**
- MIDI GATE **£225.00**

SOUND MODULES

STINGER

The STINGER is a 4U 19" Rackmount unit incorporating independent synth modules. Each synth is based on the EDP WASP and each is under its own MIDI control. 2 oscillators per synth means 4 oscillators per unit if both are set to receive on the same MIDI channel, for that truly large analogue sound. Extensive MIDI control, new features and loads of user control makes this a synth to be reckoned with..... **£499.00**



M303+

A 1U 19" rackmount module featuring a dual channel MIDI to CV converter built in, and a voice module based on the TB303 Bassline fixed to one of the CV channels. All the usual control with filter under MIDI control, makes this module both quick and easy to use. Both CV and Gate outputs can also be used with any other suitable monosynths. CHECK IT OUT..... **£249.00**

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KORG M1R

Rack mount version of the M1 £POA

ROLAND U20

Sample player keyboard with FX. 6 instruments and 4 separate outputs, 31 note poly, New D to A sound filter offers improved Signal to Noise ratio and cleaner sound. Great guitar sample. Expandable by PCM card library. £1,050 RRP

ROLAND U220

Rack module version of above. £665 RRP

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16 bit samples, filter, built in FX, sounds superb £899 RRP

KAWAI K1 II

Based on the ever popular K1, with the added bonus of a separate drum sound section and effects £665 RRP

ROLAND D70

New LA Synthesizer powerful live performance keyboard - multi-timbral effect, 76 keys. £1699

YAMAHA SY55

8 Track Sequencer, 16 bit AWMZ sounds, 64 preset voice ROM 64 voice internal RAM memory, 34 high quality effects. £1690

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TG55 16 voice, 16 note poly, 32 FX, 2 meg sample memory, expandable cartridge ports for extra PCM samples £749



TRACKMIX 24

by Studiomaster. 32/12/24/2 Modular/MIDI Console, if you're thinking of going 24 track it's going to be well worth your while checking out this console, see it now at Gigsounds along with the new Gold range mixdown and Proline Consoles.

SOFTWARE

C-LAB Creator/Unitor/Notator.
Steinberg Pro 24/Cubase. Hybrid Arts.
Software for ST and Commodore ATARI
1040 STE, Stacy Portable and Amiga Multi-tasking

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TWO NEW MUSIC COMPLEXES IN LONDON

mad computer disease

First of all, let me say thanks for a great mag.

The May issue dropped through my door and I read with great interest your editorial on networking for musicians. A few thoughts crossed my mind which I'd like to jot down.

If my memory serves me correctly, networking and bulletin boards use public telephone lines and are therefore, reasonably open to access. Does this mean information carried on them would be open to infection from computer viruses? I can appreciate that if anyone buys software that's been copied, there is a risk of a virus being present, but does this extend to networks?

After all the problems that have been experienced with business systems, what extra precautions can be taken to ensure that a network set up for MIDI musicians is safe? Surely, a network is very susceptible to being infected with computer viruses.

Stephen Hide
High Wycombe
Bucks

You're quite right to be cautious when it comes to dealing with networks and bulletin boards, Stephen. Apart from bootlegged software that changes hands in the mail or at conventions, bulletin boards are the easiest way to spread computer viruses.

There are, however, two main ways viruses can be kept in check. The first is that the bulletin board manager must be careful to "vet" the people he allows onto the system (this is difficult if access is free - The Music Network, Performing Artists' Network and GENie are not), and keep an eye on their activities. The second precaution should be taken by you -

you should virus-check any software you download from the system AND any you upload. Remember, a virus is just as destructive when it is passed unwittingly.

You can rest assured that both the American PAN and the British TMN are in the hands of people whose interests lie in running a professional (and therefore "clean") network. If subscribing to a music network appeals to you, I suggest you contact Richard Elen (director of The Music Network) at PO Box 5, Somerton, Somerset TA11 6SX for further information. Tg

sleeping partner

Yesterday, after reading the review of the MIDIttemp PMM88 MIDI patchbay in June's MT, I promptly realised that this was "that last module" I needed to consolidate my MIDI rig. So, at about 2pm, I called The Synthesiser Company and ordered one - meekly expecting to receive the beast several weeks hence.

But lo and behold, today at 9am I have been woken to be confronted with the delivery of one fully functional PMM88. Now, that's not bad - considering I live over 500 miles away. And it does everything you said in your review too. Top marks to The Synthesiser Company and Music Technology.

Dr Ken Sharman
Glasgow

You had to be woken at 9am, Ken - what is the NHS coming to? Tg

personal services

Re: Communique, May issue of MT - Oberheim service documentation.

I would be interested in purchasing a copy of the OBXa documentation for myself, and in particular, service information for the OB8, as several colleagues of mine who also own

these synths cannot use them because of faults.

If any of your readers require documentation on the Oberheim 2, 4 or 8 voice synths, I have the schematics and you may print my name and address so that they can contact me.

Bob Williams
101 Tregonissey Rd
St Austell
Cornwall
PL25 4DL
(0726) 65404

PS I'm desperate for an ARP 2600, do you know of any going?

boot boy

Not wishing to put the boot in (being a very reasonable fellow and all that), my sympathies go out to Andy Boucher (re. his letter in the June issue of my favourite mag). I too have suffered at the hand of the dreaded Club 68000.

During my visit to the last computer show at Alexandra Palace I purchased a Steinberg 12 from Club 68000 at a so-called bargain price. When I got home what did I find? Yes, you've guessed it, the registration address was somewhere in the Netherlands. I telephoned Evenlode (UK distributors of Steinberg software) to see if I could register it with them - and naturally I couldn't.

The copy of Steinberg 12 was quite genuine, but marked "promotional item", and was intended to be sold, I presume, in the Netherlands with an Atari package. It works OK apart from one minor bug, and has given me hours of pleasure - so much so that I have since upgraded to Pro24.

Unlike Andy, I don't earn my living from my gear, but - amateur or professional - who needs this kind of aggravation? In my experience, most people selling music

technology are quite genuine (although there are always those who are only interested in your cheque book). My advice: don't miss out on a bargain, but do stick with Andy's "dos and don'ts" and you won't go far wrong.

Club 68000 - vikings in disguise.

John Rich
St Albans
Herts

Andy has since reported that Atari UK have taken him under their wing to the extent that he and the rest of Beats International put in an appearance at the recent Atari '90 Show. Now that's what I'd call customer support. Tg

apath. . .y

Just a line to say thank you for publishing my "apathy" letter in the May issue of MT. It's reassuring to find someone out there who actually cares.

I realise that my views are unlikely to make me popular with most of your readers - or my studio clients, for that matter - but I do feel that this is an important issue that should be brought to peoples' attention.

With regard to the gentleman who rang your office asking for my details (whoever he is), he hasn't bothered contacting me. In fact, out of interest, I had a band booked for a recording session today, but they haven't bothered turning up. These are just two more examples of apathy.

Anyway, thanks again.

Tim Donovan
North Humberside

I don't know what it is, Tim, but it's such hard work to key in your letters these days. And on the subject of absentee studio clients, have you checked out your deodorant recently? Tg

MAGNETIC MUSIC

PRISM Sequencing Software

I HAVE A pet theory about budget software, it goes something like this: if you don't like it, you can reformat the disk and not be too upset about it. On the other hand, if it works and you do like it, then you've got yourself one hell of a bargain. Admittedly, buying such software does involve a little bit of gambling, but you should look at it as being more like playing the Trivial Pursuit machine in your "local" rather than the Russian Roulette in *The Deer Hunter*.

Fortunately for my introduction, this PC sequencing software costs £99, so I'd put it into The Price Is Right category for anyone having found themselves wanting to make music with an IBM PC (or compatible) computer. The software in question is called Prism and it comes from an American company called Magnetic Media. Although it's been available in the States for a while, as far as the UK market is concerned, it's one of the newest sequencing packages available for the IBM PC. And as a matter of interest, Magnetic Media are the same group of people who gave us Texture. And Prism, like Texture, is the brainchild of ex-Utopia keyboardist-turned-software-developer Roger Powell (I understand that former Utopia leader Todd Rundgren is also currently following a similar path), so you can rest assured that the writer not only has his musical chops together, but knows what musicians actually want from a piece of software.

Prism has all the usual editing features found on software sequencers - quantising, copying, transposing - with two very important pluses; it behaves very much like a Macintosh program, and it has an excellent manual.

Prism works on all classes of PCs and compatibles (IBM PC, XT, AT and so on) and also on IBM's most recent offering, the PS/2. It requires at least 384K of RAM within which to run (although 512K is the practical minimum), as well as a graphics card and any available MIDI interface. Magnetic Music are also eager to publicise the fact that the package runs on Yamaha's impressive C1 Music Computer (see MT, December '88 for full review and check out current prices - they're lower than when the C1 was introduced to the UK). Consider it publicised.

Prism relies exclusively on Mac-like scroll bars and pull-down menus, and like almost all current generation PC sequencers, requires a mouse for operation. The program allows you to create up to 16 Tracks (pretty standard on PC packages these days) as well as 32 separate Patterns with up to 50 links between them. One neat feature which separates this program from other sequencing software in the same category is its ability to designate multiple MIDI channels per Track. Many sequencers allow you to specify one channel or all channels, but nothing in between.

One of Prism's most immediately impressive features is its use of graphics to control note velocities, time swing, and other MIDI parameters. While changing the peaks and troughs of the graph, you can hear the result as the sequence is playing - no need to stop, edit, and then start again. And one of its most unique features is the fact that graphs are used to create templates. In effect, these templates are the foundation for Track sequencing, and eliminate a lot of the Track editing that must be done after recording.

As I hinted earlier, the manual is by far one of the best I've seen for PC packages of any sort, with liberal use of examples and analogies to make each function of Prism clear to the novice and expert alike. Complete with diagrams, this manual is almost worth the price of purchase all by itself.

I like this sequencer - I like it a lot. Its use of the features that make icon-based software so pleasant to work with raise it up a notch over many other PC music programs. And given the fact that more PCs are finding their way into musical usage, even more PCs, PS/2s and their clones are going to be showing up in music environments ranging from homes to studios to stages. For £99, I can't think of any reason why Prism shouldn't be right there with them.

■ **Harvey Newquist**

Price £99 including VAT.

More From Digital Music, 27 Leven Close, Chandlers Ford, Hants SO5 3SH. Tel: (0703) 252131.

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KODAK 20 PLUS MASS STORAGE Removable super floppy disk drive at an amazing price. £20 Mbyte floppies cost £35 each! 20 Mbyte formatted, SCSI compatible for all samplers with SCSI interface. Kits also available for IBM XT/AT PS2 and Atari ST. Comes complete with 1 disc of samples you choose and SCSI terminator. £699.

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EMU EMAX II 16 bit stereo sampler, with 16 voices, polyphonic outputs, and fitted s.c.p. port. Both rack and keyboard versions will come in two versions: 1 meg Ram/FDD or 'Turbo' 4 meg Ram/HDD, and are at unbelievable prices.

YAMAHA C1 See one elsewhere in this issue.

PASSPORT MASTER TRACKS PRO FOR YAMAHA C1 Windows based sequencer that make full use of the best music PC going.

DIGIDESIGN SOUND TOOLS: 16 bit CD quality mastering for the MAC. Incorporates Sound Designer II for cut/paste editing, digital E.Q., mixing, panning and SMPTE. V.I. You now have stereo time-stretching, an improved scrubbing tool (grater resolution), and S1000 Midi/SCSI implementation.

DIGIDESIGN SOUND TOOLS FOR ATARI The hard disk recording system that everyone's talking about, now for the Mega ST.

ROLAND S770 Secret sampler... please call us.

ROLAND D70 Take a Roland U220, liberally mix with a multi-timbral D550, then add a A50 keyboard and you have yourself a D70!

MEX BOARD FOR ROLAND D50/S550 Does what the Grey Matter E1 board did for the DX, - two different 8-part multi-timbral modes - freely definable Key Windows for achieving multi-sample sound - expanded master keyboard functions - memory expansion of up to 128 patches - At £299.00, a must for all D50/S550 owners.

KORG W51 Question: What do you get when you buy an American synthesizer Manufacturer? Answer: A 32 voice, multi-timbral synth that you can dump your favourite samples!

KORG M1/M17 PCM upgrades In stock!

YAMAHA SY77 The synth of 1990? This new product has 2 megawords of 16 bit 48 Hz AWM2 samples with a 6-operator, 45-algorithm AFM synthesizer, 32 note polyphony, 16 part multi-timbral, up to 8 real time digital filters per voice, 4 DSP's, with 40 reverb programs, and a 16 track sequencer with 16,000 note capacity... and there's more! Call for details.

YAMAHA TG55 All the AWM2 features of the SY77 in a 19", 1U rack, 1 megaword of samples with 2 card slots, and 4 DSP's offering 34 different FX.

YAMAHA SY55 A TG55 with sequencer and keyboard. Is that all, I hear you say? If you mean the price, then I'm afraid it is true.

AKAI DRUM MACHINE 16 bit, 8 voice drum machine, with 450 preset patterns and 20 user patterns.

TASCAM MM1 A rack mounting, 20 input keyboard mixer with MIDI muting. Once again keenly priced.

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ABATON PROPPOINT Optical, trackball for Apple Macintosh with an accuracy of 200 counts per inch, automatic acceleration and mouse lock selection.

DR T. TIGER CUB This new sequencer has a budget price of £99 but don't be fooled! It puts other more expensive software to shame.

ATARI STACY At last the 1000 laptop with a choice of 1 or 4 Mbytes of RAM and 20 or 40 Mbyte internal HD hard drives.

ATARI TRACK BALL Tense nervous arm ache? Mouse fatigue? No place to put your mouse? Try using this with Creator/Cubase and you'll wonder how you did without it! £39 Inc P&P

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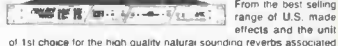
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This 160 package represents a real quality-price breakthrough. We have a quantity limited quantity and demand will far exceed supply. Orders will normally be supplied on a first come first served basis. Package includes FREE headphones and P.S.U.

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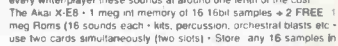
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16 MIDI channels or OMR1; compile your own patches etc. Control from MIDI, or seq. or use footswitch/MFCOS for live program advance/level/random selection respectively - 19" rack mounting. This EXCLUSIVE offer represents an unrepeatable opportunity to purchase a beautifully natural sounding commercial quality reverb at a fraction of the cost.

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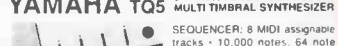


The Akai S1000 and MPC 60 are by a long way the most popular source of drum sounds in professional live/recording environments. In these situations price is often of little concern. We can now offer every winter player these sounds at around one tenth of the cost!

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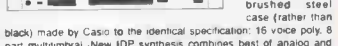
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PERSONAL SERVICES

WHAT'S THE MOST popular computer for making music? The Atari ST - definitely; the Apple Macintosh - if you've got the cash; even the Commodore Amiga is finding its way into the hands of a few pros these days. What about the old IBM PC - is it really too unfriendly and confusing for the humble musician?

Apparently not - or not any more. Like the rank outsider in a horse race, the PC (and its compatible buddies, of course) is making a late rush for the finishing line. It seems those IBMs, Amstrads and so on, that were bought for "business" purposes (anything from keeping accounts to Christmas card lists), or picked up secondhand (after the Christmas card list novelty had worn off) are beginning to find their way into musicians' hands. Consequently, there has been a big increase in interest in PC music software.

It seems appropriate, then, that Music Technology should be offering some tasty PC software to encourage more of you to get the dust sheets off those old machines (or to take up the downtime on Dad's Compaq for your music). To be more precise, courtesy of MCM, we've got a first prize of an IBM Starter Pack - which includes a 16-track sequencer, Dr T's Copyist Apprentice notation software and a Dr T's MIDI interface (worth £250 together) - and a second prize of Passport's Trax 64-track MIDI Recording Studio and another Dr T's MIDI interface (worth £199). Either way, you will be able to plug any IBM-compatible machine straight into a MIDI setup and get on with it.

So, question time (as Robin Day would have said).

Q1

What do the initials IBM stand for?

Q2

Which of the following is NOT a genuine computer programming language?

- a. "C"
- b. Fortran
- c. Algol
- d. Furphy
- e. Cobol

Q3

Which of the following is a non-fictional computer?

- a. HAL
- b. ORAC
- c. EDDIE
- d. ERNIE
- e. Dr Theophilus

ALL ENTRIES SHOULD arrive at the address below by second post on **Monday, July 16th**. Entries should be on a postcard only and should include your name, address and a daytime phone number on which you can be contacted. Please address your entry to **"Personal Services", Music Technology, Alexander House, Forehill, Ely, Cambridgeshire CB7 4AF.**

In order to discourage the unacceptable and immoral practice of multiple entries, Music Technology has had a special computer program written which will scan and compare all entries for duplicate names, addresses, phone numbers and anomalous answers. This program is called TURRD (The Ultimate Reader Repetition Detector).

Thanks to Mike Partridge at MCM for arranging this month's competition.

software

Welcome once again to Music Technology's software service, a facility designed to maximise the use of both MT and your Atari. Here you'll find demonstration versions of some of the software you've read about and may be considering buying. You will also find two virus killing programs (Vkiller for general use, Penicillin for cleaning out disk boot sectors) and a number of fully-working utilities (like Hollis Research's D50 librarian and Quinsoft's MIDI rechanneliser) which are COMPLETELY FREE. Please make use of the virus-killing programs, as viruses are an ongoing problem which continues to threaten your work and your equipment. Vkiller is quick and easy to use and may save you a lot of time, trouble and money.

The disks have been arranged to make best use of the available storage space, so the combinations of programs on any disk are a result of this attempt to make the service as friendly and cheap as possible, not for any other reason. Please note that not all the programs will be accessible to the 520ST due to the nature of its disk drive, but the disks will run on all other STs. If you're using a 520ST we will supply each "Disk" on two single-sided disks, thus ensuring all programs are accessible to you.

DISK 1

Vkiller, TDM Prodigy, Mididrummer.

The original virus killing program by George Woodside (written in May '89 and able to cope with almost all viruses currently in circulation). Also includes demos of TDM **Prodigy** (reviewed MT, April '89) and **Mididrummer** (reviewed MT, June '89) with only save routines disabled.

DISK 2

Flu, Hybrid Arts Ludwig.

Flu (written by George Woodside) is a simple program which demonstrates some of the less-harmful screen symptoms of viruses currently circulating. **Ludwig** (reviewed MT, April '89) is Hybrid Arts' powerful algorithmic composition program.

Please send me the following disks for which I enclose a cheque/postal order for £.....

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520ST format (please add £1.50 per disk).....

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Send to **MT Software, Music Technology, Alexander House, Forehill, Ely, Cambs CB7 4AF**. Please allow 28 days for delivery.

DISK 3

Gajits Sequencer One, Keynote Chameleon, Dr T's Proteus Editor.

All recent software: **Sequencer One** (reviewed MT, March '90) is a comprehensive entry-level sequencer, **Chameleon** (reviewed MT, Dec '89) is a new-style generic patch librarian that will run as a desktop accessory and **Proteus Editor** (reviewed MT, March '89) is Dr T's editor for E-mu's popular sample reader.

DISK 4

Intelligent Music Realtime, Dr T's X-Or.

IM's **Realtime** (reviewed MT, April '89) is an "artificially intelligent" sequencing program which is designed to encourage the gentle art of experimentation; **X-Or** (reviewed MT, November '89) is Dr T's powerful generic patch editor.

DISK 5

Hybrid Arts EZ Track Plus, Quinsoft Trax studio accessories.

EZ Track Plus (reviewed MT, Dec '88) is a budget sequencer which retains the feel of Hybrid's upmarket Edit and SMPTE Track packages; **Trax** is a new nest of studio management programs: track sheet, cuesheet, cassette labelling, address book (including industry contacts), invoicing forms. . .

DISK 6

Hollis Trackman, Quinsoft FB01 & 4-Op FM librarians.

Trackman (reviewed MT, March & Dec '89) is Hollis Research's friendly, cost-effective 32-track sequencer (demo includes fully-working D50 librarian and 500 6-Op FM patches). **Quinsoft's Price is Right** librarians for Yamaha FB01 and 4-Op FM synths (reviewed MT, Feb & March '90 respectively) includes fully-working MIDI channel and controller accessory.

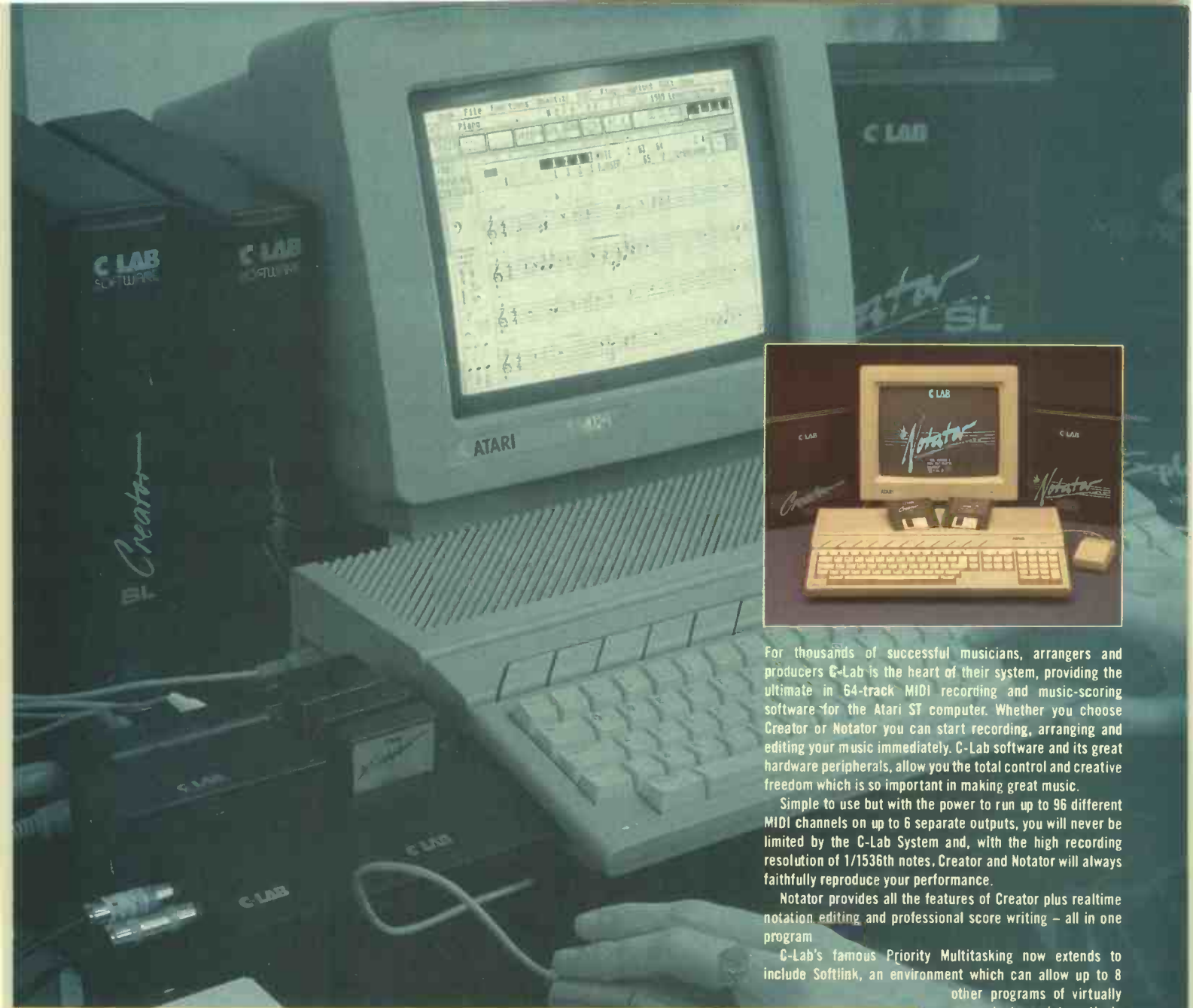
DISK 7

Penicillin, Passport Mastertracks Junior.

Penicillin is a virus killing utility written by George Woodside - it specialises in cleaning the boot sector of infected disks - use with care! **Mastertracks Junior** (reviewed MT, June '88) is a 64-track budget sequencer which retains many Pro features.

Disks cost £5 each (please add a further £1.50 if you want software supplied on two single-sided disks).

NB: This is the library available at the time of writing. More disks will be added to the list as soon as they are ready - keep an eye open for free synth sounds soon to come. This service is to help you try out software before you buy - we will continue to run it as long as you support it. This is not a profit-making venture on behalf of MT.



For thousands of successful musicians, arrangers and producers C-Lab is the heart of their system, providing the ultimate in 64-track MIDI recording and music-scoring software for the Atari ST computer. Whether you choose Creator or Notator you can start recording, arranging and editing your music immediately. C-Lab software and its great hardware peripherals, allow you the total control and creative freedom which is so important in making great music.

Simple to use but with the power to run up to 96 different MIDI channels on up to 6 separate outputs, you will never be limited by the C-Lab System and, with the high recording resolution of 1/1536th notes, Creator and Notator will always faithfully reproduce your performance.

Notator provides all the features of Creator plus realtime notation editing and professional score writing - all in one program.

C-Lab's famous Priority Multitasking now extends to include Softlink, an environment which can allow up to 8 other programs of virtually any make to run interactively with Creator or Notator.

Unitor is a SMPTE box with a difference. Designed specifically for locking Creator and Notator to tape, Unitor locks the internal computer clock direct to SMPTE, making for great accuracy and instantaneous

lock up. An almost unlimited number of tempo changes and other important information can be automatically stored along with song data. With two extra MIDI Ins and two extra MIDI Outs, each with its own independently addressable 16 channels, Unitor is the only choice.

Human Touch is an audio trigger module for Unitor, allowing control of tempo from up to four different audio sources, with C-Lab you can even synchronise to old recordings without timecode.

C-Lab evolves with you, exciting new versions are regularly produced and with the additional facilities of the other superb hardware peripherals such as Export and Combiner, C-Lab offer a music production system which is simply the best.

IT'S NOT SIMPLY THE OUTSTANDING SOFTWARE THAT MAKES THE C-LAB SYSTEM SO SUCCESSFUL



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644 MIDISTUDIO



PHOTOGRAPHY: JAMES CUMPSTY

Once the idea of using cassettes for multitrack recording was regarded with acute suspicion. Today the Tascam MIDISTudios are making cassette multitracking a revolutionary art.

Review by Nigel Lord.

IT JUST GOES to show, you never know what's hanging 'til it drops. Only last month, I was lamenting the absence of MIDI on what was otherwise an excellent new mixer from Fostex (the 454), when into my lap (so to speak) falls another piece of equipment which addresses itself quite uncompromisingly to the challenge of MIDIfying the recording process. In the 644, Tascam can not only lay claim to having

produced the first of a new generation of cassette multitracker, they have also thrown down the gauntlet to other manufacturers in their adoption of MIDI technology right the way through the recording chain.

Like many ground-breaking designs, it's fair to say there's nothing on the 644 that hasn't previously been available in other forms, from other manufacturers. But never before has so much sophisticated recording technology been packaged together in one box and placed under the control of MIDI - for less than a thousand pounds.

A sophisticated Portastudio? Well how else would you describe a twin-speed tape deck with simultaneous recording across all four channels and full autolocate and rehearse facilities; a complete eight-channel mixer accepting up to 16 inputs with in-line stereo monitoring, three-band EQ and two auxiliaries; electronic signal routing with 99 onboard memories and MIDI control of signal muting; built-in MIDI/FSK tape synchronisation, optional remote

control. . . Admit it, this does sound like serious multitracking. Now read on.

NEW TERRITORY

THE LAYOUT OF the 644 is functional and rather businesslike, but a single glance is enough to tell you just how far outside standard cassette multitracker territory you actually are. The mixer, for example, though by necessity quite compact, comes with the sort of control complement you'd expect to find on a stand-alone desk. Alongside three-band EQ with sweepable mid-range, two Auxiliary sends and Pan and Trim controls in addition to the Input level sliders, it features insert points on each channel and balanced XLR connectors for mics on channels 7 and 8.

There's also a Dual section which, as far as I know, is unique amongst multitrackers which have appeared to date. It's basically an in-line stereo monitor mixer which exists alongside the main mixer channels and allows you to set up a mix of previously recorded tape tracks along with instruments you wish to overdub *without* interfering with the signals being sent to the recorder. During mixdown, the Dual section has a secondary function whereby a further eight inputs are provided, each with its own level, pan and effects send (in conjunction with Aux 2). And it can also, if required, be pressed into service as a third Auxiliary, providing either one stereo or two mono sends for external effects.

Monitoring on the 644 is again entirely compatible with the kind of system you'd expect to find on a separate mixing desk. In addition to listening in on the main signal busses, 1-2 and 3-4 (which, incidentally, are given their own monitor level controls), you can monitor individually or in combination both Auxiliaries and the Dual section. Master controls are similarly comprehensive with faders for the two main busses (the 1-2 slider doubling as the Left/Right stereo fader during mixdown), and rotary controls for both Auxiliaries and for the Dual section. In addition, there are four individual effects returns and a Sum switch for combining Aux 1 buss with that of Aux 2 so that signals may be sent from all 16 inputs to the same effects unit.

AND SO TO TAPE

THE CASSETTE DECK employs three separate motors for play and fast forward/rewind functions, and all switching is logic-controlled so you can go straight from Rewind to Play without pressing Stop. The buttons themselves are light to the touch, yet quite positive in their action. The deck is set up for use (exclusively) with high bias cassettes and offers a choice of speeds - low, 4.75cm/s (standard cassette speed) and high, 9.5cm/s. It also features a pitch control offering some 12% speed variation in both play and record modes.

Unlike many machines, the pitch control does not have a centre detent to indicate the normal speed position. Rather, a switch immediately above it is

used to select between Fixed and Vari-speeds, with a third, Ext, position which brings the transport speed under the control of an external device connected to the Serial socket on the rear panel (Tascam's MIDiiZER, for example).

In addition to the customary play, record, pause and wind controls, the 644 also has an extremely effective cueing system - or Shuttle as Tascam refer to it. You enter Shuttle mode by pressing a push button (an LED warns you of its operation) and then cue in either direction by turning a rotary control to the right or left from its centre-detented position. As you may have guessed, a rotary control is used because cueing speed is adjustable according to how far you turn the knob. With a little practise you soon become adept at reeling through the tape at high speed then slowing down to arrive at exactly the spot you want. If you do overshoot, it is simply a matter of turning the control in the other direction and cueing back to the correct point on the tape. Most impressive.

Those of us who have suffered from "multitrackers' finger" over the years will be delighted to hear that Tascam have incorporated a comprehensive autolocator section on the 644. With it you can return to zero, fast forward or rewind to either of two programmable locator points or set up a loop between the two points to enable a section of music to be replayed either manually (by pressing Play), or automatically (by pressing Repeat). This latter feature may also be used in conjunction with a Rehearse facility in which you can program a pre-roll section as well as punch-in and out locations in order to practise drop-ins before actually committing them to tape.

All the autolocate and tape counter functions are used in conjunction with a liquid crystal display which provides a 2x4-digit readout of tape position and locator points. The tape position indicator is, in fact, dual function, and pressing the TRT button converts the display to a read out of Tape Run Time in minutes and seconds. It's not amazingly accurate, but for general timing of songs and estimating whether you have enough tape left on a cassette, it more than justifies its existence.

As you might expect on a machine of this calibre, recording is possible on all four tracks simultaneously - you make your selection from the Record Function buttons immediately above the LCD counter. The corresponding LEDs have three states: "off" to indicate recording is not possible on that track; "flashing" to indicate recording will begin on pressing Record and Play; "on" to indicate recording is in progress.

Noise reduction is dbx and the system performs quite adequately on the 644 with very acceptable hiss levels even on tracks which have been bounced down. Although I was able to detect none of the breathing and pumping effects which were responsible for giving the dbx system a bad name a few years ago, the manual does state that problems may be caused by very low frequency sound being modulated by the dbx circuitry during quiet passages in the music. As it also points out, however, this can ►

► be overcome by a little judicious filtering at the input of the mixer (perhaps using the insert socket). And of course, if things become too problematic there's always an off switch for the dbx which you can find at the top left of the recorder section.

THE SCENE

MOVING NOW TO what I suppose could be considered the heart of the MIDlstudio - we have the Assignment Board and Display. It is in this section of the 644 that we find the meter displays and also the electronic signal routing facility mentioned earlier. First the meters.

It is possible to switch between two modes: Input, where the meters display signals (post-EQ, pre-fade) from each of the eight main input channels, and Output, where you can keep an eye on the signals from the four tape tracks and also from the four output groups coming from the mixer.

I have to say, the LCD ladders aren't the last word in meter technology and some form of peak hold would have been useful. But having all the metering within a single display is extremely convenient, and doesn't actually take much getting used to. I certainly liked the idea of the input metering being post-EQ and pre-fader as this means you can set up levels even with the channels faders down and also not have to worry about boosted EQ controls causing overloads at extreme settings.

A third button, Scene, switches the display over to the input/output matrix of the electronic signal routing facility of which Tascam seem justly proud. Replacing much of the complex signal switching in conventional recording systems, the graphic display and horizontal/vertical push-buttons make light work of what is traditionally one of the more tedious aspects of multitrack recording. Selecting a line input on channel 3, for example, simply involves pressing Line on the vertical Input column and then 3 on the horizontal Channel/Dual row.

A complete patch comprising all the switching you would have to go through to change from overdub to mixdown mode, for example, can be written as a single Scene. This may then be stored (along with 98 others) and instantly called up - either manually, using the Recall button, or via MIDI using program change commands. In addition to onboard storage (which includes 12 factory programmed patches, incidentally), Scenes may also be stored on tape (immediately before a song, for example) or via MIDI onto a data filer.

MIDI MATTERS

FAR FROM BEING a novel addition to what would otherwise be a well-specified multitracker, it is clear that MIDI formed the basis of the 644's design right from square one. Thus, we have a full complement of MIDI sockets on the rear panel - In, Out and Out/Thru - the latter being normally used as a secondary Out port, but acting as a MIDI Thru during saving

operations. Of course, the existence of MIDI Out sockets will have no doubt alerted you to the fact that you can send program change commands to MIDI instruments from the 644, and I'm sure I don't have to point out the creative implications of your recorder being able to tell your sequencer what to do (or where to go, for that matter. . .)

More conventionally, MIDI commands can be sent from your sequencer or keyboards to the 644, and, as I have already outlined, this can be used to recall Scenes. Even more interesting though, is the facility for using MIDI note commands to mute or unmute any of the eight main input channels (as on Tascam's MM1 MIDI mixer - reviewed MT, November '89). Using this you can take channels in and out of the mix with considerable accuracy. In fact, you're limited only by MIDI timing delays which may occur - and under most circumstances these could be discounted.

When you think about it, the channel muting and the Scene recall functions offer a not inconsiderable level of automated mixing. Not only that, but all the associated MIDI data can be stored along with your conventional sequencer information, so there need be no going back to a song after 12 months and wondering just how the hell you mixed it the first time round.

Also, with a bit of forward planning, you should find that you can optimise the use of your four audio tracks using MIDI. On any occasions where two or more instruments don't coincide in a song, you can assign them to the same audio track and simply use the channel mutes to take them in and out of the mix. You'd be limited to the same EQ settings, but provided there is enough space between instruments, it shouldn't be too difficult to tweak the necessary knobs on mixdown. After all, given the level of automation possible, your hands won't have much else to do.

It's in the field of tape synchronisation, however, that MIDI is likely to see most regular use on the 644. As indicated at the beginning of this review, the system included here is the MIDI/FSK type (adapted from Tascam's own MTS30 design) which converts MIDI clock information from your sequencer (for example) into an audio tone called FSK (Frequency Shift Keying) which is then recorded to tape.

Unlike conventional time code, where you have to start from the beginning of a track each time you want to reach a certain point, FSK contains song pointer information which constantly updates your sequencer so that no matter where you start, it gets itself in step with the tape at the right point in the song. You sometimes have to wait until the next song pointer comes along, but in practise, lock-up never takes more than a second or two. Certainly, I encountered none of the traditional problems associated with tape striping and had the 644 and my sequencer locked together at my first attempt.

ASK THE PANEL

THE 644's REAR panel packs a tremendous amount of connection hardware: quarter-inch jacks for all 16 inputs, effects returns, auxiliary and dual outs; XLRs ►

“You can send program change commands to MIDI instruments from the 644 - and I'm sure I don't have to point out the creative implications of this.”



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► for balanced mics on channels 7 and 8; stereo jacks for the channel insert points; phonos for tape outs, group outs, monitor outs and in and out connection of an external sync unit (if this is required). Additionally, there are the three MIDI sockets, a 15-pin serial port for the connection of the Tascam MIDiiZER (or an external computer), and a special 8-pin DIN socket to allow connection to Tascam's RC88 remote control unit which duplicates the auto-locator, rehearse and punch-in facilities on the 644 itself. Last, but not least, we have the on/off switch and the all-important power supply socket - the 644 is operated from an external 10V supply.

VERDICT

AS WITH ANY complex piece of audio gear, by the time you've gone through all the facilities it includes, how it actually sounds can sometimes seem like rather an irrelevance. After all, a company like Tascam wouldn't pack all those features into a machine like the 644 if it didn't perform, would they? Well, no, they wouldn't actually, and the 644 MIDiStudio's audio performance has obviously been designed to do full justice to its capabilities in all other areas.

Noise and hiss levels are extremely low (probably about as low as the humble audio cassette can go at this stage in its career) and problems like crosstalk can, with a little care and attention, be virtually eliminated. Unlike many two-speed multitrackers I've come across, I found I could get very creditable results at the lower speed on the 644, although the high speed setting would have to be recommended if you intended bouncing any of the tracks as this involves a slight loss of quality. But that's only to be expected.

Getting signals onto tape via the mixer was similarly trouble-free; noise levels were quite acceptable even at relatively high settings of the Trim and EQ controls - though of course, being able to mute channels when they are not required really does help in this respect. Drop-ins didn't pose any real problems either, though I did notice a slight delay before recording came into effect. It is however, fairly easy to compensate for this.

You get the feeling with the 644, that, as new as it is, there's a lot of tried and trusted design work gone into it, particularly in respect of the mixer electronics and the cassette mechanics. It has that air of quiet efficiency which surrounds most high-quality equipment. There are plenty of nice touches too: two headphone sockets located in a recessed panel under the front edge of the unit so that the plugs don't protrude; a padded arm rest at the bottom of the unit; and the Dual section colour-coded in grey to distinguish it from the rest of the mixer.

The instruction manual is excellent. No "loose" translations, no indecipherable spelling, no operations left uncovered or changed at the last

minute and not included. It's rather a dry read, but it contains everything you could want to know about the 644 and you can't reasonably ask for more. Oh, and it has an index at the back, so perhaps our constant badgering of manufacturers on this point might be getting us somewhere after all.

So what can we conclude about the first MIDI cassette multitracker? Well, a Portastudio it might be, but this is the kind of technology which is going to prove highly appealing even to those who aren't interested in multitracking on a budget - the traditional market for this type of unit. The 644 and its big brother, the 688, are bound to attract a lot of interest from those who like the idea of a complete recording system packaged in one neat box and given the power of communication with the rest of the equipment they already own. And I certainly have no hesitation in including myself amongst that group.

As anyone with any serious interest in hi-fi will tell you, packaging equipment together within a single box inevitably leads to compromises. Where convenience becomes a concern, quality and flexibility inevitably suffer - well, not on the 644 they don't. In fact, I'd go as far as to say it's a better system for being a complete unit than would be the case if it were assembled from discrete components. Like any machine, it isn't perfect; there are always extra facilities one would have like to have seen included. But lines have to be drawn somewhere and keeping it below the thousand pound mark must have entered the equation at some point. And as far as I'm concerned, the line for the 644 was drawn a long way beyond that which we could have reasonably expected for what is, after all, the very first MIDI Portastudio.

Having read the reviews in other music magazines, I think I'm justified in saying that they have done Tascam something of a disservice in their coverage of the 644. Though the machine has been given a favourable response in all quarters, I've yet to see any real mention of the *significance* of the 644 as a development in MIDI technology. As far as I'm concerned it is a machine of immense importance for users of hi-tech MIDI equipment - and that must include just about every reader of MT.

In conjunction with one of the better computer-based software sequencing packages around at the moment, the potential of the 644 is quite awesome and extends well beyond its modest four-track format. Unless you're involved in multitracking more than two or three non-MIDI instruments such as voices and guitars (or simply don't have many MIDI instruments at your disposal), the limitations of four-track recording become something of an irrelevance. If you do need extra audio tracks, you could always turn your attentions to the 688 (as I hope to be doing shortly), but either way, you cannot consider moving into multitrack recording without considering one or other of these machines. Highly recommended. ■

Price £869 excluding VAT.

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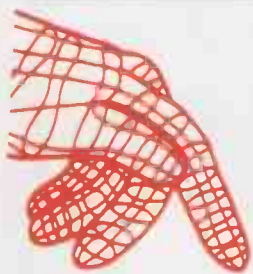
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PROPAGANDA

IN 1985, POPULAR MUSIC HAD YET TO feel the full impact of the sampled drum loop and the revolution in dance music that was to follow. Instead, it was the producer who held the public's imagination captive. Trevor Horn's immaculate production and Steven Lipson's innovative Fairlight and Synclavier programming represented the ultimate in sonic and electronic sophistication. Electronic music, meanwhile, was feeling its way from the tape machines of Stockhausen to the samplers of S'Xpress. In 1985, if you knew anything about electronic music, the Word was Propaganda.

In the purest tradition of electronic music, Propaganda came from Germany. Between them, keyboard player Michael Mertens, singers Suzanne Freytag and Claudia Brücken, and lyricist Ralf Dörper had delivered a classic album: *A Secret Wish*. Conceived by Dörper in 1983, Propaganda were quickly signed by Horn's ZTT label. They introduced themselves to a bewildered public with a single, 'Dr Mabuse', which was accompanied by pop photographer Anton Corbijn's *film noir* video debut. Somehow the combination of the music's industrial brutality and Horn's grandiose production found a place in the hearts of the record-buying public - and the pop charts.

More singles followed - 'Duel' and 'P-Machinery'

further established Propaganda as a musical force to be reckoned with. They also demonstrated the band's ability to encompass a variety of musical styles without endangering their own identity. Typically (for ZTT) cryptic sleeve notes, disturbing lyrics and the sexuality of the singers presented another side of Propaganda - the "dark side".

And there was more to *A Secret Wish* than intellectual intrigue and a masterful statement of electronic music in the mid-'80s, for alongside the German musicians and the British production team, other notable musicians had contributed to the recording of the album. David Sylvian and Heaven 17's Glenn Gregory had lent their voices, Yes' Steve Howe had contributed some guitar work and Marillion's Ian Moseley had provided it with one of pop's first sampled drum beats.

Propaganda were in demand - not least for an interview with Music Technology (then under the title *E&MM*). But the band were difficult to tie down. Based in Germany, they moved freely around Europe and were rarely in the same place at the same time. The interview always seemed within reach, yet somehow failed to materialise. Then the trail went cold. The British management were no longer handling the band; ZTT were at war with them. *A Secret Wish* had become Propaganda's epitaph as well as their finest hour.

In 1985 Propaganda's Trevor Horn-

produced A Secret Wish was

received as a seminal electronic

music work - yet the band regarded

the project as "a hobby". Silent for

five years, Propaganda are now

playing for real.

Interview by Tim Goodyer.

Five years on, the face of pop music has changed out of all recognition. The heavy electronic beat that Propaganda had experimented with and the technology they explored have become common currency. The line between musicians and producers (never a very clear one in electronic music) has all but disappeared. Propaganda appear to have pioneered much that has become accepted since their disappearance. Yet few, if any, of the current crop of single buyers would recognise the name of the band that had helped pioneer the current phase of pop. But suddenly and unexpectedly the name is current again.

'Heaven Give Me Words' announces the return of Propaganda - not just to the '90s music scene but also to the charts. True to previous form it is a deviation from what might have been expected. But what should you expect of a band who specialise in the unexpected? Still very much in evidence are the sounds and sequences that characterised *A Secret Wish* - particularly on the B-side of 'Heaven' in a track called 'Count Zero' (stolen from William Gibson?), where the rhythm and sounds are strongly reminiscent of Peter Gabriel. Following 'Heaven Give Me Words' is an album entitled *1234*. Here too you'll find evidence of Propaganda's dark past; 'Your Wildlife', for example, plays up the intimidating use of rhythm - Mertens is a classically-trained percussionist.

Only one of the current lineup remains from that of '85, three new musicians bringing the outfit up to strength. Gone are ZTT - replaced by a new deal with Virgin - and gone is the Horn/Lipson production partnership - replaced by that of Ian Stanley and Chris

Hughes (famed for their work with Tears for Fears).

The new names are drummer Brian McGee, bassist Derek Forbes (both ex-Simple Minds), and American singer Betsi Miller. The one original member is Michael Mertens. He is eager to talk, at last, to MT, and in his quiet German accent he begins to describe the sequence of events that has led up to 1990. The story begins in '85 when Forbes left Simple Minds.

"We did 12 showcases as part of a ZTT presentation, and we needed a drummer and a bass player. Derek had left Simple Minds and our manager asked him if he was interested in joining us as a guest musician. Later on, for a tour, we were looking for a drummer and Derek suggested Brian McGee because he'd worked with Brian previously in Simple Minds. Derek has been around Propaganda for around five years now - not as a face to be recognised as a member of the lineup, but he even played on 'P-Machinery'."

Of the Simple Minds connection Mertens says, "The issue was never that Derek and Brian had been together in Simple Minds, the issue was that Derek's a good bass player and Brian's a good drummer".

Betsi Miller's family left Idaho for Germany when she was 12. Had they remained in America a photographer friend of Suzanne Freytag's would not have seen her gigging at a nightclub and passed her phone number on to the band.

"I was working at this place in Munich when I got a phone call from Suzanne Freytag", she recalls. "Suzanne asked me if I wanted to come to an audition. They sent me a tape of 'Duel', 'The Murder of Love' and 'P-Machinery' off the first LP. It was just a playback without vocals so they obviously wanted me to sing over it, and after listening to Claudia's voice, I was thinking 'I don't know if this is right - not because I can't do it, but because I feel limited'. Some of the vocal melodies are so simple and I was used to singing a little more exotically, a little more free. So I thought I could either go in there and sing it as close to the album as possible, or I can go in there and show them what I'm capable of - and that's what I did."

"It was sheer luck that we met up", comments Mertens. "Suzanne met her first and came back to the band and said 'well, I hope she can sing' because she felt she would be right."

"Right" she was, and she moved from Munich to Düsseldorf "in about 48 hours".

"When Claudia left the band - early '86 - we were injunctioned by ZTT for 14 months", says Mertens. "Obviously we wanted to look for another singer. I went back to Germany and did work for a television company, and during that period we were thinking we wanted a German singer - not so much for ideological reasons, but because we looked at ourselves as a German band. We tried out a lot of good singers, but the problem we encountered was personality. Sometimes you know as soon as somebody walks through the door that it's not going to be right - she can sing as beautifully as she likes. It's a very difficult thing. It was an unpleasant experience but there was no way around it. We had a lot of personality problems with our old singer and we wanted to make sure things were right this time."

D

A

"If you are going to use a synthesiser you have to work hard and spend a lot of time - if you are pleased too quickly, it becomes like a fashion accessory."

► The first problem facing the new Propaganda is *A Secret Wish*. Now widely regarded as a milestone, producing a worthy follow-up would not be an easy task.

"People like to look at us as a kind of icon: Propaganda 1984/85", agrees Mertens. "But I don't want to be forced to repeat what we've already done, that would be boring. I'd rather leave it like it is and do what we're doing now."

"Obviously people have now heard the first single and that isn't from the dangerous side. We've chosen that track because we think it's a good song. For us there's no obligation to fulfil anybody's expectation of what Propaganda is. When 'Dr Mabuse' came out it didn't fit in with anything. The next record that came out was 'Duel' and that was against everybody's expectations, because they thought it was going to be *crash... bang* - more of the same thing. 'Duel' was a very lightweight pop song. We like having the freedom to do that. Within the context of this album, 'Heaven Give Me Words' is a good song to start off with."

That the song is well written, well executed and is being well received is in no doubt. But does this mean divorcing themselves from the achievements of the earlier lineup?

"I don't disregard the old Propaganda at all", counters Mertens. "Obviously if you look at the band in 1990 it's a completely different lineup. I'm the last remaining member from the old days. But all those changes took place very gradually over four-and-a-half years. You could ask why do we still call it Propaganda? But Ralf Dörper and Suzanne Freytag are still around us even if they're not part of the lineup."

"When we did the first album it was a hobby for us - Ralf had his job in the bank, I had my job in the orchestra - but in 1987 we decided that it had to be for real and whoever wanted to come along for the ride was in. That's where Ralf and Suzanne decided to stick to their day jobs."

"We could have made this record so much like the last one", comments Miller. "We got offered a direct-to-disk system for practically nothing. We could have made it so electronically and technically over the top. But why? Why do that? Propaganda is no longer this conceptual thing, it's a real band now. And there still is a very dark side to Propaganda, you can hear that on the LP."

THE NEW LINEUP ALSO MEANS NEW working methods. When all the members of the band were living in Düsseldorf, things were easier for them, now they're spread between Germany and Scotland - although Mertens and Miller are currently living in London. Consequently the early stages of writing involved passing cassettes from one musician to another.

"Michael would start writing something in his living room" explains Miller. "Then he'd call Derek in Scotland and he'd go to Düsseldorf and they'd sit down and work out the structure and put that down on tape. On the tape there'd just be the basic rhythm track: drum machine, keyboards and some bass. I'd pick up the tape, go home with it and work out the

vocal melodies on my own. Then I'd go over and sing it to them and, with Derek's help, we'd work out the vocal melody. I think that this will all change in the future. What we all need is to go out and do a live tour, because we've never done anything live before. After you've really jammed out together I think there's a kind of confidence you gain that changes the way you work. I'm looking forward to that."

From the demos the songs were taken into Ian Stanley's private studio and pre-production work commenced.

"Ian has a small studio at his place in Bath", says Mertens. "He has a lot of gear there, a big desk, the Fairlight, a DX1 - so before we went into the studio we were doing as much as we could outside. What we did was put a lot of stuff in Ian's Series III Fairlight. Then we sync'd it all up via SMPTE."

"Once we decided we were ready, we went into the studio and started to lay down the backing tracks, make samples of drums and sections of drums - we let Brian play along and then we took sections of his playing and sync'd them up to the track. That was much easier than it was in '84/'85, although we did it on 'Dream Within a Dream' - that's a drum loop on there. It was played by Ian Moseley, a lovely bit of drumming. At that point I realised how good it is to have the perfection of all the sequences and let the human element translate it into something much, much better. I really think that's a great way of making music."

Miller picks up the story: "We spent about a year-and-a-half actual recording time in the studio. We'd go in and record and then we'd go and do some more writing because we'd find out what we had wasn't sufficient or wasn't great enough to put on tape."

If the writing was disjointed - and some of the ideas and sequences date back to shortly after *A Secret Wish* - the recording was equally disjointed.

"We started at The Wool Hall out in Bath", Miller recounts. "We were there for three months and then we had a break for two or three months, then we came back to London and worked at Abbey Road. Then we spent a bit of time at Marcus before going back to The Wool Hall to finish it. We mixed it at Olympic and Metropolis."

It's an impressive itinerary, but what of the gear? Have 1985's PPGs been replaced by their 1990 counterparts? Exactly what did Mertens use in the recording of *1 2 3 4*?

"What *weren't* we using?" comes the reply. "My setup consists of the PPG system, a Super Jupiter, Oberheim Xpander - Ian has got a Matrix 12 which in connection was fantastic. I love all the analogue stuff very much. Later on in the recording I got a MIDIMOog. It was expensive but I really wanted it - especially for the live work we plan to do."

"I've got a D550 and the Yamaha TX rack. Sampling-wise most of the stuff was either Fairlight Series III or Chris' Synclavier. Some samples we did on the Lexicon 480, which for bass drums is fantastic. I think it's the best quality machine around except for the Synclavier. That's not the point though, it was never our aim to use the newest thing. If that is your premise you've missed the point. You can have a lot of ►

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"Technology is still a big part of Propaganda. If you listen to the album there are tracks which are heavily electronic. . ."

". . .but there's a human element in it too", concludes Miller.

And what of the past - what was behind the sounds that amazed and confused in the mid-'80s?

"In 1984, when we did 'Dr Mabuse', we had a Fairlight Series II" reveals Mertens. "But everything was all pre-SMPTE then. We had a code on tape and every time we had to start the tape from the beginning and hope that it would catch up. There were always these moments: everything had been programmed, everybody's brain was gone, we'd be hoping that this was the take, and the tape wouldn't pick up. Those were the days. Then MIDI came along and made life much more easy for us.

"Next I bought a PPG 2.3 system with a Waveterm which I still use. It's still eight-bit sampling, I never upgraded it to the Waveterm B because I really like the sound of that machine. I didn't buy another sampler for quite some time. It's very good for some things but these days if you have an S1000 you can put anything in there - you can put down almost a whole track with it and it doesn't lack dynamics. But this isn't the case with the PPG at all. If you do that it sounds terrible.

"Then I got into sequencers and started using an Atari and C-Lab Notator software - although, most of the time I don't use the note display. The way we recorded was that there was a lot of stuff in Notator, there were still a few sequences in the old PPG, which we used an SRC synchroniser for. When we first went into the studio Ian Stanley was suggesting that we should both learn a new sequencer. He was suggesting that we use Opcode Vision on the Macintosh. But I said 'no, Notator's so fast and so reliable'. And we had this argument - he was advocating the Macintosh and, as far as I was concerned, the Atari was good enough. I wouldn't take it on stage, but in the studio environment it's fine."

While Notator won the day in the studio, Mertens is less confident about the Atari's reliability for the gigs the band have in the pipeline.

"The Atari would be my favourite system to use, but I'm not sure how it would behave on a tour. A lot of people have recommended the Macintosh to me but the Yamaha C1 might be interesting. Vision looks good though, so I might prefer the Macintosh. There aren't really any hardware sequencers around any more are there - apart from the MC500? I used the MC500 a lot before I had the C-Lab software, but I prefer the C-Lab now."

The fascination with live performance began back in 1985 when Propaganda joined forces with Forbes and McGee for the ZTT showcases.

"That was one of the things that helped us realise that a step towards being a live group was actually what we wanted", says Mertens. "When Brian hits a drum on stage he hits it very hard, and it's a very earthy

feeling. I think that's a very good connection with all the electronic stuff going on around him.

"The problem we had in 1985 was that we would have wanted to put the sort of production we had in the studio onto the stage. And that would have been vastly expensive. There was no way we could have afforded to tour with a Synclavier, so there was no other way to recreate the production we'd done than to use tapes. And that's something we don't want to do again. I'm quite nervous about it actually."

The timing of the tour is still as uncertain as the equipment that will make it possible. All Mertens is sure of is that he will be taking along a second keyboard player to assist himself and whatever he chooses to play his sequences, and that he has a lot of homework to do in preparation.

While he's doing his homework for Propaganda, Mertens is happy to be identified with the tradition of German experimentation in electronic music and to admit that his homework has been done for him by bands like Kraftwerk.

"To a certain extent, if Kraftwerk hadn't been there, I wouldn't be here", he concedes. "They were the ones who prepared all these things for us - without even knowing what they were starting. Nowadays people are doing what Kraftwerk were doing 15 or 20 years ago - without the technical problems."

But while Mertens is happy to be a part of the German scene, the Germans don't always seem to have been as appreciative of his efforts.

"I tell you, in Germany in '85 we had problems with everybody hating us", he says sadly. "I think they hated us being so successful - being linked with a producer who was *the producer* of the time. We came out of Germany not having done anything, and people probably thought not deserving to work in that sort of surrounding. A lot of people didn't like it, so they were saying it was all down to the production.

"Then in 1987 it sounded like it was all over - the singer had left, we had problems with the record company. When '88 came, '89 came, people were saying 'well, Propaganda, that was a *good* band'.

While Kraftwerk haven't suffered the same scepticism from their countrymen, Mertens expresses concern over their inactivity since the release of *Electric Cafe* in '86. Being in a comparable position, he's not sympathetic to the suggestion that they may be afraid to try to live up to their past.

"If you're dealing with popular music I think you should be prepared to take a risk and do what you think is right at the time. If I started to think about what is expected of Propaganda it would make me paranoid. There are people who are doing dance music and doing it very well - it's a very trendy thing to do right now. So I could sit down and say 'I'm doing electronic music, there's a lot of innovative stuff happening in Britain, I'm going to jump on it'. But I'm not like that, I don't try to follow trends and I don't think Kraftwerk do either. So even if Kraftwerk came out with something that's not really good and trendy and didn't fit in with the current scene, it's still quite likely to be a very good record. I don't understand why they don't do something. You shouldn't be afraid of your own myth." ■

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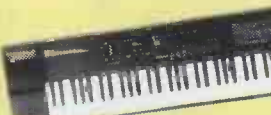


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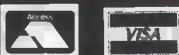
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BEATBOX TALK

**TAKING A SHORT BREAK FROM
THE RIGOURS OF EXPLORING THE
WORLD'S RHYTHMS, THIS
MONTH'S BEATBOX
PROGRAMMING LESSON
CONCENTRATES ON ODD
TIME SIGNATURES.
TEXT BY NIGEL LORD.**



BACK IN THE days when I was editing MT's sister magazine, *Rhythm*, I wrote an editorial in which my somewhat reactionary and dismissive readership was asked to consider the possibilities of playing in odd time signatures. To emphasise the point, I compiled a list of all the records that had reached the charts (and could therefore be judged "successful") which had incorporated rhythms outside the more common 2-

3- and 4-based time signatures. I was immediately deluged with letters pointing out (with all the smugness readers are wont to display when they think they've spotted a mistake) all the records I had neglected to include.

Summoning my skills as an editor whose omniscience they had until that point been unable to disprove, I neatly side-stepped the criticism by claiming that in no way had I meant to infer that

MUSIC TECHNOLOGY JULY 1990



ILLUSTRATION: CLIVE GOODYER

people aren't aware that anything untoward is going on - even the appearance of an extra beat to the bar.

I appreciate that this may sound like something of a Trojan horse approach to writing music, but why should that matter? If, as many of the odd metre tracks which have appeared over the years would seem to suggest, there's a direct correlation between non-standard time signatures and musical innovation, it is surely incumbent on us to at least consider them the next time we sit down to put a rhythm track together. Take some of the examples that were mentioned in my list: 'Take Five' (Dave Brubeck), 'Solsbury Hill' (Peter Gabriel), 'Living In The Past' (Jethro Tull), 'Wuthering Heights' (Kate Bush) and 'Turn It On' (Genesis).

Convinced? I'm not sure many of the *Rhythm* readership were, but then, most of them were drummers, and playing in odd time is the sort of exercise which brings your average skin basher out in nasty red swellings. Not so our friend the beatbox, who will happily sit there while you program him/her/it with the most fearsomely complex patterns and then, with great dignity (and not a trace of resentment at being expected to perform such a task), replay them flawlessly from beginning to end.

This isn't to suggest that the patterns that I shall be presenting this month could be described as fearsome - or complex. There is nothing inherently complicated about odd time in any form, and the examples I have come up with here certainly shouldn't present any problems - providing your machine is capable of handling the "arithmetic". Of course, being written in odd metres, it's unlikely that any of these patterns will fit, without modification, with other parts which you may have already written. But you should find yourself being led down some interesting avenues if you do choose to try adapting a song or instrumental track for use with them. And if you're starting from scratch, you can almost guarantee the sort of music you'll produce will be given a considerably greater degree of rhythmic interest by using one of the patterns here.

Having listened to a wide range of odd metre rhythms in preparation for this article, it seemed to me that where most of them fall down is in attempting to adapt existing patterns in common time for use as 5-, 7- or 9-based rhythms. More often than not, this ►

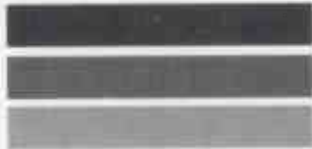
my list was complete. It was, I argued, simply a cross-section of the better known records which fell into that category. (And of course I was truly grateful to them for bringing these other examples to my attention.)

With or without the help of the readers, however, I still believe the point was well made. Odd time signature rhythms can be readily adapted to suit a surprisingly wide range of music, and

indeed, the word "odd" itself, need only refer to the structure of the rhythmic, not to its inherent "strangeness" in a contemporary music setting.

It could be argued that the problem we have to address lies not with musicians but with their audiences. Odd metres simply don't sit squarely with the great listening public. Or do they? It seems to me that providing a rhythm is dressed in the right clothes, most

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PATTERN No: 1							TEMPO: 130-160 BPM				
BEAT:	1	2	3	4	5	1	2	3	4	5	
Clsd HiHat	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	
Open HiHat		◇		◇		◇		◇		◇	
Snare Drum			◇		◇		◇		◇		
Bass Drum	◇			◇	◇		◇		◇	◇	
TIME SIG: 5/4		BAR 1					BAR 2				

PATTERN No: 2							TEMPO: 140-160 BPM				
BEAT:	1	2	3	4	5	1	2	3	4	5	
Clsd HiHat	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	
Open HiHat		◇		◇		◇		◇		◇	
Snare Drum		◇		◇		◇		◇		◇	
Side Stick	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	
Bass Drum	◇		◇	◇		◇		◇	◇		
TIME SIG: 5/4		BAR 1					BAR 2				

PATTERN No: 3							TEMPO: 140-165 BPM				
BEAT:	1	2	3	4	5	1	2	3	4	5	
Clsd HiHat	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	
Open HiHat						◇				◇	
Snare Drum		◇		◇		◇		◇		◇	
Cow Bell	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	
Bass Drum	◇	◇		◇	◇		◇		◇	◇	
TIME SIG: 5/4		BAR 1					BAR 2				

► tends to sound like a beat has been added to the bar (or missed out, in the case of two-bar patterns), and our 4/4-sodden brains are immediately alerted to the fact that something is "wrong". Here I have tried to devise patterns which, from the outset, are intended to be played with an odd number of beats to the bar, and which therefore stand on their own feet, rhythmically. Where I have adapted an existing 4/4 pattern, however, I have attempted to employ a few diversionary tactics so that the attention is drawn away from what we might perceive as a missing or an extra beat.

How successful I have been in this, I'll leave for you to judge, but I would ask that you give yourself enough time to acclimatise to these patterns before deciding on their value. Hopefully, after your brain has shrugged off its 4/4 straitjacket, you should start seeing the rhythmic possibilities contained within each example. There is no elaborate instrumentation to concern yourself with. I've stuck to snare, bass drum, hi-hats and cymbals for most patterns, with

the addition of a side stick or cowbell part here and there to add a little colour.

Of course, if you feel like getting adventurous I'm sure every one of the patterns could be improved upon by pressing other instruments into service, and it goes without saying (or should) that the overall effect will vary according to the duration of each voice (particularly the bass and snare drums) and the kind of ambience to which they are subjected. So choose your samples with care.

To begin with, we have a trio of patterns in 5/4, each extending to two bars. All three of these examples, though very simple to program, are characterised by their driving feel, particularly the second and third rhythms which are helped along by their side stick and cowbell parts, respectively. Any tendency for our brains to question the existence of a fifth beat in each bar is overcome by restricting the amount of space left between beats. Without that space, we are not given the time to conclude that anything might be wrong: the patterns always ►

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PATTERN No: 4		TEMPO: 135-160 BPM													
BEAT:		1	2	3	4	5	6	7	1	2	3	4	5	6	7
Clsd HiHat		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Ride Cymb		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Snare Drum				◆				◆			◆				◆
Side Stick		◆			◆			◆			◆				◆
Bass Drum		◆				◆	◆	◆					◆	◆	◆
Crash Cymb		◆													
TIME SIG: 7/4		BAR 1							BAR 2						

PATTERN No: 5		TEMPO: 150-195 BPM													
BEAT:		1	2	3	4	5	6	7	1	2	3	4	5	6	7
Clsd HiHat		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Open HiHat							◆				◆				◆
Snare Drum				◆				◆							◆
Side Stick			◆					◆			◆	◆			◆
Bass Drum		◆			◆	◆		◆					◆	◆	◆
Crash Cymb		◆													
TIME SIG: 7/4		BAR 1							BAR 2						

PATTERN No: 6		TEMPO: 130-155 BPM													
BEAT:		1	2	3	4	5	6	7	1	2	3	4	5	6	7
Clsd HiHat		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Ride Cymb		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Snare Drum				◆				◆			◆				◆
Cow Bell		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Bass Drum		◆			◆	◆		◆					◆	◆	◆
TIME SIG: 7/4		BAR 1							BAR 2						

PATTERN No: 7		TEMPO: 130-160 BPM													
BEAT:		1	2	3	4	5	6	7	1	2	3	4	5	6	7
Clsd HiHat		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Open HiHat				◆				◆			◆				◆
Ride Cymb		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Snare Drum				◆				◆			◆				◆
Side Stick		◆			◆			◆			◆				◆
Bass Drum		◆				◆	◆	◆					◆	◆	◆
TIME SIG: 7/4		BAR 1							BAR 2						

► seem to roll ahead of us.

Patterns 4 to 7 are, as you can see, all two-bar, 7/4 rhythms, but unlike the previous examples, all have a radically different feel to them. The first, pattern four, is probably my favourite, and perhaps more than any, illustrates just how natural odd-metre rhythms can be made to feel. Having said that,

Pattern 5 could be said to be the most versatile of the group, particularly in terms of tempo which can extend from 150 to well over 200 beats per minute.

Pattern 6 is rather more energetic than the other three examples in this group, while Pattern 7, including, as it does, a natural cadence at the end of the second bar, could be used as a

fill, or even an ending to a particular musical phrase. In this role, you could, perhaps, use the first bar to establish the overall rhythmic feel of the piece, and program bar two to occur at strategic points in the song.

Moving along to Pattern 8, we find ourselves in the realms of 9/4 - and a rhythm which, though much extended, shares a common feel with the 5/4 pattern we encountered earlier. Again, the rhythm is constantly pushed along; there is no time to dwell on its simple indivisibility by two. Incidentally, the cowbell part could be given over to a variety of other instruments, claves and handclaps being perhaps the most obvious.

From 9/4 it is but a small step - alright, two small steps - to the rhythmic delights of 11/4, and once again there has been a radical shift in feel. Though relatively simple to program, Pattern 9 has a distinctive flavour, provided largely by the side stick figure which actually starts at the end of the bar but which continues through to the beginning as the pattern repeats itself. I used a similar figure back in part seven of this series, but in case you missed it, let me explain that the small number in each of the beats is intended to represent a dynamic level. The idea being that you program all eight notes to extend across the dynamic range of your machine. In other words, 8 should represent the highest level, and 1 the lowest.

The effect of this is to provide an extended decay-like effect on the side stick which gives the pattern an interesting twist. Incidentally, you could try using a digital delay to provide a similar effect, programming only the first of the notes, and even experiment a little with the delay setting to alter the timing of the repeats.

For our grand finale, we enter the dizzying heights of 15/4 and a pattern which illustrates quite graphically, that as far as rhythm is concerned, large numbers really don't equate with complexity. Though there's rather a lot going on in the hi-hat part, the rest of the pattern is simplicity itself and really shouldn't offer any programming difficulties at all.

You could break the pattern down to a mixed metre format - in other words, three bars of 4/4 and one bar ►
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► of 3/4 - if this makes life easier for you, and indeed, this is true of all other odd time signature rhythms. Personally, I think it better that we try to forget about common time signatures altogether when dealing with odd metres, only in this way can we begin to accept them on their own terms, and not simply as modified version of more familiar patterns.

But why, you may ask, should we bother to come to terms with odd time at all? Well, apart from the obvious advantage of rhythmic interest, it's the old story of changing the framework in which you work to encourage yourself to

think along different lines. And there can be no doubt that odd metres do force you to think along different lines. Try it, and see what I mean. There is, of course, a problem with dancing to some of these rhythms: quite simply, you can't (unless you're into the kind of free-form epilepsy that was popular amongst hippies back in the late '60s and early '70s). But far from being any sort of disadvantage, I believe there's more than enough room for a little music which doesn't require a dancefloor before it becomes valid.

Speaking of which, I well remember an

incident at the Hacienda club in Manchester late one Saturday night back in the mid-'80s. The DJ, after playing some of the most insistent dance tracks around at the time, decided the evening needed something a bit more laid back to bring the temperature down a little. And what could be cooler than Dave Brubeck's '60s classic 'Take Five'? The crowd, hearing the familiar opening bassline and the dulcet tones of the sax positively fell over themselves to get onto the dance floor. But that ol' 5/4 rhythm really can play havoc with your feet. . . ■

PATTERN No: 8a		TEMPO: 125-150 BPM								
BEAT:		1	2	3	4	5	6	7	8	9
Clsd HiHat		◆	◆	◆	◆	◆	◆	◆	◆	◆
Snare Drum				◆		◆		◆		◆
Cow Bell		◆	◆		◆	◆		◆	◆	
Bass Drum		◆		◆		◆		◆		◆
TIME SIG: 9/4		BAR 1								

PATTERN No: 8b		TEMPO: 125-150 BPM								
BEAT:		1	2	3	4	5	6	7	8	9
Clsd HiHat		◆	◆	◆	◆	◆	◆	◆	◆	◆
Snare Drum				◆		◆		◆		◆
Cow Bell		◆	◆		◆	◆		◆	◆	
Bass Drum		◆		◆		◆		◆		◆
TIME SIG: 9/4		BAR 2								

PATTERN No: 9		TEMPO: 125-160 BPM										
BEAT:		1	2	3	4	5	6	7	8	9	10	11
Clsd HiHat		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Ride Cymb		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Snare Drum				◆		◆		◆		◆		◆
Side Stick		7	6	5	4	3	2	1				
Bass Drum		◆		◆		◆		◆		◆		◆
TIME SIG: 9/4		BAR 1										

PATTERN No: 10		TEMPO: 115-140 BPM														
BEAT:		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Clsd HiHat		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Open HiHat			◆		◆		◆		◆		◆		◆		◆	
Snare Drum				◆		◆		◆		◆		◆		◆		◆
Bass Drum		◆		◆		◆		◆		◆		◆		◆		◆
TIME SIG: 15/4		BAR 1														

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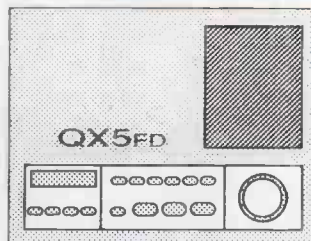
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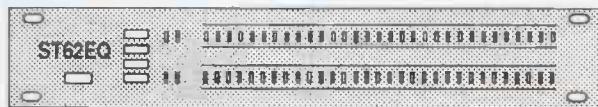


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SY22



PHOTOGRAPHY: ADAM JONES

As the DX7 spawned a family of FM synths in the early '80s, Yamaha's SY77 is being joined by further SY synths some seven years on. The SY22 presents simplified facilities at an attractive price - and sounds good too.

Review by Simon Trask.

COMPARED TO THE SY77, the SY22 is the budget synth of the developing SY family, but it's not simply a scaled-down version of the more expensive instrument. Like the flagship of the series, the SY77 (Reviewed MT, January '90), it combines FM synthesis with AWM samples - but that's about as far as the similarity goes. Where the SY77 presents you with the full

sophistication and complexity of Advanced FM, the SY22 does its best to hide the rigours of FM synthesis from you - to the extent that you only have to deal with two FM parameters. The new synth also uses only two operators, organised as carrier and modulator, but the versatility of its FM sound capability is far greater than this humble arrangement might suggest. This is because Yamaha have provided a large number of FM sounds for you to draw on - 256 to be exact.

The basic idea behind the SY22 is that you program patches as much through the combination of AWM and FM sounds as anything else. Unfortunately, the SY22's pursuit of simplification also means that it has no digital filtering capability, an omission which is only in a limited sense made up for by some of the FM timbres, which change over time in a manner not unlike a filter opening up (but not altogether like it either). Also, polyphony has been halved from 32 to 16 voices. More positively, the SY22 features the ability to overlap sounds when you change patches.

VOICES

AS ON THE other SY instruments, an SY22 Voice consists of four Elements. Here those Elements are fixed as AWM samples for Elements A and C and FM-synthesised sounds for Elements B and D. You can elect to have either a two-Element (A-B) or a four-Element Voice, the former giving you 16-note polyphony and the latter eight.

Each Element can be transposed ± 12 semitones and given its own volume, stereo pan (from five positions), velocity and channel aftertouch sensitivity (related to level) and LFO settings. You can choose either a saw up, saw down, triangle, square or sample-and-hold waveform for the LFO, and set LFO delay, rate and speed together with separate amounts for amplitude and pitch modulation depth. Among other things, the LFO can be used to produce a continuous echo effect, and with different rates for each Element you can create interesting rhythmic effects (as in Preset Voice 85: 'VectaEko').

Each Element can also be given its own amplitude envelope. You can select any one of six preset envelope types (Piano, Pluck, Strings, Guitar, Brass and Organ), or if you select Preset the SY22 will automatically apply whichever one of these envelopes Yamaha factory-assigned to the Element's selected sound. Alternatively you can program your own User envelope for the Element, using delay time, initial level, attack level and rate, decay 1 and decay 2 level and rate, release rate and keyboard level and keyboard rate scaling parameters. A Copy function allows you to copy all the User envelope parameter values for one Element to any other Element - now that's what I call useful. Another very useful Copy function allows you to copy all the parameter values of one Element to another Element of the same type, so that if you've come up with an Element that you like in one Voice you can easily transfer it to another Voice.

Each Voice also has several parameters which apply to all four Elements in the Voice. Known logically enough as Common parameters, these allow you to give the Voice an eight-character name, select effect type and depth and pitchbend range, turn mod wheel and aftertouch control of LFO amplitude and pitch modulation on/off, and make overall \pm adjustments to the envelope attack and release rates of the Elements.

Yamaha have also given the SY22 a Voice feature called Random which produces random combinations of Elements, level vectors and detune vectors for you. So you could start out with Elements, then if you discovered a combination you liked you could try random level and/or detune vectors on it. Random can operate on either two Elements (A-B) or on all four. It would've been useful to be able to "drop out" any of the Elements from the randomising processing, so that if you found a particular combination of two or three Elements that you liked you could then randomise only the other Element(s).

FM-specific editing on the SY22 is confined to a mere two parameters: level (of the modulator) and feedback amount. Now, you couldn't get more

straightforward than that. However, there's more versatility in the synth's FM sounds than this might imply, because other FM parameters have been factory-programmed by Yamaha - level and feedback are merely the only two that they've allowed you to get at. In total there are 256 FM sounds on the SY22, divided into 16 categories: Piano, Organ, Brass, Wood, Reed, Pluck, Bass, Strings, Percussion, Synth S, Synth M, Synth D, SFX, Oscillator 1, Oscillator 2 and Oscillator 3. The synth's 127 AWM samples are also divided into 16 categories: Piano, Organ, Brass, Wood, Guitar, Bass, Strings, Vocal, Percussion, Synth, SFX, Hits, Transients, Oscillator, Sequences and Drums. The eight Sequences are preset sequences of other AWM sounds, and can be used to good effect as a means of creating background movement in a sustained Voice (for example, Preset 83: 'Industrial').

The SY22 provides a selection of 16 onboard digital effects: Rev Hall, Rev Room, Rev Plate, Rev Club, Rev Metal, Delays 1-3, Doubler, Ping-pong, Panned Reflections, Early Reflections, Gate Rev, Delay & Rev 1-2 and Distortion + Reverb. In keeping with Yamaha's aim to keep everything as simple as possible on the SY22, the only effect parameter you can adjust is depth. These are neither the best quality nor the most versatile effects (you can't even alter delay time, for instance), but they sit well with the sounds they're required to process, and are a welcome inclusion.

The SY22's ability to "overlap" Voices extends to being able to overlap sounds within individual Elements when you're in Edit Mode. For instance, pick a sustaining AWM sample for Element One, play it and hold down the note, then select another sample and play it, again holding down the note. In this way you can build up chords in which each note plays a different sound, and play a melody or solo on top of the chord using another sound again. Now, there's no way that you can sequence these textures in Voice mode, but you can recreate them in Multi mode, by using a different Part for each sound and limiting the note range of each Part appropriately.

VECTOR CONTROL

VECTOR CONTROL IS part of each Voice's parameter structure, but it deserves separate consideration. Essentially you can use the joystick-like Vector controller on the SY22's front panel to balance the levels of each Element or detune them against one another dynamically in performance. The four Elements are located at the four "tips" of an x/y axis, and the level or detune amount of each Element is determined by the distance of the joystick position from it.

You select Vector control from a dedicated Vector Play on/off button, while successive presses of a Level/Detune button alternate between the two options. While you're waggling away to your heart's content, the SY22 is also transmitting its x/y coordinates as MIDI controllers 16 and 17, so you can record your waggings into a sequencer for as long

“Additionally, the SY22 can produce all manner of wonderful effects and synthesised sounds which are full-sounding, tight and punchy - even with a powerful analogue-ish quality.”

“For a company who have long been criticised for producing synths which are complicated to understand and confusing to use, Yamaha have pulled a surprise out of the bag.”

- ▶ as you want and then play them back with the same or another Voice selected.

Alternatively, you can record a 50-step level sequence and a 50-step detune sequence as part of each Voice. These sequences will play automatically unless you select front-panel control, in which case the joystick takes over. Internal sequences can be recorded using the joystick, or they can be entered numerically as x/y coordinates and a duration per step. Durations are multiples of a vector rate which can be set between 10-160 milliseconds in 10 millisecond steps; thus a maximum duration figure of 254 gives you something like 40 seconds per step. Numeric entry is less spontaneous than joystick waggling, but it does allow you to optimise those modest 50 steps because you can avoid the movements from one point to another which are recorded when you use the controller. The SY22 crossfades between two positions in time, so if you want to hold one position for a fixed time you have to program the same position into two successive steps, giving the first one the required duration value.

Vector sequences are programmed as part of a Voice function in Multi mode, but the SY22 doesn't respond at all to sequences of controller data recorded into a MIDI sequencer - my guess is that this is because the SY22's MIDI buffer and its processing speed aren't up to handling masses of controller data on multiple MIDI channels simultaneously.

MULTI MODE

YAMAHA HAVE KEPT the SY22's Multi mode uncomplicated but reasonably flexible. You can store 16 Multi setups in internal memory alongside 16 Preset Multis and another 16 on an MCD32 RAM card (or 32 on an MCD64 card). Each Multi provides you with up to eight Parts which can be utilised as a MIDI multitimbral setup for multi-part sequencing or as a means of layering and splitting Voices on the keyboard, with one Voice per Part. To this end you can give each Part its own MIDI receive channel and note-range assignments, along with a volume level, detune amount and transposition (± 24 semitones). Each Multi can be given an eight-character name, plus effect type and depth settings which apply equally to all eight Parts. The SY22's 16-note polyphony is assigned dynamically across the eight Parts, taking into account the mix of two- and four-Element Voices, but there's no voice reserve or voice priority function to prevent voices being stolen from important Parts. The SY22 can respond to MIDI patch changes in one of two ways (or not at all). When it's set to Common, patch changes 0-63 received on the synth's Basic channel select corresponding Voices, while patch changes 64-79 select Multis (within Preset, Internal or Card banks, depending on which you select from the synth's front panel). When the SY22 is set to Individual, patch changes 0-63 also select the corresponding Voices in Voice mode on the Basic receive channel, but in Multi mode the same patch changes can be received on multiple MIDI channels and will select Voices within individual Parts. Although higher patch numbers could

surely still be used to select Multis, in practice this only happens when a patch change in the range 64-79 causes a switch from Voice to Multi mode. Is this a bug I see before me, Yamaha?

UTILITIES

RECALL ALLOWS YOU to retrieve a non-saved edit of a Voice or a Multi patch even after you've left Edit mode and selected one or more other Voices or Multis - as long as you haven't started to edit another Voice or Multi before selecting the Recall function.

Setup parameters allow you to adjust master tuning and transposition, format a RAM data card, transfer data between internal memory and RAM card, initialise a Voice and turn memory protection on/off independently for the internal and card memories.

MIDI parameters allow you to turn the SY22's MIDI communication on or off, set Local on or off, set independent transmit and receive channels (1-16) and globally enable or disable transmission and reception of patch changes, controller changes, aftertouch, pitchbend and SysEx. You can initiate SysEx transmission of individual Voices (Preset, Internal and Card) or of all Voice and Multi data together. A definite minus is the SY22's inability to transmit MIDI volume data, although it can receive it.

VERDICT

THE SY22'S COMBINATION of AWM samples and FM synthesised sounds works extremely well, and makes it a very versatile instrument. Familiar instrumental sounds are well catered for (more successfully, I have to say, than in the days when Yamaha's synths only used FM synthesis), but additionally the SY22 can produce all manner of wonderful effects and synthesised sounds which are variously full-sounding and tight and punchy, even in some cases with a powerful analogue-ish quality which we're not used to hearing from Yamaha synths. What's more, the SY22's drum samples are a definite improvement on those to be found on the other SY-series synths, both in terms of quality and variety. Finally, Vector control is an integral part of the SY22's sound creation possibilities, and is a genuine musical tool, and certainly not a gimmick.

Operationally, the SY22 is fairly straightforward if a little fiddly (I definitely miss having a data slider to hand), and not at all offputting - which is the idea. For a company who have long been criticised for producing synths which are complicated to understand and confusing to use, Yamaha have pulled a surprise out of the bag, because the SY22 is neither of these things.

Get along to your local music shop and play through the SY22's preset Voices. You'll be very pleasantly surprised not only by the sounds but by what you're getting for your money. ■

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demo takes

DemoTakes scoop: could the infamous Skum (aka Worzel Skummidge) be none other than ex-Dr Who Jon Pertwee? I'm not offering any answers, it just crossed my mind. After all, if it's not JP, who the hell is it? Anyway, in the absence of ole Skum I'm your guest demo reviewer - call me Jon.

This month we kick off with three songs by **Andromeda**, a female duo from London. Bedroom photographs portray Andi and Leni Andromeda as potential glam-rock queens, having raided their mothers' jewellery boxes. Switching on my trusty Walkman, my preconceptions were soon changed. Instead, Andromeda are a marriage of early '80s Euro-pop with The Sisters Of Mercy. The opener, 'Obsession', is obviously sequenced, though no equipment details are provided - an attempt to create an aura of mystique, or simply laziness on the girls' part? Machine-like drums (Roland TR707?) rattle along with familiar DX bassline, bland melody and synthetic brass. The overall effect is psuedo-Arabian (as popularised by Blancmange), punctuated with much Roland handclapping.

'Too Late For Changes' sees the fixation shift from Blancmange to Erasure's Vince Clarke - and again, the gated drums, bouncing bass, simple chords and yet more handclaps don't really add up to much. 'Modern Times' opens with melancholy strings before suffering a similar fate. The vocals (uncannily like Siouxsie Sioux) are bland and low in the mix and the lyrics banal, although this is not necessarily a problem as it's obviously the dance market Andromeda are aiming for.

The tape's label states that all the music is "written, performed, produced and mixed by Andromeda". Congratulations are due for resourcefulness, but an independent opinion may make all the difference to your direction. Remember: "no man is an island. . ." Obviously, neither is any woman.

Next in line for the literary guillotine is **Mark Wheeler**, who is no stranger to these pages, having been subjected to the well-tuned ear of our own Debbie "don't worry about it" Poyser way back in January '89. The accompanying photograph bears testament that Mark has changed little in the intervening months (same haircut, different jumper). A complete cassette-album, released on his own intriguingly entitled TCMLW label is young Mark's offering today. Top marks for initiative then. The packaging is,

however, tacky and could be taken as a reflection of the music contained within. An unknown artist trying to sell himself for the first time should be looking to make a good first impression (you never get a second chance). Make no mistake: in 1990 aesthetics are important.

The album is entitled *The Chopstick Works*, and Mark's mostly up-tempo instrumental synth, or "electronic music" is competently performed and recorded - but again is short on originality. On the strength of the music Mark is obviously influenced by an innovative German trio. If you're not sure, Mark has had the audacity to name one of his compositions 'Ricochet'. Oh well. . .

'Transformations', with its delayed arpeggiated sequences, uplifting melody, and analogue string pad, is the highlight of an otherwise average album. Here the influence of mid-'80s Tangerine Dream is unmistakable.

The instrumentation behind *The Chopstick Works* is common to many a bedroom, namely Roland D50, Yamaha DX100 and Casio CZ101 synths, Roland TR626 and Yamaha RX11 drum machines, with the ubiquitous Atari 1040ST running Iconix sequencing software. Although Mark claims programming all his own sounds "helps to make the music more original", his claim is not really supported here - instead there's an abundance of uncomfortably familiar LA and FM textures. Some tracks are also slightly suspect in their timekeeping as they're played without the aid of quantisation. Another good intention, but the technology is there to be used. These days your average music punter has quite an acute ear (due in part to over-exposure to the SAW machine). Like Andromeda, Mark suffers from a problem with "the clap" - it seems to be this month's favourite failing.

Mark expresses an interest in film and TV soundtrack work, nowt wrong with that but remember it's a cut-throat world and it's taken you a long time to complete this album - and time is a luxury not often permitted in the film industry.

A rare MT office census concluded that **Piggy Malone & The Keith Chegwin Experience** are prime contenders for a name change. PMKCE have been together for two years (ample time to find a decent moniker) and currently consist of vocalist James Hyett, bassist James Cainey, and guitarist Nigel Wynn, also responsible for "other stuff".

The six-song demo submitted features two numbers recorded at Trowbridge's 16-track Watergate Studios, a Fostex X26 multitracker having given birth to the remaining four. Watergate is based around a Fostex E16 and boasts an array of gear including Casio FZ10M sampler, Roland MC500 MkII Microcomposer, R8 drum machine and TB303 Bassline; Korg M1R workstation, A3 multi-effects and MS10 synth.

Outside the studio, instrumental responsibilities are handled by Roland's TR505 and TB303, Korg DDM110 drum machine, Yamaha PSS460 home keyboard and Casio's "cheap'n'cheerful" SK5 sampler.

The music: fading in with decent-sounding R8 drums, 'I Don't Like It' comes complete with screaming wah-wah guitars. It sounds like a cross between Big Audio Dynamite and Jesus Jones (the latter of whom Nigel cites as one of his influences). Hyett's vocals would be at home on any Pet Shop Boys or New Order number, and succeed in cutting through the band's barrage of sound. Recording quality generally lived up to my (high) expectations, although the guitars could have been slightly less prominent in the mix. That said, the second of the studio tracks was let down by over-used TR606 drums. You don't have to review demos for long before you realise what an irritating machine it is when at a high level in the mix. Perhaps a remix is the order of the day. It would be unfair to compare the home-grown songs with those put together in a professional studio, but even bearing this in mind they are far from the best home recordings these ears have been subjected to.

With the exception of the instrumental track, 'But No Going Back' (which owes heavily to Renegade Soundwave), the demo'd songs follow the blueprint of the mastered songs. Guitar and bass provide the foundation for electronic workouts, with a splattering of samples thrown in for good measure. The drum patterns are uninspiring on the whole, which is a shame for a band of such promising style.

On balance, the exercise unfortunately goes to show how mediocre compositions can be made to sound half-decent when hiding behind a barrage of technology. Nigel states how PMKCE hope to expand their "extremely crap equipment" setup, but the fact that the equipment is already propping up the music proves a bad craftsman really can't blame his tools. ■ **Jonathan Miller.**

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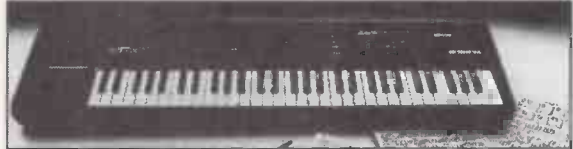
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1622



PHOTOGRAPHY: JAMES CUMPSTY

The explosion in “affordable” digital reverb units looks set to be followed by a similar explosion in “affordable” mixing desks. Alesis' offering: 16 channels with unbelievably low noise and price. Review by Ian Waugh.

I'VE BEEN ITCHING to get my hands on this desk since I saw a mock-up at last year's British Music Fair. My motives however, I admit, weren't completely altruistic in wanting to bring you, dear MT reader, the low-down on one of the latest pieces of hi-tech gear.

You see, my then-current eight-channel mixer was several years old, almost pre-MIDI in fact, and old enough to have been around when instruments with stereo audio outputs were rather thin on the ground. It's doubled as an instrument mixer (for synths and so on) and a recording mixer, a task it has coped with well until stereo equipment became the norm at which point the inputs definitely became overcrowded. Many MT readers may recognise the situation.

With the proliferation of hi-tech gear with stereo outs, secondary outs, individual outs and drum outs

it soon became clear that I could not run all my equipment in stereo. Even dedicating the mixer to instrumental use only and recording in stereo direct from sequencer to tape (something which I have been doing increasingly over the years) left me a few channels short of a full mix (marginally better than being a few sandwiches short of a picnic).

So, the 1622 seemed an ideal solution - and a budget-priced solution, too. Alesis have built their reputation on new (dare I say innovative?) and interesting gear at the right price, and the 1622 seemed to be on.

“What's it all about?” you may ask. Monolithic Integrated Surface technology, that's what, the net result of which is a high quality mixer at a low price.

THE MONOLITH

IF YOU THOUGHT monolithic only referred to the stone age or something out of Kubrick's *2001: A Space Odyssey*, think again. Alesis' “Monolithic Integrated Surface” technology has led to the development of a complete mixer - yep, the 1622 - whose internals are basically designed around a single circuit board. This includes the pots and the faders which, in fact, are part of the board itself. The benefits of this form of construction include reduced production costs and improved conductivity - the controls work beautifully with not a scratch or a glitch to be heard.

Although the construction appears to be quite rugged, I wonder what happens if a control does become faulty or if you break a pot or a fader - would a repair mean replacing the whole board? Of course you take good care of your gear but accidents do happen.

The casing itself is made from moulded plastic and in a familiar wedge shape - mainly, I suspect, in order to house the plethora of sockets which you'll find if you take a peek around the back. It can be used flat or mounted into a rack.

LAYOUT

AS YOU'VE PROBABLY sussed from the name, the 1622 is a 16-channel mixer and each channel can be routed to a Master or Sub Master buss. Let's work our way down one of the channels.

First is the trim pot, variable from -10dB to +30dB. Next is a two-band EQ section consisting of simple treble and bass controls operating at 10kHz and 100Hz with ± 15 dB of cut and boost. The lack of a mid-range control could prove a miss to some, but, in use, I didn't really miss it (although I tend to tweak rather than gouge). The EQ is certainly flexible enough to lift the top end and boost a bass drum and to clip the top-end noise from a particularly ill-mannered synth.

Next are the sends - two pre-fades and four post-fades. The pre-fades will probably be used for headphone monitoring although they can also be used with outboard effects. The four post-fade sends may seem like overkill but there are many home studio owners with more than two effects units or who would simply like the flexibility of more than two sends.

Underneath the sends are the routing switches which send the signal to the Master or Sub Master, and below these are Mute and Solo switches. These are little white toggle switches which slide across the mixer from left to right rather than the more usual push-button affairs. Again, I assume this is due to the internal layout of the board.

Mute does not affect the signal on sends 1 and 2 but it does mute the other sends. There are no overload LEDs and you must use Solo - and your ears - to check the levels. A Solo'd signal is heard in mono and without any effects. Once the red LEDs start to peak there's little headroom left before the signal distorts.

Obviously, altering the input signal (changing synth patches and so on) and tweaking the EQ will alter the input level so you may have to check the levels several times during use.

Finally we come to the pan pots and below them the faders.

GROUPIES

ON THE RIGHT of the mixer are the group controls. At the top are the level LEDs - seven green, four yellow and four red. Below these is a Solo LED - which lights when a Solo switch is on - and a Power On LED. You may think this non-essential but the unit is so quiet

you could well need reassurance that it is switched on. I kid you not.

Below this is a giant Master Volume control dial. To the left of this is a Monitor Defeat switch and a Tape/Master switch. The latter determines what you hear on the control room monitor speakers - the signal from the mixdown tape deck or from the desk.

Next we have the six send master volume controls followed by the effects returns. The first four (that is, the two pre-fades and the first two post-fades) each have a pan control as well as a volume control which allows the signal to be placed anywhere in the stereo image. The other two returns are permanently assigned to the left and right Sub Master and Master busses respectively, useful for dedicated stereo effects.

The final controls are concerned with the Master and Sub Master busses. The left and right Sub Master channels have their own pan pots. There's also a Sub Master-To-Master switch which, as its name suggests, routes the Sub Master signal to the Master buss.

As each channel can be routed to either buss and panned left or right, you could effectively use the mixer to feed four independent signals to a four-track recorder, for example, with a reasonable amount of flexibility. The Sub Masters could also sum a collection of signals before passing them onto the Master.

INS & OUTS

EACH CHANNEL HAS unbalanced line inputs, and channels one to eight also have balanced XLR mic inputs. Channels one to eight also have Direct Outs which could feed an eight-track recorder (in such an application, the tape outs would go to channels nine to 16).

There are separate Sub Master and Master outputs plus a Monitor Out to plug into your, er, monitors - via an amp, of course. Here we also find the Tape In sockets which let you monitor the mixdown signal without repatching - thoughtful. Use with the Tape/Master switch described earlier.

Each channel has an insert point on a stereo jack allowing you to plug an outboard unit into just one channel. There are also separate left and right Sub and Master inserts which are useful if you want to run the entire mix (or a "Sub" part thereof) through an effects unit (compression and excitation spring to mind).

The headphone socket is here, too, along with a +4dB/-10dB level switch to assist compatibility with both pro and semi-pro gear.

The power supply is external and plugs into the back. It's identical to the one used with the Quadraverb, in fact.

LOOKS & FEELS

THE 1622 LOOKS hi-tech, if a little undistinguished, with its grey/black casing and light grey controls. However, the casing is of such a design that it always looks dirty. Once you cross the acceptance threshold, ►

“One of the most impressive and noticeable - or unnoticeable - features of the 1622 is the lack of background noise. This thing is quiet.”

“The 1622 has many applications - four-track studios, eight-track studios, keyboard sub-mixing, sound reinforcement and most likely of all, in the MIDI studio.”

► however, you realise the advantage is that you don't notice the real finger marks.

It's not a new ploy (take Roland's upmarket R8 drum machine and its “underfelt” finish as another example), but in a world of dust and grime I prefer to keep my gear looking clean.

The pots are small but very usable. However, if you are used to chunkier knobs they may seem to lack a little feel, although not, I think, response. This is partly due, I believe, to the fact that they are connected directly to the circuit board. The faders fit into channels recessed into the case which keep them moving in a straight line so as not to put undue stress on the circuit board. This can result in a little friction and scraping as they touch the side of the channel, which, in turn, can affect their response if you are relying on light, fingertip control.

The headphone socket is placed rather inconveniently on the back along with the power on/off switch. Consequently, if you mount the mixer in a rack you'll need access to the top of it. Again, I suspect this was a necessity forced on it by the monolithic circuit board.

The good news is, the 1622 is extremely light - if you use it live your roadie will love you forever. The 1622 is also supposed to be beer-proof, Coca Cola-proof and resistant to all other sorts of sticky and runny substances. The Alesis stand at Frankfurt was showing a video demonstrating just how impervious the critter is. If you have ever dirtied your mixer - and who hasn't thrown the odd can of Red Stripe and bottle of Scotch over their equipment now and again? - you'd have been suitably impressed. However, it would take a stronger stomach than mine to try this on my own mixer (it's OK Alesis, I didn't try it on yours either).

APPLICATIONS

THE 1622 HAS many potential applications. It is an ideal choice for a four-track tape studio for a start. The manual is also keen to demonstrate its usefulness with an eight-track recorder - this is quite feasible, too, although it's not quite as ideal as an eight-buss mixer and a certain amount of repatching may be necessary. This, however, would depend upon your specific setup and a patchbay should solve many problems (and if you can't afford a patchbay you probably can't afford an eight-track recorder, either).

If you're after a mixer for eight-track work the best advice I can give is to work out your requirements then check out the 1622. It may be just what you need, but on the other hand. . .

If this is your first (or even your second) venture into mixing, you should find the manual very helpful. It clearly describes the functions of all the controls and sockets, and includes several applications with suggestions on how to connect equipment to the mixer. This includes a couple of eight-track recorder setups. There is also a glossary, a troubleshooting guide and some “mix and recording theory”.

Other applications include sound reinforcement. Again, the manual contains several suggestions and here the Sub Masters really start to earn their keep.

The 1622 would make a neat keyboard sub-mixer, too, especially as virtually all modern synths have stereo outputs - don't we know it? - and many have additional outputs as well - room for six stereo synths here, vocals, guitar and bass with perhaps a channel or two to spare.

The high sonic quality of the unit makes it equally suitable for professional situations, too, perhaps as a sub or secondary mixer or even in a video post-production suite. Still more suggestions can be found in the manual.

But I reckon one of the main niches in which the 1622 is going to find itself is the MIDI studio. There must be hundreds, if not thousands of musicians whose work is based around a computer or hardware sequencer and who do a mix directly from the sequencer and/or their equipment onto tape. If you're working in stereo with four synths or expanders then that's an eight-channel mixer swallowed whole. The 1622's 16 channels give you plenty of headroom plus channels to spare for vocals or acoustic instruments. The six sends and returns give you lots of options for patching in effects units.

VERDICT

ONE OF THE most impressive and noticeable - or unnoticeable - features of the 1622 is the noise - or lack of it. This thing is *quiet*. Apart from any other features this is reason enough to check it out. Noise is the bane of all our lives - unwanted noise that is - and any piece of equipment with such a low level of inherent noise is to be welcomed.

Most of my brickbats are to do with the design which, in turn, was dictated by the monolithic circuit board which, in turn, is what makes the 1622 perform as unbelievably well as it does. It's a trade-off, but one which comes down, I believe, firmly in favour of the pros. That said, a mixer is such a personal piece of equipment that you really need to put your hands on it and play with it to make up your own mind about it.

And when you throw the cost into the equation (if you haven't already sneaked a look at it) you'll find a mixer with a performance and facilities to belie its price.

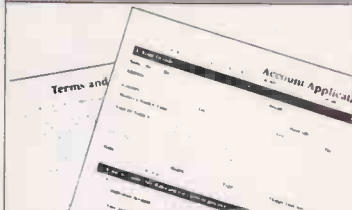
Ideally in a review of this nature I would report that I was so impressed that I bought one. Well, I was sufficiently impressed but my needs back at last year's BMF were great and urgent and I couldn't wait until the production models - or even a review model - came rolling off the line. My hard-earned lolly found another home.

However, had it been available and had I bought it I would have had a flexible, very low-noise mixer for a modest sum of money. And if that sounds attractive to you, you know what to do. ■

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**LEAST - BUT IS IT
DIO? IS A DIGITAL
COME NO BIGGER
HOSE TAPES ARE
ENOUGH FOR PRO
OR SMALL ONES?
BY VIC LENNARD.**

has been little change from the
outlined then. A couple of new
have appeared - and one that's
appear is going to make DAT a far
proposition - but there haven't

been any technical developments to write home about. This is partly because of the problems with CD piracy on domestic DAT machines. The Sony DTC1000ES, Aiwa XD001 and Technics SV360 machines all either have been, or can be, modified to record digitally on 44.1kHz. Sony have a new system called the Sony Copying Management System (SCMS) which will apparently allow you to copy a CD once and then writes a code to the DAT tape preventing you from making further copies. The politics of the situation are such that Sony have new machines waiting to be distributed but can't make up their minds whether to include the SCMS chip or not. Hopefully, the situation will have been resolved by this summer.

Meanwhile, the sales of DAT machines go from strength to strength. HNB report a

sales increase of some 20-25% over the past six months and Ampex, the big guns of audio tape, have seen a substantial rise in DAT tape sales over the past year.

SEMI-PRO USE

WHEN YOU CONSIDER how long it takes the average engineer (pro or otherwise) to be able to get good results recording with analogue tape, it should come as no surprise that making good digital recordings isn't without its own problems. And it also should be pointed out that certain bad habits which yield good results when working with analogue tape machines do not carry across to digital.

Due to the nature of analogue audio tape and recorders, they exhibit certain characteristics that can be used to benefit the music being recorded. The most obvious of these is over-recording. When you push the meters into the red, the first result is tape compression. This is where the dynamics of the music are no longer as clearly defined, and is followed by a gradual harshness creeping into the top end of the signal. This harshness continues to get worse to the point where it's categorised as distortion (though this point will vary from person to person). This initial effect of signal overload is often used creatively. The soft compression often manifests itself as "warmth" although you should never lose sight of the fact that it is still distortion. Ears become rapidly acclimatised to sound and what "feels" wrong one moment may well appear to be pleasing the next. Listening back to the recording the next morning may, however, show you just how unobjective you had become after a lengthy session.

Where digital recording is concerned, meter-pushing is something to be avoided. There is only one way to describe the sound of digital distortion - painful. There's no warmth, no soft edge to the music, just unpleasant distortion. Bad habits once learned can be difficult to break. Monitoring off tape is one habit that helps you keep an eye on your results - unfortunately this is not normally possible with DAT. Apart from the Fostex D20 and the up-and-coming Nakamichi 1000, both of which are very expensive, no DAT machines allow this form of monitoring - which means that you appreciate your mistakes only too late.

The dynamic range of an analogue recording system is frequency dependent; that is to say, the dynamic range will be different for different frequencies - or sounds - in a recording. Again, this is not the case when dealing with a digital recording system. When working with

analogue, you become accustomed to pushing lower frequencies in order to achieve satisfactory definition off tape. The corresponding result from a digital system is inverted speaker cones.

Another unpleasant surprise awaits you when you first begin to use a DAT recorder - you'll find out just how noisy some of your trusted equipment actually is. Some synths are exceedingly noisy: Yamaha's TX7 and Roland's MKS70 and U110 exhibit a disappointing level of noise when recorded onto a digital system. The problem arises because, while standard cassette or quarter-inch reel-to-reel machines will play back noise down to around -65dB, DAT is good to at least -90dB (nearer -96dB on more expensive models). Consequently, what was inaudible noise becomes a recognisable problem.

Few samplers allow you to fade out a sample - and this spells trouble when trying to fade a sound which is either inherently noisy or which has too much background hiss. The usual procedure with a bass drum, for example, is to cut the sample close to the end of the sound but to leave a short tail after it. This leaves a bit of hiss on the release of the sample which you will probably have been unaware of until DAT came along. And that noisy slider on your mixing desk will now sound like a fresh crisp packet at point blank range. Untidy drop-ins, too, will have to become a thing of the past if you're serious about "going digital".

If all this is making your dodgy old Revox or tired hi-fi cassette deck sound more friendly by the minute, don't despair. DAT isn't there to make you re-think your entire studio. But it will mean you have to tidy up a lot of the sloppy working practices you've been getting away with. And a few simple rules of thumb will be worth their weight in gold: dropping in and out of record at the same time as a dynamic peak such as a bass drum or snare drum will hide any clunks due to the multitrack transport, and using a noise gate, especially one with a downward expander, will also keep recorded noise to a minimum. Single-ended noise reduction units, such as the Symetrix 511 or the dbx SNR1, are invaluable both for recording onto a multitrack and across the mixer outputs on mixdown, where their program-conscious nature will ensure that background noise is minimal.

Even after taking every precaution possible, there is one area of working with DAT that's very difficult to get around. Because R-DAT recorders are at the kind of price which interests studios using predominantly semi-professional equipment, the inherent noise is a factor which will make its presence felt. For

example, if a noise gate is used for auto-fading, the noise attributable to its circuitry may still be in the region of 30dB worse than that which can be recorded by DAT and will set itself as the reference point for the noise basement. A system will only be as good as the final link in the chain, if that link is being used to reduce the overall noise of the system.

SOUND ADVICE

THROUGH USING DAT frequently over the past year, I've already had to deal with many of the sorts of problems you're about to encounter if you invest in a DAT machine. I'll give you a few examples.

There's never enough room on the DAT cassette inlay card to write down everything you need to - Ampex make a slightly more professional package with one or two tapes in a Betamax-sized case with sheets of A4 printed for song details. OK, you can write everything down on separate pieces of paper, but that's not quite as convenient. I tend to keep a folder specifically for this purpose.

DAT tapes are similar in construction to analogue cassette but differ in one main respect. If you look at a standard C120 against a C60 compact cassette, you will notice that the amount of tape inside the casing is the same and yet plays for twice as long. This is because the acetate backing is thinner - one very good reason to avoid C120s. Comparing a DAT R60 with an R120 you'll notice that there is substantially more tape in the latter. This is because the actual quality of tape is the same, so you need more tape to get a longer playing time. A two-hour tape costs perhaps 40% more than a one-hour tape. So how much more expensive is a DAT tape than a compact equivalent? Two decent metal C60s will cost around six pounds while an R120 is around nine pounds. Not as much difference as you may have thought.

We all know what happens when we copy a cassette: the tape hiss builds up (as the square of the number of copies) and the dynamic level decreases with each copy until you're sure that there is something on tape but you're not quite sure what it is. But as DAT encodes the signal into zeros and ones and uses a method to record these onto tape which is particularly stable, it is not prone to the same cumulative deterioration (this is what's at the heart of the DAT copycode controversy). This doesn't mean that making copies of DAT tapes between two machines using the analogue in/outputs will give perfect copies - the signal is being continuously decoded/encoded and so the noise from the pre-amps will then be recorded. However, as we are dealing

- ▶ with a digital signal, it can be copied from one tape to another using the digital inputs and outputs. This will effectively clone the original instead of merely copying it. This is certainly the best way of backing up master DATs.

Finally, a lot has been written about the "drop-out" or audible glitching of DAT. It has been suggested that DAT is not a "professional" medium because of this. But from personal experience, I can say that I've never heard a glitch when using DAT, and this includes cloning a DAT tape over 50 times to see whether any audible difference could be heard. DAT appears to be more reliable than compact cassette if for no other reason than the far superior design of the casing (which is a scaled-down version of a video tape).

D A T O R N O T ?

DAT IS A technology which is unlikely to take off in a domestic sense - for which it was initially marketed - and as the demand is low the prices are unlikely to fall much further than they already have. But even Casio's modest DA2 recorder will out-perform practically any cassette deck or two-track reel-to-reel machine. Does DAT, with its unpleasant distortion characteristics produce an "uncomfortable" sound? Personally, I think it sounds smoother than many CDs I've heard.

If you're considering adopting the new DAT technology as the mastering stage of your studio - whether it's a pro, semi-pro or even "personal" setup, it offers a far higher quality medium than any of the alternatives. There are machines available to suit deep and shallow pockets alike and the portability of some of the machines also makes them perfect for "field recordings" to be transferred to a sampler later. Give this technology a close look over. I think you'll be impressed. ■

For those of you interested in moving into DAT, we've compiled a list of most of the DAT machines currently available in the UK. Please note that specifications are not intended to be exhaustive, and if you have an interest in a particular machine, you should contact the relevant distributor for full information.

AIWA HDX1

Probably the smallest, and one of the cheapest DAT machines currently available, the HDX1 is almost pocket-sized, making it eminently portable. New 1-bit oversampling converters give good audio performance and its low selling

price makes it a sensible first machine or backup choice. A remote control is supplied and the machine offers digital Ins and Outs.

Specification

Sampling Frequency: 48kHz record and playback, 44.1kHz record (digital input), 44.1kHz playback

Digital Input: S/PDIF

Digital Output: S/PDIF

Analogue Input: 3.5mm stereo jack

Analogue Output: 3.5mm stereo jack

Frequency Response: 20Hz-22kHz

Dynamic range: 85dB

THD: 0.01%

S/N ratio: Better than 85dB

Weight: 0.75kg

Dimensions: 94mm(W) x 34mm(H) x 185mm(D)

Price: £649 excluding VAT

CASIO DA2

The DA2 is a compact, portable, budget DAT recorder with 15-bit sample resolution, featuring a rechargeable battery pack for mobile recording. Special functions include the ability to program start IDs automatically or manually for display at the beginning of a selection, the ability to edit or delete IDs during playback and a Skip Play function to allow you to skip selections in forward or reverse. No digital In/Out is provided.

Specification

Sampling frequency: 48kHz record and play, 44.1kHz play

Analogue Input: L/R line (pin jack), L/R mic (standard jack)

Analogue Output: L/R line (pin jack),

Frequency Response: 10Hz-20kHz

Dynamic Range: 80dB (recording and playback), 90dB (playback)

S/N Ratio: 85dB

Dimensions: 243mm(W) x 150mm(D) x 45mm (H).

Weight: 2.34lbs (unit only), 2.84lbs (with battery pack).

Price: £799 including VAT.

CASIO DA1

The predecessor to the DA2 is still available on the secondhand market.

FOSTEX D20

The first production digital recorder from Fostex, the D20 is an impressive machine with professional facilities and a price to match. One of its main applications is intended to be as a stereo mastering machine offering full SMPTE facilities, as it replicates the

timecode and control capabilities of quarter-inch analogue timecode machines and also offers a range of familiar features. Despite the D20's SMPTE features, tapes recorded on it are fully compatible with all existing DAT machines on the market. Numerous features on offer include glitch-free varispeed, punch in/out editing and timecode refresh. An optional 8320 remote control is also available.

Specification

Sampling Frequency: 48kHz and 44.1kHz record and play, switchable

Digital Input: AES/EBU

Digital Output: AES/EBU

Analogue input: Balanced XLR

Analogue Output: Balanced XLR

Pitch Control: ±10% of normal speed

Frequency Response: 20Hz-20kHz

Dynamic Range: Better than 90dB

THD: Less than 0.05%

Weight: 15kg

Dimensions: 482mm(W) x 150mm(H) x 472mm(D)

Price: £4950 excluding VAT; remote control and interface board, £650 excluding VAT.

TASCAM DA30

A professional-quality DAT recorder with a range of features including XLR balanced analogue inputs and outputs, AES/EBU digital interface and 8-times oversampling 18-bit D/A conversion, plus a range of start and skip ID editing functions and a comprehensive display panel which includes a Margin display (shows available headroom in dB). A wired remote control unit is supplied with the DA30.

Specification

Sampling Frequency: 48kHz record and play, 44.1kHz record and play, 32kHz record with digital inputs, 32kHz play.

Digital Input: AES/EBU, coaxial on RCA jack

Digital Output: AES/EBU, coaxial on RCA jack

Analogue Input: Balanced XLR, unbalanced RCA jack

Analogue Output: Balanced XLR, unbalanced RCA jack (variable), unbalanced RCA jack (fixed)

Frequency Response: 1Hz-22kHz (±0.5dB)

THD: Less than 0.04%

S/N Ratio: Better than 94dB

Weight: 9.5kg

Dimensions: 482mm(W) x 150.5mm(H) x 346mm(D)

Price: £1179 plus VAT

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TECHNICS SV360

This is a professional quality, 2U-high rack-mounting unit. During recording, the SV360 uses two A/D convertors with 18-bit resolution to reduce conversion error by 75%. Features offered include an indexing function which allows you to add and delete skip ID and start ID markers even after recording, multiple sample frequencies, balanced XLR analogue In/Out and coaxial digital In/Out, plus a supplied remote control unit.

Specification

Sampling Frequency: 48kHz/32kHz record, 32kHz, 44.1kHz, 48kHz playback.

Digital Input: S/PDIF

Digital Output: S/PDIF

Analogue Input: Balanced XLR

Analogue Output: Unbalanced phono

Frequency response: 10Hz-22kHz (± 0.5 dB) at 48kHz, 10Hz-15kHz (± 0.5 dB) at 32kHz.

Dynamic range: Better than 90dB, playback better than 96dB.

S/N Ratio: Better than 93dB.

THD: Less than 0.05%

Weight: 7.9kg

Dimensions: 430mm(W) x 115mm(H) x 315mm(D).

Price: £1400 excluding VAT

TECHNICS SV260A

A compact, professional-quality DAT recorder whose small size is achieved by a unique, half-size head drum. Features include S/PDIF digital output (no input), End Search function providing instant access to the end of the recorded material on the tape, and high resolution meters. The 260A differs from the previous 260 in that it has an improved microphone input.

Specification

Sampling Frequency: 48kHz record and play, 44.1kHz play

Digital Input: S/PDIF

Analogue Input: Balanced XLR

Analogue Output: Unbalanced phono

Frequency response: 10Hz-22kHz

Dynamic range: Better than 87dB

THD: Less than 0.05%

S/N Ratio: Better than 88dB

Power requirement: 240/6v

Weight: 1.45kg

Dimensions: 230mm(W) x 44mm(H) x 137mm(D)

Price: £1500 excluding VAT

SONY DTC1000ES

Professional quality, rackmountable DAT

recorder which has become the studio standard machine. Digital Ins and Outs are to the S/PDIF format, and the machine has its own infra-red remote control. Features offered include start ID and skip ID, and a full array of sub-code indexing routines.

Specification

Sampling Frequency: 32kHz play, 44.1kHz record and play, 48kHz record and play.

Digital Input: S/PDIF

Digital Output: S/PDIF

Analogue Input: Unbalanced phono.

Analogue Output: Unbalanced phono.

Frequency Response: 2Hz-22kHz

Dynamic range: Better than 90dB

THD: Less than 0.05%

S/N Ratio: Better than 92dB

Power Requirement: 240v

Dimensions: 430mm(W) x 100mm(H) x 420mm(D)

Weight: 12kg

Price: £1130 excluding VAT

SONY PCM2500

The PCM2500 is based on the DTC1000ES, but features a wide range of additional facilities which suit it for both broadcast and studio recording applications. These include balanced XLR connectors and analogue ins and outs. It accepts SDIF 2 and AES/EBU digital inputs at 44.1kHz, and S/PDIF at 48kHz to allow transfer to and from other DAT recorders. Supplied with both infra-red and wired remote, and can be rack-mounted.

Specification

Similar to the Sony DTC1000ES in most respects. **Price:** £2400 excluding VAT

SONY PCM 2000

A portable recorder designed especially for ENG (Electronic News Gathering) applications. Its principal feature is a linear track time-code capability. Other features include rugged design and long record time.

Specification

Sampling Frequency: 48kHz, 44.1kHz record and play, 32kHz record (digital input), 32kHz play.

Digital Input: AES/EBU

Digital Output: AES/EBU

Analogue Input: Balanced XLR

Analogue Output: Unbalanced phono

Frequency response: 20Hz-20kHz

Dynamic range: Better than 87dB

THD: 0.07%

S/N Ratio: Better than 87dB

Power requirement: 240/12v

Weight: 4.5kg

Dimensions: 212mm(W) x 77mm(H) x 263mm(D)

Price: £3900 excluding VAT

SONY TCD D10

A portable DAT recorder weighing only 1.8kg, the TCD D10 is supplied with a comprehensive range of accessories including carrying case, power unit, batteries and recharger, remote control and stereo microphone. No digital In/Out.

Specification

Sampling Frequency: 48kHz record and play, 44.1kHz play only, 32kHz play only.

Analogue Input: unbalanced phono

Analogue Output: unbalanced phono

Frequency response: 20Hz-22kHz

Dynamic range: Better than 90dB

THD: Less than 0.008%

S/N Ratio: Better than 85dB

Power Requirements: 240/6v

Weight: 1.8kg

Dimensions: 253mm(W) x 55mm(H) x 90mm(D)

Price: £1395 excluding VAT

SONY TCD D10 PRO

This portable recorder is an upgraded version of the TCD D10, featuring professional features and functions, including balanced analogue line level inputs with XLR connectors and digital In/Outs in both AES/EBU and S/PDIF formats. It records from analogue input at 48kHz and at 48kHz, 44.1kHz and 32kHz frequencies from a digital input. Improvements over the TCD D10 include new design high resolution LCD offering 20-segment peak-level metering.

Specification

Sampling Frequency: 48kHz record and play, 44.1kHz play, and record from digital input, 32kHz play, and record from digital input.

Digital Input: S/PDIF, AES/EBU

Digital Output: S/PDIF, AES/EBU

Analogue Input: Balanced XLR

Analogue Output: Unbalanced phono

Frequency Response: 20Hz-22kHz

Dynamic Range: Better than 85dB

THD: 0.06%

S/N Ratio: Better than 87dB

Power Requirements: 240/6v

Weight: 2kg

Dimensions: 253mm(W) x 55mm(H) x 190mm(D)

Price: £1980 excluding VAT

MUSIC TECHNOLOGY JULY 1990

WOW! SANSUI MR6 SIX TRACK RECORDER - £399 PLUS VAT!!

Yes - It's true! Due to a special bulk purchase, the amazing Sansui MR6 rackmount 6 track recorder is now available at less than the price of most portastudios! If you already own a mixer, it's ideal (why buy a portastudio and pay extra for a mixer you don't need?) If you do need a mixer we can supply the 8-2 Nomad Reddimitr for £153 + VAT, or a full feature Sansui 12/6 console for the same price as the recorder - £399 + VAT! Another £99 + VAT buys you a synchroniser which locks 2 machines together, Interfaces with a computer or sequencer and acts as a full remote control! Amazed? You should be!

NEW STOCK

Whilst we do not pretend to carry EVERY item from EVERY manufacturer, (as some shops seem to - ever tried putting it to the test?), all new equipment is tested in one of our three working studios, and if we like it, our buying power can usually ensure that we have it in stock at all times (even when your local dealer might have run dry!). In addition, if we recommend an item, we will REFUND YOUR MONEY if you do not agree with us. In fact we are the largest pro audio dealers in Britain for Alesis, Korg, Drawmer, Casio, Fostex, Seck, Yamaha, TOA, Tascam, Studiomastrer, Allen & Heath, C-Labs and a good many more! (Last year we sold nearly 700 new 8 & 16 track packages and around 300 s/h machines!). It's always worth ringing us for a quote on new equipment and if you're still unconvinced, ask yourself why we became the biggest in such a short time (or better still ask the rest!)

If you are bewildered by the vast amount of multitrack recording products currently on offer, Thatched Cottage fax packs should make the job of choosing the right equipment that much easier. There are 5 in the series; P.A. - Portastudios - 8 Track - Financial advice and MIDI. To obtain any of our fax packs just phone or write.

24 TRACK OFFERS

Studiomastrer Trackmix 24:12:24 (their brand new 24-track MIDI console) plus Tascam TSR24 (revolutionary 1" 24-track) inc plugs/cable package price **£9499 + VAT**
Allen & Heath Saber 24:16:24 (Britains's best selling small professional console) plus Tascam TSR24 Inc plugs/cable. Package price **£1399 + VAT**



When it comes to new equipment you may have noticed that we don't say "phone for the best deal, POA, or "lowest price guarantee" (Ha! Ha! if the prices are so great why don't they just print them and amaze us all). Our bulk buying policy can usually guarantee that a telephone call to us will not be wasted and in any case we can throw in those "hidden" extras - cables with multitracks, patchbays with desks. (By the way, next time a dealer "guarantees" the lowest price and then can't deliver, try reporting them to the local Office of Fair Trading - it will teach them not to waste your time!)

To be honest though, if you spend all afternoon on the telephone the chances are you might find someone somewhere who will undercut us by a pound or two. The difference at THATCHED COTTAGE is if your E16 breaks down on a Sunday morning or your Drum Machine blows up on a Bank Holiday Monday you CAN ring us, we'll be here and we WILL do something about it - 365 days a year. Have you ever needed help and advice outside shop hours? If you are serious about your music you will know that it is quality of service that makes the difference and at THATCHED COTTAGE it's only a phone call away!

8-TRACK DEALS

Tascam 238 cassette 8-track + Reddimitr	£925 + VAT
Fostex R8 + Seck 12:8:2	£1599 + VAT
Fostex R8 + RSD Pro-line 16:4:8	£1775 + VAT
Fostex R8 + Seck 18:8:2	£1899 + VAT
Fostex R8 + RSD Proline 16:8:16	£1899 + VAT
Fostex R8 + Mixdown 16:4:8	£2099 + VAT
Tascam TSR8 + Seck 12:8:2	£2249 + VAT
Tascam TSR8 + RSD Proline 16:4:8	£2425 + VAT
Tascam TSR8 + Seck 18:8:2	£2475 + VAT
Tascam TSR8 + RSD Mixdown 16:4:8	£2549 + VAT

All packages include plugs & cable

MUSIC & TECHNOLOGY SCHOOL

We have expanded our prospectus to take on two new MIDI courses. Each course is held on site, in our purpose built teaching studios with a maximum class of eight. Basic accommodation is usually available.

Course 1 (one week) Running a small studio (8, 16 & 24 track - practical + business) **£200 + VAT** inc accommodation.

Course 2 (one day) MIDI - basic **£55 + VAT**

Course 3 (one day) MIDI - advanced **£55 + VAT**

(Both courses are on consecutive days and may be taken as a single unit for £100 + VAT.

For full details of any of these courses, simply drop us a line or give us a call.

THATCHED COTTAGE DIGITAL (T.C.D)

In order to cater for the increased demand for advanced multitrack systems we have just opened a new division - Thatched Cottage Digital. Housed in a brand new purpose designed building, it handles 24-track analogue (including the new Tascam MSR24) and all digital and leading edge installations (such as the new Yamaha digital Multitrack).

If you are considering any kind of professional set-up and feel that the legendary T.C.A. service value is of interest, contact Rob or Andy on (0223) 208110 or ring the normal T.C.A. number for full details of what we can offer (including our second-hand and ex-demo list)



THE THATCHED COTTAGE CHALLENGE

This suggestion for a wet afternoon takes about 10 minutes, but results are usually worth the effort! First of all you flick through the pages of this magazine and take phone numbers of every dealer who "guarantees the lowest price" or operates any kind of unique "Best Price" policy. (There are usually around 10!)

Then, pick any item (It helps if you make it difficult - say a Midiverb II, although any popular item will do) pick up the phone and start dialing!!

Points are scored as follows;

1. "That's no longer available Sir" 1 point
2. "No - what you really want is a 2 points
3. "Whoever quoted you that, is lying Sir" 5 points
4. "We can't quote on the phone, but if you come in with cash" 15 points
5. "Give us a credit card number and we will quote you" 25 points
6. "Who quoted you that price?" (Just name one of the others) 30 points

Anyone who can score over seventy-five points and furnish us with the names of the shops and their answers contained in a vaguely humorous letter will get a free microphone.

Microphones will also be awarded to anyone who encounters a good answer, fob off or excuse we haven't thought of! Good Luck!

SOME SECONDHAND AND EX-DEMO BARGAINS

RSD Mixdown 16:4:8	£1199
Tannoy DC200 (pair)	£175
Atari 1040 plus Steinberg Pro 12 Sequencer	£399
Alesis HR16 B	£289
Oberheim DPX1 sample player	£299
Yamaha S100 monitors	£399
Sony DTC1000 ES DAT	£989
Yamaha FX500 multi effects processor	£250
Aphex Type C	£199
Seck 12-8-2 Mixer, Mint	£699
Fostex R8 8-track (demo)	£898
XRI X300 SMPTE Generator	£160
Drawmer LX20 compressor gate	£199
Large colour monitors for ATARI computers (reconditioned)	£75
Alesis HR16	£225
Alesis MMT3	£175
Alesis Quadraverb	£275
Roland D50 plus PG1000 programmer	£799
Korg M1	£899
Yamaha GSP100 guitar processor	£115
Yamaha S100 monitors	£399
Yamaha NS10M	£189
Alesis Midiverb III	£199
Roland D5	£435
Yamaha MT3X 6 input portastudio	£399
Tascam 133 AV cassette deck	£229
Casio DA1 DAT (new)	£475
Tascam 103 (3-head mastering cassette) dem	£175
Yamaha OX21 2-track sequencer	£75
Art Multiverb II (four effects at once)	£225
Korg M3R	£525
Seck 6:2 mixer	£225
RSD Protine 24-8-16 inc MIDI	£1399
Tascam 38 + full noise reduction	£1099
Roland TR808 drum machine	£299
Allen & Heath 16-4-8 inc flight case	£599
Sei 8 track DBX noise reduction	£199
Alesis HR16B	£250
Atan 520 + Pro 12	£199
Nomad Bassman	£150
Ensoniq Piano (weighted keys)	£499
JL Cooper mixmate (automated 8-track mixing)	£899

This list represents only a fraction of our current secondhand and demonstration stock. Call us for a full listing - All prices exclude VAT.

SPECIAL OFFERS (ALL NEW)

FOSTEX - 4050 remote/autolocate SMPTE for E16 (RRP £899)	£399 + VAT
TANNOY DC100 monitors (per pair)	£120 + VAT
AKAI S950 1/2 meg memory expansion boards	£125 + VAT
KORG P3 Combo kit card (sax, bass & drums etc)	£15 + VAT
RAUCH DVT25 100 + 100 watt amp	£199 + VAT
SECK 18:2	£525 + VAT
AIWA DAT recorder Inc digital in/out, A/D+D/A module + full remote + free tape	£649 + VAT
ATARI 1040STE + monitor + C-lab creator	£625 + VAT
ACCESSIT 2x15 watt amp (ideal for small monitors/headphone systems)	£25 + VAT
REVOX B77	£999 + VAT
FOSTEX X26	£189 + VAT

THATCHED COTTAGE SERVICE

At our fully equipped in-house service centre we can service all types of equipment (esp. 8-16 tracks) Every reputable dealer should have one on site (don't let anyone tell you any different) Believe it or not, some retailers actually sell complex electronic equipment from their front room or garage (nothing wrong with that of course - we all had to start somewhere - when you are successful though, you outgrow it pretty quickly!) It does though tend to suggest a lack of back up facilities. So if your multitrack needs a service or the heads looking at, give us a call before it's too late.

For those of you who are seriously considering starting a commercial studio we've come up with three packages, each containing everything you will need for your first paying session, from the Multi-track Machine right through to DI Boxes and Cables. The price of the 8 Track System is £4,599 + VAT, the 16 Track is £7,800 + VAT and the 24 Track is £15,750 + VAT. At Thatched Cottage we proved it *could* be done, and we have helped many new studios to open and start making money - our experience could help you. Give me a ring and have a chat - what have you got to lose? Plus: FREE Thatched Cottage Recording School Course to package buyers!!

STOP PRESS - TCA TRAVEL !

In case you didn't know, our fully equipped, ABTA/IATA Thatched Cottage Travel Agency has been up & running for some time now, expanding our high standards of service and great value into the travel industry. Whether you are organising a tour, visiting a trade show or simply booking a holiday, just give us a call - what have you got to lose? Contact Gill Scott or Nicki Brazier on 0223 314577 or 0860 450499 (mobile) ABTA no.89156

Thatched Cottage Audio



Telephone (0223) 207979 Fax (0223) 207952

Thatched Cottage Audio, North Road, Wendy, Near Royston, Herts.

S770



It looks certain that the arrival of Roland's S770 has signalled new standards in digital sampling. The second part of this in-depth review examines the architecture behind the sound. Review by Simon Trask.

LAST MONTH WE discussed the facilities offered by Roland on the S770: compatibility, interfacing, memory expansions and the like. This month we're going to take a look at the sampler's architecture and operation. So without further ado, let's begin with what Roland call Partials.

The Partial Level allows you to combine up to four samples and give each one a separate key-follow pitch scaling, coarse and fine tune amounts, stereo pan and level settings and a velocity window and keyboard crossfade in/out ranges. Bearing in mind that a stereo sample is actually two samples, once again you can apply different settings to each side of the stereo image. As an alternative to fixed pan values, you can set "Key +" and "Key ." - in which case the pan position is determined by the note being played - or Random. The latter is great for getting some spatial movement into the stereo image, and works well for parts that you want accentuated - a synth solo, for instance.

Parameters which affect all four samples alike include output assignment (individual outs 1-6), Partial level and Stereo Mix level (you zero the latter to remove the Partial from the stereo outputs) and coarse and fine tuning. But these parameters are only half the story, because your combined samples can be routed through a digital filter, amplifier and LFO. The Time Variant Filter offers a choice of low-pass, band-pass and high-pass modes, and includes resonance control and a cutoff envelope which provides four times and four levels. Time and level

values can be edited as numeric parameters, or they can be edited indirectly by "dragging" points on a graphic envelope display in order to change the shape of the envelope. As with the sample graphic, numeric editing can work best for fine-tuning the parameter values, but in all other respects graphic editing is far superior. You can get very quick results when editing the S770's filter parameters, the only shortcoming being that values aren't updated until you retrigger a note.

Other parameters in the filter section allow you to fine-tune the responsiveness of the cutoff point and the envelope times to the likes of velocity and key-follow; you can also get the cutoff envelope to control the pitch of the sound over time, which can have some interesting results when you're using resonance.

To my mind Roland lead the way with both the quality and the flexibility of their digital filtering. You can get a real warmth out of this filter, but also a really vicious bite, with a cutoff point which can open up and close down faster than a clam on acid. The mere fact that resonance has been included puts Roland ahead of several other manufacturers, and despite what comes across as a "scratchiness" when you use heavy resonance on a sharp filter attack (perhaps because the signal is clipping?), it's a very worthwhile addition, not least as a means of accentuating a fixed frequency. One trick I developed is to assign a rhythm loop to two Partials and leave one of them unfiltered while routing the other through high-pass filtering with the cutoff point jacked up and a touch of resonance to accentuate the high

frequency. You can then mix this version in with the unfiltered version at the Performance level, using it variously to roughen up the sound or add in some "excitement". You can also use resonance in conjunction with a cutoff envelope on a rhythm loop to create some interesting cross-rhythmic effects, or use it to boost the bottom end of a bass sound to devastating effect.

The TVA page follows the same principle of mixing numeric and graphic envelope editing modes, and includes a similar array of parameters for dynamic control of amplitude and the envelope times. In fact, the graphic on each of the pages includes the envelope of the other page as a "background" (non-editable) shape - in a different colour on a colour monitor. Once again, new values don't take effect until you retrigger a note - which can be a trifle annoying if you've set a long envelope release time (the only way to cut it short is to exit to the Sound menu). On a more positive note, amplitude fade-out to zero really is very smooth, literally right down to the zero level. You can also set some very long envelope stages - for instance, at 126 (max -1) the release stage doesn't kick in until some two minutes after note release, and then takes another couple of minutes to fade out to zero. Another useful feature of both the TVF and the TVA pages, accessible via the Command menu, is Template. Selecting this calls up a list of ten factory-preset envelope settings; if you then click on one of these envelopes, its settings will be transferred to the Partial envelope. In some cases these might prove adequate as they are, while in other cases they might be good starting points for editing; however, I would like to see the Template principle expanded to include user-programmed envelopes - so that if you come up with a good filter envelope effect, say, you can save it for possible future use on another, perhaps similar, instrument sample.

Finally, the LFO page allows you to choose one of sine, triangle, saw up, saw down, square, random, bend up and bend down waveforms. You can set rate, detune, delay and key-follow values together with key sync on/off and separate mod depth settings for pitch, cutoff and amplitude. Detune is a particularly interesting parameter in that it allows the LFO rate to change as you move up and down the keyboard, with higher parameter values causing greater change; this can help give a more natural vibrato effect on, say, chords played using a string sound.

PATCHES

PARTIALS ACT AS intermediaries between the Sample and Patch levels, and as such all you might want to do with a Partial is assign one Sample to it and give the sample a suitable amplitude envelope. This is because your Patch might simply be a multisampled piano or a drumkit spread across the keyboard. Essentially, the Patch level allows you to assign multiple Partials to the keyboard in a multi-split texture. As you might expect, you can do this either by incrementing and decrementing Upper and Lower Note numeric values and clicking on Set or by

"dragging" the mouse across the appropriate range of notes on a piano keyboard graphic. In this instance the graphic has another use too, in that you can play notes on the screen keyboard by clicking on them with the mouse. On first encounter the graphic approach to keyboard assignment doesn't seem particularly straightforward, but familiarity breeds content.

Parameters which affect all the Partials within a Patch include octave, coarse and fine tuning, cutoff and velocity-sensitivity offsets, Patch level and Stereo Mix level and output assign. If you set the latter to P, each Partial will conform to its own output assignment - so that, for instance, several drum and percussion Partials can each be routed to different individual outs.

Each Patch can also be assigned a program number for MIDI selection purposes, while, bearing in mind that multiple Patches can be used in a multitimbral sequencing context at the Performance level, you can set Patch Priority on or off per Patch. Priority Patches don't have active notes stolen from them when the polyphony's getting tight. At the Patch level you can also define the response of such Partial parameters as filter cutoff and LFO rate to MIDI pitchbend, aftertouch, modulation and controller messages.

PERFORMANCES

EACH OF THE 32 Parts which make up an S770 Performance can be assigned a MIDI receive channel (1-16), a Patch (1-128), a pan value (L32-R32), an individual audio out (off, 1-6 or Partial), a volume level (0-127), a note range (within 21-108) and upper and lower fade widths (for positional crossfades between Patches).

You can layer Partials at this level simply by assigning the relevant Patches to two or more Parts and assigning those Parts to the same MIDI channel. If these Partials have been assigned complementary velocity response ranges and curves, you can switch, mix and crossfade between Partials as you can between samples within a Partial. As mentioned earlier, Samples combined within a Partial can't be given separate filter, amplifier and LFO processing. To get round this, you simply assign each Sample to a different Partial and each Partial to a different Patch, then combine them at the Performance level so that, say, four Patches assigned to the same MIDI channel effectively become a "substitute Partial".

But the Performance level's principal application lies with MIDI sequencing. Thus two pages are assigned to MIDI filtering, allowing you to selectively filter out patch changes, pitchbend, sustain pedal, modulation wheel, volume, aftertouch (channel, poly or both) and velocity on each MIDI channel. Additionally you can define a patch map in which Patch program numbers can be mapped to incoming MIDI patch changes.

While Performances allow you to select different instrumental lineups for different songs, they can also be used within songs as a form of automated mixing - snapshot fashion - cutting different ▶

"You can get a real warmth out of the S770's filter, but also a really vicious bite, with a cutoff point which can open and close faster than a clam on acid."

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- instrumental parts in and out and adjusting the level balance between parts. Changing Performances rather than Patches also gets around the problem of having several different Patches responding on the same MIDI channel (as in the “substitute Partial”) and wanting to change one or more of them.

Now, you can select Performances from the S770 itself, but a much more interesting method is to select them via MIDI patch changes. You can accomplish this by going to the MIDI Config page in the System mode and setting a Control channel (1-16) and a Control mode (Performance only or Perform/Volume - the latter also allows MIDI patch changes to load Volumes off disk). Now any patch changes received on the control channel will select Performances rather than individual Patches within the Performance. However, there's a discrepancy in the way that the S770 changes Performances as a result of internal and MIDI selection. From internal selection, active samples continue to play for the duration of their note and their release stage, which is how it should be if you want a smooth transition from one Performance to another. However, MIDI selection cuts all active samples dead as soon as the patch change command is received, which makes life very tricky; in fact, Roland really should change MIDI response to the internal method for it to be of any great use.

At the Performance level you also get a very useful MIDI monitor page which allows you to look at the data coming into the S770 (or, equally, see what isn't arriving that should be). You can set the page to monitor all MIDI channels or a specific channel and to monitor or filter out System Real Time messages, while monitoring can be triggered by a specific type of MIDI message.

RESAMPLING

RESAMPLING IS BY no means a trivial aspect of the S770. Mind you, even its simplest function has great value: if you resample a 44.1kHz or 48kHz sample an octave higher than original pitch, again at one of the higher sample rates, and then replay it an octave down to return to original pitch, you've halved the amount of memory needed for the sample. But the really interesting stuff comes when you discover that there's no appreciable difference in sample quality - which suggests that you can effectively double your memory without doubling your memory. The only reason I can think of why this should be so is the S770's Differential Interpolation method of sample playback, which interpolates samples between the actual samples when you pitch a Sample down the keyboard - suggesting in this case that it “regains” top end that has been lost during resampling. Roland make great play of the fact that DI is more intelligent than straightforward linear interpolation, so maybe this is the result. However, this process doesn't work for samples originally sampled at one of the lower sample rates - you get noticeable loss of top end on the octave-higher resample.

The S770's Resampling section allows you to combine two samples into one, which makes it a

merge function. But you can also route each sample through its own TVF and TVA in a variety of configurations known as “algorithms”. These include not only straightforward sample merging, but also ring modulation of the two samples, so we're talking sound creation here. Additionally, you can set a delay time together with coarse and fine tuning for each sample, which provides even greater flexibility. Incidentally, to resample stereo samples, you do each side of the sample independently and then recombine the two (re)samples using the Set Stereo command.

Resampling is triggered by playing the sample(s) via a MIDI keyboard, which means you can resample samples at different pitches and different velocity responses, and even create new samples consisting of melodies, chord sequences and rhythms. You can also add emphasis when resampling, in order to boost high frequencies. The only inevitable shortcoming of resampling, apart from the fact that you have to loop (re)samples afresh, is that filter and amplitude envelope times and LFO rate become fixed as part of the new sample.

Finally, I must also give brief mention to the excellent manual, which is thoughtfully laid out, for the most part clearly and concisely written, and includes several indices. Whenever I needed an explanation of a particular aspect of the S770, the indices without fail led me directly to the appropriate spot in the manual.

VERDICT

THE S770 IS a powerful, flexible, extremely easy to use and for the most part very well thought out sampler which, to use a well-worn cliché, is sure to win itself a lot of friends. The only real disappointments are the lack of sample looping aids and cut 'n' paste-type sample manipulation commands, plus of course the absence of time compression and expansion of samples. The potential to make the S770 as much a synth as a sampler already exists, and in this aim it could be greatly helped by the inclusion of waveform drawing and additive synthesis capabilities (which, after all, aren't unknown on other samplers). I'm sure that some people - particularly those working in conjunction with video and film - would rather like to be able to compile cue lists and trigger them off SMPTE times, but as the S770 can't read SMPTE or MTC I guess this isn't on the cards. Perhaps with the increasing numbers and increasing prominence of hard disk-based recording systems (some of which offer MIDI multitimbral facilities), high-end samplers like the S770 will have to move in this direction if possible. But as a musical instrument the S770 is well impressive. ■

Prices S770, £4860; M07 Magnetic Optical Disk Unit, £5225; CD5 CD ROM drive, £1340; RC100 Remote Controller, £250; all prices include VAT.

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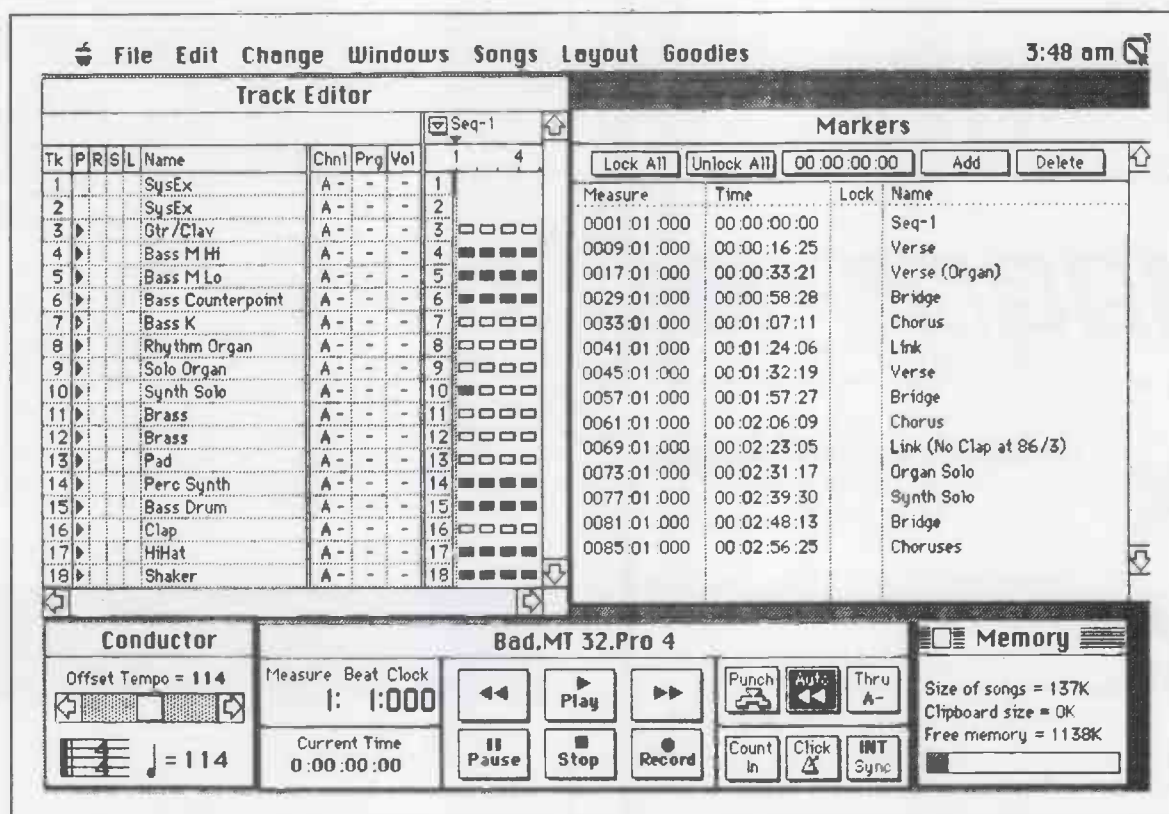
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MASTERTRACKS PRO 4



The eternal Mac sequencer triangle: Vision, Performer and Mastertracks Pro - has its recent upgrade given Mastertracks Pro the upper hand?

Review by Mike Collins.

THE MACINTOSH SEQUENCER wars are really starting to hot up with the release of Mastertracks Pro 4 from Passport Designs Inc. First this year there was Opcode's Vision, with its great combination of graphic and event-list editing. This was countered by Mark of the Unicorn's Performer (v3.21) which added a pretty tasty

graphic editing system to its already excellent event list editor. Now Mastertracks Pro (first reviewed MT, July '87), which previously boasted the best graphic editing facilities around, has been upgraded with various new features, including event-list editing, to rival these other two programs.

NEW FEATURES

LET'S TAKE A look at the new features to be found in Pro 4: first of all there's a new Global Edit Filter which allows you to include either specific notes, or notes within specified velocity or duration ranges, specific measures in a track (such as every third measure), or specific beats and sub-beats within a measure. This latter feature is just what you need for sophisticated drum programming so that, for example, you can set up

the accents you want within a bar.

Various edit operations can now be performed in real time, while a sequence is playing - a feature which is becoming increasingly common on sequencers. Up to 16 sequences can be open at one time and sequences can be linked together into a single Playlist for live performance - an aspect of Mastertracks Pro which has always been one of its strengths. You can operate the sequencer controls from your MIDI keyboard - another feature which is becoming standard on Macintosh sequencers. The sequencer's resolution is still 240ppqn, which is half that of Performer and Vision, but more than adequate for most musical styles. Also, you cannot set tempos to fractions of a bpm, which is a bit of a shame because this can become important if you want to exactly match a tempo which includes a fractional number of beats per minute - say matching the tempo of a drum loop. There is actually one circumstance in which Pro 4 will allow fractional tempo values, and this is when you use the Fit Time function, or any other operation which would result in a fractional tempo. In such a case, the program will alternate between the two whole number tempos to achieve the desired result.

Fit Time is very useful when writing music to picture, and Pro 4 is very good for this type of work. Pro 4 has a Markers Window, similar to Performer's, and you can jump to any Marker using the Tab key in the Track Editor window. You can Lock Markers to specific SMPTE "hit" locations to match on-screen action, which is a feature first developed by Mark of the Unicorn on Performer. And again, this feature is particularly important when working to picture, where you may wish to synchronise sounds with visual effects. It is worth noting that Vision does not provide this feature.

SYNCHRONISATION

PRO 4 WILL synchronise to MIDI Time Code (MTC) as well as to standard MIDI timing clocks. This has the benefit that you can use internal tempo maps and the Fit Time function, and you can edit tempos using the Tempo Map window while syncing to MTC. If Pro 4 only synchronised to MIDI time clocks and song position pointers (SPP), you would have to create and edit your tempo data in whatever SMPTE/MIDI converter you were using, and you would have to put up with the generally less flexible facilities available on such converters. MTC sends no tempo information, just a steady stream of data derived from the speed of the tape. Pro 4 then generates its own tempos from this data. You can set a SMPTE "dropout" time - which allows the sequence to continue playing even if the SMPTE signal disappears due to a tape dropout - until the code reappears. You can adjust the length of time for which Pro 4 will cover for loss of SMPTE via this dropout time setting. This is an excellent idea which I am sure other manufacturers will pick up on now that Passport have led the way.

GENERAL FEATURES

PRO 4 WILL now chase controllers, and, like Performer v3.21, the program allows you to turn this

feature on or off, and select just what combination of controllers and patch change commands you wish to chase. This is the right way to implement this feature, unlike the way it is done in various other sequencers, including Vision, where you cannot disable this, so you always have an annoying delay after selecting Play while the program checks and chases any controllers. It won't matter to you whether the program chases or not if you haven't used any controllers or patch changes, consequently this delay can be an unnecessary frustration.

Pro 4 does have a SysEx feature, but this only allows you to store non-handshaking bulk dumps as files on disk. To send such a dump back to your MIDI device, you have to find the file on disk, and then send it back to the device. This is quite a useful feature, but nowhere near as powerful as Performer's SysEx capability which allows you to record any amount of SysEx data directly into any track, where you can edit it, and then play the data back to your MIDI device from any point in a track. Obviously this will not worry you if you don't make much use of SysEx data, but for those who do, this is quite a major limitation.

“Pro 4's Humanize command allows you to randomise start times, durations, or velocities of notes - a feature not found in either Performer or Vision.”

USING PRO 4

SO WHAT'S THE program like to use? Well, the user's manual has been completely revised and updated by Paul Lehrman, an American MIDI programmer and journalist, and is now extremely clear and easy to read. Unlike some manuals, which can put you off by throwing you head first into the complexities of a program (presumably to show off just how complex it can be), the Pro 4 manual offers a very easy to follow Quickstart Tutorial. This shows you how to record a couple of tracks, name them, and then save the file - probably the first things anyone would want to do with a new sequencer. There is only one simple example program supplied, which is a bit of a shame, as most other sequencers have several demo songs supplied. However, this Bach two-part invention is used in the Quickstart Tutorial to show you how to use the Track Editor window to quickly copy, paste, repeat, or delete a section, which is probably the very next thing you would wish to do with your new sequencer.

EDITING

THE TRACK EDITOR window may be thought of as the program's main window, because it's on the left-hand side of this that you select tracks to play or record, name your track, choose an initial MIDI volume message or Program Change command, and select the MIDI Channel/Port for each track. The right-hand ►

“Pro 4 will synchronise to MIDI Time Code (MTC) as well as to standard MIDI timing clocks - this has the benefit that you can use internal tempo maps.”

- ▶ side of this window has a display showing each track, with tiny rectangles to indicate bars - the rectangles are filled in black if there is data in these bars. You can scroll this display to right or left to see the complete piece of music, and you can scroll it up and down to view the 64 available tracks. If you choose Follow Playback from the Layout Menu, the Track Editor (and Step Editor and MIDI Data) window will scroll as the sequence plays, highlighting the measure that's currently playing. I would like to mention here that this Track Editor window, in common with most of Pro 4's other windows, can be re-sized to be more or less as big or small as you

like, which is extremely useful when working on the SE's small screen area. Opcode could do with taking a leaf out of Passport's book in this respect with their Vision sequencer, which won't allow anywhere near as versatile re-sizing of its windows. Markers may be entered directly into this Track Editor window, or into the Markers window. Either way, they will appear along the top of the Track Editor

display (and in the Step Editor and MIDI Data windows). It's very easy to select regions within tracks, including data in several tracks, by clicking and dragging over the track display using the mouse. You can then make your edits using the commands in the Edit and Change menus.

The Edit menu contains all the usual Undo, Cut, Copy, Paste, and Clear commands which you expect in all well-written Macintosh programs. In addition, you can Mix (merge) data, Insert or Delete measures, Show the details of the Clipboard contents (in case you forget what you put there), or access the Change Filter. This Change Filter is one of the most advanced features of Pro 4 which provides you with a special set of parameters to limit or delineate the data that is affected by an operation on the Change Menu. The option to only apply changes to notes within a specified number of clocks of specified sub-beats is particularly intuitive to use, unlike any written explanation so you'll have to take my word for it here. You set the selection criteria here, and then apply this Change Filter to the particular type of MIDI data you're working on in the Change Menu. This system seems to be much easier to use than the corresponding function in Vision, although both systems have about the same capabilities.

The Change menu provides more or less the same type of editing features as can be found in Performer and Vision, although a couple of the more esoteric commands available in these programs - such as Reverse Time and Invert Pitch - are not to be found. However, Pro 4's Humanize command allows you to randomise start times, durations, or velocities, a feature not found in Performer or Vision, although Vision does provide this for start times. The Quantise

options are as powerful as any to be found elsewhere, and include Intensity and Swing settings. You can also slide notes within tracks from within the Quantise dialogue box, which is not as convenient as setting this from the main Track window, as in Vision. The list of available commands also includes a Channel command to change the MIDI channel of selected notes within a track, and Strip and Thin Continuous Data commands. Pro 4 allows you to have data on different MIDI channels within any track, which can be very useful if you want a melody to play on different instruments in different sections, for instance. Stripping out or thinning out continuous data is something which you probably need to do quite often, so it's good to see these commands included in Pro 4.

The Step editor lets you view and edit note data graphically, one track at a time. A grid is provided, which you can switch on or off, with a vertical keyboard at the left of the screen to help you identify notes. You can zoom in or out to suit the type of edits you're making, and you can quickly switch to edit a different track by clicking on the track indicator number on the Step Editor's menu bar. This latter is a brilliant feature which adds greatly to the speed of use of this well thought-out program. At the top of the window are several note icons representing the rhythmic values of the notes you can insert with the pencil, or step-enter from your MIDI keyboard. An eraser is provided to delete notes, and there are also controls to set note articulation, velocity, and tuplet values. The graphical editing functions are simple and effective in use, but you still have the option of double-clicking on any note to bring up a numerical editing dialogue box for that note - almost the best of both worlds (graphical and numerical).

This leads us on to the Event List editor. Passport have just added this feature to Pro 4 in response to user demand. The guys at Passport firmly believe that graphical editing is the best way to go, but many users (myself included) prefer event-list editing, possibly having "grown up" with Performer. I suppose the method you prefer depends on whether you are working in left brain/right brain, or analytical/intuitive mode when you are using your sequencer. It's obviously best to have both options available, because each has its own particular strengths and weaknesses.

There are seven more graphical editing windows available in Pro 4, including those for Pitch Bend, Channel Pressure, Key Pressure, Modulation, Controller, Program Change, and Tempo Map. The first six look and work pretty much the same way, and are quite similar to the Step Editor as well. The events appear on a grid, where the height of lines or points corresponds to the numeric value of the event, while the horizontal location of the line or point indicates the position in the track where the event occurs. Each window has an arrow icon to choose the arrow tool to select data, a pencil for drawing data, and an eraser, and editing is very easy and intuitive. The Tempo Map window lets you edit beat values, time signatures, and tempos. Here the tempo is represented by a horizontal line moving through the measures, so this display looks a little different from the others. Tempo changes can be

inserted on any clock with the pencil tool, and erased with the eraser - what could be simpler?

In practice, I compared editing pitchbend data in Vision, Performer, and Pro 4 using the graphic methods available in all these programs. It turned out that Pro 4's editor worked best in practice, the others feeling clumsy and less easy to use. I can now see myself recording and editing some of my music in Performer or Vision, and then transferring via MIDI File to Pro 4 to edit the controller data - it is that much easier.

SONG PLAYLIST

THE SONG PLAYLIST allows you to construct a Playlist from the currently open songs. You can arrange the songs in any order, and you can use up to 16 if you have sufficient Macintosh memory. You can have the songs flow automatically from one to the next - with a gap between if you wish. This gap can be set from 1-999 seconds, which should be a long enough pause for the most rapturous applause. Alternatively, you can tell the program to wait before going on to the next song until it receives a MIDI message, or until you press a key on the Mac. The MIDI message can be any note or controller, such as a sustain pedal, and this is very convenient for "live" gigs.

VERDICT

PRO 4 STILL doesn't have quite as many features as Performer or Vision, but what it does do, it does well. The graphic editing features are definitely better

than those available in the other programs, particularly when it comes to editing controller data - as you might expect from a program which started off featuring graphic editing alone. The event editing is not quite as good as Performer's, but the ease with which you can select regions in the Track Editor window and carry out your edits in Pro 4 gives this program a distinct speed advantage in comparison with the others. I wish the SysEx capabilities were better, and that the resolution was 480ppqn, and that there were MIDI Volume faders which you could use to record a mix, but I do like the program's stability - it didn't crash once, and the timing was rock-solid at all times. So, Performer and Vision are still ahead in many ways, but Pro 4 does deserve recognition as a very quick and easy-to-use full-featured MIDI sequencer program, particularly suitable for either live use, or for working to picture. ■

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"Change Filter is one of the most advanced features of Pro 4 - it allows you to define parameters to limit or delineate data affected by the Change Menu."

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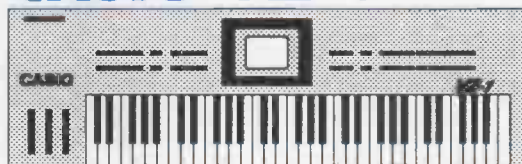
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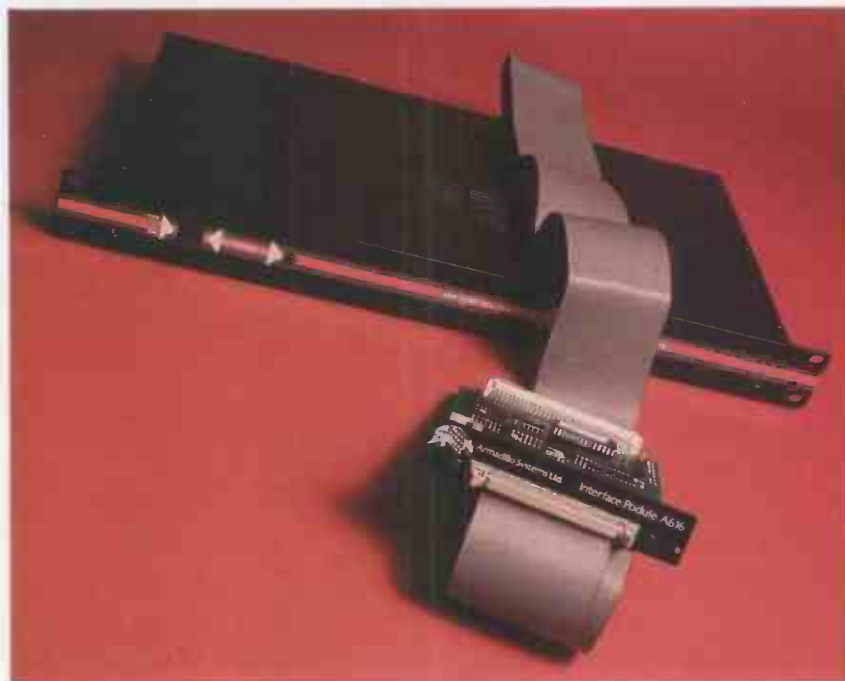


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MUSIC TECHNOLOGY JULY 1990

A616



PHOTOGRAPHY: ADAM JONES

Powerful it is, but without the right software the Archimedes computer is not going to be welcomed into music studios. Is Armadillo's upmarket sampling package the break it's been waiting for? Review by Vic Lennard.

THERE'S LITTLE DOUBT that the Acorn Archimedes is one of the most powerful micro-computers currently available. That said, support for the machine in musical circles has been disappointing to put it mildly. At a professional level, there is just one sequencer worth mentioning (Inspiration by Pandora Technology) and shamefully little else.

Some months ago, MT took a look at an Archimedes sampler called Armadeus. While this is an interesting package in its own right, it's hardly the state-of-the-art stuff demanded by pro, or even serious semi-pro musicians. Fortunately, Armadillo, a Leicester-based company, have released a sampler module aimed at the higher end of the market - the A616.

DESCRIPTION

THE A616 IS an eight-voice stereo sampler, comprising a 1U-high rackmount unit and software which will run on any of the Archimedes series of computers. The hardware has two unbalanced audio inputs and outputs as well as a headphone socket and a digital signal output (SPDif), along with MIDI In, Out and Thru (spelt "through" in a quaintly English fashion) ports. The unit is connected to the computer via a ribbon connector and a special Armadillo podule which plugs into the back of the Archimedes.

Sampling frequencies of 44.1kHz (CD) and 48kHz (R-DAT) are offered, and the amount of sampling time available is dependent on the memory of the computer. To give you an idea, on a 4 megabyte machine with all available memory freed for the sampler, just under 20 seconds stereo (40 seconds mono) is available at 44.1kHz.

The software comes on two disks: a program and data disk and a "key" disk which has to be inserted into the drive at the relevant moment. This may seem like overkill (how many people copy hardware?) but Armadillo are planning a program called MIDItools which will require this protection.

SAMPLE SOFTWARE

ANY PIECE OF software is only as good as its user interface. With this in mind Armadillo's Highnote goes a long way towards making the sampler very intuitive to use. The approach is modular, in that various modules exist on the menu bar at the bottom of the screen. Two of these belong specifically to Highnote - the Sample Editor and Voice Setup. Using the Sample Editor module, you can make samples, play them back either from an on-screen keyboard or a connected MIDI device, and edit them in a variety of different ways.

Up to eight samples (or Voices) can then be put together into a Patch using the Voice Setup module. Voices and Patches stored in the Archimedes are

accessed via the Object Manager (which organises the internal memory) and can be saved to disk via the Floppy or Hard Disk modules. The mouse on the Archimedes has three buttons; the left-hand button selects an item for movement around the screen; the middle button calls up menus dependent on screen position, and the right-hand button modifies parameter values. Highnote incorporates double-clicking on the left button for selection and opening of an item in one go. Movement around the screen is by the usual click-and-drag technique.

SAMPLE CREATION

A DOUBLE CLICK on the Sample Editor icon opens up a sample window. This represents a sample in two ways; Overview and Zoom. The small Overview graph shows the entire sample and has two green triangles underneath it. Dragging these sets up the portion of the graph which is seen in the larger Zoom graph above the Overview window - up to eight zoom-ins can be made down to individual sample points. To make a sample, a click on the area to the left of the graphs brings up the Sampler menu which takes you to the Sampler window. Here you select the sample time and type (Left, Right, Mono mix or Stereo) and whether sampling is triggered by a threshold level. This is given as a percentage value and is set via a slider which is next to the two VU meters showing the level of the incoming signal. You can also set an amount of pre-trigger time. The amount of time set is looped around until recording is started, and the signal for the allocated pre-trigger time directly before this moment is added to the beginning of the sample. This prevents fast attacks from being missed. Turn the Monitor switch on to hear the incoming signal, press Record and you have a sample. To monitor the result, press Play. One oddity here is that the level monitored on the incoming signal appears to be much higher than that heard on playback. Finally, you can Name the sample from this window.

The Zoom window now shows the right-hand and left-hand halves of the sample above one another. To hear the sample once all the way through, click on the left mouse button. To playback a portion of the sample requires the setting of markers - click with the left button in either of the graphs and a yellow line appears with a rectangular indicator above the Overview. Set a second marker in the same way. A click with the right button just to the right of the left marker inverts the colouring of the area and makes it active. Playback now plays only the highlighted section. In the Sampler menu, Play mode lets you choose whether the area is played once (Single Shot), repeatedly (Continuous) or automatically when a new active area is selected. Markers can be moved by the usual click and drag method and deleted either via a menu option or by using the dustbin.

Using the Marker menu, markers can be set to various positions like the start or end of the sample, before or after the next/last zero crossing, and to the previous position. Markers can also be converted to loop start/end markers, in which case the indicator changes shape to a triangle. This has no effect when

playing back a section of sample, but is important under the Voice Setup module.

When moving markers and zooming in and out, the windows can take a fair time to redraw. The resolution of the graph can be changed by going to the configure option for the Sample Editor module. By changing Fast Plot to "On", not every sample point is redrawn, speeding up the redraw process. Other options here include the default play mode, marker sensitivity (for setting how close to a marker you need to be to pick it up) and whether a horizontal line is drawn across the centre of the sample. These choices can be saved to disk for booting up with.

SAMPLE EDITING

ONCE AN AREA is selected, you can either edit both halves of the stereo together by selecting the Edit menu from the Overview, or edit each half separately by getting the menu from the left or right graph. There's every chance your sample hasn't been recorded as loudly as it could have been, so Gain lets you "normalise" it - take the sample point with the highest amplitude to maximum and increase all other points proportionately - or increase/decrease the amplitude in steps of 3dB. The sample can be Reversed, giving interesting effects when only one of the stereo pair is edited, or set to Zero to create a blank portion. Fade lets you set a linear fade in/out from silence or from 3dB down on the current amplitude for less severe fades. Delete removes the area permanently and closes the gap in the sample.

Chopping a sample up and moving parts around requires more than just an active area. A marker is required to show where parts are to be placed. Any marker can be made active by using the appropriate option in the Marker menu, at which point the colour changes from yellow to red (warning: this option can seriously damage your sample). Insert takes the marked area and creates enough space to copy it after the active marker. Unfortunately, multiple insertions are not available so copying an area more than once can be tedious. Overwrite performs similarly but doesn't create space after the active marker, while Move erases the area from its original position once it's been copied. Add combines the active area with the area currently following the marker (which can cause clipping), while Average does the same but halves the final amplitude (to avoid clipping). To minimise glitching when samples are cut and shut, Crossfade lets you define an area over which one part fades out as the other fades in. This includes an option for the loop points which gives crossfade looping. This technique lets you create smooth loops by taking a small portion of sample before the start loop and mixing it in with the area before the end of the loop. It is usual to be able to choose how wide an area of sample is taken ►

**"Armadillo promise
sequencing with SMPTE
time code, sample
analysis and resynthesis
and real-time
effects in the near
future."**

“Software is only as good as its user interface, and Armadillo's Highnote goes a long way towards making the sampler very intuitive to use.”

- ▶ before the start, which is not offered here, but the results are good. This is helped by continuously zooming in so that you can see precisely where the loop should be.

There are times when a stereo sample may need to be split into two mono sections and each side treated separately. The Split Sample option in the Sampler menu keeps one half of the sample under the current name and renames the other half automatically. To create a stereo sample, use Make Stereo from the same menu. The current mono sample inhabits the left side and the right one is then blank. Set an active marker in this blank right side and then drag an active area from another sample on screen. Care has to be taken when editing because there is no undo facility - edits are permanent and destructive. I would have preferred to see the original of a sample buffered for recall if necessary.

The Archimedes' multiple window environment allows you to view different aspects of the same sample at the same time. Unlike the Atari ST and other similar machines, a window does not have to be active to move it which makes this software very quick to use. For example, you can have three or four different samples on screen and cut out bits of each and insert them into another window to create a new sample. The way most computers work is to use a clipboard buffer because of the lack of processing power which makes the whole procedure much slower.

VOICE CHANNEL GRID

HAVING MADE VARIOUS samples, there are likely to be two different situations for playback. The first of these is to switch between various samples in memory and for this the Channel Grid is used. This is found in the Voice Setup menu and consists of a Voice list with a channel grid next to it. Use of the term “channel” is likely to cause confusion with MIDI channels, but in this case it refers to the eight voice channels. Samples are dragged to this window and some or all of the available eight voices may have samples assigned to them. Beside each sample is the length (in seconds), stereo image position and whether the loop created for that sample is to be on or off. Clicking on a voice brings up a menu allowing you to change the note at which the sample plays back as recorded, and detune the note in 50ths of a semitone. It also gives the start and end times of the loop. Under this menu there is access to the System Configuration which sets the Master Volume/Tune and the overall number of voice channels. This page can be found in many of the menus around screen.

The way in which Armadillo have used the four MIDI modes is rather unconventional. Mode 1 (Omni on,

polyphonic) accepts all MIDI channels and plays each voice consecutively. This is fine if you've assigned four voice channels to each side of a stereo sample, but if there are eight mono samples, each with one channel assigned, they play alternately. Mode 2 (Omni on, monophonic) works from all MIDI channels but only plays the first voice. Mode 4 (Omni off, mono) gives each voice a separate MIDI channel starting from the Base Channel in the MIDI Options menu. Mode 3 is reserved for patches (more later).

Selections from the MIDI Options menu control the playback from the channel grid. This has the MIDI mode setting and various other functions, the less obvious of which follow. Legato is often taken to be the playing of a second note immediately after the first without a gap. The use here is more in keeping with that for a wind instrument. In MIDI mode 4, if a second key is played before the first is released the pitch changes but the sample doesn't restart (single triggering in analogue terminology). Sustain plays a sample through to its end - one-shot mode.

Should you not have the hardware to hand, an on-screen MIDI keyboard can be called up and have a MIDI channel assigned to it. Key numbering follows the Roland (middle C is C4) standard, with just under six octaves as the standard screen display - though you can zoom in and out. The same menu also has settings for sustain time (which delays the note off), the velocity sent by a keypress and whether sideways mouse movement controls glissando or pitchbends (not currently available).

While I was using Channel Grid mode, a variety of quirks occurred. Changing MIDI mode made the sampler forget the current setting of the stereo switch in the MIDI Options menu. Samples suddenly played back one side at a time and the stereo switch had to be turned off and then back on. Similar confusion arose when rearranging the voice channels. Samples played from the on-screen keyboard were often an octave out immediately after this change. Checking voice detune showed this to be true, and yet the tuning was restored on exiting the menu. Odd. The manual states that the channel voice allocation numbers will shift from one sample to another when a MIDI program change is received, but I couldn't get this to happen. Hopefully these problems will be cured in later software revisions.

PATCHES

WHILE THE CHANNEL Grid is fine for checking out samples against each other, it does not support multitimbrality. This is in the jurisdiction of the Patch List.

To create a new Patch, the Patch List window must first be opened from the Voice Setup menu. Once created, master volume and tuning parameters can be set per Patch as can the number of voice channels. As with the Channel Grid, samples are then dragged to the Patch window where each can be allocated a keyboard zone. Information such as root note, detune and MIDI channel are all shown within the Patch window, and can be changed via the individual menus for each Voice. This aspect of ▶

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Setting up the high and low notes for the zone and root note is a rather ingenious process. Clicking on a voice highlights it and makes it active. Playing notes from either the on-screen keyboard or an external MIDI keyboard changes the parameters one at a time - you can even put the high and low notes in the wrong way round. There are a further four toggle switches for each Voice; Sustain Loop as before, Sustain and Velocity on/off as in the MIDI Options menu and Fix which keeps a Voice at constant pitch no matter where on the keyboard it's played. You could have a different sample on each key and all settings are kept within the Patch which then sits in the Patch List.

Channel Grid and Patch List are mutually exclusive - you can only have one of them active at a time. This is determined by the MIDI mode. Mode 3 (Omni off, poly) makes the Patch List active while any of the other three modes favours the Channel Grid. There are certain aspects which are, as yet, unavailable. The obvious of these is the inability to overlap keygroups. This means that you cannot overlay samples or use a positional crossfade or velocity switch to move or change from one sample to another. You cannot delay the sounding of a sample. For instance, it would be nice to take a piano and string sample, overlay them and then set a delay on the attack of the strings giving a piano attack and a string release. But it's not possible here. Another shortcoming is that if the polyphony is exceeded, a warning flashes on screen and all audio cuts out. It would have been a better idea to have simply cut off the first or last note played. Finally, try as I might, I could not get Patches to respond to a MIDI program change.

IN USE

GENERALLY, THE A616 is easy to use and the quality of audio is excellent. I used it on some demos for a record company where seven layers of vocals in a stereo spread lasting some 18 seconds had to be laid on tape at various places - the A616 handled the job admirably. Using a full-size colour monitor and the Channel Grid option, the entire process was finished in 15 minutes with no audible difference between the originals and the samples. The four times oversampling used on playback helped give the results a particularly smooth finish.

One shortcoming did come to light, however: Highnote doesn't recognise any MIDI controller information. No pitchbend, no modulation wheel and so on. Also, there's no MIDI implementation table with the A616. The manual is reasonable but would benefit from more examples - especially where the channel grid and patches are concerned.

Sadly, although I didn't get the chance to try the A616 with the Inspiration sequencer, it wouldn't have worked as Highnote precludes the use of other Archimedes programs. Armadillo are intending to convert the necessary software routines to RISC-OS

(the operating system used by the Archimedes) to allow compatibility by the end of the year.

VERDICT

THERE ARE BOUND to be comparisons made between this and other 16-bit samplers such as the Akai S1000. Cost apart, what are the advantages of using a sampler based on a computer? The most obvious are the same as those applicable to hardware and computer sequencers - the screen, for example. So many editing functions need to be clear in order to be best used. Removing pieces of samples, for example, is practically impossible on a hardware sampler yet it can be carried out within consummate ease on the A616. Similarly, carrying out different edits to the two halves of a stereo sample wouldn't be practical on anything without a display. And given the same edits, the A616 will out-perform any hardware sampler due to the speed of its processing. So what are the disadvantages?

Looping is one of the most important features of any sampler and yet the ability to obtain glitch-free loops here is limited. No autolooping, no ability to check level and gradient of the two portions to be looped and the lack of any option of crossfade looping width are not limitations I would expect to see in a top-line sampler. No ADSR envelope or filtering, no release or alternating loops. More sophisticated facilities like cut-and-play lists and, of course, direct-to-hard drive recording are already available on Atari ST (Hybrid Arts Adap I/II and Digidesign Sound Tools) and Mac (Sound Tools) systems. The list of shortcomings isn't endless but is certainly too long.

Armadillo promise sequencing with SMPTE time code, sample analysis and resynthesis, real-time effects (echo, reverb, vocoding) and click/scratch/noise removal modules in the near future. More to the point, when the direct-to-hard drive hardware is available, we're likely to see this being used for digital editing - an area which has been poorly covered by reasonably-priced systems.

And the cost? An Archimedes A440 (4Meg RAM and a 50Meg hard drive as standard) with an Acorn monitor costs £2319 while the Armadillo A616 soft/hardware costs £1295, so it's not a cheap system. You could get an A3000 with 2Meg RAM (max) and a monitor for £968 but less RAM means less sampling time, and more limitations. (All prices exclude VAT).

Armadillo certainly have some exciting ideas planned for the future, but some of the more basic facilities need to find their way into the package sooner rather than later. What we have here is a bright start to a system which shows much promise. However, Armadillo have a fair way to go before the A616 is the system they intend it to be. ■

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Thanks to Phil Brown of Pandora Technologies for the loan of an Archimedes A440.

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The MECHANIC

A lot of attention has recently been directed towards the role of the producer in modern music, but what of the engineer - having worked with artists as diverse as Fela Kuti and Neneh Cherry, Martin Rex has some of the answers.

Interview by Ollie Crooke.

OVER THE LAST FEW YEARS, MARTIN REX has been busy building a reputation. As an engineer and co-producer his work has included "traditional" acoustic recordings as well as technology-based dance work, ethnic music, and just about everything in between. Recent projects have included the Beatmasters' *Anywayawanna*, forthcoming Alison Moyet LP, Neneh Cherry's *Raw Like Sushi* and the current Curiosity single. Add other, less commercial but equally weighty credits like Fela Kuti (live and studio), Michael Nyman's score for *The Draughtsman's Contract*, Dagmar Krause's *Tank Battles* and a long history of reggae work with Dennis Bovell and Linton Kwesi Johnson, and you have a Reputation.

Rex's involvement with music started at age 15 with an acoustic guitar and "a few blues tunes". After leaving school he played in pubs and clubs in Germany, the Midlands and London. Arriving in London, he combined his band activities with a Computing and Electronics degree at Central London Polytechnic.

"We used to play pubs four or five nights a week at one point", he recalls. "We knew the security men at the old Court Line air terminal in Finchley Road, so we rehearsed there and we set it up for recording our own demos using a 12:2 mixer a school friend had built for us. We just set up, miked everything up and went straight onto a Sony two-track machine - no vocals, just the backing track - and then we dubbed from the Sony. I think we just went from one two-track machine to another machine doing the vocals at the same time."

A year's research into electronic control of room acoustics at the College of Furniture followed: "I built this box and a bunch of electronics to go with it which would absorb energy from a room. The idea was to be able to tune into the frequency you wanted to remove. At the end of the year, I applied for a job with 3M as a field service engineer fixing their multitrack tape recorders. It was a perfect way for me to get around and see major studios and see what was going on in them. The worst thing was that the only time you went into a studio was when there was a crisis."

In 1981, during his year-and-a-half stint with 3M, Rex went to Minnesota to be trained on their first digital 32-track machine.

"I learned how that worked and commissioned the first one in this country and, I think, in Europe, at the Roundhouse Studios and a further one, a four-track version, at the Townhouse cutting room. Obviously you still went analogue from the machine and analogue back to the machine. The worst thing was that the way the electronics were lined up was totally different from an analogue tape machine. You had to line up 64 converters (two per track) with a spectrum analyser. When the machine first went in they would drift from day to day. The first month in the Roundhouse I was there every day. I think 'Mirror in the Bathroom' by The Beat was the first thing that was cut from that."

Having decided to switch from service engineer to recording engineer, Rex was ideally placed to land a job with studios whose owners were keen to have someone who could keep their multitracks running well. While visiting Chiswick's Riverside Studio Rex learnt that there was a vacancy - could he suggest anyone to fill it? He certainly could. . . And a free weekend saw him producing demos for a band called The Fixx.

After about six months at Riverside Rex found himself a more challenging job at Dennis Bovell's then flourishing Studio 80. Although he was still given the job with an eye to his maintenance skills, it was a much looser working environment.

"The studio was run on a shoestring - I actually had to rebuild it twice. We had a flood in the basement. All the equipment had to be taken out and 'hair dried'! I spent three or four years at Dennis' studio and I guess that's where I learned most. I knew very little about reggae before I went there, but it grew on me rapidly. It was a real eye opener."

Although the output of the studio was predominantly reggae, there was an interesting variety of music coming out of Studio 80 at that time. Other projects included Fela Kuti's controversially mixed *Army Arrangement LP*, and Michael Nyman's soundtrack for *The Draughtsman's Contract*. This was in addition to the prolific output of Studio 80's house band, The Dub Band, and their collaborations with Linton Kwesi Johnson and dub poet Michael Smith. Rex also became Dennis Bovell's live engineer, doing live dub mixes all over Europe and the US. One European tour was particularly demanding in that he

was mixing for both Fela Kuti and The Dub Band who were first on the bill. The project involved mixing a couple of hours of live dub followed by a three-hour set played by a band of more than 20 musicians.

"We used to have really good sessions at Studio 80 when the band could all actually make it down there at the same time. . . The Fela sessions were very memorable. His wives used to come down to cook the band meals - they burned the kitchen cooking fish, totally wrecked it.

"The album was quite poorly recorded, I'm afraid - we had to work at 15ips because the songs were so long. If you work at 30ips you only get 16 minutes. On top of that, the budget didn't allow for any noise reduction."

And *The Draughtsman's Contract*?

"We used quite a lot of tape loops on that; David Cunningham, who was producing, was into putting long lengths of tape around mic stands and adding obscure signal processing. *Making History* with Linton Kwesi Johnson and The Dub Band was a great session. I suppose looking back at all the sessions I've done, it's the live sessions where there's been a band playing that I've enjoyed most of all."

Rex found this again recently when working with Yazz where he was dealing with a bass player, guitarist, Wurlitzer pianist, percussionist, three backing vocalists and Yazz playing live in the studio to a break beat looped on an S950.

At the end of Kuti's 1984 tour Rex left Studio 80 to help two friends of his, musicians Tony McGrail and Charlie Barrett, to build Terminal's recording studio. They needed an engineer to help design and wire up the studio, to choose equipment within their budget and to act as house engineer.

"I think it was a new challenge. I wanted to get out on my own and try to start something else up. It was very different from the reggae thing, there were a lot of different sessions, and to start with I was doing them all. One of my sessions was with a band called Ujaama from Senegal where all the backing tracks went down in one night - the session didn't start 'til nine in the evening. We had drums, percussion, bass, guitars, horns, vocals, keyboards - the whole lot going down live. Another album we recorded there was Bill ►



PHOTOGRAPHY: ADAM JONES

► Bruford's *Earthworks* for the EG label. It was done very quickly with Dave Stewart, the keyboard player, producing. That was really good because he's such a good musician and very interested in technology as well. After that EG approached me because they wanted someone to work with Killing Joke (for the album *The Gate*). I started in February in a studio that EG had, called The White House in Chelsea. We worked a 10am-6pm day because the studio wasn't soundproofed properly and the neighbours would complain if they heard a noise after six. We couldn't work at weekends. It made a change to work regular working hours!

"They were interested in exploring different areas of music. Killing Joke were doing it from a different angle, using a Hebrew Gammetria. It's a book of numbers where all these numbers have meanings. They were using that book to decide on tempos for songs. When it came to mixing the album I'd just spent nine months far too close to it, so the recording company got in Glen Skinner. He made a very good job of it."

AFTER THIS LENGTHY PROJECT REX decided to get himself a manager - consequently the last two years or so have seen a spectacular variety of work, especially in the dance field.

"They got me this job through the Chocolate Factory - a Rhythm King session for Jay Strongman. It was a remix of his 'East West' track. That led onto a lot more work with Rhythm King, including the Beatmasters' album, tracks for MC Merlin and Tim Simenon. There's a track which I co-produced, which should be on his next album, called 'Pressure Point'. I think the stuff he's doing now is quite a lot harder,

particularly on the rhythm front. There's a track called 'Escape Attack' which he's done as a video with Godley and Creme. That's great, lots of fresh ideas.

"Then there was the Eddie Grant remix that we did. We had the original multitrack, 'Walking On Sunshine', in fact which went back to 1982 or something, and it was all played and it wasn't in time so we decided to rebuild the track by sampling two- or four-bar sections at a time of a particular instrument on the track and then playing that back onto a new 24-track tape and building

up the track that way. We were taking the stuff that we wanted from the original, sampling it into the Prophet 2000 and then playing it back using the UMI."

Rex is, as you may have gathered, a happy user of the UMI sequencer - although lately he has been

showing a marked interest in the prices of a portable PC or two.

"My sequencing setup is a UMI 4M based around a BBC master computer. It only gives me 16 tracks but I haven't run out yet. I find it very simple to use and very fast - it's good for getting ideas together quickly. I also like it because I can get onto the phone to Linton - who writes the software - if I need anything changing or updating. That's a great benefit. I've actually had a live track added to the software so now I'm able to have a live track running parallel with the song to record everything I do. I can jam along with the song, I can save that performance, edit it, or edit parts of it, so for me it covers everything.

"It's very reliable too; if you do get a crash it's usually down to external weirdness, power glitches, or strange MIDI messages coming in.

"I use the UMI with a Prophet 2000 sampler which I have a large library for and I've had for a long time. I hire S1000s and have a Roland Super Jupiter and a Yamaha TX81Z which I sometimes use."

About two or three months ago, in a project he brought into my studio, Rex managed to rescue an incredibly dodgy, ancient old sync track which had somehow managed to travel from Canada to Shoreditch. It had been recorded on an old UMI 2 sequencer so we hired one in for the job. A lot of programming needed to be redone, and it eventually transpired that the only way we could lock things together was by using two UMIs (Rex uses the new one) and a C-Lab Creator/Unitor. Then we discovered that the original sync track didn't work. No problem: Rex compressed and EQ'd it, and we were in business. And it was his abilities in just this direction that were especially useful during the recording and mixing of the Beatmasters album.

"Each one of them has their own sequencing setup", he explains (see MT interview, July '89). "Paul has an SP1200 Emulator drum machine. Manda uses an Ensoniq EPS and Richard uses the Studio 440, an S900 and a couple of keyboards. They all program up on different machines so I had to make them all talk to each other. I tend to use a Roland SBX80 sync box out of preference. If you can wade your way through the manual - which I think is the worst I've ever seen - it's one of the most solid boxes to use. It also provides the old Roland DIN sync as well as MIDI. The particular EPS we were using didn't follow MIDI Song Pointer, nor would the SP1200, so we were basically locking the machines up and getting the sounds on tape.

"When it came to mixing I had my UMI system in, which I had for every mix. There are a couple of songs where some sounds of mine are thrown in, for instance in 'Ska Train' there's a big marching bass drum. On that track they had the horns on an S900 but I wanted to put them to tape in stereo, so we used a slightly different offset for the horns, tuned them slightly differently and laid them down twice to give them a good stereo mix."

Nench Cherry's *Raw Like Sushi* required two very different skills; the first in recording excellence and the second involving a particularly open mind to experimentation. A couple of examples, Martin?

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"With 'Manchild' I recorded a 20-piece string section at Abbey Road", says Rex, "which I chose to record with Dolby SR noise reduction. I recorded them on four tracks of the multitrack: two stereo pairs. One pair was close miked and the other was an ambient pair so that in the mix there was an option of bringing in extra ambience from the room rather than creating it digitally. I chose the SR just to keep it as clean as I could. When it got to the mix they wanted the string sound brighter and the easiest way to do that was to bypass the Dolby in playback and they come out sounding brighter and probably a little compressed as well."

"On 'Kisses on the Wind' I wanted a different sound on the drums in the middle section so I routed and mixed all the drums and sent them out to a speaker stack which was aimed at a corridor, miked it up with an AKG414 and put the mix right back on to tape. They were messed up really!"

Apart from the Neneh Cherry and Beatmasters projects of last year, Rex has been working with, amongst others, two female singers who could hardly be more different - Alison Moyet and Dagmar Krause. Again, the approach to both the pre-production and the music was significantly different.

"For Alison Moyet I spent two-and-a-half weeks at the producer Pete Glenister's house just programming with the UMI. Then we went to the Skylight suite and put the programmed stuff on tape. There were also two live tracks that we recorded at Townhouse 3. We had the rhythm section from The

Pretenders, with guitar and keyboards. Blair Cunningham on drums, John Mackenzie on bass, Pete Glenister on guitar and Bob Andrews on keyboards.

"*Tank Battles* was interesting because we recorded it in German and in English and mixed both versions. We also used some great musicians - Hans Eissler is a German composer who had to leave Germany when the war started. He went to America but I think he was thrown out. It's mainly his music, although some of it is Brecht. And Greg Cohen, who is the bass player in Tom Waits' band did the arrangements."

Since Christmas the work has been rolling in. There have been lengthy vocal sessions with Curiosity Killed the Cat, which sound as if they were an adventure in themselves, more work with the Beatmasters producing Betty Boop's new single 'Doin' The Do', more work with a re-formed Killing Joke and, most recently, some work at Livingston Studios with Yazz and her producer Youth (the ex-Killing Joker).

The reputation that Rex has established has been partly the result of his talents as an engineer and producer, but the hard work he has invested in his career has been equally important. It's much the same story as that of session musicians: work brings more work; drop out for a while and someone else will step in. But while Rex shows no sign of letting up at present, his attitude to his work and music can be treated as an object lesson for anyone looking to break into music as a sound engineer. ■

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KEYBOARDS

AKAI MX73, flightcase, stand, £350; Roland MT32, £275; Carlsbro keyboard combo, 150W, £250. Tel: (0670) 812118.

ARP Omni, great cond, flightcase, offers. Maurice, Tel: 061-224 2620, anytime.

CASIO CZ1, excellent cond, manuals, boxed, £430 ono. Steve, Tel: 051-521 2405.

CASIO CZ101, with manuals and PSU, £100 ono. Tel: (0255) 434217.

CASIO CZ101, boxed, RAM pack, manuals, book, voice librarian, £130 ono. Tel: (0602) 613566.

CASIO CZ101, £100; Yamaha DX27, £220; Roland S10 sampler, 40 disks, £430. Tel: (0427) 615865.

CASIO CZ101, excellent cond, boxed, manuals and patch book, £100. Martin, Tel: (0203) 670796.

CASIO CZ230S, manual, software, MT lead, £200 or swap for Roland TR909. Mark, Tel: (0279) 658011.

CASIO CZ1000 plus RAM, £130; QX21, £90 ono; 40 DD FZ1 disks, £45 ono. Wanted: my U110 for your D110 or £400. VZ1 software sequencer, £300. Tel: (0748) 5481.

CASIO CZ5000, £300; Roland TR707, £150, no offers. Brad, Tel: (0602) 873896.

CASIO VZ1 clone (Hohner HS2), 2 ROMs, as new, £295. Chris, Tel: (0296) 81379, eves.

CHEETAH MK5, MIDI master keyboard, excellent cond, £100. Jonathan, Tel: (0329) 663048, after 7pm.

E-MU PROTEUS, 3 wks old, virtually unused, £700; Roland SH101, £85. Dave, Tel: (0904) 794327.

ENSONIQ EPS, 4 x memory board, plus SCSI compatible, 5 yrs warranty, new, £300. Terry, Tel: 071-703 7133.

ENSONIQ ESQ1, v3.0, 20,000 sequencer expansion, never giggered,

£550 ono. Mr Robertson, Tel: Glasgow (0294) 63047.

ENSONIQ ESQ1, excellent cond, with accessories, £575; Oscar, MIDI, excellent cond, manuals, £200. Steve, Tel: (0403) 68292.

ENSONIQ VFX synth, boxed, mint cond, plus cartridge and stand, excellent sounds, £1200 ono. Iain, Tel: (0420) 83402.

FARFISA TK100, sampled sounds, MIDI, mint cond, £200. Tel: (0472) 864356.

HÖHNER PIANET T, excellent cond throughout, £80 ono. Gordon Reid, Tel: (0223) 247111, days; (0638) 720090, eves.

KAWAI K1, new, boxed, with cards and extras, bargain at £395. Martin, Tel: (0268) 766110.

KAWAI K1, £400; Alesis MMT8, £150; Alesis HR16, £230. Derek, Tel: (0273) 674970.

KAWAI K1M, boxed, £220; Casio RZ1 sampling drum machine, £150. Tel: (0202) 423769.

KAWAI K1M, £220; Roland E20, £675. Wanted: TX81Z or TX7. Tel: (0536) 743523.

KAWAI K3, velocity, pressure, 32 waveforms, 2 oscillators, effects, stereo, analogue, bargain, £275. Martin, Tel: (0268) 766110.

KAWAI K5, 16-note polyphonic, 15-part multitimbral, brilliant sounds, excellent offer, £400, must collect. Tim, Tel: (0737 81) 2411.

KORG DS8, multitimbral synth, plus extra sounds, boxed, vgc, £320 ono. Tel: (0962) 53243.

KORG DW8000, excellent cond, inc stand, extra sounds on tape, £395 ono. Tel: 081-518 0078, after 7.30pm.

KORG EX800, (Poly800 module), really thick analogue strings, PSU, boxed, £110; Yamaha FB01, manual, £100. Tel: (0703) 270100.

KORG M1, boxed, manual, headphones - good cond, £1050 ono, stand optional. David, Tel: (0296) 22184.

KORG M1, with PCM and ROM cards, hard case, £1125. Tel: (0204) 21430.

KORG M1, £950, excellent cond, plus Korg dual digital delay, £150. Chris, Tel: (0883) 717657.

KORG M1R, rackmount version of M1, £900 ono. Tel: (0252) 521902.

KORG POLYSIX, excellent cond, boxed, classic analogue sounds, programmable memories, £250. Rikki, Tel: 071-703 6531.

KÖRG POLYSIX synth, with memories, inc flightcase, excellent cond, £285 ovno. Paul, Tel: (0532) 865197.

KORG POLY61, £170 ono; Boss chorus, RCE10, £70 ono; Gibson Les Paul, £450 ono. Kev, Tel: 051-263 1584.

KORG POLY800, instruction manual, PSU, footswitch, boxed, £155 ono. John, Tel: (0752) 896975.

KORG POLY800, mains adaptor, manual, £140 ono. Tel: (0272) 876297.

MICROMOOG analogue monosynth, best offer over £200 secures; XRI sequencers, h/w and s/w, DX7 editor, library, £60. Tel: (0733) 268785.

MUST be seen to be believed: Jupiter 8A, mint cond, also RX5. Steve, Tel: (0909) 771581, eves.

ÖBERHEIM XPANDER, lots of extra sounds from USA users group, £1199. Alan, Tel: 081-446 3098.

ORLA STAGE 76 digital piano, 76 weighted keys, 16 presets, MIDI split, immac cond, £425. Tel: 081-554 2691.

PPG 2.2, Minimoog, D50, Roland RD300, Oberheim Matrix 1000, RX5, A-frame, MC500, sensible offers please. Tel: (0785) 49370.

PROPHET t8, £995; Prophet 2000, £595; Tascam 244, £395; Sequential Drumtraks, £195. Tel: (0254) 247199.

RHODES CHROMA analogue synth with MIDI update and Apple

interface, £799. Tel: (0737) 556110.

ROLAND ALPHA JUNO 1, boxed, £219; Yamaha RX17 plus PSU, £139. Tel: (0525) 714984. Bedfordshire.

ROLAND D5, excellent cond, unreal sounds, offers around £400. Mike, Tel: (0244) 315216.

ROLAND D5, only 4 months old, £350; Casio HT3000, only £150. Jeremy, Tel: 081-965 1699, today!!

ROLAND D20, 3 months old, home use only, immac cond, £800. Tel: 021-747 7324.

ROLAND E20, nearly new, excellent cond, offers. Tel: (0686) 626245.

ROLAND JUNO 2, great analogue sounds, touch sensitive, £300 ono. Tel: (0892) 33021.

ROLAND JUNO 60, perfect, groove MIDI fitted, home use only, inc manuals, £325. Tel: (0347) 810344.

ROLAND JUNO 60 synth, with JSQ60 sequencer and FV200 pedal, £300; Marshall 12W amp, £40. Tel: (0332) 381209, after 6pm.

ROLAND JUPITER 6, MIDI, £350. Tel: (0865) 891191.

ROLAND JX3P, immac cond, boxed, manual, £300 ono. David, Tel: (0903) 67196, after 4pm.

ROLAND JX3P, excellent cond, boxed, manual, other extras, no programmer, hence only £230. Steve, Tel: (0403) 68292.

ROLAND JX8P, inc flightcase, ROMs, and unique sounds, boxes, manuals etc, immac cond and ungiggered, £550 ono. Gordon Reid, Tel: (0223) 247111, days; (0638) 720090, eves.

ROLAND JX8P, classic synth, new heavy duty Packhorse flightcase, manual, £495. Tel: (0908) 606936.

ROLAND JX10, excellent cond, £700 ono; Teac 2A audio mixer, 6:4, £120 ono. Jaysen, Tel: (0323) 21274.

ROLAND MKS30, (modular JX3P),

with PG200 programmer, £300 for classy analogue bliss. Paul, Tel: (0772) 39124.

ROLAND MT32 multitimbral sound module, manuals, home use only, £220. Mark, Tel: (03552) 37781.

ROLAND MT32 multitimbral module, ideal for Atari ST, £275. Niall, Tel: 061-456 9587.

ROLAND PG1000 programmer for D50 or D550, £150 ono. Tel: (0225) 311428.

ROLAND SH101, £95; Korg Poly800, £150; Yamaha DX100, £150; ARP ProSoloist, £50. Tel: (0272) 561855.

ROLAND SH101 and Roland MC202, boxes and manuals, £100 each. Tel: 041-632 1431.

ROLAND SUPER-JX10 megasynth, inc flightcase, ROMs, and unique sounds, boxes, manuals etc, immac cond, £850 ono. Gordon Reid, Tel: (0223) 247111, days; (0638) 720090, eves.

ROLAND U20 and Latin f/x, strings and drum sound cards, flightcase, stand, vgc, £850. Gavin, Tel: (0494) 440903, eves.

ROLAND U20 sample player plus 626 drums, absolutely as new, £745 £150, boxed. Tel: (0440) 707610.

ROLAND U110 module, £400; Cheeta MS6 module, £225; 4U rack flightcases, £40. Tel: (0792) 897426.

SEQUENTIAL CIRCUITS Prophet 5, Rev3.2, good cond, manual, £495; Tascam 22-2, mint cond, £345. Tel: 071-485 7324.

SEQUENTIAL PRO ONE, versatile, classic monosynth, flightcase, manual, £140. Tel: (0865) 65934.

SEQUENTIAL SIXTRAK polysynth, multitimbral sequencer, MIDI, £200, swap for Oscar, Delta, Trident. Trevor, Tel: (0695) 625526.

SEQUENTIAL SIXTRAK with updated MIDI (use as 3 two-oscillator monosynths?) £175. Tel: (0268) 43815, eves.

TECHNICS SXX200, with stand and RAM pack, good cond, £55!!! Tel: (0344) 775192, after 6.30pm.

VOX CONTINENTAL, GWO and cond, collectable classic, self-flightcased, with stand, £175. Tel: (0422) 356214.

YAMAHA B200 workstation, (YS200 plus speakers), 8-track sequencer, effects, touch-sensitive, guarantee, £375. Miles, Tel: (0223) 61614.

YAMAHA DX7, excellent cond, 1 RAM, foot controllers, thousands of sounds, Atari software, £440. Tel: (0761) 32610.

YAMAHA DX7 plus TX7 expander, excellent cond, flightcase, manuals,

ROMs, £650 pair. Tel: 091-389 0211.

YAMAHA DX7, vgc, flightcase, ROMs, RAM, plus CX5, large keyboard, software, £650, will split. Tel: (0430) 432 111.

YAMAHA DX7 IID, ROM and RAM cards, new sounds, hard case, as new cond, £795. Tel: 021-356 4246.

YAMAHA DX7S, double stand, Carlsbro Cobra 90 combo amp, £750 ono. Tel: (0709) 874178.

YAMAHA DX100, £150 ono, with Casio AS20, 15W amp, £50 ono. Pete, Tel: (0279) 654470.

YAMAHA EMT10 piano module, plus many more sounds, £200 ono. Robert, Tel: 081-992 8461, after 9pm.

YAMAHA FB01, perfect cond, boxed, manuals etc, £125; Steinberg FB01 editor, unused, £50; FB01 librarian with 500 voices, £25, offers for the lot.

Gordon Reid, Tel: (0223) 247111, days; (0638) 720090, eves.

YAMAHA FB01, multitimbral FM expander, vgc, manual etc, £100. Tel: (0703) 270100.

YAMAHA PSS570 electronic keyboard, with synth, chords, drums, case, mint cond, £90. Tel: (05436) 5407. Staffs.

YAMAHA PSS680, superb cond, stylish case, adaptor, great expander, keyboard, only £130. Tel: (0276) 21450.

YAMAHA PSS680, styleplay accompaniments, drum pads, digital synth, great MIDI spec, boxed, £120. Tel: Trowbridge 777237.

YAMAHA TX802, 8-voice 6-operator synth, 64-voice ROM, 64-prog RAM, £600. Tel: (0932) 843068.

YAMAHA TX802 multitimbral DX7 II, RAM cartridge, manuals, £650. Tel: (0865) 65934.

YAMAHA TX81Z, £250; Bit1, needs minor repair, £180; Mirage DSK, plus case, £600. John, Tel: (0843) 225955.

YAMAHA V50 workstation, sequencer, drums, effects, synth etc, cost £1100, accept £725. Simon, Tel: (0904) 627377, eves.

SAMPLING

AKAI S700 sampler, memory expansion board, multi output lead, vgc, £325 ono. Simon, Tel: (0268) 45200, after 7pm.

AKAI S900, with samples, virtually unused, home use only, £700 ono. Tel: (0952) 630357.

AKAI X7000 keyboard sampler, with 2Meg expansion, mint cond, £450; Kawai K1m, £230. Tel: (0536) 743523.

AKAI X7000, latest update, (stores samples when off), 30 disks, immac cond, KMS30 sync. Tel: (0642) 622338 or 470680.

AKAI X7000 sampler, with flightcase and over 40 disks, £485 ono. Wanted: FZ1. Tel: (0742) 589282.

CASIO FZ1 clone, Hohner HS1, ungigged with 80 disk library and extras, £695. Robin, Tel: (0494) 465283.

CASIO SK5 sampling mini keyboard, boxed, manuals, £55 ono. Pete, Tel: Coventry (020333) 6493, eves.

EMULATOR II, (twin drives), vgc, mega flightcase, 140 disks, manual, only £1250 ono. Dave, Tel: (0274) 616107. West Yorks.

EMULATOR THREE keyboard, the Ferrari of samplers, 4Meg, 16-voice, 44.1kHz, sequencer, 40Meg HD, multi-outs, SCSI, £6500. Tel: (0273) 205768.

ENSONIQ MIRAGE MkII, £475; Alesis MMT8, £175; Roland Juno 106, £275; Yamaha MDF1, £120, all immac cond. Don, Tel: 031-441 3948, 6-11pm.

ENSONIQ MIRAGE, with MASOS, case, disks, £500 ono. Mike, Tel: 071-601 5989, days; (0923) 228224, eves and weekends.

KORG DSS1 sampler/synth, c/w flightcase, as new, £700 ono. Tel: (0705) 52293.

PROPHET 2000, huge library, full memory update, editor, flightcase, excellent cond, £850. Tel: 081-348 4761.

ROLAND S330, D110, Synthworks, 1040ST, Cubase, Cheetah MK7VA, monitors, compressors, Porta 05, Midiverb II, cables, immac cond, £2000. Tel: (0756) 71556.

STEREO 4-channel sampler for Atari ST, MIDI keyboard and sequencer, £150 ono for the lot! Tel: (0932) 786185, eves.

SEQUENCERS

ALESIS MMT8 sequencer, boxed, manual, PSU, (extra mega PSU), £160. Andy, Tel: (0532) 430177.

ALESIS MMT8, boxed, manuals, PSU, mint cond, £160; Yamaha MDF1, boxed, manual, PSU, £125. Don, Tel: 031-441 3948.

ALESIS MMT8, brand new, never used. Danny, Tel: (0706) 74496.

KORG SQD8 sequencer, excellent cond, £180 ono. Mike, Tel: (0203) 416653, eves only.

ROLAND MC500, with Super-MRC software (as MkII), excellent cond, £400. Stuart, Tel: 071-708 1726.

ROLAND MC500, disks, leads, manual, home use only. Ian, Tel: (0753) 692442 X28.

ROLAND MC500II, inc Super-Mac and MRC500 software, 4 times more memory than standard MC500s! £599. Tel: (0564) 775181.

YAMAHA QX1 sequencer, mega memory, 8 separate outs, only £400. Tel: (0270) 665750.

YAMAHA QX5, with tape sync, 8 tracks, 32 Macros, manual, box, wicked spec, offers around £200. Tel: 081-692 2264.

YAMAHA QX5FD, 8-track, super sequencer with fast disk drive, save over £100 on new, 6 month warranty, £299 ono. Tel: (0703) 270100.

YAMAHA QX21 sequencer and RX120 drums, as new, boxed, manuals, workstation, £250. Chris, Tel: 071-739 5710, eves.

YAMAHA QX21, perfect cond, manual, boxed, £120 or swap for Microverb II. Mike, Tel: 071-603 4967.

DRUMS

AKAI XE8 drum module, boxed, unused, £200 ono, could deliver. Tel: (0788) 817221, after 6pm.

ALESIS HR16, mint cond, boxed, hardly used, only £199. Dave, Tel: (0274) 616107. West Yorks.

ALESIS HR16, boxed, £200; Tascam 244, vgc, £250. Tim, Tel: (04747) 3304, eves.

BOSS DR110, analogue drums, LCD screen, cased, with batteries, £85. Daniel, Tel: (0245) 325607.

BOSS DR220A digital drum machine, boxed, as new, £89. David, Tel: (0753) 887559. Bucks.

BOSS DR220E drum machine, 11 voices, as compact as Walkman!! Sounds like Stuart Copeland!! £65. Tel: (0322) 65713. Kent.

KAWAI R50, as new, home use, expandable, tuning, effects, only £150. Martin, Tel: (0268) 766110.

KAWAI R100, still boxed, separate outputs, velocity pads, giveaway price, £250. Martin, Tel: (0268) 766110.

KAWAI R100 drum machine, 2 chips, £200; Tascam Porta Two, £300. Tel: (0473) 241401.

KORG DDD1, loads of features, realtime tuning, individual outputs etc, £190 ono, swaps? Tel: (0254) 823811.

ROLAND R5, great sounds, good cond, boxed, with instructions, £275 ono. Simon, Tel: (0733) 234398.

ROLAND TB303, £180; TR808, £320; SH09, £100; MC202, £140; CSQ600, £90. Tel: 081-683 4460, eves.

ROLAND TR505 drum machine,

boxed, manuals, £135 ono. Pete, Tel: (020333) 6493, eves.

ROLAND TR626, 30 voices, 8 separate outputs, flightcase, manual, £175. Tel: (0865) 65934.

ROLAND TR808, with flightcase, excellent cond, £350; Linndrum MkII v3, dozens of sound chips, £350. Tel: 081-961 3314.

ROLAND TR909, £300; Roland MSQ700, £200; MC202, TB303, £100 each, excellent cond. Tel: (0803) 294680.

ROLAND TR909, excellent, £325 ono, or what have you to swap? Mike, Tel: (0723) 379073.

SIMMONS SDS9, black, with rack and spare snare chips, £550. Tel: (0296) 661072.

YAMAHA PMC1, Pad 2, MIDI, new, £250; Korg DDD5, £250 ono; Cheetah DPS, 7 pads, £130. Tel: (0298) 23897, eves.

YAMAHA RX5, £425 ono; Kawai K1r, £250 ono; Pro24, £125. Tel: (0302) 832420.

YAMAHA RX5 digital drums, inc 4 ROM cartridges, PSU, manual, mint cond, £425 ovno. Tel: (0737) 248215.

YAMAHA RX5, as new, inc cartridge, £200. Ian, Tel: (0280) 814080 X3332, days; (08675) 3268, eves.

YAMAHA RX5, Roland S10, £400 each or swap for FZ1. Dean, Tel: Sheffield 725500.

YAMAHA RX5, excellent cond, £200. Ian, Tel: (08675) 3268, eves and weekends.

YAMAHA RX11 drum machine, separate outputs or stereo, RAM cartridge, manual, £175 ono. Tel: 081-688 0723.

YAMAHA RX11, manual, boxed, good cond, £150. Tel: 061-797 8976.

YAMAHA RX15 drums, £180; DX21 synth, £250, boxed, with instructions. Dominic, Tel: (0732) 451909.

YAMAHA RX17 drum machine, still boxed, mint cond, £150. Gill, Tel: 061-861 9160.

YAMAHA RX17, boxed, manuals, PSU, £80; Aria Proll integra bass, £120. Rob, Tel: 071-729 6165.

COMPUTING

AMIGA 1 megabyte, colour monitor, Dr T's KCS v1.6, AMAS sampler, MIDI interface, bargain! £760 ono. Steve, Tel: 071-637 1231, days.

AMIGA A500, expanded, external drive, printer, Music-X, protext, prodata, many extras, all perfect, offers? Tel: (0533) 824579.

ATARI 520ST, with 1Meg and SM124 monitor, EZ-Track+ and more!! £300. Jeremy, Tel: 081-965 1699.

ATARI 520STFM, 1Meg drive, Pro24, Genpatch, joystick, games, utilities, boxed, mint cond, £275. Steve, Tel: 081-890 3976.

ATARI 1040, mono monitor, C-Lab Creator v2.2 (registered), flightcases, dust covers, £625. Tel: (0865) 65934.

ATARI 1040STFM and SM124 hi-res monitor, spare drive, £500; Steinberg Cubase, (latest version), £400. Gavin, Tel: (0494) 440903, eves.

ATARI ST Mega 4 computer, boxed, manual etc, perfect for Cubase, Sound Tools etc. Tel: (0442) 862373.

AVALON universal sample editor, superb, £220; Roland MC500 sequencer, perfect cond, £415. Tel: 071-736 7182.

CBM64 MIDI interface, £20; Steinberg Pro16+, £30; DX7 editor plus voices, £30. Tel: 061-998 3494.

COMMODORE 64 programs, Steinberg Pro16+, £30; DX7 editor plus voices, £30. Tel: 061-998 3494.

HYBRID ARTS EZ-Track+, £30; Fostex MN15 comp/mixer, £20. Tel: (0296) 81379, eves.

MASTERTRACKS sequencer, £180; Model-I interface, £100, both IBM-PC compatible; Akai ME30P, £95. Tel: (0507) 606956.

PASSPORT Mastertracks Jnr, £40; K1 librarian, £10 (Atari); Steinberg Pro16 (CBM64), £25. Tel: (0489) 577466.

SOUND DESIGNER Universal (Atari) edits ALL major samplers, inc manual, £100 ovno. Tel: (0831) 204034.

STEINBERG CUBASE, v2.0, latest version, with dongle, manual, box, £270. Simon, Tel: (07048) 74903.

STEINBERG editors: DX/TX, £75; ESQ1, £75; TX81Z, £40, all latest updates, with key and manuals. Tel: (0545) 560164.

STEINBERG PRO24, v3, genuine, with key, £150. Tel: (0603) 760426, work; (0603) 860024, home.

STEINBERG PRO24 software folder, cartridge etc, £75 ono; Yamaha DX7 easy guide book, £2. Tel: (0706) 58769 or 39268.

STEINBERG PRO24, v3.0, with manual and dongle, genuine version, £100 ono, offers? Tel: (0263) 768936.

STEINBERG PRO24, v3, dongle, manual, update subscription, £100! Richard, Tel: 081-640 1826.

STEINBERG PRO24, v3, with key and manual, £100. Tel: (0545) 560164.

STEINBERG SMP24, SMPTE MIDI

sync, Cubase/Pro24 compatible, £550. Tel: (0545) 560164.

SUPRA 20Meg hard disk system for Atari ST, £350 ono. Trevor, Tel: (0787) 223450.

UMI 3S sequencer for BBC.B, thousands of DX7/CZ101 patches, drives your TR808! £75. Steve, Tel: (0753) 40243.

ZX SPECTRUM XRI MIDI interface, step-time and real-time sequencers, plus Casio CZ editor, £45 ono. Colin, Tel: 061-905 1045, weekends.

RECORDING

AKAI EX75N noise gate, £80; Amas Amiga sampler, £50; Roland M64C, £20. Tel: (0252) 26536.

ALESIS GATE plus Alesis enhancer, inc PSUs, perfect, £80 each ono. Tel: (0827) 58913.

ALESIS MICROVERB II, flightcase, rackmount adaptor, £100. Tel: (0865) 65934.

ALESIS MIDIVERB, the original. Boxed, preset list, PSU. Very good condition. £120. Tel: (03543) 5239.

ALESIS QUADRAVERB, £325. Pete, Tel: (04024) 44988.

BOKSE SM9 SMPTE/MIDI sync, £200; MTR 12:8:2 MkI mixer, £200; Fostex 350 mixer, £200. Tel: 081-876 0599.

CITRONIC MM313-2 disco mixer, good working order, £90. Tel: (0604) 843536.

COMP/LIM/EXP/GATE, rackmounted, Audio & Design F760 X-RS dual channel, £199! Revox low-speed stereo reel-to-reel, good cond, £450 (remote optional); Quad FM3 tuner, analogue dial, £69. Bob, Tel: 071-253 4399 X3275; (0487) 814227, eves.

DIGITECH delay/sampler, 7.6s at 15kHz, £150. Tel: (0282) 74167, eves.

FOSTEX 4-track recorder/mixer, reasonable cond, needs servicing, £250 ono. Mark, Tel: 081-517 0530.

FOSTEX 8-track recorder and 350 mixer, £900; Roland MT32, £280. Tel: 071-581 0257.

FOSTEX 250 multitrack, £220; Alesis MT8 sequencer, £130; Carlsbro 90 combo, £120. Tel: (0203) 676460.

FOSTEX 260 multitracker, Dynamik 12:2 mixer, Tascam MTS30 synchroniser, £695, will split. Dave, Tel: (0639) 845768.

FOSTEX A4 open-reel four-track, 7.5/15ips. Little use since recent service. Good heads, good condition. £375. Tel: (03543) 5239.

FOSTEX A80, £700; RSD 16:8:2, £550; Revox B77 MkII, £600, immac cond. Tel: 081-340 2850.

FOSTEX A80, £700; RSD 16:8:2, £550; Revox B77 MkII, £600, immac cond. Tel: 081-340 2850.

FOSTEX MODEL 80, 8-track, with remote, hardly used, excellent cond, £780. Philip Bent, Tel: 081-993 1691 or 071-627 3266.

FOSTEX M80, 8-track, excellent cond, boxed, inc manual, loom and remote, £850. Mark, Tel: 081-505 4403.

FOSTEX X15, PSU, £180; Yamaha QX21 sequencer, £110; 3-tier A-frame stand, £80. Tel: (0273) 463328.

FOSTEX X15 multitracker, MN15 mixer, £150; Yamaha RX15 drum machine, £120 ono. Dave, Tel: (0602) 288341.

FRONTLINE X8, 8:2 mixer, £80; MC500 performance software, £50. Tel: (06333) 65758, eves.

FOSTEX X26 multitracker, brand new, hardly used, £230 ono. Tel: 041-882 3754, after 6pm.

HILL 28:4:2, flightcase, £850; RSD 16:4, £550; Fostex A8, Ram RM16/4, JBL 4310, £1650. Tel: (0492) 532436.

MTR 6:4:2 mixer, many extras, £200; Korg DDM220, offers, Digigram Midimic, offers. Piers, Tel: (0707) 271641.

NOMAD AXXEMAN, £160 ono; Fender Champ, £45, both excellent cond. Tel: (0562) 67666.

PHILLIPS 2-track reel to reel, cleaned, demagnetised, £80. Andre, Tel: (023 065) 473, after 5pm.

RAM 10:8:2 mixer, 48V phantom power, talkback mic, flightcase, manual, £400. Tel: (0865) 65934.

REVOX B77, MkII, mint cond, £750 ono. Richard, Tel: 081-640 1826.

REVOX B77, half-track, hi-speed, completely overhauled by main agent Bauch, swap sampler or offers. Tel: 061-928 5946.

ROLAND GS6 digital guitar sound system, 1U rack, unused, boxed, £380. Tel: (0494) 711473.

ROLAND GS6 guitar unit, £450; Roland D10, £575, both new, boxed. Tel: 071-624 8019.

ROLAND SBX80 MIDI to SMPTE sync to tape, boxed, mint cond, £345. Nick, Tel: (0705) 375163.

ROLAND SDE3000, two available, £550 each, Akai X7000, disks, full memory upgraded, £550, immac. Tel: (0432) 77569.

ROSS 12x2 mixer, cased, £350; Goodmans graphic, cased, £50; Peavey foldback speakers, £95. Tel: (04867) 3239.

SECK 6:2 mixer, £350; Boss

microrack comp, £80. Kevin, Tel: (0270) 872558.

SIMMONS 8:2 programmable MIDI mixers (2), 19" rackmount, parametric EQ etc, £180 ono each. Chris, Tel: (0272) 775747.

SIMMONS SDS9, red, £690; black rack MTX9, immac cond, £150; complete set, £800. Guy, Tel: (0603) 427852.

SOUNDTRACS FM 8:4:2, minimal use, £1100; Prophet 2002 sampler, £495; Teac A3340, 4-track, £395. Tel: 081-891 4233.

STUDIOMASTER PROLINE 16:4:8:2 mixer. Mint condition, manual, boxed, phantom power, four auxiliaries. Just over a year old. Great, compact, budget desk, loads of inputs on mixdown. £1100. Tel: (03543) 5239.

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TAC SCORPION mixer, 24:16:2+16, fully wired to 308-way patchbay, immac cond, £6250. Tel: 081-348 0414.

TANDBERG TD20A, quarter-track stereo reel to reel, three-and-three quarters/seven-and-a-half ips, flightcase, cable, remote, £150. Tel: (0865) 65934.

TASCAM PORTA ONE, immac cond, unused, may deliver, £250 ono. Tel: (0226) 742162.

TASCAM PORTA ONE, £180; Kawai R50e, £170. Dave, Tel: (0203) 505148, after 6pm.

TASCAM PORTA TWO, 4-track, excellent cond, £475. Antony, Tel: (0602) 423346, anytime.

TASCAM PORTA TWO, hardly used, £350; Casio CZ3000, mint cond, £250; HR16 drum machine, £200. Tel: (06902) 231.

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TASCAM 38, plus remote, only 100 hrs use, £1045 ono. Mike, Tel: (0422) 372246.

TASCAM 38, excellent cond, £875. Matt, Tel: (0455) 615466, days; 613048, eves.

TASCAM 144 portastudio, £120; Yamaha VSS200 preset/sampler keyboard, £120; Boss flanger, £35; Arion delay, £20. Tel: (0272) 556970.

TASCAM 244 portastudio, perfect cond, little home use only, boxed, manuals, £295 ono. Tel: (0602) 395338.

TASCAM 244, mint cond, £360; Tascam Porta One, as new, £300. Tel: 061-483 8551.

TEAC A3440 reel to reel 4-track, Studiomaster 8:4 mixer, £395 each ono, as new, must sell. Tel: 091-529 4788.

TEAC A3440S, 4-track, 15/7.5ips, £250. Ivan, Tel: (0823) 321486.

TEAC 3440, 4-track plus Teac RX9 dbx, both good cond, boxed, manuals, £445 ono. Tel: (0538) 308680.

VESTA FIRE RIX digital reverb pedal, home use only, boxed, PSU, £68. Tel: (0273) 493659. Sussex.

YAMAHA DMP7, mint cond, £1150; Quad 50E amps, pair. Alan, Tel: (0603) 592453.

YAMAHA EMX300, powered mixer, 12 channels, 300W stereo output, equalisers etc. Dave, Tel: (0283) 790842, eves.

YAMAHA KM602 mixer, 6 inputs, 4 auxs, stereo chorus, vgc, £95 ono. Tel: (0525) 370514.

YAMAHA MEP4, £180 ono; Bokse SM9 SMPTE, £275 ono; Denon DRM20, 3-head cassette, £225 ono, all mint cond. William, Tel: (0924) 469439.

YAMAHA MT1X mixer recorder, home use only, £225. Tel: (0582) 715549. Herts.

YAMAHA MT44D, 4-track, manuals, £185 ono; Steinberg 12, new, £70 ono. Ruel, Tel: (0203) 460540, after 5pm.

YAMAHA REX50, digital multi-fx unit, £150. Tel: (0293) 771510.

YAMAHA REX50 multi-fx, flightcase, manual, £200. Tel: (0865) 65934.

YAMAHA SPX90, MkII, vgc, £290 or swap for Roland MT32. Tel: (0525) 370514.

A M P S

CARLSBRO combo, 150W keyboard amp, 9-channel inputs, good cond, £125. Tel: 081-751 1603, after 6pm.

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H&H TPA50D, 100W amps, both immac cond, retail £340 each, must sell, so £75. Tel: Cheltenham 510434.

KAY 50W bass amp combo, £55 ono. Pete, Tel: Coventry (020333) 6493, eves.

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13 BEAM laser harp, MIDI interface, operational prototype, £10,000. Andrzej, Tel: (023 065) 473, after 5pm.

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YAMAHA YMC10, MIDI sync-to-tape unit, boxed, mint cond, with PSU, £50. Mark, Tel: (0663) 43388, eves.

W A N T E D

ACCESSIT EFFECTS: noise gate, EQ etc, Akai EX90R reverb. Write: T Winder, 2 Alban Road, Liverpool L16 1JJ.

ATARI mono monitor SM125/124, Norfolk/Cambs area preferred, must be in vgc. Tel: (055-385) 497, anytime. Please wait for connection.

AVALON sample editor, X-Alyser for Atari, cash waiting, also Cubase v1.5/v2 required URGENTLY. Tel: (0831) 204034.

BEL BD80, Alesis Quadraverb, Oberheim Matrix 1000, Symetrix 511A. Tel: 071-485 6441.

dbx digital sub-harmonic synth, 120XDS (boom box), cash ready

and waiting. Tel: 051-709 0889.

DESPERATE for Roland MC300 or Yamaha QX3, around £300-350, cash waiting. John, Tel: (0993) 850271, after 6pm.

DISABLED MAN seeks very cheap CZ1000, (with manual). Write: Dave, 1 Thomas Wall Close, Sutton, Surrey.

EARLY Kraftwerk LPs, Var, Ralph, Florian etc. Andre, Tel: (023 065) 473, after 5pm.

ENSONIQ EPS with x4 memory, in complete working order. Tel: (0273) 670541.

FZ1 and D110 owner: currently seeking correspondance for swaps etc. Tel: Colin Thomas, 1 Maizefield, Sale Moor, Cheshire.

HELP! I want an SH101 but I've only got £75.80, please help! Tel: (04024) 44910.

HELP! manuals or photocopies for Moog Prodigy synth needed urgently. Ben, Tel: (0227) 710371, after 6pm.

KORG M1, will give £900 + Yamaha DX21, with case, extra voices etc, mint cond. Tel: (0388) 730512, after 4pm.

MANUALS: Yamaha QX21, Roland SH101, Casio CZ101, photocopies OK. Stewart, Tel: (0323) 870762.

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PENILESS young house musician seeks Boss handclapper or other equipment for little/nothing! Matt, Tel: (0344) 775192, after 5pm.

REEL-TO-REEL tape recorder, must run one-and-seven-eighths ips, and take 7" reels. Phil, Tel: 051-709 8817, days.

ROLAND GM70 (without GK1), £425ish or Roland GR700 floorbox, £300ish, will collect. Nigel, Tel: (0437) 762661.

ROLAND library sample disks for

S50/S330/S550 samplers. Peter, Tel: (0532) 697321.

ROLAND MKS50 or Juno 1, also TX7. Tel: (0386) 750400.

ROLAND music style cards for RA50. Tel: (0877) 30528.

ROLAND R5 wanted, must include manual, power supply etc, will pay up to £350. Tel: (0293) 551297, eves.

ROLAND SH101, will pay £80. Tel: (0663) 45676.

ROLAND W30, Korg A3 and Korg M3r or M1r and Roland JX10. Tel: (0502) 731237.

ROM cards and patches for Yamaha YS200 synth, will buy or possible loan. Tel: (0782) 639450.

SETTING-UP STUDIO, cheap as poss, modern gear wanted, cash waiting. Write: Dave Salt, 14 Radford Avenue, Kidderminster DY10 2ES.

SEQUENTIAL DRUMTRAX manual or photocopy, especially MIDI info, will pay postage, etc. Mark, Tel: (0924) 273032.

SIXTRAK circuit diagram, as repair man at shop is stumped! - after 7 months of "mending", will pay. Jason, Tel: (0525) 717557.

TASCAM M216 mixer, to use with 234, must be fully working, cash awaits, urgent! Paul, Tel: (0695) 32382.

TECHNICS SL1200/1210 turntables, will pay £180 each, if in good cond. Tel: (0604) 843536.

URGENT!!! *Vangelis in profile*, VHS copy wanted. Richard Clews, Tel: (0902) 343409.

VESTA FIRE MR10, 4-track or similar, S612 or S700, Midiverb II etc, valve amp. Steve, Tel: 081-890 3976.

WANTED: ARP, Oberheim, Moog and Sequential products, also Korg PS3300, 3200 and 3100. Tel: (0726) 65404.

WANTED: circuit diagrams for Philips Karaoka amp. Write: Derik,

43 Weller Avenue, Chorlton, Manchester.

WANTED: Ensoniq EPS keyboard sampler, also Alesis Midiverb II or similar reverb, cash waiting. Tel: (0705) 258961.

WANTED: Korg EX8000, could p/x DW8000, also any rack synths or effects. Tel: (0272) 561855.

WANTED: posters, interviews, in fact anything you have on Mike Oldfield. Phil, Tel: (0742) 685357.

WANTED: Roland D50 ROMs, Roland TR727, and M64C cartridge, cash waiting! John, Tel: (0737) 248215.

WANTED: Roland PG800, PG300, Juno 106/60, Dimension 'D', A880, A50 mother, JP8, SH101 blue? SBF325, SEQ315, SRV2000. Tel: Reading 580764.

WANTED: Roland TB303, will pay £70 if in good cond. Tel: (0604) 843536.

WANTED: SH101, MC202, TB303, Korg MS10. Nick, Tel: (0792) 645345, anytime between 11.30am-11pm.

WANTED: Soft Cell's album/cassette, *Non-Stop Erotic Cabaret!* Playable! Offer £15! Desperate! Write: R Robertson, 9 Aeron Close, Barry, South Wales CF6 8PX. (Please!)

WANTED: sounds for Korg M3r to swap or buy, also editor for M3r. Tel: 061-928 5946.

WANTED: Xeroxed manuals for Yamaha CS30, Korg MS10. Write: Evangelos Makris, 37 Metamorphosseos GR-38333, Volos, Greece.

YAMAHA B200 traditional instrument RAM card. Jim, Tel: (0892) 654148.

YAMAHA GC2020 comp/lim, any cond considered, cash waiting for right price. Tel: (0831) 204034, anytime.

YAMAHA MT1X or MT2X wanted, cash waiting, will collect if fairly local. Tel: (0296) 393201.

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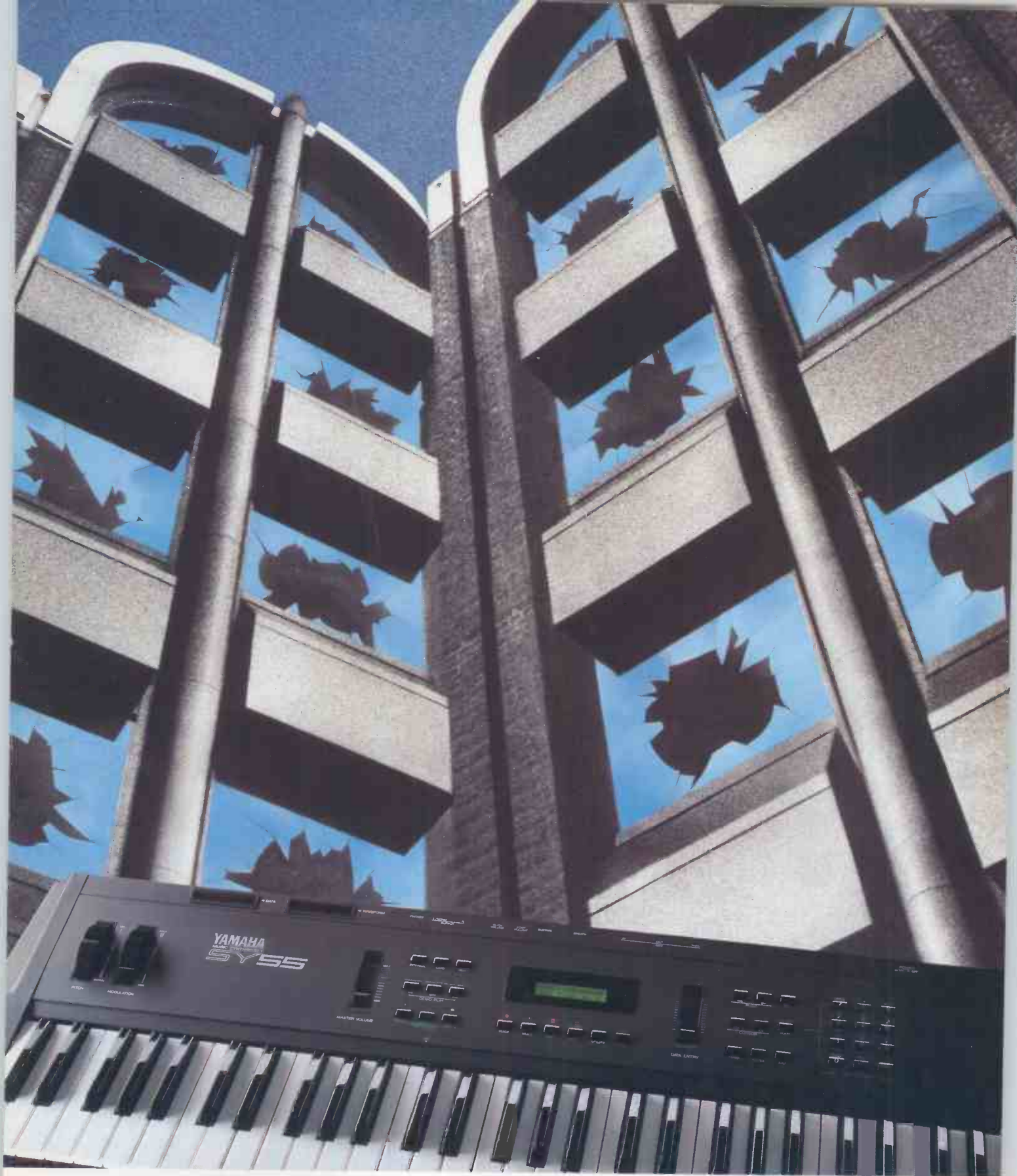
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