

# SOUND ON SOUND

EUROPE'S No.1 HI-TECH MUSIC RECORDING MAGAZINE

## Yamaha THE 02R HOTTEST DIGITAL RECORDING MIXER IN TOWN

**AKAI**  
S3000XL  
Sampler



- Klaus Schulze*
- Akai SG01v Vintage Synth*
- Waldorf Pulse Monosynth*
- Alesis DM5 Drum Module*
- Mackie 1202VLZ Mixer*
- Digitech Quad Effects*
- Emagic Logic Audio 2.5*
- Tascam DAP1 DAT Recorder*
- Digitech TSR6 Multi-Effects*
- Studio Cabling Tips*
- EQ: A New Perspective*
- More Sampling Basics*
- TDM Plug-ins Roundup: Part 1*

**Roland  
Digital  
Multitracker**  
VS880 EXCLUSIVE  
PREVIEW

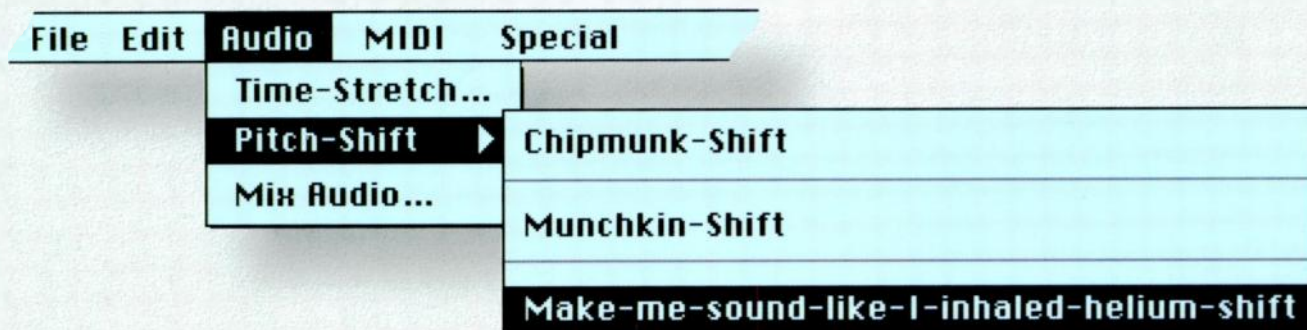
SOUND ON SOUND

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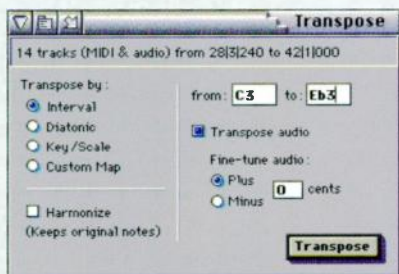
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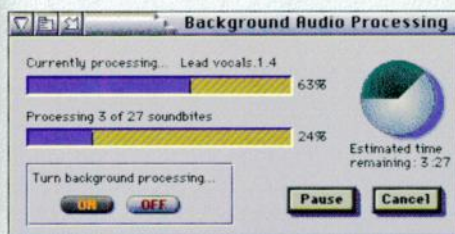
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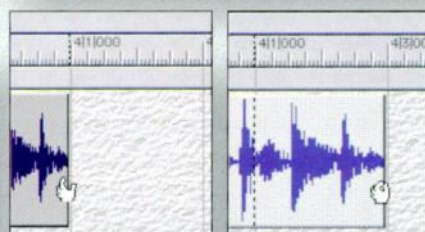
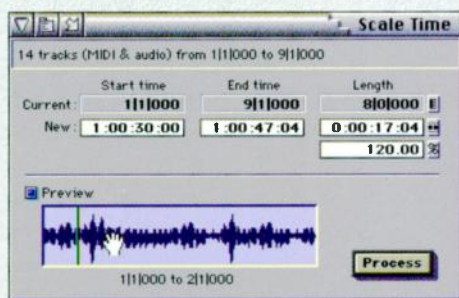
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# Leader

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**B**y now, you should have just about recovered from Christmas — or your headache will be subsiding, at the very least — and your vision stands a good chance of returning to normal by the end of January, but why is Christmas such an ordeal, and why do the powers that be insist on making us watch *ET*, *The Sound Of Music* and all those old James Bond films again? It's almost as though the nation's IQ is supposed to drop by about 80 percent between December 24th and January 1st.

Worse still is that Christmas makes it harder to slope off to the studio to ward off the mind-numbing mediocrity of TV — tradition has

spent 10 minutes tidying up a MIDI song file, the rest of the family will swear blind that several hours, or in extreme cases, days, have elapsed.

Perhaps we could turn this effect to our advantage next Christmas, by setting up a computer filled with games, multimedia depictions of open-heart surgery and cuddly hedgehogs with chainsaws, then let the rest of the family and any passing visitors loose on it. This way, they become victims of the dreaded time dilation effect, leaving the rest of us free to nip into the studio, where we'd rather have been all along. If you pop out to hand around drinks or wafer-thin mints every two or three hours

## It's about time...

it that you have to smile sympathetically as Auntie Edith relates the trials of Irritable Bowel Syndrome, or Uncle Sid expounds the finer points of the Ford Mondeo; doing something you actually want to do seems taboo at this time of year. If Christmas had been invented by the Catholics, it might all make sense — perhaps as some kind of cosmic penance for previous wrongs, but why does it have to happen to me? After all, I freely confess that the closest I get to organised religion is closing the doors on Jehovah's Witnesses.

But there is light at the end of the tunnel, and it isn't just a man with a bright torch carrying an invoice — it's the magic box with Intel Inside (or a Motorola 603 if you like an easy life). In February '94's Leader, I explored the time dilation effect as it relates to computers, and without going too far into quantum mechanics, I reckon it's something to do with the lines of force from the monitor cutting the space/time continuum field lines, causing a temporal stress fracture which results in the generation of a partial stasis field — or at least that's my guess! Whatever the reason, whenever you claim to have



(equating to around 20 minutes for anyone working on a computer), they won't even realise you've gone.

Of course, if you really want to turn this system to your advantage, you need to work on

something that doesn't involve a computer (synth voice programming and dabbling with automated mixers have also been known to trigger the time dilation effect), otherwise you'll be no better off than the people you've left in stasis around the family computer. Perhaps all this provides a clue as to how The Beatles managed to write such good songs — without computers to rob them of their time, they had the equivalent of almost two lifetimes each during the '60s alone!

*Please note all characters portrayed this month are fictitious — especially me!*

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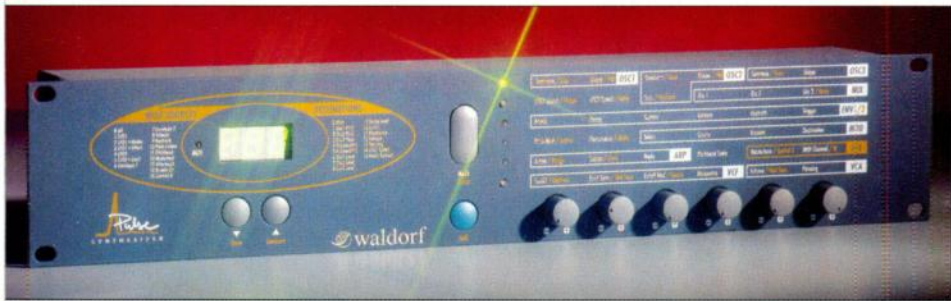
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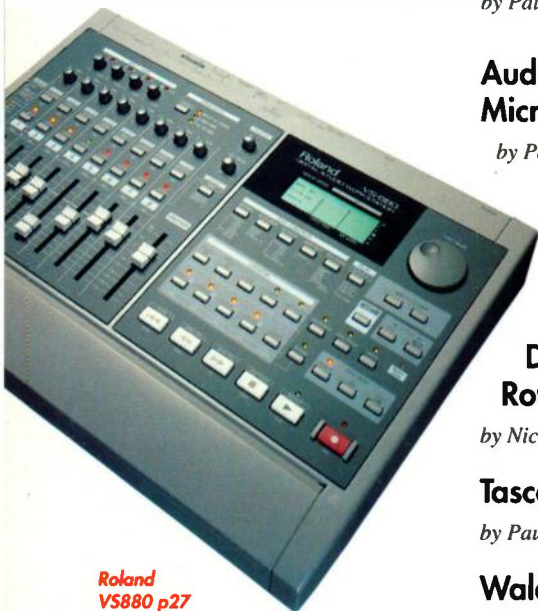
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**ALESIS**



**Waldorf Pulse p48**

*It may only offer one note at a time, but this monosynth's analogue oscillators and filters create sounds many retro fans would kill for.*



**Roland VS880 p27**

*Not content to let Fostex have the market to themselves, Roland spring into action with their hard disk-based, 8-track 'virtual studio' in a box. Read our exclusive preview for full details.*

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**Klaus Schulze p94**

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**Yamaha O2R Digital Recording Console p126**  
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Europe's Longest Established Hi-Tech Music Recording Magazine

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# Crosstalk

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

## SAMPLE RAM-BLING



I recently purchased a second-hand Yamaha SY85, with 2Mb of extra sample RAM. The manual is a bit unclear on how I can use this memory, and I do not yet have a sampler. Is the 2Mb purely for use with MIDI Sample Dump? I have a selection of voice and sample disks, and I'd like to isolate individual voices and samples to load to current songs and voice banks. Is this possible? As Akai's S700 and S900 samplers are 12-bit, am I right in assuming they will not be compatible with the SY85? Should I go for an Akai S01 or a Cheetah SX16, both of which are 16-bit? Any tips would be most welcome.

I've also noticed low-level tones when the SY85 isn't playing, and these are present in other models I've checked. And

when editing voices while the SY85 is running off an external sequencer, it crashes, although this can be remedied by entering Voice or Performance mode. Is this just a memory overload? Am I likely to cause damage with this kind of operation?

And one last question: any tips on assigning voices to outputs, so that I can isolate voices, bypass effects or produce effective pans and so on? I've looked in the effect edit mode, which is where it all seems to be: what if I want to assign effects separately? Hope you can help.  
D Goold  
London

**Our SY85 expert Derek Johnson replies:** *Samples can be loaded into the SY85's RAM via*

*MIDI Sample Dump, from floppy disk, or from waveform card. Once in the sample RAM, samples can be saved to disk as part of an ALL file that contains all voice and sequence data, or individually, in Wave mode — press the Shift plus Utility buttons, and go to page 251 of your manual for full instructions. Samples saved individually can be reloaded in any order you like, used how you wish, and saved as part of another ALL file.*

*Although the SY85 expects 16-bit samples, it will happily receive whatever you send to it. I regularly mix sample rates, and often use scratchy 8-bit samples, just to be perverse!*

*If you don't have a sampler yet, any of those mentioned would be worthy: they are widely available second-hand, not too expensive, and will send samples over MIDI. But you might like to wait a bit: as revealed in the Shape of Things to Come pages in last month's SOS, Yamaha are releasing a compact, cheap, 16-bit sampler. The SU10 will offer up to 19 seconds of uncompressed sampling at 44.1kHz: for just £299. Full SDS support is provided, making the SU10 a perfect companion for your SY85. Personally, I still use Microdeal's Replay 16 16-bit sampling cartridge and software on my ancient Atari ST for sourcing and editing raw samples for the SY85, and any SDS-aware, computer-based sampling and editing package could do the same.*

*Now to your last three questions. I'm not quite sure what you mean, but my SY85 definitely does not emit tones of any kind when not being played, beyond the normal low-level hiss generated by virtually all digital synths. I would check your studio for any unscreened VDUs that*

*might be too close to the SY85, turn off the fluorescent lighting (if you have it), and if neither of these suggestions is helpful, get in touch with Yamaha.*

*Any time you edit a voice on the SY85, it will be sending out lots of MIDI System Exclusive information, and if, simultaneously, you're trying to transmit a sequence to it, the SY85's MIDI buffer could simply be overflowing to cause the crash you describe. This problem would be exacerbated if you're not using Local Off, since you'll have a MIDI loop that will keep recycling the MIDI data. No damage should result from a MIDI overflow.*

*Your last question is a common one for the perennially popular SY85. Basically, the two stereo outputs, when used, output the two effects processors separately. There is no way to pan or assign individual voices to go to either pair of outputs, as is the case with some other synths. As for assigning effects to individual voices (in a sequence, say), this is possible, but only in the crudest fashion. If you look on page 167 of your manual, you will see that you can select which effect will treat a voice in a sequence's multitimbral setup. If you assign the two effects processors to parallel operation, and choose dual effects for both processors, you will be able to assign four effects fairly freely. So, if you have a voice that needs distortion, you can apply it to that voice without ruining the rest of the mix. However, effects are output in stereo, and all voices appear in a sort of mix at both outputs, with no reference to which effects have been selected for them. Further tweaking of the various output and balance parameters can help, but sadly, there is no perfect solution. □*

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# Crosstalk

## 101 INTO 303 DOES GO

I read with great interest Tom Carpenter's Retrozone review of the Roland MC202 Microcomposer in SOS August 1995, and was particularly interested in the section on making an MC202 sound like a TB303. I would like to know if Roland's SH101 is also capable of TB303 emulation, as it has nearly identical sound circuits to the MC202. I live in Australia, where MC202s are much harder to find and more expensive than SH101s, so any tips would be welcome.  
Vincent Bacon  
Australia

**Tom Carpenter replies:** *The situation seems to be changing in the UK as well — in my experience, MC202s are becoming more expensive and harder to find than SH101s. To answer your question, the sound-generating circuits of the SH101 and MC202 are indeed almost identical, so there is no reason why the SH101 cannot also create TB303-like sounds. The only problem is that the onboard sequencer*

*lacks two important features vital for TB303 sounds: the accent, and more importantly, the slide (portamento) function. Without these, you will have a hard time achieving your goal (assuming your goal is dance music, and not basslines to accompany organ recitals).*

*The portamento can be taken care of very easily if you are controlling the SH101 from a MIDI sequencer (via a MIDI-CV converter). You can then turn on the portamento function on the SH101, although this is not ideal, as it will then be on continuously. Alternatively, if your MIDI-CV converter has a portamento function, then slide could be added to particular notes. Accent is trickier; but you can add it by having a filter cutoff CV input socket fitted to your SH101 (which requires a small modification), and increasing the filter cutoff for particular notes via an auxiliary CV output on your converter (if you have one).*

*If you want the perfect solution to the portamento problem, you could go the whole hog and have a portamento on/off CV input fitted to your 101 as well. With this connected to an auxiliary output on a MIDI-CV converter, you could turn the SH101's portamento on and off with a MIDI controller.*

*So, as you can see, getting the SH101 to sound like a TB303 is possible — it's just not as straightforward as it is with an MC202.*

**Assistant Editor Matt Bell adds:**  
*Tom's own company Analogue*



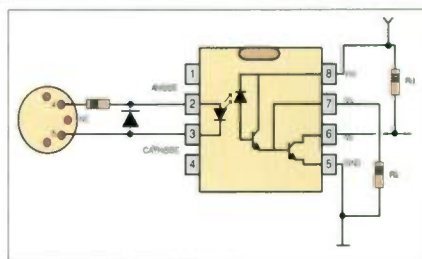
Roland SH101.



Roland MC202.

*Solutions (tel: 01372 745494) can carry out the modifications described in his reply; alternatively, retrofit experts Kenton Electronics (0181 337 0333) may also be able to help.* □

## IN-YER-FACE INTERFACE



I must write to thank Brian 'PC Notes' Heywood for saving me from shelling out more money than I needed to. I recently took the plunge and put aside my trusty Alesis MMT8 hardware sequencer in favour of a new PC running *Cubasis* for Windows. Having done this, it was time to find a suitable MIDI interface to connect my humble sound card to the 'black boxes' in my studio.

A scan through various ads revealed nothing for much less than £70 or £80, which seemed a bit steep. However, I am reasonably competent with a soldering iron, and produced a fully-functioning interface in a single afternoon with £10 of components from Maplin, thanks to the circuit given in PC Notes (SOS December 1994 and March 1995). Thanks!

David Brightman  
Yorkshire □

## THE RUSSIA HOUSE (MUSIC)

**Assistant Editor Matt Bell writes:** *One of SOS's regular contributors recently received the following email (heavily anglicised by our sub-editors!). If anyone can help, I'm sure Vladimir would be eternally grateful!*

I am a church publisher in Russia, and a musician in my spare time. I'm currently

looking for a Western sponsor to help set up a small home studio in Pskov, comprised (I hope) of second-hand gear. Please contact me via the post, or my bank's email address (which is how I'm sending this letter) if you can help me in this matter. My address is Jubileynay St. 73-87, 180016 Pskov, Russia, or vova@pskovbank.pskov.su. □

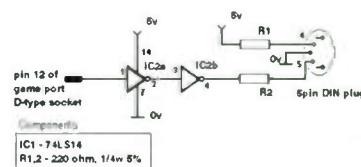
## YOU CAN'T GET QUICKER THAN A RETROFIT FITTER

In the 10 Great Synths article featured in the December 1995 issue of *Sound On Sound*, Julian Colbeck stated that the design of the OSCar synth does not allow MIDI to be fitted onto a non-MIDI model. I am happy to say that we can carry out a MIDI retrofit on any non-MIDI OSCar — give us a call on 0181 337 0333 for details!

John Price  
Kenton Electronics □



## MIDI Out Circuit



**Notes:** • Tie any unused 74LS14 inputs to +5volts via a 1kOhm resistor  
• +5v is on pin 8 of the 15 way D-type  
• 0v is on pin 5 of the D-type

# STUDIO FAVOURITES

More and more top producers are discovering the satisfaction that comes from working with Spirit equipment in the studio.

These peoples' reputations depend entirely on conjuring professional masters from raw tracks, so they won't accept anything less than the best when it comes to choosing the tools of their trades.

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# SPiRiT



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Standing the test of time, Spirit Studio has been used to create hundreds of top singles, albums and soundtracks

- 16, 24 and 32 channel frames • In line design with up to 72 inputs available at mixdown (32 dB) • Up to 32 discrete tape sends available
- 8 Bus Group Section and Stereo Master • 6 Aux Sends • 4 Stereo Effects Returns • 4-Band EQ with two swept mid controls • PFL soloing on all channel & monitor inputs • All input channels balanced • Fader Flip facility • Version available with Fader Automation (Spirit Auto)

## ABSOLUTE 2

This professional nearfield monitor system has gained many converts from the far-from-perfect industry standard monitors



- High definition Linear Phase design
- Superb sonic accuracy • Neutral, balanced sound for accurate monitoring
- Full Magnetic Compensation • 25mm ferro-fluid cooled soft dome HF driver
- 165mm cone LF driver
- Gold-Plated Terminals with Bi-Wiring capacity

## FOLIO Si

This stereo input mixer for keyboards provides DAT-quality sound with professional features in a compact, rugged package

- 18 inputs: 8 stereo plus 2 mono • 3-band EQ on inputs 1 to 14 • 2 high quality mic inputs
- 2 Aux Sends, Aux 1 switchable pre/post fader
- Prestanding and rackmount versions available



ADRIAN UTLEY

Co-producer and co-writer with Portishead

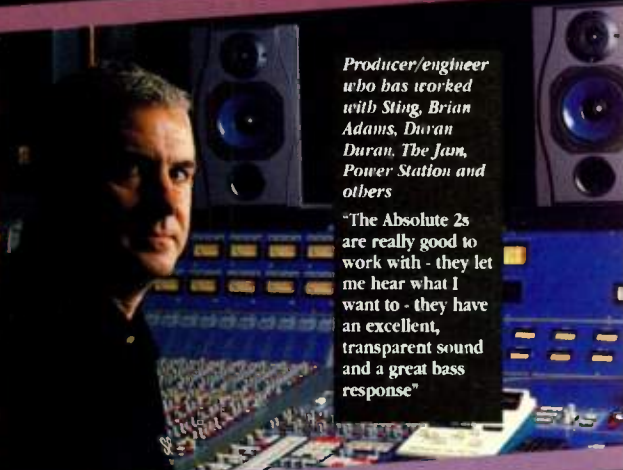
"The Spirit Studio console has a very musical EQ and is extremely clean, essential for preserving the character of the 'vintage' instruments I use. The Absolute 2s have a warm, rounded bottom end and I can listen to them all day without wearing out my ears."



TONY TAVERNER

Producer/engineer who has worked with Sting, Brian Adams, Duwan Duran, The Jam, Power Station and others

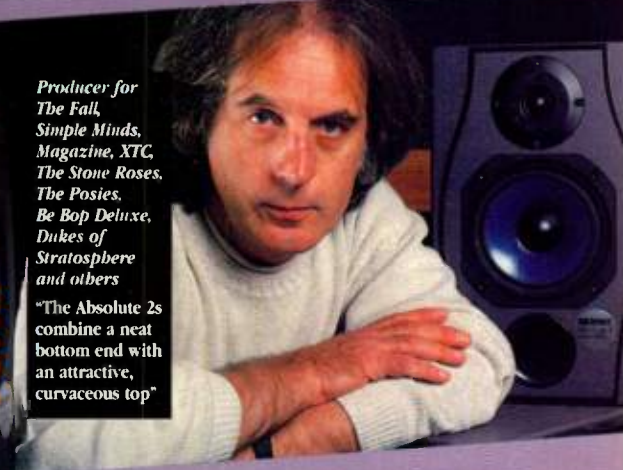
"The Absolute 2s are really good to work with - they let me hear what I want to - they have an excellent, transparent sound and a great bass response"



JOHN LECKIE

Producer for The Falk, Simple Minds, Magazine, XTC, The Stone Roses, The Posies, Be Bop Deluxe, Dukes of Stratosphere and others

"The Absolute 2s combine a neat bottom end with an attractive, curvaceous top"



## FOLIO RAC PAC

This 4-Bus 8U mixing console provides up to 28 inputs at mixdown. It is perfect for recording to digital multitrack and is equally at home in a live setup

- 14 input channels • 2 stereo inputs • 10 high quality mic inputs • 10 Direct Outputs
- 3-Band EQ with swept Mid and HPF on every mono input • 6 Aux Sends

- 4 Stereo Returns plus 2 Stereo Effects Returns • 2-Track Tape Return routable to Mix • Global Phantom-powering



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



A Harman International Company

For free brochures and a booklet written by pro-audio journalist Paul White on how to get the best from your mixer in a variety of situations, simply complete and return the coupon to the address shown. I am interested in: Studio/Auto  Absolute 2  Folio  Folio Rac Pac

Name

Address

Postcode

What application would you use your Spirit product for?

What instrument(s) do you play?

What magazines do you read?

Please tick here if you do not want to be kept on Spirit's mailing list



# Shape of THINGS TO COME

By Derek Johnson & Debbie Poyser

## TSC TAKE ON THE HARDLINE ACCORDING TO AKAI

**T**SC have been appointed to handle the Akai DD1500 hard disk recorder on an exclusive basis (except Scotland and Eire), and have installed a system in their London headquarters. The DD1500 is a stand-alone hard disk recorder that requires no host computer. It can handle up to 12 inputs and 20 outputs, and these can be analogue or digital, with full assignability of any input to any track. The system be used with a 20-inch monitor for easy visibility, and records to

magneto-optical drives. Complete systems start from just below £10,000. Contact TSC for more details.

**A** TSC, 9 Hatton Street, London NW8 8PR.  
**T** 0171 258 3454.  
**F** 0171 262 8215.

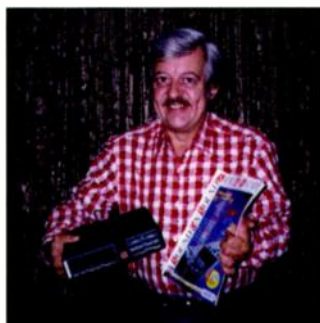


## IT COULD BE YOU (AND FOR THESE TWO, IT WAS!)



**I**t's prize time for a couple of lucky SOS readers, namely Christian Harris of Gloucester and Jim Stanford of Liverpool, winners of our June and July '95 competitions respectively. Christian (pictured above) picked up a great Deep Bass Nine synth module, kindly donated by Control Synthesis (01270 883779), and now does a very passable impersonation of a Roland TB303 Bassline (well, actually, his new Deep Bass Nine does — he's better at Casio VL-Tone impersonations). Meanwhile, Jim (pictured right) was particularly fortunate to

receive his supremely useful Viscount RD800 data filer; he was our second choice out of the bag when the original winner we picked didn't answer the phone, despite us ringing several times throughout the day of the draw. Remember, do put a *daytime* phone number on your competition forms, otherwise you could join the unfortunate near-winner of the RD800 at the depression clinic — and no, we're not saying who it was, we're not that cruel. Honest. Many thanks to Viscount Professional/Titan Music of Italy and McCormacks Music of Scotland (0141 332 6644) for donating the prize. Keep those entries coming; there'll be more competition results next month, you know...



## GET YER GEAR BACK WITH ROC

**T**he Roland Owners' Club are offering a new service that will enable musicians to track their gear if it is lost or stolen. Musitracs (that stands for Musical Instrument Tracking and Registering Against Crime Service) is available to ROC members and non-members alike. For a fee, the serial number or identification marks on your gear is registered on a database. If your gear is lost or stolen in future and offered for

resale, the potential vendor could check with the database to see if the equipment is stolen or not. Insurers, manufacturers and retailers are welcoming the scheme, and it is reported that insurance companies have said that the use of such a service could help to reduce annual insurance premiums.

**A** Roland Owners Club, 130 Wingfield, Orton Goldhay, Peterborough PE2 5TJ.  
**T** 01733 233135.

## EDIT XG FOR FREE

**Y**amaha are releasing a shareware XG editor for the PC, to support their growing number of XG (extended General MIDI) compatible instruments. The editor supports all the current XG range, including the MU80 and MU50 tone modules, the new QS300 workstation and the DB50 PC daughterboard. All XG parameters can be

controlled using the new software, which has a clear graphical layout emulating the front panel of the MU80. The program is fully compatible with Windows 95, and will thus multi-task, allowing real-time editing while a MIDI sequencer program is also running.

Owners of XG instruments can pick up their copy of the software from all Yamaha hi-tech main dealers. For more information, call the Yamaha direct information line on the number below.

**A** Yamaha-Kemble Music UK Ltd, Sherbourne Drive, Tilbrook, Milton Keynes MK7 8BL.  
**T** 01908 369269.  
**F** 01908 368872.

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

## THE LIGHT FANTASTIC!

**S**anta Monica company Interactive Light Inc have announced the availability of an alternative MIDI controller called the Dimension Beam. The device emits a cone of invisible infra-red light within which a performer moves to send MIDI information to keyboards, effects processors, lighting boards or video laser disc players. According to Interactive Light, The Dimension Beam differs from other light-based alternative controllers because it offers higher resolution, a more attainable price (\$599 US), and the advantage that it is completely invisible to the audience. It's the first of several products planned by Interactive Light, all of which will utilise the 'Smart Beam' technology at the heart of the Dimension Beam.

The Dimension Beam can be used in performance or in the studio by a wide variety of artists, as it senses not just the movement of an object

breaking the beam, but also the position of that object. It can be used by a guitar player to alter the pitch, volume, or effect on a note by rocking the neck of the guitar in the infra-red light; a vocalist can move his or her body within the sensing area to change the amount of reverb on the voice; and dancers can use their movements to change lights or trigger a video-disc player.

The Dimension Beam was used by U2 and Brian Eno on the newly-released *Passengers* album. Peter Gabriel has installed three beams at his Real World studios, and both Kitaro and Ozric Tentacles are using the Dimension Beam in their live musical performances. If you're heading Stateside for the Winter NAMM show, you can see the Dimension Beam in Hall D, booth 2902. Or contact Interactive Light direct for full information about the company and forthcoming products.

**A** Interactive Light Inc, 202 W. Olympic Blvd., Santa Monica, CA 90404.

**T** 001 800 213 3752.

This number is free in the US but not outside it. If your call is answered, you'll be charged at international direct dialling rates.

**F** 001 310 452 7443.



**F**or anyone who's been seriously hankering after Yamaha's new O2R digital recording console, Raper & Wayman's forthcoming two O2R open days could be the ideal opportunity to assess the desk first hand. Sessions with the desk will be conducted on a one-to-one basis, so that potential purchasers can get the maximum benefit from them. Places will therefore be limited, so if you're interested, call soon to reserve a place at one of the open days, taking place on Tuesday 20th and Wednesday 21st February.

## O2R OPEN DAY

**A** Raper & Wayman, Unit 3, Crusader Industrial Estate, 167 Hermitage Road, Haringey, London.

**T** Colin Bird 0181 800 8288.

**F** 0181 809 1515.

## MORE CONTROL: LESS CASH

**H**arman Audio have announced a price cut of around 30% for the JBL Control 1 and Control 1C monitors. A new, and cheaper, bracket is now available for the Control 1 (the MTC1A), which means that a pair of Control 1s with brackets can be bought off the shelf for £256 including VAT. JBL Control 8SRs have also been reduced by 30%, to £586 including VAT.

**A** Harman Audio, Unit 2, Borehamwood Industrial Park, Rowley Lane, Borehamwood, Herts WD6 5PZ.

**T** 0181 207 5050.

**F** 0181 207 4572.

## ALL CHANGE FOR AUDIO TECHNICA MIC

**W**hen I reviewed the Audio Technica AT873R back-electret mic in the December 1995 issue of *SOS*, I didn't have the necessary data to tell you about the interchangeable capsules — but now I have!

In addition to the hypercardioid capsule supplied with the review sample, the mic can also be fitted with the AT853 C-ELE cardioid element, the AT853 SC-ELE sub-cardioid element, or the AT853 O-ELEL omni element. These capsules, which can be changed in moments, may be bought as optional extras or can be supplied with the mic. Unless otherwise specified, the mic will be fitted with the hypercardioid capsule when purchased, but you can arrange to buy the 873R with one of the others pre-fitted instead, and still pay the same basic price for the mic (£199.95 inc VAT). The sub-cardioid (wide cardioid) is available to special order only, and the

capsules cost £64.95 each. Audio Technica would also like us to pass on the information that the pop shield has been further improved since the review model was supplied. If you haven't read the review, check it out — this is one of the most impressive budget mics I've tested in a long time. *Paul White*

**A** Audio Technica, Technica House, Royal London Industrial Estate, Old Lane, Leeds LS11 8AG.

**T** 0113 277 1441.

**F** 0113 270 4836.



# Shape of THINGS TO COME

Kurzweil's recently released K2500R workstation is now shipping in a keyboard version. The standard K2500 lists at £3499 and features a 76-note semi-weighted keyboard, while the K2500X offers an 88-note fully-weighted keyboard for £3799. The K2500 range also includes the K2500RS rack and K2500S keyboard versions, which both come with factory-fitted sampling facilities. Watch this space!

**T** Washburn  
01462 482466.

Hi-tech MIDI and recording specialists Music Connections have opened a new Bristol store offering the same wide range of modern music-making equipment as their other stores; customers can see and try complete studio systems and obtain advice, just as at the other branches.

**A** Music Connections,  
21 The Mall, Clifton Village,  
Bristol BS8 4JG.  
**T** 0117 946 7700.  
**F** 0117 946 7600.

Game Entertainment Group Ltd have released the official Rolling Stones' Live *Voodoo Lounge* Tour video. The video joins the live album *Stripped* and the *Voodoo Lounge* CD-ROM, both released by Virgin. The *Voodoo Lounge* tour has apparently become the highest grossing tour of all time. The video, which was shot in Miami, runs to 94 minutes, and retails for £12.99.

Genuine Roland Standard MIDI File software is now available directly from Labyrinth MIDI Music. A range of compilation albums is available, including *Hits of the 80s*, *Classic Orchestral Works* and *Hits of the 70s*; over 30 titles are available at £11.99 each. Also available is a range of E86 style disks, priced £14.95 each.

**T** 01254 678915.

**M**IDI File specialists Heavenly Music are moving into classical music: a new range of classical works in MIDI File Format are being programmed by newcomer Mark Williams. The collection is initially aimed at the education market, but will also

## HEAVENLY CLASSICS

be available to the general public. All files will be supplied in two versions: one will sound authentic, but look rather untidy as a score, and the other will look great as a score, but sound a little stilted as a Standard MIDI File (SMF). Documentation on GM/GS configuration plus background info on the composers will be included. Prices start at £5.99 per file, but may vary depending on the complexity of the work, although bulk purchase discounts will apply.

Heavenly also report action on the third-party support front: their files will be appearing on a CD-ROM demo for Alesis' new QS6 synth, and they will be providing a set of techno/rave phrase data for Yamaha's new QS300 (see reviews of both keyboards in *SOS* January 1996).

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

## ABBEY ROAD INTERACTS WITH APPLE

**T**he world-famous Abbey Road Studios have taken a step into the future with the opening of Abbey Road Interactive, a state-of-the-art, Mac-based multimedia development studio designed for the production of new-generation Enhanced music CDs. Enhanced CDs can be played on a normal CD player for music only, with identical quality to a normal CD, or used alongside a Windows PC or Mac, displaying video, text and graphics with the music track.

The multimedia production facility, linked to Abbey Road's four studios with fibre-optic cables, is fitted out with high-end Apple Power Mac computers: these provide the driving force

## CUBASE FOR WINDOWS IN LIVING COLOUR

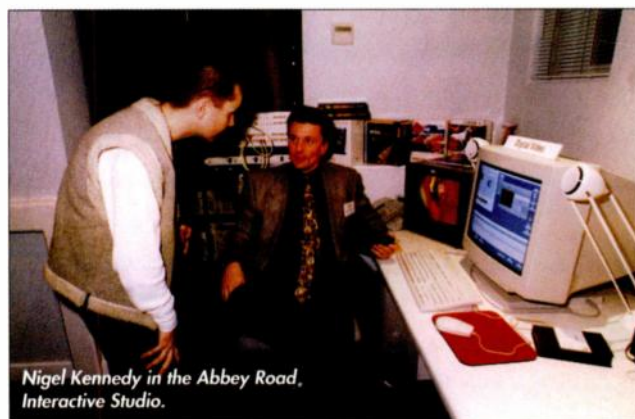
**S**teinberg announce the immediate release of *Cubase 2.8* for Windows PCs, tested and compatible with Windows 95, and now updated to include the new user interface recently introduced with

*Cubase Score 2.0*. The implementation of colour helps to make even the most complex musical arrangements clear, and background textures are selectable as BMP files. Other new features include:

- A large SMPTE/song position display.
- AVI video support.
- New MIDI Processor for the creation of MIDI delays and arpeggios with a minimum of setting up time.
- Styletrax, a real-time pattern playback facility which can work as a virtual band, with real-time transposition of arrangements to follow chord changes.
- New graphical mastertrack which makes it easy to create tempo maps.
- A *Waveplayer* utility on CD-ROM, for the soundcard user, complete with a library of sounds. This utility allows the triggering of Wave files through *Cubase*.

And now the best bit: to celebrate the new release, Harman have reduced the retail price of *Cubase* from £399 to £329 including VAT.

**A** Harman Audio, c/o Niels Larsen, PO Box 5050,  
Borehamwood, Herts WD6 5PZ.  
**T** 0181 207 5050.  
**F** 0181 207 4572.



behind two media authoring workstations for programming and assembly of Enhanced CD projects, a graphics workstation for producing and editing computer graphics and animations, an audio workstation, plus server and testing stations. A look down the extensive equipment list reveals that no expense has been spared in equipping the new facility.

Abbey Road Interactive aims to take advantage of widespread

interest in the Enhanced CD format: artists such as Peter Gabriel, Bob Dylan, Prince and The Rolling Stones are just some of the famous names connected with Enhanced CD so far.

**A** Abbey Road Studios, 3 Abbey Road, St Johns Wood, London NW8 9AY.  
**T** 0171 266 7000.  
**F** 0171 266 7250.  
**E** abbeyrd@online.rednet.co.uk

**T** Apple Customer Response Centre  
0800 127753.



# Smart audio

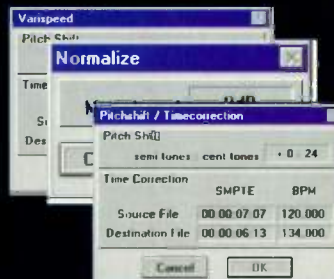
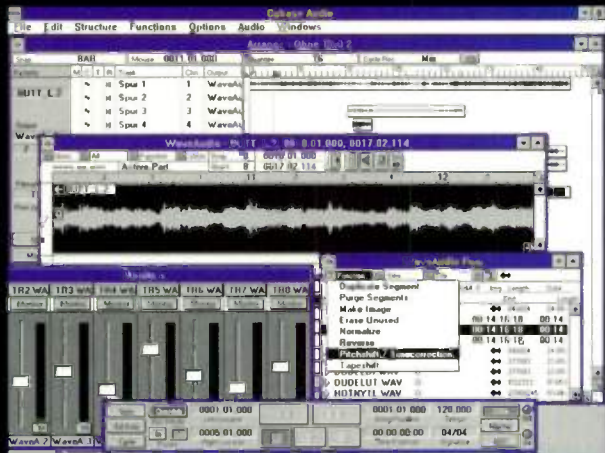
**Real-time Editing:**  
In Cubase Audio, edit your audio as if it were MIDI: non-destructively and in real time - using the same tools in the legendary Cubase Toolbox.



**Total Automation:**  
"Flipping Fader Control" with additional real-time EQ for Session 8 and CBX D5



**Audio Quantize:**  
The "Q-Point" is the fully-adjustable quantize reference point within your audio segment. Using this, any part of the segment can be selected as the quantize start point.



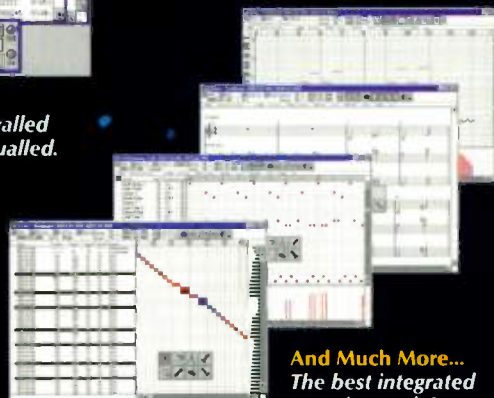
**Audio Processing Tools:**  
Cubase Audio has exactly the right tools for professional audio processing: Hi-quality Time and Pitch Correction from the Time Bandit team, VariSpeed, Level Optimization, EQ\* and various effects\* - all integrated into one single program. \*hardware dependent

**Fast and Intuitive:**  
The highly-acclaimed Cubase user interface has unrivalled transparency and ease of use. Often copied, never equalled.



**Choose Your Audio Platform:**  
From Windows sound-cards e.g. SoundBlaster or Turtlebeach, to Digidesign Session 8 and Yamaha CBX D5/D3.

Where others are just beginning, Steinberg already has several years of experience, and an extensive product line in Windows-based MIDI and integrated Audio programs. This experience has been important in the development of Cubase Audio 1.6, the first integrated Digital Audio and MIDI recording program for Windows which supports different audio platforms. Cubase Audio gives you the right tools to be faster, more creative and more productive.



**And Much More...**  
The best integrated Notation and Groove Quantize. Drum Editor with automatic mapping and Groove-Tools. And, and, and...

**Steinberg**  
steps ahead

Want to know more? Cubase Audio information is available from your dealer or from Internet: <http://www.steinberg-us.com>



Harman Audio • Unit 2 Borehamwood Industrial Park • Rowley Lane • Borehamwood • Herts WD6 5PZ • Tel: 081 207 5050 • Fax: 081 207 4572

# Shape of THINGS TO COME

## OPTICAL OPTION FROM PLASMON

ABC Music's new catalogue is out, and offers details on the latest products from major manufacturers, including the Fostex DMT8, Korg Trinity, Yamaha QS300, Akai S3000, Emu Darwin and Roland XP10. The new catalogue can be collected from any branch (in Kingston, Windsor, Oxford, Bristol or Exeter) or by calling their Freephone number.

**T** 0800 132193.  
**E** 100567.3011@compuserve.com

Emu Systems have launched a World Wide Web site at Music World 3 (<http://www.mw3.com/emu>). The site is designed to showcase Emu's product line, with technical specs, listings of sounds available on disk and CD-ROM and links to Emu dealer Web sites. In addition, the entire Emu product line is highlighted in brochure-type pages located at [www.emu.com](http://www.emu.com). Future plans include playable WAV files, on-line shopping for sounds, an ftp site supporting the latest versions of Emu operating systems software and updated technical support.



West London's Nomis studio complex has installed Soundcraft SM12 stage Monitor Consoles in two newly-refurbished rehearsal rooms. The 32-channel desks were purchased through Marquee Audio and have been installed in Studios 5 and 7, providing up to 12 dedicated foldback mixes for individual musicians in the rooms.

**T** Soundcraft  
01707 665000.

Optical disk storage specialists Plasmon are offering a new low-cost optical/rewritable drive, which also works as a CD-ROM player. The PD2000 drive, based on Matsushita's phase-change technology, is supplied with software drivers for DOS/Windows, O/S 2 and Macintosh, and uses 650Mb double-sided optical disks, ideal for storing large audio and multimedia files, or for backing up computer hard drives. As a CD-ROM player, the PD2000 reads any type of CD at quadruple speed, with full support for audio CDs — there's a convenient volume control and headphone jack on the front panel, as well as standard phono sockets on the back. The retail price of the PD2000 external drive, including one blank disk, is £659, with the internal version priced at £575; disks cost £40 each.

Since 1994, Plasmon have been manufacturing a CD-R drive based on a Philips mechanism, and have just announced a price cut on the double-speed recording CDR4220 model, supplied complete with Incatsystems mastering software for Mac and Windows. It now costs £875 (£825 internal). The CDR4220 runs happily with a low-cost, simple PIO (Programmed I/O) SCSI card and can record data 'on the fly' without first having to create the CD image on a local hard drive. Recording of discs also includes the data preparation time, which, in the case of some software, can be hours. The included mastering software alone usually retails for around £800.

**A** Plasmon Data Ltd,  
Whiting Way, Melbourn,  
Royston, Herts SG8 6EN.  
**T** 01763 262963.  
**F** 01763 264444.

## FIND THAT FEEDBACK!

Peavey aim to simplify the task of locating and eliminating feedback in PA and monitor systems with their new Automatic Feedback Locating System (FLS). The system is incorporated into the new Q 431F graphic EQ, which was unveiled at the July 1995 Nashville NAMM show in the US.

Sudden feedback can be very hard to eliminate, and engineers often have to resort to moving EQ sliders almost at random until the frequency at which the feedback is occurring is identified. Peavey's FLS solution is a bank of LEDs, one above each of the graphic EQ's sliders. When feedback occurs, the FLS instantly detects it, determines the frequency band and lights the LED above the correct slider to adjust. If a feedback frequency is between two sliders, two LEDs will light, with variations in intensity to indicate

if feedback is closer to one slider than the other. FLS can help even if the feedback is intermittent: it will still light the appropriate LED, which will stay lit for about five seconds after the feedback has stopped, so the engineer can locate and eliminate the problem. If two feedbacks occur at the same time, FLS will light both appropriate LEDs.

Peavey are incorporating FLS into various new sound reinforcement products, including selected graphic EQs, mixers and power amps. The first include the Q 431F 31-band graphic, mentioned above, and the Q 431FM 31-band graphic, designed for monitor systems and shipping soon.

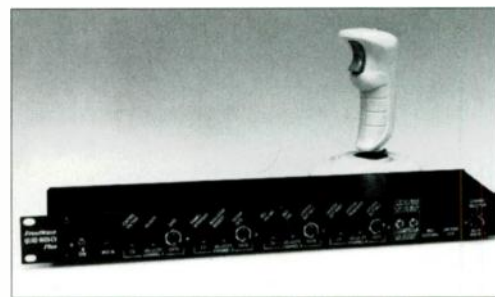
**A** Peavey Electronics Ltd, Great Folds Road, Oakley Hay, Corby Northants NN18 9ET.

**T** 01536 461234.  
**F** 01536 747222.

## CROCODILE CV!

Interfacing pre-MIDI electronic instruments to modern MIDI controllers and sequencers may not be an arcane art any more, but there is still a need for the hardware to accomplish this task. Frostwave's Quad MIDI-CV Plus offers four channels of MIDI-to-CV conversion, and includes a choice of volt/octave or Hz/V operation as standard. Gate polarity can be positive or S-trig, and pitch bend information is interpreted via a 16-bit DAC to give smooth glides. In addition, a DIN sync output allows control of older drum machines and sequencers. Alternatively, the unit can operate on one global channel in order to control larger modular synth setups; in this mode, eight continuous and four gated outputs are available. A third operational mode must be unique: plug in a standard games joystick, and MIDI events can be triggered from the joystick's fire button. Wiggling the joystick

changes notes and velocity. And of course, the triggers and CV outputs can be used to control any equipment that needs control voltages: lighting controllers, VCAs, and so on. Lastly, the unit can be used in a reverse mode, generating MIDI info from transducers giving



control voltages in the 0-5V range. All this for Aus\$495 plus shipping (that's about £250). Contact Frostwave for details.

**A** Frostwave Pty Ltd,  
147 Elgin Street, Carlton,  
Victoria, Australia 3053.  
**T** 0061 3 9349 2348.  
**F** 0061 3 9347 2948.

# BANDWIDTH



**B**acking vocals without the dropped notes; without the tantrums; always in time (and always on time) and truly affordable - for musicians and bands of all levels. DigiTech have brought harmonisation a long way since the early 'Pinky & Perky' sounding units on the market a few years ago. Now any act can benefit from classy, complex harmonies of stunning realism and accuracy, giving the sound 'width' without the usual associated wagebill.

**T**he simple-to-use and affordable **MIDI Vocalist** has been designed for musicians who want instant vocal harmonies without programming. It creates, automatically, up to five part natural-sounding harmonies from one voice input.

**A**imed at the demanding professional needing high quality vocal thickening, harmonies and pitch-

correction, the advanced **Studio Vocalist** offers total programmability and a host of features such as individual voice outputs and 'Gender Bender' technology which allows the choice of male or female-sounding harmonies.

## STUDIO VOCALIST



- Natural harmonies and pitch correction
- Full frequency response (20Hz - 20kHz)
- Separate outs for each voice
- XLR and 1/4" jack ins and outs
- Gender Bender technology
- 48v phantom power
- Keystroke MIDI out for automation
- Optional Digital I/O

**F**or the technically minded, the Studio Vocalist boasts full (20Hz-20kHz) bandwidth to capture more of the voice's natural overtones. However, impressive specifications only tell half the story. For only £9.95 (inc. P+P) our demo CD will reveal the Studio Vocalist's amazing musicality.

## MIDI VOCALIST



- 4 voice detune for vocal thickening
- Vocoder mode for triggering harmonies via MIDI notes
- Chordal mode for automatic vocal harmonies
- Scalic mode for dynamic harmony motion
- Front panel XLR/mic. connection
- 1/4" line level input
- Bypass activation (external f/switch)

**A**lternatively arrange a demo at your DigiTech dealer and the Vocalists will speak for themselves - breathtakingly realistic vocal harmonizers to widen your band's horizons.

## STANDARD MIDI FILES: THE REVOLUTION



Standard MIDI Files (SMF) discs contain MIDI data for complete backing tracks of popular songs when used with MIDI sound sources such as synthesizers and drum machines. The Tune 1000 and Heavenly Music ranges of Standard MIDI Files have pre-programmed harmonies, fully compatible (via Vocoder mode) with the DigiTech Vocalist range.

# DigiTech

Distributed exclusively by

**ARBITER**  
MUSIC TECHNOLOGY

A division of Arbiter Group PLC  
Wilberforce Road, London NW9 6AX  
Tel: 0181 202 1199 Fax: 0181 202 7076

# Shape of THINGS TO COME

The acquisition of new production facilities by Morecambe's Promenade Music has allowed the company to move into the custom aluminium flightcase business. Head of Design and production Bill Shand reports brisk sales; a wide range of customers, both professional and amateur, have been buying cases.

**T** 01524 410202.

D:Ream's percussionist, James Mack, has made Korg's Wavedrum (reviewed back in *SOS* November '94) a staple part of his kit for both live and studio work. The band are currently touring Europe. James particularly enjoys the various ethnic sounds on the Wavedrum, plus its "expressive potential previously unobtainable on any other percussion product."

**T** 01908 857100.

TL Audio's dual-valve mic preamp DI has been picked up by both Steve Winwood and Courtney Pine; Winwood is using his unit for direct-to-tape recording of vocals and guitar in his private studio, and Pine is using one as the front end of his on-stage equipment rack.

**T** 01462 490600.

Soundtracs follow up the successful launch of the Topaz 8-Buss console with an enhanced successor, the Topaz Project 8. The new desk is available in 24- and 32-channel sizes, and new features include colour-coordinated knobs for ease of use, Soundtracs 'tight-tolerance' EQ, plus Solo and Mute on main and secondary inputs, anti-glare suede-effect finish to all trim, and new colours and legends, claimed to reduce visual fatigue during prolonged sessions. Topaz VCA fader and mute automation is an option for both frame sizes.

**T** 0181 388 5000.



The accompanying photo was taken during the Telford leg of last Autumn's Fostex DMT8 roadshow, where the organisers, SCV London, were lucky enough to secure the

## FOSTEX ON THE ROAD

Weston Park stately home as a venue. The tour, primarily to show the DMT8 Digital Multitracker (see review in the December 1995 issue of *SOS*) in action to Fostex's UK dealers, also took in stops in Scotland and Surrey, amongst other locations, and was reported to be a great success.

**A** SCV London, 6-24 Southgate Road,  
London N1 3JJ.

**T** 0171 923 1892.

**F** 0171 241 3644.

## NEW TEUTONIC TECHNO KEYBOARDS FROM KEY AUDIO

A mere year or so after *SOS* saw them both demonstrated at the 1995 Frankfurt Musik Messe, Key Audio Systems, UK distributors of Quasimidi products, have at last announced the arrival in stock of the German company's new Cyber 6 and Raven keyboards. Apparently, there were problems translating the manuals into English which held up both products. Certainly German Electronica godfather Klaus Schulze has been using both products in his studio for a while, as you can see from the enormous interview with him starting on page 94 of this month's *SOS* — but then he didn't need to wait for the English manual!

Continuing to capitalise on the success enjoyed by the Quasimidi Technox in the dance arena, both new keyboards are aimed squarely at the same market. The Cyber 6, which retails at £999 inc VAT, is a master keyboard featuring two onboard arpeggiators, 32 MIDI channels, a dedicated Quasar and Technox control function and 400 built-in grooves. The Raven, on the other hand, is a fully-fledged synth which incorporates all the features of the Cyber 6 as well.

At the moment, there's little more to relate than that, other than to say that the demo in Frankfurt last year was most impressive, with the

Raven exhibiting some superb sounds ideal for use in modern dance music. Assuming it still sounds the same a year on, it could be well worth checking out. The Raven will retail for £1599 inc VAT; expect an *SOS* review very soon.

**A** Key Audio Systems Ltd,  
Unit D, Chelford Court,  
Robjohns Road,  
Chelmsford CM1 3AG.

**T** 01245 344001.

**F** 01245 344002.

**A**xis Audio Systems have announced their appointment as UK distributor for the American-made Groove Tubes valve mic and studio processor range. All existing stock has been purchased from the previous UK distributor.

Axis MD, Tim Eastwood, is pleased with the new arrangement, saying: "This is the sort of product that Axis Audio have been actively seeking to distribute for some time, and now this gives us the opportunity to really give Groove Tubes the kind of exposure and promotion that it truly deserves."

Groove Tubes microphone prices start at £899, but pricing is a complex matter; for more information, see the review in *SOS* October '95. However, the distributor address at the end of that review is now, of course, out of date; contact Axis for full details.

**A** Axis Audio Systems Ltd, 3 Waterloo Road, Stockport, Cheshire Sk1 3BD.

**T** 0161 474 7626.

**F** 0161 474 7619.

**E** sales@axisasl.demon.co.uk

## AXIS AUDIO FEELIN' GROOVY

## KART-A-BAG THE UNSTOPPABLE SEX TROLLEY



The Kart-A-Bag range of musician-friendly gear and flightcase transporters has just been expanded by two new models. The Tri-Kart 800 weighs less than 8 kilos yet is capable of moving as much as 136 kilos of equipment. Likewise, the Super 600 can shift 136 kilos while weighing just 6 kilos. Both trolleys feature automotive tensile-

strength steel and a nifty 'step slide' that gives the user more mobility and ease of access up and down stairs and pavements. Sounds like a good idea if you'd like to avoid a trip to the osteopath.

**A** CP Cases, Worton Hall Industrial Estate, Worton Road, Isleworth, Middlesex TW7 6ER.

**T** 0181 568 1881.

**F** 0181 568 1141.



The latest sampling CD in D-Zone's Loopisms series is *Swinging*, priced at £12.50 including VAT and UK postage. The new disk is produced by US r&b producer Steve Collaro, and features 30 loops and 100 swing, rap and r&b samples, in audio as well as a PC CD-ROM partition for Soundblaster AWE32 users, plus WAV files for other PC users. D-Zone have made a habit of sticking the odd gratuitous PC game demo or two on their CDs, and this is no

## SWING YOUR PANTS WITH LOOPISMS

exception: ID's medieval *Doom* clone, *Heretic* is the prime freebie on *Swinging*!

**A** Time & Space, PO Box 306, Berkhamstead, Herts, HP4 3EP.

**T** 0442 870681.

**F** 0442 877266.

## FREE UPDATE FOR EMU SAMPLERS

Owners of Emu Emulator IV and e64 samplers will be happy to hear of the release of an operating system update, version 1.20d, which offers a number of new features, including:

- SMIDI for quick file transfers over SCSI.
- Eight new Solo modes, for improved real-time performance control.
- New modulation and destination processors, to expand the potential of the sampler patchbay, allowing



complex synthesis models to be built.

- Six additional MIDI controller inputs.
- A List View screen in Multimode, which displays MIDI controller values.
- The ability to save samples in EIII format.
- Support for drives larger than 4Gb.
- Auditioning from ASCII keyboard.

In addition to these extra features, the 1.20d upgrade also improves scrub wheel operation;

speeds user interface response, especially during heavy MIDI activity; improves interfacing with multiple Emulator systems; and refines the voice allocation scheme when playing unlooped samples.

The upgrade is shipping as standard with all new EIV and e64 samplers, and is available free to existing EIV and e64 users.

**A** Emu Systems UK, Suite 6, Adam Ferguson House, Eskmills Park, Musselburgh, East Lothian EH21 7PQ.

**T** 0131 653 6556.

**F** 0131 665 0473.



# Shape of THINGS TO COME

▶ **M** People's recent album, *Elegant Slumming*, recorded and mixed on 3M's 996 analogue tape, is the latest recipient of the 3M Visionary Award. The award is designed to 'recognise the outstanding contributions made by studios, producers and engineers to successful albums'.

**T** 01344 858614.

▶ Sample CD producers AMG now have a Web site, called Soundcheck. It's still under construction, but is almost complete and may be visited for info on the AMG range.

**E** <http://www.soundcheck.co.uk/soundcheck/>

▶ The BBC has purchased six of the new Beyerdynamic UHF diversity wireless systems for various shows, including the Manchester-produced alternative chat show hosted by Mrs Merton!

**T** beyerdynamic  
01273 479411.

▶ A 32-channel Soundtracs Topaz console helped to capture Rolf Harris and didgeridoo in all their glory during a recent performance for the BBC's *Children In Need* fund-raising programme.

**T** beyerdynamic  
01273 479411.

▶ Yamaha-Kemble report great success for the recent Yamaha Pro Music Roadshow, which covered 11 towns and cities across the UK and Ireland. Yamaha took an amateur band on the road to help demonstrate new products, and at each stop invited local acts to perform a set on the Roadshow stage; pro demonstrators were on hand to show off Yamaha gear and answer questions, and well-known musicians were invited to present the prize draw Pacifica 112 electric guitar. The Mission's Wayne Hussey made it to the Bristol show!

**T** 01908 366700.

## MUSIC VILLAGE DIVIDE AND CONQUER

**M**usic Village are opening two new divisions, starting with one devoted to Professional Audio, which will be housed in the group's largest store at Chadwell Heath. The store has been extensively refitted to accommodate the new division, a refit which includes sophisticated demo facilities, a new sound reinforcement centre and a state-of-the-art digital studio.

The new recruit to head the Pro Audio section is Rob Ferguson, whose past experience includes eight years in audio retailing plus

two years in artist management. Music Village have also acquired some new product lines, including Drawmer, Klark Teknik and TC Electronic.

Keeping up with the times is the new Dance Village, fronted by Digital Village's Ray Edwards and based at the Barnet store. This second new division aims to provide useful services for all dance musicians, from those just starting out, through to established producers and remixers. Every Saturday throughout 1996 will see a Dance Village Dance Production Workshop, presented by Nick Rogers and dealing with subjects such as sampling, synthesis, and sequencing.

**A** Head Office: Rear of 431-35 High Road, Chadwell Heath, Romford, Essex RM6 6QW.

**T** 0181 598 9955.

**F** 0181 598 8984.

**E** 100574.741@compuserve.com

**T**he GeneralMusic User Group is changing its name to GeneralMusic User Support and enhancing some of its services. The bi-monthly magazine, email facilities and large disk library will continue, and the new 'TLC' plan, free to members, will offer 'virtual

## GENERALLY HELPFUL

technical help' 24 hours a day on the GeneralMusic CompuServe forum (GO GMUSIC), extended telephone opening times on weekdays (9am-5pm), in addition to current weekday times of 7pm-9pm, custom software programming, and touring workshops. Contact them for a free membership info pack.

**A** GeneralMusic User Support, 46 Hampton Close, Horne Bay, Kent CT6 8BZ.

**T** 01227 742790.

**F** 01227 742791.

**E** 100136.3365@compuserve.com

## THUMB MIC GETS HANDY SHOCKMOUNT

**S**ennheiser's MD504, the so-called 'thumb mic', is being partnered with a dedicated rubber shockmount. The tiny mic is capable of handling high sound pressure levels, and is ideally suited to miking drum kits; the new rubberized shockmount clips to the rim of any snare or tom and is designed to dampen out ringing or structural transmission of vibration to the mic. Sennheiser point out that the mic is also suited to miking brass and woodwind, and



has been used by the occasional classical violinist, not to mention backing vocalists.

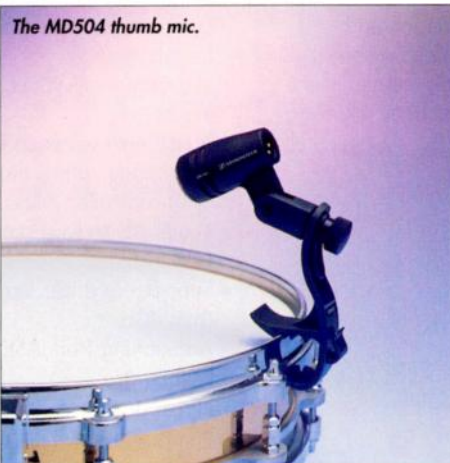
Sennheiser have also announced a limited, but 'dramatic' price reduction on its 1051, 1052 and 1053 VHF radio systems. The 1051 handheld system now retails for £499, while the 1052 and 1053 guitar and MKE2 clip mic belt packs retail for £529, a reduction of almost 40%. But be warned: this offer only runs while stocks last.

Note also Sennheiser's new UK address: the company has recently moved into purpose-built premises with more than twice the space of their old HQ.

**A** Sennheiser UK Ltd, 3 Century Point, Halifax Road, High Wycombe, Bucks HP12 3SL.

**T** 01494 551551.

**F** 01494 551550.



The MD504 thumb mic.

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# Shape of THINGS TO COME

## YES, NEIL, THERE IS A SANTA CLAUS

**M**CM have sent us a story which, as of writing, has an appropriately seasonal feel to it. Last year, the company received a letter from one Neil Grimes, aged 13. As a result of reading

Bekesi in the picture. Kind of makes you feel all warm and squelchy inside, doesn't it?

Back to the real world now, and speaking of Zoom, there are two new processors on the market. The 7010 Fire is a 'new concept in guitar multi-effects processors'. Apparently, the 7010

features 28 effects, up to seven of which can be used at any one time. Not only can the 7010 be used in the normal way, but if you fancy a bit of stand-alone practice, you can take advantage of the built-in 10W amp and

integral speaker. The 3030 Player, which offers 32 effects with up to nine effects simultaneously, also features an integral pedal which allows real-time volume control and/or control of specific effects parameters. In addition to Zoom's standard effects collection, the 3030 features harmonised pitch shift and auto chromatic guitar tuner. Both the 7010 and 3030 are available now, priced at £299.95 each.

**A** MCMXCIX, 9 Hatton Street, London NW8 8PR.  
**T** 0171 723 7221.  
**F** 0171 262 8215.

about the Zoom 1010 processor, Neil decided he really wanted to own one and in an attempt to persuade his dad to get him one, he made a detailed drawing on his computer and posted copies all around the house. Neil also sent a copy to MCM, and everyone there was so impressed by the quality and detail of the picture (as well as by Neil's powers of persuasion) that they decided to present Neil with a Zoom 1010 on his birthday — you can spot Neil flanked by MCM's Steve Rubra (right) and Anthony



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ProTools now supports 32 & 48 tracks of record and playback along with several nifty new features including QuickPunch which allows seamless punch in/out -on-the-fly & automatically created crossfades. Digidesign's new Session Software™ 2.0 is a multitrack audio editing software for the Macintosh which runs on the PowerPC range of Apple computers without any additional hardware. Session software includes 4-16 tracks of simultaneous audio playback, 2 bands of real-time parametric EQ, automation of volume and pan. Although the retail price is £350 it's your last chance to take up Digidesign's offer of buying it for £179 or getting it FREE with the purchase of an AudioMedia II card.

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# adj (1927) : installed and ready to operate

Akai's professional samplers now have XL tagged on the end. As a result the **S3000XL** is now **£1,530** & the **S3200XL** **£2,978** which is unbeatable value for the features. Both take SIMMS come with the Akai's MESA sample editing software for the Macintosh. The S3000XL comes as standard with SCSI & digital connections & the S3200 has the new **EB16** multi-effects board, 'a true 4 channel fx processor' providing a range of standard fx, up to six simultaneously.

We have the complete Time & Space sound CD/CD-ROM catalogue on Sony CD carousel, + full E-mu and Akai CD-ROM libraries + mountains of Turnkey library & available for anyone interested purchasing an **E-mu** or **Akai** sampler from us.



Without doubt the most powerful commercially available synthesizers ever made, the Yamaha VL series have brought the first major break-through in synthesis technology since the advent of FM. Not only that, but Yamaha's implementation of Physical Modelling gives the most breathtakingly realistic acoustic simulations available as well as fantastically powerful lead and bass synth sounds.

We have also commissioned top programmers at Yamaha's R&D department to produce a "Dance and Techno" sound set which we're giving away with the units.

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

Our prices (£719 - VL7, £809 - VL1m) represent 65% and 60% discounts from the RRP and offer a once in a lifetime opportunity to own a classic synth with real character. We have strictly limited quantities of the last ever units and orders will be fulfilled on a first-come, first-served basis. Buy now to avoid disappointment - this is the deal of the year!



We have on permanent demo all of the available Modular Digital Multitracks whether it is an **ADAT**, the **Tascam DA88** or the **Fostex RD8**. Yamaha's awaited **O2R** digital console is expected in this month, call for a demonstration. We also have in stock a range of new and ex demo consoles.

<b>Spirit 24 Studio &amp; ADAT</b>	<b>£3,999</b>
<b>Mackie 24/8 &amp; DA88</b>	<b>£POA</b>
<b>Soundcraft DC2000</b>	<b>£12,499</b>
<b>Soundcraft Sapphire 28</b>	<b>£5,199</b>
<b>Yamaha O2R</b>	<b>£5,999</b>

The **Waldorf Wave** is the programmer's synthesizer with an unmatched sound quality. The Wave's new operating system update includes transport controls for any configurable MIDI sequencer and new sets of Performances are soon to be released.

New in stock are **hardware editors** for the **MicroWave** and **Oberheim Matrix 1000** and are a must for any owner of one of these synths. Both have 'knob control' of all the important parameter (i.e. Filter Cutoff/Res, ADSR) all housed in a sexy little box with wood end cheeks!

Waldorf's new **Miniworks Analogue Filter** makes it now possible to address the legendary filter of the MicroWave with any audio signal, whether from a sample, mic or guitar. A resonant 24dB low pass filter, ADSR envelope curves. Via a sequence, all settings can be operated in real-time a MIDI controller.

**The Filter**

**The Gekko**

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Reavid SDE330	£ 467	Prophet VS keyboard	£ 1,191
Sony MPS new	£ 382	Oberheim Matrix 1000	£ 315

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Without doubt the most powerful commercially available synthesizers ever made, the Yamaha VL series have brought the first major break-through in synthesis technology since the advent of FM. Not only that, but Yamaha's implementation of Physical Modelling gives the most breathtakingly realistic acoustic simulations available as well as fantastically powerful lead and bass synth sounds.

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

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

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

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

These prices represent 58% and 67% discounts from the RRP and offer a once in a lifetime opportunity to own a classic synth with real character. We have strictly limited quantities of the last ever units and orders will be fulfilled on a first-come, first-served basis. Buy now to avoid disappointment!

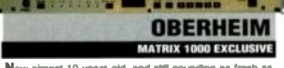
## MIDI Hardware



**DEEP BASS 9**  
THE U.K. ANALOGUE CENTRE AT TURKEY

The only authentic sounding TB303 clone. 1U rack with 1 knob per function, all the sound controls of the 303 are duplicated, filter cutoff, accent and glide all controllable over MIDI. Audio input allows treatment of external signals by the filter etc. and CV/gate in/out also means it can be used as a MIDI-CV converter. The ultimate analog bass machine - this unbelievable price on the end of the line means units will sell out very quickly.

**FACTORY DIRECT RRP £449 £249 NEW BOXED**



**BERHEIM MATRIX 1000 EXCLUSIVE**

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

**FACTORY DIRECT RRP £699 £369 NEW BOXED**



**MARION PRO SYNTH BY TOM OBERHEIM**

This new machine, designed by Tom Oberheim, uses the technology of the much acclaimed Marimont Systems MSP-2 Modular Synthesizer, but priced substantially lower. Classic Analog sound, 400 patches, 8 part multi-timbral, resonant 2 or 4 pole VCF filters, voltage controlled panning, extensive matrix modulation. Tom reckons this sounds better than a Matrix 12! Call us now for further details or to get your order in - retail stocks limited.

**FACTORY DIRECT EXCLUSIVE RRP £1099 £699 NEW BOXED**



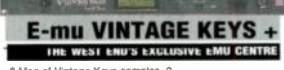
**WALDORF MICROWAVE TURKEY FACTORY DIRECT EXCLUSIVE**

The Waldorf Microwave has genuine analog synthesis including resonant filters. It has 18 oscillators, 8 part multi-timbrality and 6 individual outputs. Sweep through up to 64 different waves, controlled by LFOs, envelopes etc. Devastating bass, totally unique sound in a class. A truly unique sound! Also available on a trial basis, please enquire - once you've tried this, you won't want to go back!

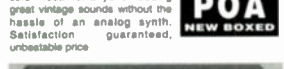
**SPECIAL £1099 NEW BOXED**



**E-MU PERFORMANCE+ POA**



**E-mu VINTAGE KEYS+ POA**



**E-mu CLASSIC KEYS POA**



**E-mu MORPHEUS POA**



**E-mu PROTEUS FX POA**



**ROLAND SPD-11 TOTAL PERCUSSION PAD**



**YAMAHA R1M50 DRUM MODULE**



**YAMAHA R8M200 PLUS KEYBOARD**



**YAMAHA TG300**

**EXCLUSIVE MEGADEAL RRP £699 £499 NEW BOXED**



**YAMAHA SY35 UNBELIEVABLE CLEARANCE DEAL**

The SY35 has been in Yamaha's catalog for some time, and with good reason - its unique combination of sample playback, FM synthesis and vector control make it a great buy even at the RRP. Yamaha have now decided that it is the end of the line for the SY35, but have no replacement in this range, indeed, no other manufacturer has a professional synth for less than £590.

The SY35 features 128 presets, but editing is a breeze with the unique vector control joystick, designed by Dave Smith, creator of the legendary Prophet VS. Movements in sound can be recorded and played back exactly - a huge variety of synth sounds balance the stock piano, string, drum etc presets. If that's not easy enough, the vector randomisation feature will automatically generate unlimited quantities of new and surprising sounds in a second! 8 part multi-timbrality and 32 element polyphony mean you can create whole arrangements from just one keyboard.

The keyboard itself has 5 octaves of full-size keys and a velocity and aftertouch sensitive making it an ideal mother keyboard (the synth is virtually free!) Built in effects including reverb, delay, and distortion round off a great all-in-one package. This exclusive end of the line clearance deal represents unbelievable value for money. Order now to avoid disappointment.

**RRP £699 £339 NEW BOXED**

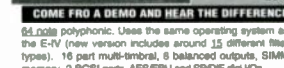


**YAMAHA QY300 BULK PURCHASE END OF LINE**

The QY300 is in the same vein as the QY10 and 20 etc, and is also a fully fledged 16 track, 53,000 note sequencer with built-in disk drive (which loads and saves standard MIDI files on CD32 format disks). The General MIDI compatible sound set is similar to the W7 keyboard, with 64 note polyphony and 24 multi-timbral parts, and of course includes reverb and effects processing.

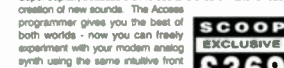
In addition to the 16 track sequencer, there are also 8 pattern tracks, with a vast range of licks, riffs, and drum patterns already built in. Chord and tempo tracks, huge LCD display, intuitive user interface, Song mode, pattern mode and phrase mode. Bulk purchase on end of line brings you this huge discount, these will sell out very quickly.

**RRP £699 £569 NEW BOXED**



**EMU E84 COME FRO A DEMO AND HEAR THE DIFFERENCE!**

Full range polyphonic. Uses the same operating system as the E-Vi (new version includes around 15 different filter types). 16 part multi-timbral, 6 balanced outputs, SIMM memory, 2 SCSI ports, AES/EBU and S/PDIF dig I/Os.



**ACCESS PROGRAMMER FOR MATRIX 1000 OR MICROWAVE**

There's no doubt that the Oberheim Matrix 1000 and Waldorf Microwave deliver powerful analog sounds. However, when it comes to programming your own sounds, top producers have tended to go for older synths like the Minimoog and Super Jupiter, because their knobs and sliders make for easy

access to the parameters you need to create your own sounds. The Access Programmer gives you the best of both worlds - now you can freely experiment with your modern analog synth using the same intuitive front panel, and better still, record every tweak of a parameter into your sequencer.

**SCOOP EXCLUSIVE RRP £369 NEW BOXED**



**YAMAHA R8M200 PLUS KEYBOARD**

**EXCLUSIVE MEGADEAL RRP £699 £499 NEW BOXED**



**YAMAHA TG300 BELOW HALF PRICE! RRP £699 £339 NEW BOXED**



**KURZWEIL MicroPiano SPECIAL PURCHASE**

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

**RRP £699 £369 NEW BOXED**



**AKAI CD3000 CD-ROM sampler**

The CD3000 is featured almost identically to the S3000 - a 8-outlet stereo analog sampling 8 Meg (expandable to 18), SCSI interface, built-in CD-ROM drive (also allows sampling from audio CDs) 5 free CD-ROMs - the entire Time & Space library is also available. RRP £2699 - £250 off! Exclusive Deal at Turnkey. Limited quantities only.

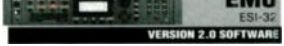
**RRP £2699 £1849 NEW BOXED**



**ROLAND S760 WITH FREE CD-ROM DRIVE & DISK**

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

**RRP £1999 £1499 NEW BOXED**



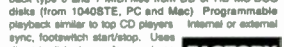
**EMU VERSION 2.0 SOFTWARE**

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

**WEST END EXCLUSIVE EMU CENTRE £POA NEW BOXED**



**ROLAND VINTAGE & DANCE MODULES IN STOCK**



**VISCOUNT RD70/RD800 DATA FILER**

RD70: Records straight from your sequencer or plays back type 0 and 1 MIDI files from DD or HD MS-DOS disks (from 1040BTE, PC and Mac) Programmable playback arranger to top CD players Internal or external sync, footswitch start/pause. Uses direct to disk storage for very large role capacity. Stores SysEx dumps RD800: as RD70 but with 1 Meg (expandable to 4) of battery-backed up memory giving you instant song play, no break between songs. Instant loading, channel mute, tempo change, transpose stored with song.

**FACTORY DIRECT RRP £239 £429 NEW BOXED**



**ROLAND PC 200-II KEYBOARD**

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

**PC200 RRP £149 NEW BOXED**  
**PC200 PLUS REEP BASS RRP £649 NEW BOXED**  
**PC200 PLUS OSRW RRP £379 NEW BOXED**  
**PC200 PLUS TGV RRP £539 NEW BOXED**  
**PC200 PLUS TRM RRP £459 NEW BOXED**



**ROLAND RB MK2 LIMITED QUANTITY**

It would be difficult to design a better drum-machine than the RB Mk2 - 200 on-board 16 bit drum-including the essential 808 and 909 sounds, plus extra sounds available on cards. 16 Velocity and aftertouch pads, extensive "human rhythm" program pedal facilities such as time, nuance, decay time etc... 10 separate outputs, tape sync, large display with very easy user-interface. This flagship machine is now too expensive to make - snap one up while they're still around!

**RRP £949 £549 NEW BOXED**

SOHO SOUNDHOUSE/TURKEY

0171-379 5148

Fax 0171 379 0093

114-116 Charing Cross Road,

London WC2H 0DT (Opposite Foyles and 100 yards from Tottenham Ct Rd tube)

A Division of ARBITER Group PLC

E-mail : sales@turnkey.demon.co.uk Web : http://www.demon.co.uk/turnkey

# PROGRAMMED



## Computer

### MUSICTIME

Notation arranger

**VERSION 16 FOR PC WINDOWS AND MACINTOSH**

Musictime has no arrange page, no piano roll, no drum grid and no MIDI Manager. All editing is done on the score itself - it's what we call a "pure" score program. This makes it much simpler & quicker to use, and ideal for educational situations. Musictime is easily our most popular computer music title for this reason. New advanced version - Phatpody - £248

**BEST SELLER**  
**PASSPORT**  
**£129**  
PC OR MAC

## GOLDSTAR

GSC-X21 PC Sound card

STUDIO QUALITY - HALF PRICE

The GSC-X21 is on a par with today's professional synthesizers and the most realistic sound cards costing 4 times as much. Built-in MPU401 MIDI interface (cable included), 250 x 16 bit stereo outputs + 16 per multi-ambient + 32 note polyphonic + General MIDI. We have secured a limited quantity at a ridiculous price.

**RRP £199**  
**£65.00**  
NEW BOXED

## SIBELIUS-7

EXCLUSIVE LONDON SHOWROOM

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

We are now an Authorised Dealer, we stock and demonstrate the exciting new RacPC processor, running RiscOS/3 powered by the ARM Processor, and with optional 486 or 586 board for running Microsoft Windows software native required.

**CALL RICHARD FINCHER**  
**ARRANGE A FULL**  
**COMPARATIVE DEMO!**

**FROM ONLY**  
**£499**  
PLUS VAT

## Effects

### VISCOUNT

EFX1 Studio Multi-effects

16 bit stereo input, large display, 95 db dynamic range, MIDI control. Excellent sound quality, shimmering reverbs, fully edit, 8 effects at once. Reverb, chorus, phasing, flange, delay, distortion, pitch-shift, 2 octaves, compressor, noise suppressor.

**FACTORY DIRECT**  
**RRP £289**  
**£199**  
NEW BOXED

## LA AUDIO DEALS

EFX2 Studio Multi-effects

16 bit stereo input, large display, 95 db dynamic range, MIDI control. Excellent sound quality, shimmering reverbs, fully edit, 8 effects at once. Reverb, chorus, phasing, flange, delay, distortion, pitch-shift, 2 octaves, compressor, noise suppressor.

**FACTORY DIRECT**  
**RRP £289**  
**£199**  
NEW BOXED

## MIDIQUEST 5.0

Universal PC Editor

OVER 200 DIFFERENT EDITORS

MIDIQuest is the most powerful, flexible and comprehensive editor. It has support for the widest range of MIDI devices including XP50, JV1080 series, Morphous / UltraProteus, ML50, MUBO, Quadrasynth Plus / GT, Classic Keys, TD-7, KT78 / KT88, Korg X5, DPM3 and many others. Driver upgrades are generally free of charge, so MIDIQuest will last for as long as MIDI is around! It's a really good investment. For people who only ever need one editor, we also do SoloQuest, which for £99 provides unparalleled value for money.

Mac and Altan version 4.0 is still available at only £219.95

**PC VERSION**  
**£235**  
OR CD ROM SOLO

## SAMPLITUDE

Multi-track hard-disk recorder

UP TO 16 TRACKS ON YOUR PC

Samplitude is a very fast real time wave editor, hard disk-recording, sampling and multimedia program running Windows 3.1 with any 16-bit soundcard. Create and edit samples, Crossfade, then dump to Sampling-Keyboard (BDS) or export to a Standard Wave File. Also re-sampling, time-stretching up to 100-level undo, echo, reverb and normalizing. MIDI files can be integrated. Synchronise sound with video.

**FROM ONLY**  
**£249**  
NOW ON SHOW

## PERFORMA 630

Macintosh Sequencing Package

including fast computer

Apple Macintosh Performa 630 (68MHz 68040, 8 meg RAM, 250 mag Hard Drive, 2x Speed CD ROM drive, 14" colour monitor and keyboard). Claris Works business software, 1 in 3 our MIDI interface, your choice of Cubase, Logic or Vision.

**RRP £2187**  
**£1399**  
INC VAT

## VISCOUNT

EFX10 Studio Multi-effects

Half Rackmount Effects

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

**FACTORY DIRECT**  
**NEW PRODUCT**  
**£299**  
NEW BOXED

## ROLAND SRV330 and SDE330

DIMENSIONAL SPACE EFFECTS PROCESSORS

These incredible units from Roland use the technology from their £24,000 RSS system. As well as being ultra high quality, regular effects units (30 bit processing is employed!) the 3D technology allows early reflections (SRV330) to be realistically placed and delays and choruses (SDE330) to surround you in a 360° circle, and synchronized to MIDI. True stereo processing +/- 20 dB in/out, a wealth of editing facilities and exceptionally good performance make these an unmissable buy. Very limited quantities at this price

**RRP £849**  
**£599**  
NEW BOXED

## KEY MP128S

PC MIDI / SMPTE Interface

128 SEPARATE MIDI CHANNELS

Far cheaper than the nearest competitor, the new Key MP128S has been exhaustively tested with Cubase and other leading packages running in Enhanced Mode. 2 in, 8 out SMPTE

**BEST VALUE**  
**£299**  
NEW BOXED

## BAND-IN-A-BOX

Intelligent Arranger version 6

FOR PC OR MAC. (Atari v.5.0)

Highly sophisticated composition aide which combines editable styles and a chord list to provide computer generated backing tracks in seconds.

**B1 SELLER**  
**£89.95**  
NEW BOXED

## CUBASE WINDOWS

4 different versions available

INDUSTRY STANDARD SOFTWARE

Cubasis  
Entry level without drum editor / sync / groove

Cubasis Audio  
As above, but with 4 tracks of proper hard-disk recording

Cubase 2.8  
The Cubase we all know and love, now with printing

Cubase Score 2.0  
For people who need score notation DTP facilities

Cubasis Windows <b>£149</b> NEW BOXED	Cubasis Audio <b>£249</b> NEW BOXED	Cubase PC 2.8 <b>£299</b> NEW BOXED	Cubase Score 2.0 <b>£399</b> NEW BOXED
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## BOSS SE70

Multi-effects processor

16 SIMULTANEOUS EFFECTS!

Roland's best ever selling effects unit is now too expensive to make. Just check out this feature list: Up to 16 simultaneous effects, 35 effect types and 45 algorithms. True stereo, or 2 mono ins and outs - the only unit on the market with a genuine vocoder (2 different algorithms, 21 bands). Input switchable -20/+4 dB, 16 x oversampling, 23k bandwidth, very adaptive programming capabilities via large 2 x 16 backlit display, 4 simultaneous MIDI controllers. All the usual reverbs and other effects plus auto simulation, 12 voice pitch-shifting, mix modulation, rotary simulators, very adaptive programming capabilities, noise canceler, mix canceller and sampler. Ideal for studio users and guitarists alike. Order now to avoid disappointment

**RRP £619**  
**£399**  
NEW BOXED

## SPL STEREO VITALIZER

BULK PURCHASE

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

**RRP £680**  
**£349**  
NEW BOXED

## MUSICATOR AUDIO

16 tracks of digital audio

AVAILABLE RIGHT NOW!

Designed from the very start to allow you to integrate professional notation, sequencing and up to 16 stereo or mono tracks of digital audio side-by-side on the same PC. Supports simultaneous use of multiple sound cards including the ability to record multiple audio tracks at the same time. Simultaneous recording and playback of audio files. Fully featured mixer integrates all operations for MIDI and audio tracks, input and output meters for each sound card, individual meters for each audio track.

Fully automated and recordable real-time control over volume and pan for all Audio and MIDI. Audio and MIDI data are viewed, edited, and mixed side-by-side at the same time. Powerful editing operations include Undo, Crossfade, Gain Adjust, and Fit Time. Editing of recorded and imported wave files is non-destructive. Drag/drop sub-regions of audio into your song in new view, measure-track overview, or the notation window.

**NEW PRODUCT**  
**£299**  
WINDOWS 95

## VOYETRA

PC MIDI interfaces

RELIABLE, COMPATIBLE, AFFORDABLE

Recommended by Steinberg, the V22 has 2 in 2 separate outs. V44 has 4 in 4 separate outs. V24 has 2 ins, 4 sep outs and an excellent SMPTE unit (all frame rates, click detector, SMPTE free-wheeling and reconditioning etc). The VP11 is the most reliable laptop interface around - with auto-primary then switching - no switching cables, no constant re-starting of windows etc.

V22 <b>£99</b> NEW BOXED	V44 <b>£199</b> NEW BOXED	VP11 <b>£115</b> NEW BOXED	V24S <b>£249</b> NEW BOXED
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## SOUND FORGE

ALSO SOUND FORGE 3.0 - £499

Sound Forge XP is a low-priced, general purpose sound editor which replaces the often unusable editors commonly bundled with most sound cards. It provides a wide range of Audio Processing functions including Fade, Pan, Normalize, Reverse, Smooth, Volume Control, and Stereo/Mono Conversion. Audio effects include Delay/Echo, Chorus, Distortion, and Reverb. Sound Forge supports most common real-time audio compression formats and is fully 32 bit native in Windows 95 and NT

**XP VERSION**  
**£149**  
WINDOWS 95

## DIGITECH STUDIO QUAD

4 CHANNEL STUDIO EFFECTS PROCESSOR

At last - Multi effects that they should be! The new Digitech Studio Quad features not only their custom designed and ultra-powerful "S-DISC" chip, but also 4 independent inputs and outputs, which using the built-in sub-mixer, can be configured as 4 mono or 2 stereo 4 effects processors, feeding 4 stereo outputs. Huge screen, and new intuitive operating system make editing a breeze. 20 bit converters give greater than 80 db signal to noise ratio. Effects include reverbs, delays, detuning, chorus, flanging etc... Hundreds of other features too numerous to mention. Very limited initial stocks, order now to avoid disappointment!

**NEW PRODUCT**  
**SHORT SUPPLIES**  
**£499**  
NEW BOXED

## ZOOM 1202

SPECIAL OFFER

Our tremendous buying power makes this the only sub £200 effects unit to look at! True stereo and the quality of the reverb alone make it worth the price, but there's a lot more if one of the 512 presets doesn't suit exactly, then using the two parameter knobs will allow you to tweak the program until it does. The addition of 2 band EQ will further tailor the sound to your mix. Other effects include delay, chorus, phasing, flanging etc. and all this in a full 19" 1U rack. No need to look elsewhere!

**RRP £199**  
**£159**  
NEW BOXED

## The UK 4 track Centre

Our famous 4 track pack includes everything you need to start making music with headphones, microphone with cable, chrome tapes, cables, head-cleaning kit and the best book we've yet seen on multitrack recording, taking you through basic track laying, madown etc... with sections of everything from mic placement to synchronisation and MIDI. We've obtained some great 4 track prices and for a limited period we will give you the 4 track pack (normal price £58.95) absolutely free with the units featured herein

## FOSTEX

280 Multi-tracker

INC 4 TRACK PACK

We have secured the last ever units at an unbelievable price! Features include 8 channel mixer, high speed Dolby C transport, optional MTC1 computer synchroniser (gives MIDI machine control from Cubase etc.), flexible 3 band mid-sweep EQ, digital 4 digit counter, auto/clock and rehearsal mode. These will sell out very quickly!

**RRP £699**  
**£449**  
NEW BOXED

## FOSTEX

XR-3Multi-tracker

INC 4 TRACK PACK

High speed machine at £249.1, New auto-bounce facility and built in mic - ideal for 4 track recording on the move

**NEW PRODUCT**  
**£249**  
NEW BOXED

## LEXICON Vortex

SPECIAL OFFER EXCLUSIVE

Despite the first digital effects units being developed almost 20 years ago, they have all followed a familiar path ever since, offering a conventional series of effects. The Lexicon Vortex breaks the mould in allowing effects to be morphed between in real time (controlled either by an expression pedal or by MIDI) and in the process, creating new and previously unheard-of effects. (This actually changes the effect algorithm continuously - it is not a simple cross-fade between effects) This unit is ideal for dance music, and anybody requiring out of the ordinary effects, and has real time nature make it an excellent choice for live performers such as guitarists. Effects are also affected by the input signal, so that dynamics can control various different parameters within an effect algorithm. Tempo can be tapped in to control delay times etc. Typical Lexicon quality can be taken for granted. Exclusive bulk purchase makes this huge reduction possible on the end of the line. First come first served!

**RRP £680**  
**£249**  
NEW BOXED

## PHONIC

PCL3200 Compressor

PHONIC PCL3200 COMPRESSOR RRP £229

The Phonic PCL3200 features a separate compressor and gate with hard or soft knee compression, peak or RMS detection, auto-chain, frequency controllable gating LED displays for every function and level. From the makers of a leading American compressor!

**MEGADEAL**  
**£199**  
NEW BOXED

## TASCAM

424 PortaStudio

INC 4 TRACK PACK

Another great machine from the makers of the Portastudio. Multi speed, EQ on each channel, built-in dbx, 4 channel metering system and many other features. Bulk purchase of non-CE marked stock brings you the unbelievable reduction. Price will go up again soon

**RRP £849**  
**£399**  
NEW BOXED

## FOSTEX

380S Multi-tracker

INC 4 TRACK PACK

The Rolls Royce of four tracks. The Fostex 380S features Dolby's incredible "S" noise reduction, 4 mono channels, with 2 auxiliary sends, 3 band mid sweep EQ, and mix input capability, plus another 4 stereo channels with 2 auxiliary sends and faders, and a further 2 stereo effect returns. 2 insert points are provided as are a fully logic controlled transport with auto locate points and rehearsal mode, digital counter and 2 speeds, individual track outputs, and of course recording on all four tracks at once. Strictly limited quantities, buy now to avoid disappointment!

**RRP £799**  
**£599**  
NEW BOXED

## FOSTEX

XR5 Personal Studio

INC 4 TRACK PACK

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

**RRP £420**  
**£335**  
NEW BOXED

## LEXICON

Alex and Reflex

SPECIAL OFFER

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

**RRP FROM £388**  
**POA**  
NEW BOXED

## BEHRINGER

range

ALL AVAILABLE ON DEMO

We have the entire Behringer range in stock and on permanent demonstration at Turnkey. Choose one now to improve your mix!

**RRP FROM £338**  
**POA**  
NEW BOXED

## FOSTEX

DMT-8 digital multitracker

INC 4 TRACK PACK

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

**RRP £1499**  
**£1399**  
NEW BOXED

## YAMAHA

MT50 Multi-tracker

INC 4 TRACK PACK

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

**RRP £389**  
**£349**  
NEW BOXED

## TASCAM

Porta07 PortaStudio

INC 4 TRACK PACK

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

**RRP £399**  
**£339**  
NEW BOXED

NEW Fostex XR7 + 4 track pack **£440**  
NEW Yamaha MTBX + 4 track pack **£390**  
NEW Tascam 488 II + 4 track pack **£1140**  
NEW Yamaha MT4X + 4 track pack **£480**  
NEW Yamaha MT50 + 4 track pack **£340**

**PRICES INCLUDE 17.5% VAT** \* We will beat any genuine quote from a UK or European dealer. We must be able to substantiate the quote and the goods must be available and in stock

PLEASE ALLOW 10 banking days for cheque clearance



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## 8 & 16 Track



### TASCAM 238S + SPIRIT

INCLUDES DEMO INTERFACE

The 238S is based on the transport of the £1000 plus 122 pro mastering machine and with the addition of the ground breaking Dolby S noise reduction gives superb recordings time after time. Other features include record all 8 tracks at once, shuttle control, large bar-graph meters, digital counters, auto punch in/out. Soundcraft's Rac Pac makes the ideal partner for the 238S and offers a highly flexible all-in-one rackmountable 8 track recording package.

With up to 26 inputs at middown, 3 band mid-sweep EQ, great audio performance, four true sub-groups and 6 auxiliary sends, the Rac Pac can cope with a wide range of recording environments and has plenty of room for expansion. Our offer also includes the MMC100, which enables the reception of standard MIDI Machine Control (ie control and synchronisation direct from Cubase etc...) and 2 8-way looms. Very limited stocks - order now to avoid disappointment!

**PRICE CRASH**  
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### SOUNDCRAFT SAPHYRE 28 DEM

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

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Superb 20 channel mixer with 4 true sub-groups. Features up to 8 auxiliary sends, 3 band EQ with mid sweep and high quality circuitry throughout.

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**Internet Web Site**  
<http://www.demon.co.uk/turnkey>



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**SPIRIT STUDIO & AUTO**  
**SPIRIT & ADAT PACKAGES**

SPIRIT STUDIO 16 + ADAT XT £3699  
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SPIRIT STUDIO 32+ ADAT XT £4499



8 track stand-alone random access (RCA) features jog/shuttle, MIDI Machine Control and MIDI Time Co-De, S-POD as standard as well as 4-in, 8-out balanced connectors. Options include ADAT digital interface, SCSI port for computer hookup, sync card for additional units, 4 extra analog ins etc.

**RRP £948**  
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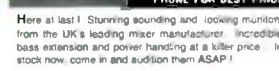
Here at last! Stunning sounding and looking monitors from the UK's leading mixer manufacturer. Incredible bass extension and power handling at a killer price. In stock now, come in and audition them ASAP!



The CR-3A is a professional quality large diaphragm cardiod condenser mic, hand-built in the USA by Manley Laboratories and has a beautiful a7D filtering tone on vocals and a wide range of other instruments. Switchable 10 dB pad and high-pass roll-off filter, comes with shock-mount, case and pop shield.

Until recently, we have been selling this microphone for £599, and in direct AB comparison with similarly priced mics, over 85% of our customers preferred it! The high sales volumes have enabled us to cut the price to a staggering £349.

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RRP £599  
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NEW BOXED



3 band mid-sweep EQ, 2 auxiliaries (1 switchable pre/post fade) professional grade Neutrik connectors, superb clean signal path and compactness make them unbeatable value for money, phone for unbeatable price!

**SPIRIT FOLIO**  
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**RRP £289**  
**£149**  
NEW BOXED

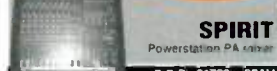


These superb compact monitors (RRP £289) are ideal for accurate monitoring on a budget. Study impact resistant casing makes them the only choice for location work. Bundle them with the Peavey PMA70 power amp for only £299.

**RRP £289**  
**£149**  
NEW BOXED

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## PA SYSTEMS



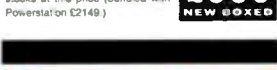
Another winner from Soundcraft, their first entry into the powered mixer market is sure to be a success. Based around the well-known Folio 12, and also featuring a 2x300w amplifier, dual 7-band graphic and a built-in Lesson Mix! Check out these amazing package deals.

Powerstation + 2 x JBL MR825 £1749  
Powerstation + 2 x Peavey Hays2 £1699  
Powerstation + 2 x JBL M330 £1999  
Powerstation + 2 x Bose 802 £2299  
Add 4 SWSBs - stands, spider-stands and cables for £499!



The latest incarnation of the classic Stage 200 full range PA speaker. 300 RMS power handling, an impressively compact design, 1 x 12" woofer plus wide dispersion horn. Makes an ideal portable system. Limited stocks at this price (bundled with Powerstation £2149).

**RRP £1349**  
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**PRICE CRASH**  
RRP £189  
**£159**  
NEW BOXED



Megadeal on top quality FX pedal board features include 25 digital and analog effects, 6 effects simultaneously plus compression and 2NR noise reduction. Built-in expression and volume pedals, MIDI out, built-in tuner, 80 patches, switchable input gain, buy now while stocks last!

**RRP £379**  
**£299**  
NEW BOXED



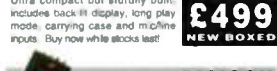
The Marshall DRP1 makes getting a fantastic sound through any system a cinch. Now you can have Marshall tone straight through a PA, 90/100 mignons or direct onto tape. It also makes a great headphone practice amp. Controls include pre-amp volume, gain boost, bass, middle and treble, master volume and line output level. A n LED indicates battery strength (unit can also be mains powered by a DC adaptor). These units are the last ever.

**RRP £949**  
**£379**  
NEW BOXED



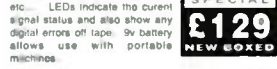
Megadeal on top quality FX pedal board features include 25 digital and analog effects, 6 effects simultaneously plus compression and 2NR noise reduction. Built-in expression and volume pedals, MIDI out, built-in tuner, 80 patches, switchable input gain, buy now while stocks last!

**RRP £379**  
**£299**  
NEW BOXED



Remove the SCMS code from a digital signal, you to make as many digital copies as you like. Co-axial and optical connections - can also be used to transfer from one to the other. In your machine with only an optical out can now have a co-axial out etc... LEDs indicate the current signal status and also show any digital errors of tape. By battery allows use with portable machines.

**RRP £599**  
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NEW BOXED

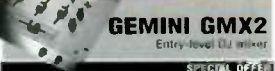


Only £99 if bought with any new DAT machine. Includes the SCMS code from a digital signal, you to make as many digital copies as you like. Co-axial and optical connections - can also be used to transfer from one to the other. In your machine with only an optical out can now have a co-axial out etc... LEDs indicate the current signal status and also show any digital errors of tape. By battery allows use with portable machines.

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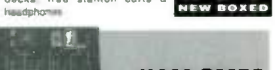
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**RRP £199**  
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End of line clearance deal brings you this super sampling mixer at an unbelievable price. Features include 2 line inputs, 2 piano inputs, XLR mic input with talk-over auto-cueing feature. Removable 2 channel faders, dedicated monitor fader and digital sampler with large stop-start button. Main channels feature 110 mm pro line faders and master section has 10 LED meters.

Starter pack with 2x KAM DD320 digital drive decks, station carts and headphones - £649

**RRP £229**  
**£129**  
NEW BOXED



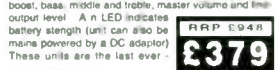
Still the club standard after many years, SL1200s are still going strong. This increased price includes a free Stanton cartridge. Package deals available with many mixers, please call to enquire.

**RRP £529**  
**£399**  
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The Marshall DRP1 makes getting a fantastic sound through any system a cinch. Now you can have Marshall tone straight through a PA, 90/100 mignons or direct onto tape. It also makes a great headphone practice amp. Controls include pre-amp volume, gain boost, bass, middle and treble, master volume and line output level. A n LED indicates battery strength (unit can also be mains powered by a DC adaptor). These units are the last ever.

**RRP £949**  
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NEW BOXED



DCC now has 18 bit sampling at 48 kHz with advanced data reduction techniques. The DCC551 is a full-size machine in a sturdy built-in case. It features Philips new Turbo Drive high speed mechanism, 15% recording, full indexing & localities. SPDIF ins and outs, full remote, plays analog cassettes with Dolby B & C noise reduction, auto-level optimisation and microphone input. Portable DCC170 also available at £249. Unbelievable deals exclusive to Turnkey. Sound on Sound only.

**RRP £349**  
**£249**  
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**£869**  
NEW BOXED

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**Uk mainland carriage £9.95**

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# Roland VS880

## Digital Multitrack Recorder

previews

**N**o sooner has the Fostex DMT8 landed in the shops, than Roland set about denying the imminent arrival of their own digital multitrack workstation at an identical price. Now that Tascam look set to announce their own digital version of the Portastudio at the forthcoming NAMM show, the future is looking increasingly digital for the home recordist.

Assuming for the moment that a product called the VS880 does exist, it is (like the Fostex system) undoubtedly based around hard disk technology, and can play back up to eight tracks

believe that some form of data compression is being used, and checking with Roland, it appears that if such a product were ever to exist, there would be a choice of four (Roland proprietary) compression modes. These might well comprise Master (no compression), Multitrack 1 (2:1), Multitrack 2 (2.5:1) and Live (3:1). Obviously, the maximum recording time pertains only to the maximum 3:1 compression — Master mode will provide only one third of this time. However, a SCSI port allows external SCSI hard and removable drives to be added, which is a clear advantage for those working on

*Have Fostex really stolen Roland's thunder with their digital multitrack? Mystic PAUL WHITE thinks Roland might have a trick up their sleeve...*

mix buss. There are four analogue inputs and two S/PDIF digital ins, as well as a digital output for direct mastering to DAT. All the fader movements, pan, EQ and other key mixer parameters may be automated via MIDI using an external sequencer. The optional, plug-in effects card provides processing power equivalent to two Boss SE70s plus some RSS

capability, and also uses the COSM modelling system (which first appeared in last year's Roland VG8 guitar synth). Each mixer channel has two internal effects sends.

The overall package is designed to look and feel as much as possible like a conventional cassette multitrack workstation, and this extends to the use of tape-type transport controls. Because of the nature of the assignable mixer section, however, some departures from the norm are evident in this area.

When it comes to editing your work, the VS880 provides the usual non-destructive copy, cut and paste functions plus exchange, insert, erase and audio scrubbing. That's about the size of it for now, but we'll be bringing you an in-depth review of the VS880 just as soon as its existence is officially confirmed.

SO5



at once. Sophisticated cut, copy and paste editing routines are possible and, like more expensive hard disk recording systems, you can record virtual tracks, in this case up to eight per 'real' track. You can then store these 'alternate takes' before deciding which ones to use in the mix.

Everything is recorded at the industry-standard, 44.1kHz sampling rate, with the option to sample at 48kHz or 32kHz. The sampling format is 16-bit, with eight times oversampling. You can back up your recorded work to DAT in just 1.5 times the actual recording time, and with an internal 540Mb IDE drive fitted, the maximum recording time is said to be around 35.6 minutes. There is no drive fitted as standard; dealers will be able to choose the drive type they will want, and Roland UK will be able to supply units with a 1Gb drive if required.

The stated recording time leads me to

longer projects or wishing to back up to Iomega Zip drives or similar.

Unlike the Fostex DMT8, which uses a straightforward analogue mixer section, the VS880 features an automated digital mixer with a slot to accept an optional effects processor card for another £340.

The mixer section has an assignable control system and comprises 14 input channels, digital two- or three-band EQ (depending on how many channels of EQ you need), which can be routed to eight recording busses as well as to the stereo

### FURTHER INFORMATION

- E** VS880 £1499 (without disk drive); Effects Board £340. Prices include VAT.
- A** Roland UK, Atlantic Close, Swansea Enterprise Park, Swansea, West Glamorgan, SA7 9FJ.
- T** 01792 702701.
- F** 01792 310248.

# Audio Technica AT4050

## Studio Capacitor Microphone

**How does Audio Technica's AT4050 multi-pattern studio mic compare with their hugely popular AT4033 cardioid mic? PAUL WHITE arranges a shoot-out.**

If you have read any of my previous microphone reviews, you will have noticed that I have certain firm favourites to which I keep referring, and Audio Technica's cardioid AT4033 is very near the top of the list, with its silky, detailed and somehow expensive sound. The more recent AT4050 is similarly styled, but is a true multi-pattern mic, and while it is more expensive (as you might expect), it is still significantly less costly than many of its rivals.

### STRUCTURE

As with all multi-pattern, large-diaphragm mics, the AT4050 employs a dual-diaphragm capsule with the diaphragms placed back-to-back. Unlike the AT4033, the AT4050 capsule is a true capacitor design, rather than a fixed-charge, back-electret. By varying the

way in which the outputs from these two diaphragms are combined, all possible microphone patterns are possible, although Audio Technica have limited the choice to omni, cardioid and figure-of-eight. It would also have been possible to include wide cardioid and hypercardioid by using a more complex switching system, but in the studio, the patterns provided will cover most eventualities.

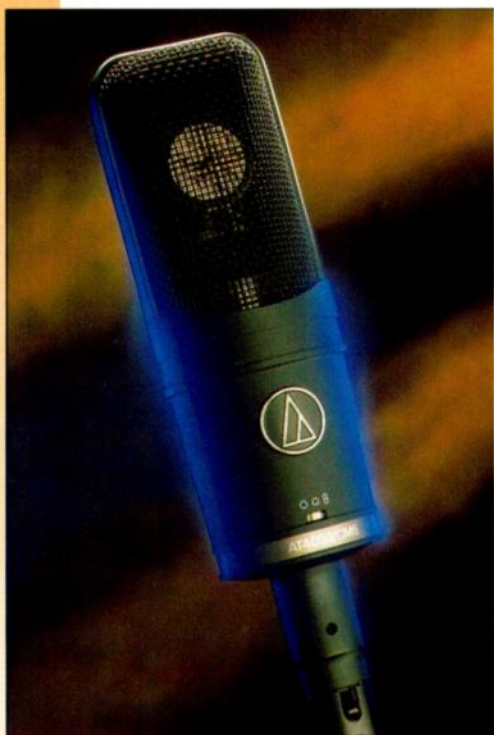
The only outward difference between the AT4050 and AT4033 is that the AT4050 is slightly longer in the body. The standard of finish is superb, and the casework is very tough. The resilient capsule suspension also helps in this respect.

As with the AT4033, the capsule employs a contoured, gold-coated diaphragm which is artificially aged to help ensure long-term stability in performance. The transformerless preamplifier has a selected low-noise FET at the front end, and an output impedance of only 100  $\Omega$ , which reduces the effect of long cable runs to a minimum. A low-cut 12dB/octave filter operating at 80Hz may be switched in, and there's also a switchable 10dB pad for use with high-level sound sources in excess of 150dB. As this is a capacitor microphone, 48V phantom powering is essential. The overall frequency response is nominally flat from 20Hz to 20kHz with no significant presence peaks, but as always, the proof of the mic is in the testing...

### PERFORMANCE

I was fortunate enough to have an AT4033 for comparison with the AT4050, so I did a variety of tests using the spoken word and acoustic instruments. One of the things that most users really seem to like about the AT4033 is its very transparent top end, which manages to combine sparkle with smoothness. I was interested to see whether the AT4050 had the same characteristic, or whether it was a completely different mic with a sound of its own. After doing numerous comparisons, I've come to the conclusion that there are both family similarities and noticeable differences.

The tonal differences between the two mics are, strangely enough, most obvious when the AT4050 is set to cardioid mode. Here it produces a very warm, silky sound, but with less top-end shimmer than the AT4033. Switching to omni or figure-of-eight seemed to produce a slightly more



**AUDIO TECHNICA  
AT4050 £601**

#### PROS

- Excellent technical performance.
- First-rate build quality.
- Very versatile.

#### CONS

- Not quite as flattering to vocals as the AT4033.

#### SUMMARY

A truly professional large-diaphragm, multi-pattern, multi-purpose microphone at a significantly lower cost than many of its competitors.

transparent sound that matched that of the AT4033 more closely. At typical vocal miking distances of 6-9 inches, there must be some proximity effect in cardioid mode, so when you switch to omni or figure-of-eight mode, the lack of proximity bass-lift is inevitably going to make the overall sound appear brighter. Realistically, a tonal difference is to be expected, because although the diaphragms are similar in construction, the two mics must have very different capsule designs, not only because the AT4050 has two diaphragms, but also because it is a conventional capacitor capsule — it is apparently very difficult to make a back-electret, multi-pattern capsule.

### CONCLUSION

Comparisons aside, the AT4050 is an excellent microphone capable of withstanding punishing sound levels, making it suitable for just about any application, from recording quiet acoustic instruments to very loud percussion. It is also a fine vocal mic, the very low noise floor making it suitable for distance as well as close miking. If you only want to record vocals and you're unlikely ever to switch from the cardioid setting, then the AT4033 is less expensive and arguably a little more flattering, but if you need a multi-pattern all-rounder that can produce first-rate results in all situations, the AT4050 is a good choice. Although it isn't exactly cheap, it's still very good value. **SOS**

#### FURTHER INFORMATION

- £** AT4050 £601.25; AT4033 £404.27. Prices include VAT.
- A** Audio Technica, Technica House, Royal London Industrial Estate, Old Lane, Leeds, LS11 8AG.
- T** 0113 277 1441.
- F** 0113 270 4836.

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# Rocktron Hush

## Single-Ended Noise Reduction System

*Can a low-cost processor really clean up noisy recordings effectively? PAUL WHITE finds out.*

As recording equipment becomes more advanced, I become more depressed about the amount of noise being generated at source, due to noisy synth modules, guitars picking up buzz from computer monitors, ground loops, and the cumulative hiss from countless ICs in my mixers and processors. Even in the most carefully-designed system, an irritatingly high level of noise, compared to the noise

mutated. However, even if you're meticulous about such things, source noise can still pose a real problem. One partial solution is to use a single-ended noise reduction unit (see 'The Sound Of Silence' box for a description of how these units typically work).

### THE HUSH PROCESS

Rocktron's Hush system has been around for a number of years, and although patented, it is broadly similar to the system used by Symetrix and Drawmer in their own DNR (Dynamic Noise Reduction) processors, in that it combines a downward expander and a dynamic filter. The IICX is a two-channel, 1U, rackmount processor powered via an external adaptor, with both inputs and outputs on unbalanced, quarter-inch jacks. A high input impedance of

A Class-A VCA is used in the expander circuitry, in order to maintain the highest possible signal quality. Bearing in mind that very often the whole mix will be going through this unit, that's an important consideration.

### IN USE

As expected, setting up the Hush system involves a compromise between acceptable noise and acceptable top-end loss. If the Hush can be applied to specifically noisy individual tracks, such as electric guitars or a noisy synth module, it's possible to bring about a worthwhile reduction in the amount of subjective noise without noticeably affecting the sound of the overall mix. When using the process over a complete mix, however, you have to be doubly careful not to compromise



floor of, say, a DAT recorder, is eventually funnelled down to the final stereo mix, and I feel there really is a case for pressing synth manufacturers to quote noise figures.

As you've no doubt read umpteen times, a great many noise problems come about because the rules of gain structure have been ignored, or because unused sound sources or processor outputs are still patched into the mixer rather than being

470kΩ means that electric guitars can be plugged directly into the unit if required.

The two channels may be linked by means of the Master button, for stereo operation, or they may be used independently — each channel has separate controls for expander threshold and filter sensitivity, as well as switchable +4dB/-10dB operation. Channel bypass buttons are fitted, but it isn't possible to bypass the expander and filter separately, something I like to do while setting up if possible. Neither does the expander have a variable ratio or release time, though a button does provide a choice of preset Fast or Slow release times.

So that you can see what's going on while using the IICX, both the expander and filter are furnished with simple four-LED meters. The expander meter shows how much gain reduction is being applied to low-level signals, while the filter's meter shows the cutoff frequency. This will normally vary, as the incoming signal varies in level and frequency content; the optimum setting is usually with filter fully open during all louder passages, only closing during obvious pauses or at the end of a piece. The expander should be set to apply little or no gain reduction during playback, unless a total pause is encountered.

the sound quality, which usually means leaving in some audible noise and preserving the tone of the track, rather than taking out all the noise and dulling the track. I found that

*"Setting up the Hush IICX is actually very easy, and in cases where the noise contamination is not serious, significant improvements can be achieved."*

unless the filter was allowed to close quite a long way, the level of hiss was only reduced very slightly, and if the filter was allowed to close right down, the sound being processed tended to lose all its top end.

Setting up the Hush IICX is actually very easy, and in cases where the noise contamination is not serious, significant improvements can be achieved. However, if the material is very noisy, it's often impossible to eliminate audible noise

### ROCKTRON HUSH IICX £198

#### PROS

- Cost-effective.
- Easy to use.
- Works well within the limitations of a dynamic filter/expander DNR system.

#### CONS

- Irritating external PSU.
- No separate expander and filter bypass switches.

#### SUMMARY

A useful tool for polishing up already well-recorded mixes, for cleaning up cassettes, or for reducing the level of hiss on individual tracks. Should only really be used after you've taken all other possible precautions to minimise hiss.



# IICX

## THE SOUND OF SILENCE: HOW SINGLE-ENDED NOISE REDUCTION WORKS

Most analogue, single-ended noise reduction units (not to be confused with encode/decode tape noise reduction devices), work by combining the action of a low-level expander with a dynamic filter. The expander acts like a 'soft' gate by significantly reducing the level of very low-level signals (and noise) during pauses, while the filter 'rolls off' the high-frequency content of the signal to a greater or lesser extent, depending on the mid- and high-frequency content of the material being treated. The dynamic filter idea is actually quite clever, because when the signal is loud enough and bright enough to mask any background noise, the filter opens fully, so as to have no adverse effects on the signal. However, when the mid- and high-frequency content of the signal falls, the filter cutoff frequency is reduced accordingly; in the case of the Hush system reviewed here, the filter frequency can drop as low as 700Hz during quiet passages.

Natural sounds are usually brightest when they are at their loudest, so the filter tends to open fully at the start of a sound, then starts to close down as the sound decays. This way, the sound isn't made to sound unnaturally dull, because the important attack gets through unchanged. Even so, inappropriate settings of the controls will cause dulling, and long reverb tails can sometimes suffer, no matter how carefully you juggle the settings. Because of this latter consideration, many engineers will apply DNR (Dynamic Noise Reduction) to the dry portion of a mix, but leave the reverb returns unprocessed.

pumping and/or top-end loss, and very often the only real benefit comes during complete pauses or at the start and finish of a mix, where the first note emerges from total silence, and the last note fades away into total silence.

### SUMMARY

I don't think the Hush IICX works quite as effectively as the more expensive Symetrix and Drawmer units, but considering its relatively low price, it represents very good value nevertheless. Setting up requires some care — you need to use your ears to choose the best compromise — but is not difficult, and the unit undoubtedly works best when fed with individual signals, when it may be used instead of a conventional gate, to keep pauses silent and remove hiss from behind low-level signals.

The Hush IICX is also useful on complete mixes, but only if a modest amount of noise reduction is required while the track is actually playing. It will take care of starts and ends of tracks with no problems, but when music is present, you shouldn't expect to achieve more than a few dB of hiss reduction before the side effects start to show.

Ultimately, all single-ended noise reduction units of this type are only effective when used with reasonably well-recorded material, and even then, they can only help to reduce hiss — they have no effect on clicks, crackle, or hum, except during pauses. There's little benefit in using them to try to salvage hideously noisy mixes — for that you need a sophisticated DSP system, which will cost considerably more money! Providing you appreciate and accept these limitations, the Hush IICX is something of a bargain.

SOS

### FURTHER INFORMATION

- £** £198 inc VAT.
- A** Marshall Amplification, Denbigh Road, Bletchley, Milton Keynes MK1 1DQ.
- T** 01908 375411.
- F** 01908 376118.

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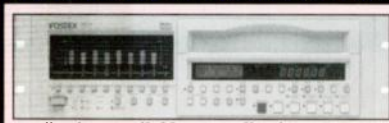
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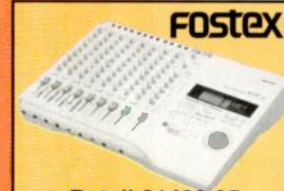
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# Digitech RPM1

## Valve Rotary Speaker Simulator

*There have been Leslie simulators before, but none to exploit the sympathetic warmth of valves.*

*NICK MAGNUS asks whether Digitech's RPM1 is a dream ticket... or a lottery loser.*

Made by IVL Laboratories (famous for their Intellifex guitar processors), the Digitech RPM1 is the latest in a burgeoning range of devices designed to emulate a rotary speaker, or Leslie, as the genre is better known. The additional attraction of the RPM1 is a built-in

mono feed from the bass rotor, leaving the horn coming from its own outputs in stereo, thus enabling the user to EQ or otherwise process each constituent of the sound individually.

The six knobs function as follows: Firstly, input gain can be set (with reference to a peak LED) to obtain the optimum operating level. The Drive control, unsurprisingly, sets the amount of overdrive produced by the 12AX7A valve. Horn Speed regulates the overall speed of the upper horn; Rotor Acceleration governs the rise and fall time when changing speeds, and appears to also affect the lowest rate of the bass drum — perhaps not the most ideal arrangement. Spread continuously varies the angle of the 'mics' on the upper horn; fully clockwise puts them 180 degrees apart, for maximum stereo spread with two apparent sound sources, whilst fully anti-

is of unenclosed, rotating speakers in a totally anechoic room.

At the slow speed, the sound is disappointingly lacking in movement (especially in the case of the bass rotor), the modulations being somewhat shallow. Modulation intensity (especially amplitude mod) increases dramatically at the fast speed, but owing to the lack of reflected sound, it comes across simply as a fast vibrato, rather than the complex interactions one might expect.

The manner in which the stereo image is dealt with is curious. The bass rotor has a restricted stereo width which cannot be changed, even with the Spread control. In the case of both the horn and the bass, the pan/filter modulations seem to have little or no sync relationship to the pitch/amplitude mod. Even stranger, at the fast setting, the pan and filter mod speed of the bass rotor



12AX7A vacuum tube (or valve, to us Brits), to provide the characteristic growling overdrive of the real thing. Previous units have either used a built-in solid state/digital circuit to replicate the effect, or required the addition of an external unit to do the job — so an all-in-one valve-based design is a logical concept.

### THE LOOKS

Externally, the RPM1 is a very ruggedly-built 1U rack, with six knobs, a power switch, and three vents arranged in a 'V' shape, through which the glowing valve can be seen. The rear panel has a Euro mains socket with integral fuse, a jack for a continuous foot pedal, and a jack for the 3-button FS300 footswitch which comes as standard. This controls speed, brake (rotor stop) and bypass. Two inputs are provided for mono or stereo instruments, and unusually, there are three output jacks. These jacks allow you to take a separate

clockwise effectively places them together (closely synchronising the phase of the left and right channel modulations) — more like a single sound source. Lastly, Balance sets the relative level of the bass and horn signals when using the stereo outs only. When using all three outs, the level of the bass output is unaffected by this control.

### THE SOUND

Rotary speaker simulations vary considerably. Objectively, however, a successful simulation relies upon whether it is accurate (convincing) or not. I have to say that the RPM1 falls rather short of the ideal in various areas, not the least of which is the rotary simulation itself. Firstly, there seems to be little evidence of natural internal cabinet reflections, room reflections, or of any muted, unrotating sound that would exist in the real thing. It is these factors which provide the frequency sum and differences that should result in a rich, swirling sound. The overall impression given by the RPM1

appears not to change at all, remaining at a slow rate. Stranger still, the horn's pan speed *does* pick up, but the filter sweeps stubbornly remain at the slow rate. Shouldn't these elements all operate in sync with each other?

The RPM1 appears to exhibit a concave, slightly logarithmic curve that causes the rotors to reach their top speed rather abruptly, coupled with the tendency to take just a little too long at the initial stages. Without researching into the principles of applying constant acceleration to a given mass, I'd expect the curve to be more of an 'S' shape, with a linear section in the middle. On switching from slow to fast, the horn's pitch mod depth increases almost instantaneously, long before the amp mod has had a chance to catch up. This has the effect of 'tugging' the sound downwards, and out of tune momentarily; a rather discomforting phenomenon.

With regard to tonal quality, the RPM1's designers have recognised the need for a fairly steep crossover, to separate

## DIGITECH RPM1 £550

### PROS

- Very rugged build quality.
- Easy to operate.
- All-in-one valve design.

### CONS

- Weak, unconvincing rotary effect.
- Disastrous overdrive.
- No MIDI.
- Overpriced.

### SUMMARY

Anyone interested in such a device should check out the marketplace. After all, one man's meat is another man's textured vegetable protein... There are a number of units available that either specialise in, or incorporate rotary effects ranging from good to bad. The bottom line is that, for the money, or indeed for less of it, there are more convincing options available.

the sound components. They also claim to have voiced the unit to reproduce the tonal characteristics of a real Leslie cabinet. In practice, the horn's frequency range is fairly accurate, while the bass rotor lacks any appreciable bottom end. Even with the lower drawbars of my Hammond fully on, there was no real warmth or energy present.

The manual promises that the overdrive will cause the sound to 'take on a warmer, or 'furry' tone'. However, the sound actually produced even at minimal drive levels is altogether too fizzy and crackly from the horn output, and blurry and indistinct from the bass output. This caused me to check that neither the RPM1 nor my desk inputs were overloading, which they were not. This is a great shame, and quite surprising, as there are a good many solid state and digital overdrive circuits I've encountered that are more effective.

## CONCLUSION

It is strange, considering the high cost of this unit, that MIDI has been entirely forsaken. Surely there could have been MIDI control of the speed, if nothing else? When you look at the excellent-sounding Korg G4, which offers virtually the same facilities at almost half the cost, it's extremely hard to justify Digitech's pricing. And no, I don't have a deal with Korg, or own a G4. It just seems a little excessive (continuing the comparison) to pay an extra £250 for a valve and one more output.

SOS

### FURTHER INFORMATION

- E** £549.95 inc VAT.
- A** Arbiter Pro MIDI, Wilberforce Road, London NW9 6AX.
- T** 0181 202 1199.
- F** 0181 202 7076.

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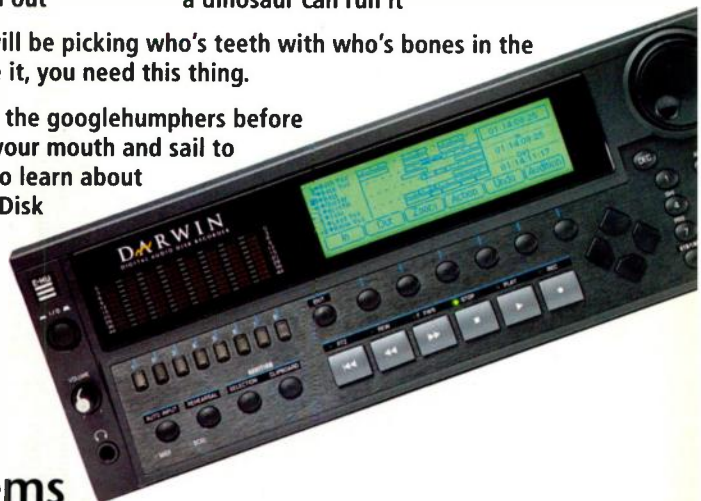
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# Tascam DAP1

## Portable DAT Machine

**PAUL WHITE gets out and about with the Tascam DAP1 and discovers the joys of collecting sounds outside the studio.**

While it is possible to buy a good, non-portable DAT machine for around £800, portable machines tend to be rather more expensive if they are to include the right features and sufficiently robust packaging suitable for use in professional applications. In my view, any portable DAT machine intended for serious work must include decent phantom powered mic preamps, a sensibly long running time from a rechargeable battery, packaging that protects against minor knocks and unintentional control movements, and, ideally, a choice of sample rates. Digital I/O is essential for cloning tapes onto other DAT machines back at base, and if the machine is fitted with SCMS (Serial Copycode Management System), it should be possible to disable it.

### STRUCTURE & STYLE

Tascam appear to have taken these challenges seriously, as the design of the DAP1 seems to have met all these criteria. A fully charged battery provides around two hours of operation, although this is closer to one and a half hours with the phantom power switched on.

In order to

save power, the machine shuts itself down if it hasn't been used for a few minutes. The battery recharge time is a fairly brisk two and a half hours, but the battery can't be charged while the machine is running from the mains, which could prove to be rather limiting.

Weighing 1.2kg without battery, the DAP1 is beautifully packaged and styled to appeal to the broadcast market. The casework finish has a rubbery feel to it, and all the switches, connectors and buttons are recessed to reduce the risk of accidental operation. Tape loading is via a motorised door on the top of the machine, and a look inside reveals that the key parts of the transport are mounted on a casting, rather than on a folded metal sub-assembly. The door is closed manually once a tape has been inserted, and a top panel switch selects the record sample rate to be either 44.1kHz or 48kHz. It is also possible to replay normal speed 32kHz tapes, but there is no provision for recording at this rate, or for double-time, reduced bandwidth recording (or replay for that matter) — presumably because the battery life would be shorter than the desired recording time.

The transport controls are conveniently placed along the front edge of the machine's top surface, with the programme skip buttons directly behind, and the Pause and Record buttons located on the front panel for easy thumb operation. A choice of mic, line, or digital input format is available with a switchable 20dB pad position in the mic input, and the digital I/O format is the universal S/PDIF system on phonos. AES/EBU is more professional, but on a machine of this size, it would have been difficult to justify the extra size needed to accommodate

XLR digital connectors.

Nevertheless, conventional balanced XLRs are used for the mic inputs, and the switchable phantom power is a full 48 volts. A switchable limiter is also available for microphone recordings, in order to protect against inadvertent clipping. This has no user-adjustable parameters and is presumably designed for stereo-only operation.

Phonos are used for the line inputs and outputs. I'm not entirely happy with phonos in this application — phonos seem to be happiest when they can be left permanently connected (clearly not the case with a portable recorder), but I have to concede that compromise is necessary when space is at a premium.

A non-latching slide switch on the top panel turns the machine on, and a display backlight is available if required (though this switches itself off again after a few seconds in order to conserve battery power). The battery charger/mains PSU is supplied with the DAP1 and plugs in at the left of the case, with a slide switch to select between mains-powered operation or battery charging.

When recording, start IDs may be recorded automatically or manually (although the machine didn't appear to write a start ID when first put into record), and in common with most recent DAT recorders, it is possible to enter skip and end IDs. IDs can, of course, be edited, renumbered, or erased after the recording has taken place. The counter can show elapsed or absolute time, program time or time remaining, and a button adjacent to the screen is used to step through the four possible modes. There's also a single-point autolocation function which allows any point on the tape to be marked. The tape will then return to the marked point on pressing Stop, followed by Play once the machine has stopped. The recorder also memorises the last points at which the machine was put into and taken out of record mode, and it's possible to reach either of these in a similar way, using the Stop and one or other of the fast wind buttons.

Like most modern DAT machines, the DAP1's display shows a lot more than just the time — it also includes stereo peak metering, a 'margin' readout to show how close you've come to clipping, the current sample rate, and the Program number. A slide Hold switch allows the controls to be locked in situations where they might otherwise get knocked, and the dual concentric input level dial is fully recessed.



so that the outer wheel can only be turned by its edge, and the inner wheel by a recessed pointer. A friction drive between the two dials means that turning one moves the other with it, unless deliberately prevented from doing so. A full-size, quarter-inch stereo headphone outlet is provided with front panel level control, and, happily, there is plenty of clean level available.

### IN THE FIELD

To test the DAP1, I slung it over my shoulder (using the carry strap supplied), plugged in a couple of capacitor mics and wandered around the house recording things like the cat snoring, clocks ticking, hard disks whirring, and all the usual domestic stuff. I found the controls very positive, yet at the same time, difficult to operate inadvertently — but this last observation can't be confirmed 100%, as every time you set out to do an inadvertent thing on purpose, it ceases to be inadvertent! The tape handling was fast and smooth, and I found the ability to relocate to the start or end of the previously recorded section a real help — DAT machines should include this feature, as it's more positive than relying on IDs.

One factor that can make or break a portable DAT machine is the quality of the mic amps, but those in the DAP1 are

extremely quiet, making it an ideal machine for location recording or sound effect and sample gathering. There's plenty of mic gain available, and in situations where you can't predict the maximum level, the limiter is a welcome ally. If you force the limiter to operate, you can generally hear it working, especially if the degree of overload is excessive, but these side effects are far preferable to the crunch of digital clipping.

### SUMMARY

The DAP1 is one of the less expensive portable DAT machines on the market, but it doesn't seem to compromise on essential facilities in any way. Everything works smoothly, the packaging is superb, and the sound quality is irreproachable. The only criticism is that you can't run the machine from the mains adaptor at the same time as charging the battery. I also found the display quite difficult to read indoors without the backlight switched on, but at least this stays on when the machine is set to run from the mains.

If you don't need a portable DAT machine, a free-standing model will cost you less and give you brighter, clearer metering, but if location sound is a necessity, then the DAP1 is still sensibly priced — particularly when you consider that you're getting a DAT machine plus a

## TASCAM DAP1 £1499

### PROS

- Professional features including digital I/O and switchable sample rate.
- Practical packaging for location work.
- Excellent ease of use and overall sound quality.

### CONS

- Simultaneous mains operation and battery recharging isn't possible.

### SUMMARY

A well thought-out portable DAT recorder that is more affordable than many of its competitors.

2-channel mic preamp with phantom power and peak limiting. I only wish I could persuade my accountant that I need one!

SOS

### FURTHER INFORMATION

- E** DAP1 Portable DAT Machine £1499 inc VAT. Accessories: battery BPD1 £69; recharger CBD1 £69; carry case CSD1 £69. Prices include VAT.
- A** TEAC UK Ltd, 5 Marlin House, The Croxley Centre, Watford, Herts, WD1 8YA.
- T** 01923 819630.
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# track records

ARTIST: Van Morrison  
TRACK: Domino  
LABEL: Warner Brothers  
RELEASED: 1970  
PRODUCER: Van Morrison  
ENGINEER: Elliot Scheiner  
STUDIO: A&R Recording (New York)

## Elliot Scheiner

**Behind every musical milestone there's a pioneering engineer. In the first of an occasional series, RICHARD BUSKIN looks at classic recordings from a technical angle. This month, former Van Morrison engineer Elliot Scheiner talks about the 1970s sessions which produced the 'Domino' effect...**

**E**lliot Scheiner started out in the music business in 1967 as an assistant to legendary producer Phil Ramone at the latter's studio, A&R Recording, located on 48th Street in New York City. There he remained until 1973, during which time he learned how to cut discs, and even how to work with film on his way to becoming a fully-fledged engineer.

"They believed in well-rounded engineers in those days," he recalls. "A&R was a full-service facility, and back then people didn't make tape copies, they had reference discs cut — so you had to know how to cut a disc. On top of that there was a lot of film work being done, so you also had to

know how to deal with things such as magnetic stripe, not to mention learning how to mike practically everything that came into the studio."

After going freelance (see boxout), Scheiner continued working for A&R until the start of 1977, by which time Phil Ramone had sold his interest in the studio. That year he won a Grammy Award for Best Engineered Recording for Steely Dan's *Aja*, and four years later scooped the same prize for *Gaucho*. Other nominations in this category have included those for Donald Fagen's *The Night Fly*, Glenn Frey's *Soul Searchin'*, and Jennifer Warnes' *The Hunter*.

### MOONLIGHTING

Now, however, if you are sitting comfortably, let's travel through the time warp back to 1970, and the recording of *Van Morrison, His Band And Street Choir*, Van's follow-up to his hit album, *Moondance*, which had been released earlier that year. Morrison was nominally the producer of *Moondance* when it was recorded in 1969, but when the time came for mixing, he wanted to return home to Woodstock in upstate New York for Christmas. Thus he asked Elliot Scheiner and drummer Gary Malabar to take care of the mix, and then send him copies of their work.

This they duly did, prompting Scheiner to ponder his role in the process. Back in 1970 he was to have co-produced the *Street Choir* album with

### TRACK SHEET

- 1: Bass
- 2: Kick drum
- 3: Snare
- 4: Overheads
- 5: Piano
- 6: Fender Rhodes
- 7: Electric guitar
- 8: Acoustic guitar
- 9: Vocal
- 10: Horns
- 11: Room mics
- 12: Horn overdubs
- 13: Vocal overdubs
- 14: Not used
- 15: Not used
- 16: Not used



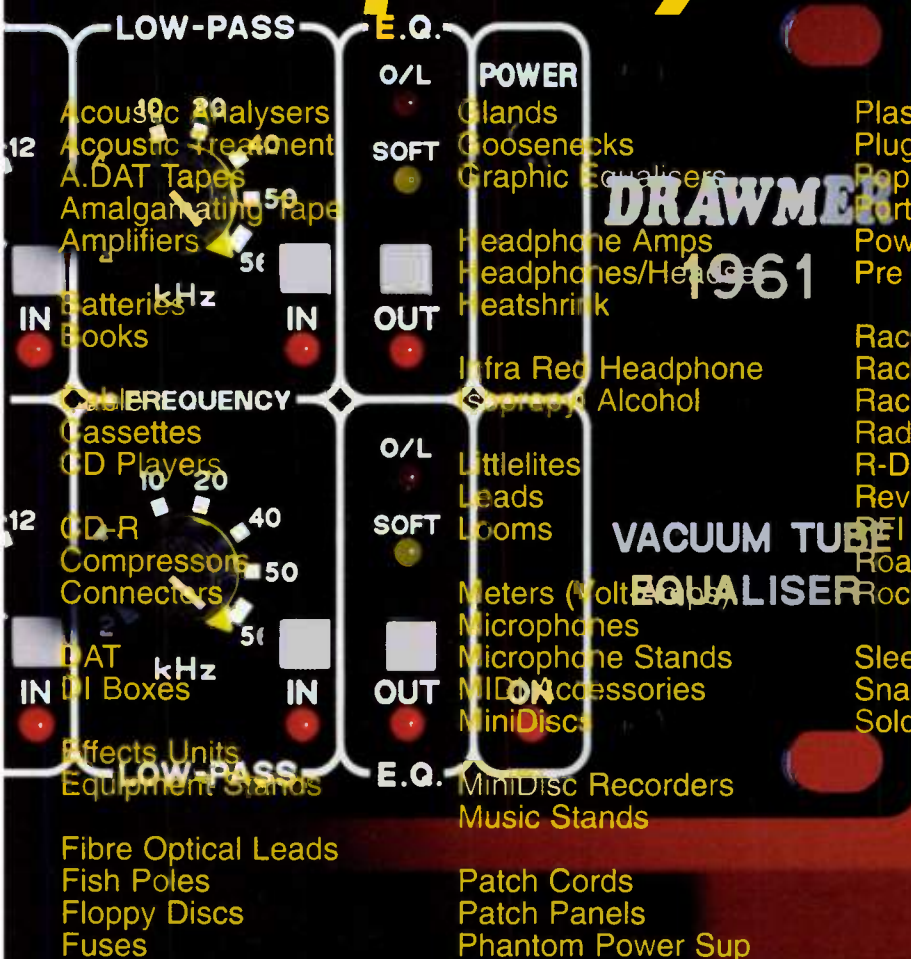
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# Studiospares

# Elliot Scheiner

► Morrison, but during the sessions the two men fell out, and so the task fell to Morrison and his new drummer, Daud Shaw. Scheiner ended up with only a 'Production Co-ordinator' credit. Yet it was 'Domino', one of only two cuts on the album mixed by Scheiner, which became the major hit of the album.

In 1970, A&R Recording was equipped with a

an additional 20 x 20 feet at the tail of the 'L'. Fabric covered all of the walls, there was carpeting on the risers and in the vocal booths. A composite was utilized for the floor in the basic part of the studio, and the ceilings were decorated with acoustic tiles.

"Back in those days they built rooms as much for appearance — and maybe sometimes *more* for appearance — as for sound," Scheiner explains. "In the case of this particular room, however, I think they lucked out, because the sound was good."

In the fall of 1969 much of *Moondance* had been recorded in this room with a Scully 8-track machine, whereas the *Band And Street Choir* sessions upgraded to 16-track. The monitors were Altec 604Es, with Mastering Lab crossovers, and in terms of the effects... well, there weren't any.

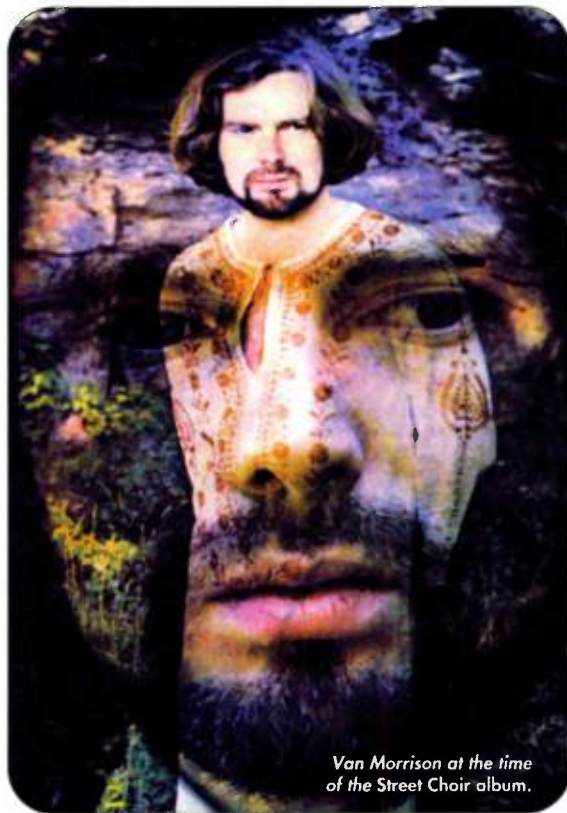
"In that room we had three EMT 140s," Scheiner recalls. "We used an analogue tape machine to delay the send to the echo chambers, and that's about all we had. I mean, there might have been a Cooper Time Cube and there might have been an old Eventide digital delay, but that was it. Whatever processing you did, if you were going to flange something you used machines for it. That's what I ended up doing on *Band And Street Choir*, and I remember using a couple of different machines to do it. But the primary outboard gear consisted of echo chambers and delays, and that was all we used."

Morrison and his band had already rehearsed much of the album's material in Woodstock, prior to arriving in New York City for the recording sessions. Then he and Scheiner worked on the songs' arrangements in the studio.

"The drums were placed on a riser against the back wall of the recording area, front-center of the control room," he recalls. "For the foot drum I used an EV 666, and then there was a 57 on the snare, 251s for the overheads, Sony C37s for the toms, a KM84 for the floor tom and a salt shaker on the hi-hat. The bass player was positioned to the left of the drums as we were looking at them, and he was playing a Fender — probably a Precision — which was DI'd. The guitarist was standing on the other side of the drums, and his guitars would have probably been going through Fender amps, and all miked with 57s. Then, further to the right, there was a 12 x 6 feet vocal booth, in which Van was playing an acoustic guitar and singing live, and for the acoustic I used an 87.

## LOOSE TUBES

"Actually — I'm embarrassed to say this now — but back in the early '70s, the 87 was the mic of choice! After all, people were getting off of the old tubes, because they required more maintenance. They were just getting rid of them in favour of



Van Morrison at the time of the *Street Choir* album.

relatively new 32-input, 16-output Neumann console. "By that time we had onboard EQ, but there was nothing beyond that," recalls Elliot Scheiner. "There were no in-line compressors, and no gates or anything like that. There had already been a console with all of that in-line, but this one just didn't have it."

While the control room measured about 18 x 15 feet, the recording area was wrapped around it in an L-shape and measured about 40 x 20 feet, with

## WHO DARES WINS

After six years at Phil Ramone's A&R studios, Elliot Scheiner began feeling taken for granted:

"As part of the studio staff, I had been bringing in more than a million dollars a year in business for them — a phenomenal amount of money," he says. "Meanwhile, they were paying me \$40,000, and I thought, 'Gee, this isn't right!' So, I said, 'Look, I don't want to do this anymore. I want a commission for all of my clients,' and they said, 'Sorry, but no.'"

"Then, I called all of my clients and told them I wasn't working at A&R anymore, and everybody

cancelled their sessions, so the studio called me back and said, 'Okay, what do you want?' I said, 'I want 20% of everything,' and they said, 'Okay.' But when my cheque for the first week was like \$5,000 or \$6,000, they called me back and said, 'This isn't working!' So we ended up with a deal comprising 20% on time and 15% on tape, and that worked out pretty well.

"When the other guys saw what I was making they all decided to do the same, and that was the beginning of the demise of the staff engineer."



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# Elliot Scheiner

► these new all-purpose mics. I mean, we'd put up the U47 for a vocal, but we didn't have pop filters specifically designed for it. We didn't have wind-screens either, and so somebody would be singing and spit into it, and the mic would close down for 20 seconds.

"So studio owners were just buying these 87s, as they thought they were the best things around, and I myself liked them. It definitely was an all-purpose mic, and you could literally use it on so many things: we used it for horns and we used it for strings, vocals, drums, piano... I mean, it had so many uses. The tube mics were definitely warmer,

"At A&R Recording, when they started getting in the 87s, they also began selling off all of the old tubes. In fact, the 251s that I used on the overheads (for 'Domino') were the last remaining tube mics there, except for maybe a couple of 47s and a couple of 48s."

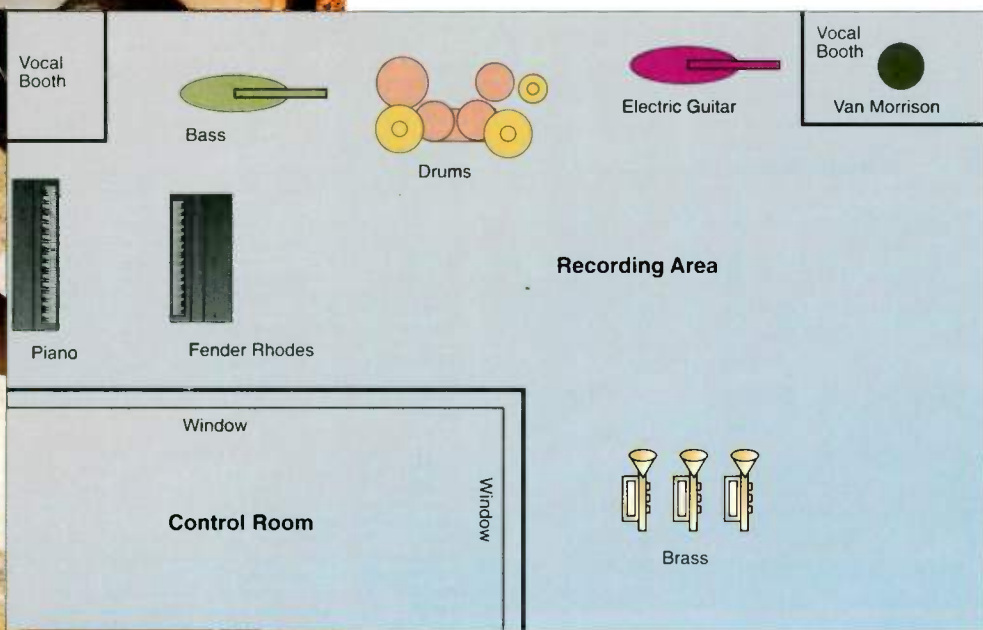
In the light of all this, it is not too surprising to learn that those new-fangled 87s were also used to record the piano, positioned to the left of the bass guitarist and in front of another vocal booth (this one measuring about 6 x 10 feet). A Fender Rhodes, meanwhile, was DI'd. As for the three horn players, positioned in the tail of the L-shaped studio to the right of the control room, Scheiner employed Sony C37s for the reed instruments and 87s for the brass. All of the aforementioned parts were performed live, and thereafter there was a horn overdub and a re-recording of Van Morrison's vocal.

"For many of the tracks on that album, however, we retained his original live vocals," Scheiner points out. "I mean, this guy was a great singer, a really phenomenal singer. He'd just get out there and sing, and he was always in tune. He was just wonderful to work with. In terms of him singing and playing acoustic at the same time in the booth, we always had that problem where we'd get vocal in the guitar mic. It never seemed to be a problem with the acoustic going into the vocal, but it was always a problem the other way around. Yet I still don't ever

remember replacing the guitar part because of that."

## BUSKING IT

For *Moondance*, a week had been put aside at the end of the project in order to take care of the mix. In line with this *modus operandi*, an afternoon was all that was required when Scheiner mixed 'Domino'. Having been absent from most of the mixing sessions, Van Morrison returned for this track, and was inspired to make some late changes.



but back then we didn't know enough, and we weren't discerning enough — you know, we were making rock 'n' roll records. There really wasn't much thought put into it, because we were limited as to what was available in the studio. You just went in and did it. There was no such thing as renting mics from rental companies — that wasn't done. So, you worked with what you had, and if that was what the studio owned, then that was what you used. You put anything else out of your mind...

## THE WAY WE WERE — RECORDING AND MIXING IN THE '70S

"Back when 'Domino' was recorded, mixing amounted to balancing, EQ, reverb and echoes," recalls Elliot Scheiner. "Everything was always cut dry. We didn't necessarily cut it flat — we'd use compression and EQ while we were cutting — but we never used reverb when we were cutting. When you hear one of those recordings now, you go, 'Wow, man, there's nothing on this record!' but, you know, you forget that we really didn't put much on it. We were so unaccustomed to echo and reverb that when you put some on it sounded alien, because that's just not the way instruments sounded. There was nothing sophisticated with regard to effects. In general, people just wanted their instruments to sound on record the way that they

sounded in a room, and so that's what you went for.

"Things like double-tracking with the Evenfide we used only very occasionally, hardly ever. Personally, I was far more into flanging stuff. Like on 'Domino', I remember flanging the horns, sending them to one mono tape machine and then to the other, and then having a variable-speed oscillator on one of the machines and just cranking it ever so slightly, so that it would go out of phase.

"Apart from that, if we wanted an effect going for live stuff, we'd sometimes employ a room mic sparingly, or I'd face a guitar amp into a piano and then pick up the harmonics off of the strings. Doing stuff like that we thought was very arty — it turned out to be a crock of shit! People couldn't hear it anyway!

You'd say, 'Oh, you know what I did here?' and they'd go, 'What?' 'Oh, really?' Nobody cared, but it was just a case of who could be cooler than the next guy, and in that respect I think that the English were definitely more adventurous than the Americans.

I remember the first time I heard Elton John's records over here, I thought, 'Geez! How did they record those strings and those drums?' It was unbelievable, and what it turned out to be was the difference between the CCIR curve and the NAB curve. When I eventually went over to England and worked in a studio, I thought, 'This doesn't sound so great,' but when I brought it back to the United States and played CCIR-recorded stuff on an NAB curve it was a totally different thing; a phenomenal sound."

*“There was nothing sophisticated with regard to effects. In general, people just wanted their instruments to sound on record the way that they sounded in a room”*

“I remember him wanting to add a little bit of a rap at the end,” says Elliot Scheiner. “‘On the radio, on the radio...’. It was a very last-minute thing. On the other hand, I don’t remember too much editing going on with any of that stuff. There may have been one or two cuts where we tagged on endings, but primarily the songs consisted of entire takes.

“You have to remember that back then, even the cuts didn’t make the sound great. You know, we went for a vibe, and we cut only when

something was really bad. So, if we liked the body of a take, and there was one section which we weren’t at all happy with, we’d try to cut it in. We’d look for a take that had the right part, and just try to edit it. You definitely could punch in back then — you couldn’t punch in in the middle of a piano part, but we were pretty good at vocals. We wouldn’t even attempt punching in single syllables, but we’d punch in a word or two... and pray. Those machines were slow getting out. You could get in with no problem, but getting out was a problem.”

And listening to those recordings today, does Scheiner think, ‘Ouch!’ every time he hears one of those edits?

“No, because I don’t listen to them anymore! I can’t go back that far. It depresses me. It’s just too long ago. I have to say, however, that I had a great time making records back then. Generally, it was more fun than now, because everybody was live. There were so few overdubs; we made records very quickly. The primary thing was the music and not the sound of it. We went for as good a sound as we could get, but nobody worried about that. Everybody was just concerned with the music: ‘Did we get the take? Did we get the performance?’ and that was an approach that I could really relate to.”

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# squeezing

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**Most of the time, inspiration doesn't so much strike as go on strike — so what can be done to coax it back to work? PAUL WHITE proffers a few suggestions.**

**M**usic is an odd kind of artform — its ephemeral nature makes it very hard to quantify, but like most other artforms, there are far more people capable of appreciating it than of creating it. I've often wondered why this should be the case. If you can *hear* a piece of music and appreciate its intricate harmonies and complex rhythmic structure, then surely you should be able to apply what you like about it to your own work. Yet that's obviously not the case, otherwise everyone who liked Mozart would be able to 'imagine' new pieces in Mozart's style.

Those of us who dabble in music — and let's face it, most pop music does qualify as dabbling — have a greater or lesser capacity for original composition, but very few people can be creative all the time. Some have to get in the mood to be creative, while others find that ideas simply flash into existence, and all too often evaporate again before they can get to a recorder or sequencer. I'm one of those people who finds it very difficult to be creative to order, so this article is really a selection of different tricks and techniques you can try to help stimulate your creativity.

### RECORD EVERYTHING

One thing I discovered early on is that it's little use running for the sequencer when a good idea pops into your head, because by the time you have everything up and running, the idea has more often than not been elbowed out by the mental demands of loading the software, making any necessary connections, turning that old Akai sampler out of 'Omni' mode, and calling up a set of appropriate sounds.

A more practical, lower-tech approach is to keep a cheap cassette dictating machine with you at all times, so that if an idea *does* come along unannounced, you can at least hum it for posterity. This is particularly relevant when you're

in the car, as here the creative part of the mind isn't usually required (unless you get stopped for a traffic offence, in which case it tends to become very creative). It's when a part of the mind isn't being used that it's usually most fertile.

The same is true when you go into the studio for a dabble on your keyboards, guitar or whatever — leave a cassette machine running, because a few worthy bars are quite likely to emerge from half an hour's unfocused rambling. If you have a sequencer, try switching off the metronome, put it into record, and then just play as if it wasn't on at all. Having a metronome breathing down your neck can be very counter-creative!

### ALLOW YOURSELF TO BE UNCREATIVE

Part of the problem with composing is that you tend to get annoyed with yourself for not coming up with the goods, and this starts a vicious circle — the more frustrated you get, the less creative you are — and the more frustrated you get. If this sounds familiar, use these times to sort out your patch libraries, or practise something you already know. The chances are that by turning your back on your creativity for a while, it will feel left out and try to join in.

You've probably noticed that I've been talking about creativity as if it were in some way separate from the individual. Physiologically, this quite clearly isn't the case, but as it so often behaves like a free spirit, that might be a good way to treat it! Interestingly, the Aborigines believe their music is passed onto them by the spirits — they never claim to have written it themselves. Who knows, but at least it lets them shift the blame for a lousy tune!

Another very worthy non-creative pursuit is to sit down and listen to somebody else's music, especially when you're doing a mechanical task that requires no creative thought — driving, washing up, formatting a box of disks, lying on a sun-soaked beach in the Bahamas and so on. Not only will you

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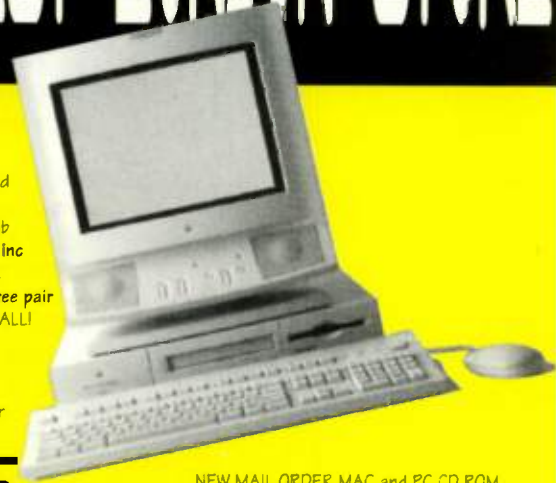
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## CURES FOR THE CREATIVELY-CHALLENGED

- ▶ soak up ideas (and every musician on the planet has absorbed ideas from other musicians), but your creativity may decide to flex its ego, because it thinks it could do better. Any trick to lure it into the open is fair game, that's what I say.

### TWO'S COMPANY

The creative muse is a gregarious beast by nature, and if forced to work alone is prone to long bouts of non-productive sulking. That's why composers often work so well in pairs — they can bounce ideas off each other, filter each other's ideas, develop each other's ideas; even compete with each other at a subconscious level.

Another reason composing teams work so well relates to my introductory comments about how everyone can be a critic, but few can be original. If there are two of you, one person's creativity may come up with the germ of an idea, allowing the other person's critical faculties to focus on what could be done to make it better. In my own experience, it's always easier to spot what's wrong with something, or suggest ways to improve it, than it is to come up with something from scratch. It may be that this symbiotic relationship between the critic and the creator within us is what makes some writing partnerships so successful.

### DO ANDROIDS DREAM...?

If you don't have a composing partner, how about striking up a relationship with a machine? If this sounds pointless, keep in mind that any form of music composing software is written by human musicians, and if they've done their job properly, when you interact with their software, you're interacting with some aspect of them, not with the computer running the program.

Take *Band In A Box* for example; I know a lot of people scoff at the idea of auto-accompaniment programs, but this particular package has become very sophisticated, and I feel that anybody who writes it off completely is using it the wrong way. I come from a live music background, and for more years than I'm prepared to admit I played guitar in what might loosely be described as a rock band. At rehearsals, we'd always put some time aside for jamming, and more often than not, we'd decide on a rhythm and a chord progression, then see what evolved. From these jam sessions would come most of our ideas for new songs, and I see programs like *Band In a Box* as the MIDI equivalent of a band to jam with. It doesn't matter if none of its output makes it into the final composition — if it's helped to provide you with the inspiration to get the tune finished, then it's done its job.

One of the great things about *Band In A Box* is that once you've typed in your chord sequence, you can opt to hear it played back in a huge variety of musical styles, and if you're prepared to try some of the less obvious options, you may discover some very fruitful avenues of exploration that you would probably never even have considered had you been working entirely on your own. Because the output of programs like

*"If you consider compositional software as a catalyst to creativity rather than as a substitute for it, I think you'll find the whole experience more rewarding."*

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'In contrast to the two MiniDisc (MD) machines, the DCC sounded bold and vital, and ultimately more engaging - there was more going on, giving the aural senses more of a workout. The treble sounded clean and crisp, without the fried eggs quality of the MD recorders, but with plenty of detail and a more palpable sense of presence. ...the mid-band was similarly more vital and engaging. The Philips was much more consistent than the others, with none of the rather crudely-drawn quality that becomes apparent on MD when the music turns stressful...by far the best sounding of the three'. *Hi-Fi Choice*

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'These new generation DCC machines start out by sampling the incoming signal not at 16 bits but at 18 bits which gives rise to a potential improvement in both dynamic range and residual noise of around 12 dB... DCC sounds just the same as DAT...The way DAT keeps going up in price, DCC could well become the home recording standard of the latter half of the nineties.' *Sound On Sound*

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'Philips allegedly invested £500 million in the research and design of DCC... the low-cost DCC730 could seriously challenge DAT's hold on the high-tech market. ...could encourage small studios to adopt the format over the increasingly expensive DAT alternative.' *Future Music*

'I've used a good quality DAT machine for years and am no stranger to the way digital tape can render analogue sound dry and antiseptic. But the Philips simply wouldn't entertain the possibility, giving a surprisingly warm and fulsome rendition. The bass was particularly well-rounded and lacked the sense of sterility so common with digital. There was no trace of hardness higher up the frequency range.' *Hi-Fi World*

'All DCC recorders will accept a digital input at 32, 44.1 & 48khz, which is good news for anyone who wants to transfer a DAT collection to DCC. DCC's ability to handle any sampling rate you can throw at it might even precipitate a glut of second-hand DAT machines!' *The Mix*



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# CURES FOR THE CREATIVELY-CHALLENGED

► *Band In A Box* can be saved as standard MIDI files, you can load them into your sequencer and then use as much or as little of them as you see fit.

Another related example of man/machine symbiosis is evident in *Cubase's* 'scale transpose' facility, which can throw up some interesting results. Here, the idea is that you take something written in, say, C major and then get the program to transpose it into a different key, and move the notes so they conform to a different scale type. This way, you can start out with a trite nursery rhyme type of melody in C major, and end up with a Balkan folk melody in E minor demented ninth! The results aren't always great, but often there'll be a diamond in the rough, which will prod your creativity back into life. If you consider compositional software as a catalyst to creativity rather than as a substitute for it, I think you'll find the whole experience more rewarding.

## RHYTHM IS KING

Most pop songs are rhythm-led, but unless you have a lot of experience playing or programming rhythm parts, the chances are that you'll end up playing along to some well-worn rhythmic cliché that's had all the life quantised out of it. This can be very stifling, as the energy of a rhythm track is quite often what gets your creativity interested in the first place. Give it a four-to-the-bar quantised rock beat, and it's likely to pull the metaphorical covers over its head and stay in bed!

A popular way around the rhythm impasse is to use sampled drum loops, and there are literally thousands to choose from on CD — but if you're not into dance or straight rock, you might find the choice a bit restrictive. Even so, there's some really good stuff out there, and with companies such as Time and Space putting CD jukeboxes into main music stores, you have a chance to hear what you're getting before you part with any money. The great thing about sample CDs is that you get a finished rhythm part complete with good sounds, the right balance and appropriate effects. and because you don't have to worry about these things any more, you can move directly onto the next stage — which is having fun — and having fun is the first step to getting creative.

The downside of sample CDs is that you need either a sampler or a sequencer with hard disk audio capabilities, and while there are a lot of samplers in home studios, there are still more people without them than with them. By contrast, almost everyone has access to a sequencer of some kind.

The MIDI equivalent of sampled drum loops are now available from a number of companies, the most well-known probably being the *Twiddly Bits* and *Twiddly Beats* disks — although more recently we've seen them joined by the *Song Builder Doctor Beat* disks from those sublimely talented programmers at Heavenly Music. These disks contain loads of short MIDI files in GM format, providing you with a wealth of drum rhythms and fills, all of which are recorded with a feel and energy that would be difficult, if not impossible for most of us to match at home.

Because the patterns are presented as MIDI files, the tempo can be freely changed, sounds can be substituted at will, and the patterns themselves can be modified in any number of ways. Wading through all the files on a disk can be a long job at first, but I think material of this quality is well worth the small effort required to access it. You'll also find the same companies producing disks containing bass riffs, piano parts, guitar parts, brass licks and little trills and flourishes for more instruments than I could list here. Again, these can help rouse the creative muse from its dormant state.

## SOUNDS MATTER

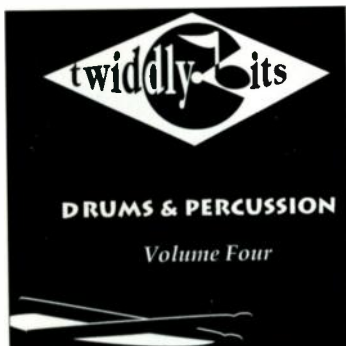
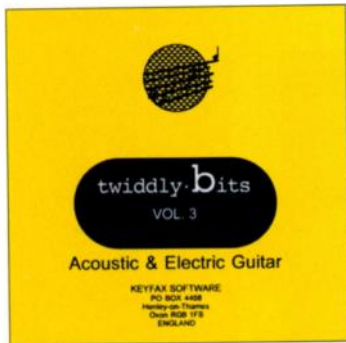
Read any interview with an A&R man, and you'll get the impression that sounds don't count for much — a good tune will shine through on a beat-up old acoustic guitar-plus-voice recorded on the record company's answerphone. Whether this is actually true is not the point of this article, but when it comes to actually composing music, I think sounds are very important. It's the sounds you choose that make you feel excited (or not) about the ideas you're trying out, and if I'm trying to write instrumental music that involves the guitar, I'm far more likely to think of something if I've got an effects box plugged in, so that I can play off the echoes, or wallow in a Grand Canyon reverb. The same goes for synth sounds: my *Emu Morpheus* gives my creativity far more leads than my GM module!

Of course, we have so many sounds at our disposal that it's easy to spend all day swapping patches and getting nowhere. You may prefer taking the Brian Eno approach, and set yourself a few limits. For example, you could throw dice to select four or five synth patches, then restrict yourself to working with those and nothing else, at least for the first half an hour or so. Having something limited to focus on certainly helps dispel unwanted distractions, and there's no denying that random chance often pushes you in directions you wouldn't normally go.

The same can be said of my party trick of cleaning the keyboard with a duster while the sequencer is recording, then assigning the result to a drum machine, quantising the data and creating rhythmic loops from the more promising bits. Just occasionally, something wonderful pops out and the jaded old creativity sits up and takes notice.

## AND FINALLY...

Sometimes, your creativity will decide to stay in bed for the day, regardless of what you offer it in the way of temptation. If this happens, try not to fight it — just do something else. Very few people can be creative all of the time, and if you try too hard, you risk taking the fun out of music making. If you enjoy what you're doing, you're much more likely to be good at it than if you're having to force yourself all the time. Treat your creative self as a separate entity, and try to get its co-operation by coaxing, not threatening or bullying — music composing is one area where the carrot is invariably more productive than the stick.



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# Heart of the Bass?

## WALDORF PULSE MONOSYNTH

***A monosynth that doesn't cost monopoly money? It might not be able to walk and chew gum at the same time, but PAUL NAGLE thinks Waldorf's new Pulse offers the most fun you can have with your presets off...***

**T**here's something about a classic analogue filter sweep that still sends a shiver down my spine. Even in these days of realistic choirs and cold digital bells, there's a special, almost organic quality to those old electronic sounds. It was with genuine interest, therefore, that I welcomed Waldorf's latest offering — a 2U, rackmounted monosynth called the Pulse — into my humble abode.

The Pulse features three analogue oscillators, an analogue noise source, two low frequency oscillators, two ADSR envelopes, a powerful resonant low pass filter and a flexible modulation matrix. Performance tools include portamento, and an arpeggiator which can sync to MIDI. But the absolute killer feature is that every parameter change generates (and responds to) MIDI controller messages.

### LAYOUT

One of the first things that strikes you about the Pulse is its physical depth (sadly not immediately apparent from the picture accompanying this review); it's almost as deep as it is high, lending it the appearance, cuteness and charm — though sadly, not the taste — of a large rectangular Toblerone. Furthermore, the grey chassis and white/orange lettering recall the mighty Wave or Microwave, and indeed, anyone who has programmed the latter will be instantly at home with the Pulse's matrix method of parameter access: a mode button steps downwards (upwards too would have been nice) through six levels, current position being indicated by a green LED. Six knobs are then used to access the options on that level. These are reassuringly solid; more substantial than those on, for example, the Korg Prophecy. An additional six levels are accessed using the shift key (and the relevant LED flashes to remind you of the fact). Overall, navigation is both simple and effective.

Presumably to keep costs down, the Pulse has no LCD. Instead, a small 3-character readout shows all status information. Initially, I felt this was a shortcoming, but soon decided it didn't make much difference to the use and programming of the synth. Indeed, the status was actually pretty clear when compared with most tiny 'letterbox' displays. My only lingering reservation is with the method of checking existing values by holding the mode button and twirling each knob. This is cumbersome, requiring two hands for the rightmost controls. Also, there is no overview of all current settings, such as would be possible with an LCD. A temporary edit buffer



ensures that if you change patches mid-way through creating that kickin' bass, you won't lose a thing: simply return to it and carry on. The edit buffer is lost if you start to edit a second patch before saving the first.

No LCD means patch numbers, not names. This is not so bad as it might sound — at least you are spared the bother of thinking them up in the first place! Don't look for an on/off switch, headphone socket or dedicated volume control — Waldorf have concentrated on the things they consider important, and dispensed with the stuff they don't. Completing our quick tour, the back panel holds the obligatory three MIDI sockets, 12V power input and stereo outputs. Although the review model was powered by a 'Euro-type' mains adapter, I am assured production models will feature an anglicised plug.

For me, the only real downer was the fact that of the 99 patch locations, only the first 40 are user-programmable. I queried this with Wolfram Franke of Waldorf, who said it was due to the processor used, and that the addition of more RAM would have required a dedicated memory management unit, significantly increasing the price.

### ROAD TEST

Flipping through the factory sounds was a puzzling experience. Several conventional (and usable) analogue patches are intermingled with many wailing, ring-modulated and discordant offerings,

### WALDORF PULSE £599

#### PROS

- Great range of analogue sounds.
- Every program parameter accessible directly by MIDI Control Changes — that's every parameter!
- You don't need to bother searching out ageing second-hand relics with no guarantee they'll last longer than a week. With a Pulse, you have the best of both worlds!

#### CONS

- Wall wart power supply.
- Only 40 user memories.
- Three-character display gives no 'instant view' of current settings.

#### SUMMARY

Don't let the strange factory sounds put you off — this is an excellent monosynth module which can deliver first-class analogue sounds. The capability to send and receive MIDI control changes for every parameter rather than SysEx makes it incredibly versatile, and full of possibilities.



often quite low in volume and brimming full of portamento. I checked to see whether the review model's brains had somehow become scrambled, but apparently Waldorf's idea was to show that the Pulse is not simply another TB303 clone capable of only bass sounds. They certainly made their point! I think that filling the permanent memory locations with more conventional fodder (and the user locations with the weird stuff) might have been a better way of attracting the masses. Nevertheless, it's a brave move in these days when everyone's so used to relying on presets (would Korg have sold so many Prophecys had they followed the same philosophy, I wonder?).

Fortunately, programming is a breeze, and in no time at all I was able to create interesting, overloaded lead sounds reminiscent of the Microwave, as well as recreating many of my favourite, old-fashioned synth timbres with remarkable accuracy. Just a few edits away were rich filter sweeps, beautiful solo patches, chirpy sequencer fodder, lush pulse width modulations, clangorous noises, warbly 'shooting star' sounds, rumbling thunder, thumping basses and dynamic sync leads.

The Pulse's repertoire is impressive, ranging from conventional analogue through to complex stuff that might have been knocked up on a modular system with yards of cable and a ladder. If you're stuck for a sound effect or two, selecting a program beyond 99 generates a random patch each time, and while these tend towards the wild

and frightening, they can provide fun starting points. Oh yes, and you *can* make it sound like a TB303 if you really want to...

### IN CONTROL

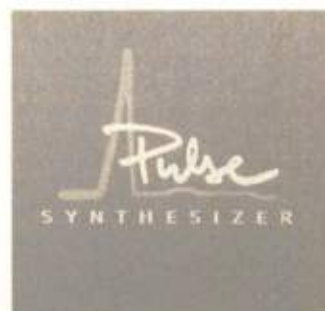
Once I discovered that the Pulse has allocated discrete MIDI controllers for every parameter, I sat with a silly grin on my face for a few moments, before connecting its MIDI Out to my sequencer and launching into an orgy of knob-spinning. I can happily report that all edits played back perfectly, with every change I made being faithfully reproduced.

I then proceeded to create a complete Cubase mixer map in just over an hour — imagine doing *that* on your first day with a new instrument, after getting your head round the intricacies of its SysEx codes! This feature has wide-ranging implications for creative MIDI sequencing, harking back to the simplicity of recording synths on tape. It makes the Pulse an incredibly expressive tool if driven by the right controls. If only all my MIDI gear was so accessible...

The three oscillators feature sawtooth, pulse and triangle waveforms, with oscillators one and two having variable pulse width, and oscillator two having sync and cross modulation. When sync is on, oscillator two is slaved to three, giving free rein to all those familiar grungey solos and basses. Cross modulation can be used to generate the unusual harmonics and clangorous tones associated with FM synths.

### BEATING THE SYSTEM

Recording SysEx messages can generate a lot of MIDI data and cause timing problems in dense MIDI streams. Control changes are far more economical, and with the Pulse it is a simple matter to fully program the synth directly from a sequencer, merely by sending the appropriate codes — even down to the arpeggiator settings. My only complaint was that I thought you ought to be able to send all current controller values, but it seems that this too has been thought of — Waldorf tell me you simply carry out a Program dump request with the header string \$4b to do just this.



# Waldorf Pulse Monosynth

- ▶ The oscillators, along with a rather harsh-sounding pink noise source, are blended in a mixer section which is designed to be overdriven. Balancing levels requires a little practice, but a master output is available to even things up. I

the digital envelope is great for those punchy percussive patches, and must rate as one of the snappiest on an analogue synth. Compare this with the Marion Prosynth, which has an update speed of 16 to 22mS! Envelope one is intended to

be used for the filter, whilst envelope two is aimed at the output contour. Each envelope has its own keyboard tracking rates and four triggering modes, allowing for the envelopes to shorten or lengthen depending on keyboard position, and to be retriggered according to playing style. The different triggering modes allow the envelopes to be restarted completely for each key depression, either at the current level or from zero.

It is probably fair to say that most analogue synths stand or fall by the quality of their filters, and Waldorf listened to everyone's "make it like a Minimoog" comments, added a little extra stability, and produced their classic, true analogue 24dB model. The Pulse is blessed with this, and I have to report it is a joy to use. It is rich and responsive, breaking into self-oscillation at high resonance values, and creating a pitched tone which can track across the full MIDI range. Two low frequency oscillators are



The spartan back panel.

found that some noise was evident if oscillator levels were low, and the master output at maximum — see 'A Word From Waldorf' for an explanation of this.

The two envelope generators are the traditional ADSR variety — my favourite kind. They are simple to set up and understand, and can be combined in the modulation matrix with other sources for maximum flexibility. With an attack time of 1.9mS,

## A WORD FROM WALDORF

I contacted Waldorf designer Wolfram Franke with a couple of technical queries during the course of this review, and he offered some interesting insights into how certain aspects of the Pulse were designed, which are reproduced here.

"Our first consideration was how many oscillators a synth should have. One oscillator is boring; you can't create, detune or transpose effects. Two oscillators are better, because you have lots of possible ways to detune or transpose them, or to use different waveforms. But you have one problem. If the phase of one oscillator is shifted by 180 degrees to the other, you will lose sound. This happens every now and then, when you simply detune oscillators by a slight amount. But if you add a third oscillator, it fills these small silences, and the sound gets much richer and fatter. Also, a third oscillator is useful if you plan to offer oscillator synchronisation, cross modulation and so on; you'll still have one oscillator left for doing interesting things. So, the Pulse had to have three oscillators! However, the three waveforms are made differently, and only have one thing in common — they aren't processed by a D/A converter. The oscillators are not digital, but analogue. The pulse waveform is controlled digitally; the clock stipulates when the pulse waveform has to be at its maximum or minimum point. If you use pulse width modulation or cross modulation, this is also generated by the clock itself. The clock has only a 0 and 1 position, so the Pulse's cross modulation is mathematically identical with ring modulation. The sawtooth waveform is voltage-controlled; the voltage is generated from the D/A-converted clock signal, with additional parts creating the ramp. The triangular waveform is the most complex one; it's a combination between the sawtooth waveform and additional parts that process the down-ramp.

"We then thought about what the oscillators should

be capable of. Our first thought was pulse width modulation, and that's easy to implement, so we did it. Oscillator synchronisation, on the other hand, is not that simple to develop, but nicer than pulse width modulation, so, we put that in too.

"If you ask musicians about the ideal filter for a synthesizer, you almost always get one answer: the Minimoog filter. Its warmth and timbre are the best you can have. But the filter of the Minimoog is not perfect. After a couple of minutes it starts to detune, due to the heat it produces. Also, it's not possible to put it on 'keyboard follow' perfectly. So we only used the idea of the cascade circuitry, and used better parts around it. The result is a filter that, if it is tuned once, stays at its pitch and gives you a keyboard follow range of around 10 octaves without detuning.

"Furthermore, the filter changes its timbre when you slightly increase the input volume. The oscillators start to affect the cutoff frequency and the resonance response. This gives a wide range of characteristics simply by lowering or increasing the oscillator volumes in the mixer. Very low volumes produce a Roland-like character, while higher volumes result in a more Minimoog-like tone. The filter is voltage-controlled, as you can see from the front panel. But we made sure the voltage is 100% stable in any situation.

"On the output and amplifier front, a Waldorf synthesizer has to have a fully-controllable stereo output, even if it's monophonic — so we built a stereo output into the Pulse. You've mentioned in your review that you can hear noise when a note is pressed with oscillators low or not running. This is caused by the cascade filter and the mixer preamp. The cascade filter runs at a very low volume level, so it has to be amplified afterwards. This results in noise which could only be reduced by a noise gate, which we didn't want in the Pulse itself,

because it would produce small clicks. We decided to go with the small noise, and its interesting possibilities.

"Digital machines and digitally-controlled analogue synthesizers always suffer from one problem: they are slow at processing modulation, either digital or analogue. On the Pulse, we developed control voltage generators that are really fast. The modulation update is 523 times per second, which means that each modulation gets updated every 1.9mS. This gives you envelopes with analogue feel and digital control."

"What goes for the envelopes is also true for the LFOs. They are generated with the maximum update rate of 523Hz. To have one maximum and one minimum peak for each LFO cycle, you simply divide the update rate by two, and get the maximum LFO speed of 261Hz. If you look at this number, you find that it is a C3 on your keyboard. You can also modulate the LFO speed by keytrack, which enables you to play it melodically, remembering that 261Hz is still the maximum LFO frequency.

"Waldorf MIDI synthesizers have to have a full MIDI implementation, including parameter change send and receive. To give the user the easiest access to these parameters, we found that controllers are the best solution. Also, we implemented some features that should be found on other synths, but weren't implemented. For example, a MIDI tuning request. If the Pulse receives this message, it tunes the filter. Also, if you tune it manually (by pressing Shift and Mode, stepping with program up to 'tun' and again pressing Shift and Mode), it sends a MIDI tuning request on the MIDI Out. Real-time control of the arpeggiator is also quite nice, so we implemented that as well."

"As for the future; well, upcoming developments for the Pulse will probably include a CV/Gate output, either as a hardware upgrade, or as a Pulse MkII."

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# Waldorf Pulse Monosynth

► provided for those cyclic modulations — remember that if you wanted vibrato on the Minimoog, it cost you a regular oscillator.

On the Pulse, LFO 1 features sine, triangle, sawtooth, pulse, sample and hold (random), whilst LFO 2 features just triangle — but has an additional delay feature. Without using precious modulator routings, there is no way of gradually introducing the delay — you wait the allotted time, it starts, end of story. Similarly there is no way of sync'ing the LFO start cycle to note trigger — the LFOs are free-running all the time, so you can't use them as predictable sources of additional modulation. If you want a pitch swoop at the start of each note, you'll need to use one of the envelopes.

## ON A BENDER

Although monophonic, the Pulse has two outputs. This isn't quite so wacky as it sounds, as you can set up a modulator, say an LFO or envelope, to automatically pan the sound or choose from the whole gamut of benders, wheels, aftertouch and so on — definitely worth the two mixer channels if you can spare them. Portamento comes in two flavours: normal (it's on for every note) and fingered (on when you play legato). Let's hope this finally marks the end of that awful period in synth history when portamento and resonant filters were the exception rather than the rule!

The Global section includes obvious stuff like

MIDI channel, unit ID (device identification used in SysEx transmissions), master tuning and the definition of the additional MIDI controller. Pitch bend scales are set per patch, as are arpeggiator settings. Another welcome return, the arpeggiator, is not so complex as that of the Korg Prophecy, nevertheless it can sync internally or to MIDI clock, and can be stepped at different time intervals up to 32nd notes, with triplet options and an undocumented range of 16 pattern variations. An overall range of up to 10 octaves and all the expected up, down, alternating and random settings are present too.

The preliminary manual supplied with the review model was basic but adequate. Indeed, the Pulse is the sort of synth that you want to program right away, ignoring the manual completely (another clever ploy involving those strange presets!). I felt rather foolish having excitedly scribbled down all the controller codes I generated, only to discover them printed neatly in Appendix B!

## CONCLUSION

Okay, we're talking about a module with no effects, no LCD and capable of producing just one note at once. Many people will reject it out of hand. For myself, I'd rather have a synth that can produce one good note rather than eight (or more) boring ones. It compares well with most old analogue synths you're likely to find, and it talks MIDI very fluently indeed. If you're after a

*“The killer feature is that every parameter change generates (and responds to) MIDI controller messages.”*

## MODULATION MATRIX

As well as hard-wiring some of the more obvious modulation connections to filter, amplifier and pitch, the Pulse has four extra independent modulation sources (they're printed on the front panel, see right), which can be any of the following:

### MODULATOR SOURCE

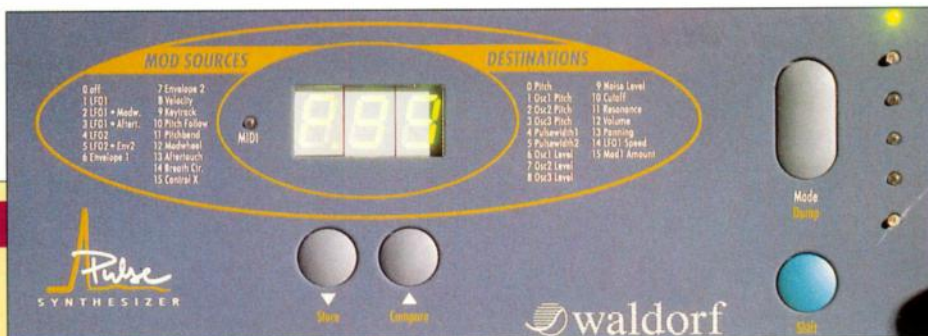
- Off
- LFO1
- LFO1 & Mod Wheel
- LFO1 & Aftertouch
- LFO2
- LFO2 & Env 1
- Env 1
- Env 2
- Velocity
- Keytrack (note number)
- Pitch follow (note number but with portamento)
- Pitchbend
- Mod Wheel
- Aftertouch
- Breath Control
- Control X (globally defined additional controller)

### MODULATION DESTINATIONS

- Pitch (overall)
- Osc1 Pitch
- Osc2 Pitch

- Osc3 Pitch
- Pulse width 1
- Pulse width 2
- Osc 1 level
- Osc 2 level
- Osc 3 level
- Noise level
- Cutoff
- Resonance
- Volume
- Panning
- LFO 1 Speed
- Mod 1 Amount

As you can see this is a flexible, if not infinite, list. Up to four modulation routings can be set up per patch — perhaps you would want to modulate resonance with the mod wheel, pulse width by envelope 1, Oscillator 3 level by keyboard position and panning by note velocity. No problem. If we remember that all parameters (including the modulations described) can be changed directly by their respective MIDI controllers, then there really are few practical restrictions.



well-specified, eminently controllable synth that'll give you all those analogue sounds of yore without the need for an expensive retrofit, do check out the Pulse — but make sure you don't just listen to those 'unconventional' presets. As for this one — oops, I seem to have accidentally welded it into my rack!

SOS

## FURTHER INFORMATION

- £ £599 inc VAT.
- A Arbitr Group PLC, Wilberforce Road, London, NW9 6AX.
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*Many thanks to Wolfram Franke of Waldorf who provided valuable insights and technical background to this review.*

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For further information on the Roland VS-880 DIGITAL STUDIO WORKSTATION contact: Roland (UK) Ltd, Atlantic Circle, Swaracca Enterprise Park, Swanton, West Glamorgan SA7 5FL. Tel (01732) 702701

# Roland

# Plugging into Pro Tools

## TDM SOFTWARE PLUG-INS FOR DIGIDESIGN PRO TOOLS

*The all-digital, computer-based recording studio is no longer a distant future possibility. Thanks to Digidesign's TDM buss, many of the processing capabilities of a traditional studio setup are now available as computer software 'plug-ins'. In the first of this two-part feature, MIKE COLLINS takes us through some of the available options.*



**W**hile conventional recording studios are based around a mixing console, a multitrack recorder and various outboard signal processing units, there is an alternative in the form of Digital Audio Workstations (DAWs). These come either in the form of stand-alone units or as computer-dependent systems such as Digidesign's Pro Tools, and with the continuing fall in the price of large-capacity hard disk drives, they are increasingly finding their way into music and post-production studios, sometimes replacing the traditional equipment altogether.

With the Pro Tools system, Digidesign invested much of their development effort in perfecting the recording and mixing hardware and software front-end, rather than signal processing. Nevertheless, realising the importance of outboard equipment in a traditional studio, they had the sense to make it possible to bring processing (in

the form of so-called software 'plug-ins') into the all-digital Pro Tools system too. This is where their TDM buss (available as an option on early versions of Pro Tools and now part of the standard Pro Tools III system) comes in — it's the key element in assigning plug-in processing to the desired part of your digital signal path. Though many people have heard of the TDM buss and software plug-ins, not half as many know what they actually are. However, it's really quite simple...

### TDM: JUST A FAST BIT OF WIRE?

Well, OK, it's not quite *that* simple. But in essence, the TDM buss is just a very fast conduit for digital audio data (the name itself describes the method that allows this extremely rapid transfer of digital data — Time Division Multiplexing — and of course, *that's* the clever part). However, without this highly efficient means of transferring data from one part of a Pro Tools system to another, it would have been impossible to make DSP-based effects and processing a viable reality within the Pro Tools system.

Having made in-system processing possible by creating TDM, Digidesign then allowed third-party developers to create the software or hardware 'modules' necessary to actually carry it out. This third-party software plugs in to Pro Tools TDM systems — hence the term 'software plug-in'. Incidentally, despite the word 'software' here, it's worth noting that although plug-ins do arrive on floppy disks, the limited processing power of desktop computers means that for all but the simplest tasks, additional hardware muscle is needed to run the plug-ins, and in the case of Digidesign systems, that means high-powered DSP cards that either slot inside the computer or into an external expansion chassis.

### BUT WHY?

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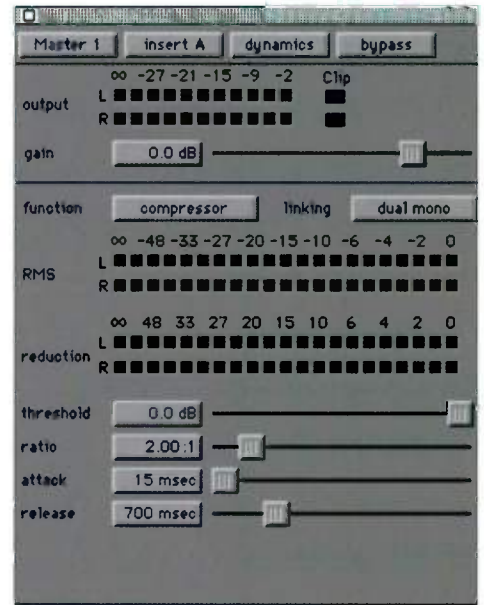
# TDM Plug-Ins

► floppy disks. The benefits are obvious: you can bring your 'outboard' on board as an integral part of your recording system (you don't need any cables to hook it all up) and it is all digital, much cheaper, much more flexible *and* more upgradable — all to the benefit of the user. Also, you don't have the build up of hiss and grunge which you get with the equivalent analogue gear plus the open effects returns, open inputs, and so forth!

So, the burning questions are 'what plug-ins are available?' and 'what have they got to offer?' Sadly, for reasons of space, it's not possible to bring you an complete answer to these questions, but the rest of this article (and the concluding part in next month's *SOS*) will give you some idea of what's available by looking at the following options.

You get several basic effects like EQ, compression and delays with your TDM software, and Digidesign also offer reverb and pitch-shifting plug-ins as additional options. Versions of the *GRM Tools* EQ, filters and so forth were recently released, and a version of *HyperPrism* effects has just been made available (for more background on these, see my review of the non-TDM versions of these programs in *SOS* May 1995).

Steinberg offer a 'budget' reverb and other effects including a spatialiser. There are various other spatial effects available, such as *ProTron* from Crystal River Engineering and *QSys* from QSound Labs. One of the leading plug-in developers, Waves, also offer a spatialiser along with 'industrial-strength' compressor, limiter and parametric EQ plug-ins. These are mostly intended for processing your final mixes, while Jupiter Systems offer two plug-ins for dynamics and vocal processing which you will typically apply to elements within your mix. When you come to finally preparing your mixes for CD mastering, Apogee's *MasterTools* plug-in can add the final touches, and for backing up your work, Grey Matter Response offer a solution with their *Mezzo*.



The Dynamics plug-in in compressor mode.

I'll look at what Digidesign themselves offer this month, and then run through the third-party options next month.

## DIGIDESIGN PLUG-INS

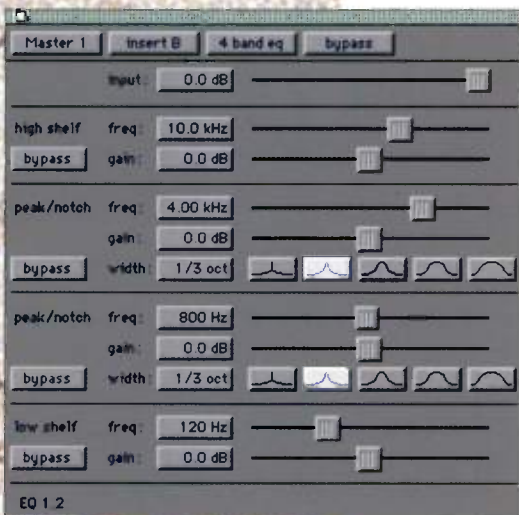
Digidesign provide five types of TDM plug-in with the basic Pro Tools TDM software (reverb and pitch-shifting plug-ins, of which more shortly, are optional extras).

### • EQ

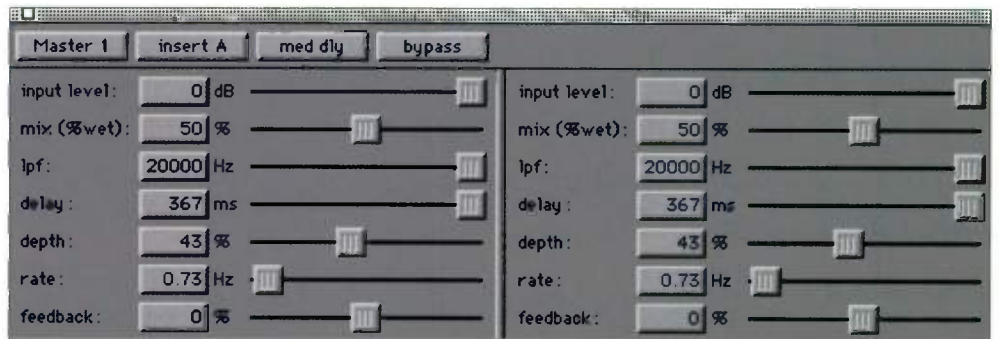
The Digidesign EQ plug-in features two types of equalisation — 1-band and 4-band. With the 1-band EQ, you have a choice of high-pass, high-shelf, peak/notch, low-pass or low-shelf EQ, while with the 4-band, you get high-shelf, two peak/notches and a low-shelf EQ.

### • DYNAMICS

The *Dynamics* plug-in offers five types of processor, including a compressor, downward expander, upward expander, gate and peak limiter. The compressor reduces the dynamic range of signals that exceed a selected threshold by a specific amount. The downward expander can act as a 'soft' noise gate — typically to take out headphone spill, or similar unwanted low-level signals. The upward expander increases the gain of signals that are above the threshold, which is



Digidesign's EQ plug-in in 4-band mode.



The Medium Delay option in the Mod Delay plug-in (see over page) offers up to 367ms of delay.

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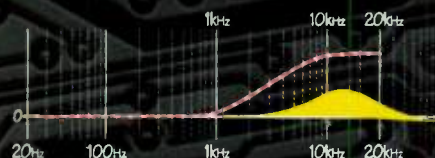
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# TDM Plug-Ins



The Procrastinator working at 24-bit resolution.

► useful for adding dynamics to sounds that have been overcompressed or saturated on tape. The gate allows a signal above the selected threshold to pass through at unity gain, and shuts down the signal below the threshold completely — thus 'gating' out unwanted noise below this threshold. Finally, the peak limiter is used to prevent signal peaks from exceeding a chosen level, to prevent these signals from overloading amplifiers or recording devices.

#### • MOD DELAY

The *Mod Delay* plug-in provides time-delay effects such as slap echo, doubling, chorusing and flanging. There are three different mod delays — Short Delay (up to 18ms, preset for chorusing), Slap Delay (up to 153ms), and Medium Delay (up to 367ms). All of these can be used to provide modulation for

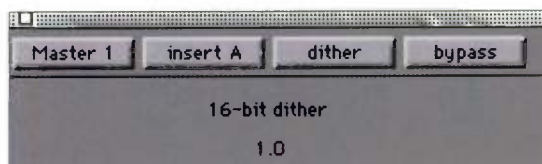
chorusing and flanging effects. These plug-ins provide mono in/stereo out options to let you 'stereo-ise' mono tracks.

#### • PROCRASTINATOR

The *Procrastinator* is a long delay which comes in two versions, one of which works at 16-bit resolution, and the other at 24-bit. It uses much more DSP power than the standard mod delays, requiring one entire DSP chip on your DSP Farm, and is only available in mono mode. In 16-bit mode, you get up to two seconds of delay, with somewhat less in 24-bit mode. There is a pre/post switch to choose whether the low-pass filter is pre-feedback (in order to affect the initial delayed repeat), or post-feedback (to affect the second and subsequent repeats). There is also a 'musical' way of setting delay values in the lower part of the plug-in's control window. A Tempo slider lets you set the desired tempo in bpm, and you can also set the desired number of 'beats' of delay using a set of buttons ranging from 16th notes to whole notes. In addition, you get a 'Groove' slider to provide fine adjustment of the delay in percentages of a 16th note. This can be used to add a 'groove' by slightly offsetting the delay from the precise beat of the track.

#### • DITHER

The *Dither* plug-in uses one entire DSP chip every time you insert it across a stereo channel — normally a master fader channel. Dither is a special



The Dither Plug-in.

form of very low-level random noise used to mask quantisation noise in digital audio systems. Digital audio's poorest distortion performance occurs at

## PLUG-INS: POINTS TO BE AWARE OF

After working with the various plug-ins detailed in both parts of this feature over the last couple of months, I have encountered several practical issues which you should be aware of. First of all, you will need to add about 1Mb per plug-in to your RAM allocation for any program you are using to run your plug-ins, whether from Pro Tools, Logic Audio, Digital Performer, Cubase Audio, or Studio Vision Pro — so if you want to use several plug-ins simultaneously, you will need plenty of extra RAM.

You also need sufficient DSP chips in your system in order to run your plug-ins, and this may involve buying one or more additional so-called 'DSP Farm' cards (there are four DSP chips per farm). A basic Pro Tools III system has six available DSPs. However, 16 audio channels and the TDM buss take up two of these, and the internal software mixer uses another. In this case, there are three DSPs left for any plug-ins. However, if you assign a large number of Pro Tools voices, or use 16 or more mixing channels, this will require the use of two more DSP chips — so you will run out of DSP power for your plug-ins fairly quickly. Although you can

run several examples of the same type of plug-in on one chip (such as a compressor, expander and gate from the standard Digidesign set, for instance), as soon as you use another type of plug-in (such as a reverb) you will need to allocate another DSP chip to this. Also, a stereo plug-in, such as a mono in/stereo out delay, uses twice as much DSP power. To overcome the lack of DSP power, you can always record your effects to a new track with processing applied. Of course, once you have recorded your newly-processed tracks, you can delete your original files if you don't need them.

Plug-ins may be mono in/mono out, mono in/stereo out, or stereo in/stereo out — and with stereo-only processors, the most obvious use is for the final stereo outputs. Of course, you may also wish to use these on individual audio tracks. If you want to insert a stereo plug-in across a mono Pro Tools mixer channel, you have to force the track to become stereo by first inserting a mono-to-stereo plug-in, such as Digidesign's *Mod Delay*. This allows audio for any subsequent plug-ins to be routed to both left and right inputs.

Another thing to watch out for are the delays which are introduced by the DSP processing. These can vary from as little as a few microseconds to as much as several milliseconds. For instance, delay times through the processors from third-party manufacturers Waves (of whom more next month) are 7.5ms for the C1 compressor/gate and 1.5ms for the L1 peak limiter. Currently, TDM systems do not have any automatic way to correct for this by delaying all the other channels to compensate — as is possible with some other systems. This is mostly an issue when you are processing stereo signals (or a group of tracks which must maintain their phase coherency) and you use DSP processing on one channel of a multi-channel signal and not the others. To ensure that such signals remain phase-coherent, you need to insert the same type of plug-in on all these channels, but engage the Bypass switch on the channels you don't want to process. If you use the plug-ins only on the final outputs, the delay will probably not be a factor. Hopefully, future versions of TDM will include automatic delay compensation.

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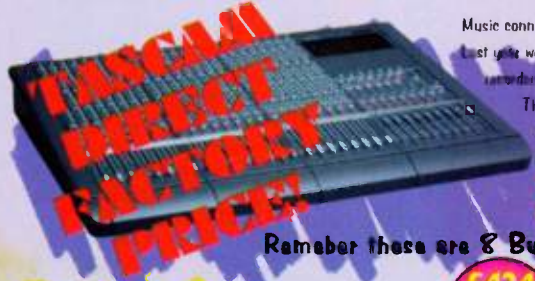
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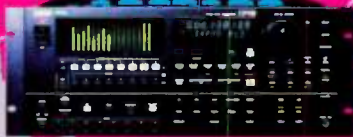
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# Moving on UP

## EMAGIC LOGIC AUDIO 2.5 FOR MACINTOSH

**PAUL WHITE braces himself for another software upgrade, but finds the transition from Logic Audio 2.0 to 2.5 a very positive experience.**

**E**magic's *Logic Audio* sequencing package seems to grow new features faster than my office coffee mug grows green fur. Yet version 2.5 of this 'audio with MIDI' software for the Mac offers more than just new features. It makes it possible to add audio to your sequencer without the need for costly Digidesign hardware — though there are still benefits to using Digidesign hardware if you can afford it.

This apparent miracle, which is also now being performed by Emagic's main rivals, is achieved by using the Mac's own audio hardware,

in conjunction with Apple's *Sound Manager* software. Any of the later AV models (AV840 or 660), that have 16-bit sound capability can be used, as can the new so-called Power Macs (6100 to 9500), and the 500 series Powerbooks. You do, however, have to be careful in choosing a computer, because there are some recent models (such as the Performa 6100, 5200/6200) that offer 16-bit sound playback, but only 8-bit recording. These won't be much use to you, as you'll only be able to play back digital audio, not record it.

The number of tracks you get depends on the power of the computer you use, and the available computing power also determines how much automation you can apply to the audio during playback. In AV mode, you can expect between four and 16 tracks of audio. When we booted up the system on a basic Power Mac 7100, seven tracks came up, though according to the documentation, the faster 7100/80 should give you up to 12 tracks, most of which can have variable panning. The amount of RAM you have may also affect the number of tracks you can use.

Because there are so many variations in the way you can use *Logic Audio*, Emagic have decided to sell the basic program, which includes support for Digidesign or Power Mac hardware, and in addition, they are providing modular software options such as the AV extension, which allow you to use the Digidesign and Power Mac tracks at the same time. *Logic Audio* also supports the Yamaha CBX D3 and D5 hardware, which requires the optional CBX extension.

For Pro Tools III hardware users, the new TDM Extension allows *Logic Audio* to make use of plug-in software designed for use with Pro Tools III. There are quite a few plug-ins already available, including compressors, gates, EQs, stereo enhancers, 3D spatial enhancers, noise reduction, delay effects and so on, with new ones being developed all the time. Audio files made with one set of hardware may be freely transferred to any of the others — so if you compose using the Mac's own hardware, you can still choose to mix in a studio running Pro Tools hardware. With a fully expanded Pro Tools III system, *Logic Audio* can, in theory, support 48 tracks of Digidesign, plus whatever your Power Mac can give you. I guess if you have a CBX D3/5, you can run this as well — although I can't put my hand on my heart and say I know a man who has! I would imagine that most of us will make do with far more modest systems. As we covered the main points of *Logic 2.5* in *SOS* October 95, I'll keep mainly to the audio features in this review.

Firstly, I have to mention the new manual, which although a little simplistic in parts, is infinitely better than anything the company has done before. This should ensure that new users get up and running without too many problems. Once you are off the starting blocks, the first thing you notice is that *Logic Audio 2.5* now has a conventional Mac install procedure. You start the ball rolling by double-clicking on Install, and the Mac demands new disks as and when it needs them. After a few minutes, everything is installed, and you're ready to go. Users running Digidesign hardware need to be aware that Digidesign's DAE (Digital Audio Engine) must run at the same time

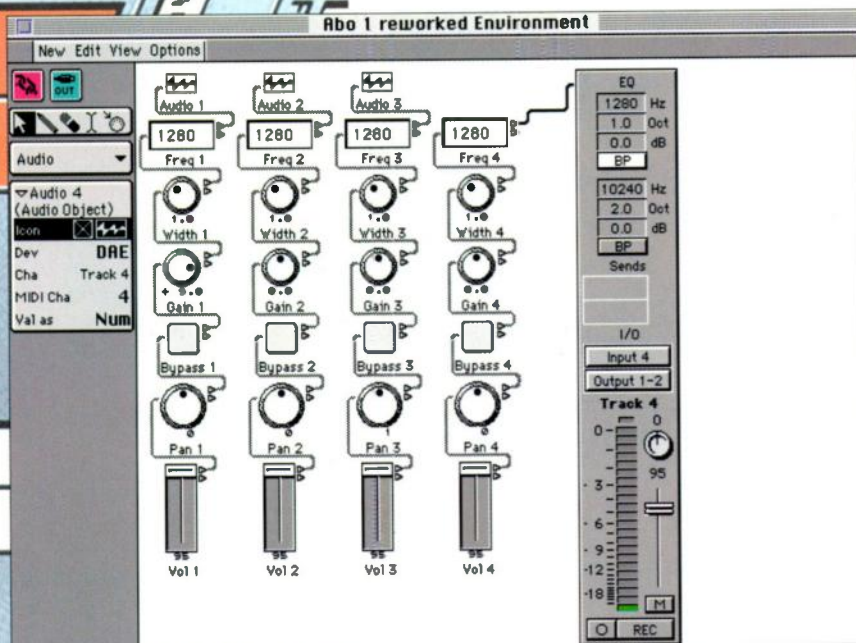
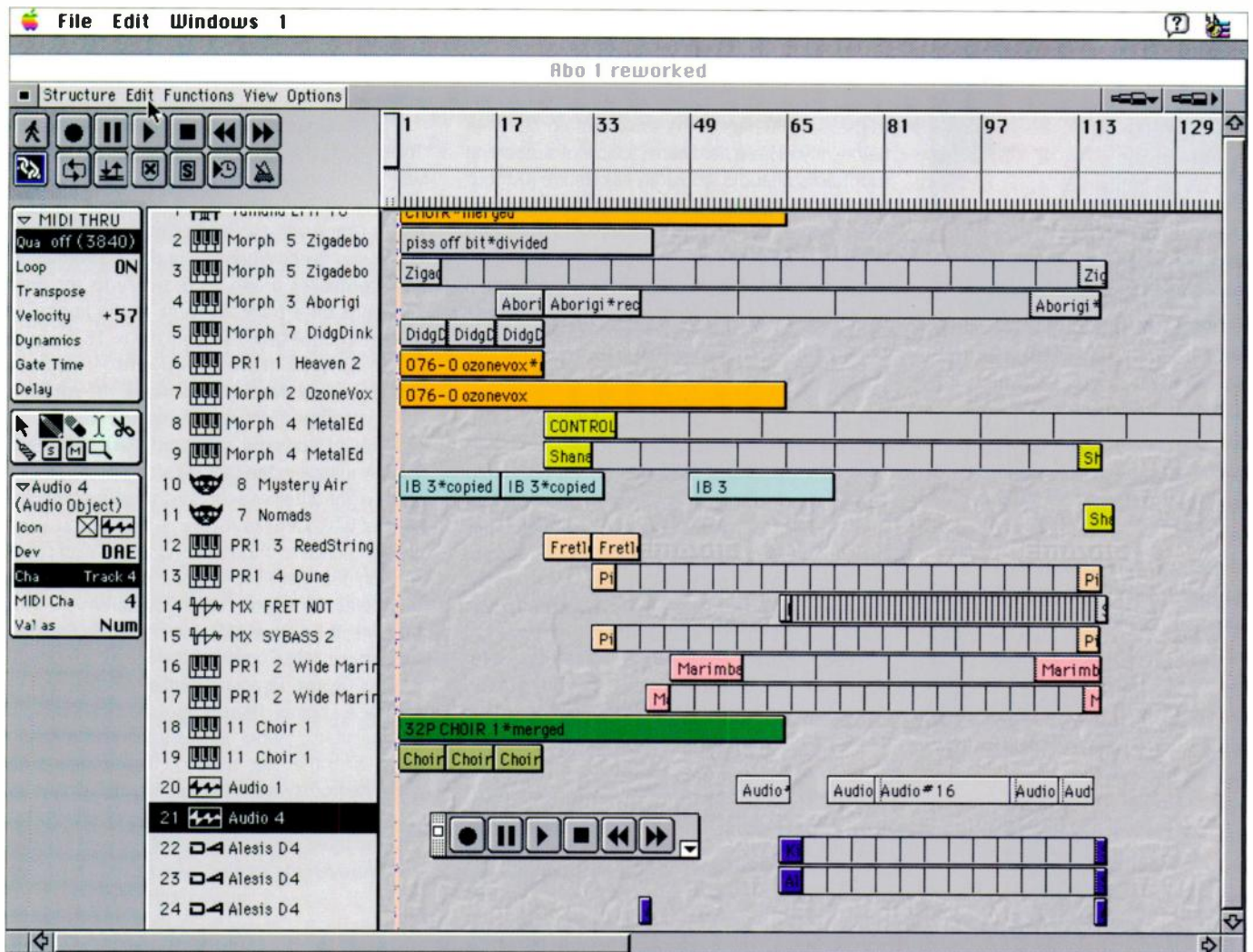


Figure 1: Logic Audio 2.5 Environment window.



as *Logic Audio* and your System software — that means you need plenty of RAM. At a pinch, you could get away with 12Mb, but 16 or more is definitely preferable — with a Power Mac 9500, you need at least 24Mb of memory to get all 16 tracks running.

*Logic Audio 2.5* will run on either a regular 680xx Mac or on a Power Mac, but the Power Mac native version isn't yet available, which means that the program currently runs in 680xx emulation mode. Even so, it's pretty fast, but expect further speed improvements when the native version is ready. Non-Power Mac users will need a 68040-based machine (with Nubus slots, if Digidesign hardware is being used), because 68030 machines are simply too slow for the job.

With Emagic Mac software, 'dongle' or key protection is used, which means you can make as many backups of the program disks as you need to feel secure. *Logic Audio* has its own dongle, which connects in series with the *Logic* dongle, but as these slot between the keyboard and Mac, they're unlikely to cause reliability problems or get in the way.

Before running the software, it's wise to ensure all unnecessary extensions are switched off — the PD utility *Extensions Manager* is ideal for this. System 7.5 has something similar built in, but I'm still running 7.1, which takes up less memory. Audio programs won't work under virtual memory, which means running programs like *RAMdoubler* is out. 32-bit

addressing needs to be turned on, and Appletalk should be switched off. You may need to check this from time to time, as my Mac seems to like turning Appletalk back on when I'm not watching!

### TRIAL RUN

When you first boot up *Logic Audio*, the program calibrates itself to your system by looking at your Mac and hardware to see what it's supposed to be talking to. *Logic Audio* also requires you to set a maximum recording time, to enable it to manage its files properly. So if you're recording your work in bits, as most of us do, a setting of two minutes might be appropriate, though you can obviously stop recording at any time you like during this period.

Sound files in both AIFF and SDII format can be opened by the program, and when you're recording your own sounds, you can opt to create either mono or stereo files. Most editing is non-destructive, so if you trim down a recording to play only a part of what was recorded, the rest of the material is still available for you to go back to. Think of a selected region as being like a small window onto a larger picture, and you'll have the right idea. Destructive editing options are also available, including the ability to silence, fade or reverse sections of a sound file.

Audio regions can be manipulated in the Arrange window much like MIDI sequences, but a new feature is the ability to loop audio regions. This saves endless copying and pasting when you want

## LOGIC AUDIO 2.5 £649

### PROS

- Now provides audio recording and playback from Power PC Macintoshes and 16-bit AV Macs without the need for additional hardware. The basic program also supports existing Pro Tools II, Session 8 and Audio Media II hardware.
- Digidesign Pro Tools III hardware (with TDM) and Yamaha CBX hardware supported via software extensions.
- High-quality digital audio processing via the Digital Factory section of the program.
- Greatly improved manual.
- Audio files can be interchanged between the different hardware options.

### CONS

- Audio file organisation could be better.

### SUMMARY

A worthwhile upgrade to an already excellent program. The ability to run on Power Macs with no additional hardware will no doubt be appreciated by those wanting to take their first steps in hard disk recording.

# EMAGIC LOGIC AUDIO 2.5 FOR MACINTOSH

## THROUGH THE SQUARE WINDOW...

As with *Logic*, *Logic Audio* really cries out for a large monitor, though it's arguably even better, as well as being possibly cheaper, to use two smaller monitors. Non Mac-users are always amazed that you can simply drag windows from one monitor to the next, and it's rather nice to be able to keep your Arrange page on one monitor, reserving the other monitor for editing or handling audio. If you only have one monitor, the Screensets feature helps enormously, as it allows you to create up to 99 combinations of screen windows and window sizes, which can be called up at the touch of a button.

▶ to use, say, 50 bars of the same drum groove. As before, if you have hardware capable of supporting four tracks of audio, you aren't limited to just four tracks in the arrange window — it's just that you can only play back four tracks at once. Think of it like the polyphony of a synth or sampler.

Once recorded, audio sections may be chopped up with the scissor tool, dragged from one track to another or altered in length, much like MIDI data. A nice feature is the ability to make your MIDI tempo automatically adjust to the length of an audio sequence, so that your MIDI and audio bars are exactly the same length.

Audio tracks are played back via an Audio Object, which is the Environment page equivalent of a MIDI instrument. Playback level and pan may be automated, but on some of the lower-powered Power Mac systems, there may be a limit to how many of your tracks can be automated in this way. Various other factors affect performance; for instance, tracks panned hard left and right for stereo operation take less processing power than tracks panned somewhere in between.

## FACTORY FLOOR

So far, the only really exciting new feature, apart from a redesigned Audio Object, is the ability to loop tracks — but the Hyper Draw feature recently introduced in *Logic* now also applies to the audio

This is very much like the system you find in Pro Tools itself, though it is also quite similar to the way synth envelopes are adjusted in graphic editing packages. The main difference is that with Hyper Draw, you can add as many points to the line as you need. When you're dealing with audio, the 'controller graph' is drawn into a control sequence on a track adjacent to the audio, not directly into the audio sequence box. To my mind, being able to draw directly into the audio sequence box would have made the interface more consistent between audio and MIDI.

A lot of powerful new stuff starts to emerge when you look in the Digital Factory. Here, you can apply eight different processes to your audio files, most of which are destructive — though you always have a chance to undo a process, providing there's enough disk space left for *Logic Audio* to create an undo file. The Digital Factory comprises the Time Machine, the Groove Machine, the Audio Energiser, the Sample Rate Converter, the Silencer, the Audio to MIDI Groove Template, Audio to Score, and the Quantise Engine. There's also the familiar digital mixdown facility, which is accessed from the Arrange page using the Glue tool, to create a new mixed audio file from two or more existing files. Only Audio to Score and Audio to Groove are non-destructive. Many of these processes were not available in version 2.0, and even the familiar faces seem to have been improved somewhat.

## MEN AND MACHINES

The **Time Machine** lets you change the pitch and length of an audio file, either independently or in combination. In practical terms, this allows you to pitch-shift without changing tempo, tempo-shift without changing pitch, or change both at once. Like all pitch/time shifting algorithms, side effects become evident if you go too far in either direction, but the sound quality of the Time Machine is actually incredibly good, when compared with most stand-alone pitch shifters. I tried one really unfair test, by recording a piece of spoof Tibetan yak herder's throat singing, dropping it by an octave, then processing it again to get it back to the original pitch. The sound was still perfectly recognisable, though it had taken on a slightly lumpy quality, which actually enhanced the illusion of

ethnicity. More sensible amounts of shift produce surprisingly few side effects.

More useful for the temporally-challenged is the **Quantise Engine**, which is designed to force rhythmical audio sounds onto a quantise grid (or into a user-quantise groove), using dynamic time shift algorithms. Providing you aren't moving things too

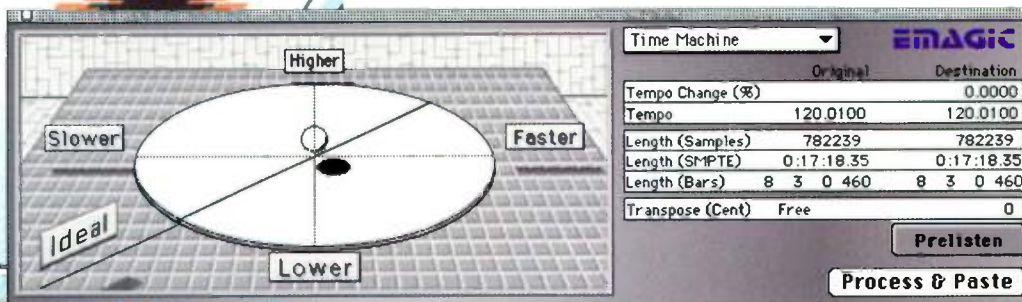


Figure 2: The Time Machine.

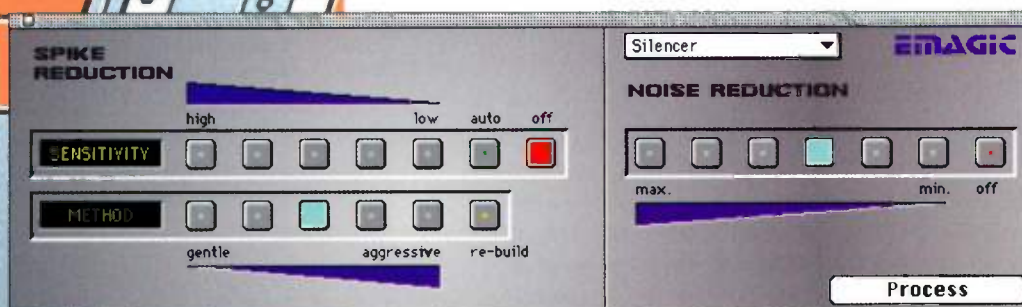


Figure 3: The Silencer is new to version 2.5.

part of the program. Hyper Draw is a graphic method of entering controller information directly, via the arrange page. When using MIDI data, it's done by zooming in on a sequence, selecting Hyper Draw to control volume, pan or whatever, and then dragging points on a line to create what is in effect a volume or pan envelope for the section.

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► far, this works staggeringly well, and even things like damped guitar chords can be manipulated without sounding unusably processed. In fact, the dialogue window allows you to choose the most appropriate algorithm for the type of audio material you are working with, and if you have the patience to juggle with the available parameters, truly excellent results are often achievable.

**Groove Machine** is similar in some respects, allowing you to apply swing to audio files. I had great fun pitch-shifting my wind chimes,

spike), or a filtering mode, which applies filtering only to the offending spike or pop. The sensitivity setting is important, as if set wrongly, the system may act on click-like sounds that are actually a valid part of the signal. Though no substitute for a professional declicker, the algorithm seems capable of identifying and disguising digital spikes such as crop up on DAT tapes from time to time. The noise reduction section in general is very useful for things like cleaning up electric guitar tracks, or polishing material prior to sampling it.

## Sample Rate Conversion

isn't particularly exciting, but it's often useful, especially if you have a fixed 48kHz DAT machine. The dialogue box allows any source and destination sample rates to be specified.

Firmly back in the land of creative processes is the **Audio to MIDI Groove Template** which, as its name suggests, allows you to extract a groove template from a section of rhythmic audio. Again, there are various parameters to

adjust, so that you capture only the beats you intend to. Nevertheless, the idea of being able to strip the groove from an existing rhythm and impose it on your own MIDI music is very appealing. If the source rhythm doesn't have beats at every desired quantise point, the algorithm allows you to insert your own points, manually.

Equally intriguing is the **Audio to Score Streamer**, which can analyse a monophonic audio line, then convert it to MIDI data. Though the analysis effectively works in real time, the algorithm compensates for any tracking delays by storing the exact note start point, before extracting the MIDI note data. This prevents the sort of timing problems you get with guitar synths and suchlike. When you come to play the file back, everything comes back with perfect timing, including any pitch bend data needed to follow wavering notes. Unfortunately, it isn't possible to analyse polyphonic sounds, but the facility is still useful if you want to double a vocal line or a guitar riff with a MIDI instrument.

Because different instruments have different waveform and dynamics characteristics, there are a few parameters to juggle to ensure the best tracking.

## IN USE

I have used *Logic* on the Mac for a long time now, and find it extremely stable. *Logic Audio* seems similarly well-behaved, except that just occasionally, Digidesign's DAE throws a wobbly ('DAE error encountered on playback' message), and once in a while you have to restart the program to make it behave. This isn't a frequent occurrence, and even when DAE does quit, it rarely takes *Logic Audio* with it, so the chances are you'll be able to save your work before restarting.

Most of *Logic Audio's* functions can now process in the background while you're playing your song, and the quality of the Digital Factory

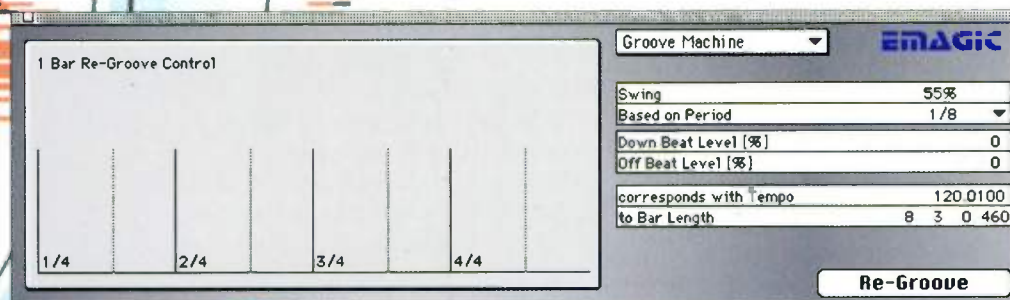


Figure 4: Re-grooving using the Groove Machine.

quantising them and then applying a groove. After several stages of processing, the side effects start to show up, but sometimes you can get something quite useful by deliberately abusing the system, so don't be afraid to dial in really big numbers!

**Audio Energiser** is another newcomer, and increases the average signal level by means of peak limiting, plus some type of digital filtering. No exact details are given as to what goes on, but the result is a big, high-energy sound.

Also new is the **Silencer**, which combines single-ended noise reduction with digital spike removal. The noise removal seems to work like its analogue counterpart, by filtering out high frequencies during sections of low signal level, but the spike reduction is rather more sophisticated. You can adjust the sensitivity of the system, and also the method by which the spikes are processed. There's a Rebuild mode, in which the spike is removed and then the space filled by reconstructing the waveform (based on what came immediately before and after the

## THE INS AND OUTS OF RECORDING WITH A MAC

There are restrictions when using the Mac's internal hardware: firstly, because the audio circuitry is inside the same case as all the digital stuff, the audio quality isn't going to be quite as pristine as it might be with a system that uses externally-mounted, high-quality converters. This is due to the likelihood of crosstalk between the analogue and digital circuitry inside the computer. The resolution of the converters themselves may also be inferior to dedicated, stand-alone converters. While this might be a problem in a digital editing environment, it isn't particularly serious for normal music usage, and still gives a better signal-to-noise ratio than analogue tape with noise reduction. In practice, more noise is likely to come from your source signal than from your Mac.

Perhaps more serious is the limited number of Ins and Outs — you can only record up to two tracks at once, and the recording must be mixed to stereo before it emerges into the outside world. This places quite a restriction on the use of effects. You really need to record your effects as you go along, but then (as I mentioned in *SOS*, October '95), having to commit yourself in this way means that at least you get things done faster. If you need separate Ins and Outs, you'll need Digidesign Pro Tools II, Session 8 or Audio Media II hardware or a Yamaha CBX D3/5, and if you want to run TDM plug-ins, then you have to take the most costly option of all, and get either Pro Tools III hardware or Pro Tools II with a TDM upgrade.

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► functions is reassuringly high. In fact, there's little to dislike about *Logic Audio*, though I feel it could organise its audio files a little better.

For example, each newly recorded file is given the same name as the previous one, with a numerical suffix. I'd prefer the option of creating a separate folder of audio files for each song I'm working on. You can rename files and set up a new file name for your songs using the Set Audio Path function on the Audio page, but I feel there must be a better way — perhaps a default that always names the files after the title of the song you're working on? There could then be a command to delete all unused audio data

*Logic Audio* could sort through the audio files and, and if any were found to be unused by any song, it could put them in a separate folder. As it is, I have a disk full of files named 'Audio 1' through to 'Audio a hundred and something,' and unless I play them, I don't have a clue what they are! I know I can rename them, but I want the software to do the donkey work for me!

As far as functionality goes, the Digital Factory section of the program is both powerful and relatively easy to use. Most audio programs have a few facilities that their competitors don't have, and *Logic Audio* misses out on one or two of Opcode *Studio Vision's*

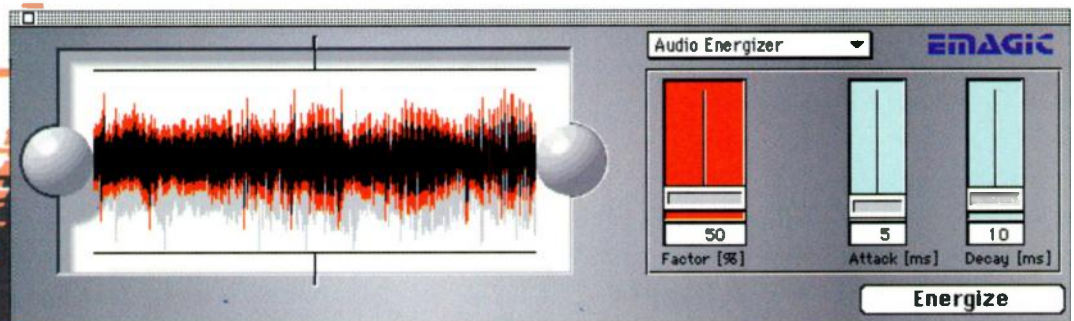


Figure 5: The Audio Energiser is also new.

from a particular folder, to save on disk space. It's not often that I use the same file in two different songs, but providing the option would allow people to work either way. As it is, you can delete all files not used in the current song using the Optimise command, but this will also delete files that you might have assigned to some of your other songs — which is not so clever.

Not having a Pro Tools III system, I couldn't check out *Logic Audio with TDM*, but you'll find a separate report on this rather specialised area in Mike Collins' plug-in roundup (see page 54). I still run Pro Tools II hardware, which works fine. As I mentioned earlier, I also had the opportunity to check out the program on a friend's Power Mac 7100. Here, the only problem was in setting *Logic Audio* up so that it knew it was supposed to be using the Mac's hardware.

## SUMMARY

Most things about *Logic Audio* are seriously impressive, and even on my rapidly ageing Centris 650, most things happen very quickly. Perhaps a 'record ready' button on the Arrange page would be slightly more convenient than having to set everything up from the Audio object on the Environment page, and a more flexible method of handling and storing audio files would be appreciated.

On the whole, however, I have to concede that this is an excellent piece of software. One of the problems of any audio program of this type is that you end up with lots of bits of audio on your hard disk and you daren't throw any of it away, in case it's used in a song somewhere. Perhaps a kind of batch clean-up system would be possible, where you select all the song titles you want to keep, then

tricks. But I expect they'll appear in some form or another before too long. *Studio Vision*, for example, allows you to extract the pitch from an audio file, rather as *Logic Audio* does, change the MIDI notes to create a harmony, then use this edited data to create a harmony audio track from the original. Equally useful is the ability to slow down the audio during a song ending, or during a section that has a constantly changing tempo, without the pitch changing — great for rallentando endings. As yet, *Logic Audio* doesn't have these tricks in its repertoire, but it can only be a matter of time.

However, what *Logic* does provide is first rate — the pitch shifting algorithms are excellent, the audio quantise is just mind-boggling when you first try it, and the new Energiser and noise reduction facilities are very effective. Above all, *Logic Audio* seems very stable, so you're not constantly worrying about crashes. With each generation, *Logic Audio* gets better, and though most of the big names in sequencing are very close in terms of facilities, I feel that *Logic Audio* is most definitely a front-runner. For an overview of what the main 'audio with MIDI' packages have to offer, check out *SOS* December '95.

Best of all, the new generation of audio sequencers will allow more people to try tapeless recording, without the need to buy expensive hardware.

**SOS**

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# BASICS

**PAUL WHITE** continues his introduction to sampling with a look at some of the extras, accessories and peripherals that you might need in order to get the most out of your new purchase.

### THE CHOICE IS YOURS

With your credit card still reeling from this unexpected assault, you start to notice all the wonderful sample CDs and CD-ROMs advertised in *SOS*, and, to be honest, if you're after stock sounds, well-produced drum loops, or exotic ethnic bits and pieces, it's far easier to buy the sounds than it is to sample your own. Creating your own samples is fun, but there are few people with the time and skill to produce something like a perfectly multisampled grand piano. So, should you opt for CD samples or CD-ROM?

Sample CDs have the benefit of being significantly cheaper than CD-ROM sample libraries, and you can play them directly into the analogue inputs of your sampler using a domestic CD player. All you have to do is set the

record levels, and if you're lucky enough to have a sampler with a digital input and a CD player with a digital output, you can pipe the data in digitally. If you go via the analogue ins, it's as well to remind yourself that the sampler is really a digital recorder, and that banging the record level meters against the endstop (or whatever the LCD equivalent is) is likely to cause very unpleasant distortion. Even so, always aim for as much level as you can without clipping — this will produce the best signal-to-noise ratio, and if you *do* find your source sound has troublesome peaks, don't be afraid to try compressing it first. Compression also makes it easier to loop sounds, by helping keep the level more constant.

The hard work starts after you've sampled the sounds from CD, because you now have to name your samples, create loops where appropriate, sort out crossfades, and put the samples into keygroups so that you get a smooth transition from one sample to another

as you work up the keyboard. You may also have to create keyboard zones so that sounds can be velocity crossfaded or cross-switched. I don't know what you consider 'fun', but as far as I'm concerned, unless the sample is marvellous beyond ▶

**L**ast month I introduced the basics of sampling and, I hope, convinced you that it is fundamentally quite straightforward.

One of the first things you will have realised on getting your sampler home, is that you need to go back out and spend some more money! A typical budget sampler, such as Akai's S2000, comes with only a couple of Megabytes of RAM, which provides around 12 seconds of stereo, full-bandwidth sampling, or twice that in mono. Even with individual samples being only a few seconds long, you will soon twig that 2Mb isn't going to stretch very far when you start to use multisamples, and if you intend to use your sampler multitimbrally, then you'll need considerably more. You'll also find out pretty quickly that most of the samples provided on CD-ROM are greater than 2Mb in length, with sizes between 6 and 16Mb being more common.

If you can't afford to fill your machine up with memory right away, 16Mb is a good figure to aim for, but this will set you back around £400 for a SIMM (Single In-line Memory Module), and rather more if your particular sampler uses proprietary memory cards. It's a sad but true fact that at current prices, high-capacity SIMMs are worth rather more than their own weight in gold. It is important to refer back to your dealer or the manual to ensure you order the right type and specification of SIMM chip, and always check that the sampler's warranty is not made void should you decide to fit the memory yourself.



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► belief, life is simply too short for this kind of thing. Loading drum loops from CD is fine, but multisamples? Personally I'd rather stand on top of Ben Nevis in a thunderstorm, wearing a chain mail jacket and flying a kitchen-foil kite!

A far easier alternative is to use CD-ROMs, but first you have to confirm that your sampler can work with a CD-ROM drive. Not all samplers with SCSI connectors will work with a CD-ROM drive, the old Akai S950 being one obvious example. A look in the manual (that piece of thick, awkward packing material with printing on it that you found in the box with your sampler) will tell you if your machine is CD-ROM compatible, and it should also give you a clue as to what type of drive to buy. I use an Apple CD300 with my Akai S2000 which works well, didn't cost a fortune, and is widely regarded as being suitable for the job. Unfortunately, this is where your flexible chum gets another smack in the teeth, because not only do you have to shell out for a CD-ROM drive, you may also have to buy a SCSI interface for your sampler. Once you've done that, you then find that most CD-ROMs cost as much, if not more, than the drive you slot them into. One tip here: get a CD-ROM drive that doesn't need a caddy — my early model is one that does, and they're a real pain, believe me!

Having painted a pretty grim picture on the fiscal front, I have to say that when you actually

## COMPATIBILITY

At least three of the major sampler manufacturers, Akai, Emu and Roland, are supported by a vast library of both in-house and third-party CD-ROMs, so it comes as no surprise that each has developed an operating system allowing CD-ROMs made for one of their competitors' machines to be used as well their own. For example, the Akai S2000 will happily load both Roland and Emu CD-ROMs, but because every sampler has slightly different parameters, facilities and characteristics, the degree of translation isn't always perfect. Sometimes the only difference is a change in tonal quality, but there are occasions when you need to edit the programs to make them fully usable. I've also found on my S2000 that some of the samples created for earlier Akai machines load up in quirky ways, and on more than one occasion I've found that playback is only monophonic, unless further editing work is undertaken.

## SAVING GRACES

If a basic memory provision of 2Mb is inadequate, you might well ask what use is the integral 1.44Mb floppy drive for storing samples, especially as many machines don't have the provision to save longer samples over multiple disks? If you're working multitimbrally, then you might find that some individual programs and their associated samples will fit onto a single floppy, but this is becoming the exception rather than the rule. What you need is a SCSI hard drive. Again, this relies on your machine being fitted with a SCSI interface (or having provision for an internal drive), and it also means your bendy chum is going to take you further into the land of collateral depletion. But having accepted that a hard drive is a necessity, what type should you get?

Conventional hard drives are now relatively cheap, and you can get a 1Gb drive for less than the VAT I paid on my 100Mb drive four years ago — so there's little point in going for a smaller drive, and moving up to a 2Gb drive wouldn't be a bad idea. Even if you use a lot of CD-ROM material, you have the benefit of being able to modify the programs or create new variations with

very little effort if you store it on a hard drive.

When it comes to choosing a specific model, I think I would put quietness of operation at the top of my 'needs' list rather than speed of data transfer. Any hard drive is going to load up a typical set of samples fairly quickly, but why do some manufacturers seem to feel that a drive isn't macho enough unless it sounds like a taxi-ing Lear jet?

You might find the idea of a removable drive appealing, and these days there are a large number to choose from. The early SyQuest 44Mb drives were not entirely reliable, and extremely



omega's inexpensive Zip drive.

get around to using CD-ROMS, it's a real luxury, because the samples load up into neatly named programs, ready looped and key-grouped, complete with the appropriate envelope settings, so that all you have to do is load and play them. I can't, however, guarantee that you'll find all the samples on any particular disk as exciting as your wife will undoubtedly find your credit card statement! (Political correctness has been thrown to the wind on this occasion, due to the statistically-provable fact that the vast majority of sampler buyers are male.)

noisy, but now you can buy removable drives with a far greater capacity for a lot less money. The inexpensive Iomega Zip drive (reviewed in December 1995) works with robust, 3.5-inch cartridges, each of which holds 100Mb. This might not seem like a great deal, but the cost of the disks is very reasonable, and the drive has the benefit of being extremely quiet. The 1Gb Iomega Jaz drive is an option for those wanting more capacity from a removable media system, but at the time of writing, I haven't had the opportunity to check out how noisy it is.

If you're going to buy any type of removable drive, it might be as well to talk with other musicians or local studios with whom you are likely to collaborate, with a view to settling on the same model. Not only does this guarantee compatibility, it also provides the opportunity for you to order blank media in bulk, which can result in very significant savings.

### SOFTWARE

Even with all the bolt-ons and a selection of sample CDs at your disposal, you're still going to want to do some sampling of your own, and it soon becomes clear that working from the front panel of a typical sampler isn't the easiest way to achieve this. Looping samples and setting them

into keygroups is more easily managed from a screen environment, and unless you have one of the very few samplers that supports a computer monitor, you might be tempted to check out the software sample editors on the market, the most well known of which is probably *Alchemy*.

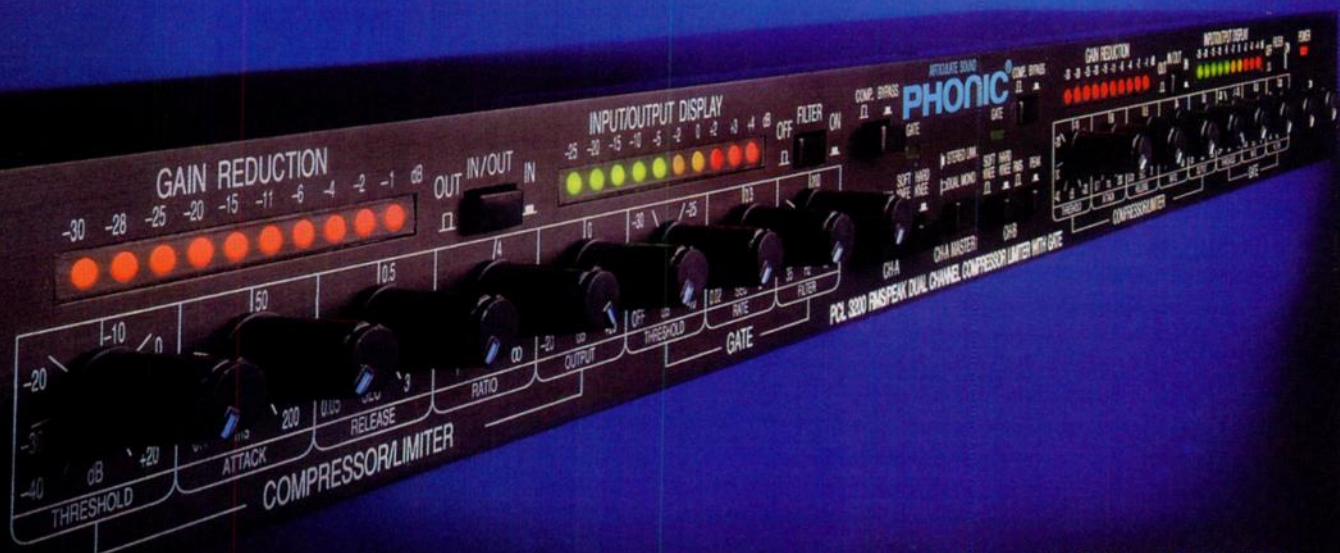
MIDI can be used to transfer samples from a sampler to a computer and back again, but this is so slow that your new sampler might well be obsolete before you get your first set of multisamples perfected. A far better option is to use a system that can communicate over SCSI — which is one of the plus points of Akai's bundled *Messa Mac* software. However, *Messa* doesn't handle crossfade looping for you, so it isn't a complete solution.

Hopefully, this part of the series will have given you a feel for the other items you might need to do the job you bought your sampler for in the first place. As with so many things in life, it's often cheaper in the long run to buy an apparently more expensive product, but at least the latest generation of samplers seem to offer an upgrade path with numerous plug-in options on cards.

Next month, I'll be looking at those odd little features tucked away inside your sampler, including resampling, time stretch, filtering and modulation.

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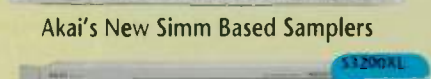
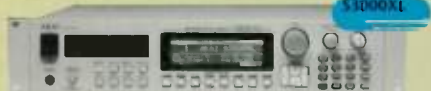


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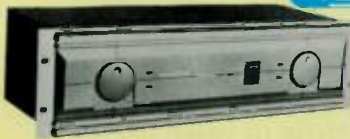


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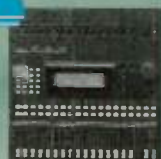
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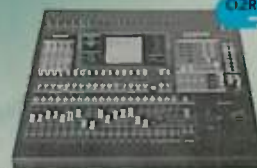
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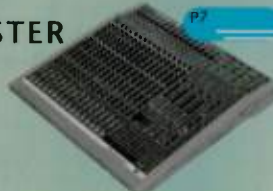
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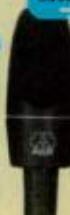
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# squaring the

**PAUL WHITE** tries to pigeonhole Digitech's new effects unit — but quickly discovers that it can mean different things to different users.

# circle

## DIGITECH STUDIO QUAD DIGITAL EFFECTS PROCESSOR

**J**ust when it seems as though design engineers are being hard pushed to come up with any truly new effects, they start combining them — with an ingenuity which leads to considerable complexity. Digitech are well aware of this potential problem, which is why they built the Studio Quad.

Based around their latest S-DISC processing technology, the Studio Quad is a four-in, four-out processor that can be configured in a number of ways. A few of the possible options are: two independent stereo-in, stereo-out processors, four mono-in, stereo-out processors, or a classic mono-in, stereo-out device. In fact, there are 12 preset effects configurations to choose from, each capable of combining up to four effects blocks, or 'Modules' in series, parallel or series-parallel combinations. Further variation may be introduced by changing the way in which the four inputs route to these configurations.

The effects generated by the various Modules are listed in the 'Effects Modules' box, and you'll notice that these are divided into three categories, depending on how much of the Studio Quad's processing power they take up. If you choose from the 'Quarter Resource' effects, you can have up to four Modules at once; with 'Half Resource' effects you can use up to two blocks; while a 'Whole Resource' effect blows all of your firepower in a single effect. You can mix these blocks any way you like, just so long as the total doesn't come to more than one 'Resource'.

To make life for the inexperienced user as easy as possible without forfeiting flexibility, the effects modules used in the factory patches are available as presets. This means that if you like a quiet life, all you have to do is pick a configuration, and then slot in the effects of your choice. If, on the other hand, you like customising effects, you can edit the effects at parameter level to create your own variations. To get you started, there are 100 preset 'ready-to-go' effects patches, and if you

find one that's close to something you need, it's a simple matter to make a few edits, then store it into one of the 100 user memories. The whole ethos behind the Studio Quad is that you can use the machine at any level of complexity you like.

On the technical front, the circuitry is based around 18-bit A to D conversion, and 20-bit D to A conversion at a sampling rate of 44.1kHz, yielding a 20kHz audio bandwidth. The resultant signal-to-noise ratio is better than 90dB. The S-DISC chip used to create the effects is more powerful than its predecessor, so the effects should, in theory, sound better than ever — as well as being quieter.

### THE INTERFACE

Whatever else, the Studio Quad's interface is visually distinctive — the large perspex buttons look like partly-sucked glacier mints, with green lights inside! A large custom LCD window takes care of metering, and standard functions such as patch naming, parameter editing and so on, but it also includes a graphic representation (the, erm... Effects Routing Matrix) of how the chosen configuration is connected up. By stepping through the effects modules in the matrix, you can open them up for editing, or replace them with other modules. Thankfully, the number of buttons has been kept to a minimum, and these have dedicated functions for accessing the edit pages, setting the utility parameters, adjusting the input levels and Bypass. Values are changed using a chunky data entry wheel.

On the rear panel are the four input and four output jacks, with a single +4dBV/-10dBu level switching button, plus the usual complement of MIDI In, Out and Thru sockets. Power is courtesy of an external adaptor, and there's also a footswitch jack which accepts a standard momentary switch to activate the bypass mode. Alternatively, you can buy Digitech's optional FS300, three-button switch which provides for patch increment, decrement and bypass. Because the Studio Quad can be four

### DIGITECH STUDIO QUAD £500

#### PROS

- Can be used on a variety of levels depending on how much editing you like to do.
- Good algorithms, particularly the reverb.
- Can be configured as up to four separate effects processors at once.

#### CONS

- The maximum number of effects that can be combined is four, but the processor-intensive nature of some of the effects modules will reduce this number.

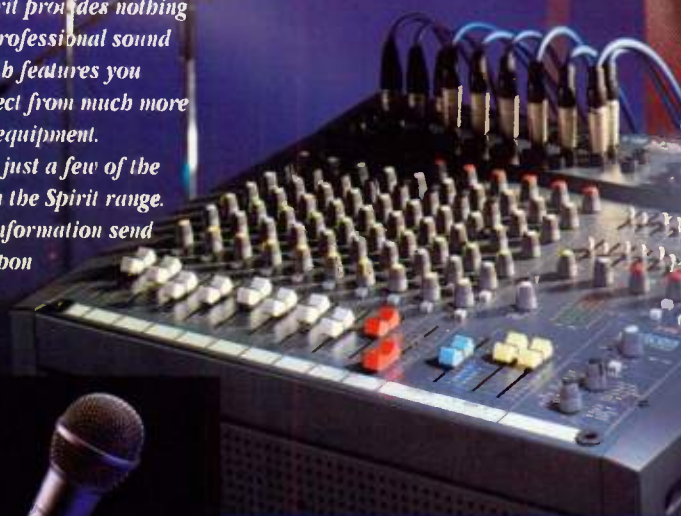
#### SUMMARY

The Studio Quad represents a serious attempt to build a user-friendly effects processor that won't become redundant as your requirements get more sophisticated.

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## WIRELESS SYSTEMS

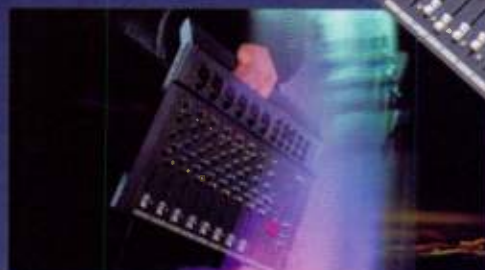
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# Digitech Studio Quad

*"Because you can work entirely with presets if you want to, newcomers to effects programming needn't feel intimidated by the operating system"*

## ROUTING

Because the four inputs and outputs are configurable in so many ways, the Studio Quad can be used in lots of different situations. In the studio, it can take the place of up to four conventional effects boxes with each input connected to its own aux send. The simplest way to do this is to route all four Module outputs to output jacks one and two, so that your stereo effects mix only takes up a single stereo return on your mixer. Of course you could split them to two stereo returns if you wanted.

The opposite extreme is to feed all four Modules from a single input, and then route these to the four outputs to provide quadraphonic effects for live performances. This requires a four-speaker, four-amplifier PA, but the results can be worth the effort. Other studio options include creating your own stereo effects where the right hand output is processed via different effects modules to the left, which is an easy way of creating very dramatic stereo effects. For conventional studio use where you want to use all the processing power to effect a single signal, a setup with one input and a stereo output covers most eventualities.

processors at once, the Bypass switch is designed to bypass only the effected signal, and leave the dry part of the signal working as originally routed.

In FX Edit mode, you can edit the effects modules used within the patch, as well as set up the Input mode and the Modifier module. The Input module allows you to choose how the four inputs are routed to the effects configuration you're using. The Studio Quad treats the input patching and the choice of configuration as separate items, in that you can change the default input routing arrangement for a configuration once it's loaded. As you scroll through the available options (which are different, depending on the configuration you have chosen), the on-screen graphics change to show you where your virtual patch leads are going.

The Modifier module is the equivalent of the modulation system used in synths, and each program in the Studio Quad can be used with up to eight Modifier links, which allow things like LFOs, input signal loudness, MIDI controller data or MIDI aftertouch to be used to alter effects parameters in real time. When used with dynamic instruments such as guitar, playing intensity can be used to control such things as the detuning amount.

## OPERATION

During performance, the Studio Quad is set to Program mode, with the data wheel used to select new patches. Alternatively, MIDI patch change information can be brought to bear in the usual way. Patches can be bypassed using either the Bypass button or an external footswitch, and all signal levels are set via the software.

To edit a patch, it's probably easiest to call up a patch that already uses the configuration you want, then substitute new FX Modules and make any changes to the input routing you feel necessary. All the factory patches use default Modules, so if you come across one that you think might be useful, you can load it wholesale from the Studio Quad's library into any patch you're editing — which is a real timesaver. There are two banks of default effects: Bank A comprises wet/dry signal mixes for in-line applications, while Bank B contains wet-only settings, with a high effect level for use in the aux loop of a mixing console.

Once you've settled on your configuration, choice of effects modules and sorted out which input jack feeds what, you can set about assigning parameters to Modifiers, for real-time control. Finished patches can then be stored and named with up to 24 characters. When you come to use a patch, the Studio Quad can set up the input levels for you in a similar way to the Alesis Midiverb IV. Holding the In Levels button puts the machine into 'listen' mode, where it monitors the input for around eight seconds, before setting the input gain according to the loudest peak.

As is now almost mandatory, a MIDI assignment table can be set up, to map incoming MIDI program change numbers to any patch number. The memory of the Studio Quad may be dumped or reloaded via SysEx.



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# Digitech Studio Quad

## STUDIO TEST

Though there are no brand-new effects in this box, the various ways in which you can combine them provides access to a very wide range of textures. As always, many of the subtleties are lost in a busy mix, but for new age music or other types of sparse composition, you can create effects with a lot of detail. Delay times can be entered directly by tapping a front panel button, and in the case of the multitapped delays, the delay and level can be set independently for each tap.

Though the pitch shifter still has the artificial shimmer characteristic of all affordable effects units, the dissonant beating effect is far less pronounced than on many other FX boxes I've tried. Provided the shifted signal isn't expected to stand scrutiny on its own, it works quite well. All the modulation effects create a rich sense of movement, and with a choice of four LFO waveshapes, you can create chorus and flange effects with a range of characters.

When it comes to reverb, the processor-intensive Dual Stereo reverb offers the most editability, with 17 user-adjustable parameters, while your basic 'cooking' reverb has only eight. I actually like the sound of Digitech reverb algorithms. They don't ring unless they're supposed to, are nice and dense, and create the impression of a real, three-dimensional space. Having an automated input level facility really helps out if you're one of those people who think that gain structure is something to do with pension schemes, and providing you set the levels properly, the Studio Quad is as quiet as most other effects processors in its class. Inevitably, the flange effects and any other patches relying on large amounts of feedback are noisier than the straight delays and reverbs, but if you use them with care, this isn't a problem.

## CONCLUSION

It's sometimes hard to keep in mind that the Studio Quad is actually a budget unit, and you

can easily pay out more money for a far less powerful box. The limitations are less to do with sound quality than how many effects you can combine before you run out of processing power — but then I'd take three or four good effects against 20 indifferent ones any day.

With most effects processors, you can see exactly which part of the market they're aimed at, but the way in which the Studio Quad is priced and designed makes it much more difficult to pin down. Because you can work entirely with presets if you want to, newcomers to effects programming needn't feel intimidated by the operating system, and even when you get more adventurous, you can still proceed cautiously, by slotting different effects Modules into different configurations to see what happens.

Those who already have experience in programming effects and who like to edit at the deepest level will find plenty of opportunity to ply their art, and the more experience you have, the better the feel you get for what effects work best in which order. Perhaps the best way to sum up the Studio Quad is as the 'Burger King' of effects units: if you want four simple studio effects in one box, you've got it; if you want almost instant gratification when it comes to editing effects, you've got it; and if you want to concentrate all the unit's power to give you one big studio-quality stereo reverb, you've got that too. The Studio Quad is an effects unit that virtually anyone can make use of straight away, yet it'll take a long time to grow out of. Digitech definitely have the right idea.

SOS

## FURTHER INFORMATION

- £ £499.95; FS300 footswitch £49.95. Prices include VAT.  
 A Arbitrator Group PLC, Wilberforce Road,  
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## MORE ABOUT FX

As explained earlier, the effects are divided into groups according to how much processing power they require, and as a rule, the longer delays and most complex reverbs take the most horsepower. The simpler reverbs have fewer parameters to adjust and may be less dense than the high-powered versions, but in the context of a composite effect, they don't show up as lacking in any area.

Having the ability to decide which effect goes where within a configuration is actually very flexible, because there's quite a difference between a flanged reverb and a reverbed flange. As you can see in the 'Effects Modules' box, the Studio Quad delivers all the usual delay and modulation effects as well as reverb and four-octave pitch shifting. On top of that, there are several EQ options, from small parametrics to huge graphics, and to help keep everything quiet, there's a noise gate module too.

## EFFECTS MODULES

### QUARTER RESOURCE EFFECTS

FX No.	Name
401 M	GEQ8
402 S	St PEQ3
403 M	PEQ3
404 D	Dual Cho
405 D	Dual Fla
406 D	Dual Pha
407 S	Stereo Trem
408 S	Auto Pan
409 D	Dual Dtm
410 S	Stereo Pitch
411 D	Dual Pitch
412 M	Delay (370ms)
413 D	Dual Delay (370ms)
141 D	Reverb
415 D	Gated Reverb
416 S	Noise Gate
417 S	Thru Module
418 S	Mute Module

### HALF RESOURCE EFFECTS

FX No.	Name
201 S	St GEQ8
202 D	GEQ15
203 S	St PEQ6
204 S	St Dual Cho
205 D	Quad Cho
206 S	Stereo Fla
207 S	Stereo Pha
208 D	St Dual Detune
209 D	Quad Dtm
210 D	Stereo Dual Pitch
211 D	Quad Pitch
212 S	Stereo Delay (370ms)
213 S	St Dual Delay (370ms)
214 M	Delay (700ms)
215 D	Quad Delay (700ms)
216 D	Quad Delay (700ms)
217 S	St Reverb

218 D	Dual Reverb
219 S	Thru Module
220 S	Mute Module

### WHOLE RESOURCE EFFECTS

FX No.	Name
101 S	St GEQ15
102 M	GEQ31
103 D	Octal Cho
104 D	Octal Dtm
105 D	Octal Pitch
106 S	Stereo Delay (700ms)
107 S	St Dual Delay (700ms)
108 S	St Quad Delay (700ms)
109 M	Delay (1.4s)
110 D	Dual Delay (1.4s)
111 D	Quad Delay (1.4s)
112 S	Stereo Gate Reverb
113 S	Stereo Dual Reverb

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Korg X5	£99	12x54	£747

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## DIGITAL QUALITY

First, we suspect, on your 'wish list' would be ultra high quality recording. Digital recording without compression or compromise.

## 8 TRACKS

And 8-tracks would be nice. 4 tracks might have been OK for Mr Pepper and the boys but lay a few vocals and a guitar part or two and it leaves little room for much else. No, it would have to have 8 tracks. On the mixing side, you'd no doubt want something that's quiet, flexible, with great EQ and lots of inputs. Oh, and plenty of input options on mixdown.

## EASY INTEGRATION

You'd also want a machine which integrates easily into the Midi environment, generating MTC without losing tracks, and transport controllable via a software sequencer.

## FOSTEX BRAND

And, no doubt, you'd want a machine which is backed by a company with years of recording and innovation experience.

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# 8 Track



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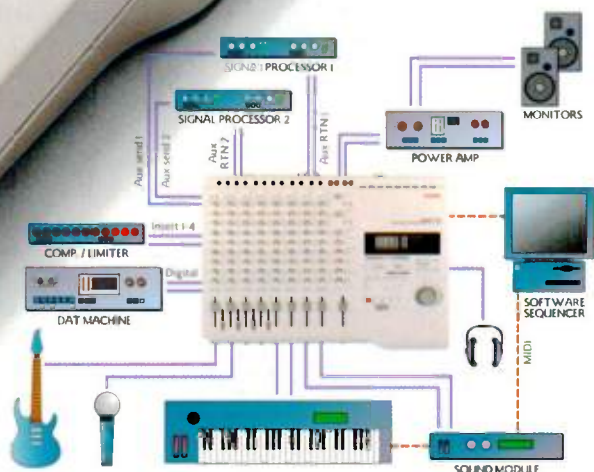
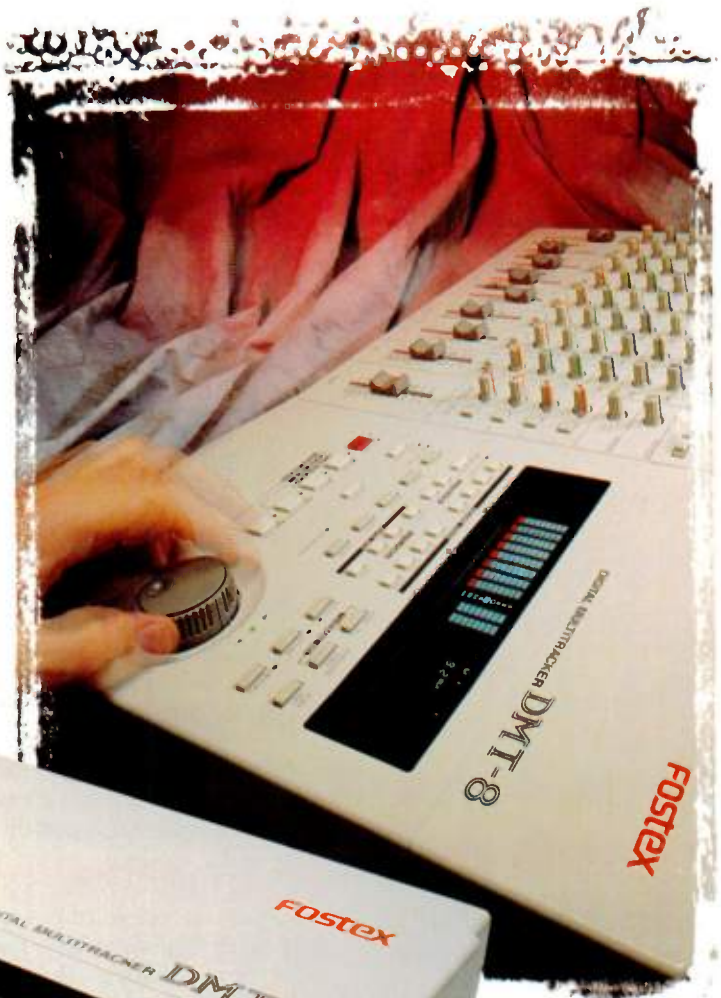
Nice touches include 4 track simultaneous recording, non-destructive audio editing, MTC sync, 3 kinds of timebase, 6 memory locations, a handy dual-function jog/shuttle wheel for digital scrub without pitch change, Auto Locate to ABS 0 and ABS End, archiving via DAT, and individual track outputs.

Plus you get a flexible in-line mixer with superb EQ and no less than 22 inputs in remix! Yet with all this sophistication it's incredibly easy to use, adding new meaning to that often mis-used phrase "tapeless studio".

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*Backing vocals great on the first chorus, but a bit shaky in the second? Why waste time recording them again? With simple copy and paste editing you can take those great vocals on chorus 1 and paste them over the less than perfect ones in chorus 2.*

*This simple procedure can be carried out on selected tracks or on all eight at once. And with the handy undo feature, mistakes don't have to be final. Note: When copied, audio is written to a part of the hard disk called the 'clipboard', the contents of which can be reviewed at any time with a simple button push.*



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Use a DAT machine to archive disk drive data and to digitally master your recordings.

# Digital Recording

**Fostex**

# REMIK

**PAUL WHITE puts Mackie's new 1202 VLZ next to his original 1202 and discovers more changes than you might expect.**

# REMOD

## MACKIE 1202 VLZ 12-CHANNEL MIC/LINE MIXER

**M**ackie's original 1202 mixer (reviewed back in *SOS* March 1992) was one of the key products that set the company on the road to success, and it's probably fair to say that few other mixers have exerted such an influence on the mixer industry as a whole. When the 1202 was first introduced, it was supposed to be a niche product, but the niche has since turned into a chasm, with virtually every mixer manufacturer on the planet turning out their own interpretation of the ultimate mini mixer. Now the wheel has turned full circle, because Mackie have launched a brand-new 1202 mixer. This not only includes some of the ideas used in Mackie's later and larger consoles, but also incorporates at least one feature introduced by one of its competitors — global pre/post aux switching.

### IT'S GOT THE LOOK...

One of the most appealing things about the original 1202 was its stylish simplicity — it was a steel brick with knobs on that looked as though it could survive everything except a direct nuclear strike. The lack of an external power supply was also very welcome, and the 'No Wall Warts' logo has become something of a Mackie icon. The 1202 VLZ is actually a tiny bit wider than its predecessor, and is deeper by about the width of the newly added 'armrest' extrusion, but the new tapered profile somehow conspires to make it look smaller. You only have to pick it up to realise that Mackie's 'Let's over-engineer the metalwork' philosophy still prevails, yet the choice of knob styles and panel screening manages to stave off the impression of clunkiness that afflicts so many small mixers.

Like the original 1202, the 1202 VLZ is equipped with four mic/line channels plus four stereo line-only channels, as well as two stereo aux

### THE VLZ DESIGN

In any mixing console, mix buss noise is caused by the need to add numerous signals using virtual earth mixing amplifiers, and the more channels you have, the greater the noise. However, the amount of noise is also affected by the impedance feeding the virtual earth mixing point, but this can't be made too low, otherwise the virtual earth amplifier won't be able to provide the necessary feedback current to maintain its own virtual earth input. Even so, the way Mackie have approached the design has made it possible to drop the value of the mix resistors to around a third of what you might normally expect without overtaxing the mix amplifiers — a technique they're now using in all their new mixers to improve the noise performance.

In addition to VLZ, the mix amps mix at -6dB (negative gain) which doubles the amount of internal headroom when compared to a more conventional design. Combine this design approach with Mackie's exceptionally nice mic amp circuits and you have a mixer that rivals many dedicated mic preamps for performance.

returns and phono ins and outs for a 2-track tape machine. Phantom power may be applied globally to the four mic inputs. A new addition is a switchable 75Hz, 18dB/octave, low-cut filter on each of the first four channels. A small Trim control sets the mic gain, and standard TSR jack insert points are fitted to the mic/line channels.

As on the original 1202, the 1202 VLZ's channel strips still feature two aux sends, but now Aux 1 may be switched for pre- or post-fade operation via a global switch in the master section. The 2-band EQ of the 1202 has been replaced by a 3-band, fixed-mid system operating at 12kHz, 2.5kHz and 80Hz, while the straightforward stereo buss has now evolved to include the Main/Alt configuration used in Mackie's 1604 and 3204 mixers. This works by having a routing switch on each channel that switches the channel signal either to the Main stereo buss or to the Alt stereo buss, which has its own outputs on the rear panel. If you don't need the Alt outputs, then the routing switches can be used as mute buttons simply by routing any unwanted signals to the Alt output and then not sending them anywhere.

Another welcome addition that's filtered down from the larger consoles is a proper Solo system, complete with large, red flashing Solo light in the master section. When solo'd, the channel signal is heard in isolation over the Control Room/Phones output and metered pre-fader, allowing the input levels and gain trims to be optimised. Channel gain is controlled by a rotary knob with a centre detent, as is Pan.

Other changes have been instigated inside the box to push the noise floor even further down, one

### MACKIE 1202 VLZ £399

#### PROS

- Genuinely useful new features including 3-band EQ and 4-buss routing.
- Excellent overall sound quality.
- No external PSUs to forget or break.
- Excellent manual.

#### CONS

- Lack of faders may alienate some potential users.

#### SUMMARY

A sensibly-priced, jack-of-all-trades mixer that delivers professional performance with genuine versatility.

### GET CONNECTED

On the input side, the 1202 VLZ's XLR mic inputs and TSR jack line inputs are all electronically balanced, and the aux returns will also accept balanced signals. For unbalanced use, you simply plug in a normal, unbalanced jack lead.

The Main and Alt output jacks are balanced, but on the rear panel, you'll find another set of Main outputs on balanced XLRs, which may be attenuated by 30dB using the adjacent Level button, making the output suitable for feeding other mixer mic inputs or even camcorder inputs. Electronic isolation means this output can even be fed into a phantom-powered mic input without problems.

As with the original 1202, the insert points on the first four channels follow the usual TSR jack

format and come after the low-cut filter, but before the channel EQ. Because the same jack carries both the send and return signals, the inserts are unbalanced, and like on the 1202, they can double up as direct outputs. To get a direct output while preventing the signal from passing through the rest of the channel, all you need to do is plug in a mono jack. To take a direct feed without upsetting the original signal path, you can plug a mono jack in 'half way', as far as the first click or use a special lead (plugged all the way in) made up using a stereo TSR jack plug with the tip and ring connections joined together.

The 2-Track tape connections are on phono (unbalanced).



of which is the use of very low-impedance circuitry where appropriate, hence the VLZ tag (of which more in the 'VLZ Design' box elsewhere in this article).

### MASTERLY MOVE

In the Master section, separate controls are dedicated to the Main mix, Phones/Control Room, Aux 1 Master and the two aux returns, though the Alt stereo output has no controls at all — it just appears on the rear panel at whatever level the channel controls dictate. Similarly, Aux 2 has no master level control. A single button switches Aux 1 between pre and post operation while a further button named 'EFX to Monitor' enables effects to be added to a monitor mix. When the 'EFX to Monitor' switch is off, the two aux returns feed the main stereo mix as normal, but when the switch is on, Aux Return 2 feeds into Aux Send 1 instead. Being able to add an effect to the foldback output without affecting the main mix is a refinement usually only found on larger, more sophisticated mixers.

For recording applications, a separate Control Room output is fitted to the rear panel, and this is controlled by the same knob that handles the phones level. A small number of selector buttons enable the control room output (or the phones if connected) to listen in to the main mix, the Alt output or the tape return. A further button allows the tape return to be added into the main stereo mix.

### OPINIONS

Mackie's original 1202 was so well behaved that it's difficult to tell if the 1202 VLZ is even quieter without the use of specialised test equipment. Tests on the mic inputs confirmed them to be exceptionally clean and quiet for all normal applications — my only gripelet was that I felt that the Trim control tended to bunch most of the gain in the top quarter of the travel.

Having a proper solo system makes it easier to optimise the mixer inputs, while the 4-buss routing coupled with 3-band EQ makes this a very flexible mixer quite capable of coping with basic multitrack recording. The EQ seems to work exactly as it does on my own LM3204 keyboard mixer, which is very flexible for an EQ with a fixed mid frequency. Indeed, I understand that some of the surface-mount

technology used in the LM3204 has been employed to get so much channel circuitry into such a small space. Like other Mackie EQs, this one seems to do the job smoothly without making the result sound boomy, scratchy or nasal.

On balance, the 1202 VLZ is a great 'toolbox' mixer that can help out as an extra mic amp one day and a 4-track recording mixer the next. It's particularly useful in live situations because of its simplicity, rugged construction and flexibility, but some users may be put off by its lack of faders.

Of course, when the first 1202 hit the market, there was no real competition, but the 1202 VLZ isn't going to have the same clear run. There are numerous worthy competitors, many of them British, but I nevertheless feel Mackie have got enough right in the 1202 VLZ to make it a big seller. The Mackie name is synonymous with good design, and the 1202 VLZ also has the required combination of chic, price and features to make you want one.



### FURTHER INFORMATION

- £ E399 inc VAT.
- A Key Audio Systems Ltd, Unit D Chelford Court, Robjohns Road, Chelmsford CM1 3AG.
- T 01245 344001.
- F 01245 344002.

### THE METERS

Metering is handled by a couple of 12-section, LED bargraphs which follow the control room source selection unless a Solo button is depressed. The 1202 VLZ is capable of coping with both -10dBV and +4dBu signal standards, but in order to avoid confusion, the meter scale has been arranged so that 0VU = 0dBu. This is strictly non-standard, as most mixers read 0VU for either a +4dBu or -10dBV signal, depending on their operating level, but Mackie's WYSIWYG approach avoids ambiguity by displaying the absolute signal level, regardless of what standard you're operating.

### BRIEF SPECIFICATION

Frequency Response (any input to any output):	20Hz to 60kHz +0dB/-1dB. 20Hz to 100kHz +0dB/-3dB
THD @ 1kHz, Mic to Main out at +14dB:	0.0025%
Common Mode Rejection (mic input to insert send):	better than -90dB
Equivalent Input Noise (mic input to insert send), 150Ω termination:	-129.5dB unweighted
EQ:	High shelving +/-15dB@12kHz; Peak Mid +/-12dB@2.5kHz; Low Shelving +/-15dB@80Hz
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**ALESIS**

# Klaus Schulze

*The Godfather of German electronic music, Klaus Schulze favoured an all-digital approach to recording during the '80s. The last few years, however, have seen a radical revision of his former philosophy. PAUL TINGEN meets the musician for whom old working habits die hard...*

## DIGITAL TO ANALOGUE CONVERSION

At first glance, it looks a fairly typical modern recording studio. But for the rural location, it might be the sort of upmarket London facility popular with the larger record companies, with its light, airy ambience and mood of chic professionalism. And yet it's more than usually homely, a large and comfortable sofa, coffee table and guitar rack inviting the visitor to wind down, read a book, listen to some music or simply bask in the climate of creativity.

Only the abundance of vintage gear, and the somewhat unorthodox studio layout, point to the identity of the owner. Standing on an island in the centre of the control room are two mixing desks, a Soundcraft 6000 (92-channel, custom made), a Mackie (32-channel), two pairs of monitors (KS and Tannoy), two keyboards (PPG Wave 2.2 and Memorymoog), a couple of TV monitors and a mass of outboard gear. All elements of the island are set up in such a way that a user faces its middle. And in the right-hand corners of the room, on either side of the sofa, stand two tiny isolation rooms. The impression is that this is a musician's studio, strongly personalised to the exact requirements of the musician who works in it.

On closer examination, many of the museum pieces which litter the parquet floor represent not just old, but rare and esoteric technology. The gigantic, modular Moog 3C that dominates the left wall is the clearest evidence of this, with its eye-catching patch wires. Two Minimoogs, a Quasimidi Raven and Cyber 6 are placed underneath the large Moog, so as to be accessible to someone working behind the Soundcraft desk. At the back of the studio there is a rack with nine Hohner HS1/HS2 Casio-clones, and next to it are such keyboards as the Korg T3, Akai S1000, Prophet 2000 and EMS A2X. Another rack contains an ancient-looking Akai S612 sampler with two accompanying disk drives, while on the gear island, next to the PPG Wave 2.2, are racks with a Moog Vocoder, ARSonic Refresher, Roland Super Jupiter/MKS80, old, analogue Eventide H494 and 910 Harmonizers, and a Korg Vocoder DVP. Finally, there's a bizarre-looking, stand-alone, radiator-shaped EMT 251 digital reverb, and an equally strange-looking EMS Synthi A.

The reason for the sheer variety of sound sources and processing gear becomes clear only when you discover that this is the playground of one of the world's electronic synthesis pioneers. Perhaps best known for his work with the bands Tangerine Dream and Ash Ra Tempel in the early '70s, Klaus

Schulze has since recorded more than 50 solo albums. Since his debut album *Irrlicht* in 1972, he has influenced virtually everybody who has ever worked with synthesizers. To name but a few: '80s keyboard luminaries Vangelis, Kitaro or Jean-Michel Jarre, '90s acts such as The Orb or The Grid, and the current new age and ambient house movements.

### MOLDAU MUSICIAN

Schulze's studio and home are located deep in a forest, close to the mid-Northern German town of Hannover. He explains that his studio is named Moldau Musik Studios, a pun on the name of his village, and the Czech river Vltava (Moldau in German), honoured by the Czech composer Smetana in one of his most famous compositions. The studio has been in existence since 1977, when Schulze moved from his native West Berlin. The Berlin music scene had lost much of its appeal and inspiration for him, and anyway he, "preferred the countryside." Until his move, Berlin had played a pivotal part in Schulze's musical development. After having learnt classical guitar as a kid, he moved to drums when he wanted to enter the world of rock music. He played drums in a band called Psy Free, before being asked in 1969 by Edgar Froese to be the drummer in a new group called Tangerine Dream.

The latter band was, together with Kraftwerk and Can, part of the most internationally influential wave of German groups, and Schulze was involved in the making of Tangerine Dream's seminal debut album, *Electronic Meditation* (1970). He left the band even before the album was released and, after founding groups like Ash Ra Tempel and The Cosmic Jokers, shifted his attention to the synthesizer, because "I wanted to make new music with an instrument that I had never played before." The result was the first of his many solo albums, *Irrlicht* (1972), soon to be followed by *Cyborg* and *Picture Music* (both 1973). All were highly influential albums, that showed influences from the minimalist and classical composers of the day — LaMonte Young, Terry Riley, Philip Glass, and Stockhausen — as well as early synth pioneers like Wendy Carlos. This defined the parameters of Schulze's famous signature style, which he has perfected over more than 50 solo CDs. Highlights include albums like *Timewind* (1974), *Moondawn* (1976), *Mirage* (1977), *X* (1978) and *En=Trance* (1988).

Atmospheric, symphonic choir-like sounds, classical influences, fast-moving, sequenced arpeggios, sudden modulations, endless layers of



effects and sounds, weird, experimental, abstract sounds — these are Schulze's leitmotifs. Much of his music consists of slow-moving, dream-like soundscapes that are full of depth. The fact that they are often rich on atmosphere but short on melody, and can go on for a long, long time. (half-hour compositions are not unusual) is probably what most strongly divides the fans from the critics. "My style of music is always the same," comments Schulze, "but the expression is different with each piece. It's like Fellini once said: 'I made so many films, but in the end I did only one film.'"

Unlike many other electronic musicians, Schulze has long been a champion of live performance, and he tends to play only new material with every tour

that he does. He sequences background parts in the Atari, plays the rest by hand, and "the fans just close their eyes and listen..." Lately, Schulze has returned to his classical roots, with *In Blue* (two CDs, 1995), the fascinating opera *Totentag* (two CDs, 1994) and *Klaus Schulze Goes Classic* (1994). The latter contains Schulze's synth and sample reworkings of compositions by Beethoven, Grieg, Smetana, Schubert and others, and came into being as a kind of occupational therapy.

Explains Schulze, almost apologetically: "My manager told me to relax a bit, because there had been so many releases, and people don't have so much money. But I can't just sit around and do nothing. I was bored, so I took some classical stuff

*"My style of music is always the same, but the expression is different with each piece. It's like Fellini once said: 'I made so many films, but in the end I did only one film.'"*



Far wall, extreme right; 4 x Hohner HS 2/E, Akai S1000 playback, Akai S900, 5 x Hohner HS 1/E 2Mb samplers, centre; Kurzweil K2000, Korg T3, 2 x Akai S1000 keyboards (each 32Mb), Korg T1, Prophet 2000 and 2 x EMS Synthi A, left; Akai S612 & 2 disk drives, DIF 1200, 2 x Akai meter bridges, Akai Big Remote Control, 2 x 12 channel Akai ADAM 1200 digital multitracks, extreme left (not visible); 2 x Roland JD800, Roland S50, Quasimidi Raven, Cyber 6, Kawai K4.  
Front right; KS Aktiv monitor system, Soundcraft 6000 mixer (2 patchbays, 92 channels), Mackie 32 channel, 8 bus mixer, front left (also shown in inset); Moog C3 (4 modules), 2 x Minimoog, Akai MPC3000, Quasimidi Raven, Quasimidi Cyber 6, Atari Mega ST4 master & Atari monitor.

*“We say digital is cold, but that’s rubbish. It’s simply more linear and reliable, and whether you like that or not is a question of taste.”*

▶ and arranged it. I stayed very close to the original compositions, because I didn’t want to do what many people do today: just lift the most popular hook line, put a rhythm underneath it and sell it. It’s a bit like the things Tomito and Carlos did, though they only used analogue synths, whereas I used many very fine samples from libraries.”

Over a quarter of a century as a recording musician, and the 150-odd albums that he has been involved with (whether as artist, producer or collaborator), the German musician has witnessed many innovations in music technology: innovations he’s always been among the first to exploit. *Irrlicht* (1972) was prehistoric in synthesis terms, and yet Schulze was already wringing revolutionary sounds from a Teisco organ, Solina string keyboard, tapes, tape echo, a 4-track Telefunken home recorder, a cheap 3-channel Telefunken Echo Mixer, guitars and a Revox 2-track. For most of the ’70s Schulze expanded on his collection of analogue artefacts.

with instruments like the Farfisa Duo organ, the EMS A synth, EMS VCS3, ARP Odyssey, ARP 2600, Farfisa Syntorchestra, Minimoog, Crumar Brass synth, the Mellotron, Polymoog, Moog 3C and Yamaha CS80.

Schulze graduated to 8-track in 1975 and to 16-track in 1979. It was also in 1979 that the digital age was dawning. Schulze discovered computers, sampling and digital synthesizers, and during the early ’80s acquired instruments like the Crumar GDS, the Fairlight Series 1 and 2, Emu Emulator 1, and PPG Wave 2.2. The 1980 album *Dig It* was recorded entirely with digital equipment, as was most of his output of the ’80s.

### FRIGID DIGITS

Towards the end of the decade, however, Schulze started having mixed feelings about digital instruments. He recalls: “In the beginning, I was really surprised at the clean digital sounds, and ▶



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# Klaus Schulze



Top to bottom: 4 x Oberheim DPX1, Roland U220, ASC cassette recorder, Korg M1R, Korg M1R EX, Roland SRV2000 reverb, Dynacord DRP30 reverb, Emu Proteus, Alesis Quadraverb GT, AKG ADR 68K & remote control.

► really happy with the fact that these instruments didn't go out of tune. I said: 'forget analogue, digital is the future,' gave away many of my analogue synths, and stored the rest. But after a few years, I became completely bored. When you edit digital instruments, you're hampered by the pages system, which doesn't allow you to be very intuitive. The only things that you can do easily are add some reverb, or chorus, or flanging, and change some of the waveforms. But really, a D50 still sounded like a D50, whatever I did to it."

By the late '80s, Schulze had dusted off the analogue synths that he still had, begged his friends for the ones he gave away ("many of them didn't want to give them back, of course"), and set about creating the hybrid analogue/digital studio that he favours today. Having gone 24-track analogue in 1986, Schulze introduced the Atari 1040ST into Moldau Musik in 1989, and has gradually switched his recording process more and more to the MIDI medium. Today, he owns five Atari Mega ST4 computers, three of which he uses in his studio, with two ST4s working as slaves to the main computer. Two extra Atari Synthax monitors on either side of the PPG Wave give visual information for the musician who finds himself on that side of the island. Using *Notator SL* as software, the system gives Schulze 290 MIDI channels. He explains that he now records all his music directly into the computer, using a Tascam DA88 for any added real-life parts. Schulze: "I like the DA88, because I compose long pieces, and I have 115 minutes per track on the DA88. Until recently, I used the Akai DR1200 ADAM extended 24-track, with 23 minutes per track."

Schulze is not a fan of many recent synthesizers, and lays the blame for the similarity of much recent music at technology's door: "I loved the Roland JD800 because it operated very much like an analogue synth. It is sad that Roland discontinued it because people complained about the number of knobs on it. On the other hand, I hate the DX7 — it sounds like American bar room music, and is very difficult to program. I think this difficulty with programming much modern equipment is the



The effects and recording rack includes Alesis 3630 compressor, SPL Stereo Vitalizer, Optimizer, ARSonic Sigma 12, Tascam DA30, DA30 MkII, Tascam DA88 digital multitrack.

reason that a lot of records sound the same. People become too lazy to edit, and simply use presets. And they all use the same sugary-sounding effects, and the same sugary-sounding mixing desks: so all they are left with to distinguish themselves are the seven notes of the scale. And when they only use three notes, their music becomes truly boring. I don't know what to listen to any more these days."

Surrounded by a forest of synths and sound modules, Schulze's rant against modern equipment might seem a little ironic. Moldau Musik Studios, together with what Schulze calls his "museum," in a neighbouring village, boast an amazing 85 sound sources — 44 keyboards, 35 rackmounted units and seven drum machines (including a Roland TR505, Linn 9000, Moog Drums and an Akai MPC3000). Add to that his 36 effects boxes, a total of 124 channels on his two mixing desks, and 290 MIDI channels on his three Atari Mega ST4 machines (increasing to 500 once the Apple goes into action), and this surely sounds like equipment overkill in anyone's book. One wonders how Schulze can still see the wood for the trees. However, when you look more deeply into Schulze's working methods, it soon emerges that he has good musical reasons for his enormous collection. Two themes come up time and again, and they reflect the experience he has gained during

## ATARI VERSUS MAC

Schulze declares himself a fan of the Atari computer, but ruefully reflects that he will soon have no option but to switch to the Apple Quadra 800 with Emagic Logic Audio.

"The Atari is dying out. But I prefer *Notator SL*, because it's a musician's program. When you're a musician, you don't need all these new features that Mac-based software gives you. They make working less flexible. You have to go through too many different pages to do things. For example, on the Atari you can just transport your piece a couple of semi-tones up or down almost at the touch of a button, just to hear how it sounds. With the Mac stuff, you have to specify what parts you want to transpose, from where to where and so on, which all takes time and concentration.

"There are lots of new facilities on the Mac-based sequencers by Steinberg and Emagic — the two

main software makers in Germany. Many of them are pure bullshit, and not meant for musicians. The Atari is more basic, but more tailored for the needs of musicians. I use the computer very much like a multitrack tape machine. I don't edit very much. This is probably because I'm used to working with tape machines. I started with 2 and 4 track, and was not able to do all sorts of clever things like copy from one track to another and so on — so I have never done that very much with the computer either. I only copy if I want to double a track, and mostly only quantise very fast, arpeggiated sequences, because they have to be exactly straight. But I don't quantise much else, not even the drums. Computers don't groove, and when you quantise things they become sterile. I don't like to calculate songs using the computer's editing facilities. I prefer to play, and if I make mistakes, play it again."

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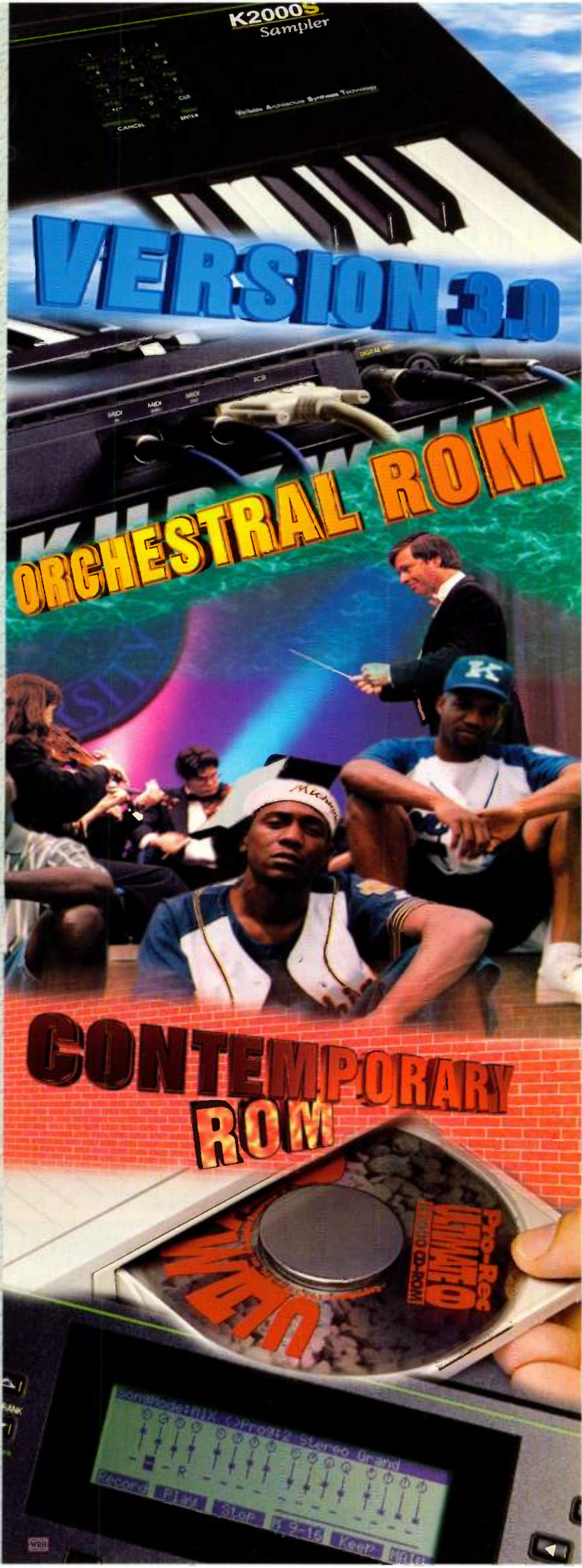
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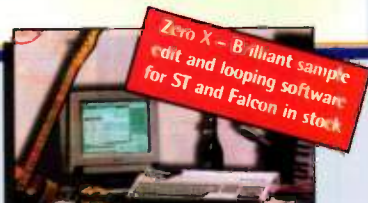
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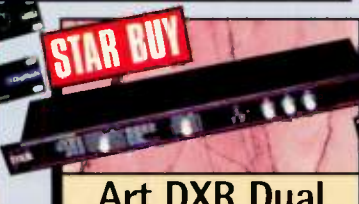
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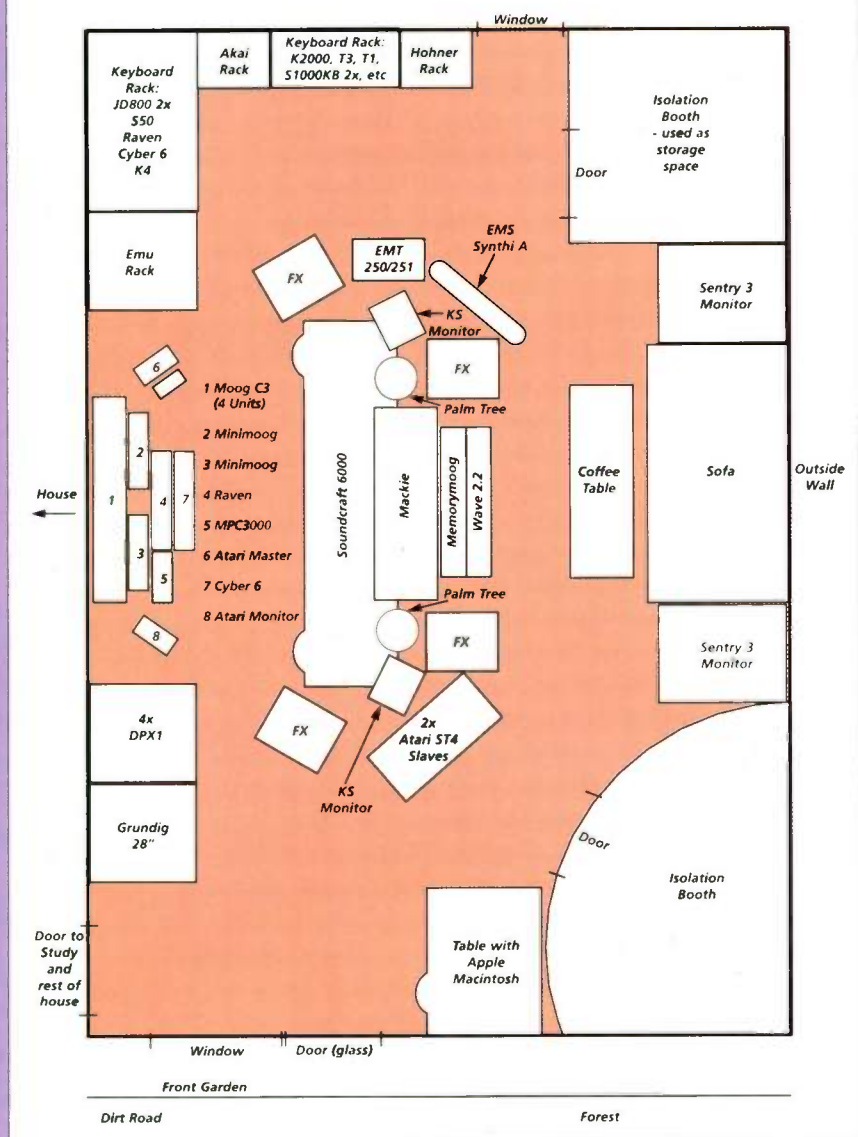
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ergonomics, and that all-important accessibility to the parameters that define his music.

"I like to see what I'm doing all the time, and all at the *same* time. I use the Mackie mixer as a slave to the Soundcraft, with many of my sound sources coming in on the Mackie and going out in stereo to the Soundcraft, and I can always see what's going on. I don't have to go first to this or that page to check the EQ setting on a certain instrument. To me, this is stupid. Music is an emotional thing, and when you use the parameter access system, whether on desks, computers or keyboards, you get out of that emotional state, which I call gut feeling, and go into an intellectual state. It's like a guitarist, who suddenly has to think: 'oh, what frequency am I at now?', and forgets about playing."

To solve the problem of 'gut' versus 'brain' in a studio that is full of gear that you have to edit using parameter access — the Akais and Emu are his favourite samplers, for example — Schulze has established a rhythm of alternating "emotional days," and "book-keeping days". During the former he just plays, while during the latter he analyses what he's done, track by track, cleans up mistakes, edits out redundant bits and so on. To make sure 'brain' doesn't get in the way of 'gut' too much, he also tries to keep all his parameters as easily and directly accessible as possible:

"That's the reason why I have so many channels. I also want to buy two more Mackies, so that I'll have 200 channels, be able to see what I'm doing all the time, have all my instruments plugged in all the time, and not have to waste time plugging or unplugging gear."

## DEPTH & MOVEMENT

With so many mixing desks, channels, sound sources and options at his fingertips, and with his dislike for patching things in and out, it clearly makes sense for Schulze to have an abundance of effects boxes, and to have more than one of several of the models that he likes. The keyboardist asserts, however, that other reasons were equally important for the doubling up of, for example, his Rebis compressor/ gate (he has eight!). Alesis 3630 compressor/ gate, Eventide Harmonizer, SPL Optimizers, Roland SRV 2000 reverb and ARSonic Sigma 1.2.

"I like to have spares, because I'm in the country, and if I have a breakdown, it can easily take two weeks to get something repaired. Also, I use my effects boxes to treat my sounds very radically. They became an integral part of the sound, and I sometimes use several effects on one sound. For example, I may use the AKG ADR reverb, which has a very warm and full sound, plus the Dynacord, which has a little more mid, and the SRV2000 for the crispy high-end. I'll give them slightly different delay times, and pan them differently."

Schulze's extensive use of effects boxes lends his music a kind of pulsating, random phase interference, adding to the depth and movement of the sound. This ties in with the second central theme of Schulze's working method, his search for movement, depth and fullness of sound. It's the

- ▶ his 25 years of working with music technology. The first is his preference for direct, intuitive access to all the parameters that he's working with in his studio. The second is that he's always looking for three things in his sounds and arrangements: movement, depth and randomness. He decries the clinical, static precision that digital equipment and quantisation offer, and tries instead to infuse his music with analogue warmth, fullness and imperfection. Turning his back on analogue gear in the early '80s was clearly a case of throwing out the baby with the bath water, if there ever was one.

## 'BRAIN VERSUS GUT'

When Schulze goes on to express his reservations about the new Mac-based sequencing software (see the 'Atari Vs Mac' box), and his wariness about working with assignable softkeys on the new Yamaha and Euphonix mixing desks, I begin to wonder whether this inveterate technophile isn't becoming some sort of new age Luddite. For Schulze though, it's simply a question of

## TIME AND MOTION

Interestingly, Schulze's most important future project is a complete overhaul of the layout of his studio: "I want to have all my sound sources and effects behind a curtain, here where the sofa and isolation booths are — the booths will be demolished. When I'm working, all I will be seeing will be the four mixing desks, the computers and a master keyboard. I can change the sounds of most synthesisers from the computer, so I will only occasionally have to go behind the curtain. Basically, I don't want to see the technology anymore. I simply want more space."

reason that Schulze works with such an enormous amount of sound sources, and owns more than one of many of his favourite models. For him, sound sources sound thinner when used in multitimbral mode, whatever the manufacturers might say: "It's not so obvious, but if you listen carefully, you will hear a loss of sound quality."

It's for this reason that he uses his sources in single voice mode. Moreover, he sometimes likes to use two identical sound sources with the same sound, pan them, for example, at 11 and 1 o'clock, or at 3 and 9 o'clock. The slight discrepancies between the sounds of the different machines will create a rippling, phasing effect, which Schulze describes as, "a transparency, where things suddenly move; a stereo effect, where the middle is not empty."

The same principle of movement applies in Schulze's trademark fast arpeggio sequences, which he likes to put through a fading delay that is timed at double the speed of the sequence. So if the sequenced notes are 8th notes, the first delay will come at the 16th note immediately after; the third, less loud delay, will come on the second note; and the third, almost



The SPL rack (top to bottom): EQ Magix, Pro Mike mic preamp, Stereo Vitalizer, Vitalizer MkII, SX2 Psychodynamic Processor, Optimizer.

inaudible delay, a 16th note after that.

"So you suddenly get a polyphonic sound from a monophonic part. I often do this using the Moog synths, and use the filter modulations to get contrasts in the sounds. For example, if I have an 8-note sequence, I might program the Moog so that the first note is bright, the second less bright, the third even less bright, and the fourth note

## KLAUS SCHULZE'S GEAR

### KEYBOARDS

- Akai S1000KB (32Mb) (x2)
- Akai X7000
- Crumar GDS
- EMS Synthi A (x2)
- Emu Emulator III
- Fairlight 2
- Hohner HS1
- Kawai K4
- Korg M1
- Korg T1
- Korg T3
- Kurzweil K1000
- Kurzweil K2000
- Mellotron (dual-manual)
- Moog 3C modular (four modules)
- Moog Memorymoog
- Moog MIDImoog
- Moog Minimoog
- Moog Polymoog
- Novation BassStation
- PPG Wave 2.2
- Prophet 2000
- Quasimidi Cyber 6 (x3)
- Quasimidi Raven (x3)
- Roland S50
- Roland JD800 (x2)
- Roland Super JX10
- Roland Vocoder Plus
- Yamaha CS80

### DRUM MACHINES & PERCUSSION

- Akai MPC3000 (10 Mb)
- Korg DDD1
- Linn 9000
- Moog Drums
- Paiste Gongs & Cymbals
- Roland OctoPads
- Roland TR505 (x2)
- Sonor Tympanies & Octotoms
- Yamaha RY30

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- Hohner L60
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- Martin 12-string

### RECORDING

- Aiwa DAT (x2)
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- Akai digital patchbay
- Akai DR1200 ADAM digital multitrack
- Akai DIV1200
- ASC Cassette deck
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- Crown Macro Tech 1201 (x3)
- Electro Voice Sentry III Speakers (x2)
- Electro Voice Sentry V Speakers (x2)
- Electro Voice Sentry 500 Speakers (x2)
- Head Accustics dummy head
- JBL Control One Speakers (x2)
- KS Monitors
- KS PA system
- Mackie 32-channel 8-buss mixer
- Mackie 24-channel mixer
- Seck 16:4:2 Mixer
- Sennheiser MK80 mics
- Sennheiser Orpheus headphones
- Sennheiser HD580 headphones
- Sennheiser HD250 headphones
- Sony 2700A DAT
- Soundcraft 6000 92-channel mixer & patchbay
- Tannoy Speakers (x4)

- Tascam DA30 DAT (x2)
- Tascam DA30 MkII DAT
- Tascam DA88
- U-Matic, Super VHS & Betamax VTRs

### COMPUTERS & SOFTWARE

- Apple Macintosh Quadra 800
- Atari 1040 STFM (x4)
- Atari Mega ST4 (x4)
- Atari Synthax Mega 4 (x2)
- C-Lab Human Touch
- C-Lab Notator SL and various Editors
- C-Lab Unitor II
- Commodore Amiga 500
- Digidesign Editors
- Emagic Logic Audio
- Geerdes Star Trax
- Hewlett Packard Deskwriter 560C
- Hewlett Packard ScanJec IIcx
- Harms MAC 16 Interface
- Kenton MIDI-to-CV converter
- Steinberg Cubase Audio
- Various CD-ROM and removable hard drives

### EFFECTS

- AKG ADR 68K reverb & editor
- AKG BX20
- Alesis 3630 Compressor/Limiter (x2)
- Alesis Quadraverb GT
- ARSonic Sigma 1.2
- ARSonic Sigma 5.2 (x2)
- ARSonic Refresher
- Boss SE50
- EMT 250/251 Reverb
- Eventide Harmonizer (x2)
- Ibanez SDR1000
- Korg SDD1200 delay
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- Roland RSP550
- Roland SRV2000 (x2)
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### RACK MODULES

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- Akai S1000PB (26Mb)
- Akai S900
- Akai S612 (2 drives)
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- Emu World
- Emu Vintage Keys
- Emu Emulator IIIXS (32Mb)
- Hohner HS1 (x5)
- Hohner HS2 (x4)
- Korg M1R
- Korg M1EX
- Korg DVP
- Moog Vocoder
- Oberheim DPX1 (x4)
- Prophet 2000
- Quasimidi Quasar (with TRE and Hardcore modules) (x5)
- Quasimidi Styledrive
- Roland S550
- Roland JV880 (with Classical expansion board) (x2)
- Roland SC33
- Roland SC55
- Roland U110
- Roland U220
- Roland Planet S/MKS30
- Roland Super Jupiter/MKS80
- Waldorf Microwave (x2)
- Yamaha TX81Z

# Klaus Schulze

*"Music is an emotional thing, and when you use the parameter access system, you get out of that emotional state, and go into an intellectual state"*

▶ maybe brighter again — so you get a kind of sine wave move. Now in the opposite channel I might do the same sequence, but program the filtering differently. Add the delays, and you have a repeating cycle that never repeats exactly in the same way. I sometimes mix the same piece several times, purely to capture the mix with the best random effects."

Schulze laments the fact that the powerful, 24dB/octave filtering capacity of the Moog is not available on modern digital synths.

"You can do it a bit, on the Quasar, the Raven and the Nord lead, but they only have 12dB/octave filters," he says, adding that what he is doing with many of his studio tricks is to emulate the imperfections of many old analogue synths with a mixture of digital and analogue gear. "Analogue machines are not so linear. For example, I have an American rackmounted Minimoog remake, made by Studio Electronics — who also MIDified my other Moogs. It's quite OK, but it sounds thinner than a real Minimoog. The secret of the Minimoog is that it has three oscillators that always go a little bit out of tune, and this creates a fat sound. The oscillators of the remake are 100% perfect, so they sound like just one oscillator. So analogue creates something that we call warmth, but in fact it's simply imperfection. We say digital is cold, but that's rubbish. It's simply more linear and reliable, and whether you like that or not is a question of taste."

## FUZZY LOGIC

After wrestling with digital boredom in the '80s, Schulze clearly prefers the imperfections of older equipment — something that emerges during his tour of his studio, when he sings the praises of the old, analogue Eventide H910 and H949 Harmonizers. "because they have this kind of internal modulation. When they heat up, the sound becomes more fuzzy. By contrast, digital harmonisers are sterile." The Roland SRV2000, on the other hand, "works like the tape echoes in the old days, where the processed sound deteriorates. If delays and reverbs are perfect, you get sterile results.

*Left (top to bottom): Syntax monitor, Roland SC55 & Boss Delay, Parametric EQ and Analyser, Roland SRV 2000 reverb, Roland RSP550 Delay, Roland S550, Moog 16-channel Vocoder, Eventide Harmonizer, BGW spare amp, centre (top to bottom); Memorymoog Lintronic MIDified, PPG Wave 2.2, KS mono bass woofer (1500w), right (top to bottom); Syntax monitor, Korg Vocoder DVP, Korg Delay, Roland Super Jupiter & Editor, ARSonic gain controller, ARSonic Refresher, Eventide Harmonizer Analog, BGW spare amp.*



*The Quasimidi rack (top to bottom): Akai S1100 (32Mb), 2 x Roland JV880, 5 x Quasimidi Quasar.*

But with imperfect delays, you can distinguish the original sound from the delayed sound."

In his efforts to imbue warmth and movement to his works, Schulze also puts all his music through an effects signal path that has been in place since 1990: "Everything I do goes first through the cheap Alesis 3630 compressor/gate, which I use only as a gate — some of the analogue stuff can be rather noisy. Then it runs through the SPL Vitalizer MkII, which creates a wider stereo picture. It makes the final mix sound as you have just taken a towel from the front of the speaker. Suddenly, things sound very crisp and have incredible balls. From the Vitalizer, the signal goes through the SPL Optimizer, which works like a Neve filter with Q factor. It's like a kind of frequency-specific gate, so I can take out specific things that jar. Finally, things go through an ARSonic Sigma 1.2, which is a noise reducer and gain controller."

When asked about his plans for the future, Schulze insists he has no plans to buy any new equipment, other than (at some stage) a hard disk recorder. "I'm in no hurry. I have virtually everything here that I need. Virtual Acoustics? That's simply manufacturers trying to get analogue qualities out of digital gear. All this physical modelling really doesn't result in truly new sounds. In the end, it still sounds like the manufacturer who makes it."

Maybe Klaus is suffering from technology overkill after all. And yet his quarrel is not so much with the technology itself, as its implementation. He's also been in this business long enough to recognise when those snappy manufacturer's patents really *do* make life easier or represent genuine innovation. In a forest habitat like his, you pretty soon learn the difference between the wood and the trees.

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E U R O D E S K

# Drumming up a Storm?

PAUL WHITE checks out the successor to his beloved D4 and ends up casting sidelong glances at his cheque book.

## ALESIS DM5 DRUM MODULE



### ALESIS DM5 £499

#### PROS

- All the best features of the D4, plus an updated front panel and new Random sound mode.
- Simple to use, either via MIDI or drum pads.
- Impressive selection of new sounds, particularly the dance and ethnic samples.

#### CONS

- Proper pitch bend still not implemented.
- Data wheel pretty, but less easy to turn than the D4 version.

#### SUMMARY

Technically, the DM5 is little more than an updated D4, but the huge range of excellent new sounds gives it a completely new lease of life.

A cursory glance at the new Alesis DM5 module is enough to confirm that much of its hardware and operational architecture is based on its predecessor, the D4 (reviewed in *SOS* November 1991) — but the sounds are largely new, the front panel has been brought into line with Alesis' more recent product range, and there are one or two extra features well worth taking a look at.

Unlike conventional drum machines, the DM5 doesn't have an on-board rhythm sequencer — it is a drum sounds generator that may be triggered via MIDI in the same way as any other synth module, or directly via drum pads or contact mics. It may even be triggered from off-tape drum sounds (ideally gated first), allowing sub-standard recorded sounds to be replaced by DM5 sounds.

There are 12 separate input trigger jacks which may be adjusted for sensitivity and set to trigger any of the sounds in the currently loaded kit. The trigger system includes a hi-hat footswitch mode for open, closed and closing sounds, and the sounds may be assigned to groups, so that closed

hi-hats cut off open hi-hats, just like the real thing. The footswitch input may also be set to cycle round the drum kits if the hi-hat feature is not required.

On the D4, it was possible to feed one of the trigger inputs from a pickup mounted on the frame of the drum kit (or pad system) to help cancel out any crosstalk between pads, but on the DM5, this has been replaced by a more conventional crosstalk elimination system which is individually adjustable for each pad.

The external triggering appears to be much the same as it was on the D4, except that the new display now shows which trigger pad is being hit, while a small VU-style meter at the bottom of the screen aids in adjusting the sensitivity to match that of the pads or trigger units being used. The drum trigger section isn't just an add-on — it offers facilities to rival very serious stand-alone pad-to-MIDI converters. Those wishing to use the triggering feature may be interested to read the constructional article in *SOS* August 1995, which describes how to make a full set of working drum pads for less than the cost of a takeaway curry for two!

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# Alesis DM5

► As with the D4, there are two sets of stereo outputs to which any sound can be assigned (Main and Auxiliary), and I find that assigning the snare and bass drum to one pair of outputs (panned left and right to maintain separation), and the rest of the kit to the other pair works best. Level and Pan for each sound within a kit may be set, and because many of the sounds are recorded with ambience or reverb, external processing isn't always necessary and EQ is rarely needed. The MIDI socket arrangement is the same as the on the D4 with a dedicated MIDI In and a combined MIDI Out/Thru.

The front panel layout is exactly as it was on the D4, apart from the brand new, illuminated switches, a more comprehensive display, and a

very quietly, the sound reverted to something similar to the loud sound. I'm not sure if this is intentional, but it does make it difficult to predict exactly which sound you're going to get.

In most cases, the dynamic articulation feature worked really well and was particularly impressive on things like the castanets, where velocity lets you alternate between a single click and a roll (or whatever the castanets equivalent of a roll is!). Similar techniques are used on some of the ethnic drum sounds and congas to create a very realistic 'human' effect. Patches responding to Dynamic Articulation usually have the word DYN in the title, but I'm convinced I came across others that were conventionally named.

A new group of sounds has been added to



new style of data knob to match that on the Midiverb 4. Personally, I find the new wheel harder to use, as it relies on you keeping the end of your finger in a dimple (I personally prefer a more conventional control knob that you can grab by the edges), but the rest of the panel is a big improvement.

## INSIDE STORY

The sound quality of the D4 was excellent, and the DM5 is no less impressive with its 18-bit DACs and 48kHz sample rate. There are over 550 sounds divided into eight categories, and a number of these are recorded with stereo ambience. Also retained is the dynamic articulation feature where certain sounds behave differently depending on how hard you hit them. This is akin to the velocity crossfading you find on a sampler, and in addition to being used to change the timbre of a sound as the note is 'hit' harder, it's also used in some

examples to bring in a quite different variation on the sound. However, I did notice one or two rather odd things happening on the review model, where certain sounds seemed to have three levels of velocity sensitivity, with the 'variation' occurring in the middle velocity band. If the key was played

the DM5 under the heading of Random. The 15 sounds in the Random selection are made up in one of two ways: either multiple variations on the same sound, or a compilation of complementary sounds — for example, if you play the hi-hat sound, a small selection of slightly different hi-hat samples are chosen at random to create an authentic feel, but by contrast, the RagaBabi sound is made up of several different ethnic drums, which play back in random order to create interesting rhythmic accents. As the voices are selected randomly every time a trigger is received, your song will never sound quite the same twice when played back from a sequencer.

The Random facility works so well that I wondered why more sounds weren't included in this group — ride cymbals and toms in particular would benefit from this treatment, but other than hi-hats and a few snares, the rest of the Random group are mainly special effects.

The DM5's 21 on-board kits can be modified or even completely overwritten, but as the original kit data is in ROM, it is possible to get the factory patches back should you need them. The kits can also be saved via MIDI using SysEx dumps. All 21 kits are new, and the sound effects section includes some particularly wonderful noises, including Kung Foo punches, whipcracks, assorted techno thrrips and scratches, and lots of industrial, metallic hits.

Kits may be changed via the front panel, or

*"The sound quality of the D4 was excellent, and the DM5 is no less impressive with its 18-bit DACs and 48kHz sample rate."*

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# Alesis DM5

- ▶ over MIDI using program change commands, and during editing, the currently selected sound can be played using the Preview button. A program table facility enables the kits to be called up by any desired MIDI program change number.

As with the D4, the DM5 is 16-note polyphonic, and by today's standard, that's beginning to look a bit on the tight side. Realising this, Alesis have built in an overflow function so that two or more DM5s can be chained together to share their polyphony. It's not an ideal solution as the audio still comes out of two machines, not one, but at least it's an option for the very few users who will find 16-voice polyphony inadequate.

## IN USE

The DM5 is delightfully easy to use, the Note Chase mode being particularly useful, as it automatically switches the screen display to show the parameters of the sound you're currently accessing, either via MIDI or the trigger inputs. To assign a sound to a key, first select the sound group you want (such as bass drum, snare drum, tom and so on), then use the data wheel to scroll through to the one you want. It's often easiest to select all the sounds you're going to need on the different keys before going on to set the level, tuning, pan position and output assignment of each one, and once you've set up a kit, all you have to do is remember to save it.

In the MIDI setup menu, you can set the MIDI receive channel and decide whether or not the DM5 will respond to MIDI controller information. Unfortunately a criticism I had of the D4 still remains, in that although the unit responds to pitch bend, this only sets the pitch at which the sound will be played — it doesn't allow you to bend a sound once it has been triggered. As a result, you can't create talking drum and tabla-type effects, and have to rely on the samples that have bends built in. What I would really like to see is a facility allowing you to select which voices in a kit would respond to conventional pitch bend and which ones would ignore it. More

than once, I've had to sample Alesis congas just so that I could apply pitch bend to them via my sampler to create talking drums.

In my opinion, the D4 worked very well with drum pads, even if it was a feature that was rather underused. I consider the DM5 to be every bit as good in this department, with the added benefit of a simpler crosstalk cancellation parameter. You can make your own perfectly good triggers using piezo pickups that cost mere pence each, and the hi-hat mode really makes this a professional tool. The triggered notes also come out over MIDI, so the DM5 can be used as a pad-to-MIDI converter to write rhythm parts into a sequencer. There's a great deal of flexibility when it comes to setting up the DM5 to work with your particular trigger pads, but most of this has been covered in previous reviews of the D4 — you can change individual pad sensitivity, dynamic response curves and retrigger delay times, plus a whole lot more. As the unit must work with a wide range of trigger pads and pickups, the manual contains an in-depth section on trigger mounting, and on the effects of the various setup parameters.

## HIT OR MISS?

The DM5 is unashamedly an updated D4 with a better front panel, a wider selection of contemporary sounds, plus the new Random sound option. Those interested in rave, dance, or world music will find more than enough new sounds here to satiate their sonic desires, yet the conventional drum pallet is still vast, with drum sounds to cover every eventuality, from heavy metal to jazz. Some areas are rather thinly represented — there are only three brush samples in the whole snare collection and no timpani that I could find — but on balance, the library of drum and percussion sounds is impressive by anybody's standard. The technical quality is good, the recording quality is excellent, and the sounds themselves have a lot of life in them.

Apparently, sequencer users are still buying more drum machines than drum modules, and perhaps that's because they like to use the drum pattern presets as a starting point. If this is the case, maybe Alesis should consider bundling a floppy full of drum patterns and fills in SMF format along with the DM5.

As to what the ultimate Alesis Turbo Nutter drum machine of the future will be like, I don't know, but the DM5 is a very worthy successor to the D4, and no sequencer should go to work without one. I'd love to tell you more, but I'm off to write a couple of hit singles before the rest of the world gets its hands on these sounds! **SOS**

*"The DM5 is a worthy successor to the D4. No sequencer should go to work without one."*

## SOUNDS INTERESTING...

With over 550 possible sounds, I'm obviously not going to deliver a blow-by-blow critique on each one, but there are some notable areas that deserve a mention. For a start, arguably the best of the D4 sounds have been retained, but these have been augmented by even more acoustic drum sounds. On top of the mandatory electronic Rolandesque offerings, there's several rave style stabs, a whole new raft of ethnic voices, including tablas, urdu, bolan, Oobla, American Indian drums, talking drums and lots of other stuff I wouldn't even pretend to recognise. All this is

very welcome when you consider the high level of interest in world music at the moment, but due to memory limitations, there aren't as many different samples of each instrument as you might like. For example, even with five different tabla sounds (one of which is a chord), you still don't get the flexibility you'd have from a full set of tabla samples. It would have been easy for Alesis to go over the top and fill the machine with 'fashion victim' sounds, but I think they've managed to make the DM5 very contemporary without limiting its useful life.

## FURTHER INFORMATION

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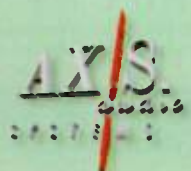
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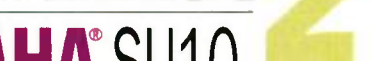
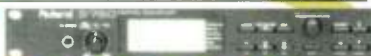
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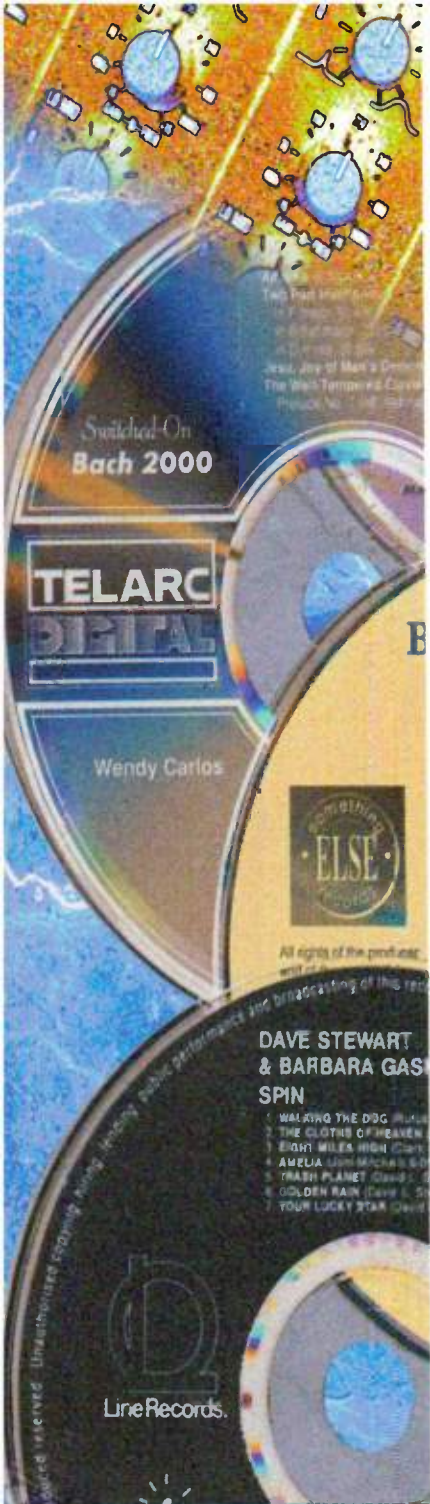


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**WHAT MUSICIANS NEED**



# How to become a Record Prod

Having resolved the nebulous role of the record producer in Part 1, this month DAVID MELLOR addresses the practical matter of pre-production.

## PART 2 — PRE-PRODUCTION

**T**he natural habitat of the record producer is often assumed to be the recording studio, for obvious reasons. But only part of the process of making a successful recording takes place there. Before the producer and band or artist even enter the studio, there is likely to be a period of pre-production, to work on the music, the arrangements, and allow the musicians and producer to develop their ideas.

To do all of this in a studio costing hundreds of pounds a day would be wasteful. Of course, there are some bands who practically live in the studio from day one. The Rolling Stones are famous for coming into the studio with their

instruments, entourage and hardly anything else. If you can afford it, this way of working has a lot to commend it. Not only does it concentrate the mind, it allows spontaneity and encourages experimentation. If the tape is rolling continuously, there is every opportunity for the magic of the moment to be captured for further development — but few of us could possibly afford to work in this way.



Phil Fearon

### PRODUCER'S VIEW — PHIL FEARON

Phil Fearon has developed from being a successful artist, and probably one of the first serious home studio owners, to being chairman of the Production House dance label, where he now sees his role as an 'Executive Producer,' overseeing the work of others, and making sure it is progressing satisfactorily towards a commercially successful release. Baby D's recording career started on Production House, and they have since moved on to major label status — with

Production House maintaining their involvement in the management side of things.

• **ASSESSING THE DEMO:**

"So many records sound the same, and I am straining to find a little bit of originality. Songwriting ability is the greatest thing I look for, and the creative element. We normally only take on writers who can produce and do some kind of engineering. The people we work with tend to have three or four talents all rolled into one."

• **SONG STRUCTURE:**

"I don't get much involved for the club version, but when it comes to airplay, that's when I would give my opinion. If it is all beat and no music then that's cool, but if I think it's a little more radio-friendly or better for the video, then I do get heavily involved, to make sure that the main parts are featured in the four minutes. I

may throw my weight around, but when we are spending big money, I want to make sure that it is absolutely correct."

• **UNDERSTANDING THE STYLE:**

"Producers now often come from being DJs. They are out there, and they just know what the kids like on the dance floor. It's very useful to know what this week's tempo is, and what it's going to be in a couple of weeks' time. It's changing every fortnight, but it's a subtle change — and only the DJs have got that on-the-button knowledge."



## ASSESSING THE DEMO

Suppose you specialise in producing bands. Your first point of contact with the band will be either a live performance or a demo tape. A live performance may not tell you much, but it will help you to determine where the balance lies between the appeal of the band's members as musicians or personalities, and the appeal of the music itself.

As far as selling product goes, it has to be said that sometimes the music is simply a means to an end. If the band do have the ability to excite the audience, and yourself as a producer of course, then a demo tape will allow more critical assessment of the material. It will be your job to supervise the transformation of these rough-and-ready home recordings into a professional product, and this transformation is not going to happen all by itself.

People in the music industry generally fall into three types: those who don't know if they like

# ucer

something unless they can see that someone else likes it, those who can see talent when it is shoved in their face, and finally those who can see potential. A producer must be able to recognise the presence or absence of potential in a band or a song from a very rough recording. Although high-quality recording equipment is available at a low enough cost for almost everyone to afford, it doesn't turn people into producers overnight. An ineptly recorded demo can disguise a brilliant song to the point of invisibility. Conversely, many demos are very well recorded from a technical point of view, but the spark of excitement and originality is sadly lacking.

Once the producer has spotted the potential in a song, then their next job would be to think of ways in which this potential can be realised. A musically-orientated producer (as opposed to one from an engineering background) may start thinking about the arrangement and structure of the song, sometimes rearranging the whole thing before even entering the studio. Or, they may prefer to allow ideas to develop at their own pace, knowing that the band will probably be able to take on these ideas and develop them further.

Also at this stage, the producer will be thinking of what the potential problem areas might be. Is the drummer any good, for example, and can the singer sing in tune? If the drummer is at the 'good for an amateur' stage, then options might include lots of rehearsal, a few lessons with a pro, acceptance that the band is what it is, or directing the person in question politely to the end of the dole queue. No-one said that being a producer was going to be easy.

Still at the demo stage, the producer may also play a part in selecting which songs go on the album — although the record company will decide which songs are released as singles. With a band, the producer may simply hint very strongly that a certain song is not really up to it, and that they

## PRODUCER'S VIEW — PHIL HARDING

Phil Harding came into production through engineering, from early days at Marquee Studio through to Chief Engineer at Stock, Aitken and Waterman's PWL 'Hit Factory' Studio, and now to co-producer (with keyboard player and programmer Ian Curnow) of East 17's *Up All Night* album.

### • ASSESSING THE DEMO:

"Demos generally come from managers, publishers and record companies. If someone sends a demo through to us direct, then we tend to pass over it — not necessarily because it isn't going to be any good, but we are not really business people. We have never had any success with anyone without a publisher, manager or record company behind them. Our forte is being able to fulfil the potential that an artist has put into their demos, once we have been approached by someone who has the power or money to see it through."

### • DEVELOPING THE DEMO:

"Because Ian and I are writers, we will take something on, even if we feel that it needs shaping in a different way. We'll go as far as rewriting it if necessary, but there is a fine line between changing an arrangement and becoming a co-writer. Many producers end up doing that, but are not able to get a co-writing credit because they haven't agreed it with the artist's management beforehand. You can get into all sorts of fights."

### • INSTRUMENTATION:

"We tend to programme most of what we do, but we did some production recently with Let Loose.

They wanted the final record to have as much live drums and live guitar as possible. We programmed a lot beforehand, and combined it with the live drums and guitars, and then sat down with them afterwards, to decide how much of the live stuff they wanted to use and how much of the programmed stuff. But generally, most of our records are programmed from top to bottom, apart from the vocals, obviously."



Phil Harding.

should write a few more that are similar to one he prefers. With a solo artist who is not a songwriter, the producer may have such a degree of control that he is choosing all of the songs and merely acknowledging the singer's preferences.

The role of song selection might be extended, and the producer may say that he likes a song, but it needs certain changes. For example, if a song has the potential to be a single, then whatever it has that gives it that potential must happen very early on, if it's to stand any chance of getting radio play. If the producer is a songwriter himself, then he may add ideas to the song, or even partially rewrite the song. In extreme cases, the producer may end up getting a co-writer credit and a share of the ensuing royalties.

## REHEARSAL

Rehearsal can take place in three locations: at the producer's or artist's home, at a rehearsal studio, or at the recording studio. These are listed, obviously, in order of rising cost. For some styles of recording, particularly using experienced session musicians (who may charge rates well in excess of the Musicians' Union minimum) it may be cost-effective to rehearse during the session, just prior to the recording. But where just a band is involved, the members all have a financial interest in the success of their recording — so their rehearsal time comes free, and doesn't impose any additional loading on the budget.

Early rehearsals are conveniently done at home. Song structure is easily plotted with just voice and guitar or keyboard. This would be a good time to alter lyrics, or to tinker with the melody line of the

# How to become a Record Producer

► song. Most singers have a fairly narrow range of notes over which their voice is at its best, so the key of the song can be changed accordingly. There is always the option at this point of choosing a key that is slightly too high, because the singer doesn't have to do the song all in one go, and can do as many takes and punch-ins as necessary. This does of course store up a problem for later live performances, but the producer will be off working on another project by this time!

A rehearsal studio is a good place to work on arrangements, and to allow the members of the bands to settle into their performances. Once upon a time it was normal for a band to write some songs, go off on tour with them, and then record the album. Now of course, a band goes on tour to promote their new CD. There is a balance to be struck between the amount of rehearsal necessary for the band to perform to the best of their ability, and the risk of over-rehearsing, which is not to be underestimated. Sometimes the right amount of rehearsal will be practically none at all — and the first time that the band plays the song all the way through without making a mistake will be their best performance ever. That should be the one that is recorded. Although excessive

rehearsing can detract from spontaneity, it gives the opportunity to try out different arrangements. Perhaps the first rhythm that the drummer and bass player settle into isn't the best one for the song. Perhaps experimenting with another way of playing the song will give a fresh insight on the original, and make the performance better.

Although the rehearsal studio is obviously a good place to rehearse, an even better place may be a budget recording studio. There's always the risk that something may be recorded, just as a tryout, which proves impossible to recapture later. Everyone who is involved in recording will experience this sooner or later. This is also a nervous time for the producer, who could still face the sack if the A&R manager decides the demos are no good!

## PROGRAMMING

In the parallel universe of sequenced music, then the rehearsal stage takes quite a different form. It isn't sensible at the highest professional level to record a band in anything other than a proper studio, but it is perfectly viable to sequence tracks at home, and then take all your MIDI and computer equipment into the studio and transfer your work onto tape. Although there is something to be said for experiencing great sound on big studio monitors while you are programming, it isn't really cost-effective to do this when you can work for free with no time pressure in the privacy of your own home studio. In sequenced music, it is far more common for the writer/musician to be his or her own engineer and producer all at the same time, at least at the programming stage, and then continue to produce in a commercial studio while a specialist engineer handles the faders.

In band recording, there is always the difficulty of recognising when something is 'good enough', which is an important part of the producer's skill. In sequenced recording, 'perfection' is easily attainable, and the producer's skill is more biased towards understanding the infinite subtleties of precisely what the club-going and record-buying public would like this week or next week. The art of programming consists of the selection and processing of sampled loops (which usually require copyright clearance, as will be outlined later in the series) or the creation from scratch of a 'groove'.

The importance of the groove in dance music cannot be underestimated. There are plenty of people who watch *Top Of The Pops* who say, "I could write a song like that," without really understanding the style. Maybe they could, but could they invent the groove to go with it? It's up to a producer to guide and direct a programmer to come up with a foundation that will support the song.

Finally, whether your style of music is sequenced or played live, the pre-production process is a process of trial and error. It's here that people come up with ideas, try them out, and then the producer selects the best of the bunch. The next step is to put together the team that will turn a song, and a collection of production ideas, into a recording.

SOS

## THE PRODUCER'S HOME STUDIO

The first rule of home studios is that they are not compulsory! We ordinary mortals have home studios because a good home studio is much less expensive than hiring even the crustiest commercial studio. But if you are working at the highest level of music, then you will have the budget to work in a top studio, and if you are successful you will be doing so regularly.

If you work with sequenced music, however, then you will obviously have your own keyboards and sampler. Once you've taken the next step of buying a sequencer, you've effectively acquired a studio without really meaning to. The question now would be, how much of this equipment do you want to transport to a commercial studio once you have sequenced your basic tracks? Bear in mind that taking your whole setup apart and re-erecting it somewhere else isn't a whole load of fun. In this field of music, it would be wise to find a well-equipped studio which you could use, and choose equipment similar to theirs. If you have the same sampler and sequencer, you might find that all you need to take with you are a few floppy disks and maybe your source material for loops. The synths might be different models, but it shouldn't be too much trouble to find sounds that fit what you have in mind.

Since you have the basics of a recording studio at home already, then a worthwhile next step could be to record vocals there too. You might just be thinking of trying out a few ideas, or your singer might suddenly get the urge to record — and it

would be unwise to waste their energy and enthusiasm. To record vocals you need a quiet, dry acoustic, a good microphone (such as that perennial favourite, the Neumann U87), and a digital multitrack to which you can synchronise your sequencer. If your mixing console isn't really up to the job, then you should buy a rackmounting mic preamplifier. The mic and preamp will cost a bit, but if you are recording vocals at home you shouldn't skimp on cheap equipment. Your equipment must be exactly as good as the equipment in a top studio, even if you don't have as much of it.

If non-sequenced bands are your speciality, then there isn't much point in having a home studio. If it was good enough, then it would have cost so much you would have to open it up for hire to make it pay — and I think you probably want to be a producer rather than a studio manager! This doesn't mean that you can't do some work at home. You may have a digital multitrack and a small mixing console which you can use to compile parts of several vocal takes into one good one. This can be time-consuming, and you can probably do it better by yourself in your own surroundings. You may also want to have a computer and sequencer for the odd bit of sequencing that needs to be done, or to prepare click tracks in advance of the recording session. There are no rules. Just consider what is practical and cost-effective to do at home, and remember never to lower your standards and do something at home which you could have done better in a proper studio.

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# Natural Selection

**You might think that EQ is simply a tone control, but as PAUL WHITE explains, it's really a powerful mind-manipulating tool inextricably linked to the survival of the species!**

**W**hen the term 'EQ' (equalisation) is mentioned, most people think of tone controls that make things sound brighter, more punchy, warmer, bassier and so forth. In this short article, however, I'm going to try a fresh approach to what EQ does, and how it can be used more effectively.

To start at the beginning, we really should ask ourselves why we need EQ at all? Why is it sometimes a good idea to change the tone of a sound? In the early days of EQ, tone control circuits were developed to help compensate for technical inaccuracies elsewhere in the recording or broadcast

## EQ: A NEW PERSPECTIVE

Over the past couple of decades, EQ has moved further away from the corrective domain, and fallen in with the effects boxes as a creative effect in its own right. Instead of simple bass and treble 'tone' controls, even the most basic recording mixers now offer mid-band control, often with a variable frequency or sweep function, while in more sophisticated systems, there's parametric EQ, where frequency, bandwidth and degree of cut/boost are all adjustable. But aside from explaining the origins

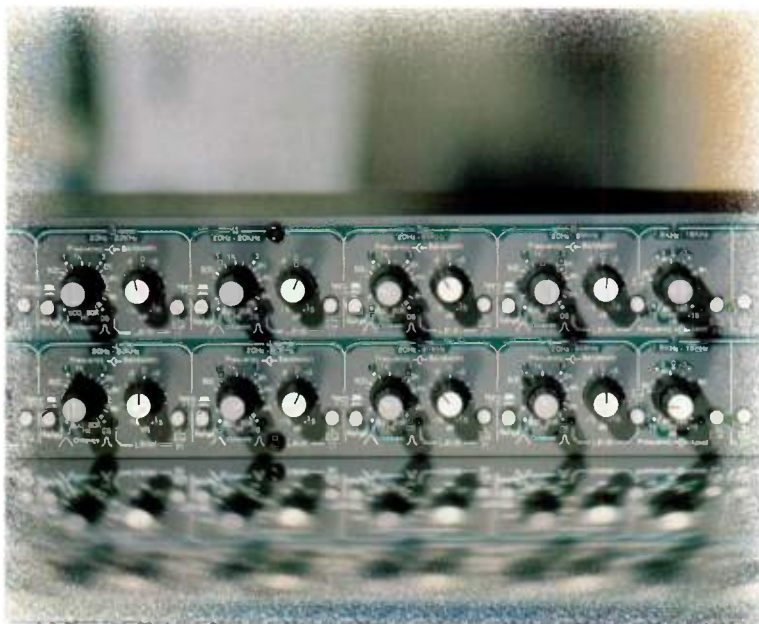
of EQ, this still doesn't address the *real* reasons why we want to make things sound brighter, bassier, or whatever.

### AN EAR TO THE GROUND

My contention is that EQ isn't so much about tone as it is about psychoacoustics — the way various nuances of sound affect our perception of the world around us. And, like so many areas of psychology, the root of psychoacoustics undoubtedly date back to the days when survival was more important than setting up a really hot mix. Nature has its own, built-in EQ system in the form of distance. Low frequencies propagate slightly faster than high frequencies, so the further away the sound source is, the greater the time lag between the fundamental pitch of a sound and its higher harmonics. This doesn't in itself change the spectral content of the sound, but the change in phase relationships of the various harmonics

does cause us to perceive the sound as being more distant — and in terms of survival, less demanding of immediate attention.

The other thing that happens when a sound has to travel a long way is that the high frequencies are absorbed by frictional losses within the air itself, and the higher the frequency, the greater the absorption. This does affect the spectral content of the sound, and the further away it is, the less bright it appears to be. Again, 'less bright' equates to 'more distant,' especially when closer sounds are being registered at the same time. In real life, this



chain, obvious examples being microphone coloration and room acoustics. EQ could also be used to change the subjective level of a single instrument in a complete mix — for in those days, EQ was thought of as being a volume control that worked over just one part of the audio spectrum. Nowadays, even home recording equipment comes with impressive technical specifications. There may be less need to use EQ to paper over the cracks in the technology, and yet ironically, EQ seems to be more in demand than ever. Why?

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# EQ: A NEW PERSPECTIVE

- ▶ would make us take less notice of the howling wolves in the distant forest than the sabre-toothed tiger dribbling at our feet! Putting it concisely, naturally created EQ is a way of making us pay attention.

Back in the modern world of the studio (where sabre-toothed tigers are rather less of a problem), we still exhibit essentially the same reaction to sounds. To get somebody's attention, you have to place a sound very close to them, and as recorded music is simply an illusion (and stereo doubly so), you have to use the tools at your disposal to create the illusion of closeness. That's what we're doing, often subconsciously, when we use EQ.

Equaliser circuits are designed to lift or cut parts of the audio spectrum relative to other parts, but one of the side-effects of EQ is that you also introduce phase differences between the high and low frequency components of a signal. Sound familiar? A touch of high frequency EQ and an increase in gain can make a distant sound appear closer, by compensating for the high frequency loss due to air absorption. At the same time, the phase changes introduced by the equaliser can help offset the fact that the higher harmonics have been delayed by their passage through air. If this can make distant sounds appear to be closer, then it stands to reason that close-miked sounds can be made to appear closer still, by adding top end.

This brings me on to the subject of why EQs can sound different, even though they claim to be working at the same frequency. While the effect of an equaliser's performance on the spectrum of the signal being processed is well documented, there's usually far less said about the way the equaliser affects the *phase* of the signal. There's now a growing belief that what an equaliser does to phase is just as important as what it does to frequency response. Indeed, some engineers believe that you can build an EQ that affects *only* phase, and not the frequency spectrum.

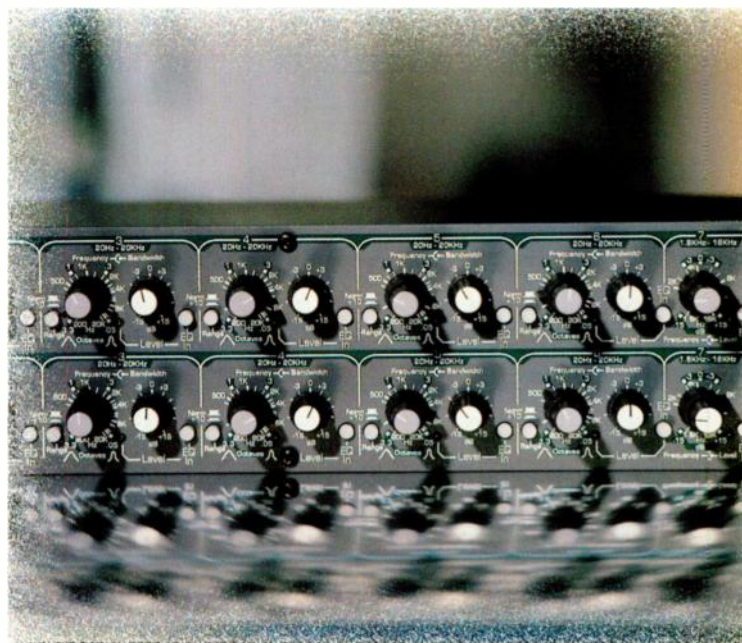
In some respects, these opinions are given credence by the success of various enhancer circuits, which have a minimal effect on the frequency spectrum of the sound being processed, yet create a significant impression of closeness and clarity. It's also true that a very small adjustment on a good equaliser will bring a sound out of a mix, whereas a less sophisticated equaliser requires you to crank up the treble to a point where the signal sounds harsh and nasty before it achieves the required degree of 'up-frontness'.

Before leaving the subject of 'up-frontness', it's also worth adding that there are non-EQ related audio cues relating to distance. These also

need to be simulated, if you are to create a convincing sense of distance or proximity. For example, if someone suddenly whispers in your ear, you hear far more direct sound than reverberant sound. A distant sound will have a wider stereo spread and, depending on the environment, may contain a high proportion of reverberant information, especially in rocky or wooded areas.

## THE DEEP END

If top end EQ affects the apparent proximity of a sound by grabbing our attention, low frequency sounds seem to have a more subliminal effect. This is why repetitive, rhythmic sounds usually include a lot of low frequency information. Much has been said about heartbeats and sounds heard in the womb, and I'm not really qualified to comment — all I know is that you can have a really deep bass sound going on, which can add to the excitement of a track, without ever drawing



your attention away from whichever sounds have been placed 'up front'. However, even the deepest sounds usually contain *some* high frequency harmonics, so you can still use high frequency EQ to move these sounds forward in the mix if you want to make them demand attention.

A lot of engineers use EQ to separate sounds within a mix, to try to keep it from becoming cluttered, but does this work, and if so, why? Our ears are incredibly powerful analytical tools, capable of picking out single instruments within orchestras (or overhearing interesting gossip over the top of dozens of other conversations at a party), so why do we need to enlist EQ to help us make sense of a mix?

Maybe there's no clear-cut answer, and I know that if sounds start to get too similar, then they become harder to differentiate, but I think a lot of it comes down to this 'attention' thing again. If everything in a mix is close-miked and given roughly the same EQ, then it's all going to try to push to the



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# EQ: A NEW PERSPECTIVE

► front, where it will compete for our attention — and the human brain is noted for its intolerance of being asked to concentrate on too many different things at the same time. In a musical context, this leads to fatigue, and a general sense of not wanting to listen any more. To check out what I mean, listen to a CD that's been recorded with everything too bright, and you'll soon want to get it 'out of your face'.

## THROWING A CURVE

So far, most of the techniques discussed can be tried with just a simple bass/treble EQ, but if that's the case, why do we need mid-range controls or parametric equalisers? One obvious application of a band-pass filter (which is what mid-range and parametric equalisers are) is that you can tune the equaliser to the fundamental pitch of an instrument, and then add boost, to increase the instrument's apparent level. If the level of the instrument is then reduced by turning down the gain so as to restore the original subjective balance, frequencies produced by that instrument that are well away from the fundamental frequency will also be reduced in volume. This helps reduce spectral overlap between sounds that might otherwise be too similar. To my mind, this is a corrective process rather than a creative one, and if you can choose more appropriate sounds at source, you'll probably find that the end result is better than using EQ to 'bend' the sounds to fit. But spectral mixing does work, and it's worth exploring to learn its benefits and limitations.

One aspect of natural sound relates not to the sound itself but to the way the human hearing system works. While a good hi-fi amp has a perfectly flat frequency response, the human

quite quiet and distant sounds will appear louder — but they'll still seem far away. Pulling down the mid range can also make a mix appear to be less cluttered, because a lot of the information that's clamouring for our attention resides in the upper mid-range. Using this knowledge, you could, for example, EQ an entire rhythm section to make it sound louder, then overlay it with conventionally EQ'd vocals and solo instruments.

It's easy to make a mix sound loud, by cranking up the monitors so that it *is* loud — but there's more skill in making a mix sound loud and powerful, regardless of the playback level. Using the smile curve theory can help, though you should also check out the use of compression to maintain high average sound energy levels.

## USE YOUR ILLUSION

While not suggesting that you should throw away everything you've learned about EQ in the past, I believe that there is value in listening to the various elements in a mix, and then deciding on a 'pecking order' in terms of which sounds deserve the most attention, and which ones play more of a supportive role. Then you can set up your EQ to help reinforce the sense of perspective. Most people try to achieve perspective using level control — everyone knows that the further away a sound is, the quieter it is — but now you know you can also roll off a little top, just to consolidate the illusion.

When it comes to using enhancers or exciters, try to avoid processing the entire mix if you can, because although these devices do make things sound clearer and more forward, they tend to bring everything forward — when what you really need to do is increase the sense of space between what's at the front of the mix and what's at the back. Better to take your 'front-line' sounds, such as vocals and solo instruments, and give these the enhancement treatment, leaving the more distant stuff unprocessed, or even EQ'd down a little.

Finally, I have always been of the opinion that the less EQ you use, the more natural the final sound will be. So rather than adding lots of top to vulnerable sounds such as vocals in order to get them to sit at the front of the mix, try being more restrained in your use of EQ, and use high-end cut on things like low-level pad sounds, backing vocals and whatever else is playing a subordinate role. This is particularly relevant to those who don't have access to really sweet-sounding, upmarket EQs: most console equalisers are a little unsubtle when used in anything but moderation.

I'm not guaranteeing that these principles will solve all your EQ problems, because some difficult mixes are simply down to an unfortunate combination of instruments or sounds, or even plain bad arrangement. However, if you can get closer to the results you're after by using less EQ, then you just might break the unfortunate trend towards fatiguingly over-bright records.

505

*If you're using exciters (like the Aphex Type C2 pictured here), avoid processing your entire mix where possible...*

hearing system comes nowhere close to being flat. What's more, the frequency response changes depending on the level of the sound being heard. As a sound gets louder, we perceive more low end and more top end, but the mid range becomes progressively more recessed. Looking at a frequency response curve, you'd see a curve with a dip in the centre, often known as a 'smile curve,' because of its obvious shape. The louder the sound, the deeper the smile. The loudness button on a stereo system emulates this smile curve, so that you can play back material at a low volume level, yet still get some impression of loudness.

In the studio, you can create a similar loudness effect by pulling down the mid EQ. Even physically



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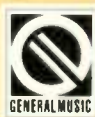
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# Automatic for the People

## YAMAHA O2R DIGITAL RECORDING CONSOLE

**PAUL WHITE**  
*experiences the delights of this all-digital, automated mixing environment where unwieldy cable harnesses and tiered patchbays are a thing of the past.*

**T**o simply call the Yamaha O2R a mixing console is rather like calling a Pentium PC a pocket calculator with a screen! A more accurate description of Yamaha's new baby might be along the lines of a complete, automated digital recording studio bar the tape machines and microphones! Unless you woke up yesterday and suddenly decided that setting up a home recording studio might be a nice hobby, you can hardly have failed to encounter some of the advance information about the O2R, but for the benefit of those lottery winners who've just returned from their world cruise, I'll run through the basic features before diving into finer detail.

### FEATURE-PACKED

Though there are family similarities between Yamaha's Promix 01 digital mixer and the new O2R, they are really quite different creatures aimed at different applications. Based on Yamaha's own custom digital processing chips, the O2R is a 40 input, 8-buss digital in-line recording console with dynamic processing (compression and/or expansion) on every channel. 4-band parametric EQ is available on all channels as well as on the master stereo output, and there are eight aux sends. These auxiliaries are all individually switchable pre/post fader, with auxes 7 and 8 dedicated to the two built-in digital multi-effects processors; the remaining six auxes feed conventional analogue sends. As supplied, the console has 24 analogue inputs (16 mono and four stereo), with the first eight channels equipped with phantom powered mic amps and analogue insert points. All 16 channels can accept microphone or mic levels, though channels 9 to 16 have jack-only inputs and no phantom powering.

Four rear panel slots allow optional plug-in cards to be fitted. These provide access to the remaining 16 inputs and to make full use of the console for multitrack recording, at least one additional card is necessary. For digital multitrack users, cards are available to provide blocks of eight channels of digital multitrack I/O in Yamaha, ADAT or Tascam DA88 format, and for those working with other types of digital machine, AES/EBU interface cards are also on the options list. Apart from keeping everything in the digital domain,

the digital multitrack interface simplifies studio wiring enormously; in the case of the Alesis ADAT XT I employed for this review, for instance, only two optical connectors were required.

Cards are available to provide additional blocks of eight analogue I/O, for analogue machine users, and a Digital Cascade card enables two O2Rs to be linked together and run as a single system. It should be noted that both the AES/EBU digital I/O card and the 8-channel analogue I/O card take up two slots each, so it is conceivable that you might run out of slots. This being the case, you should consider your future expansion requirements carefully before committing yourself to the O2R route.

Multiples of the same type of card may be used so that you can interface up to 32 tracks of digital multitrack or 16 tracks of analogue. Other optional extras include a peak meter bridge, wooden side cheeks, and additional memory for storing mix data.

Given that this console is digital, you would expect some degree of automation, but on the O2R you can automate virtually everything (except the mic amp gain controls and the control room monitor level). Most mid-price analogue consoles can only offer level and mute automation, but with the O2R you get moving fader level control, programmable mutes plus fully automated EQ, aux send/returns, panning, routing, switch settings (including Flip) and effects patches. What's more amazing is that you get all of this for less than you'd expect to pay for a budget analogue console with only moving fader automation.

Before moving on, I'd like to answer that niggling voice inside your head that's asking why you should want to automate all these controls when in a real life mix, you'd probably only move a handful of them from start to finish. The answer is *recall* — the ability to recreate your most complex mix in every detail simply by loading in your mix data. With a typical analogue console (even one with level automation), you still have to remember the original EQ settings, the effects patches you used, the settings on any external compressors or gates, the settings of the input and output knobs on the effects

### YAMAHA O2R £7049

#### PROS

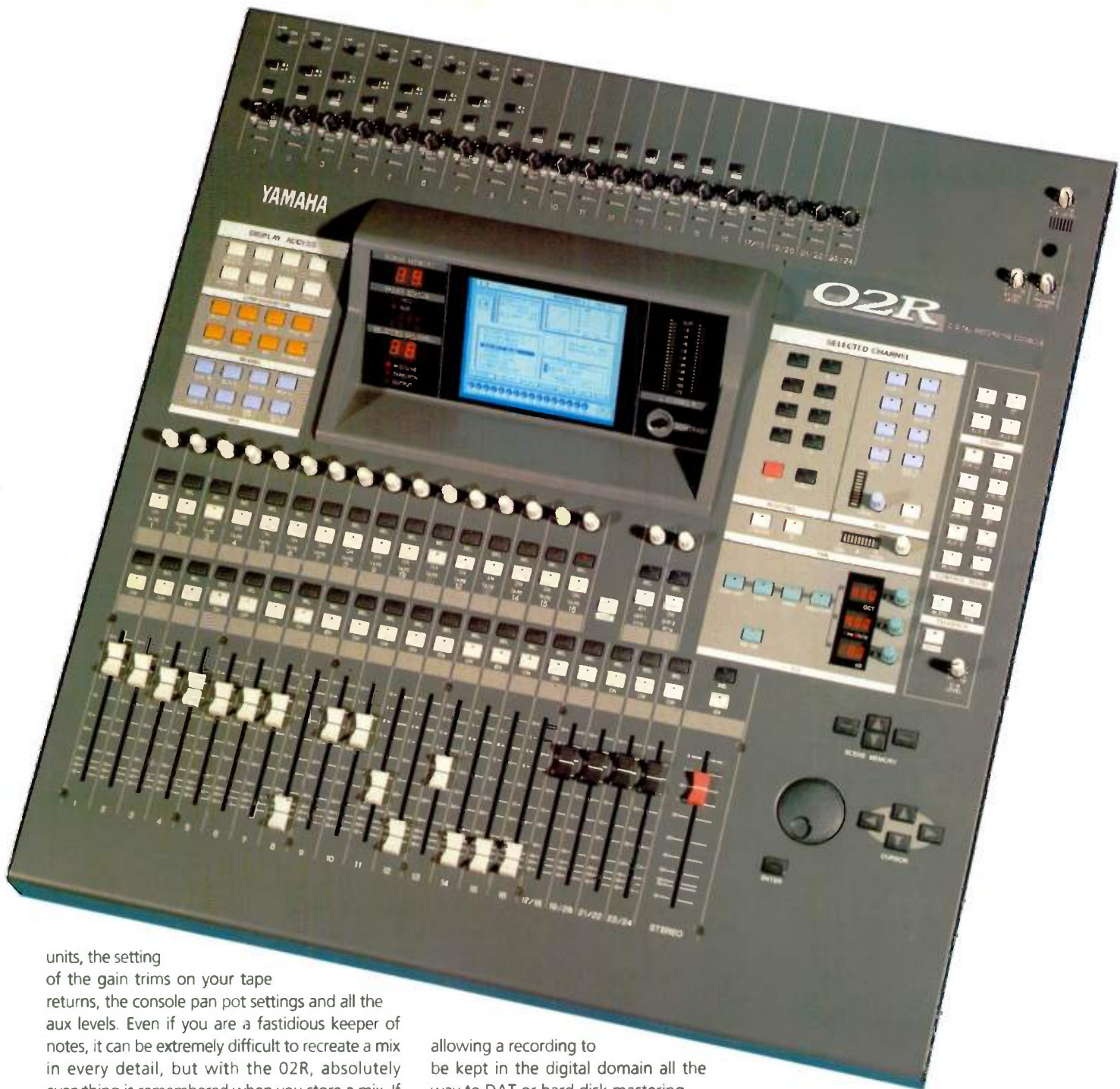
- Complete automation and recall at an unbelievable price.
- Very clean signal path.
- Good manual.
- Clearly thought-out operating system without the curse of multi-function buttons everywhere.
- Project Manager software for Apple Mac users.

#### CONS

- Cursor control is too slow and clumsy for some of the functions that you'd normally expect to perform in real time. A row of 'soft' buttons below the screen could have made the interface faster to use.
- No built-in disk drive for archiving of mix data.
- Certain users may find there are insufficient expansion card slots for their needs.

#### SUMMARY

An impressive combination of value for money, features, performance and compact size. Unless somebody else comes up with a miracle, the O2R seems set to become a project studio standard, not to mention its applications in professional audio and video post-production work.



units, the setting of the gain trims on your tape returns, the console pan pot settings and all the aux levels. Even if you are a fastidious keeper of notes, it can be extremely difficult to recreate a mix in every detail, but with the O2R, absolutely everything is remembered when you store a mix. If you've ever worked in a commercial recording environment, you'll appreciate how valuable this feature is, because clients invariably come back and want to make minor changes to an otherwise perfectly good mix.

Though the final product of a recording these days often ends up on a 16-bit DAT tape, it's no longer good enough to use a mixer with only 16-bit input resolution on the analogue inputs, because this will become degraded as signals are added or changed in gain. Recognising this, Yamaha have equipped the O2R with 20-bit, 64 times oversampling input converters and augmented these with a 32-bit internal signal path, based around twin RISC CPUs and Yamaha's own 32-bit DSP chip.

The sampling frequency can be set to either the 44.1kHz of CD or to the 48kHz standard, and if clocked from an external source, the sample rate can be varied from 32kHz to 48kHz, plus or minus 6%. The O2R also features a digital stereo output,

allowing a recording to be kept in the digital domain all the way to DAT or hard disk mastering.

### WATCHING THE CLOCK

In any digital recording system comprising two or more pieces of digital equipment, one device must act as the 'master clock' and all the others must slave to it. In a fully professional system, a master word clock generator might feed all the different digital devices, keeping them all synchronised. In a more typical setup involving the O2R and a digital multitrack, the digital multitrack would be the master, the O2R would slave to the multitrack, and the DAT mastering machine would slave to the O2R. Conversely, ADAT/BRC users can take a master word clock directly from the BRC and lock to that.

As with a conventional mixer, the O2R allows the 2-track mixes to be played back over the control room monitor system, and for the benefit of DAT users, a digital input is provided for this purpose. However, to avoid potential clock

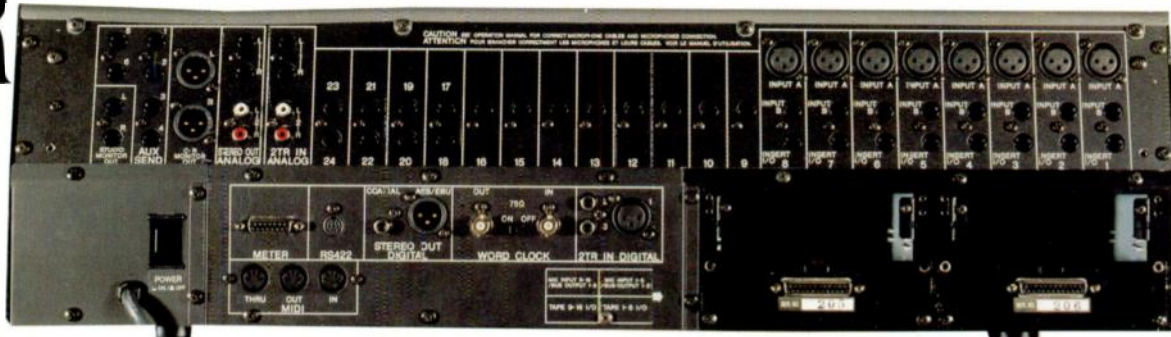
### PRICES

Standard O2R Console . . . . .	£7049
Meter Bridge . . . . .	£1199
Memory Expansion . . . . .	£449

#### PLUG-IN CARDS:

Digital Cascade . . . . .	£799
Analogue I/O . . . . .	£649
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Tascam I/O . . . . .	£299
Yamaha Y2 I/O . . . . .	£299

# Yamaha O2R



Rear panel showing the expansion card slots (bottom right).

## MIDI

The O2R console is equipped with standard MIDI In, Out and Thru sockets and will synchronise to MTC (MIDI Time Code) via a dedicated MTC input. This port also accepts Program Changes (used to change Scene memory under sequencer control) as well as System Exclusive (SysEx) data, which may be used to change the console parameters directly, or to reload archived mix information. MIDI control data is not recognised.

Using SysEx, the O2R can send and receive Scene Memories, Automix Memories, System Setup Data and a Program Change Assign Table as well as library settings for the effects, dynamics, EQ, and channels. The MIDI setup pages for the O2R are called up via the MIDI button, and it is here that the program assignment table is created and that dumps are sent and received.

## EQ HEAVEN?

Each of the O2R's 40 channels can benefit from true 4-band parametric EQ, which on a traditional console would require 12 dedicated knobs per channel. On the O2R, there are just three knobs in the Selected Channel section. When combined with four buttons to select Low, Low Mid, High Mid and High, these knobs provide access to the bandwidth, gain and frequency parameters for whichever band is selected. There's also an EQ bypass button.

The High and Low sections are configured as variable Q filters, but when the bandwidth control is set to maximum, they change to a shelving filter — very neat. The two Mids are conventional parametric filters, but all four bands have exactly the same tuning range, 21Hz to 20.1kHz. The gain range is

+/-18dB in half dB steps and the Q value can be as wide as 10 or as narrow as 0.1. In shelving mode, the High and Low equalisers have a 12dB/octave response. The graphic representation of the equaliser response in the display window is very useful in interpreting EQ settings, as is the small meter readout which helps avoid overload.

Strangely, you seem to need to add more of the O2R's EQ than you'd expect to in an analogue console to achieve the same results, but the end result doesn't sound over-equalised (unless you go really wild, of course). Analogue proponents may say the EQ lacks warmth, but I like the way it preserves clarity, even when you add a lot of low-end boost.

- ▶ problems, the converters used in monitoring the DAT machine are not locked to the rest of the O2R's circuitry.

## HARDWARE POWER

It's difficult to equate the power of the O2R with its modest appearance and size, which is little larger than a conventional 16:2 analogue desk. This compact format is made possible by a carefully designed user interface which owes a lot to Yamaha's DMC 1000 pro audio console, though conceptually it's the way many other digital worksurfaces seem to be heading, too.

To make everything fit, Yamaha have designed their desk to operate as an in-line console, with the rear panel analogue inputs normally feeding the faders and with the optional multitrack interface cards feeding a row of level knobs, located half-way up the front panel. A Flip switch can be used to reverse the roles of the faders and knobs — a common enough feature on analogue desks, which allows the faders to be used for setting the recording levels, after which they can be flipped to control the off-tape mix. However, you can't flip channels individually as you can on some desks — the function is purely global.

During mixdown, the faders can be used to control the main off-tape mix while the knobs may be used to control the levels of external instruments or processors being fed into the mix via the analogue inputs. All sound engineers work in slightly different ways, but having a Flip option always lets you use the faders for whatever task you consider is most

important. In most other respects, the channels are identical, unlike some analogue consoles where the monitor signal path has to make do with half an EQ and only one or two aux sends.

## ASSIGN OF THE TIMES

Each O2R channel has its own fader or knob, an On button and a Select button. Apart from these, there are no more discrete channel controls. So how do you get to the EQ, aux sends and pan? That's where the Select button comes in, because over to the right of the console (directly beneath the O2R logo) is a grey panel area entitled 'Selected Channel'. In this panel is just one set of channel controls providing access to routing, aux sends, EQ and panning — and rotary knobs are used for easy data access. When any channel Select button is pressed, the Selected Channel controls are automatically assigned to that channel, so any channel control is really only a button push or two further away than it would be on a conventional mixing console.

In the centre of the console is a large LCD window which provides a detailed graphic overview of different parts of the system, depending on which function is selected for editing. Regardless of what window is selected, the very bottom of the screen shows the settings of the 16 channels and two aux returns controlled by knobs. Alongside the display are a couple of 7-segment numeric windows plus a status display showing what functions the moving faders are currently controlling. The first numeric window shows what Scene is currently active, and also shows when it has been edited, while the second indicates which channel is currently selected. However, you don't have to use the Select Channel option to work on all the controls of one channel if you don't wish to — you can approach the task from the opposite end, and utilise the Display Access panel to the left of the console to let you get at just one control for all the channels across the console.

When using the Display Access mode to change aux send parameters, for example, the motorised faders assume the role of the control being accessed, allowing the effects send level to be changed directly with the fader. However, when functions such as Pan or EQ are accessed, virtual controls are displayed on the screen. These can be selected using the cursor controls on the left of the console, then adjusted using the data entry knob. Alternatively, they may be accessed ▶





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- 1 Mb 16-bit Classic Organ Sample Wavetable
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**Spectrum™ Synth** contains 256 (64RAM/192ROM) classic synthesizer presets including analog, digital and hybrid sounds. With 24 dynamic resonant filters, hard sync and pulse width modulation, the Spectrum Synth emulates classic analog synthesizers better than any other digital instrument. Presets can be edited and saved to RAM locations using the PC-1600 MIDI Controller.

- 2 Mb 16-bit Classic Synthesizer Sample Wavetable
- 256 Presets (64 RAM /192 ROM)
- 24 Oscillators
- 12 Voice Polyphonic
- 12 Dynamic Resonant Filters and 24 LFO's
- Poly and Legato Receive Modes
- Hard Sync and Pulse Width Modulation
- Stereo Audio Outputs



**Spectrum™ Bass** contains 200 presets including classic analog and digital synthesized basses, as well as electric, acoustic, fretless and slapped sounds. The Spectrum Bass includes sustained and legato versions of most presets sounds. Up to 4 presets can be layered on separate MIDI channels to create incredibly fat combination sounds. Individual presets can be edited using the PC-1600 MIDI controller.

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- 8 Dynamic Resonant Filters and LFO's
- 4 Part Multi-timbral
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# Yamaha O2R



*The Selected Channel controls provide direct access to routing, aux sends, EQ and panning for the currently selected channel.*

► directly via the Selected Channel controls — this is usually easier.

The Dynamics and EQ functions have several controls per channel, though it isn't possible to view more than one of these at a time. Initially, it may seem confusing that sometimes you can change the same parameter using either the faders, the big data entry knob or the smaller data entry knobs in the Selected Channel area, but in practice this flexibility makes it easier to work the way you want to.

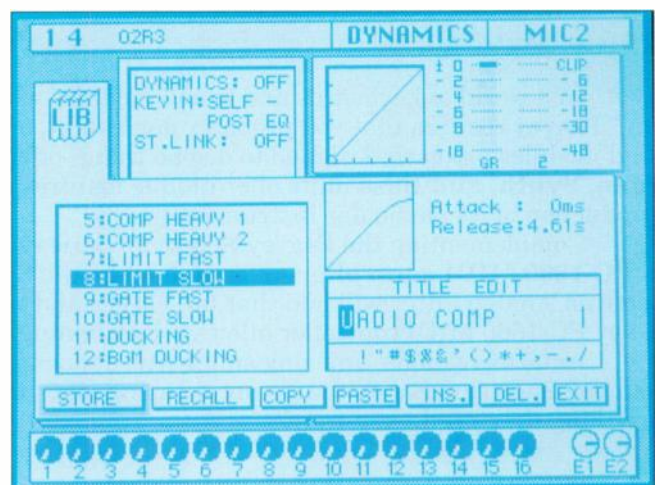
For jobs involving stereo signals, it is possible to link two channels together by holding down both Select buttons and then confirming your action in

the pop-up dialogue box that subsequently appears on the screen. Alternatively, you can use the Pairs window to bring up the corresponding display; this shows two rows of broken ears which become mended when linked — very cute! When mixing you can also set up groups of faders, allowing any number of channels to be simultaneously adjusted via one physical control. This is in addition to four individual mute groups, which enable groups of channels to be switched on or off with a single button press.

## AUTOMATION

I must admit that I originally expected the O2R to come with a floppy disk drive for mix data storage, but that isn't the case. All the mix data is saved in non-volatile memory. When full, the easiest way to archive old mixes is to use a MIDI data filer. Alternatively, Apple Macintosh owners can use Yamaha's own project management software to do this [see 'Project Manager' sidebar for details]. As supplied, the O2R has 512K of mix memory which can be expanded to a maximum of 2.5Mb, though even the minimum configuration is sufficient to hold several different mixes, unless you go mad with the automation. A test 8-track mix employing a few fader changes and effects level changes consumed only 2% of the 512K memory. This was only a simple mix, admittedly, but in real-life situations more often than not the automation moves will be confined to two or three tracks, and even then the faders won't spend all their time flying up and down.

The automation can be used to switch Scenes, to dynamically control any parameter, or a mixture of the two. The most likely scenario is a mixture of the two, where you set up at least one Scene to determine the initial console configuration at the start of the song. Up to 64 different Scenes can be created, named and stored, and in addition to holding EQ, fader, aux, effect, dynamics and pan data, they also include the Flip switch status, the input gain trim/attenuator settings, and individual channel delay times (the latter are sometimes used to correct for 'speed of sound' time delays in multi-miked, live recording sessions, though you



could also use them to delay multitracked vocal parts to create doubling). Scenes may be recalled in three ways: directly from the front panel Scene buttons, switched using MIDI Program Changes, or they may be switched by the Automix computer running against timecode.

No timecode generator is built into the 02R — it always runs as a slave to an external device (unless you use the free-running internal clock, in which case there is no sync at all), but it can lock to both SMPTE or MTC. Personally, I'm surprised that the optional ADAT interface card isn't able to derive sync from ADAT's own real-time subcode. Technically, this should be possible, and for many musicians it would be perfectly adequate. As things stand, ADAT users either have to use a BRC (or something like a JL Cooper ADAT/MTC box) or go back to old-fashioned tape stripping.

Operation of the 02R's automation seems quite similar to that of established automation systems, where the current mix information is held in a current memory buffer and new moves or changes are stored in a temporary buffer. Unless the update is aborted, the data from the temporary buffer is used to update the current memory buffer after each pass, leaving it free for further moves. An Undo buffer always holds a copy of the last mix data, so if you need to go back one step, you can recall 'U' and start again. Due to limited memory space, the 02R doesn't store a history of different mix versions, as some of the existing top-end automation systems do. If you want to store a version of a mix before doing more work on it, you have to deliberately save it.

Storing your Scenes is very simple — you just set up the console as you want it, select a Scene location number to save into and hit the Store button. A dialogue box asks you to confirm or cancel your action and the job's done. Further changes to the Scene can be made at any time by pressing Store once again and confirming when prompted.

One potential problem with Scene-based systems is that the transition from one Scene to the next is virtually instantaneous and can give rise to sudden level changes. One way to reduce this problem is to isolate certain tracks from the automation — for example, the drum and bass tracks will probably

### 02R MAIN FEATURES

- Onboard automation of all digital mixing parameters, referenced to SMPTE/EBU timecode or MTC.
- Instant and total reset of all digital mixing and signal processing parameters.
- 40 input channels and two full-featured stereo internal effects returns.
- 24 'built-in' analogue inputs equipped with 20-bit, 64-times oversampling AD converters, 16 of which are equipped with high quality mic preamps, and 8 with individually switchable phantom power and analogue insert points.
- 8 output busses, stereo analogue (20-bit, 8 times oversampling DA converters) and digital (S/PDIF and AES/EBU) outputs.
- 16 digital outputs to multitrack (8 busses plus direct outs).
- 100mm motorised faders.
- 4-band fully parametric automated digital equalisation on all input (and stereo output) channels.
- Comprehensive 32-bit programmable dynamics processing on all input channels and output busses (equivalent of 50 stand-alone processor units).
- 8 aux sends (pre or post fader) on every input channel; two directly routed to internal multi-effects.
- Programmable fader groups, mute groups, and stereo pairs.
- Digital cascade of multiple consoles with full 24-bit precision.
- Interchangeable digital I/O cards, providing direct digital interfacing with Alesis ADAT, Tascam TDIF, AES/EBU and Yamaha formats, as well as multiple analogue I/Os.
- Comprehensive input and output metering and parameter status monitoring.

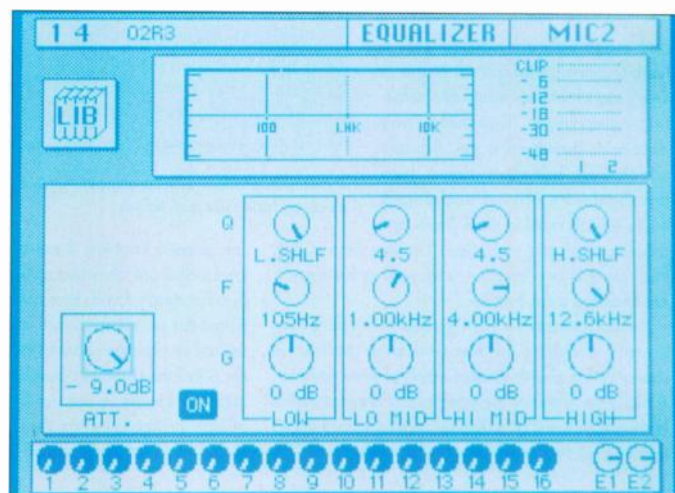
stay at the same level throughout the mix. Yamaha have included an isolation feature, but it is also possible to programme a 'fade-in' rate, so that one Scene can merge into the next over any desired period of time up to a maximum of 10 seconds. Better still, the fade time can be set independently so that different channels fade at different rates.

### MORE PARAMETERS

Before using the automation, it is necessary to configure the system so that it knows what format and type of sync code you are using. When you come to update a mix, you have to check the type of parameters you want to overwrite; the four categories are: Fader, Channel On, Pan and EQ. Aux send levels are combined with the fader mode, and the easiest way to proceed is to use the faders themselves to write aux send level changes to the Automix system. This is probably easier than using the rotary encoder in the selected channel module, which is another way of doing it. When an aux send fader status is active, the Select buttons function as write buttons for the currently selected aux send, allowing previously written aux send data to be replaced.

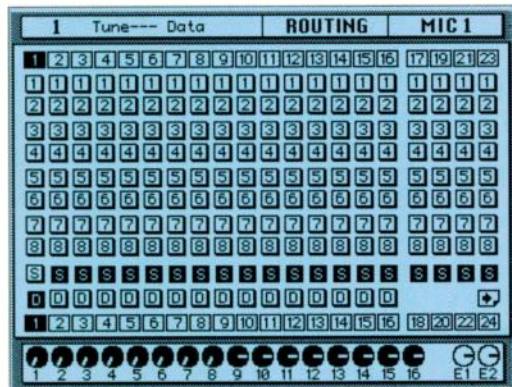
In Absolute mode, the fader movement you see ▶

*“Unless somebody else comes up with a miracle, the 02R seems set to become a project studio standard...”*



# Yamaha 02R

► is what's recorded, whereas in Relative mode the fader may be used to add to or subtract from the levels already recorded. The bottom of the Automix window is arranged rather like a tape transport control section, and selecting Autorecord allows you to drop into and out of mix record mode using the individual channel Select buttons. When using this function, you have to keep in mind that one channel is always selected — the last one you accessed — so you have to take care not to overwrite a channel that you wished to keep.



Routing window: just like a conventional mixer.

A mix always starts with a Scene and a timecode start time, and if you want to abort a mix you need to press Abort before stopping the tape or hitting Stop, otherwise the mix will have been updated. I have to say that I

found the on-screen transport buttons a bit of a pain — this is one situation where a few physical buttons would have been infinitely preferable. However, the Autorecord mode takes some of the strain in situations where you can use it.

A bargraph at the top of the screen shows how much memory has been used. A maximum of 16 mixes can be stored, but if your mixes are very busy, there's a possibility you will fill the memory long before you get 16 songs finished.

When recording or updating part of a mix, only the selected channels will be recorded, and if you attempt to move an unselected fader, its motor

## PROJECT MANAGER

At the time of writing, the 02R's Project Manager software was still in beta test form with a significant number of functions not fully implemented. When complete, which should be very shortly, this Mac-based program acts as an editor/librarian for the 02R allowing mixes, Scene memories and libraries to be handled efficiently.

Editing functions will include direct control over EQ, effects and dynamics, as well as full control over Automix from the Mac's keyboard. Notes can be kept with projects, mixer channels can be named, and a built-in help system is included for both Project Manager and 02R operations.

Project Manager doesn't demand a lot of processing power, so virtually any Mac capable of running System 7 (or higher) and with 6Mb or more of RAM can be used. Only 3Mb of hard disk space is required and the monitor requirements are for a 640 x 480 pixel screen (or larger) with support for either 256 colours or monochrome.

will fight you in an attempt to prevent you from moving it. The manual rightly points out that wrestling with the fader motors is not to be recommended, as it could lead to their early demise. Another potential problem when overwriting fader moves is that the point at which you 'punch out' may result in a level discontinuity, as the fader level jumps to the previously recorded level. To help get around this, you can activate the Return function so that the fader will always return to the previous Automix level. If Return is not selected, the fader will simply stay at the level it was at when you 'punched out'.

The Fader Edit screen represents the levels of all 40 gain controls as bargraphs. When you record a fader update, the display depicts both the current and previous settings, along with an arrow showing you which way to push the fader to match up the levels. Certain edits can also be carried out 'off-line', where events such as Scene changes, channel on/off settings and so forth can be inserted, deleted, or moved to new timecode locations.

For those wishing to burrow further into the 02R's setup pages, there are various user preferences that let you customise the interface to your own way of working, and there are

quite a few control shortcuts that aren't obvious unless you read the manual. There's also a test tone oscillator and a talkback system, but if I try to itemise every facility on the 02R, this review will occupy the entire magazine!

## SIGNAL ROUTING

Although the 02R is an 8-buss console, the first 16 channels may also be routed directly to their correspondingly numbered tape outputs, so it's quite possible to record more than eight tracks at

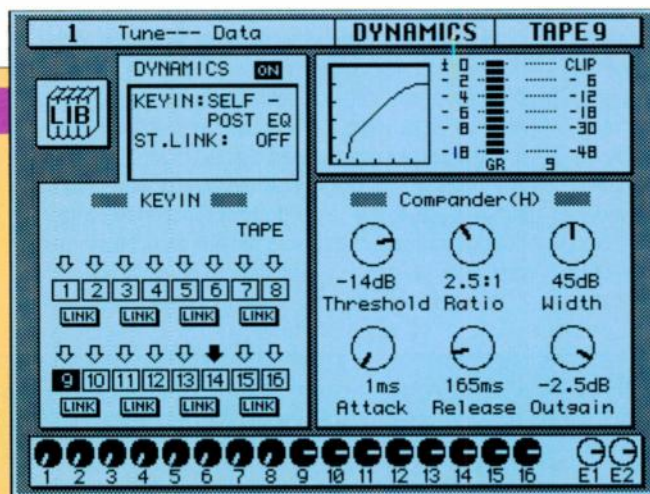
## BUILT-IN DYNAMICS

Each 02R channel may be assigned its own dynamics processor. This can be set to function as a compressor, a gate, a ducker, an expander or a combined compressor/expander (more like a compressor/gate combination).

Taking this last function first, the compressor part is set up as normal via threshold, ratio, attack, release and make-up gain parameters. A further parameter called Width is then used to set how many dBs below the compressor threshold, the expander threshold is set. Signals which fall between these two thresholds are passed unchanged while signals outside these limits are subjected to gain reduction. The outcome is that loud signals are levelled and very quiet signals are reduced even further.

In the compressor-only mode of operation, there's a choice of hard-knee or soft-knee characteristics, with several levels of knee severity. A nice little graph of the compressor characteristics is shown in the 02R's display, along with a meter reading of the amount of gain reduction. The

compressor controls themselves are depicted as knobs and are accessed using the cursor keys and the data entry knob. Pairs of compressors may be linked for stereo operation and the keying may be set pre or post the channel EQ, or even pre or post the EQ of the channel immediately to the left, where external keying is required. When the dynamics editing section is in use, the Enter button functions as a dedicated dynamics on/off button.



Dynamics window where compression, expansion and ducking functions are set up.

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AUDIO TECHNICA 4033	NEW	621	399
BEYER M420 dynamic	NEW	187	99
BEYER M260 ribbon	Ex-Demo	445	199
BEYER MC834 Condenser	USED	821	550
GROOVE TUBES MD1 system inc PSU etc	Ex-Demo	800	674
GROOVE TUBES MD2 system inc PSU etc	Ex-Demo	1299	974
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TANNOY SYSTEM 10 NFM II	Used	1139	595
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JL COOPER MixMate 8 chan VCA auto	USED	499	149
SONY HR-RC5 foot controller	Ex-Demo	299	125
TASCAM IF500 parallel interface	Ex-Demo	549	99
TASCAM MH-40 4 chan headphone amp	USED	n/a	125
TASCAM 464 Portastudio	USED	n/a	399
TC ELECTRONIC 0144 foot controller	USED	n/a	150
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DIGIDESIGN Session 8 complete system	Ex-Demo	n/a	3499
FOSTEX D5 Pro DAT recorder	NEW	999	789
FOSTEX DMT-8 (slight mark on case)	Ex-Demo	1499	1299
PHILIPS DCC730 DCC machine	Ex-Demo	249	229
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# Yamaha O2R

► a time. Using the Selected Channel controls, routing can be achieved with physical buttons which represent the eight groups, direct out or the stereo mix — but as expected, there's more

than one way of doing things. If the Routing display is selected, the 16 mono channels and four stereo channels are depicted as rows of routing buttons, just as you'd expect to see them on a conventional console. Here, routings can be assigned using the cursor and Enter buttons if you want to, but it's far easier to use this page as a global display, and watch it change as you set up the channels using the Select buttons and Selected Channel routing buttons. In this way, setting up the routing is every bit as easy as it is on a conventional mixer — better, in fact, because there's no ambiguity as to whether the buttons are up or down! The same is true for panning — it's easier to look at the global display while twiddling the Selected Channel Pan knob than it is to mess about with cursors. And for that matter, the same applies to setting the

rather than re-invent the wheel every time you start a session, it makes sense to create a few default Scenes to set up the console for track-laying (which involves routing and off-tape monitoring), recording overdubs, mixdown and so on. If you tend to work in a fairly consistent manner, you could probably create Scenes to cover 90% of your normal console setups, leaving you to make only small modifications.

When using the automation, you must start with a Scene that includes any necessary routing and the initial fader settings; a typical mixdown Scene might also contain a little light expansion on any tracks that are likely to have picked up noise, with perhaps a compressor or two in key channels such as vocals or acoustic guitar.

It can also save a lot of work if you make use of the libraries, most of which contain 40 presets and 88 user locations. The Channel library consists of 64 memory locations (all for user settings) while the EQ library offers 32 presets and 96 user memories. Libraries are available for whole channel settings, EQ, dynamics and effects, so if you are going to record the same vocalist on a regular basis, you could set up a whole channel (including dynamic processing) and then pair it with a suitable effect.

The main console controls are very simple to use, because the setup is very much like a conventional in-line console — with the notable exception that you only have one set of channel controls in the Selected Channel area. Most tasks involving this section can be accomplished by pressing a channel Select button and then making the necessary modifications, but other tasks — such as setting individual channel delays, tape input attenuators, effects editing, mix automation and so on — require the use of the Display Access section.

This section comprises 24 buttons, each of which provides access to one or more display pages. Navigating to successive pages is simply a case of pressing the button until the required page appears. The pages themselves are very clearly designed with simple graphics, and if you attempt something illegal, more often than not a warning message pops up to put you right. Perhaps the least satisfactory aspect of the display system is the need to use cursor buttons to navigate around the pages, but short of including a trackball, I don't really see how this could have been improved without going to the expense of a touch-screen — and these have their own problems.

The O2R automation itself works very nicely, although the faders sometimes seem to judder a little as they move. This doesn't affect the quality of the final audio output, however, because in moving mode the faders are only acting as part of the display system. It is possible to turn off the faders when you replay a mix, but most people like to watch them move! You can adjust several faders at the same time while mixing (by selecting several channels at once), but the Selected Channel controls always relate to the last channel you selected. This means that things like EQ changes are best handled as overdubs, where you can give your undivided attention to one thing at a time.



The Display Access panel — used to call up the numerous screen pages.

aux send levels, though you still have to use the cursors to set the pre/post status, which would have been nicer with a dedicated button.

The Group output levels and Master Aux Send levels have no physical controls but may be adjusted via software faders on one of the Meter menu pages.

## O2R IN ACTION

The key to using the O2R successfully is to let it do as much of the donkey work as possible. For example,

### INTERNAL EFFECTS

Two internal digital effects processors are permanently assigned to aux sends 7 and 8 and returned to stereo returns 1 and 2. The library facility provides a choice of 40 presets or 88 user memories from which to choose. According to Yamaha, these processors have no direct equivalent in any stand-alone product but they are pretty conventional in their architecture and can generate the usual bread and butter effects — reverb, delay, chorus, flanging and ADT — to a very high standard. Though multi-effects by nature, the internal processors are designed to produce only one or two effects at once.

The user programs are created by calling up a suitable preset from the effects library and then

modifying it, rather than by starting from scratch. The number of parameters have been kept down to a manageable 10 per patch, but with the serious reverb programs, you can still adjust all the usual parameters — filtering, pre-delay, density, reverb time, HF damping and so forth. The Effects pages show graphic representations of control knobs on the screen and these are selected and adjusted in the time-honoured way, using the cursor buttons and data entry knob.

The effects may be fairly simple but their quality is very high and the level of background noise is low. There may not be enough sonic firepower to satisfy everybody's requirements, but what's available should handle the vast majority of routine needs.

You soon get out of the habit of leaning on this desk, because whenever you select an aux send level or similar function, the faders instantly fly to the positions of the selected functions, and are forever pushing you out of the way! Perhaps this is why Yamaha have chosen not to fit a padded armrest — they don't want you leaning on the desk.

## O2R 4 U ?

To go into fine detail about every aspect of this console would take up a whole magazine, but I have to say that the 200+ page manual supplied is extremely clear and thorough, and has obviously been written by a native English speaker! So the best I can hope for is to give you an impression of how easy the O2R is to use and how good it sounds.

Some aspects of the desk are easier to use than others, with the most common functions taking only a button press or two longer to use than their analogue counterparts. When you consider that an equivalent desk equipped with knobs for everything would be impossibly huge, perhaps that's not too bad a compromise. Though the functions that have to be accessed via the display are perfectly plain and logical, I'm afraid that I can't get used to a cursor — give me a rodential appendage any day!

Soundwise, I tested the O2R using an ADAT XT digital 8-track and the results were beautifully quiet. I wouldn't go so far as to say that the desk sounds 'digital', but it definitely doesn't sound 'analogue' either. Using optical cables for digital connections means that ground loops are things of the past, patchbays can be simplified or even abolished (thanks to the wealth of internal processing and effects), and the powerful automation means that you can return to any previous mix at any time and know that it'll come back exactly as you left it — bliss.

I am not a big fan of EQ at the best of times, but I have to admit to liking certain aspects of the O2R's equaliser, because it does what I want an EQ to do — make bits of the spectrum louder or quieter without actually altering the 'tone' of the signal more than it has to. It's also very powerful, which means it can take a while to get a setting right, but then you can always store your good ideas in the EQ library.

I couldn't detect any sonic artifacts caused by the automation — no clicks or zipper noise were evident, and the delay through the console was small enough to be negligible. In real terms, the delay while monitoring off-tape is equivalent to sitting a couple of feet further from the monitors than usual.

One downside of a digital mixing desk is that it makes it harder to patch in your own effects and processors. The O2R has six analogue effects sends and inserts on the first eight inputs, but you have to use the existing channels as returns, and if you're using a digital link to a digital multitrack machine, there's no way to insert your favourite valve compressor in the signal path. However, you can always take the appropriate analogue

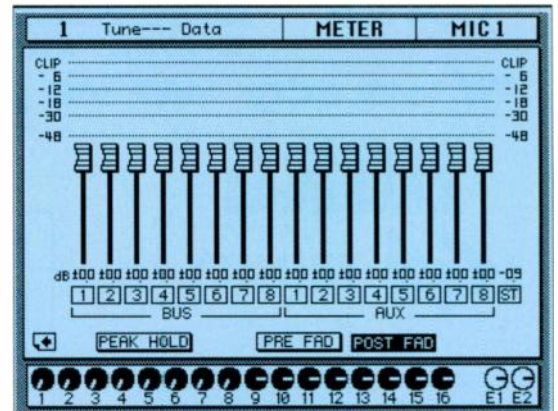
output from your multitrack and feed that into the desk via an analogue processor, if you don't mind a little patching. For those wishing to return several stereo effects, a small external submixer might be a good investment.

The internal effects and processors provided are actually very good quality and manage to combine simplicity of operation with reasonable flexibility. While the compressors don't sound quite like my Drawmer 1960, they are effective enough for most routine work.

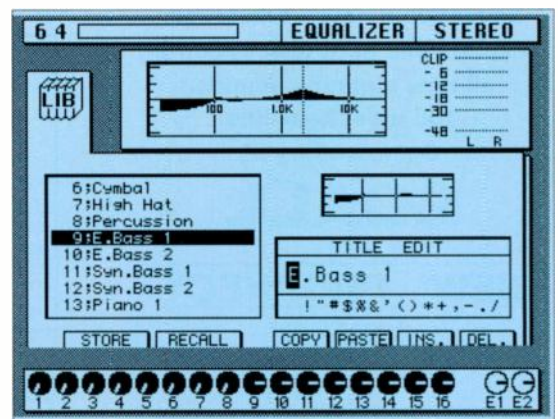
Having used the O2R for a while, my own view is that any console of this type should incorporate more expandability (in the form of card slots) for extra signal processors and effects. Having experienced the joy of not needing to string a room full of hardware onto the mixer to make up a studio, I'd like more flexibility when it comes to expanding the O2R from the inside. Maybe that's something for a future generation of product, but given the O2R's almost unbelievably low price, there's very little grounds for complaint in any area.

I can't say the O2R is perfect, but its potential is immense, and we can thank Yamaha for giving the world its first virtually cable-free professional studio that is actually affordable. When you add up what you save in outboard gear, cable harnesses and patchbays, the O2R could turn out to be even more of a bargain than it first appears to be. You don't need me to tell you that Yamaha are going to sell an awful lot of these. I'm just sorry I didn't have 10 more pages to tell you everything else about it...

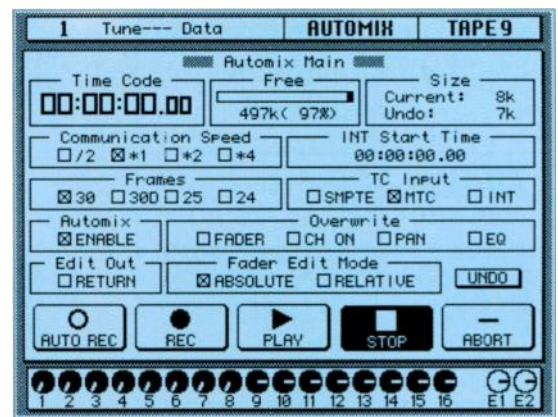
SOS



Effects window offers all the standard reverb and delay effects.



EQ window showing the graphic display of the current EQ curve.



Automix window accesses sync data and mix recording parameters.

## FURTHER INFORMATION

- E** See price box.
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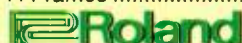
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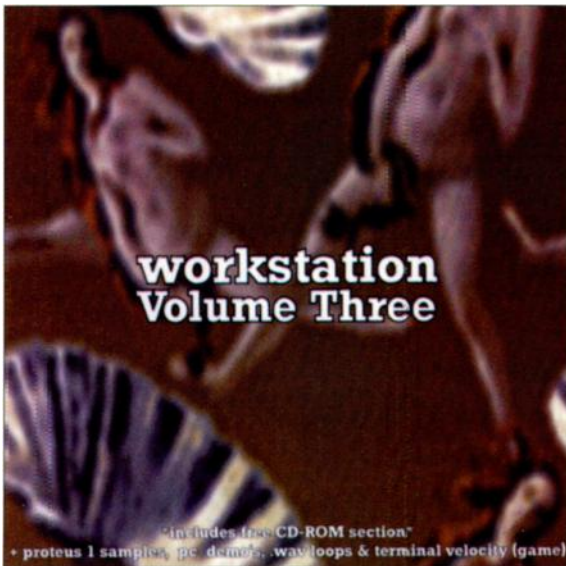
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# SAMPLE SHOP

Our regular look at the hottest new sample CDs and CD-ROMs.



## WORKSTATION THREE (MIXED AUDIO/CD-ROM)



*Workstation Three* is an interesting sample disc, because in addition to the expected samples, track 1 is formatted as a PC CD-ROM track and includes software demos, WAV loops and the game *Terminal Velocity*. There are also demo versions of various PC sequencer packages including *Cubasis*, *Cakewalk*, *SAW* and *MicroLogic*. As a Mac user, these were of little use to me, but considering the increasing popularity of the PC as a music computer, this kind of 'advertising' is probably a good commercial move.

The rest of the disc follows the familiar *Workstation* format, with a selection of mainly dance-orientated drum loops followed by individual instrument samples. There are in fact 25 drum loops, mainly familiar dance styles, ranging in tempo from a cool 61bpm to a frantic 163bpm, and these same loops are repeated at the end of the disc without any added effects — a thoughtful touch. Each section is several bars long, so if you're working with an 'audio plus MIDI' sequencer, you can use samples longer than one bar, if it's more convenient to work that way. Some loops are clean, some are deliberately grungy, but they are all typical of the genre, and very usable.

The individual instrument samples, of which there are dozens, have been created using the Emu Proteus One synth, and are on the whole well recorded. The downside is that there's

only one sample of each instrument, taken at middle C, so some of the sounds are only useful over a relatively narrow musical range. This is clearly of little use if you want to create accurate acoustic simulations, but for more 'creative' work, the sound of a sample dragged screaming beyond its usual limits can be quite inspiring.

Because of the way the samples are presented, I'd say this disc is fine for those who want to do a lot of 'quick and dirty' sampling, and for whom keygroups are something that happen to other people. If you don't fall into this category, then your only real reason to buy this

disk is for the drum loops. *Paul White*

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## INTERFACE DANCE (AUDIO CD)



After a demo tune encompassing a bewildering mélange of styles and tempos, this CD settles down to six broadly symmetrical sections, covering hi-NRG, techno/industrial, house/garage, r&b/hip hop, jungle and hardcore.

'Hi-NRG' kicks off with a few solid programmed drum and percussion loops. Then come single hits (TR909/808/606), panned left and right to cram twice as many sounds onto a portion of the CD. Next come five viable, buzzy, stringy, stereo multisample synth sets of high quality, each preceded by a little taster pattern.

There follows a multi-resonance sample of a classic MKS80 voice — one for velocity switching. After a clean M1 piano multisampled set, come some pads, loadsa cheesy riffs, some

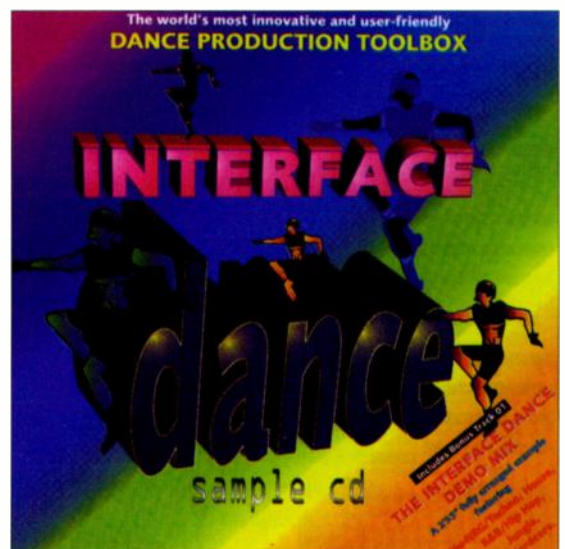
good bass tones at two octaves, some simple but usable home-made stereo FX, plus a smattering of shouts and other vox.

'Techno/industrial' kicks off with a few programmed loops — nothing you couldn't knock up yourselves with a few samples and a flanger. Then comes the TB303, repeating patterns many times while the filters are adjusted. A pointless exercise, unless (i) you really like the riffs offered, and (ii) can sample 2-minute duophonic loops.

The special effects lean towards sci-fi/computers. The MC202 hits would make nice hardfloor bass tops, while the 'Hypa Rez' loops would make nice background textures to trance. Left-channel basses, with right-channel male dialogue makes for aural (but not sampling) confusion. Stereo pads and sweeps conclude this section, which are lush without being sickly.

As before, 'house/garage' opens with (mostly) programmed loops, including percussion patterns this time. Next comes a multisampled 'organ' library, featuring tones and example riffs. The ubiquitous M1 organ rubs shoulders with buzzy tones and an ARP sine wave. Then there are a couple of velocity-switchers and the SY99 piano ('rich and classy', it says here). Chords, stabs, basses, special effects and shouts round off the section.

The loops that open the r&b/hip hop section are suitably downtempo and funky, at a solid 95bpm throughout. Quite a varied range of styles and sounds — fresh, almost. The short set of wah-wah guitar patterns and chords were definitely recorded in-house. Single hits include 727, and are again panned left and right. Basses include cool electric multis and patterns. Watch out for the same sample presented at several pitches — this wasn't a good idea. There are a few horn stabs, organ and electric piano multis, drum rolls and fills,



shouts, a big alto sax multi set at two velocities, and the slightly lame, if well-recorded stereo vocals that seem to terminate every section.

The jungle loops are frenetic (165bpm), perhaps too much so. File under 'unsubtle'. The quickfire digital feedback fills are useful and illuminating, though. There is a smattering of gangsta rap ditties, if you're a herd-follower. The girl voices are more tasteful, as are the dub/special effects. I also liked the dub basses, bass drums and lush chord pads.

'Hardcore' is definitely headbanging stuff. Plenty of compression/distortion give the loops an OTT quality which is not mitigated in any way by the fact that all are presented at 180bpm. The fills and clean breakbeats are worth sampling, though. Hardcore synth stabs are really not much removed from good old-fashioned rave. Some of the piano playing is pretty good, and some nice layered chords are offered. A clean sub-bass multi moves air in all the right places. A few silly voices, and it's all over.

Conclusion: What you've got to watch with this sort of sample CD is that you don't just join the dots to make a picture, and then add your signature. On the other hand, there are enough tonal colours here to enable you to assemble a pretty comprehensive dance library, containing a wide range of current popular sounds. *Wilf Smarties*

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## EUROTECH (AUDIO CD/CD-ROM)



*EuroTech* is a 99-track CD with its production feet planted firmly in the dance clubs of Europe, and it comes stuffed full of the hardest hardcore material you are likely to find.

The emphasis, as you might expect, is on drum loops, and with over 37 tracks, each containing between 12 and 24 individual loops, there are more than enough to keep even the pickiest of techno fans happy for quite some time. These are followed by a huge selection of individual drum and percussion samples, with a good number of bass, effects, keyboard and vocal hooks thrown in for good measure.

If you are looking for a good supply of techno drum loops, you've come to the right place. The loop tempos range from a massive



170bpm all the way down to a positively sedate 120bpm. The grouping on the CD is very well thought-out too, meaning that all the loops contained in any one track are always the same tempo (even if they vary in style and length), providing quick and easy access to a wide range of material.

The loops themselves have a solid and totally dancefloor feel to them. They draw heavily on the likes of Roland's TR series of analogue vintage drum machines, which you might think would relegate them to the 'where haven't I heard that before?' pile. By clever use of EQ, however, and additional signal processing, these loops gain a much harder, '90s edge, making nearly all of them eminently usable in one way or another. One of the refreshing elements of *EuroTech* is the experimental spirit that makes dance music so interesting at the moment. The producers obviously aren't afraid to experiment with the form or overall sound of these loops, and often employ unusual phasing and pitch-shifting effects to give their sound a unique quality.

Following on from the drum loops is a selection of short 'Multi loops'. These are essentially percussion loops split into

three sections, each with more instrumentation than the loop before. They provide a good deal of flexibility when constructing the next dancefloor smash, but if you do get stuck, there's always the 360 individual drum and percussion samples on tracks 43 to 72. These are very logically laid out, starting with bass drum, snare and hi-hat samples, and moving on through cymbals, toms and additional percussion samples such as congas, cabasas, claves and hand claps.

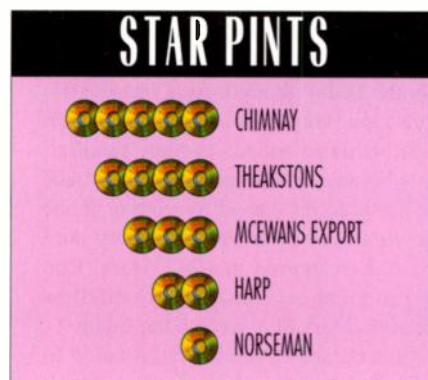
These sounds are generally well-recorded and processed sensibly. It's worth noting that many of the samples come straight from a number of well-known drum machines, so collectors of drum modules may feel slightly hard done by in the value-for-money department. However, there is more than enough fresh material here to provide scope for endless techno invention.

Bass sounds next; a total of 96, ranging from tight digital 'twang', to fat and juicy analogue 'squidge'. Again, a homage to the likes of the TB303 and Minimoog synthesizers, but extremely effective and perfect techno fodder all the same. Most notes are sampled at C (although one is sampled at 'H') — but don't panic, that's just the German for 'B'). The recording quality is very good, leaving plenty of options for additional processing in a mix. The sounds just keep on coming, with another 10 tracks of some 240 different techno blips, buzzes, chords and sweeps. This is before the 132 analogue and other sound effects, including thunder, sirens, and a wonderful, scratchy old 78 vinyl effect.

The short selection of voices and vocal hooks tucked away at the end of the CD is a bit of a disappointment, and most seem to be trying very hard to suppress a strong German accent. This, however, is not the main emphasis of *EuroTech*, and represents the only real miss of what is otherwise a 'hit release'.

One of the best things about *EuroTech* is the sheer amount of usable material that it contains. It's quite a specialist product, in so much as not everyone will appreciate its hardcore and often experimental feel, but anyone else even remotely involved in the world of techno, house, or rave could do a lot worse than to check it out. *Paul Farrer*

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(inspired by The Egyptian Book Of The Dead) and threw Ron into the spotlight as one of our most original and innovative electronic artists. The fact that, bar a Godwin string machine, he designed and built his entire analogue arsenal of synthesizers, sequencers and drum machines himself, has always helped set him apart from his peers.

By the time of the *Wastelands* album and its accompanying performance at the 1987 *UK Electronica*, Ron was premièring his Acoustic Modelling (AM) Synthesizer. It predated Yamaha and Korg's recent efforts by several years, albeit using analogue modules developed over the previous three years. The album's sleeve notes explain, 'by creating accurate electronic models of physical instruments, this synth can produce a variety of instrumental sounds, plus many strange effects.' Clearly Ron was stretching the boundaries of home-built electronics to the limit!

Musically, there has been a period

# At home with...

*In his time, Ron Berry has been a synth-player and a freelance designer — but it's as an electronics hobbyist that he cut his teeth. JONATHAN MILLER meets the man who keeps the DIY ethic alive.*

## RON BERRY

**A**mazing as it may seem to those of us reared on hi-tech musical gadgetry, there was a time when cash-strapped recording musicians had to do it themselves! This was the golden age of make-do-and-mend, in which necessity was the mother of invention, and there was no *Sound On Sound* to get you out of a tight spot.

Most of us dabbled in solder and Veroboard for reasons of poverty, rather than a passion for electronics. For Ron Berry, however, it was always a bit of both. Today though, Ron's electronic projects are a long way from a simple pre-amp or fuzzbox. If his name sounds vaguely familiar, perhaps it's because you've experienced the UK electronic music scene, either on record or at one of the many festivals held around the country since the first *UK Electronica* in 1983. Here, Ron performed to great acclaim, alongside fellow instrumentalists Mark Shreeve and Ian Boddy.

Early '80s cassette releases culminated in 1985's stunningly-packaged vinyl album *Osiris*

of soundtrack work using commercially available instrumentation in close liaison with botanist David Bellamy's video production company, David Bellamy Associates Ltd. An award-winning episode of the television series *England's Last Wilderness* featured 13 minutes of Ron's music. Sadly, this lucrative sideline was prematurely curtailed by a studio break-in — although fortunately, the wretched miscreant left Ron's irreplaceable custom-built gear behind — presumably the wire-encrusted AM and associated modular synthesizer were beyond his (or her) comprehension!

With Ron now comfortably ensconced in a spacious, rural home studio, and an independent record company about to remaster his back catalogue to CD, it's enough to turn the average home recordist green with envy!

Obviously a lot of time and effort has been invested in the property, by Ron and his equally DIY-enthusiastic wife. In two years, they've turned a run-down farm cottage into a rural idyll. ▶

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# At home with...

Ron Berry

- As Ron led me around the recently-completed studio outbuilding, offering a fascinating insight into his unusual working methods, I found it hard to imagine that poultry used to be kept there!

## RADIO DAYS

**When did your insatiable passion for building recording equipment start?**

"I was interested in making valve and transistor radios from about the age of 10. By 13 I was into electric guitars in a big way. I'm originally a guitarist, but my interest in electronic music goes back to about '72/'73, when groups like Kraftwerk and Tangerine Dream were starting to get well-known, and Robert Moog was developing his synthesizers. I heard some electronic music on record by those artists, and also some classical stuff by the likes of Walter Carlos and Morton Subotnik, and felt I just had to get involved.

"The prices of these instruments were way beyond my means at the time — some of them still are, but I did have abilities in making electronic circuits. I was getting interested in the design of electronic circuits and saw an article in *Wireless World* magazine for a small modular synthesizer,

something up on the synth, recording it onto track one, and bouncing it across to the other track whilst simultaneously adding something else. After repeating this process several times, I usually ended up with something that might be musically interesting, but totally swamped in hiss, and so grainy that you couldn't really enjoy it!"

**You also have a larger, more traditional-looking modular synthesizer. When did you build this?**

"Spurred on by the success that I had with Tim Orr's design in 1974, the following year I spent nine months building a more sophisticated modular system of my own design, which today is still pretty much in its original form. The only major difference between this system and the Moog ones is that mine is linear and theirs are logarithmic — which are very temperamental in their tuning. So I built a linear one, because I was interested in performing on stage and wanted stability. It is possible to stabilise logarithmic oscillators, but unfortunately you lose the advantage of having great big wide frequency sweeps."

**Given your interest in electronic music, developing a reliable sequencing system must have been high on your priority list?**

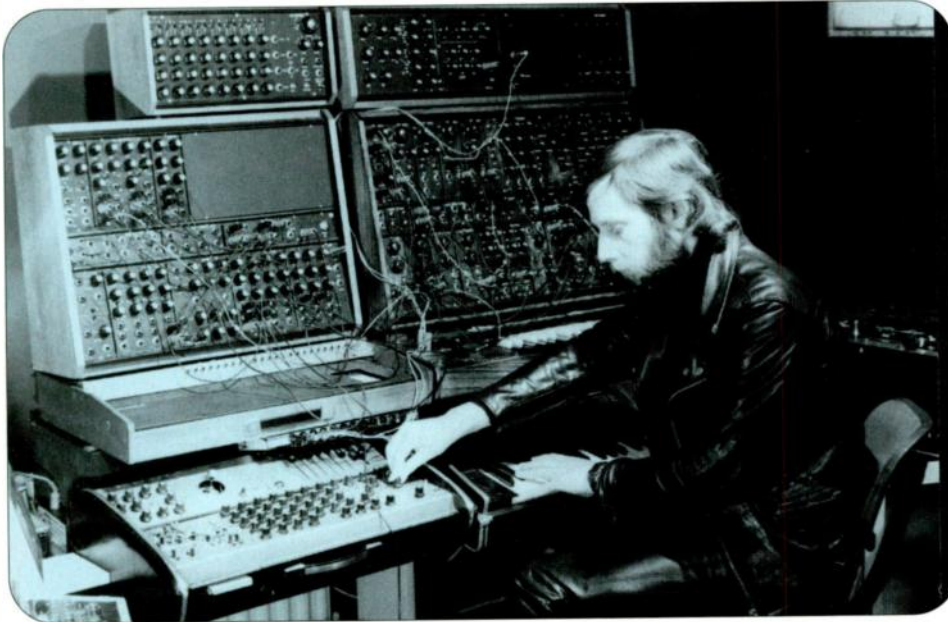
"Early on, I built a simple step-time analogue sequencer for the modular system which was loosely based on the Moog one. It hasn't got the triggering facilities that the Moog has, but it's still quite useful, and I use it an awful lot.

"In about 1978/'79 I got hold of a KIM1 microprocessor board with 1K of RAM and 8-bit processing. I got into writing machine code, and wrote a small program that could play simple sequences and produce them in the form of control voltages. I used these to trigger the oscillators in a kind of replica Minimoog that I added to the main modular synthesizer, plus a set of trigger outputs to a drum machine that I built, consisting of five electronic percussion modules. The

microprocessor program also only allowed me to input sequences in step-time, but it could play a whole set of sequences in different orders, so I could go out and perform with it.

"Later, the SYM1 microprocessor with its greater memory capabilities replaced the old KIM1, and I continued writing sequencing programs, eventually ending up with one that could generate 15 control voltages and handle 12 drum trigger outputs. This sequencer program allows me to assemble sequences in any order and repeat them any number of times. Any output line can have any sequences on it, and sequences can be any length up to 83 notes.

"It's also possible to do weird things like split up the timing of the notes of one sequence and

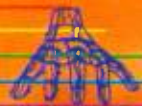


*The Ron Berry 'radiophonic workshop', circa 1978.*

which had been designed by Tim Orr of EMS fame — so I built it, and still use it today. At first, its circuitry wasn't particularly stable, and I had enormous tuning and reliability problems. You could easily damage the circuits if you patched things incorrectly, but the results I got from it convinced me that I wanted to carry on with electronic music. So I decided to revamp it, re-designing all the oscillators, the filter and adding other things like a little graphic equaliser, and an extra low frequency oscillator.

"After that, I made an ordinary 2-track tape recorder from another article in *Wireless World* — that was essentially my first recording studio! I used to put pieces of music together by setting

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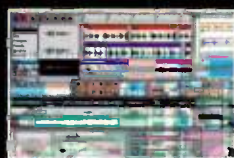


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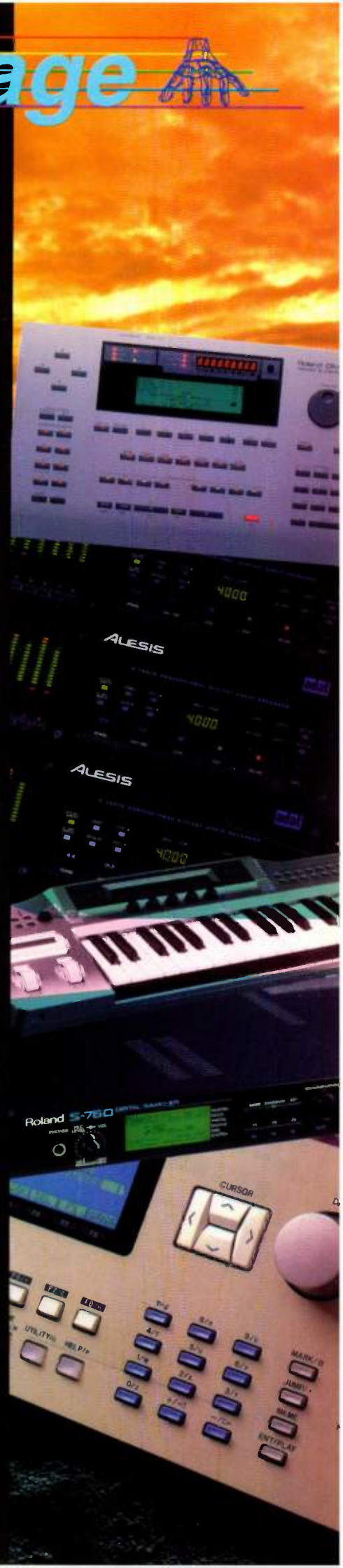
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▶ superimpose that on another sequence — they don't have to be the same length. So you could have a sequence with just rhythmic structure — let's say it's got 21 notes of all sorts of different lengths, then you could have a sequence of eight pitches, and the timing can then be superimposed on the eight — so each time the 21 note sequence goes around, the eight moves along in time. I used that effect on 'A Voice In The Wilderness,' where there's a lengthy, slow, meandering section. It's a very open-ended system."

## REEL TO REEL CACOPHONY

**Your present recording studio is virtually surrounded by reel-to-reel tape recorders. Why the need for so many?**

"I was getting frustrated because I wanted to properly record some of the things I'd done. So I started to build recording equipment. I saw an advert in a magazine for old tape decks at a place called M&B Radio in Leeds. The guy there said he had 150 of them, so I bought an ex-BBC machine for £40, and converted it into a stereo tape recorder of my own design.

"I was so impressed with the deck's performance that I bought another one, having created a rudimentary 4-track recorder from an old scrap Brennel machine that someone gave me in the

meantime — my first introduction to multitrack recording. It worked quite well for a quarter-inch narrow format, but I sold it to a friend and bought components to build a half-inch 4-track on the second deck. I then had the problem of widening everything out, so I took it down to a local engineering firm, and a chap there opened out the guides from quarter inch to half inch in his lunch hour, free of charge! I improved its performance even more by adding some little Dolby B chips that are normally found in cassette recorders.

"I recorded my debut cassette-album, *When Dark Forces Meet*, on the first 4-track in 1980/81, followed by *A Voice In The Wilderness* and *Osiris* on the half-inch 4-track. Although it was very nice to have things in synchronisation, the problem with the 4-track was that there wasn't enough tracks — but I soon realised that a lot of the elements of the music that I was doing didn't actually need to be in perfect synchronisation. By adapting my equipment, there was an opportunity to expand and add more tracks without going to the tremendous expense at that time of buying a 16-track for £4,000 or £5,000.

"I went back to the chap at M&B Radio, and ended up with another four ex-BBC machines, plus two for spares. During *A Voice In The Wilderness* and *Osiris*, I was making music that ▶

## THE WONDERFUL WORLD OF ACOUSTIC MODELLING

Your last electronic instrument design represented something of a unique breakthrough in acoustic modelling synthesis. How did this come about?

"Around about 1980, I read an article in a specialist computer magazine about experiments being carried out by Kevin Karplus and Alex Strong, who took a computer register, loaded it with random numbers, and then created a kind of cyclical delay to reorganise the numbers, and ended up with a string sound. I thought, 'Hey, you could do that with analogue modules, by adding a delay line and feeding pulsed noise into it.'

"I started by getting my flanger unit with a built-in delay line, looped it round itself to almost feedback and wired it up to a noise envelope generator — which resulted in a most impressive noise! I couldn't believe it — why hadn't people been doing this for the last 20 years?

"Eventually, I found more articles by people who'd been analysing musical instruments to find out how they worked. Various American and Swiss institutions were also trying to make acoustic models, but they were all working on massive computer mainframe installations, and it took them a long time to compile and write these programs. I thought I could make better use of my time by doing it in the old-fashioned analogue way — because I already had the synthesizers. All I needed to do was add a few modules, and all of a sudden I was in the wonderful world of acoustic modelling.

"In the early '80s, an American mathematician called Julius O'Smith had used delay lines to make a model of a clarinet. His article was very difficult to understand, because it was all about things like wave guide techniques and involved a lot of mathematics, but I grasped a crude idea of what it was all about. I tried it, and after a few attempts successfully created a clarinet sound myself. I tried to patch it up again the following night, but I

accidentally got the delay loop inverted, and out came a saxophone. I was absolutely staggered!

"The essence of it in my version is a delay line system of a few milliseconds, looped round with a limiting and a non-linear element in the loop. Basically, what happens is that if you have a delay line which circulates around itself in phase, it can resonate a series of all the harmonics, but if you invert it, some of the harmonics cancel out, and you're left with an odd harmonic series, which is a clarinet.

"Although the actual development of the voltage-controlled analogue delay lines is all mine — I knew what was needed in the way of extra mathematical functions from reading the early experiments by these people and talking to other musicians — anybody with a couple of millisecond delay lines and a modular synthesizer can do it! It's really easy, providing you know how to connect the modules. A physics principle is a physics principle — it doesn't matter whether you use analogue or digital techniques. Control is another matter though!"

What do you use your Acoustic Modelling Synthesizer for?

"Definitely exploration. I started constructing the instrument in 1983. It was two-thirds complete by 1985, and I haven't added anything extra since about 1990/91. Subsequently, I've continued to experiment with patches, but I didn't get into acoustic modelling just to make an instrument that allowed me to sound like a saxophone or piano. What interests me is that you can take the models apart, rearrange and feed things into them. You can make models that can't really exist in real-time, but are possible in the electronics world.

"When you make an acoustic model of something — say a saxophone, you're actually faced with the real thing in a different form, yet you don't often see a saxophone with a keyboard running down its side! If one

ever materialises, then it might sound like an acoustic model on a synthesizer. The fact remains that even if you have a realistic-sounding saxophone on a keyboard, you simply end up finding out what a terrible sax player you are. Playing a bona fide saxophone with a reed in your mouth is a totally different ball game to playing one on a keyboard. You have to work really hard just to make it sound like a third-rate sax player, so you won't find me using those kind of timbres in my music much.

"It's for these reasons that I feel I'm treading a different path to people like Yamaha, who are making commercially-oriented acoustic modelling synthesizers because they want to sell lots of keyboards."

What disappointed me about the Yamaha VL-series is that the user level of programming is restricted to performance parameters, and you can't actually get at the models. I think the developers at Yamaha used a Macintosh-based program to create their models, but the user has no access to this — unless you've got a friend at Yamaha's R&D facility, I suppose!

"Exactly. I've experimented with lots of different models of bells, gongs, drums, clarinets, pipes, flutes, hybrids; all kinds of weird, weird stuff, and you've only got to change one of their parameters and you're into a totally different instrument. It's really quite a task to control them sometimes.

"In a real-life instrument, there is a very intricate feedback loop between the player and the instrument — something like 100 parameters in a violin, for instance. On a keyboard, you don't have that. So a problem with 'imitative' acoustic modelling arises in trying to prevent the models from becoming totally electronically static, where they cease to have any 'life' in them. There's so much more to explore in this vast area, that to confine activities to simply 'copying' existing real instruments seems such a shame to me."



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# At home with...

Ron Berry

► was put together partly from multitracked stuff, and partly 2-track stuff spun in at the right time. The big problem with that was I had to rush around starting and stopping tape recorders all the time, so I wrote a machine code program on a BBC microcomputer which acts as a remote control to start and stop them for me using a system of relays. The program involves having a timer running with events to start and stop the machines, and I can either input specific events for all the recorders, or 'play' the recorders manually by ear, using the

previous 12:8:2 design, which I built with small throw faders to a very tight budget about 13 years ago. The new desk overcame these problems at a cost of roughly £600, although the cost was cut down by getting a lot of things in bulk at trade prices.

"I bought a big job lot of aluminium panels, years ago when I started making the synthesizer. I also used a lot of surplus or end-of-line components that you can get from electrical distributors if you know where to go. It's a matter of sending off for everybody's catalogue and wading through them to find out what you can use. To buy just the components of this desk at brand new retail prices you'd probably pay £1,000 or more, so I've saved myself quite a lot of money.

"It's a fairly standard 20:8:2 design including a flexible, but simple EQ system — with additional controls of slope for the high frequency; a Q control for the swept mid; and frequency control for the low frequency, PFL and true solo switching that allows you listen to individual channels with any effects you've applied, etc.

"The main difference is its expanded auxiliary send facilities. The send system is a bank of four knobs, the first two of

which can be pre- or post-fade onto Send 1 and 2. The second pair are post-fade, and can be routed to Send 3, 4, 5 or 6. Each knob has its own individual switch to make the send section of the mixer more like a separate matrix mixer, and can be set up into separate mixes, because the mixer in this studio is really an extension of the modular synthesizer.

"Everything has been standardised to jack plugs so, in theory, everything that appears on the mixer jack panel can be wired across to the modular synthesizer which can then be used both to generate sounds for mixing onto tape, and process taped sounds. There are inserts on each channel of the mixer, so the synthesizer can be used as a processing device on the inserts, as well as ordinary outboard equipment."

**I notice you've avoided opting for a modular construction...**

"Well, it's quite a lot of hard work to make channel strips, so I made them in sections of 10, which makes it a little bit harder to maintain the desk, but there is still reasonable access to the electronics. Even so, it was a very time-consuming process marking the positions of all the holes for the controls on the underside of the aluminium panels with a scribe, to end up with a grid of scribed lines which are then centre-punched, drilled with a fine drill, and finally opened up with progressively larger drills until you have a



Ron's ex-BBC reel-to-reels.

remote to 'remember' what I did. There's also a certain amount of editing facilities which were tremendous in its day."

**It sounds almost like a precursor to the principle of many of today's popular sequencing software packages, like Steinberg Cubase...**

"Today, there's a trend towards hard disk recorders with file names and event lists. My system is exactly the same thing, but in a primitive form, with old analogue recorders. It allows me to experiment with fragments of music, ideas or sound effects, store them on tape and play them back at any time I want. It's a very interesting way of composing, trying to match stuff together. A good example of this is a floating piece of music on *Osiris*, called 'Lake Of Horus' — I would never have come up with that using traditional multitrack methods."

## REMIX AND MATCH

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*"There's so much more to explore in physical modelling, that to confine activities to simply 'copying' existing real instruments seems such a shame to me."*

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► completed matrix of holes. It was probably about a night's work to do the basic cutting out and marking for each individual panel, plus a whole evening just spent drilling all the holes.

"As it was based on the old 12:8:2 mixer, there was very little in the way of additional circuit design, although I obviously had to manufacture new boards to fit the new components. There are 120 printed circuit boards in there, which took me most of the Christmas holiday to make, working solidly at it all the time! Fitting the components

*"A physics principle is a physics principle — it doesn't matter whether you use analogue or digital techniques."*

onto the boards was another long job, so I started getting up early in the morning and doing a hour on them before I went to work, and then another hour in the evening after tea. It was both a great sense of achievement and relief when I finished the thing!"

**How did you set about tackling the often expensive and nightmarish task of organising the studio's cabling?**

"I do some spare time design work for an electronics company, so I can get cheap bits of cabling from them, which helps. It's ordinary, unbalanced, lapped screen hi-fi cable, which works okay in short runs and is dead cheap! The studio's all unbalanced, because it's essentially one big synthesizer. There's no elaborate under-floor wiring. Everything is well earthed, and the cables are tightly bunched in some trunking which I found lying around in the house."

### MIRROR, MIRROR ON THE WALL...

**Could you tell me about the rather stange-looking 'mirror' reverb situated in one of the studio's cupboards?**

"A long time ago, everybody used to rave about EMT plate reverbs. I quite liked their sound, but they're very expensive. However, there was a very small company in Stafford called NSF, who used to make something similar, but cheaper, and I bought one second-hand. In this studio I've had to take it out of its casing, because it wouldn't fit into the cupboard, but in my previous house I had the whole unit in a wardrobe — which often confused people!

"If someone was to offer me a digital Lexicon studio reverb, then obviously I'd take it, but the NSF sounds nicer than most cheaper digital reverbs. It has a very complex and quite rich reverberation, and even though it's purely mechanical it can still produce a variety of effects — plus it does tend to fit in with the general analogue nature of the studio."

**What made you choose the Tannoy Super Reds for monitoring?**

"They were a bargain at the time! I actually started monitoring on a pair of Elliptical speakers, but they were absolutely dreadful! Later, I used a pair of horn loaded Lowther speakers for a while, which I then heard were becoming collector's items. People were paying really good prices for them, so I rang up a few places and spoke to a chap who was prepared to buy them off me. He said he had a pair of Tannoy SRM15X Super Reds for sale that had previously been in a hotel and not used very much, so I bought them off him for £450, less the price of the Lowthers, originally thinking I could use them for small concerts.

"They're good, full-range speakers with a very detailed natural and neutral sound, which is very easy on the ear — even when you sit close to them. But they're maybe just a little woolly in the lower-mid range — the 15-inch woofer seems to be a little bit woolly before it crosses over onto the high frequency horn unit, so they can be a bit deceptive. Having said that, when you mix on them and then hear the resulting sound on other speakers, you wonder what the hell you were worrying about!

"I've heard really expensive speakers like ATC, and had experience of using Genelecs, which are absolutely shit-hot, and the Tannoys stand up very well, bearing in mind 15" Genelecs are £5,000-£6,000 a throw!"

**You don't appear to advocate nearfield monitoring?**

"I've considered that, but just haven't got round to doing it. I like the sound of the big monitors with their deep bass. You feel you're enveloped in the sound, and it's very good for inspiration. If you feel something really warm and nice there, then it gets you going — whereas if I'm faced with the really hard, percussive sound that some desktop monitors have, I don't enjoy the sound as much, and tend to play differently somehow.

"I'm a real sucker for big, powerful PA systems and would really like to design and install them for a living. I was recently involved in putting one in a working men's club concert room. We plugged in a CD player and turned it up to full — 1kW a side, with eight foot bass horns flat down to 40Hz on a concrete floor — with all these old chaps playing dominoes downstairs, we got complaints of the dominoes falling over. Now *that's* what I call a PA system!"

**Do you get a kick out of the fact that you are using different gear to everyone else?**

"Yes, because it makes it easier to produce a unique sound. I've made music for videos on a MIDI set-up, and it comes out different and a lot less individual than my normal stuff. I tend to go overboard with the editing facilities — loads of changes with instruments coming in and out all the time, because it's so quick and easy to do.

"But you can tell that I'm using the same presets and drum machine that everyone else is using and I don't like that. I'm much happier exploring my own stuff. This is what keeps me alive."

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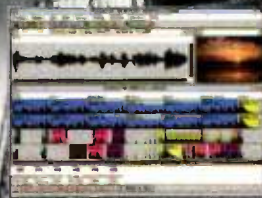


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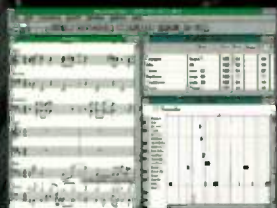
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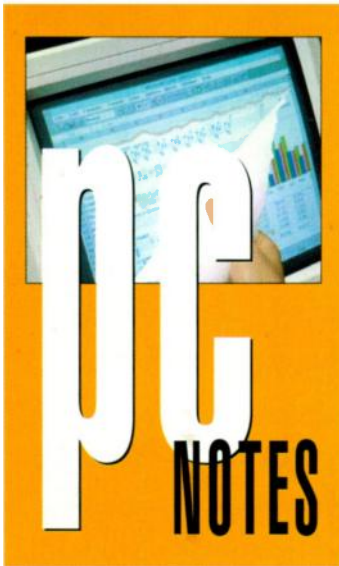
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# ARBITER

MUSIC TECHNOLOGY



**BRIAN HEYWOOD**  
*considers what 1996  
 will bring the PC-  
 based musician, and  
 decides it will be the  
 year of the DAM...*

**T**his year looks like it's going to be the year of the integrated Digital Audio/MIDI (DAM) sequencing application for the PC. While hard disk recording on the PC has been around for a while, the direct integration of audio into mainstream sequencers has taken a little longer than for the other main music computing platforms.

It's not particularly clear why this should be the case, since the PC has had a pretty active sequencing scene. Maybe it's because the great bulk of PC-based sequencing packages have only been around since Windows 3.1 superseded DOS as the PC's most popular operating environment.

Of course, PC 'power users' have been able to use hybrid systems — a sequencing program synchronised to a hard disk recording application — thanks to Windows' ability to multi-task applications. But the ability to have both MIDI and digital audio data 'under one roof', does simplify both the creative process and the archiving of the data once you've completed a project.

### MUSICATOR GOES AUDIO

Arbiter has announced the audio version of this sequencer that supports 16 independent mono or stereo audio tracks, using one or more standard MPC soundcards. The software allows the user to manipulate MIDI and audio data side by side in all of the edit views — notation, overview, mixer and so on. *Musicator Audio* can take advantage of multiple soundcards, and allows you to record multiple audio tracks.

The mixer section handles both MIDI and audio data, giving fully automated and real-time control over the volume and pan of both MIDI and audio tracks. Audio tracks can be 'non-destructively' edited, giving control of crossfades, track gain and mixdown. There are also 'fit to time' and sample rate conversion functions. The audio can be either recorded or imported from standard Windows WAV files.

Other features of *Musicator* include standard music notation, piano-roll editing, a measure/track overview, an automated instrument mixer, drum mixer with individual pans, and tuning, reverb, volume and effects controllers. There are also MIDI controller windows, with graphical editing of aftertouch, pitch bend, tempo, modulation and so forth. The number of open windows is limited only by screen size. *Musicator Audio* retails for £299.95 (inc. VAT) and is distributed by Arbiter (0181 202 1199).

### COMING SOON

While *Musicator Audio* is a purely MPC-based hard disk recording solution, a number of DAM systems will be released in the next couple of

months that also support 'third party' (or dedicated) hard disk recording hardware. *Cubase Audio* from Steinberg is already available on the Falcon, and the Apple Mac version should be released soon: it will support both the Yamaha CBXD5 and Digidesign Session 8 hardware, and should retail for around £799.

Both *Cakewalk Pro Audio* and *Logic Audio* are fairly imminent, with the former supporting both the Digidesign Session 8 hardware and the Soundscape SSHDR1 as well as Windows MPC soundcards. I understand that *Logic Audio* will also be supporting the Soundscape hardware and Windows soundcards. I imagine that both these products will be released at this year's NAMM show.

### TAKING CARE OF BUSINESS

Anyhow... while we're waiting for these rather interesting developments, I'd like to catch up on some non-musical bits and pieces that may be of interest to the PC-based musician.



*Creative Labs' Phone Blaster helps you keep in touch... wherever you are.*

I had a look at Creative's new *Phone Blaster* expansion card at one of last year's computer shows. The card is designed to give your PC all the facilities required of a connection to the telephone network (or PSTN — Public Switch Telephone Network) by a small office. So as well as a fax modem, you get a speaker phone, voice mail, remote access, pager notification of new messages and music on hold (from either CD, WAV or MIDI sources)... though I'm not too sure that last point is a good idea.

The basic idea is that you can afford to have all the features bundled with a digital PABX in your home office, as long as you don't mind leaving your PC permanently switched on. One thing that did surprise me though, was the fact that you can't use *Phone Blaster* with Creative's ShareVision videophone system — so much for the integrated approach to multimedia. For more details about Creative products, call their information line on 01245 265265.

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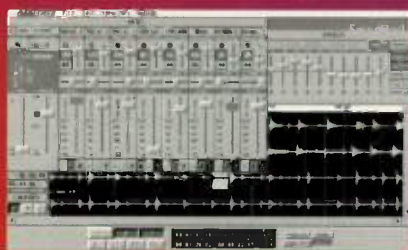
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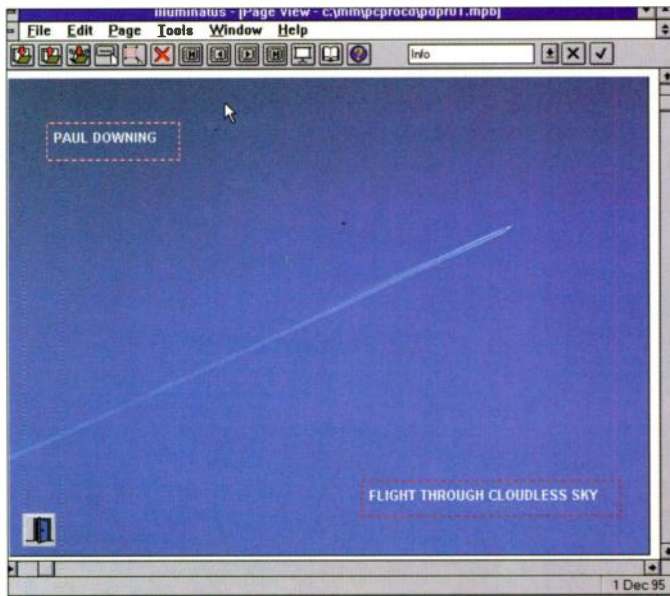
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Bundle price £599



**ILLUMINATUS v3**

- ▶ I first came across *Illuminatus* on CIX when it was at version 2. It fulfils all the basic requirements of multimedia production without requiring that you spend an unreasonable amount of time learning how to use the software. It has a simple 'point and click' user interface, and can handle most of the basic media types (AVI, animation, sound, and so on). You can produce 'stand-alone' applications, both as an executable image (say for running off floppy or CD-ROM) as well as a set of installable diskettes. The original version had a number of rough edges, but the package was so usable (and affordable) that it has become my first choice



*Illuminatus's point-and-click interfaces allow you to quickly generate a multimedia demonstrator.*

whenever I need to develop any kind of multimedia application or presentation.

The new version adds a lot of new features, but probably the most important from my point of view is the elimination of 'palette clashes' between images, when producing 256-colour publications. Palette clash, incidentally, is a nasty little image artefact caused when two images with different colour palettes are displayed at the same time.

Since Windows can only use one palette at a time, one of the images is displayed with the wrong colours, which usually looks pretty naff. You can get around this problem using a package like *Paint Shop Pro*, but it tends to be time-consuming.

Other new features include: greatly improved speed and stability, more screen and colour resolutions (800x600, 1024x768 in up to 16.7 million colours), pop-up windows (frames), graphical buttons, more special effects (fades and zooms with timing control), search and text functions, transparency control for graphics, and the addition of MPEG and PhotoCD support.

The recommended retail price is £149.95, but there are also upgrade and educational prices available. Digital Workshop have also put together a super pack including *Paint Shop Pro*, *Media Centre* and *Video Toolbox* — call 01295 258335 for further details. I shall be looking at this package in greater detail in a future column.

**IMAGES INCORPORATED**

While we're on the subject of the big 'M'... One of the most important components of a multimedia application or presentation is the inclusion of high-quality graphics. The problem with these is that they take up a lot of disk space. While the price per megabyte of hard disk is plummeting, large files in your presentation can still give you headaches, especially if your delivery format is limited to floppy disk. The interest in distribution of data via the Internet also makes file size a hot topic, since most people still have comparatively slow links to the net.

One British company that has been addressing this problem for a number of years is Iterated Systems. Their 'fractal' compression system uses sophisticated mathematics to get extremely high compression ratios without the unwanted artefacts, such as blocking, that you get with traditional 'lossy' compression algorithms. Iterated claim that their compression format is resolution-independent, with fast decompression, a wide range of compression ratios, and that it degrades smoothly as the compression ratio increases (ie. as the file size decreases). The only disadvantage of the fractal compression process is that it can take a long time if you don't have a hardware fractal compression card installed in your PC.

More and more multimedia packages are incorporating fractal file support, but it could take a little while for the technology to percolate down to the more affordable end of the market, due to their licensing policy — which is a shame, since this sector of the market is where the process could be of most use. If you want to play around with the format yourself, Iterated produce a modest graphics package called *Images Incorporated*, which allows you to play around with the compression system, as well as perform various file conversions. The software costs just over £80 (inc VAT). To find out where to get a copy, call Iterated sales department on 01734 880261.



**CYBERSPACE CORNER**

PC Publishing — many of whose books grace the shelves of SOS Bookshop — now have a presence on the World Wide Web, as part of Route66. The company was formed by Philip Chapman in 1988, and has established itself as the foremost UK publisher of readable and authoritative books on music technology. They have a range of books on MIDI, sequencing, sound recording, multimedia, digital audio, MIDI and guitar projects, and electronics, all produced by UK authors and published at affordable prices.

There are currently seven titles available in the on-line catalogue, but more will be added by the time you read this. Each catalogue entry has a

description of the book plus a list of topics covered, and you can order directly off the Web page if you have either a MasterCard or Visa credit card.

To find out more, point your web browser at:

<http://www.compulink.co.uk/~route66/pcp/>

If you want to download the screen shots for the items in this column, or link to the Web sites listed in this (and previous columns), point your web browser at the PC Notes area on Route66 at:

<http://www.compulink.co.uk/~route66/sos/>

If you want to find out how to get access to the Internet, call CIX on 0181 296 9666, or email [sales@cix.compulink.co.uk](mailto:sales@cix.compulink.co.uk).



# ARBITER SWEEPS PRESS AWARDS

## Passport release new *Rhapsody* for Encore lovers

For over a thousand years, music has been represented as notes on a musical score. It is perhaps because this form of notation is so old that there are so many complex rules and conventions used. Based on the £449.95 *Encore* software, new *Rhapsody* is programmed with all these rules. All you have to do is to play your MIDI and *Rhapsody* will produce the notation



for you. Use it for composition, transcription or publishing and *Encore* will make your music look as good as it sounds. Complex repeats, tuplets, four-part harmonies, lyrics, *Rhapsody* takes all these in its stride. *PASSPORT* you can be proud of, even using the most inexpensive bubble-jet printers. But where *Rhapsody* really scores it in its unparalleled ease of use. You really need to experi-

these tasks with confidence this for yourself, summate ease and in so send for a free demo disk & example print out today. If your notation requirements are entry-level, why not check out *Music-Time*, a real bargain at only £129.95 inc



Software : Rhapsody  
Author : Passport Designs  
Computer : PC Windows  
R.R.P. : £249.95 inc VAT



## VOYETRA MIDI PC INTERFACES

Reliable, Compatible, Affordable!

Voyetra have a track-record of manufacturing and quality assurance which is second to none.

All of Voyetra's MIDI interfaces come with universal Windows drivers.

Despite their high pedigree, Voyetra's interfaces are highly affordable.

The V22 does the job of two normal MIDI cards, but at much less than twice the cost

The VP11 is the only buffered notebook interface with auto-printer through switching.

The V24s is the SMPTE card of first choice for PC studios, with free-wheeling and stall detection



V22	2 in, 2 out	£99
V44	4 in, 4 out	£199
V24S	2 in, 4 out SMPTE	£249
VP11	1 in, 1 out parallel port	£115

## Pro-6 makes "Best Buy"



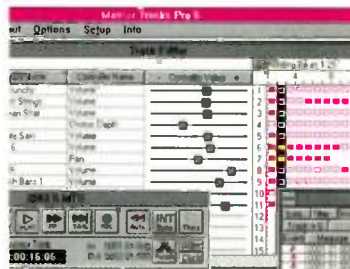
Future Music June 1995 saw a PC sequencer head-to-head with the contenders being Steinberg Cubasis, Twelve Tone's Cake-walk Home Studio and Passport's Mastertracks Pro 6. Pro6 is not a cut-down version of a pro sequencer, it is a pro sequencer.

BEST BUY status was awarded to Mastertracks, which scored 89%, compared with Cakewalk's 80% and Cubasis' 83%.

"Mastertracks has the lot, with full SMPTE/MTC support"

"The piano roll of Mastertracks is the most impressive and easiest to work with"

"So far as documentation is concerned, Pro-6 excels"



"The new price, under £150, makes it the best value 'feature for your money' sequencer going"

Software : Mastertracks Pro 6  
Author : Passport Designs  
Computer : PC Windows or Mac  
R.R.P. : £149.95 inc VAT

## Notation, Sequencing and Audio Seamlessly Integrated

Musicator has been designed from the very start to allow you to edit MIDI and audio on notation and piano roll windows side-by-side. You can rearrange an entire screen of windows with one command, and each window adjusts itself so that it makes sense at the new size.



NEW LOW PRICE

Sequencing features include fully automated mixing of GM/GS parameters like reverb, pan, and cut-off frequency, SMPTE support, drag-n-drop arrange window, controller drawing, and dedicated drum grid with individual pan, reverb, volume and tuning for each drum sound.

Notation features include multiple voices per staff, flexible splitting of grand-staff any type of tuplets, page preview, and autopart extraction.

Audio features include non destructive region-based hard-disk recording, and cross-fading function. Now available - new version with up to 16 separate audio tracks !!!

Software : Musicator 2.1  
Author : Musicator  
Computer : PC Windows  
R.R.P. : £199.95 inc VAT

## PRICE BUSTER MIDI INTERFACES

Mac £49.95  
MIDIface LX : 3 MIDI Outs, Cable included  
Why not use two

MPC401-II : Industry Standard MIDI card with WaveBlaster™ socket - perfect for Yamaha DB50  
PC £64.95  
✓ Windows95

MP128S - £299 (128 ch. SMPTE)  
MP128N - £175 (64 ch. 1 input)  
MP128X - £175 (128 ch. expanded)

## KEY MP128 range

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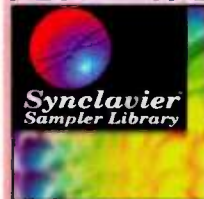
A SMALL SELECTION FROM THE WORLD'S ELITE - SEE 100'S MORE BEST-SELLERS IN OUR FREE CATALOGUE!

## Misc./World

## Dance

## Instruments

## New Releases



**Synclavier Library**  
Highly coveted collection previously only available to Synclavier owners. A series of 5 CD-ROMs:  
Vol. 1: Strings (£189); Vol. 2: Essential Percussion (£129); Vol. 3: World & Orchestral Percussion (£129); Vol. 4: Keys & Guitars (£189); Vol. 5: Brass & Winds (£189). We rate these discs very highly. Impeccable reviews in the press. Definitely recommended.



**XX-LARGE THE MILLER**  
Over 100 minutes (different samples on L & R tracks). 750 synths, chords, organs, voices, pads. Techno/trance hooks.  
250 Bases, 750 Drumloops (80% in stereo, tuned and grouped into BPMs from 130-200 BPM), Analog Drum Machines (adjusted to every possible variation). **Really good value** ☆☆☆☆  
5 Stars (Sound on Sound).  
Audio CD: £59.95, CD-ROM: £149.00



**Miroslav Vitous' Symphonic Orchestra**  
REALISM! An orchestral sample library that even top conductors are proud to own. Two years in the making. FIVE CD-ROMs exploring every subtle nuance. Very expensive, but the best. See catalog for full details, or call to discuss. We highly recommend a full demo at our private CD-ROM auditioning suite. Many film composers have bought this library and been delighted. A mini version is also available on a single CD-ROM.



**96th Street by BLACKBEAT**  
O.D. Hunte's sequel to his successful 'Freeke Jack Swing' CD. This CD follows a similar format, but concentrates on the split loops and adds a large selection of individual sounds on top of these. The loops are divided into three styles - Rap Street Loops, Future Funk Street Loops, and Caribbean Street Loops. Each loop features four alternate versions, a standard drum loop, one with bass, another with vocal fx, and lastly with everything together. This sequel will not disappoint. Audio CD: £59.95



**Heart of Africa Volumes 1 & 2**  
Vol. 1 is a 2-CD set of phrases & instruments from all over African continent. Following the success of Heart of Asia, this sequel was a smash hit even before it was released... Audio CDs: £79.95 CD-ROMs: £199.

**Heart of Africa Vol. 2** has all new tribal phrases, vocals, performances & SFX from a huge tribal competition in Kenya. This material is very primitive & really enhances the volume 1 samples. Audio CD: £59.95 CD-ROMs (most formats available): £149



**L.A. RIOT 3**  
2-CD Set: 1000's of Hip Hop & R&B samples.  
• Mad-hard construction kits  
• Bomb-ass breaks  
• Basses • Loops  
• Horns • Scratches  
• Dope FX & Squelies  
• Crazy guitars • Vocals  
• Synths • Piano/Rare groove elements. Every 5 construction kits are same BPM & key for mixing & matching. Fresh, well-organised and a true goldmine for the serious producer. "Sheer authenticity & attitude... An all-American urban soundscape of immense realism... A hard act to follow... Quite simply a classic." ☆☆☆☆  
5 Stars (Sound on Sound, UK). 2-CD audio set: £59.95



**PHANTOM HORNS**  
☆☆☆☆☆  
"5 stars"  
(Sound on Sound magazine).  
The world's best and classiest horn sample library featuring the dynamic sounds of the UK's most in-demand horn section, John Thirkell & Gary Barnacle (whose album credits read like a who's who of megastars). Packed with riffs, hits, swells and all the other horn elements you'll need to add real brass impact to your tracks. Audio CD: £59.95



**Interface Dance**  
Superb all-round dance collection - NOW ONLY AVAILABLE FROM TIME+SPACE (exclusive worldwide distribution). INTERFACE DANCE has definitely cracked it. Extremely well-organised, this CD encompasses many years of production including Nu-NRG Euro, Techno/Industrial, House Garage, R&B/HipHop, Jungle and Hardcore. Drum Loops, Hits, Synth & Bass multisamples. Vocal Shots/ad-libs & FX. TB303 basslines, Horn hits & stabs, Piano, Sax & Hammond. Guitars riffs, MC/Ragga vocals and more... As we went to print we heard that the magazines have given this CD fantastic reviews! Audio CD: £59.95



**SUPREME BEATS**  
The most comprehensive library of percussion grooves & instruments ever developed, featuring percussionists from all over the world. This highly acclaimed library is now available on 2 CD-ROMs: 1: AFRICAN/CONTEMPORARY & 2: WORLD/DANCE. "A feast of human feel, energy & emotion... a knockout... Supreme Beats is a winner... 20 stars out of 20!" (Keyboard, USA). Audio Vols 1-4 (4-CD boxed set): £199, Audio Vol. 5 (NEW!): £59.95. CD-ROM Vol. 1: £149, Vol. 2: £149 (CD-ROM versions include all the sounds from Vol. 1-5 audio CDs).



**Loop Soup!**  
This 2-CD package contains ALL the rhythm loops from (from Norman Cook, Megabass Remix, Pascal Gabriel, Coldcut, and from both of the AMG "Now!" CDs). A monster collection by some of the UK's best dance producers. Audio 2-CD set: £59.95



**ORCHESTRAL COLOURS**  
Peter Siedlaczek's  
Rich & evocative orchestral samples to bring colour & inspiration to your music • Hits & Finales • Moods & Timbres •  
Orchestral layers, chords, arpeggios, tremolos & Glissandos • Runs & Sequences. A film composers dream. *Quality is irreplaceable. You've never been able to access such usable orchestral realism so cheaply before.* ☆☆☆☆  
5 Stars (Sound on Sound). Audio CD: £59.95, CD-ROMs: £149



**SMOJIN'**  
by Tony Mason  
New from AMG: seventy-three minutes of specially recorded grooves with a strong dance flavour. All samples have undergone analogue processing to give an authentic 'rare' valve sound. 'Smojin' was recorded in Trinidad and the UK by much sought after session drummer, Tony Mason (Tony has taken care of drums for Al Green, Incognito, Fine Young Cannibals and George Michael). The ideal drum loop CD for anyone looking for great sounding beats with attitude. STROMS DANCE FLAVOUR WITH A LAID BACK RHYTHM AND BLUES ATTITUDE. Audio CD: £59.95



**NEW WORLD ORDER**  
Journey # 1: Fantastic Collection of Ethnic & Percussion loops. Tribal Rhythms, Ritual, Djembe, Talking Drums, Calypso, Reggae, Haitian Vodou, Afro-Cuban, Latin Funk, Tabla Loops, Indian Ensemble, Rhythms from Japan, Ireland, Texas & New Orleans. Journey # 2: Extensive performances on a multitude of acoustic instruments from all over the World. Loads of seldom heard Folk/Historical instruments, plus vocals. Loops, Riffs, Sides, Chords, Scales etc. All sounds are original recordings. Audio CDs: £59.95 each. CD-ROMs (Akai): £149 each.



**X-Static 1 - REMIXOLOGY**  
The XXXX-Largest CD ever?? 4000 samples from the now deleted X-STATIC GOLDMINE 1 and XL-1. If you don't own these two classics then this new CD is essential! All of the 600+ loops are now tempo-mapped for ease of use. Choose any of 4 formats at the same price!!! - Audio CD, or Akai S1000/Roland/PC 'WAV' CD-ROMs. At £59.95 it's got to be the best value dance CD-ROM ever. Audio CD: £59.95. CD-ROMs: only £59.95



**BASS LEGENDS**  
Earth-shaking bass grooves & samples from 3 of the world's greatest bassists: Marcus Miller, John Patitucci & Abe Laboriel. All grooves are given in every key & in multiple tempos. CD-ROM versions also include an extravagant variety of multisamples of instruments from the players' private collections. Audio CD: £59.95 CD-ROM: £199.00



**DISTORTED REALITY**  
NEW RELEASE - but already in the hall of fame... Cutting Edge Textures, FX and Loops, exploring an experimental world of extraordinary colours. From 3-dimensional Harmonic Sound Morphing, to trance-inducing ambiances, enormous modular drones & astonishing timbral contentions. An essential resource for the producer, composer or sound designer in search of unique sound. You simply have to hear these sounds to believe them, and we can't praise this product highly enough. Audio CD: £59.95, CD-ROMs: £149



**HALLELUJAH**  
WORLD CHOIRS & VOICES from many countries and cultures. Produced by Peter Siedlaczek/ B.Jojic/ K.Kandler. Dance & Pop Choirs • Gregorian/Monk Choirs • Gospel Choir • Background choirs • Classic soloists • Ragamuffin • Choir of Nuns • Vocal hooks • Total fascination! ☆☆☆☆ 5-stars (Sound on Sound, UK). Audio CD: £59.95 CD-ROM: £149.



**SLY DUNBAR**  
Reggae Drumsplash. The World's No. 1 Reggae drummer & Producer (half of Riddim Twins Sly and Robbie). There's nothing else like this on the market! • Reggae • Ska • Dancehall •  
Bhangra. Comes with MIDI-files on floppy disk for the loops. READ THE FANTASTIC REVIEWS - undisputably the NUMBER ONE sample CD on the market for reggae production. Audio CD plus MIDI-file floppy disk (please state Mac or Atari): £59.95



**DRUM TOOLS**  
LIVE Rock & Pop loops. Very flexible. Tempo Sets, Inspiration Grooves & Individual Hits to allow flow and natural feel. 4/4 Straight, 4/4 Shuffled, 8/8,  
Blues, Brush and a Big Section of Inspiration Grooves. Full Loops (BD, SD & Hat/ Ride), Fills, Separate Hat & Ride Loops, Perc Loops & Flams. Produced by the Roxette team. Audio CD: £59.95. Akai CD-ROM: £149.00



**AbraCatabla**  
New from AMG: produced by Talvin Singh (one of the leading exponents of UK ethnic fusion - works with top acts like Massive Attack & Bomb The Bass). Huge selection of mostly ethnic percussion. Highly contemporary ensemble grooves with extremely intricate, tight performances, broken into various mixes/combinations/sounds. There is also a section of solo patterns complete with very comprehensive sets of single hits. Super tight performances and great sound quality! One of AMG's best ever products! Audio CD: £59.95



**GOTA YASHINI'S GROOVE ACTIVATOR**  
Drum & Percussion grooves, chops & fills. Gota's work with the likes of Soul II Soul, Bomb The Bass, & Simply Red is already part of pop folklore. His ability to make machines groove is legendary. This CD is very different, and a guaranteed source of inspiration. Quality, originality and creativity of the first order. Audio CD: £59.95



**BLACK II BLACK VOLUMES 1 & 2**  
By Steve McIntosh & Joe Charles. One of the biggest & best set of kickin' R+B samples. All loops, Vocals, Brass lines, & Drum hits specially recorded. Features: Reggae, Ragga, Swing, Jazz house, Euro house, Mad house, SLo jamz, Rap, Guitar licks, Bass lines, Garage, Disco. ☆☆☆☆ 3/4 (Sound on Sound). Each volume is available on Audio CD: £59.95 each, or on Akai CD-ROM: £149 each.



**CHRONIC HORNS**  
Produced by the LA Riot team. Aimed exclusively at dance music. Horn riffs, multisamples, swells, stabs & falls played by L.A.'s top horn players in every key. Everything from Acid Jazz to flat out Phunky Jazz. The 4-horn section features mainly trumpet, tenor & alto sax and trombone plus variations. This is a must-have collection if you're looking for laid back horns for dance/jazz. Chronic Horns is hot off the press! Audio CD: £59.95 (call to check if this product has been released yet), CD-ROM versions are also planned.



**The Ultimate Piano Collection**  
Four of the finest pianos ever built: Steinway D, Steinway C, Fazioli F228, and Bosendorfer 225. Every key sampled in various attacks, with and without sustain pedal. The best Piano CD-ROM available - and the best possible with today's memory capabilities. \$260,000 worth of grand pianos ready to play - on a silver disc. One of them will surely fit the music you're working on. Come and demo this amazing disc and we're sure you'll be convinced it's the best. Expected release date of Akai version is approx late Dec/early Jan'96 with other formats following soon after. Available on CD-ROM only: £329.00

## New Releases

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If you need Jungle this is unmissable. • Loops • Riffs & Licks • Perc • Kits • Pads & Chords • Bass • FX • Vocals. "Excellent fidelity, balance & punch, & variation in feel & sound... there's no serious competition." Rated 5 stars out of 5 by *PRO* (Sound on Sound, UK). "Kicking on Sound, UK). Audio CD: £59.95



## New Releases


**Beats 'n' The Hood**  
The ultimate beats collection for serious Hip Hop, Swing and R&B production. Grooves with attitude and attitude to lift your music into a new dimension. Each loop has its own swing factor, enabling you to easily quantise your track to the groove. CD-ROM version coming very soon. Audio CD: £59.95



**Techno Toolbox**  
Features the sample libraries of Germany's most respected Techno producers including Eye, Warehouse, Ralf Hildenbeutel, Jam & Spoon, Dance 2 (Trance), Det Merlin (Spacehog, Energised), Benlog, and more. Coveted key sounds of many of the world's top techno producers: custom drum, synth, bass, loop samples. "Within the first 3 minutes of this CD I had goosebumps!" (Frontpage Mag, Germany). Audio CD: £59.95



**Flamenco Sounds**  
Recorded exclusively in Spain. A wealth of rhythms and flavours in true Catalan style. Original, respected, flamenco musicians like Ketama, Tino De la Guardia and Pedro Andreu. Guitar rhythms, Maie & Female vocals, tapping feet, castanets, & Cajon rhythms. Rich assortment of peasant-style sounds to help bring out the Gypsy in your music! BPMs and key references are included where necessary. £59.95



**EUROTECH**  
Specialising in Eurodance, Europop. This style of music has dominated the charts all over Europe over the last few years & seems set to continue to. A very commercially attractive set of sounds, and all original. The loops are fast (182 of them are over 140bpm!). A nice balance of experimental & straight. All bpm's given. A hot techno resource. Audio CD: £59.95



**On A Jazz Tip**  
Hip Hop in Full Swing! Stomping grooves, licks and loops, played in predetermined keys and tempos to be used interchangeably. Bass, Guitar, Keys, Horns, Drums and Perc. Jazz riffs, riffs and chords. Perfect for CD HipHop, Rap, Soul, Tripphop, Acid Jazz and Funky flavors. For any music project that needs a swing or jazz that Jazz Thing. Produced by musicians who love and respect music. Audio CD: £59.95



**Methods Of Manheim**  
Brutal & sweet sampling for Industrial/Intelligent Techno, Goth Techno or anything in need of an Experimental Edge. Uniquely twisted, bizarre and savage stuff. Drum, Bass, Synth, FX, Vocoder, Feedback & Noise-grooves. Grinding Guitar Riffs & Feedback. Synth FXs, Sweeps, Dadders, etc. Creepy & Cheesy Sound FX, Music FX & Voices. Over 1000 Samples. A unique collection. Audio CD: £59.95



**VINYLISTICS 2**  
D&B/Jungle/Trip Hop - whatever the trendmakers call it - it all comes down to the Right Flavor of the Grooves. Many future styles will probably rely on breaks like this. Tons of Grooves, Hits & Loops to give you a unique feel for Rare-grooves. Produced by PHAT FACE aka Fabian Thorsson (Heme Cherry & Shabba Rank). Tempo-maps provided (plus MIDI-files on CD-ROM version). Audio CD: £59.95. CD-ROM (incl audio CD): £149.



**Carmichael's Crunchy Nut Loops**  
Crunchy Nut Loops - A collection of Phatting Grooves from Drummer Jim Carmichael (Freak Power, K-Creative etc.), played with vibe in mind, these loops are encrusted with funky substance and fortified with extra compression to start your day in the positive way. Audio CD: £59.95




**X-Static 4**  
Chill out & Dub Grooves, Trancey Phase Loops, Synthetic Vibes, Floating Digeridoo's, Transformed Ethnic Chants, Hypnotic Space Echoes, Zipping Snares & Dreaming Dolphins & Jungle Weather. 1500 Ambient House Loops & Chill-out Samples. (Loops made to fit with LOOPMAPS - tempo maps to make loops easily interact with each other) Audio CD: £59.95. CD-ROM (3000+ samples, midfiles for loops, Akai \$1000 format): £149.00



**West Coast Funk Stew**  
2-CD set from USA featuring L.A.'s top Funk session players, and produced by a top US rap engineer. Over 1000 Drum, Bass, Guitar, Horn, Keyboard and Vocal loops & samples with a deeply funky flavour. Audio 2-CD Set: £59.95




**PHAT & PHUNKY**  
Another dynamic set from East-West: Over 2000 samples on 2 CDs: 185 grooves, each with its component samples given. Impassively drums & bass (trumps) to wander with the sequence data for each loop on a separate MIDI-file floppy disc. (PLEASE STATE ATARI/IBM or MAC version when ordering). This arrangement gives you complete flexibility to customize all loops to any tempo or content you like. 2-CD audio set: £59.95




**DANCE MEGA DRUMS**  
4500 well-organised samples. 90 complete and different Drum machines as well as extra rare analogue rhythm-boxes with reversal sound variations. Also 1500 latest dance Drum sounds (80s, 90s, Hats, Percs, Analogue Drums and Perc). 400 No Hi-Hat part. All Drum mixes laid out on 2 CDs. Keyboards, ready to play. Available as Double-CDs mixed mode (choose either Audio/Akai or Audio/EMU version); only £59.95!!



**XX-LARGE EXTREME**  
With its latest production, the XX-Large Team presents the biggest Dance Drumloops collection worldwide! 1750 absolute new Stereo Drumloops. House, Jungle, Rap, Hip-Hop... All of the loops are tuned accurately on beats per minute and arranged in groups from 80 - 180 bpm. In addition, more than 100 (over 100) Dance Sounds: Hoops Organs, Jungle Bases... You can't live without them!! Audio CD: £59.95. CD-ROM: £149.00



**REAL MEGA DRUMS**  
Natural drums. With or without room, varying hits, a gigantic range of Ricks, Snaps, Toms & Cymbals. The Toms & Snaps sound absolutely authentic, each of them recorded by left and by right hand separately, each with four hits, etc. The CD-ROM part with 440 Mb contains dozens of sets with 8, 16, 32, Mb ready to play. (80 minutes audio material). Available as Double-CDs mixed mode (choose either Audio/Akai or Audio/EMU version); only £59.95!!



**ROBOTS & COMPUTERS**  
The electronic invasion of machines & Computer. Unique sampling material for any fan of electronic and Kraftwerk. Fantastic studio production tool. Hundreds of electric Synthesizer & Drum sounds coming from collector's stock. Rhythm sequences and Drumloops, extensive Vocoder section, language computer-rambles. A real treasure trove: 1500 analogue & digital specialties. From the past to the future. Audio CD: £59.95. CD-ROM: £149.00



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# Now to be certain that the sample library you buy will deliver the sounds you need:

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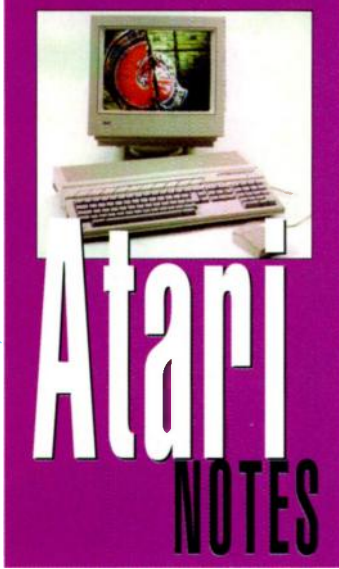
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**OFIR GAL reports back from a show in London which proves, once again, that there's life in Atari computers yet — even if Atari themselves don't agree!**

The Atari World-sponsored Atari shows were held in Birmingham and London in December. Many new products were on show, as well as older ones at bargain prices. Even if the range of non-MIDI Atari software is not what it was in terms of diversity, the quality of current products is very encouraging. There appears to be a hardcore of Atari enthusiasts who remain unswayed by Bill Gates and his PC propaganda machine. Several hundred devotees gathered in the small hall, watching with rapt attention as new programs ran on STs and Falcons which had been completely taken apart and turbo-charged with a variety of accelerators, graphics cards and other electronic contraptions.

The products on show could be divided into two categories. Old, unsupported products were on sale at ridiculously low prices. A rumour persisted around the hall that someone has actually managed to get *Timeworks* and *NVDI* to work together — something I cannot confirm myself. I learned a long time ago not to buy unsupported software, no matter how cheap it is. My interest, and therefore this instalment of *Atari Notes*, is focused on the new products that were on show. The last year or two (or three) has been a rough time for Atari users, as market forces have forced many developers out of the Atari scene and onto the PC. Steinberg, previously an Atari-based company, were not represented, choosing to ignore the fact that the majority of *Cubase* users happen to run their software on an Atari.

### THE PRODUCTS

First on the list is one of my favourite programs — *Papyrus v4* was on show at the HiSoft (01525 718181) stand. This version has suffered many delays, and is still under development — this was

its first UK appearance. A powerful word processor, *Papyrus* has received a facelift, and now uses a 3D interface, provided you run it in 16 or more colours. It sports several new features including Unicode support, improving handling of non-Roman languages, a multiple page preview mode, text-style tags and many other enhancements. Unfortunately, the demo version was German (see picture), and there is no firm release date as yet.



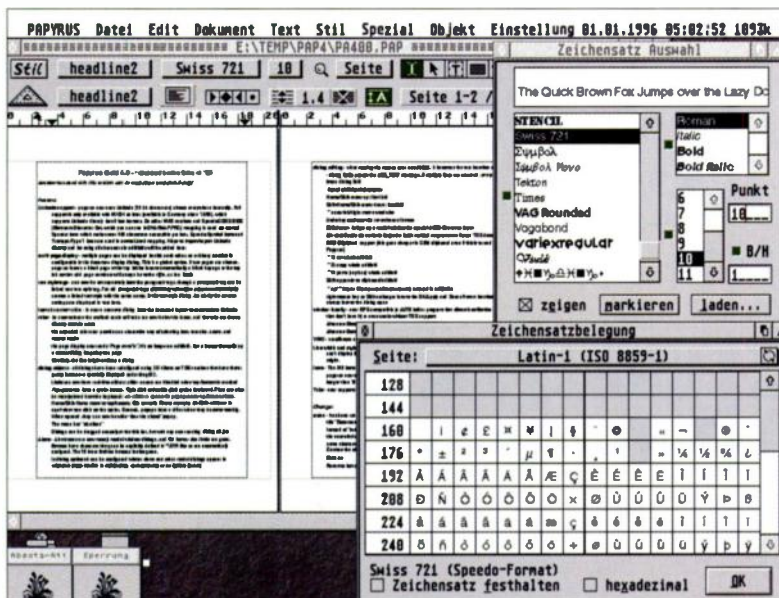
The new C-Lab Falcon MkX is housed in a stylish case, and finally has standard jack audio connectors.

Titan Designs (0121 693 6669) were showing off the highly-regarded *Apex*, along with *Exposé*. The combination of the two allows real-time video grabbing and editing of images. Version 3 of *Apex* is now under development, but was not on show. The new version will feature real-time image editing tools and sound support, and is expected to ship around April.

Digital Awareness (0181 597 2513), the UK distributors for the C-Lab Falcon, had a few new hardware prototypes on display, and some new programs as well. These included two new Falcon products from Sunrise Electronics. The SE600 provides eight analogue outputs, promising a frequency response of 15Hz to 22KHz, and comes with either standard jack outputs or balanced XLRs. The SE800 does the same, but also provides eight high-quality analogue inputs.

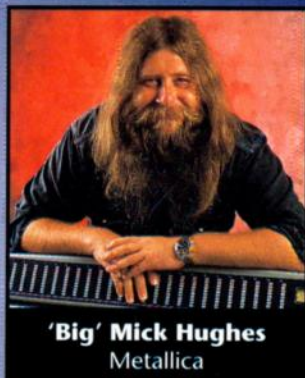
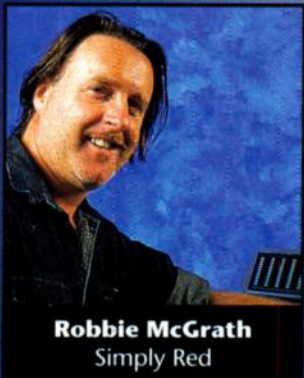
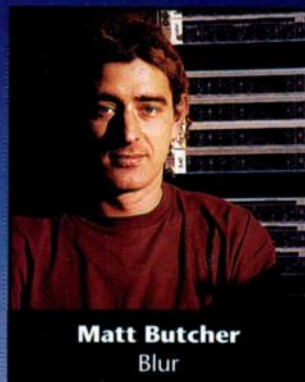
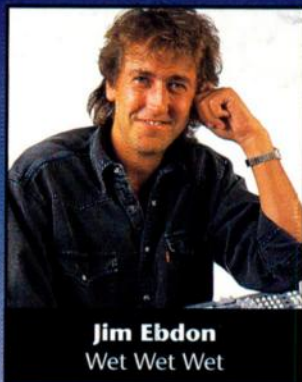
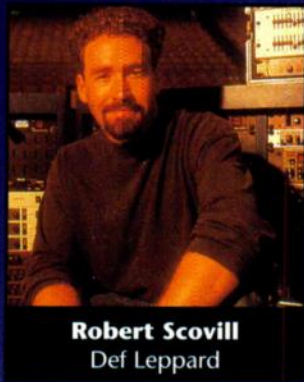
A new, re-cased Falcon (the Mark X) was to be launched around January, but all Digital Awareness could show at the time was an artist's impression of the new case, which should allow more expandability (see picture). Other than the new case, and the addition of proper jack audio inputs and outputs, it will be identical to the current MkII. You can read more about these products and the new C-Lab Falcon MkX next month.

Moving on, 16/32 (01634 710788) had a bunch of new Atari shareware CDs, including *All Things Falcon* — a collection of Falcon-specific shareware. They were also selling cost-effective Falcon memory upgrades. The TUS Developments (01625 503448) stand displayed the latest crop of hard disks and memory upgrades, while the *Calamus* user group offered expert advice on DTP matters at their stall. The Compo stand was displaying the full Compo range, including *Geneva*, the multi-tasking operating software, and *NeoDesk 4*, a very popular alternative desktop.



*Papyrus v4* is still under development, but the current test version looks promising.

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# Atari NOTES

► I was also pleased to see that you could obtain almost any Atari spare part you wanted at the Best Electronics stand, who never miss an Atari show.

## NEW SOLUTIONS

However, one company stood out, having the largest stand and also the longest queue of anxious customers waving their credit cards about. Trying to get hold of one product or another, we were often told that stocks had run out. System Solutions have managed to dominate the Atari UK market through sheer persistence. The company now distributes more Atari products than any of its competitors, and consequently dominates this show report. On display were the latest SoundPool products (as featured in December's Atari Notes), including the new FA4 for the Falcon. Also present was the BlowUp Falcon extender hardware accelerator and screen enhancer, which combines the extended video modes of BlowUp, producing higher screen resolutions, and also accelerates the Falcon up to 40MHz. Best of all, it allows you to upgrade your Falcon memory to 6, 8 or 10Mb.

I stopped to look at *MagiC v4* (for all Ataris including the Falcon), which should be available by the time you read this. This replaces tired old TOS with a true multi-tasking operating system, enabling you to run several programs at the same time. Apart from Falcon compatibility, the new version has an improved desktop, long file name support and other enhancements. It is compatible with *Notator Logic*,

disk driver HD Driver has also seen a major update, to version 4.5. It now supports buss arbitration, making it compatible with many more hard disks, has a brand-new, simple-to-use installer, and can now read PC-formatted SCSI drives.

Still, I found it impossible to break away from the Systems Solutions stand. Ease, I discovered, has just been upgraded to version 4. This friendly and reliable replacement to the Atari desktop is proving very popular with users. Version 4 comes with a new manual, desktop notes, pop-up menus showing folder contents, and other minor improvements (see picture). In addition, it is fully compatible with *MagiC v4*. And there was more... *ExtendOS Pro* is now at version 2.2, and is capable of 'lifting' audio from CDs directly to your hard drive — and by using the new Panther graphics card, ST and STe owners can finally get high resolution displays. This ET4000-based card comes with 1Mb of VRAM (non-upgradable) and is capable of displaying true-colour and extended screen resolutions on an SVGA monitor.

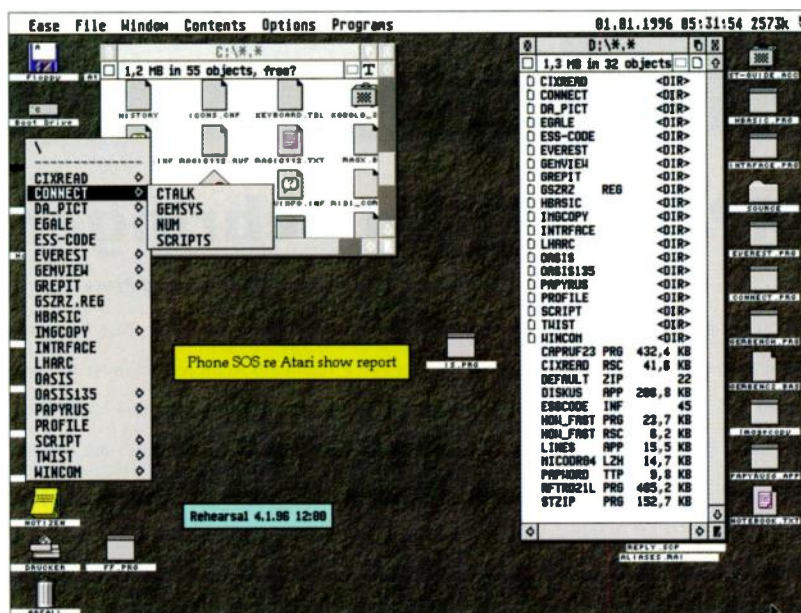
ATAPI is a new device that enables you to connect a PC IDE CD-ROM drive to your ST via the cartridge port. It's not much use if you're running *Cubase* or *Notator*, but it does work well. I also saw a CD authoring package for Atari computers which is available now. It includes the required Atari software and a quad-speed CD writer. The final products I saw were *E-Copy* — a clever floppy disk formatter and copier, which is not available just yet, and the Epson GT5000 scanning package.

Last of all, there were the new Rack Magic units, of interest not only to Atari owners. These come in a variety of sizes, and allow you to rackmount a Mega ST or a desktop Mac or PC.

## SHOW COMMENT

Even Atari don't care about Atari computers anymore, but that does not seem to matter to a core group of developers, as this show demonstrated amply. These developers just continue to create excellent products for the Atari range (like *MagiC* and *NVDI*, to name a couple). Nevertheless, it's becoming pretty obvious that developers are shying away from major applications that take a lot of time to create. Most new products on show were utilities that help you use your computer, but there were very few new applications — the sort of programs that actually *produce* something, like word processors, sequencers or graphics programs.

This trend is unlikely to reverse, but market forces and the herd instinct aside, I wouldn't swap the Mega ST in my studio for anything else. It's been running *Cubase* faithfully for years, and has been on the road more than once. The case is battered, the monitor needs replacing, but like those alkaline batteries on TV, the old beast just keeps on going... That said, it is soon to be retired to a backup status, and replaced by a C-Lab Falcon running *Cubase Audio* — more on this soon.



The new version of Ease supports pop-up drive menus and desktop notes, a major improvement on the dull Atari desktop.

but sadly doesn't work with *Cubase*. On the subject of *MagiC*, *MagiC Mac*, the Mac-compatible version of *MagiC*, is now at version 1.2.5. Besides incorporating all *MagiC 4* features, it now runs on Power Macs, including the latest PCI-based models.

Still on the System Solutions stand, I saw *NVDI v4*, the screen accelerator and font engine. This new version includes an added utility that enables you to view and install fonts on the fly, and some minor bug fixes. The imaginatively-named hard



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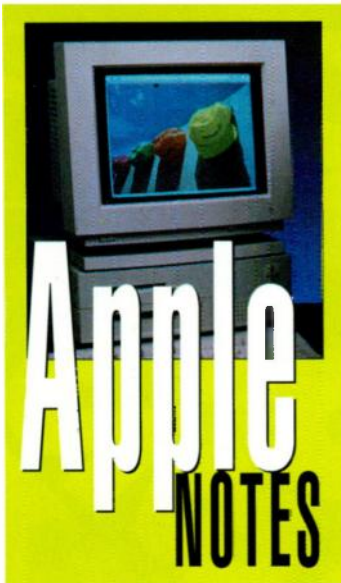
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**MARTIN RUSS** considers some ways of realising sound synthesis on your Mac using system or third-party software, and concludes his look at the PCI buss.

**A**lthough the Macintosh has had the capability to use software to synthesize sounds for many years, it is only comparatively recently that this has advanced beyond the 'Bleep and Booster' school of gritty computer audio. For example, QuickTime 2.0 incorporates a set of sounds which have partial GM compatibility. There have been one or two mentions in *SOS* on this topic: see Apple Notes April 1995 and September 1994, and Paul Lehrman's excellent article on Software Synthesis in *SOS* October 1995. Two recent software releases bring this subject into focus again.

The new QuickTime Music OMS driver lets you use the QuickTime Musical Instruments (new versions of which should now be available as part of QuickTime 2.1) in any OMS-compatible application, without the need for any external MIDI instruments. Instead, placing the QuickTime Music OMS driver (see picture, right) into the OMS folder (inside the Mac's System Folder) provides 16 new instruments (named 'QuickTime-1' to 'QuickTime-16'). The driver appears as an Interface icon called 'QuickTime Music' in the OMS Studio Setup document — just like the IAC Driver, which is used to allow intercommunications between music applications. The only hiccup was that I needed to reboot my Mac after installing QuickTime, and the driver before the Studio Setup would recognise the new interface driver.

Setting it up involves setting the pitch bend sensitivity (0-24 semitones) and choosing the drum kit (see picture, right). If you choose the Rock drum kit, then the QuickTime Music synthesizer assigns the drums to Channel 10 as per General MIDI, but if you don't choose the Rock Drum, then MIDI channel 10 can be used as a normal synthesizer channel. At the cost of occupying anything up to 1Mb of system RAM memory, the QuickTime Musical Instruments extension and the QuickTime Music OMS driver give partial General MIDI playback from a stand-alone Macintosh. Contact TSC on 0171 258 3454 for more information on obtaining the QuickTime Music OMS driver, OMS, or any Opcode product.

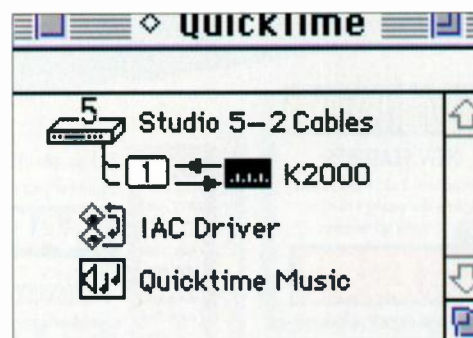
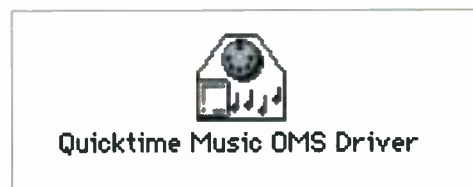
### CYBERPUNK ROCK

InVision's *CyberSynth* takes the idea of a software-only GM synthesizer several stages further. For an introductory price of only US\$199, the *CyberSynth* CD-ROM provides the synthesizer software and nearly 50Mb of 16-bit samples. They've been produced using a variety of synthesis techniques: both analogue and digital synthesis, as well as physical modelling.

InVision are apparently working on a professional-level software synthesizer, and this may well have provided some of the samples. They also produce sample CD-ROMs (the evocatively-named *40oz. of Phat Slammin' Hip Hop* springs to mind), and their sound libraries are probably where the majority of the 500

samples which are provided on the CD-ROM come from. Additional CD-ROMs are, as always these days, 'under development'.

*CyberSynth* has broad compatibility: OMS, FreeMIDI, GM/GS, MIDI Manager, Sound Manager, QT and more acronyms are all catered for. Hardware-wise, you will need a 68040 or



PowerPC (native) processor with 8Mb of RAM and at least 6Mb of hard disk space. Software-wise, the polyphony depends on the processing power available: 128 notes on a PowerMac 9500, down to 24 notes on more modest machines. *Apple Notes* will try to bring you a user report just as soon as we can test *CyberSynth* out.

### ALL ABOARD THE PCI BUSS

After last month's look at PDS, SCSI and NuBus, this month's topic is the PCI buss. Here's some questions and answers.

I started to talk about the Peripheral Component Interconnect (PCI) buss in the November 1995 *Apple Notes*. It provides a platform-independent solution to the problems of producing add-on cards for computers — which brings us to the obvious question:

#### Will a PCI card work in my PowerMac?

The answer currently seems to be that provided that a PCI card manufacturer implements the PCI 2.0 specification, complies with the Open Firmware standard (IEEE 1275) for booting PCI cards in an operating system-independent environment, and provides a Mac Operating System-specific driver, then that PCI card should work in a PCI-equipped Macintosh.

### ON THE NET

Last month's mention of the BeBox computer should have included the WWW address:  
<http://www.be.com/>

Here are some more useful MIDI and hi-tech-related URLs.

**OPCODE:**  
<http://www.opcode.com>

**EMAGIC:**  
[http://www.mcc.ac.uk/~emagic/emagic\\_page.html/](http://www.mcc.ac.uk/~emagic/emagic_page.html/)

**ROLAND:**  
<http://www.imagic.be/roland/home.htm>

**INVISION/CYBERSYNTH:**  
<http://www.cybersound.com/>

**AUDIO AND THE WWW:**  
<http://www.realaudio.com>

**MAC V PC DEBATE:**  
<http://www.icsi.net/~crfrank/newpctales2.toc.html>

**SYMANTEC/C++:**  
<http://www.symantec.com/>

**LUCASFILM (FOR FILM BUFFS):**  
<http://www.thx.com/>

If that sounds like quite a few caveats, then the usual advice of 'try before you buy' applies — and as with any change of technology, test thoroughly in your specific setup, not one that is merely similar to it! Even so, given the wide acceptance of PCI outside of the IBM PC-compatible world, PCI card manufacturers should rapidly catch on to the fact that they have a larger potential market of PowerMac and Workstations like Dec Alphas, and will ensure that they are compatible. Most IBM PC-compatibles already seem to implement PCI 2.0, for example.

#### What sort of PCI cards will be produced?

Because the PCI buss is intimately connected with the main buss inside the computer, it can provide a number of expansion capabilities that take advantage of the high-speed access that is available. Graphics accelerators and network cards are probably going to be the most common uses, but you can expect some to be Mac-specific, like DOS/Windows compatibility cards with 486 or Pentium processors. Mac music-related cards will include PCI-to-Nubus adapters, as well as PCI-to-SCSI adaptors intended for driving RAID disk arrays. Companies like Digidesign are now producing PCI cards, often with a NuBus-to-PCI exchange scheme.

#### What about the future of PCI?

In the near future, PCI 2.1 should improve the data transfer speed for some real-time applications — particularly video editing and perhaps audio direct-to-disk. In the longer term, PCI 3.0 should double the throughput of data to over 200Mbps per second — but the exact method which will be used to achieve this is still uncertain. The current 33MHz clock could be increased to 66MHz, or the buss could be widened from the current 32 bits to 64 bits. There are pros and cons to each approach, and the PCI 3.0 specification is not due out until 1997 — so watch this space.

## TIP OF THE MONTH: MIRRORING

Apple Notes comes to you this month from a significantly different Mac System, although still built around my old faithful IIs. I've re-organised the hard disk partitions and added a new drive specifically for mirroring, so that now I have a 120Mb partition which contains the system software, and two 400Mb partitions on different hard drives, which were intended to form a mirror pair. The remainder of one drive is used for a 'scratchpad' area of storage: for things which don't really need to be backed up seriously — a sort of extended 'junk/wastebasket' area.

So back to mirroring. This is the name given to automatically writing everything to two separate hard disks, so that you always have a complete backup. This has always been one of those things that I intended to get around to, but never quite managed to get to the top of the agenda. Well, I finally did, and I'm not sure that I should have!

I spent a good couple of days moving files and backing up, and then reformatted everything to give me the mirror split system described above. I then installed the mirroring software and synchronised the two main partitions so that they were identical. All appeared fine, and the performance seemed okay too. But then the Mac crashed (quite a rare occurrence these days), and

when I rebooted I discovered that the mirroring would not work, because the two disks did not have exactly the same contents. To re-enable mirroring, I needed to reformat and then copy across all the files again, so I did it (half an hour down the drain). Once again, all was well, but then the Mac crashed again, and it looked like another half hour of formatting and file copying...

Mirroring began to look distinctly less appealing by this point. So I resorted to 'brute force and ignorance' and copied across all the files which were different, by dragging one disk icon to the other. I have Symantec's excellent *CopyDoublor* utility installed, and this can be set to copy only those files which are different, instead of everything. This means that I now have a backup of my main drive which I can update whenever I want — and because only a few files change each time, it does not take very long (over lunch for instance). A more sophisticated version of this backup process could be carried out using Apple's *File Assistant* software, but this is only bundled with PowerBooks. There are some other backup programs which do much the same thing, but at a price.

Moral: Check carefully before committing, and always look at the less obvious alternatives.

#### What about 3.3 volt PCI cards?

After many years using 5 volts as the main logic power supply voltage, the ongoing reductions in chip size and power requirements, and increases in speed are forcing the computer industry to lower the supply voltage. 3.3V chips are already being used in many applications: some Pentiums and PowerPC chips use 3.3 or 3.6V supplies, and there are many support chips that use 3.3V. If PCI 3.0 uses a 66MHz clock, then this will force the use of 3.3V. Long-term, the future seems to be 3.3V for almost all computing hardware.

SOS

## APPLE NEWS IN BRIEF

#### • IT'S SOUND!

Hidden away in QuickTime 2.1 for Macintosh, the Sound Manager 3.1 System Extension provides enhanced audio recording and playback performance on PowerMacs (see the Opcode news item for suitable models). As well as 'plug-in' architecture for additional third-party audio compression codecs, it also includes two new 16-bit audio compression formats: IMA (Interactive Multimedia Association) 4:1 and  $\mu$ -Law 2:1 — which also provides compatibility with WAV and AU format audio files.

#### • DIGITAL PERFORMER REACHES v1.7

Mark of the Unicorn (MOTU) have a new release of their *Digital Performer* due very soon. They have produced a CD which showcases some very impressive time-stretching and pitch-shifting capabilities — well worth an audition. Contact MusicTrack on 01462 733310.

#### • FREE CD-ROM FROM SYMANTEC!

I was most surprised to receive a free CD-ROM from Symantec recently. They have decided to send out the

CD-ROM *Subscription* free to all registered owners of C++ 8.0. All it requires is for you to fill in and return the subscription card. You then get two updates to the original purchase, and each CD-ROM has updates, new utilities and source code examples.

#### • GOING NATIVE — LOGICALLY

Emagic's *Logic* and *Logic Audio* v2.5 are now available in native PowerPC form, which should significantly improve performance for PowerMac users. Upgrades (£25: if only all upgrades were this affordable!) can be obtained direct from Sound Technology. Contact 01462 480000.

#### • NEW VISION FROM OPCODE

*Vision 3.0*, *OMS 2.0* and *Galaxy 2.0* for Macintosh have been announced. *Vision 3.0* now includes Sound Manager digital audio support for audio waveforms alongside MIDI data, and replaces *Studio Vision AV* (upgrades are available). Macs with support for Sound Manager digital audio include: Power Macintosh 7100,

8100, 8500, 9500; Quadra 660AV, 840AV; and the PowerBook 520 and 540.

The long-awaited Open Music System 2.0 is now available. Automated studio setup and MIDI instrument detection should make setting up even easier, and there's more use of colour, to make the studio setup easier to understand.

*Galaxy 2.0* now supports MIDI Bank Change messages, and the patch linking between *Galaxy* and *Vision* has been made more transparent. Contact TSC on 0171 258 3454.

#### • APPLE ON THE PHONE

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*"I once believed in Jesus, now I can't believe in rock'n'roll." Ex-Virgin Prune Gavin Friday may have his cross to bear, but as NIGEL HUMBERSTONE discovers, this gadfly of the Irish rock scene isn't one to let the grass grow under his feet...*

in Dublin, a cabaret/vaudeville-style venue which he created. Through the club, Friday met the man who was to become his musical writing partner, Maurice Seezer. The duo signed to Island Records, and in 1989 released their debut album, *Each Man Kills The Thing He Loves*. A self-contained collection of brooding torch songs, *Each Man...* established the Friday/Seezer penchant for piano/vocal compositions punctuated with accordian and bass wind instruments.

The follow-up album, 1992's *Adam'n'Eve*, drew upon Friday's adolescent pop influences and glam rock aesthetics, reinforced with production by Dave Bascombe and mixing from Flood. Followed by tours in Europe and America, the duo explored another avenue of music by assisting in scoring the

soundtracks for both Robert Altman's *Short Cuts* and Jim Sheridan's *In The Name Of The Father*. Interestingly, Sheridan and Friday have also been involved (along with Bono), in opening Café Deluxe, Dublin's flamboyant late-night club, hosted by the semi-legendary '70s Irish cabaret star, Mr Pussy. The film work has continued, but Friday & Seezer have also found time to record

# Carnival of Souls

GAVIN FRIDAY • MAURICE SEEZER

**T**he city of Dublin is renowned for its poets, writers and musicians, with James Joyce, Oscar Wilde, WB Yeats,

George Bernard Shaw, Van Morrison, Bob Geldof and U2 among its favourite sons. Another product of that tradition is maverick performer, wordsmith and entrepreneur Gavin Friday. A long-standing friend and associate of Bono, Friday began his influential career by forming the Virgin Prunes in 1978. After achieving cult status throughout Europe, the Prunes dissolved in 1985, and Friday entered various musical collaborations with the likes of The Fall, Coil, David Ball and Maria McKee. Very much the renaissance man, Friday pursued a parallel career as an artist, culminating in an exhibition of his paintings, *I Didn't Come Up The Liffie In A Bubble*, in 1987.

Friday's next project was the Blue Jaysus club

their third album, entitled *Shag Tobacco* which features the production skills of Tim Simenon, aka Bomb The Bass.

## READY-RUBBED

**How did you go about preparing for the new album, and what level of pre-production was involved?**

**Friday:** "I'd say that the real pre-production was the piano in my dining room! Maurice also has a piano, so it's a pretty organic base that the ideas come from. We recorded some demos at Interference Studios, a little home studio owned by a friend. I wouldn't actually call them demos, ▶

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# Gavin Friday · Maurice Seezer

► because what we recorded there we did actually bring over and enhance in London. I actually hate the word 'demos', because I don't find they work — if you capture something, then you want to keep it."

**Seezer:** "We captured quite a lot of stuff on half-inch tape, and did a lot of transferring onto hard disk — we ended up working that way. We were caught between two schools of thought; we were just trying to make sure we got the right vibe for the song, but not have the technology get in the way."

**I notice that the natural and acoustic sounds which are your trademark are still evident throughout *Shag Tobacco*, despite the album entailing more machinery and technology than ever before.**

**Friday:** "*Each Man...* was a totally organic album, recorded in two weeks (in Greenwich Village, New York), with live musicians, and mixed in a week and a half. With this album, we worked from the bottom up. We worked at Eastcote Studios, London, and basically from the songs being simple pieces with just voice and piano, we programmed things in. After two weeks we brought in the live musicians; Eric Sanko on bass and Chris Cunningham on guitars, and another musician, Renauld Pion, who is becoming part of a collaborative threesome with myself and Maurice. Most of the musicians we work with tend to play numerous instruments."

**Seezer:** "Two years ago, when we were on tour in America, it was just myself on accordian, Renauld

Pion on bass clarinet, and Gavin singing. That taught us the way that those two instruments work together, and the brilliant resonance they create."

**Friday:** The live line-up is now Maurice with sequencers and programming, whilst playing keyboards and accordian, Renauld is playing all his wind instruments — anything with a hole in it, that you can blow! And we're working with this Irish, classically-trained cellist, Kevin Murphy, who can also play an amazing bass and guitar — so we can switch from doing something totally programmed to totally organic or acoustic."

**I was impressed with the way Pion uses his EWI (electronic wind instrument).**

**Seezer:** "It's one of the most expressive ways of playing samples, where you have perfect volume control. Renauld plays a violin sample on 'The Last Song I'll Ever Sing', and the expression he got was the closest I've heard to a real violin player. With a keyboard, you're dealing with three or four different variants while you're trying to control the sample, but with Renauld's EWI it just comes naturally, because that's the way he plays."

**Friday:** "There's an almost schizophrenic mix of instruments and attitudes in certain elements of the songs. Like in 'Dolls', the drums are programmed, there's bass and guitar which sound like they're coming from some kind of science fiction punk record, mixed with accordian and EWI. The analogy in our head was, 'what would Right Said Fred be doing if they were hanging out with Kurt Weill on ecstasy?'. Thankfully, Tim Simenon understood what we were on about."

**For many, the working relationship with Tim Simenon may appear an unlikely alliance. How did it come about?**

**Friday:** "For *In The Name Of The Father*, we were doing most of the recording in Dublin. We decided not to get political with the lyrics, but let the music be political by using lambeg and bodhrán samples, which are Protestant and Catholic drums. We wanted to bring in a more contemporary producer, and it was coincidence that Tim had just signed to Island at the time. There was an instant spontaneity between us — funnily enough, he had been a Virgin Prunes fan, which surprised me — and within two days of meeting us he was in, recording. What was interesting for him was that he hadn't worked with white singers before — so he got a fistful with me, Sinéad O'Connor and Bono that day! The great thing is that Tim will throw disks over to us or vice versa, since we've set up our little studio in Dublin. The little bit of money that we made out of *In The Name Of The Father* all went into the studio."

## UP AND RUNNING

**What were the criteria and requirements when setting up this small studio?**

**Seezer:** "We'd had quite a basic setup in my living room up to about a year and a half ago, based around a Roland MC500, Korg master keyboard, Yamaha DX7, Oberheim Matrix 1000, Alesis Quadraverb and a Sony DPSR7 reverb."

"This year, we decided to come of age, if you like, and finally got an Atari computer (running *Notator*), Akai S1100 and Mackie 8-buss desk. It seemed the logical step after spending the previous year working with Tim and his MIDI programmer Kerry Hopwood. A major addition has also been the Kurzweil K2000, which I'm just starting to get my head round."

**Friday:** "Whereas I'm the kind of person who kicks the computer when I get bored."

**Seezer:** "The beauty of the setup is that Kerry had come over at Christmas and spent two weeks with us, basically designing the studio within our budget and getting the gear that would make us completely



Maurice Seezer.

## EASY SLIDER

The album has only one cover version, of Marc Bolan's 'Slider'. Did it prove easier to record than the original songs?

**Friday:** "That was done in an afternoon. We used to do it live on our American tour, just for the fun of it."

**Seezer:** "At that stage we were playing everything live. Renauld (Pion) had his sampler and EWI with him, but the only track that he got to use it on was 'Slider'. There's this mental loop that he had, which he'd slowed down and twisted around, and

that was the track that got a huge reaction every time we played it."

**Friday:** "With 'Slider', we just went for it in a couple of takes. That was actually the most straightforward track we did in the whole *Shag Tobacco* sessions."

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# Gavin Friday · Maurice Seezer

► compatible with their setup in London. That's how we stay in touch, basically, with MIDI files, sample disks and things like cue sheets from the Mackie."

**Gavin, your lyrical work exhibits influences from many different cultures. Are you creating an alternative European language?**

**Friday:** "There's a lot of European wordplay. Certain words like 'fuck' sound good in any language, but if you want to say 'brilliant', you'd say 'fantastique'. So there's a lot of German, French and Italian, but it's all badly done. It's like if you look at what Hispanic and black culture are doing to American English. I think that eventually you're going to have this 'Europeano' language — like 'stronzo', which is basically an Italian swear word for the ultimate shithead.

"The lyrics are sometimes cumulative, or can come very quickly — there are little gifts that come out of the sky. We tend to think very cinematically, and see each album as a little movie. There's always been that feel in our music. While working on *In The Name Of The Father*, which I also worked on as music consultant, we were checking out what Trevor Jones (writer of the film score) got up to — there's a mystique, which is easily broken if you spend a few hours seeing how they do it."

**Seezer:** "I think it works both ways. A funny thing happened to us when we were both working on the score for the Australian film *Angel Baby*. Once we had a done a song, which took up most of our time, we would take all the elements and have them triggered either as sequences, or stored on hard disk — so that we had access to everything that we'd done on tape. When it came to scoring, the role of the computer was at its best. We literally worked all of our themes into the film, and they worked perfectly. I think the most important thing is knowing what you want to do, and if the computer gets in the way of that, or confuses it, then it's probably best to call it a night, and come back the next day with a clearer mind."

## CELTIC SOUL BROTHER

**Tim Simenon's is a masterly presence on the album. There is his characteristic**

## ALBUM DISCOGRAPHY

<i>Each Man Kills The Thing He Loves</i>	Island, 1989
<i>Adam &amp; Eve</i>	Island, 1992
<i>In The Name Of The Father</i> (soundtrack)	Island, 1994
<i>Shag Tobacco</i>	Island, 1995

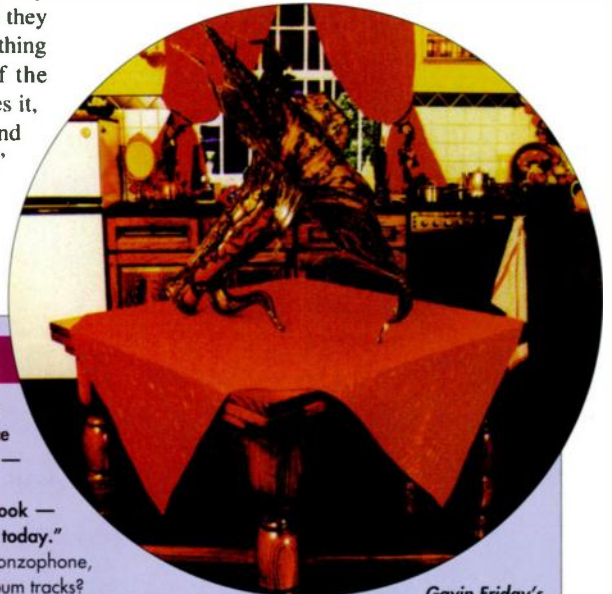
**emphasis on bass, along with inconspicuous rhythmical layers. How were the tracks assembled?**

**Seezer:** "The songs were 80% there, and what Tim ended up doing was coming in and taking a lot of the rhythms that we had, and either ditching them completely and starting afresh, or else working with what we had, and developing it to give it his vibe. It's probably different to the way that he would normally work — he'd normally start with rhythm and bass — but with these tracks, he was bringing in rhythms on top of what we already had. With a lot of the new songs, like 'Angel' and 'Dolls', we've dropped everything and started from the bottom up, with a bass line that's going to work — because bass lines are so important."

**Friday:** "The interesting thing in the studio with 'Angel', is that it started out as a bass line that we loved, but was one of the least structured tracks that we had. We started jamming to it, Tim heard it, and said 'I love this, keep going.' I started singing falsetto and gibberish, but Tim said 'that's it'."

**The album features the varied talents of Eric Sanko on bass, Dave Clayton on keyboards, ex-Massive Attack vocalist Loretta Heywood on backing vocals, Danny Cummings on percussion,**

*"I've always been very suspicious of technology. I'm the kind of guy who goes up and says 'what's that?', touches the screen and it goes blank."*



*Gavin Friday's distinctive Stronzophone, as used on Shag Tobacco.*

## FROM STROMBOLI TO STRONZOPHONES

Enrico Caruso, born in Naples 1873, was regarded as one of the world's greatest tenors, and the first to actually have recordings made of his work. Despite having died in 1921, he gets a tongue-in-cheek credit for backing vocals on the *Shag Tobacco* track, 'Caruso'. I wondered how this resurrection was achieved.

**Friday:** "A lot of blood, sweat and tears from Maurice. You're talking here about the first pop star, you know; he's the guy who at the start of this century was a lot bigger than Pavarotti or U2."

**Seezer:** "I had found this cassette of Caruso singing songs from Naples, and Gavin had the complete set of recordings on CD — so we sampled about 10 likely sections, and spent a while figuring out where they would work in the track. It was a case of stretching, detuning and retuning to get it right in rhythm, and then just to make it sound completely natural. Q [Tim Simenon's long-time

engineer) did a wonderful job EQing out most of the hiss, so that the clarity of his voice came right through. And it worked a dream — it was like he was on backing vocals."

**Friday:** "That track is opera in my book — there's not enough middle eights in music today."

What manner of instrument is the Stronzophone, credited as appearing on several of the album tracks?

**Friday:** "Stronzophone is a word I have for a megaphone. I've had a number of megaphones customised: we got a guy (Laurent Mellet) from Archaos, the French theatrical group, to make us some metal ones. But I was fascinated, because reading up on Caruso, he used to sing through metal megaphones in order to get resonance in his voice. So basically, in songs where I'm giving grief and being Mr Shithead, out comes the Stronzophone. Aesthetically, the metal

ones are great, but they're so heavy...

"I don't play guitar, and when vocalists go on tour, you generally want something to carry — you can't really walk round an airport with a microphone case, can you? At least a megaphone in a case really makes me feel like I'm in the band."

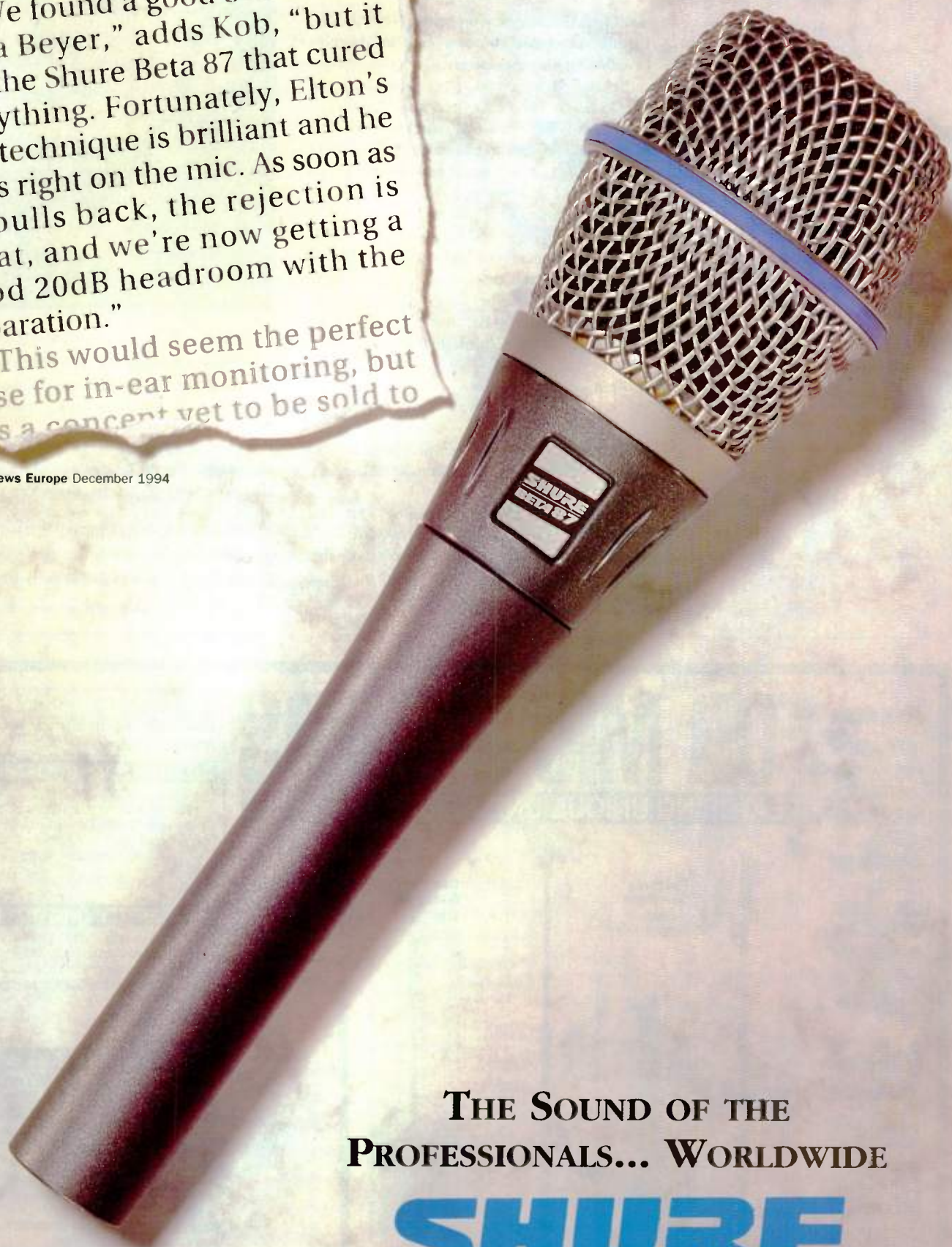


FOH desk. I was almost riding the fader between each word."

"We found a good Sennheiser and a Beyer," adds Kob, "but it was the Shure Beta 87 that cured everything. Fortunately, Elton's mic technique is brilliant and he stays right on the mic. As soon as he pulls back, the rejection is great, and we're now getting a good 20dB headroom with the separation."

This would seem the perfect case for in-ear monitoring, but it's a concert vet to be sold to

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# Gavin Friday · Maurice Seezer

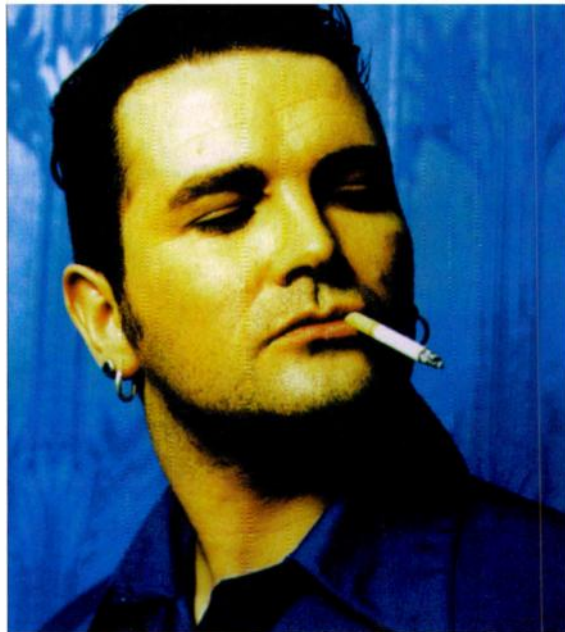
► and Chris Cunningham on guitar. Nevertheless, I understand you're not averse to Maurice broadening his repertoire...

**Friday:** "Well, on some occasions during *In The Name Of The Father*, we were thinking of getting Jah Wobble in to play bass, but I remember Maurice had finished his bits and said 'right, that'll do — you'll get it from this'. I turned round to Tim and Bono and said 'no, we have it, it's Maurice.' Just the organics of a guy understanding the musicality of an instrument but going at it, creating an urgency, is great. On 'Dolls', Maurice played 90% of the instruments — we had tried Chris Cunningham, but it didn't have the right attitude."

**Another track, 'Kitchen Sink Drama', required a radical rethink in the studio. What went wrong?**

**Friday:** "It was going in almost a salsa direction, so we said, 'Stop all the drums, stop all the technology, let's get voice and piano, record it, get a beautiful take and then just build it.' We brought in Renauld on (bass) flute, added the bass, and then the drums."

**Seezer:** "That's modern technology at its best — when it serves an idea that you have. We don't tend to work well starting with a groove or vibe; even with 'Angel', there was something organic there that we wanted to get across."



**Friday:** "With 'Angel', we left it on tape and came back to it the next day. We then went to the piano in the next room and looked at the melodies, the chords, spent a few hours, and then went back to it. We always revert back to voice and piano."

"I've always been very suspicious of technology. I'm the kind of guy who goes up and says 'what's that?', touches the screen and it goes blank. I just carry this electricity, so I'm a nightmare for Kerry Hopwood. I think the great freedom we now have is our own studio. I can see us going into a new world by the time we make the next record."

SOS

*"I actually hate the word 'demos', because I don't find they work — if you capture something, then you want to keep it."*

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**PAUL WHITE** tries out Akai's first synth in absolutely ages — and discovers a monster in sheep's clothing.

In recent years, Akai have put most of their engineering firepower into samplers and hard disk recorders, leaving the traditional synth market to others — but their new range of aggressively-priced modules looks set to change all that. So far, three have been released: a vintage analogue synth, a general MIDI box with built-in computer interface, and a dedicated piano module. In some ways, these products are Akai's answer to the latest Roland Sound Expansion Series Modules, and judging by the interest in Roland's Vintage synth module in particular, Akai have made the right choice in bringing their vintage model to the market first.

For years now, I've been banging on about the merits of a preset-based instrument that offers the user a simple means to edit just a few key parameters, while Akai's Steve Howell has been expressing similar views to Akai UK's design gurus.



# Pint-size polyphony

## AKAI SGO1v SYNTH MODULE

Obviously, the boffins in R&D have been listening, because the Akai SGO1v is exactly that.

The SGO1v is a half-width, 1U-high instrument, finished in Akai's traditional creamy-grey livery and powered via the ubiquitous external PSU. It offers 256 vintage synth sounds, most of which sound like old analogue instruments, and apparently the sound generation technology is related to that used in the S-series samplers. Sampled waveforms, and in some cases short loops, are fed through a digital, 24dB/octave resonant filter, and an envelope shaper with quite sophisticated modulation routing. Unlike most true analogue synths though, the all-digital SGO1v has 16-part multitimbrality and 32-voice polyphony — although the polyphony apparently falls to 30 voices if the internal reverb is used.

Where the SGO1v really scores, other than the seriously low price which I haven't even mentioned yet, is in the way the presets can be modified. There are three parameters called Shape, Tone and Special which affect the envelope, filter cutoff and one other patch-specific setting of the currently selected sound. These are changed not by a knob, as you might wish, but by up/down buttons, and the effect they have varies from patch to patch. For example, Shape may change just the attack time, just the release time or both; Special, on the other hand, seems to affect the filter resonance on most of the obviously filtered sounds, but occasionally finds other work to do on less filter-oriented patches. In most instances though, the parameters you can change are the ones you'd most likely want to change, and I was pleasantly surprised by the amount of timbral variety available from just three controls.

### OUT OF THE BOX

Getting the hardware out of the way first, the SGO1v has a very simple user interface based

around a three-digit LED display, seven buttons and a volume knob. The rear panel features a full set of MIDI connectors, the power supply input, a mains switch and two quarter-inch jacks to carry the stereo output. There's also a stereo mini jack that will accept headphones, and the synth voices may be panned left and right within a multitimbral mix using MIDI Pan data.

Operation of the unit is pretty straightforward, with dedicated buttons for Shape, Tone, Special and Level. The Select Program button doubles as a shift key to enable the aforementioned buttons to access the MIDI Channel, Multi, Tune and FX Level parameters, and all parameter changes are carried out using the Up/Down Data buttons. There are also two drum kits tucked away in the operating system, but on this early production model, they were both loaded with suspiciously Roland TR808-like sounds.

### OPERATIONAL MODES

There are two ways to use the SGO1v: Single mode and Multi mode. In Single mode you lose the multitimbrality, but gain the advantage that any edits you make to Shape, Tone, Level, Special and FX Level remain as you set them, even if the machine is switched off or changed to Multi mode and then back. In Multi mode, you get 16-part multitimbrality, but all the patches come up with their preset default values, and any edits you subsequently make to a preset are lost when you change patches. Of course, when you go back to Single mode, any edits you previously made while in Single mode will still be intact. In Multi mode, you can use all 16 parts to provide synth voices, or set part 1 to deliver one of the two drum kits.

It's easiest to call up your patches using MIDI program change information, and if you have a suitable software sequencing package, you could also set up software sliders to access the Shape, Tone, Level, Special and FX Level parameters. All these can be reached using various combinations

### AKAI SGO1v £299

#### PROS

- Inexpensive.
- Huge range of presets with simple editing.
- Sounds like the real thing!

#### CONS

- Unattractive, non-rackmounting packaging.

#### SUMMARY

At this price, buy one first and think of a use for it second! Great for all types of antique sounds, from ELP to Satsuma Nightmare [or Tangerine Dream, as you may remember them — Ed], dance, techno and new age.



of the front panel buttons, but setting up all 16 parts can be tedious.

The manual also provides MIDI information for addressing parameters that you can't reach via the front panel, and it turns out that there are actually 16 different reverb effects to choose from. You can also get at the envelopes, the LFOs, filters and the portamento switch as well as being able to save and reload edits via SysEx dump. More routine things such as the pitch bend range, various pedals, pan and MIDI volume are implemented via MIDI; the pitch bend range defaults to two semitones.

### SOUNDS

All the sounds in the SG01v are arranged in two banks of 128, and though it's sometimes difficult to characterise analogue sounds, a useful attempt has been made to put them into meaningful groups. Bank 1 covers synth, bass, piano and pad sounds with bank 2 offering more pads, a handful of digital timbres, brass, organ bell, string and lead sounds as well as the inevitable (and mercifully small) selection of gratuitous effects. Some of the synth bass patches work in mono legato mode as appropriate, but most sounds are polyphonic, and I have to say that Steve Howell (who voiced the SG01v) has done a really first class job. Perhaps most impressive are the bass sounds, which cover the classic deep drones, fizzy filter sweeps and hard-hitting techno thips, blips and squips. There seems to be a lot of velocity-responsiveness — the harder you hit, the sharper the sound, and being able to vary those three magic parameters means that just one patch can become a whole family of sounds.

Also well represented are the soft, warm pads, and I was surprised by how close some of these are to the sounds produced by my Oberheim Matrix 1000. The string patches aren't quite so silky and lush as those on the Roland module, but then the fact that Roland have onboard chorusing as well as reverb might have a lot to do with that. Akai's reverb is actually better-sounding than I expected, and if you add external chorusing, you can get some very rich pads going. Unless you want to call up different reverbs over MIDI, you're stuck with the default SG Room 1 setting, but in most contexts, it's all you need.

I have to admit to not being a great fan of cheesy piano and organ sounds, but if you need

them, they're here — as are the mandatory lead line patches, including some suspiciously ELP-sounding stuff. In fact, the only distinctly non-impressive facet of this little marvel is the demo song collection. About the most charitable thing I can say is that I'll assume Steve didn't program them. If you can imagine the interlude music that you used to get when the telly broke down, these tunes are what you might expect when the interlude music breaks down. If you played them in a lift, it would probably grind to a halt between floors.

The drum sounds are suitably vintage, to match the synth patches, and reassuringly clean, with plenty of in-ya-face kick. As kit number two hasn't been added yet, I've no idea how good it will be — or indeed, what type of sounds will be in it.

### SUMMARY

If the SG01v sounded as plain as its hardware looks, it would be truly underwhelming, but the reality is that Akai have created a brute of a synth, and if getting it in a cream-coloured Oxo tin is the price you have to pay for not having to pay a price (if you get my drift), then that's okay by me. After all, you're going to listen to it, not look at it. Even as presets, the sounds are fine, but the ability to tweak the envelope and filter settings without having to enter some surreal editing nightmare world makes all the difference. Most synths with complicated editing systems end up being used entirely for playing presets or library sounds, so it's arguable that a far simpler system such as this one is more likely to encourage experimentation.

What I can't put over in print is just how *analogue* the sounds are — the filters really are convincing, and the bass sounds are seriously fat. At under £300, this little synth puts the highly inflated, second-hand TB303s to shame, and for my money, it's every bit the equal of the newer analogue monosynths doing the rounds. There's nothing for it — I shall have to get one! **SOS**

### FURTHER INFORMATION

- E** £299 inc VAT.
- A** Akai UK, Haslemere Heathrow Estate, The Parkway, Hounslow, Middlesex TW4 6NQ.
- T** 0181 897 6388.
- F** 0181 759 8268.

*"The ability to tweak the envelope and filter settings without having to enter some surreal editing nightmare world makes all the difference"*



# Wires & wherefores

## CHOOSING STUDIO CABLE

*When it comes to cabling, it pays to have the right connections. PAUL WHITE makes the introductions.*

**B**uying the right pieces of equipment to put together a home studio is hard enough, but without proper guidance, wiring it all up can turn into a nightmare of such proportions that if Freddy Kruger were to turn up in the middle of it, you'd be glad to have someone to hold your soldering iron! In the past, *Sound On Sound* has looked at how different pieces of studio equipment are linked to form a recording system, and has also covered the potentially confusing area of patchbay wiring, but how do you choose the best type of cable for each specific task, and what do you do when balanced equipment has to be connected to unbalanced equipment? While I don't profess to have all the answers to the hundreds of possible questions on the subject, the following article should at least clear up some of the most common queries.

All cable used for carrying signals (other than

that used for connecting loudspeakers to power amplifiers), should be screened, and screened cable can always be recognised by its coaxial construction. Simplistically, a coaxial cable comprises one or more inner conductors surrounded by a tube-shaped screen, the idea being that the screen intercepts any interference and drains it away to earth before it can affect the signals passing along the inner wires. The screen itself may be formed from woven copper braiding, it may simply comprise a layer of multi-strand wire wrapped around the inner cores in a spiral-like fashion, it may comprise a thin layer of metal foil, or it may even be made from conductive plastic. Each type of cable has its own strengths and weaknesses, dictating which applications it is best suited for, so I shall start by describing the most popular types used in the home studio.

### BRAIDED SCREEN COAXIAL

The first type of coaxial cable I ever encountered was the braided-screen type, and this is probably still the most common type available today. Braided-screen cables are available in a variety of thicknesses and offer excellent screening efficiency, combined with reasonable flexibility — however, they are time-consuming and difficult to terminate. To make a connection, you either have to unpick the last half inch or so of the screen, or part the strands enough so that you can pull the inner conductors through the side of the screen, about half an inch from the end. You then have to twist together the strands of screen so that they can be soldered to the appropriate terminal in the plug. It is due to their excellent screening properties that braided-screen cables are useful in situations where long cable lengths are needed, but where flexibility is essential — for example, mic cabling in large studios, PA systems, or live recording rigs. Braided-screen cable is also used extensively in the manufacture of professional patch leads and instrument cables. Figure 1a shows the construction of a typical braided cable.

### LAPPED SCREEN COAXIAL

Cable with a simple lapped wire screen is easier to terminate, simply because the screen wires aren't

## SPEAKER CABLES

Hi fi purists make a lot of fuss about speaker cables, sometimes spending several hundred pounds a metre on specialist cables. The main function of a speaker cable is to provide a low-resistance path between the amplifier and the loudspeaker, so thin bell wire is obviously a bad idea — not only will thin wire take some of your amplifier power and turn it into heat, it will also reduce the damping factor of the amplifier. Without getting too technical, the damping factor of an amplifier is its ability to sink the current produced when a loudspeaker overshoots its position and starts to function as a generator rather than a motor. This mechanism effectively damps the speaker

movement, keeping it under control, thus producing a tighter, more accurate bass end.

The most pragmatic approach is to use the shortest speaker leads you can, make sure they are both the same length, and choose heavy cable. I'm unconvinced that there's a difference between multi-strand cable and solid-core cable, and I've yet to hear the difference between the oxygen-free copper and 'virtually oxygen-free copper' that most stock cable is made from, but if you think it's worth the difference in cost, don't let me put you off. If you're on a tight budget, 30A cooker cable works perfectly well, albeit a trifle ugly.



## DIGITAL CABLES

Digital cables for use with S/PDIF signals need to be chosen with more care than audio cables — if their impedance is wrong, a proportion of the signal will be reflected back into the cable from the destination termination, and these reflections may corrupt the signal to the point that it produces errors. (Digital cable is usually around  $75\Omega$  impedance.) If you're making up your own digital leads, it's important to fit the phono connectors correctly, as these can also cause an impedance mismatch — I would recommend that it is generally safer to buy the cables ready made.

AES/EBU digital signals are generally robust enough to travel short distances over conventional XLR mic leads, though for longer distances, good-quality cable is advisable.

braided. One disadvantage in using this type of wire is that the screening properties vary depending upon how the screen is wound. Continued flexing can also compromise the effectiveness of the screen, as the cable is prone to damage through kinking. Large-diameter types sometimes include a cotton filler, but this seems to make the cable even more vulnerable (the same is true of some braided cables too). There are varying opinions as to the usefulness of this type of cable, but I tend to implement it on short- to medium-length cable runs, where some degree of flexibility is desired. For example, I might use it to wire up a tape machine, but I wouldn't use it as mic cable through choice. The thinner lapped-screen types are also useful in patchbay wiring, although I prefer foil-screened cable for this particular application. Figure 1b shows how lapped-screen cable is put together.

### FOIL SCREENING

For permanent wiring, where flexibility isn't a main requirement, foil-screened cable has a number of advantages. Firstly, it is very easy to terminate, as just inside, and lying in contact with, the wound foil screen is an uninsulated length of wire (sometimes called the drain wire), which is used to provide the screen connection. The screen itself is usually aluminium which can't be soldered to directly. To make a connection, the outer insulation has to be stripped as normal, then the foil screen peeled back and cut off to the same length as the outer insulation, leaving the screen wire to be soldered. The inner part of the cable has its own insulation as usual and is stripped in the normal way.

The other advantages of foil-screened cable are that it has excellent screening properties, it is relatively thin, and it holds its shape when tied into cable looms, making it ideal for wiring the insides of patchbays or equipment racks. It is, however, not suitable for applications where a lot of flexibility is required.

Foil screening is extensively used in the manufacture of multicore cables, where a bunch of

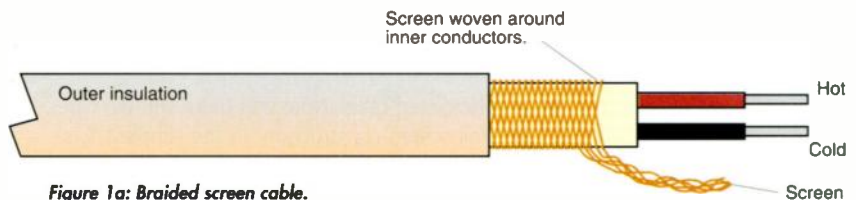


Figure 1a: Braided screen cable.

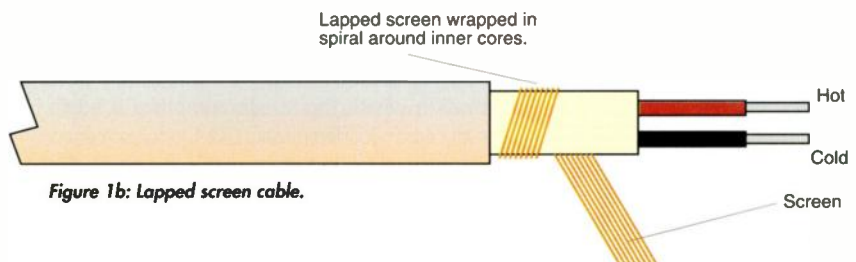


Figure 1b: Lapped screen cable.

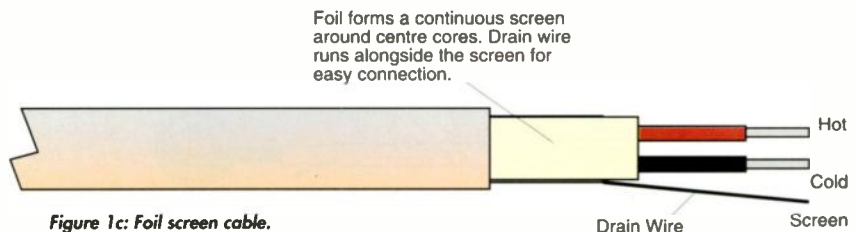


Figure 1c: Foil screen cable.

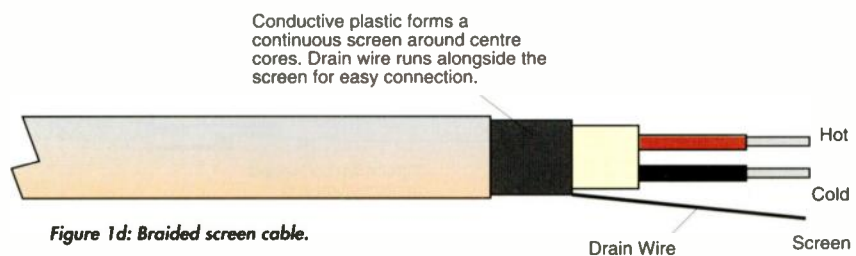


Figure 1d: Braided screen cable.

Note: Foil or conductive plastic screens would normally be stripped right back to level with the outer insulation.

individually screened cables is constrained inside a single outer sleeve. Multicores are used in studio installations, but may also be used in live applications as long as the cable isn't bent further than the manufacturer's specifications permit. There is usually a recommendation as to the smallest diameter drum onto which the cable may be wound. Figure 1c shows the construction of a

## CABLE CAPACITANCE

The electrical resistance of signal cables is rarely a concern, except over distances of several hundred metres, but the capacitance of cable can cause problems, especially in high-impedance circuits, such as those that exist between guitars and amplifiers, or between high impedance microphones and amplifiers.

Due to the close proximity between the inner cores and the outer screen of a coaxial cable, the cable acts as an electrical capacitor — the longer the cable, the higher the value of capacitance. This capacitor effectively forms a high-cut, 6dB/octave filter when combined with the impedance of the circuitry attached to the cable, and the higher the

impedance, the lower the cutoff frequency of the resulting filter. In practical terms, a guitar lead 20 or 30 feet long may introduce audible tonal changes (a guitar amp has a very high input impedance), whereas a low-impedance mic cable would need to be extremely long before any adverse effects became evident.

Although short cable runs are unlikely to produce audible capacitance-related effects, it's generally best to buy the lowest capacitance cable of the appropriate type that you can get. It also makes sense to ensure that cable runs are no longer than necessary.

# CHOOSING STUDIO CABLE

▶ foil-screened cable. Note that there are two types of foil screen construction. In the simplest type, the foil is wrapped around the centre core rather like a continuous tube, but other types have the foil wound in an overlapping spiral. The spiral-wrapped type of cable is less likely to suffer damage when bent around tight corners.

## CONDUCTIVE PLASTIC

Conductive plastic screening is a relatively new innovation where the screen comprises a single tube of carbon-loaded plastic. Like the foil-screened cable, an uninsulated drain wire runs inside the screen, so in order to make a connection, it is only necessary to trim back the conductive plastic screen to the same length as the outer insulation, then

solder the drain wire to the appropriate connector. The inner cables are quite conventional.

The benefits of conductive plastic screening are high flexibility, excellent resistance to kinking and easy termination. This type of cable is also available in a wide choice of colours. Unfortunately, the screening efficiency of this cable isn't as good as for the other types, which limits its use to short or medium runs. It may also be unwise to use this type of cable in situations where the level of RF (Radio Frequency) interference is known to be excessive. Conductive plastic-screened cable is ideal for making up short, colour-coded patch leads, short-to-medium-length instrument leads, and short to medium mic leads. Figure 1d shows a cross-section of a conductive plastic cable.

## AND FINALLY

No matter how good your cable, an audio link is only as good as its connectors, so don't skimp on quality, and, equally importantly, ensure the connectors are soldered on properly. It is also important to make sure that any cable clamping system that may be fitted is used properly, especially if the cables are going to be constantly plugged and unplugged. Most connector failures occur as a result of stress on the cable due to inadequate or non-existent clamping, and this is particularly true of mains plugs, where a failure could be dangerous as well as inconvenient. The clamp should always grip the outer insulation of the cable.

Keeping cables tidy is another problem altogether, and there are several commercial solutions, such as plastic spiral wrapping or split hose-type cable tidies. Using multicores wherever possible, rather than separate bundles of cables helps keep things under control, and for large MIDI systems where most of the instruments and modules will have unbalanced outputs, ready-made jack multicores, such as the Hosa 8-way, are both effective and affordable.

Finally, whatever wiring scheme you implement, keep it flexible — the chances are that you'll want to change it eventually. **SOS**

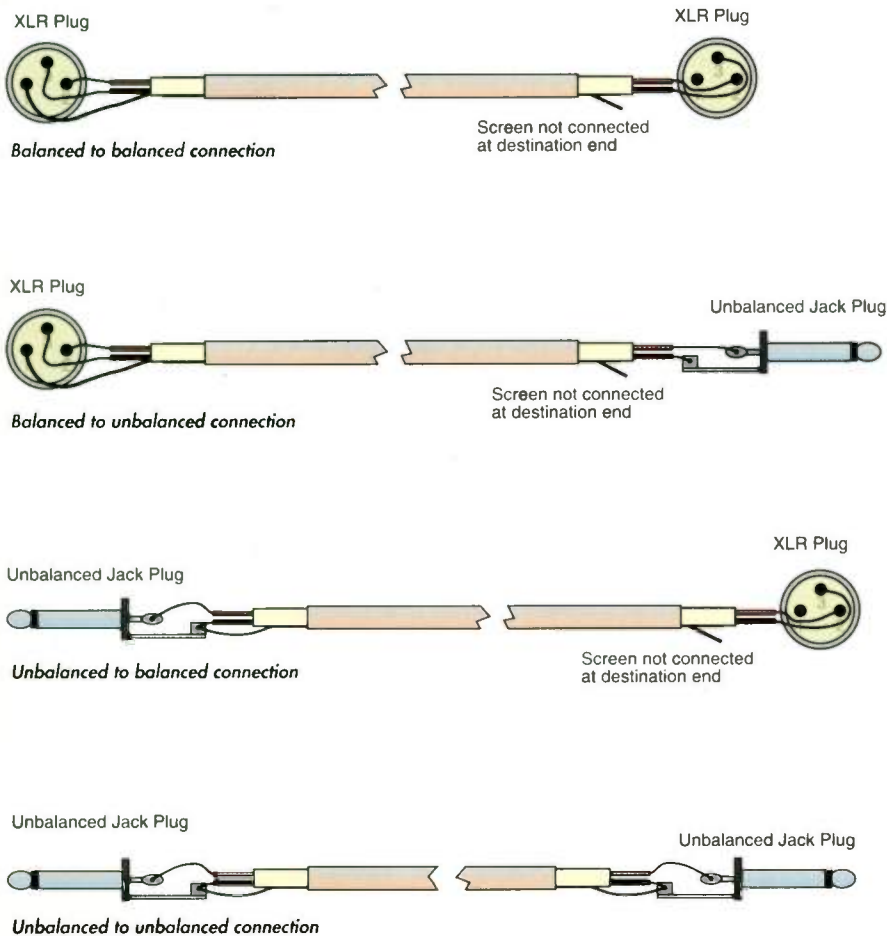


Figure 2: Balanced and unbalanced wiring.

Most coaxial audio cables come with two central cores enabling them to be used to carry balanced signals, so if an unbalanced lead is being made up, one of the cores becomes redundant. My preference is to connect the spare core to the screen at both ends of the cable, but you could just as easily trim it off.

When connecting balanced equipment to unbalanced, or vice versa, there are certain wiring systems that can be used to reduce the risk of ground loops. In a fully balanced system, the screen is often left unconnected at the destination end of the cable, and if

twin-core cable is being used, the same technique can be applied when connecting balanced equipment to unbalanced, or vice versa. This is how it works, assuming the co-ax inner wires are coloured red and black:

### BALANCED TO BALANCED:

Connect the red and black inner cables to the Hot and Cold terminals as normal, but only connect the screen at the source end.

### BALANCED TO UNBALANCED:

Connect the red inner cable to the Hot terminals as

## BALANCED AND UNBALANCED

normal, but at the balanced (source) end, link the black inner cable to the screen, and connect to both the Cold and the Ground terminals. At the destination end, connect the red wire to the Hot terminal, the black wire to the Ground terminal, and leave the screen disconnected. (Note: if the balanced equipment does not have a fully floating output, the signal level will be reduced by 6dB when fed into an unbalanced load).

### UNBALANCED TO BALANCED:

Connect the red wire to Hot as usual, but join the black wire and screen at the source (unbalanced) end and solder to the Ground terminal. At the balanced end, connect the red and black wires to Hot and Cold respectively, but leave the screen disconnected. Figure 2 shows these three wiring conventions.

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#### SUMMARY

Simply the most affordable way to obtain Digitech's quiet and classy S-DISC processing technology. Whether you're after your first effects unit or just one more, the TSR6's price and ease of use place it near the top of anyone's audition list.

Anyone familiar with Digitech's signal processors will have high hopes of this new TSR effects unit, the range which gave the world S-DISC (Static/Dynamic Instruction Set Computer) technology. Last year, we reviewed the top-of-the-range TSR245 (SOS October 1995).

At the risk of jumping the gun, I'd have to say that the TSR6 lives up to its lineage. Digitech's class-sounding S-DISC digital effects technology has never been available in a more accessible or affordable package. Purchasers of the TSR6 won't be getting a TSR245 for under £300, however; there are inevitable trade-offs, which I'll get to in a moment. But in the meantime, a quick look at the front panel should illuminate a few light bulbs for you.

### LESS IS MORE

If you've had a look at the photo, you'll see that the TSR6's front panel is quite a simple affair. While the more sophisticated TSRs are not actually difficult to

program, especially given the power on offer, there are always potential customers who don't want to have to bother with programming at all — and who can blame them? Editing has been simplified on the TSR6 to such an extent that, as the manual says, you don't have to be a rocket scientist to get results: there are a mere three tweakable parameters per effect, plus parametric EQ. If this approach rings a bell, you might be recalling Boss's RV70 and Yamaha's REV100, both of which offer a similarly accessible package, with just a handful of parameter knobs to edit.

What Digitech have provided is five different types of effect, each of which also includes the aforementioned parametric EQ, arranged in 99 program memories. In addition to the 99 factory preset programs, there are 99 memory locations where user edits can be stored (user presets are denoted by a dot in the lower left of the display). Note, however, that only the user memories can be called up with MIDI program changes — that's the first of the trade-offs.

There is no busy liquid crystal display; just a two-digit LED readout that indicates the current patch or parameter value when editing, plus various status LEDs. The three main parameter knobs each control one of three editable parameters. Pressing the EQ button allows these knobs to do double duty, since they also function as

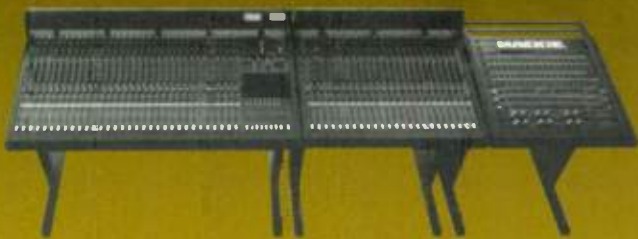


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# Digitech TSR6



► the controls for the parametric EQ. Each parameter knob features an LED: if it is not lit, moving the knob does nothing. Moving the knob to its last set value causes the LED to light up; any further movements will now change the parameter value, and the LED will glow dimly. Thus you can always relocate a factory preset parameter's original value.

The only controls left to mention are: a Store button (for saving your current edit); a large Program wheel (for selecting Programs and changing parameter values); an Input Level control (with a pair of peak LEDs); and a dry/wet Mix control. Connections are correspondingly simple: two balanced jacks for mono, two-channel, or stereo input, and two for output, with a single MIDI (In) socket. No headphone sockets, manual bypass (use MIDI program change 00 instead), power switches or MIDI Out sockets for the TSR6.

## FIVE GO PROGRAMMING

As mentioned earlier, 99 programs are available, and these are arranged in groups, roughly corresponding with the five effect types. This is the source of another trade-off: while each program has a corresponding user-editable slot, it isn't possible to organise your programs in a different order to the factory programs, or save an edit to another location than its pre-ordained one. If you edit preset program 48 (a 640ms stereo delay), for example, its edit can only be saved

in user memory 48.

The five main effects groups are as follows:

- Programs 1-47 comprise a collection of stereo reverbs: Halls, Cathedrals, Plates, Chambers, Rooms, and Gated reverbs. The straight reverbs are all available in Large, Medium, and Small sizes, with a Dark and a Bright option for each; the Gated reverb group has long and short 'decaying' variants that offer a short burst of reverb (the manual suggests these can also be used as small room effects); long and short linear (non-decaying, and cuts off abruptly); and reverse reverb. The editable parameters here are pre-delay, reverb decay, and reverb level.
- Programs 48-53 offer Stereo Delays — up to 640ms of Stereo, Triplet Stereo, Syncopated Triplet, Ping-pong, Triplet Ping-pong and Syncopated Triplet Ping-pong delays. The editable parameters are delay time, feedback, and level.

- Programs 54-61 feature a variety of Delay and Hall reverb combinations, in series or dual operation. The four series programs offer up to 300ms of stereo delay with four preset feedback amounts (0%, 5%, 15% and 25%), while the four dual effects offer up to 600ms of delay (again, with varying feedback) in one channel, with the reverb in the other — perfect for use with two effects sends. The three editable parameters are delay time, reverb decay, and delay/reverb mix.

- Programs 62-80 provide reverb in combination with one of four modulation effects, in series, parallel or dual configuration. The series program is stereo modulation into reverb, the parallel programs offer side-by-side stereo modulation and reverb, and the dual effects programs offer independent modulation and reverb. Modulation effects include Detuner, Chorus, Flanger, and Tremolo, with the last three available in Shallow and Deep flavours. The parallel routing option splits one input for processing through both effects side by side, mixing the result at the stereo output, rather than feeding the output of the modulation effect into the reverb, as in the series programs. Using the parallel option gives a slightly less 'processed-sounding' result. The editable parameters here are modulation speed, reverb decay, and modulation/reverb mix.

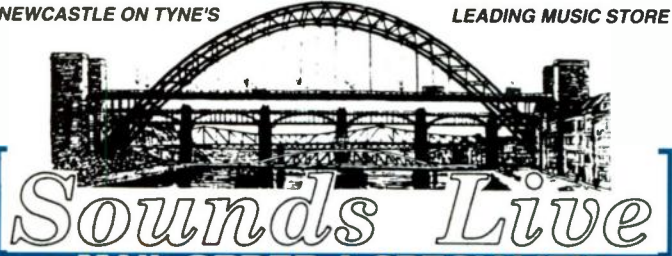
- Programs 81-99 feature combinations of delay and modulation, once again in series, parallel or dual configurations. The modulation effects are the same as provided for programs 62-80, and the delays have a maximum time of 640ms in series and parallel mode, or 980ms in dual mode, with a moderate amount of (preset) feedback. The editable parameters are modulation speed, delay time, and modulation/delay mix.

The parametric EQ available with every effect program is simple, yet comprehensive. It is accessed by pressing the EQ button; its LED lights, and the three parameter control knobs now alter the EQ parameters. The parameters available include frequency (30Hz-9900Hz, in 26 steps), Q/resonance (10 settings, offering bandwidths of between 0.06 octaves and 1 octave) and boost/cut of +/-15dB.

## WHAT'S LEFT?

There are only three other things you can do with the TSR6: re-initialise the unit to restore factory settings; change the MIDI channel for program change reception; and alter the global noise gate threshold level. This latter function uses a version

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of Digitech's Silencer gate technology, and is adjustable between -90dB (off) and -40dB, in eight steps. It'll also just remind you that the TSR6 offers true stereo operation in many programs, with certain other programs actually offering two independent effects processors, for use with two mixer auxiliary sends.

The TSR6 is so simple to use that it would almost be easier to list the things it *doesn't* do, but that would be to miss the point, and put too much of a negative spin on it. However, it would have been nice to see some kind of comprehensive MIDI engine hidden behind the inscrutable front panel — the Boss RV70 (more expensive) and the Yamaha REV100 (slightly cheaper), mentioned earlier, each offer MIDI control of hidden parameters. And some way of reorganising presets would have been invaluable, while everyday functionality would have been aided by the inclusion of footswitch sockets for selecting programs and entering bypass mode.

CONCLUSION

Given the limited editability and the almost preset nature of the TSR6, it is surprising to note that it is capable of a gratifyingly wide range of effects tricks. The preset side has been particularly well thought out: the choruses, flangers and tremolos all offer good basic treatments, with the adjustable speed parameter being all you really need to customise the final result. The range of preset delay feedback settings (in combination effects featuring delay) is similarly useful. Using the solo delay programs, setting very short delay times and high feedback levels turns the delays into unmodulated, metallic, flange-type effects — quite useful at times. The parametric EQ is also worthy of note, offering the chance to change the character of effects quite dramatically, an especially useful feature when it comes to customising reverbs. And those reverbs: although much cut-down, the actual quality of the reverbs is very much of the S-DISC family, offering a natural, musical and professional-sounding treatment. No audible compromises there, thankfully.

The TSR6 joins a selection of similarly specified and roughly similarly priced products from a range of other manufacturers, some of which are less, and some more editable. But the bottom line is that if you haven't got much money, and/or feel that your time is better spent making music than twiddling with endless lists of parameters, the TSR6 has got to be a pretty attractive option. And I think it's safe to say that anyone, from the novice to the old hand, could find a home for a unit that sounds this good, is this easy to use, and boasts a sub-£300 price tag.



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## PAINTED DESERT

**Recording Venue:** Home

**Recording Equipment:** Yamaha MT8X cassette multitracker, Yamaha SY85 Workstation, Shure SM57 and 58 microphones, Boss SE50 multi-effects, Sony TCDD7 DAT.

Based in the West Midlands, Painted Desert describe themselves as 'sort of pop/rock', although their musical influences are varied. The lyrical content of the songs is influenced by



the band's Christian beliefs, but the only overtly religious title is the opening 'No Harlem in Heaven'.

This kicks off with a sleazy keyboard riff, and is followed up by some piano and blues

guitar as the beat kicks in. The mix is vocal-heavy, and the drums don't seem to get much of a look in. The bass manages to hold the rhythm and the Status bass sounds good, warm and solid. Shame the drum programming is so fussy and mixed low — a straight shuffle would have been much better. This beat makes an

appearance towards the end of the track, rather too late I'm afraid. The song is also too long, having made its point by the three-minute stage, and doesn't really warrant the extended and theatrical arrangement.

The guitar sounds on all the tracks are excellent, and are achieved using a Fender Strat through a Marshall JMP1 preamp, Valvestate power amp, and two miked-up Marshall 1x12 cabs. Naturally, Shure SM57s were used to mike up the cabs, although on occasion the preamp was DI'd for clean sounds. It was interesting to note that the preamp was DI'd from the main outputs rather than the speaker simulator outputs. I expect this accounts for the extra presence on the clean guitar sound. It also sounds like some sort of pitch shift has been used on the guitar sounds, and occasionally echo. This gives the guitar a very American sound, around which the band sound is built.

Technically the best mix (and recording) is the ballad on side one of the tape, entitled 'Within'. Thick, warm pad keyboards, clean guitar, and some fine fretless bass playing. The vocalist never sounds like he is pushing his voice, and consequently the delivery can sound a little lifeless — especially when the lyrical content is so emotive. Again, the drums let the track down — those Yamaha sounds are so over-equalised and compressed that it's hard work for the programmer. Still, a good effort from the band, just give it more balls in the drum department if you're going to play American rock. □

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## AS THE CROW FLIES

**Recording Venue:** Home

**Recording Equipment:** Tascam TSR8, MTR 16:8:16 desk, Sony DTC60 DAT, Alesis Midiverb effects, AKG 240 DF headphones, Sennheiser MD413U microphone, Boss compressor.

Birmingham-based ATCF have been playing the folk and roots clubs for about two years, and selling their tape as a result. Much of the equipment for the project was borrowed and the tracks mixed on headphones, as their speakers were 'bass heavy'.

The opening track is quite well balanced, but has a hard sound in the mids. This could be improved enormously by a 4-6dB cut at 1.5kHz, which might seem excessive, but it works. And while we're on the subject of EQ, a +3dB

boost using a shelving HF brings a little sparkle into the top end without adding noise. An enhancer would have done the trick too, as a post-production tool. You know, it's worth taking the time to consider the general sound of an album once all the mixes are done. Post-production can be the icing on the cake, so to speak.

Musically, the playing has feel and is performed well, although I sense that the instrumentalists are holding back a bit. This is often the result of getting caught up in the engineering and production process, perhaps trying too hard to get the take right. Even so, the beautiful voice of Jill Boyd Crosbie comes across well, sounding most relaxed on 'Carousel'. More harmony vocals would have been nice, although the

production brief appears to have been to avoid 'over-production'. Personally, I think that the recording medium is so different you can add extras. If you want the real thing, why not just record a live gig? It seems that the band have gone for the former, by adding keyboards and some extra instrumentation, such as the synthesized harp on 'Carousel'. This is well arranged, like most of the album.

The instrumental balance is also good, with panning used for separation and the vocal nice and loud. The words are important for these self-penned songs, and the lyrics stand up to scrutiny well. Occasionally, the instruments have too much effect — the mandolin and guitar on 'Promised Land' being a case in point, but generally, the

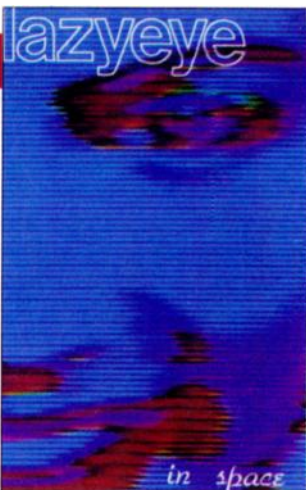
### As The Crow Flies



mix is pretty tasteful. One track where a lot of reverb is used well is the pre-delayed guitar chord strike on 'Border Raid' — and those harmony vocals are well worth waiting for too! □



## LAZY EYE



### Recording Venue: Home

**Recording Equipment:** Studiomaster 16:4:2, Atari 1040ST running Cubase, Alesis Midiverb II multi-effects, Emu Emax 1 and Akai S900 samplers, Korg M3R and Roland Juno 1 synths, Alesis HR16B drum machine.

Describing their music as 'Electronic space pop', this Irish band have only been together for a year. Ann Carroll provides the vocals, while Brendan O'Reilly and Brian Kelly are on the case with the music and programming.

The first track is definitely a late night or chill-out room listen. Ann's vocals are relaxed and breathy, with enough reverb to give them a floating feel in the track. Some tracked backing vocals have also been sampled, and these appear occasionally, recessed in the mix by more of the same reverb. The backing is simple, with two slow attack string chords providing a

rhythmically played eights, providing another point of interest.

A more upbeat second track takes on the dance beat, but gives it more of a skanking feel with offbeat organ stab chords. The same sampling

technique and reverb is used on the vocals, and this works to give a universal theme to the band. Even so, a whole album with this vocal treatment would soon become boring, so Lazyeye need to experiment with some more effects if they can get hold of them. Having said that, the third

track uses a dryer vocal sound, and that works well too.

I know it's much easier to get good recorded results in a

tapeless studio, but you still have to program, balance sounds, write and arrange the music. Using only one dedicated effects unit, Lazyeye have done really well, so theirs has to be the tape of the month. □

## top tape

lower mid frequency swell and release against which the presence of the vocal sits well. Sampled clean guitar chords make an appearance when the vocals drop out, and also to build the arrangement dynamically, later on. These are

## THE PRAYER

### Recording Venue: Home.

**Recording Equipment:** Fostex R8 multitrack, Studiomaster 16:4:2 Proline Gold desk, Technics hi-fi amp, Wilmslow Audio SPL1 monitors, Akai hi-fi DAT, Atari 1040STE running C-Lab Creator, JL Cooper PPS1 sync, Alesis Quadverb and Boss SE50 multi-effects, Alesis 3630 compressor, Lexicon Alex reverb, Behringer Ultraflex, AKG C1000s mic, Tech 21 Sansamp, Akai S01 sampler, Roland D10 keyboard and D110 expander, Yamaha DX11 keyboard and TX81Z expander, Roland TD7 drum expander, Roland SPD11 drum trigger.

A four-piece from Liverpool, the Prayer used to be a gigging band, and even had a residency at The Cavern. Pressures of real life (you know, work) have cut down their time so much they are now a recording project, hoping to return to gigging in the future.

I was really impressed with the drum sound on this tape. Although sounding a bit '80s, it had the right amount of bombast for the music. Roland TD7 sounds were triggered from a Roland SPD11 trigger, and then recorded onto the sequencer. Synchronised to tape, this obviously saved a lot of tracks for the big production sound that the band have achieved.

The opening track is a bit of a descending chord sequence epic, saved by good sounds, especially from the guitars. For this music, it seems a good idea to compress the strummed acoustics at the recording stage, to even the dynamic and bring out the attack. A 12-string and a six-string were used, and panned in the mix. Alongside the electric guitars and pad keys, this gives a big stereo

picture. The vocals could have done with some more effects to make the most of this.

In fact, the more expansive vocal reverb used on the second track would have been ideal. What a shame that this song turns out to be another epic with a descending chord sequence. This time the guitars are picked and the chorus has some extra chords — a much better song altogether than the first. And Dave Johnston, the vocalist, knows it too. His performance on this song is infinitely superior to the first offering. Again, the mix is good and my only cause for concern was the synth piano opening, which cried out for some sustain. The quickly-dying notes could have been artificially lengthened using reverb, if no pedal was to be found. Failing that, some sustain could have been added later at the right points, using the Transform function on the C-Lab Creator to convert a MIDI controller on the master synth to sustain information.

'Fire Stones' is the title of the third track, and is as medium-paced as the other two. This suits the melancholic vocal style, and also the lilting backing vocals. In the chorus, what sounds like a sample of an operatic singer is added in the background of the mix. I wasn't sure on first listening, but this grew on me by the second chorus, mixed in as it is with the thick backing voices of the lads in the band. The big production sound is back, and a lot of work has gone into the thematic concept of the track, with its percussion, marching snare drum rhythm, and whiplash cymbals. □

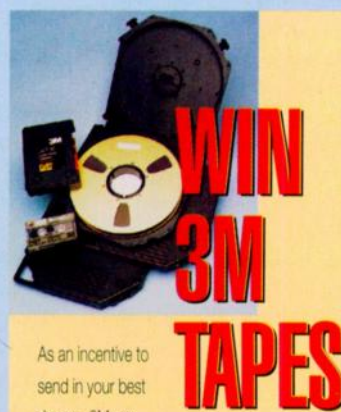
## BY DESIGN

### Recording Venue: Home.

**Recording Equipment:** Tascam MM1 MIDI Master mixer, Alesis Data Disk MIDI data filer, Roland MV30 sequencer, Casio DAR100 DAT recorder.

By Design prove that you don't need dedicated effects units to produce a decent mix. Their samples have an ambience of their own, while effects are built into many of the keyboards they use — so it is only the vocals which may pose a potential problem. For example, the samples taken from a live performance at the start of the tape have natural reverb, and some delay in places. With this sort of jazzy soul groove, dry vocals sit effortlessly in the mellow mix, and when they are tracked up there is a slight natural ADT and chorus, which is excellent. All this is helped by the rather excellent vocals of Juliette Foster, who sounds delicious. The only way it could have been improved would have been with a delay unit — perhaps brought in on the choruses, or used to catch certain phrases.

The choice of samples is good too — from live performance to heavy lead guitar, to screaming vocals. Having said that, the best track for me, 'What You've Been Missing', doesn't seem to use so much in the way of samples. Either that, or they're heavily disguised. This upbeat workout has an excellent vocal performance from Juliette and fine programming. The reverb in the MV30 helps by providing some general space on the keyboards. □



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**RIFE:** Recorded at The House in the Woods studio in Surrey, Rife are in fine form once again. Their brand of rapid-fire, aggressive rock is played with all

the energy of a banshee on speed, and has been well captured on tape. The peak meters spend more time in the red than my bank account, which means of course that this tape will sound good played loud or quiet — and I've no doubt which the band would prefer! With a wide stereo spread of rhythm guitars, the vocal sits centre-mix, with just a hint of what sounds like slapback delay. Some other effects are also used, for example on the second track 'Terrorist', the old distorted vocal ploy is applied to Mark's already gritty vocals, to good effect. The band is tight, the playing is good, and consequently, the recording is good.

**SHAKE THE BOTTLE:** Based in the 'sleepy' village of Louth near Grimsby, Shake the Bottle obviously want to wake up the neighbours with some youthful guitar pop! The practice of going for a vocal take which puts the emphasis on performance rather than technical perfection is to be applauded, provided there are not too many mistakes. And despite a mix which is dodgy in places, the charm in the music comes through in the vocals of Richard Chuck and Jo Hipgrave, who seem to sing well together. Unfortunately, I have to return to the technical for the mixing, which needs some attention. One problem is that all the sounds appear to have



Shake The Bottle 3-Track Demo

been boosted in the upper mids, which makes the overall sound thin. The guitar sounds in particular lack warmth, despite the fact that it's a miked-up Marshall. I suggest looking at the EQ on the amp, the choice of pickup on the guitar, even the plectrum thickness (light plects can give too bright a sound sometimes). The guitar would also benefit from less effect — particularly reverb. Best track: 'Blabbermouth'.

**SO IT IS:** The easy listening dance pop of this Buckingham-based duo could easily find a way into the charts, with the right sort of promotion. This back-handed compliment means that it is musically not that exciting, but well recorded and produced. Using swing beats, pad keys, synth bell sounds and counter-melodies on the chorus — you get the picture — the sound is mellow and very radio-friendly. What do I mean by radio-friendly? Well, there are no rough edges to the sound, it is smooth with no harsh



mids jumping out of the mix, the vocals are way up front, and the sound has presence in the top end and warmth to the bass. John Beagley does a fine job with the singing and the tracked vocal harmonies, which are well arranged in the choruses. Reading between the lines of their letter, it seems that the duo are likely to have more success in LA than downtown Aylesbury. Which would you choose?

**HAPPYHEAD:** Apparently, this was recorded on location in guitarist Richard Hymas' bedroom, somewhere in Weymouth. The upbeat sounds of Happyhead are a morning tonic as opposed to a cosy lie-in, with a sound reminiscent of Crowded House — the harmony vocals, catchy melodies and quirky guitar lines lead me to draw such comparisons, in case you wondered. Technically, the bedroom does not seem to have caused too many problems, although some distraction in the mixing of track one gives it less treble than the others. I notice that the lads have a Sonic Maximiser, and perhaps this should have been applied to track one at the post production stage. The drumKat and Alesis D4 prove to be

a winning combination for bedroom recording — retaining the feel of a real drummer in all but the hi-hat department. I also really liked the bass guitar sound — a mix of Fender Precision rock with a bit of grit and compression thrown in. This sat well with the guitar, although again, this good sound would be even better with a bit more upper-mid bite. Best song: 'Born Yesterday'.



**STEVE MUZOLF:** Oh dear, Steve is having trouble with his drums... although this is as much to do with his timing as anything else — or so he says in his friendly letter. It doesn't really become apparent until the fourth song on the tape, where the kit balance and effects are obviously awry. I can understand this on the Korg M1, where the drums in combination mode have to share the same effects as the other patches.

Consequently, they have too much reverb. On Steve's recordings the kit balance is obviously a problem, with the cymbals much too loud for the rest of the kit, and the snare almost lost. Although individual drum voices can be altered in volume on the M1 Global page, you shouldn't have to resort to this: heavier playing on the kick and snare, and lighter on the hat and cymbals can sort out the balance nine times out of ten. Quantising helps the lack of skill in the fingers, but the timing of the piano and other instruments sounds good, so I can't quite fathom this timing problem with drums. Perhaps Steve isn't breaking down the drum part into its constituent parts and recording them separately? My advice would be to buy a cheap tape sync unit and record the drums to tape, so that they can be treated differently as regards effects and EQ. Everything else, apart from vocals can then be run live on the mix. Incidentally, the songs were excellent for the theatre, but Steve needs a compressor to stop the vocals peaking.

**THE STARSEEDS:** Good to hear from the Starseeds again after their October 94 'demo of the month'. A sexy start, with some husky, almost

whispered female vocals introduces us to the new tape, which the Seeds describe as, 'sort of ambient'. The recording has a dark production sound, with nothing above about 10kHz on the backing track. This allows a certain presence and space to the full bandwidth vocal, which grabs the attention. Delay is used on the drum track, and some of the backing vocals, to 'float' them in the mix, and in the case of the drums,



to introduce a push/pull rhythm. The hypnotic ambience is continued on the second track, which has a slightly harder edge provided by the occasional guitar sample and brighter drum sound. Backing vocals are treated to a hefty reverb on some sections, and rhythmic reverb on others. This emphasises the psychedelic outer space theme, and is reminiscent of Gong and Steve Hillage at their most mellow.

**ASKLEPIUS:** Named after the character from Greek mythology, this band/project is fronted by Manuel Puyo. On the attractive recycled card that came with it, bits of newspaper print mix tantalisingly with grey, so that you can't actually read more than a word or so. I couldn't quite work out the style of the music either — a sort of industrial dance. The Akai supplies the looped sample, while various analogue synths supply the rest — I



notice a rare Roland Jupiter 6 and ARP Axxe listed. I may be forgiven, therefore, for wondering why there is a distinct lack of warmth in the recording when such sound sources are available. I can only blame over-equalisation, or a big cassette mismatch with my deck for the abrasive sound. I know industrial is supposed to be assertive in this department, but you've also got to have some warmth for the other sounds to play off against. A -3dB cut at 6kHz did this otherwise imaginative tape a deal of good. □

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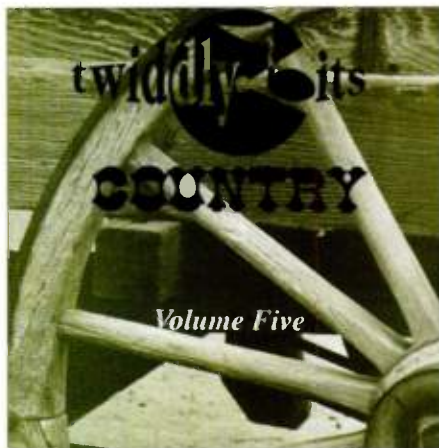
# brief encounters

## CONCISE REVIEWS OF ESSENTIAL ACCESSORIES

### KEYFAX SOFTWARE *TWIDDLY BITS VOL. 5*

This time the sun really has got to Julian Colbeck, Keyfax Software supremo and recent emigré to California; *Twiddly Bits Vol 5* is entirely dedicated to Country and Western music, which, in my book, is roughly the US equivalent of Morris dancing! Even so, the material is beautifully produced, and could still find uses of all kinds in rock and pop, even if country isn't your bag.

If you've already bought previous *Twiddly Bits* disks, you'll know that they're chock-full of virtuoso riffs, fills, endings and rhythms, all played by master musicians on appropriate MIDI controllers, and *Volume Five* continues firmly in that tradition. Indeed, so good are some of the examples on this disk that it's hard to believe the performances are coming out of a General MIDI module, especially some of the banjo and pedal steel guitar parts. Having said that, I'm sure some of the fiddle solo parts would sound even better played on a good sampler, using appropriate samples.



Even if you're not a country cousin, you'll find the barrelhouse piano parts still sound wonderful, and the simple bass guitar lines can be very compulsive. In all, you get banjo, bass, drums, fiddle, guitar, harmonica, piano and pedal steel parts, with numerous short examples which can

be joined together or looped, either to create complete backings or to mix in with your own material. The music is recorded unquantised, and comes over with bags of feel — it's almost like having your own MIDI session players.

Country music isn't all sequins and songs about dead dogs, its influence touches many other forms of American music including folk/rock and west coast, so if you're into recreating backing for those early electric Dylan tracks or just trying to put together something with a west coast flavour, you're sure to find something in *Twiddly Bits Volume Five* that can help you out. Y'all come back now! *Paul White*

#### FURTHER INFORMATION

- £ £19.95 (plus £2 p&p). Prices include VAT.
- A Keyfax Software, PO Box 4408, Henley-On-Thames, Oxon RG9 1FS.
- T Sales line 01491 681382, Technical line 01734 471382.

### CAPITAL MAMBA CUSTOM CASES

Capital Mamba make bespoke equipment covers and soft cases, which means that no matter how obscure your keyboard instrument, stand-alone sequencer or whatever, they can make you a case or cover to fit it. But how



cost-effective is it to have a custom case made, and will it be as good as an off-the shelf equivalent? We put Capital Mamba to the test by phoning in the measurements for a pair of speaker cabs and a keyboard, and for good measure, we ordered a soft cover for a mixer. Within seven days, a package appeared.

The speaker covers are made from thick vinyl with red piping, and include handle cutouts. Thankfully, my measurements were accurate, because the covers fitted perfectly and I was more than impressed with the quality of both materials and workmanship. The mixer loose cover was similar in quality, but made of a lighter cloth-backed PVC material, as you'd expect for something that is essentially a dustcover.

For the keyboard I chose a padded bag, and this turned up with a useful zip-up accessory pocket. Again adorned with red piping, the padded case is manufactured using a PVC-lined, nylon outer with a 12.5mm foam filling. The foam has a soft, laminated surface and this forms the inner surface of the case. Heavy 40mm webbing handles are fitted, and the main body of the case closes with a heavy zip. The price for the padded case was £46.75, and the speaker covers cost £31.62 each. The mixer dust cover cost £23.50. All these prices include

VAT, though postage is extra, and ranges from £3.50 to a maximum of £5 per order.

Obviously, soft covers offer protection against rubbing and scuffing, but are not intended to be used instead of a flightcase, where rough handling is envisaged. However, they're just the job if you want to sling a bit of gear in the car and go out to a gig or round to a friend's studio to cook up the odd epic.

I felt both the quality and price of these cases and covers was very reasonable for a custom service (not to mention the fast turnaround), and of course you can also order cases for guitars, computers, monitors, or just about anything else you might want to take out from time to time. Unfortunately, Capital Mamba don't build padded rack cases, but who knows, if enough people ask, they might just change their mind on that score! *Paul White*

#### FURTHER INFORMATION

- £ Prices vary according to your specifications; call for details.
- A Capital Mamba Covers, Unit 3, Twin Trees, Moor Lane, Westfield, Woking, Surrey GU22 9RB.
- T 01483 757633.
- F 01483 757633.



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# brief encounters

## HEAVENLY MUSIC SONG BUILDER SERIES MIDI FILES

The *Song Builder* series of MIDI files currently comprises at least seven volumes of patterns, riffs and phrases in Atari/PC format that can also be loaded into any Mac which has a Mac/PC file exchange program running — such as *Access PC*. Each volume contains a wealth of short MIDI files which can be copied and pasted into your own compositions, and in this respect, *Song Builder* is very similar to the *Twiddly Bits* files reviewed elsewhere in this column. The main difference is that while *Twiddly Bits* uses session musicians playing MIDI guitars, MIDI drums, MIDI wind instruments and so on, *Song Builder* appears to have been programmed directly from the keyboard. As the programmers in question are Joe and Pauly Ortiz of Heavenly Music, however, you can have every confidence that the programming is second to none.



*Bytes and Pieces* is a mixed bag of over 100 phrases including flute flourishes, brass stabs, harp glissandos, guitar and bass parts, rhythms, and a whole lot else. The files are mapped out for use with a GM module such as Sound Canvas, but once you've pasted them into your sequence, you can assign them to any instrument you like. However, I've a feeling that one or two of the examples may include cunning bits of SysEx and controller information, so if you don't have a suitable GM module, you may lose out on some of the finer nuances.

I also had the chance to check out two of the *Doctor Beat* disks, which are dedicated to drum and percussion patterns, and the first thing that stands out is the

exceptionally human feel with which these patterns are played. Very little rigid quantising here. Most of the patterns are musically sensible rather than being taken up by overtly showy pieces, and there are plenty of nice fills in there too. I do have a criticism though, and that is that the documentation provided comprised only the album covers: you don't even get a list of the file names, let alone a description of what they are. Instead, you have to load the disk and browse the file names from your computer, but there's still little clue as to what style, key or time signature you can expect. In practice, this isn't too much of a problem as you can load the pieces one at a time and then make your own notes, but then if the *Twiddly Bits* disks can include good documentation, why not the *Song Builder* series too?

Quibbles aside, the *Song Builder* disks

I've checked out so far have been uniformly excellent, and sensibly priced to boot. Few people can program drums as well as Joe and Pauly, so if you want to freshen up your songs, this could be the way to do it. If you want me to tell you whether you should choose these disks over *Twiddly Bits*, that's another matter — both products contain so much useful material in so many different styles that at the asking price, you shouldn't hesitate to buy both. It may not be exactly like having a session player inside your sequencer, but it comes pretty close. *Song Builder* is a refreshingly

professional product at a price everyone can afford, and I wait with anticipation to see what they come up with next. *Paul White*

### FURTHER INFORMATION

- E** *Doctor Beat* £14.99; *Bytes and Pieces* £19.99. Prices include VAT.
- A** Heavenly Music, PO Box 3175, Clacton, Essex CO15 2RP.
- T** 01255 821039.
- F** 01255 821039.
- E** heavenly@ortiz.demon.co.uk

- A** BCK Products, Stationbridge House, Blake Hall Road, nr Ongar, Essex CM5 9LN.
- T** 01992 524442.
- F** 01992 524004.

## tapKAT & rimKAT DRUM TRIGGERS



Users of KAT's drumKAT or trapKAT may be interested to learn that a couple of new accessories are available, the simplest being the tapKAT kick drum pedal. This pedal is really a modified footswitch containing a lithium battery plus a few electronic components, and it works by delivering a voltage pulse to one of the drumKAT's external trigger inputs. The low power consumption should mean that the battery will last for several years. A piece of self-adhesive Velcro is provided to stick to the underside of the pedal, and this grips onto carpet very effectively.

Because the tapKAT is really a switch, it is not velocity-sensitive, but then perhaps that's an advantage for some modern musical styles. Nevertheless, it's a great disappointment that the tapKAT still feels like a footswitch — it doesn't provide any of the dynamic reaction of a real bass drum pedal, so it's difficult to play fancy beats on it. I should also point out that neither of these accessories can be used with anything other than a KAT drum system.

The rimKAT seems to be identical to the poleKAT, in that it has two playing areas which may be used as two separate triggers for a drumKAT, though if you only plug into socket 1, you can use both as one large trigger surface. Again, an internal battery provides the power, but this time FSR sensors give the same dynamic response as other KAT playing surfaces. The unit is surprisingly heavy, and is constructed from sheet steel with latex rubber playing surfaces. Swivel clamps are fitted to the bottom edge to allow the rimKAT to be clamped onto the rim of virtually any size of drum.

In contrast to the tapKAT, which is a cheap and cheerful way of triggering bass drum sounds, the rimKAT is a beautifully responsive, very professional piece of kit ideally suited to anyone combining acoustic and KAT-triggered electronic drums. *Paul White*

### FURTHER INFORMATION

- E** tapKAT £45; rimKAT £184. Prices include VAT.
- A** Omecc Ltd, 21 Denmark Street, London WC2H 8NE.
- T** 0171 240 8292.
- F** 0171 240 8112.

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# High-Bred Hybrid

**MICHAEL ANTHONY** takes us back to the mid-eighties, when MIDI was in pre-school playgroup, and manufacturers built synths that couldn't decide if they were analogue, digital, or both...

## ROLAND JX3P POLYSYNTH



**W**hen first presented in the mid-eighties, many claimed that here was a synthesizer with an identity problem.

Following hot on the heels of famous cousins, the Jupiter 8 and 6, the JX3P was part of a mad dash by Roland to offset the resounding commercial success of Yamaha's DX7. With its stylish black case, bold primary colours and fire engine red accents, the JX3P was an enigmatic departure.

The JX3P's identity crisis results from it being neither full-on digital or pure analogue. It's actually a little of each, and as it has turned out, more than enough of both. Equipped with DCOs (Digitally Controlled Oscillators — see the box elsewhere in this article), a digital interface and the optional PG200 programmer, this synth covered all bases, while still cashing in on the new '80s buzzword — digital. Thirty-two preset tones and 32 user-programmable locations, a nifty (if minuscule) onboard sequencer, a somewhat

basic MIDI implementation and a built-in chorus effect rounded out what was in effect an embryonic workstation.

### THE GUIDED TOUR

Using a bog-standard 61-key, 5-octave keyboard, the JX3P is devoid of the riot of knobs and sliders common at the time. Resting on a sturdy metal chassis, the control surface is simple and elegant. On the far left-hand side is the LFO trigger button (normally held down for effect), while just below is the huge, horizontally-mounted pitch bender (you'll never miss this in a dark room!). To the right of this is the three-position pitch range switch. At maximum, the 'wide' setting gives a perfect fifth higher or lower, 'mid' provides a total range of plus and minus a major third, while 'narrow' is limited to a major second in

either direction. All the buttons employed on the main panel are equipped with status LEDs — a very visual legacy of Roland's Jupiter series.

Continuing right, you find the solitary knob (for volume), and, above this, a shelving-type Brilliance slider. To the right of this are the Chorus, Mute, Hold and Key Transpose buttons (of which more in a moment). Below these are the four bank select buttons, with 16 tone selection pads to their immediate right. The A and B banks contain preset tones, while C and D are reserved for user creations... a possible 64 tones in all. Above the tone selection pads are the digital editing section and sequencer controls, plus the Tape Memory button. An edit map layout is conveniently pictured on the far right-hand side. The back panel sports stereo outputs and a headphones jack.

### HERE'S MOD IN YER EYE

The JX3P had no sooner hit the streets than those bright sparks at Roland came up with an entire series of very welcome modifications. Some got built into the synth, others became the subject of an EPROM update. If you're lucky enough to own one of these machines, there's no way of knowing if any of these mods were implemented without actually trying each entry in the list below. Perhaps a brand new 'feature' will come to light. Good luck!

#### • HIDDEN BANK ACCESS

16 extra slots for user tones.

- Hit Tape Memory.
- Hit key 5 and hold it.
- While still holding key 5, hit Tape Memory again.
- To reset to normal operation, hit Tape Memory twice.

#### • HIDDEN BANK TAPE INTERFACE

For saving/loading tones in the hidden bank.

- Before hitting Save, Verify or Load, go through Hidden Bank access steps described above.

#### • POLY II MODE

This differs from standard Poly I mode in that only the

last note or notes played receive their natural release length, and is much more suitable where certain types of staccato playing to slow fade effects are required.

For use with original 32 programs:

- Hit Tape Memory.
- Hit key 3 and hold.
- While holding key 3, hit Tape Memory again.

For use with the hidden bank:

- Hit Tape Memory.
- Hit key 6 and hold.
- While holding key 6, hit Tape Memory again.

#### • SEQUENCER LIGHTS

The LEDs light up as sequences play — cute.

- Hit and hold Rest button.
- While holding Rest, hit Start/Stop.

#### • MANUAL SEQUENCER PLAY

- While in overdub mode, hit Tape Memory to advance sequence manually.

#### • MODULATING WITH NOISE

- Hit Group B Button and key 10.

- Hit Group D button.

THE FOLLOWING TWO MODS WERE PART OF AN EPROM UPDATE.

#### • DYNAMICS WHEN PLAYED FROM A TOUCH-SENSITIVE MODULE

- With JX3P off, hit and hold key 7.
- Turn on power.
- Keyboard will cease to function. (Local operation is now off).
- Synth will now act as a touch-sensitive module.

Alternative method:

- Hit Tape Memory.
- Hit and hold key 7.
- Hit Tape Memory again.
- To reset the JX3P, turn it off, then on.

#### • FOR MIDI CHANNEL 3 OPERATION WHILE IN DYNAMICS MODE

- Turn on dynamics operation as detailed above — via either method.
- Hit Tape Memory.



## DIGITALLY-CONTROLLED OSCILLATORS

DCOs (as they're affectionately known), according to the best information obtained, made their first commercial appearance in the JX3P. Previously, most synths of the period used voltage-controlled oscillators, or VCOs, notorious for drifting. Both the earlier JP8 and JP6 had 'Tune' buttons for pulling the oscillators back into line from time to time. Although the JX3P had fairly conventional sound creation circuits, its one major advantage was digital control on what was essentially a VCO-type system. This was accomplished with a small digital circuit that actively monitored the oscillators while continually sending corrective voltages to maintain pitch integrity. Once the rear-mounted Tune adjustment was set, the tuning would stay rock solid. Almost all popular types of oscillators have functioned under some type of digital control since that time.

### THE INSIDE STORY

Judging the JX3P on the basis of its rather bland collection of presets would be misleading — or, put another way, Japanese patch design sure has come a long way in the last decade! By utilising the presets as jumping-off points, however, totally monstrous patches are possible. Some of the string pads the JX3P is capable of would, in my opinion, put even the venerable JP8 to shame. Presets in Bank A include Strings, Organs, Brasses, and Electric Pianos, plus a Clavi, Harpsichord, Vibraphone, Chime, Celesta, Accordion and (a pretty good) Voice. Bank B includes a Violin, Flute, and Oboe, plus Synth Brasses, and wah and distorted guitars.

Editing on the JX3P, even without the optional PG200, is a doddle. Using the front-panel map provided, it's simply a question of locating the parameter to be adjusted, and then, once you've selected either Group A or B (16 elements each), you simply move the sense slider by the desired amount, or press the corresponding Edit button. The 256-step editing system allows some very fine adjustments to be made.

The JX3P has 12 DCOs, which allow for a dual oscillator and 6-note polyphony — pretty much standard for the period. DCOs 1 and 2 are essentially the same, both having 4-foot, 8-foot, and 16-foot voices, along with ramp, pulse and square waveforms, but DCO 2 also includes Noise and Cross Modulation. This last option has two settings, Syncro and Metal: the first synchronises the frequency of DCO 1 to DCO 2, while Metal creates ring modulator effects — useful for the creation of bell and gong tones. The VCF (yes, the filter's voltage-controlled) can be set to high- or low-pass operation, and you have control over resonance and polarity. The VCA is fairly standard, as is the LFO (offering sine, square and random waveforms); the Chorus can be set to either full on or full off, and the 'EnveRope' is a simple ADSR affair. And yes, it was spelt that way in the brochure!

MIDI implementation in the factory version is extremely basic, especially by today's standards, — only Note On/Off, Hold Pedal, Pitch and Program Change commands are recognised. In addition (and like the DX7), the factory model JX3P communicates on MIDI channel 1 only. User tone backup was by tape recorder — again, very much the accepted practice of the day. Unfortunately, SysEx was still in nappies.

A number of interesting innovations were incorporated into the JX3P. In addition to the Chorus and Hold buttons, there's Mute. When engaged, this control will cause the volume of the two octaves below the split point to decrease in level, allowing for an emphasised right-hand melody. In addition, Key Transpose permits easy transposition to any key.

### ANOTHER HAPPY ENDING

Despite its limitations when viewed alongside modern synths, the JX3P was and is a thoroughbred powerhouse. Everything from excellent atmospheric pads to rip-snorting dancey stuff is well within its capabilities. Still popular, even now, it would take more than money for me to part with mine. Much as I love modern synthesizers...they just don't make 'em like they used to!

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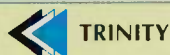
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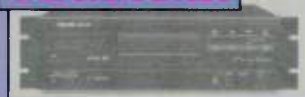
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**P7**

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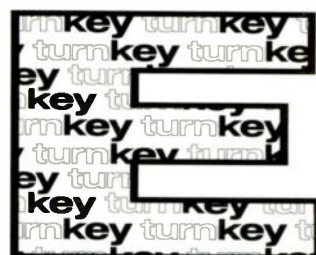
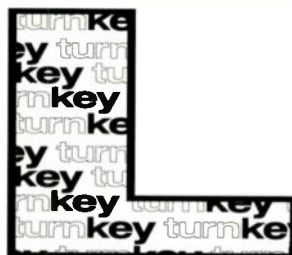
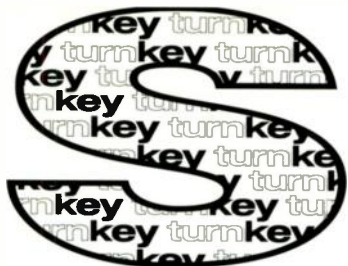


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# SPECIAL READER

## ANATEK POCKET PRODUCTS TO SOLVE YOUR MIDI HEADACHES

At *SOS*, we have regularly found ourselves referring readers to one or other of the Anatek Pocket range of MIDI accessories to solve their all too common MIDI interconnection and transmission problems. Trouble was, Pocket Products were previously hard to find... until now!

### POCKET SYNC

- 'Smart' FSK Tape-to-MIDI synchroniser • Starts anywhere in song • MIDI In to Out merging • Automatic read/write switching • 'Jam Sync' protects against tape dropouts
- Records tempo changes • MIDI and FSK status LEDs

POCKET SYNC is the way to expand the capabilities of any multitrack studio. No longer is it necessary to allocate more than one tape track for sequenced parts. Now, shuttling to different points in the song is quick and effortless. POCKET SYNC writes a special FSK sync tone on one track of tape that is converted to MIDI Clock and Song Position Pointer on playback. Merging of data from the MIDI input to the output allows new sequencer tracks to be added while remaining synchronised to tape.

Automatic switching between write (recording FSK) and read (playback FSK) cuts downs on confusing switches and buttons. Tape oxide dropouts are no longer a problem with POCKET SYNC's variable dropout protection. The sequencer can continue playing over a dropout for a short time, even if FSK code is completely lost!

Price: £69 inc VAT.  
Order Code: PP003  
Postage: UK £2.50 Europe £4.95 ROW £8.95

### POCKET MAC

- Economical Macintosh MIDI interface • No external power supply required • 1 MIDI In, 2 MIDI Outs • LEDs indicate MIDI In/Out data • Uses serial or modem port • High speed CMOS design
- Improves signal to minimise data errors.

POCKET MAC opens up a whole new world of MIDI programs for the Macintosh computer user. With many Macintosh programs simultaneously supporting both the serial port and the modem port, one POCKET MAC could be connected to each allowing access to twice as many MIDI devices.

Price: £39 inc VAT.  
Order Code: PP004  
Postage: UK £2.50 Europe £4.95 ROW £8.95



### POCKET CURVE

- Modifies MIDI velocity response • Controls keyboard sensitivity • 6 tapered curves • 6 velocity increase curves • 6 velocity decrease curves
- 6 constant levels • Special DX7 velocity curve

POCKET CURVE is a necessity for master keyboards that require velocity scaling control. With it, a keyboard's response to harder or softer playing styles can be modified to suit the player and their MIDI setup. DX7 owners can especially benefit from POCKET CURVE! A special curve is available to boost the DX7's low velocity output, so that missing dynamic potential can be recovered. Use POCKET CURVE to allow a lighter touch during performance on a heavily weighted keyboard controller. For ease of programming, a quick reference to the many curve possibilities is permanently printed on the sides of the unit.

Price: £69 inc VAT.  
Order Code: PP005  
Postage: UK £2.50 Europe £4.95 ROW £8.95

### POCKET MAPPER

- Remaps MIDI controllers • Maps Pitch Bend to Aftertouch • 'Set and forget' programming
- Supports 15 controllers • Allows unconventional routings • Updates older keyboards.

POCKET MAPPER allows modulation routings to be customised to suit a particular need. Controller data such as Pitch Bend, Aftertouch, Breath Control and others is received and can be retransmitted as a different controller. For instance, DX7 Breath Control modulation can be rerouted to MIDI Volume to modulate synths that do not accept Breath Control. POCKET MAPPER is the most convenient and cost effective way of rerouting MIDI modulation. Now, MIDI wind instruments can remap mouthpiece Breath Control to Aftertouch quickly and easily.

Price: £69 inc VAT.  
Order Code: PP006  
Postage: UK £2.50 Europe £4.95 ROW £8.95

### POCKET MERGE

- Merges 2 MIDI signals into 1 • Handles System Exclusive • Merges on all 16 MIDI channels
- Merges Clock and MIDI Time Code • Merges all controllers • Handles large volumes of data
- Stackable for 3 or more inputs

POCKET MERGE is an essential tool for sequencing or live use. Operating as a 2-In, 1-Out MIDI Merger, several Pocket Merges can be stacked to merge more than 2 inputs. Now any controller can be a 'master'. In live setups, POCKET MERGE allows any two controllers (keyboard, drum pads, guitar synth, etc) to share a sampler or sound module. Use one keyboard as a master, while using a favourite pitch bender from another, or combine two keyboards for a multi-tiered, organ-style controller. In the studio, POCKET MERGE is a must for sample dump editors, allowing a keyboard and a computer to be connected to the sampler at the same time. POCKET MERGE handles data very quickly, making buffer overflows a thing of the past.

Price: £59 inc VAT.  
Order Code: PP007  
Postage: UK £2.50 Europe £4.95 ROW £8.95

### POCKET FILTER

- Filter on all MIDI channels • Filter controllers, System Exclusive and real-time data • Combine data types/channels • DIP switch selectable filtering
- Select channel from any keyboard • Filter all data on selected channels

POCKET FILTER is a vital tool for problematic setups. With MIDI data becoming increasingly complex, POCKET FILTER can unclog the MIDI data stream, sending only the most useful info. Use it to remove unwanted clock messages or System Exclusive data or memory-intensive aftertouch and controller information. POCKET FILTER frees-up unused MIDI Channels from multitimbral synths, making them available for other modules. In addition, it can be used

## USE YOUR BREATH CONTROLLER WITH NEARLY ANY MIDI SYNTH!

Anatek's WIND MACHINE and your Yamaha BCI or BC2 Breath Controller (not provided) will add woodwind-like expression to keyboard performances. Brass patches can punctuate or pad according to your whim, not to some pre-programmed attack setting. Sax solos will turn heads with their authenticity. And layered string sounds can fade in precisely where they're needed, while your hands and feet are free to control wheels and pedals.

Compatible with everything, WIND MACHINE interfaces to Korg, Roland, Yamaha, Ensoniq and the rest! No longer are you forced to use your breath controller with only one brand of MIDI synth. Any MIDI keyboard that will respond to MIDI Volume, Aftertouch, Modulation, Breath Control, Pitch Bend, Expression, Foot Controller, or Pan can be controlled via your breath controller and WIND MACHINE.

Blowing into a mouthpiece is the most natural way to enhance keyboard performance. Wind instruments have been designed around this principle for centuries. Alone, keyboard Aftertouch isn't as effective because when you release the keys, the effect goes away. Modulation and Pitch wheels alone aren't as effective because they don't allow you to play chords. But when combined with WIND MACHINE, all of these can be used to create vastly improved expression capability.

A flexible input/output configuration means that WIND MACHINE can fit seamlessly into any setup. The simplest way is to use it to send control signals to the MIDI In of a keyboard synthesizer. If the MIDI setup involves a master keyboard and external modules,



WIND MACHINE can combine incoming signals from the master with its control signals and then pass them on to a sequencer or sound modules. WIND MACHINE can transmit the most popular control parameters to keep it simple. Most MIDI keyboards respond to Modulation, Aftertouch or Volume so you won't have any problem finding one compatible with your synth. Any one of the 16 MIDI channels can be selected as well. All control parameters are set by switches on the lid that retain settings even when power is disconnected.

Price: £85 inc VAT.  
Order Code: PP002  
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# OFFER!

to channelise older synths that only receive in Omni mode.

Price: £69 inc VAT.

Order Code: PP008

Postage: UK £2.50 Europe £4.95 ROW £8.95

## POCKET PEDAL

- Sends on multiple MIDI channels • Supports 1 continuous controller • Supports 1 momentary footswitch • Sends pitch-bend, modulation, portamento time, and MIDI Volume • Sends sustain, portamento on/off, sostenuto, and start/stop • Auto pedal/footswitch calibration • Forward/Reverse pedal operation • 3 mode pitch-bend operation • Combine data types

POCKET PEDAL is an indispensable controller for the performing musician. Use it with an ordinary volume pedal and footswitch to send MIDI volume, modulation, and sustain controls on all 16 MIDI channels simultaneously. For owners of multi-effects processors, POCKET PEDAL provides a convenient cost-effective way of providing dynamic control over effects parameters. It is also a handy controller for automated mixdowns, converting any resistive input into MIDI Controller messages for VCAs. Connect a photocell to POCKET PEDAL and control MIDI parameters with a light source!

Price: £69 inc VAT.

Order Code: PP009

Postage: UK £2.50 Europe £4.95 ROW £8.95

## POCKET THRU

- 1-In, 3-Out MIDI Thru box • High-speed CMOS design • Very low power requirements • Buffered outputs clean up data • Handles all MIDI data • Stackable for more outputs

POCKET THRU is an essential building block for any MIDI setup and an excellent companion product for all Pocket Products. POCKET THRU provides 3 buffered outputs from a single MIDI input. Use POCKET THRU to minimise MIDI delays, or expand the outputs of a POCKET MERGE unit. POCKET THRU also allows POCKET FILTER to be placed anywhere in the MIDI chain, when using it to channelise older synths. Up to 4 POCKET THRU's can be combined to provide a total of 9 outputs.

Price: £35 inc VAT.

Order Code: PP010

Postage: UK £2.50 Europe £4.95 ROW £8.95

## POCKET TRANSPOSE

- In-line 16 Channel transposer • +/- 5 Octave transpose range • Switch between normal and transposed modes • Separate intervals for each channel • Transpose key signature and octave simultaneously • All non-transposed MIDI data is passed • Harmonisation mode • Footswitch controllable.

POCKET TRANSPOSE is a performance-orientated transposer that supports separate transpose intervals for each MIDI channel. Although many keyboards have a transpose function, it's usually too cumbersome for live use. POCKET TRANSPOSE makes transposing easy. Intervals can be set while playing, and the user can select the normal or the transposed setting from a footswitch. Guitar synth players can use the POCKET TRANSPOSE to set intervals on 6 separate MIDI channels, or use it to transpose all strings by a certain amount. POCKET TRANSPOSE provides an easy way to try different arrangements without altering sequencer data. You can even set it so that the drum machine channel remains intact.

Price: £69 inc VAT.

Order Code: PP011

Postage: UK £2.50 Europe £4.95 ROW £8.95

## POWER PACK

- 'Phantom' powers all Pocket Products • Functions in-line with MIDI signal • Powered by most AC adaptors • Automatic polarity switching • Fully regulated supply • Passes all MIDI data • Alleviates hook-up problems • Boosts MIDI signal

POWER PACK provides power to Pocket Products in instances where upstream devices from other manufacturers have neglected to meet MIDI specifications, or in any instance where power is

## LONG DISTANCE MIDI

- Enables extra-long MIDI cable runs • Easy to connect to existing 3 conductor wiring • 4,000 feet capability • Balanced XLR connectors • Dual transceivers allow 2-way MIDI communication • Handy data input and output LEDs confirm presence of MIDI signal

The problem with MIDI is that you are likely to encounter data errors when running more than 50 feet of MIDI cable. These can be embarrassing errors such as hung notes, mysterious program changes or worse in the middle of a performance.

The cost-effective solution is MIDIMATCH by Anatek. Two identical units convert MIDI data to balanced signals that can be transmitted through up to

4,000 feet of cable. The balanced MIDI signal is virtually immune to the problems that have previously plagued studio owners and sound contractors over long MIDI runs.

MIDIMATCH works through ordinary balanced microphone cable so you can connect keyboard controllers to MIDI sequencers or lighting controllers to dimmer packs through your existing snake! Studios already wired for audio can connect MIDI through the cabling already in place. MIDI signals could even be run through a balanced patchbay!

Price: (includes transmitter, receiver, AC adaptors) £115 inc VAT.

Order Code: PP001

Postage: UK £2.50 Europe £4.95 ROW £8.95



unavailable. POWER PACK can be placed anywhere in the MIDI chain and accepts power from a standard AC adaptor (not included). It provides additional power when more than 4 Pocket Products are used in a row or allows POCKET PEDAL and POCKET FILTER to retain their channel settings when the master device is turned off. What's more, POWER PACK can be used to boost the MIDI signal and extend the maximum distance between two devices.

Price: £29 inc VAT.

Order Code: PP012

Postage: UK £2.50 Europe £4.95 ROW £8.95

## POCKET SPLIT

- 8-Zone Keyboard Splitter • Range from 1 to 127 notes • Fixed boundaries • MIDI Channel/Zone assignment • Footswitch controllable • Floating split point

POCKET SPLIT is an 8-zone keyboard splitter. Each zone has its own MIDI Channel, and has a range of 1 to 127 keys wide. Zone boundaries can be set for hard or soft (overlap or splits). Use POCKET SPLIT to maximise the performance of your master keyboard, or create interesting performance possibilities with your guitar controller. An added feature is an 'intelligent' 2-way floating split that automatically tracks the keyboard player's left and right hands. Now any MIDI device can have the features of a sophisticated MIDI controller at a fraction of the cost!

Price: £69 inc VAT.

Order Code: PP013

Postage: UK £2.50 Europe £4.95 ROW £8.95

## POCKET CHANNEL

- Remaps Receive channel • Remaps Transmit channel • Sends multiple MIDI channels • Velocity-switch mode • Footswitch controllable

POCKET CHANNEL takes data from any MIDI channel and remaps it on to one, several, or all 16 MIDI channels. Up to 16 different channel assignments are possible. A unique velocity-switch feature allows automatic switching between two different sound modules depending on the key velocity. Use POCKET CHANNEL to organise channel assignments for a multitimbral sound module, or send a controller's output to two or more MIDI channels. With POCKET CHANNEL, for example, two drum machines or two samplers can share the same note assignments and be set to two separate MIDI channels.

Price: £69 inc VAT.

Order Code: PP014

Postage: UK £2.50 Europe £4.95 ROW £8.95

## ABOUT POCKET PRODUCTS

Pocket Products are handy MIDI accessories requiring no batteries or power supply to operate. They have been designed to solve the problems arising from incompatibilities between MIDI products from different manufacturers. Compact and sturdy, Pocket Products can be placed anywhere in the MIDI signal chain.

## HOW TO ORDER

Join the group of satisfied customers worldwide who have found the solution to their MIDI problems with Pocket Products from Anatek, now available direct from SOS.

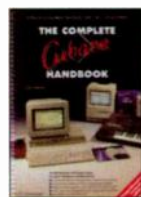
To order, just fill out the Order Coupon on page 213 (remember to add postage for each product) or simply call our Mail Order hotline on 01480 461244.

Please allow up to 28 days delivery on Pocket Products.

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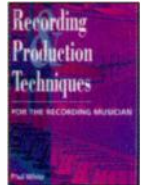


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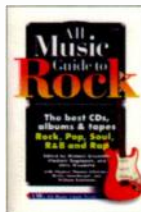
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This highly informative book by SOS's own Editor demystifies the techniques used by professionals in the recording of contemporary music. It reveals how to make full creative use of all manner of studio effects and signal processors. These

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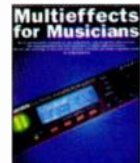


(4th Edition) By Yasmin Hashmi  
Completely updated, this 4th edition is the only international buyers guide to over 200 professional digital audio workstations and systems aimed at cart replacement and broadcast automation.

The comprehensive listings include target markets, hardware and software specifications, operational features, networking and file translation, future development plans, training and customer support, costs and suppliers details for USA, Europe and Far East. The Directory not only covers all existing systems, but those soon to be launched and those on which development has been halted. It also provides a comprehensive explanation of the terminology, with useful tips for potential purchasers.

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by Craig Anderton  
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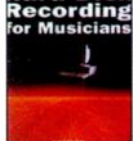
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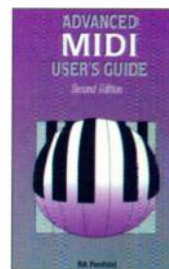
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by Martin J. Newcomb

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contains full-colour pictures of a large selection of exhibits from the museum, together with some descriptive text and company backgrounders. The text reads a little like a fanzine, but the hardcore synth fanatic will want this book for the pictures. In these pages you will glimpse instruments that you are unlikely ever to experience in the flesh: an exceedingly large Roland System 100 modular set-up, an EMS Synthi 100, an ARP 2500, a large Emu modular and what must be the comprehensive collection of Moog equipment anywhere. The Museum of Synthesizer Technology book is yours for £24.95, plus postage.

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## KEYFAX 5



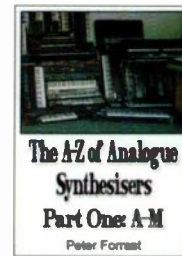
by Julian Colbeck

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## THE A-Z OF ANALOGUE SYNTHS PART ONE: A-M



by Peter Forrest

The author has aimed to make his book a complete rundown of all the major analogue synths and keyboards ever made, and on the evidence of this first volume, he seems to have succeeded. The book is useful and detailed, and shows evidence of

the massive amount of research and effort put in by Peter. He gives pocket company histories and detailed data on the instruments produced - but note that a few entries for a few particularly obscure instruments and companies are limited due to lack of data. The book also provides a comprehensive overview of the qualities of various instruments; charts and tables assess second hand values and maintenance levels necessary to keep a given instrument usable as well as such intangibles as sound quality, collectability and user interface. The A-Z of Analogue Part One, which is limited to 8000 copies worldwide, also features 96 colour pictures of classic instruments.

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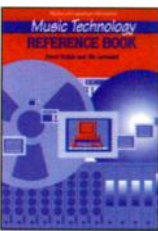
By Siegfried Hoffman

Looks at how drummers compose rhythm patterns to add emotion, swing or groove. Contains examples for you to programme into your drum machine or sequencer.

**CODE B115 £11.50**  
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

## MIDI INFORMATION

### MUSIC TECHNOLOGY REFERENCE BOOK



by Peter Buick & Vic Lennard

Written by Peter Buick and Vic Lennard (author of SOS's Atari Notes column), this book offers information at your fingertips and is an indispensable reference source for the musician or sound professional in the recording,

broadcast, live, video, computer, multimedia, post production and theatre industries. It includes comprehensive MIDI spec. General MIDI, MTC, MSC, and SysEx information. It also includes charts, check lists, useful hints, tips, and ideas, plus a glossary, list of contacts and a comprehensive indexed, it is also organised into convenient sections. 150 Pages.

**CODE B305 £12.95**  
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

### THE MIDI COMPANION



By Jeffrey Rona

A breezy run through MIDI that would suit the absolute beginner, this book is well-illustrated, clearly expressed and explains the technical bits in as close to non-technical language as the subject matter allows.

**CODE B234 £9.95**  
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

**OVERNIGHT DELIVERY OPTION: ONLY £5.00! See Order Form for details**

**260 DRUM MACHINE PATTERNS**

By *Rene-Pierre Bardet*  
Even more drum pattern styles (paso doble, charleston, etc)  
**CODE B019 £7.95**  
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

**DRUM MACHINE PATTERNS**

By *Rene-Pierre Bardet*  
200 drum patterns and breaks presented in one-measure grid notation. Funk, R'n'B, ballad, pop, reggae, afro-cuban and many other styles.  
**CODE B018 £7.95**  
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

**PLAYING TECHNIQUES**

**CLASSICS IN SEQUENCE**

by *William Lloyd & Paul Terry*  
Takes concepts behind Music In Sequence and applies them to all-time favourite classical music scores. Authors show how to make fresh, exciting interpretations of classic scores. Info on reverb and effects, interpreting scores, editing synth voices. Highly creative - an ideal workbook for the music classroom. Covers Medieval, Renaissance dance music, Bach's Toccata in D minor; Vivaldi, Purcell, Handel; opera excerpts from Rossini, Verdi, Borodin; Mozart, Schubert, Tchaikovsky, music from Carmina Burana; Debussy, Satie, Steve Reich's Piano Phase and more. Highly recommended.

**CODE B193 £12.95**  
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

**MUSIC IN SEQUENCE**

by *William Lloyd & Paul Terry*  
Still one of our best-selling books. Easy to follow, practical guide to making real use of your sequencer, written by people who really understand music and how to create it using today's technology. This brilliant, unique book carries the SOS seal of approval.

**CODE B155 £12.95**  
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

**1000 KEYBOARD TIPS**

by *J Dreksler & Q Harle*  
The hi-tech musician's guide to the basics of music, scales, chords and harmonies. 256 pages covering chord relationships, improvisation, suggested drum machine patterns, plus comprehensive chord table. Too good to miss!

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Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

**SOLID GROOVES**

By *Dieter Peteret & Herb Quick*  
128 pages dealing with both bass and drums, the "heart" of the pop group, together. Although written primarily for drummers and bass players, anyone interested in understanding rhythmical music in popular styles will find this book invaluable.

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Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

**COMPUTERS & MUSIC**

**THE COMPLETE SOUND BLASTER**

by *Howard Massey*  
Explains in simple, non-technical terms: how to install the Sound Blaster hardware and software for use in both the DOS and Windows environments, the two sound processes used by the card, MIDI, the Sound Blaster's MIDI capabilities, and the many different applications for the Sound Blaster, including the various software utilities provided with the card, and many of the third party support products that enhance its operation.

**CODE B313 £10.95**  
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

**MULTIMEDIA ON THE PC**

By *Ian R Sinclair*  
If you want to know what multimedia is and what it can offer you, then this is the book for you. Much of the information is general enough for everybody, but as the title suggests, the book is aimed at PC users. The book explains the installation and use of a CD ROM drive and a sound card and covers all key concepts behind multimedia. As an added incentive, if you buy this book, you can send away for a free copy of *Picturebook*, a multimedia authoring package.

**CODE B272 £11.95**  
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

**MULTIMEDIA ON YOUR PC**

by *Francis Botto*  
A practical guide to multimedia specifically on the PC. Botto's book is once aimed at users, educators and developers, and comprehensively discusses the hardware required to take advantage of multimedia in a PC environment as well as the hardware and software necessary in a multimedia authoring situation. The book is provided with comprehensive appendices covering a glossary and comprehensive product and manufacturer lists.

**CODE B296 £10.95**  
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

**SEQUENCER SECRETS**

by *Ian Waugh*  
Ian's book aims to "go beyond the manual" in telling you how to get the best from your sequencer. The book features 29 hands-on sequencing projects and is suitable for use with all software sequencers. The book hopes to help you optimise your MIDI system and use your sequencer to create all sorts of useful effects. A troubleshooting section helps you track down stuck notes, double notes and so on.

**CODE B299 £6.95**  
Postage: UK £1.50, Europe £4.50, R.O.W. £6.50

**COMPUTERS AND MUSIC**

By *R A Penfold*  
2nd edition. Covers hardware and software applications. Excellent glossary of jargon, and now bang up to date.

**CODE B098 £8.95**  
Postage: UK £1.50, Europe £4.95, R.O.W. £7.50

**MULTIMEDIA, CD ROM & COMPACT DISK - a guide for users and developers (2nd Edition)**

by *Francis Botto*  
Practical guide to CD ROM and interactive multimedia aimed at both users and developers. Virtually all platforms and technologies are covered in this book - CD-I, CD ROM, CDTV, Macs, PC clones etc - and a comprehensive range of appendices include a glossary, and lists of development tools, manufacturers, and existing CD ROM titles. All aspects of system development - from image capture to sound - are covered.

**CODE B295 £14.95**  
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

**MUSICAL APPLICATIONS OF THE ATARI ST'S**

By *R A Penfold*  
Includes a general introduction to MIDI, a handful of MIDI add-on circuits (Thru box, MIDI switcher and so on), plus a collection of programs, in Fast BASIC, that allows you to use the ST's internal sound generator and create little MIDI applications.

**CODE B280 £5.95**  
Postage: UK £1.50, Europe £4.95, R.O.W. £7.50

**LIVE SOUND**

**SOUND REINFORCEMENT HANDBOOK**

by *Gary Davis and Ralph Jones*  
From recording to broadcast, fixed installations to touring, this 400 page reference covers live sound setups, equipment, techniques and jargon.

**CODE B105 £27.95**  
Postage: UK £3.95, Europe £7.50, R.O.W. £14.50

**CONCERT SOUND AND LIGHTING SYSTEMS**

Written by *John Vasey*.  
How to set up and operate sound / lighting equipment for the performance of amplified music or any kind of touring production.

**CODE B247 £14.95**  
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

**THE FOCAL GUIDE TO SAFETY IN LIVE PERFORMANCE**

Edited by *George Thompson*  
This book provides an authoritative look at safety matters for workers in the live entertainment industry. It is edited by the Standards Officer of PLASA (Professional Lighting and Sound Association), and provides good solid information in an easily digestible, well-illustrated form. Topics covered include audience and crowd control, fire safety precautions and engineering, electrical safety, laser safety, sound levels and noise control and much more.

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**LOUDSPEAKERS FOR MUSICIANS**

**CODE B284 £3.95**  
Postage: UK £1.50, Europe £3.95, R.O.W. £4.50

**INTRO TO LOUDSPEAKER & ENCLOSURE DESIGN**

by *V Capel*  
The book provides both useful background to speakers and enclosures in general, plus practical information on crossovers and full details on constructing the so-called "Kapellmeister" design of speakers.

**CODE B281 £2.95**  
Postage: UK £1.50, Europe £3.95, R.O.W. £4.50

**LIVE SOUND MIXING**

by *Duncan R Fry*  
This is a hands on, friendly introduction to all aspects of mixing live. It hails from Australia, and is an SOS Bookshop exclusive. The author is an experienced live sound engineer and has packed his book with loads of information, diagrams and hints to take you from basic principles through to trouble shooting when things go wrong.

**CODE B256 £19.95**  
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

**PUBLIC ADDRESS LOUDSPEAKER SYSTEMS**

by *V Capel*  
All aspects of PA speaker systems are covered in this book, including low-impedance matching, 100V systems, transmission lines and how to install inductive hearing aid loops. At the heart of the book is the Line-Source Ceiling Array, a system that is claimed to improve clarity, even coverage and reduce feedback. Full step-by-step construction and installation details are given.

**CODE B283 £3.95**  
Postage: UK £1.50, Europe £3.95, R.O.W. £4.50

**ELECTRONIC PROJECTS**

**ELECTRONIC PROJECTS FOR MUSICIANS**

**CODE B068 £10.95**  
Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

**MIDI PROJECTS**

by *R A Penfold*  
A comprehensive collection of simple MIDI projects, including CV and gate converters and a MIDI Thru box. A lot of the book is taken up with interface various obsolete computers to MIDI (Spectrum, CPC464, Commodore 64, BBC B, ZX81 and so on), but the general information is basically sound. Could prove a boon to musicians who are really broke!

**CODE B278 £2.95**  
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**PRACTICAL ELECTRONIC MUSIC PROJECTS**

**CODE B289 £4.95**  
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

**ELECTRONIC MUSIC LEARNING PROJECTS**

**CODE B286 £4.95**  
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

**HIGH POWER AUDIO AMPLIFIER CONSTRUCTION**

By *R A Penfold*  
Much useful background to amplifier design, speaker matching and more is included in the first couple of chapters, while the last section contains a selection of high power amp circuits plus suitable PSU circuits. Copper track patterns are also provided to allow you to make your own PCBs. While the circuits aren't too difficult as such, those with limited constructional experience should note that due to the high supply currents and voltages involved, even minor mistakes could be extremely dangerous.

**CODE B282 £3.95**  
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

**ELECTRONIC MUSIC AND MIDI PROJECTS**

by *RA Penfold*  
Want a MIDI THRU box, patchbay or switcher? Well they're all here. And you don't need a degree in electronics either. All the projects are explained in detail, with full instructions on assembly. So if your into MIDI and you want to expand your system without taking out a second mortgage, fear not. Here's the book to help you build up your MIDI system without laying out thousands on hardware.

**CODE B203 £9.95**  
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

**DIGITAL AUDIO PROJECTS**

by *R A Penfold*  
A two part book, with the first section looking at the basic principles involved including converting an audio signal into digital form and then converting it back to an analogue signal. The second part contains some circuits - for the moderately experienced only.

**CODE B279 £2.95**  
Postage: UK £1.50, Europe £3.95, R.O.W. £4.50

**PRACTICAL ELECTRONIC MUSIC EFFECTS UNITS**

by *R A Penfold*  
Another selection of musical effects, with more of a guitar angle. Projects include distortion, sustain, parametric EQ, graphic EQ, treble and bass booster, envelope modifier, wah wah effects and more.

**CODE B290 £4.95**  
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

**ELECTRONIC PROJECTS FOR VIDEO ENTHUSIASTS**

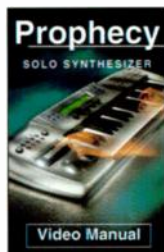
by *R A Penfold*  
Projects for the video and camcorder user, including dynamic noise limiter, automatic audio fader, video faders, video wipe and video crispener.

**CODE B288 £4.95**  
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

**PLEASE REMEMBER: POSTAGE IS PAYABLE ON ALL MERCHANDISE**

# SOS Videos

## KORG PROPHECY VIDEO



### MANUAL

Written by Phil MacDonald  
Korg's new Prophecy Synthesizer now has its own video manual!

The video covers all the major features over 6 sections, with lots of examples of the amazing effects that are available using the 'log' and 'mod' wheels. The video's

visual interest is maintained by the extensive use of Chroma Key and multi camera effects. This is a video that is ideal for new owners, and those who want to know more about the Prophecy before they make a purchase.

**CODE V049 £14.99**

Running time: 36 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## ROLAND G800

Presented by Roland UK's product demonstrator Sara Reybould, this video covers every essential feature and function of the Roland G800. Sara provides the user with a wealth of knowledge on this sophisticated instrument, with recourse to many practical examples and close-up shots of the LCD screen. The video was produced in association with Roland USA and Roland UK to ensure that the content is accurate and informative.

**CODE V060 £19.99**

Running Time 92 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## ROLAND GR09

Presented by Roland UK product demonstrator Nick Cooper, this application-based tutorial video for the Roland GR09, produced in association with Roland USA, covers every function completely. Covered topics include: the GK2A Synthesiser Driver, pickup sensitivity, use of the tuner, what a patch consists of, use of the pedals, patch edit 1 & 2 (including layering and detune, chromatic function, reverb & chorus, edit target, pitch shift), the use of external midi devices, saving to an external sequencer & more.

**CODE V061 £19.99**

Running Time 57 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## ROLAND GP100

Presented once again by Nick Cooper, this video manual for the Roland GP100 covers every aspect in detail with many practical demonstrations. Everything you need to know is covered; topics include: an explanation of COSM, layout, typical setups, initialisation, global settings, use of the tuner, selection and editing of patches, and use of the FX loop and harmonist.

**CODE V062 £19.99**

Running Time 45 Minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## ROLAND JV-1080



### VIDEO MANUAL

Roland's amazing JV-1080 synthesizer module is covered in detail in this informative video. Presented by Tim Walter the video guides you through the basics, and leads you painlessly onto the advanced features.

The video even shows you how to fit the expansion boards & gives demonstrations of some of the wonderful sounds they contain. Once again this video has been produced in association with Roland UK & USA to ensure that everything it contains is accurate, and relevant to the new and more experienced users alike.

**CODE V046 £19.99**

Running time: 80 minutes Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## ROLAND MS-1 VIDEO



### MANUAL

This video manual has been produced by Roland Corporation US, and has been designed to provide the user with tuition, and examples of how to apply your new found knowledge in various applications. There is also a comprehensive "Tips & Tricks" section to give you that extra edge!

**CODE V047 £24.99**

Running time: 50 minutes (approx)  
Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## EVERYTHING YOU WANTED TO KNOW ABOUT PCs BUT WERE AFRAID TO ASK!



Written by Ian Waugh  
This video has been produced in response to the number of potential PC buyers and existing new users who do not fully understand the jargon and basic operating procedures associated with PCs.

It covers everything from 'What is a PC?' to the 'Internet'. There is even a Windows tutorial, and a DOS basics section. (Over 120 different sections.)

It includes a booklet listing all the main and sub sections along with their respective TimeCode number for easy access when used as a reference tool.

**CODE V048 £19.99**

Running time 91 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## BOSS DR-5 DRUM MACHINE

Presented by Nick Cooper (Roland UK Product Specialist) this video covers all the functions of the DR-5 in a clear and concise manner. Produced in association with Roland UK & USA. By using the information gathered from Roland 'helplines', particular attention has been paid to the areas that many users find most difficult in. This makes it of interest to beginners and experienced users alike. Nick imparts the information with ease and a professional manner, making it enjoyable and entertaining.

**CODE V043 £19.99**

Running time 57 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## BAND IN A BOX 6.0 BASICS FOR WINDOWS

Designed to get the new user, and those less familiar with Band In A Box, up and running quickly and easily. Experienced users can also benefit from the in-depth tutorial which cover Basic MIDI, MIDI Connections, Custom Patch Maps, Screen Layout, Juke Box, Printing, Recording & Editing Melodies, Importing & Editing Styles, Drum Editor, Masks, Assigning Instruments.

**CODE V031 £34.99**

Running time: 28 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## THE ART OF SEQUENCING

Composer Don Muro presents six lessons that demonstrate how to create a multitrack sequence, how to correct wrong notes, how to correct rhythmic errors, how to correct dynamics, how to change synth programs, and how to change tempos. The tape is not dedicated to any one sequencing package - the information is valid no matter which sequencer you use.

**CODE V030 £30.95**

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## HOW TO GET A RECORD



### DEAL

The facts you need from the people who know. How To Get A Record Deal contains vital information and insight that you will not find anywhere else, from artists and executives who have made it and know what it takes. On this video music industry pros give you the straight facts on how to break into this extremely competitive business. Because

sometimes the difference between success and failure is information.

Presented by the National Academy Of Songwriters

**CODE V003 £14.95**

Running time: 1 hour 7 minutes  
Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## KORG AX30G TONEWORKS



### VIDEO

### MANUAL

The Toneworks series of guitar processors from Korg gets a real work out on this 55 minute tape. Korg's guitar demonstrator Steve Fairclough whizzes through the G1, G2, G3 and the flagship AX30G and provides clear explanations of how each unit works.

There's lots of footage of Steve showing off the sonic capabilities of each processor (not to mention his prowess as a guitarist).

**ORDER CODE V028 £19.99**

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

**ORDER NOW!  
01480 461244**

## YAMAHA PSR6000 ELECTRONIC KEYBOARD VIDEO MANUAL



Yamaha's PSR6000 is a home keyboard with a difference, and offers many professional features plus excellent sound quality. Tim Walter starts at the beginning and makes the instrument look easy and fun. His enthusiasm is catching, and, yes, the PSR6000 is a very capable instrument. The

tape runs to 75 minutes, which makes for excellent value.

**ORDER CODE V029 £19.99**

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## ROLAND GR-1 GUITAR SYNTH

These two video manuals have been produced to help the user get the most out of Roland's sophisticated GR-1 guitar synth, the first covering all the basics from mounting the pickup and getting tuned up to selecting sounds and using the on-board sequencer. Each step is patiently explained and demonstrated by Roland's guitar synth specialist, Jay Stapley.

The Advanced tape takes the mystery out of sound editing, custom tuning, advanced sequencer applications, external sequencer hookups, using other MIDI sound modules, indeed virtually everything the GR-1 is capable of doing. If you own a GR-1 or are thinking of buying one, do yourself a favour and order these indispensable videos.

**CODE V014 ONLY £29.99**

**FOR 2 VIDEOS**  
Total Running time: 4 hours. Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## STEINBERG CUBASE



This manual is presented by Chris West, Steinberg expert. It's very much a practical, 'get up and running' video, showing the novice user exactly how to install and begin using Cubase, whether they're running the program on an ST, Mac or PC computer — there's even a basic background on using the computers themselves! All of

Cubase's controls are shown, explained and demonstrated in depth. Once you're familiar with the basic controls, Chris takes you slowly through recording your first session, followed by overviews of the various edit screens. It's rather like having an expert tutorial that you can run again and again in the comfort of your home, until you can use Cubase like a true pro. Topics covered include: the main screen, customising names and outputs, copying and pasting between arrangements, MIDI filter, cycle mode recording, the tool box, all edit screens.

**CODE V011 £29.99**

Run time: 1 hour 30 minutes Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## ROLAND TDE-7K DRUM SYSTEM



Roland's TDE-7K Compact Drum System Comprises the TD-7 Percussion Sound Module, MDY-7 Cymbal Pad Holder, FD-7 Hi-Hat Control Pedal, MDS-7 Drum System Stand, PD-7 Drum Pads & KD-7 Kick trigger. You may have a different configuration to what is shown in the video, but no

matter!, Roland Product Specialist Gary O'Toole shows you how the complete kit is put together. Gary concentrates on the TD-7 in detail, showing how the parameters are set up, and giving demonstrations of how the sounds are derived and altered. Good use is made of the visual side in this video with multi-camera shots, a 'birds eye' view of the entire Kit shows Gary's playing abilities to the full. As you would expect from a production aided by Roland UK & USA, this video shows you everything you need to know.

**CODE V045 £19.99**

Running time 65 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## 3 CAKEWALK 3.0 VIDEO MANUALS

### CAKEWALK 3.0

**For Windows**  
A collection of three videos on the Cakewalk Professional system for Windows, covering just about everything you would need to know to become totally proficient with Cakewalk. If you own Cakewalk Home Studio — no problem! The videos cover everything Cakewalk Home Studio is capable of and more...

### BASICS

Basic MIDI, Step & Realtime Recording, Playback Features (on the fly), Editing Features, Graphic Views, The Inspector Menu, Menu Overview, The Control Bar.

**CODE V032 £34.99**

Running time: 120 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

### BEYOND BASICS

This video explains Customising Cakewalk, Extract Merge, more graphic Views, Advanced Editing, the Settings Menu, Synchronisation, Embedding Wav Files and more...

**CODE V033 £34.99**

Running time: 113 mins  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

### CAL

Programming Fundamentals, Creating a Program, Creating a CAL Program, How to use CAL Programs, CAL Examples, Automating Tasks, Tips on working with CAL, Creating Computer Music, Troubleshooting.

**CODE V034 £34.99**

Running time 90 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95



**OVERNIGHT DELIVERY OPTION: ONLY £5.00! See Order Form for details**

**EMAGIC NOTATOR VIDEO**



**TRAINING MANUAL**

This video manual is detailed and helpful, and is presented in a most friendly and approachable manner by session musician Tim Walter, whose tone throughout the video encourages and inspires confidence. If you are new to Notator and are still in awe of its power, this is the video to bring you down to earth. An introduction and 28 tutorials take the user from the absolute basics - including plugging in the dongle - to working with Unitor and SMPTE, and synchronising to video. As well as actual recording of MIDI data and sequencing, comprehensive coverage is given to using the score layout and printing facilities that are so much a part of Notator. Topics covered include: sequencing page, score editing, lyrics and text, graphic arranger mode, hyper edit, the printer page, using the part box.

**CODE V012** **ONLY £19.99**  
Running time: 2 hours 20 minutes Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

**ENCORE 3.0 FOR WINDOWS**

The basics of Encore for Windows is covered, with in-depth tuition over 83 minutes. Everything you need to get up & running is here. Basic MIDI, Score Layout, Accidentals, Key Signatures, Note Editing, Step Time Entry, Adding Staves, Click Setup, Record Setup, Linear View, Quantisation, Editing, Printing, Staff Position & Spacing, and much more...

**CODE V036** **£34.99**  
Running time: 83 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

**KORG X3**

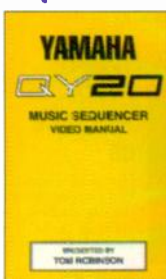
This video offers an easy way in to this powerful workstation. It starts from absolute basics, including audio connections and volume levels, and the clear and helpful script covers all basic facilities of the X3. The video features a sophisticated use of picture in picture, with the X3's display cut into the main image to show you clearly what Phil is actually doing, and main points are reinforced with on screen text and graphics. The main section headings are:

- X3 Audio Connections
- Getting Around the X3
- Factory Disk
- Disk Drive Modes
- Selecting Sounds
- Global Modes
- Sequencer Mode
- Quick Sound Editing
- Playing MIDI Files on the X3
- Using the X3 with an external sequencer

Note that these are loose headings, with each section also containing information on connected subjects in varying amounts of detail. A lot of ground is covered, and we can recommend the tape to any X3 owner.

**CODE V018** **£19.99**  
Running time: 55 minutes Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

**YAMAHA QY20 MUSIC SEQUENCER VIDEO MANUAL**



by Tom Robinson  
Yamaha's popular QY20 portable sequencer/sound source is a deceptively simple device to use; if you think you might like some insight into getting that little bit extra out of the device, then look no further. Produced in co-operation with Yamaha, the video

features mobile musician Tom Robinson showing you how to get the best from this portable marvel. Tom, who has used the QY20 exclusively as a writing tool on the road, says: "I never leave home without it".

**CODE V016** **£19.99**  
Running time: 90 minutes Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

**PERFORMER 5.0 BASICS**

**FOR MACINTOSH**

Expert tuition covering the basics and more for Performer 5.0. This video will provide you with all that you need to know, covering all the major topics: Basic MIDI, Tracks Window, Multitimbral Operation, Patch Changes, Time Signature & Meter, Real & Step Time Recording, Event List/Graphic & Notation Views, Regional Editing, Quantisation, Transposing, Copy/Cut/Paste/Merge & Erase, Loop Recording, Track Palette, Device Groups, Counter Window, and much more.

**CODE V042** **£34.99**  
Running time: 87 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

**ROLAND JV-90 SYNTH**



Roland's JV-90 synthesizer gets the treatment in this informative Labyrinth production. Virtually every facet of the JV-90 is covered, from the basic functions to more advanced programming. Chris Allen guides you through the powerful features this instrument has to offer. Produced in association with Roland UK & USA to ensure that everything it contains is accurate, and relevant to new and more experienced users alike.

**CODE V044** **£19.99**  
Running time: 70 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

**THE EMAGIC LOGIC**



**TUTORIAL VIDEO VOLUME 1**  
Produced by Emagic themselves, this video once again sees Tim Walter (featured on the excellent Notator video) in the tutor's chair. There are plans for a series of videos which become ever more detailed and informative, but for now Volume 1 takes you through the first

steps of getting the software up and running, and covers virtually all the controls you'll need. This video is valid for all versions of Logic, whether being run on an ST, Mac or PC. Presentation is rather intriguing, with a mobile camera that helps to hold the interest more than the average training video and some interesting graphics that aid comprehension and help to quickly find specific tutorials and bis inside tutorials. Contents as follows:

- Tutorial 1: The Arrange window and basic sequencing
- Tutorial 2: Playback parameters & Toolbox
- Tutorial 3: Controlling MIDI data flow
- Tutorial 4: Manipulating sequence data
- Tutorial 5: Moving around in Logic
- Tutorial 6: Windows and key commands
- Tutorial 7: More sequencing
- Tutorial 8: Score
- Tutorial 9: Looking at the Event List
- Tutorial 10: Editing the Event List
- Tutorial 11: Using the Environment
- Tutorial 12: The best of the rest (HyperEdit, Matrix Editor, Cycle Mode and more).

**CODE V023** **£29.99**  
Total running time: 70 minutes Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

**KORG X5 SYNTH**



Korg's new X5 synthesizer, reviewed in SOS' January 1995 issue, now has its own video manual. Presented by Tim Walter in an entertaining and lighthearted manner, and explains all basic aspects of Korg's highly affordable

instrument in very clear terms. If you're in any way daunted by your new purchase, or want to get a feel for the instrument before laying out your cash, this is the video for you.

**CODE V027** **£19.99**  
Running time: 55 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

**ANALOGUE HEAVEN**



Remember our feature on the opening day of the Museum of Synthesizer Technology which we ran back in October 1994? Wish you'd actually been able to attend? Well, now you can have the next best thing: the museum has released a fascinating 50 minute promo video that features footage shot on the day as

well as a lightning tour of the facility. The program is hosted by SOS contributor Julian Colbeck. The tape opens with synth pioneer Bob Moog making the inaugural speech and officially opening the museum, followed by a nostalgic run through one of his old modular systems. Analogue Heaven makes diverting viewing for anyone interested in vintage synths, represents good value, and offers the perfect companion to the Museum's guide book, also available from SOS Bookshop.

**CODE V026** **£12.95**  
Running time: 50 minutes Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

**CUBASE 2.6 FOR WINDOWS BASICS**



Practical guide to Cubase for Windows covers all the basic functions, ideal for the new user and those who need added insight into this complex system. Contents: Basic MIDI, Value Selection, Arrangements, Arrange Window, Transport Functions, The Inspector, The

Toolbox, Quantisation, Grid Editor, Step Recording, and much more.

**CODE V035** **£34.99**  
Running time: 85 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

**MASTER TRACKS PRO 4/5 BASICS FOR WINDOWS & MACINTOSH**



All the basic functions of Master Tracks, from installing the software to advanced editing. Everything you need to know to get you started and beyond in easy to understand step-by-step instructions.

Basic MIDI, Track Editor Window, MIDI Settings, Screen Layout, Conductor Window, Transport Controls Window, Inserting Measures, Step & Real Time Recording, Event List Editor, Piano Roll Editor, Quantising, and much more.

**CODE V041** **£34.99**  
Running time: 105 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

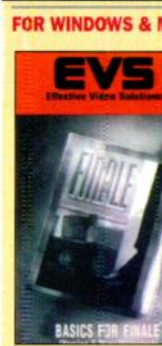
**YAMAHA QY300 VIDEO MANUAL**



Complete overview of Yamaha's new QY300 sequencer/sound source. Presented by Joe Ortiz of Heavenly Music, the video offers a hands-on tutorial on what is potentially a very powerful piece of hardware. Starts off with a runthrough of QY300 features, followed by a clear, step-by-step tutorial that introduces you to creating your own sequences and styles.

As a bonus, the video comes with a free disk loaded with 6 new QY300 styles and 6 demo sequences.  
**CODE V025** **£19.99**  
Running time: 69 minutes Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

**4 FINALE 3.0 VIDEO MANUALS**



**FOR WINDOWS & MACINTOSH**  
Four superb videos covering the Version and four for the Macintosh version. From Basics through to the most Advanced topics in Power User, these detailed videos will guide you through Finale, giving you the knowledge you need to become a Finale expert with ease.

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MIDI setup, Tool Palette, Default File, Customising Templates, Drawing Slurs & Expressions, Key & Time Signatures, Metatools, Music Spacing & Allotments, Printing, Measure & Page Layout, and much more.

**CODE V037** **£34.99**  
Running time: 123 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

**BEYOND BASICS**

Custom Instrument Library, Font Size, Pickup Measures, Measure Number Enclosures, Chord (midi & manual input), Finale Chords, Guitar Fret Boards, Mirroring, Mass edit Menues, Transposing, Alternate Notation, Moving Layers, and much more.

**CODE V038** **£34.99**  
Running time: 92 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

**ADVANCED**

Clef Changes, Text Blocks, Tempo Tool, Multi-measure Rests, MIDI Tool, Making an Ossia, Optimising Staves, Custom Score Layout, Page Tool, Multiple Windows, Tiling Pages, and much more...

**CODE V039** **£34.99**  
Running time: 75 minutes  
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**POWER USER**

More Options Menu, MIDI Tool, Optimising Staves, Using Clip Files, Grouping Staves, Using a Macro Program, Shape Designer, Importing MIDI Files, Multiple Windows, Short Cuts, Hints & Tips, Advanced MIDI Topics, Tiling Pages, and much more...

**CODE V040** **£34.99**  
Running time: 108 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

**GETTING THE MOST OUT**



**OF THE KORG M1**

Written and presented by Julian Colbeck

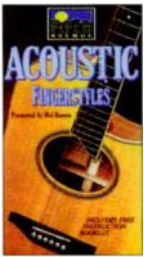
The Korg M1 is a classic instrument. The range and quality of its sounds has made it one of the most successful synthesizers of all time. But because the M1 is so immediate, it's too easy just to scratch the surface, leaving many of its exciting capabilities undiscovered. This highly informative video enables M1 owners to unleash the full creative potential of this enormously powerful workstation. With plenty of musical examples, tips and inside information, the video offers clear, concise explanations of the instruments features and operating procedures, helping you to greatly expand your dexterity and creativity across the whole range of this world-beating instrument.

Comes with a FREE exclusive custom library of fabulous new M1 sounds on Atari format floppy disk (100 Programs, 100 Combinations) created by ABWH/Yes programmer Chris Macleod.

**CODE V002** **£24.95**  
Running time: 1 hour 10 minutes Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

# SOS Videos

## ACOUSTIC FINGERSTYLES NEW



*Presented by Mel Reeves*  
In this video there are 5 major instrumental studies to work through including country, classical and blues. Each style is broken down into small sections allowing you to learn more quickly and efficiently. Each piece is demanding, but great fun to play. The final section looks at styles and techniques used by players such as R.E.M.,

The Eagles, Sheryl Crow and Paul Simon, and provides an insight into creating new and interesting fingerstyles of your own.

**CODE V059 12.99**  
*Running time approx 90 minutes*  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## ACOUSTIC BLUES GUITAR NEW

*Presented by Mel Reeves*  
Whether you can already play fingerstyle guitar, or are simply familiar with basic chords, this programme will show you all of the necessary techniques to play great blues guitar. All of the technical aspects are explained in the clearest possible way before getting down to the real business of learning 5 real blues that are great to listen to and terrific to play.

**CODE V058 12.99**  
*Running time approx 63 minutes*  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## PLAY KEYBOARDS NOW! MELODIES NEW

*Presented by Mel Reeves*  
This programme will not only teach you note reading, rhythm, rests, ties and how to move up and down the keyboard with ease, but will also teach you 6 complete melodies familiar to lovers of rock, pop and classical music.

In addition, there is a further look at improvising, making use of melody and scales combined.  
Clear computer graphics and the booklet enclosed will mean you won't miss a thing.

**CODE V057 12.99**  
*Running time approx 55 minutes*  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## PLAY KEYBOARDS NOW! NEW

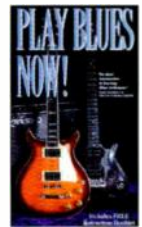


*Presented by Mel Reeves*  
An up-to-date video/booklet that gets to the heart of modern keyboard playing with no need to read music!  
All you need to be able to create pop, rock and even jazz chord accompaniments using major, minor, seventh, sus 4th and added 9th chords. Learn arpeggios, random arpeggios, chord 'splitting', crushed tones, boogie blues, inversions and much more.

Free instruction booklet and stickers included.

**CODE V054 12.99**  
*Running time approx 60 minutes*  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## PLAY BLUES NOW! NEW



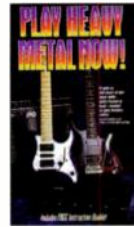
A complete guide to blues guitar playing that shows a variety of blues rhythm and soloing styles — for both beginners and advanced players alike.

Learn the blues style of Eric Clapton, Stevie Ray Vaughan, Peter Green, etc. The programme not only covers the usual blues shuffles and scales but using 4 complete songs, and techniques to create professional blues parts and solos in a wide variety of blues styles.

**CODE V051 12.99**  
*Running time approx 50 minutes*  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

**ORDER YOUR VIDEO NOW!**  
**01480 461244**

## PLAY HEAVY METAL NOW! NEW



A concise, easy to follow video guide to real heavy metal playing for guitarists of all levels.

A guide to hard rock/heavy metal techniques for guitarists of all levels. The programme covers RHYTHM, SOLOING, and TECHNIQUE. All of the techniques, solos, etc are clearly demonstrated. No need to read music. Free booklet contains tab, chord and scale diagrams.

**CODE V052 12.99**  
*Running time approx 65 minutes*  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

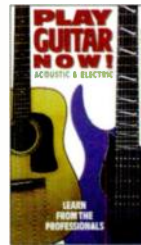
## START HOME RECORDING NOW! NEW



This is the ideal volume one guide to the use of home recording equipment. From the set up of basic 4-track cassette machines to sub-mixing Mel Reeves uses straight-forward language to talk to fellow musicians about the methods used to get the sounds in their heads onto tape. Includes free instruction booklet.

**CODE V055 12.99**  
*Running time approx 55 minutes*  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## PLAY GUITAR NOW! NEW



**ACOUSTIC & ELECTRIC**  
An easy-to-follow video to take you from the basics to a full rock solo.

The programme covers TUNING, CHORDS, FINGERSTYLE, 12 BAR BLUES, BARRE CHORDS and ROCK SOLOING for both electric and acoustic guitars. Includes free chord/tab booklet.  
It is not necessary to be able to read music to learn from this video.

**CODE V053 12.99**  
*Running time approx 51 minutes*  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## COMPLETE ELECTRIC GUITAR NEW



*Presented by Mel Reeves*  
Learn how to create solos and rhythm parts in any style! The programme covers ROCK 'n' ROLL, BLUES, JAZZ, COUNTRY, ROCK and FUSION and much, much more. Plus the clearest possible guide to chord and scale construction, tonal centres and working out parts for yourself. Includes free construction booklet.

**CODE V050 12.99**  
*Running time approx 65 minutes*  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## COMPLETE ACOUSTIC GUITAR NEW



*Presented by Mel Reeves*  
Whether you only know a few chords, or are already proficient, this easy-to-follow programme will show you all of the main guitar styles, as performed on the acoustic guitar. As well as learning tips and 'tricks of the trade' Mel Reeves will show you 6 great instruments, step-by-step and take your playing to new heights. Plus open tuning, the capo, high-string guitar, reading music and more!

Styles include: Guns 'n' Roses, Bon Jovi, Hendrix Blues, Mississippi Blues, Django Style Jazz, Nuits En Moscow, Classical, Romance, Carter Style, Buffalo Gals and Bottleneck/Slide Style.

**CODE V056 12.99**  
*Running time approx 78 minutes*  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

# SOS CDs

## SOUND CHECK TEST CD



Impeccably recorded and compiled by Alan Parsons and Stephen Court. Sound Check CD contains 92 tracks of test signals and reference recordings made at Abbey Road Studios that can be used to set up monitors, check room performance, faulty equipment etc, and overall recording quality. No studio should be without one! 20+ close-miked instruments/vocals/ music extracts. SMPTE/EBU timecode tracks (25, 30, drop-frame). Pink noise test tones. Third octave tones. Sweep tones. Sine + Square wave tones.

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**ASTRAL AMBIENCE CD**  
Hours of research and endeavour in the raw timbral archives of the largest collection of analogue synthesizer systems in the world have resulted in the release of the first in a long awaited series of creative resource CDs.

The vast psycho-acoustic spectrum of the Museum of Synthesizer Technology has now been opened up to the music-making populace — Over 1500 samples.

**CODE CD036 £32.95**  
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

# HOW TO GET THE MOST OUT OF HOME RECORDING 3 TOP CLASS VIDEOS

A superbly presented set of videos which no home recordist should be without. Have you got your set yet?!

### LEVEL ONE



This well presented video explains how to set up and operate a simple cassette-based multitrack home studio. It clarifies all the basic terminology and demonstrates the recording of a song from beginning to end, covering how to record

guitars, keyboards, vocals and drum machines, which microphones to choose; how to patch in effects units and use them well; what makes a good arrangement; what makes a good mix; plus what to master on to and why. Full of professional tips and clear examples, this superb video offers the musician with no recording experience a fast route to successful operation of a simple home studio.

**CODE V005 £24.95**  
*Running time: 1 hour 10 minutes*  
Format: VHS (PAL) HiFi Stereo  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

### LEVEL TWO



This is, in our opinion, the best ever guide to the equipment and skills needed to produce high quality results from a home studio.

Full of clear examples and graphic information, the video majors on effects and how to use them well. It also covers the do's and don'ts of track bouncing; microphones and mic techniques for different applications; getting the most out of multi effects units; plus an analysis of guitar effects with top session guitarist Milton MacDonald and an enlightening interview with ace producer Alan Parsons. Writer/presenter Julian Colbeck packs the programme with professional tips, allowing musicians of all kinds to get the most out of their home studio.

**CODE V006 £24.95**  
*Running time: 1 hour 45 minutes*  
Format: VHS (PAL) HiFi Stereo  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

### LEVEL THREE



This video is packed with information and professional tips on advanced MIDI applications in the home studio, including interfacing with sequencers, which sync code is best for which application and why. Hit producer Martyn Phillips (Erasure,

London Beat) discusses modern recording techniques, and top programmer Paul Wiffen examines the opportunities and benefits offered by hard disc recording. It offers practical advice on sampling - how to save time and tracks; plus professional tips on advanced arranging and mixing techniques, including spectrum mixing.

**CODE V007 £24.95**  
*Running time: 1 hour 30 minutes*  
Format: VHS (PAL) HiFi Stereo  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

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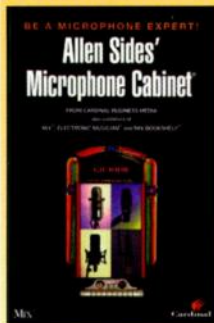
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NEW



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series of 16-bit audio comparison tests on dozens of instruments. A superb resource for professionals and students alike, the disc features tests of 66 mics and 33 different instruments, including drums and symbols, percussion, guitars, a Hammond B-3 organ and a wide variety of brass, woodwinds and strings. The microphones were chosen from the world-renowned collection at Sides' Ocean Way studios in Los Angeles, including models from: AKG, Audix, Audio-Technica, B&K, Beyer, Coles, Crown, Electro-Voice,

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CODE CDROM 2 **£49.95**  
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A revolutionary new microphone auditioning tool. This unique, fully interactive CD-ROM lines up the top professional microphones, both classic and contemporary, for a

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**20ft MIDI cable**  
Code MID320 **£6.70**  
Postage: UK £1.75, Europe £3.50, R.O.W. £5.25

**Musician's Home Stereo Interface**  
If economic necessity means that you've got to use your hi-fi system for monitoring, then this affordable little box is for you. It simply matches the output of your mixer or synth to your hi-fi, and features three switchable inputs for maximum flexibility.

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**25ft Mic cable**  
Code MCL125 **£14.50**  
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# WIN

# AKAI S3000XL SAMPLER



With the S3000XL, Akai haven't just consolidated their hold on the sampler market — they've also made a bold statement about the crumbling boundaries between sampling and synthesis. For the S3000XL is a sampling workstation in all but name, which bolsters the already formidable synthesis and hard disk recording capacities of its predecessors. Carried over from the S3000 is the digital and resonant 12dB/octave filter and DSP functions, including timestretching and re-sampling, while the bundled MESA software makes editing a joy for Mac owners. With 8Mb of Flash ROM and standard MIDI file playback, the S3000XL is as versatile on the road as in the studio, while floppy disk RAM upgrades and the ground-breaking Multi mode offer maximum protection from obsolescence.

Install the EB16 effects board, and the S3000XL even subsumes the role of effects processor, with reverb, distortion, ring modulation, equalisation and delay, and no fewer than 50 user-definable presets.

It's this combined package that forms the star prize in our competition, run in conjunction with Akai UK. For your chance to win, simply answer the blindingly obvious few questions below, and complete our tie-breaker in a suitably witty and original fashion.

See Paul Ward's review of the S3000XL in SOS December 1995, if you require inspiration. Then, send your completed entry form to the address below, to arrive no later than Friday, March 1st 1996.

Prize kindly donated by Akai UK. Tel: 0181 897 6388.

## the small print

1. Only one entry per person is permitted.
2. Employees of Sound On Sound Ltd, Akai UK Ltd and their immediate families are ineligible for entry.
3. No cash alternative is available in lieu of the stated prize.
4. The competition organisers reserve the right to change the specification of the prize(s) offered.
5. The judge's decision is final and legally binding, and no correspondence will be entered into.
6. No other correspondence is to be included with competition entries.
7. Please ensure that you give your DAYTIME telephone number on your entry form.
8. Prize-winners must be prepared to make themselves available in the event that the competition organisers wish to make a personal presentation.

## QUESTIONS

### 1. Which of these is not an Akai sampler?

- a. S950
- b. S1100
- c. S3500 16v GTI
- d. S2800

### 2. How many slots are available in the S3000XL's Multi-mode configuration?

- a. 4
- b. 8
- c. 12
- d. 16

### 3. Which computer does the S3000XL's MESA editing software run on?

- a. Macintosh
- b. Mactavish
- c. Mackintosh
- d. Mackintosh

### 4. Which of these reverbs is not offered by the EB16 effects board?

- a. Gated
- b. Hall
- c. Crypt
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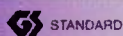
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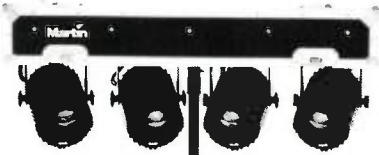
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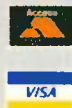
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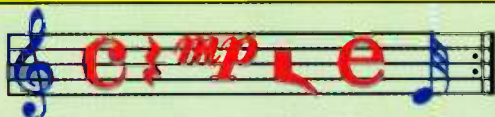


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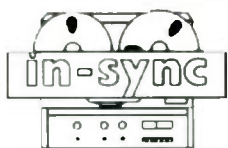
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**Y**ou remember the kind of gig: a darkened stage, dry ice machine, hairy bloke in a cape, arms flailing in every direction, playing solos such as could only be achieved with a synthesizer. The Minimoog and its contemporaries gave access to a wealth of expressive, distinctive electronic sounds and required the player to know his instrument intimately. These were the days when your performance in a band was judged by how quickly you could switch from 'Tocatta & Fugue' to a swirly, flutey solo. Remember that in those days, programmability was rare and wondrous.

## sounding OFF

**Time was when synths weren't all weedy presets and wheyfaced copies of real instruments. Regular *SOS* contributor PAUL NAGLE is living off his memories...**



Paul Nagle playing live last year (cape not pictured).

Then we got affordable polysynths and, in my opinion, never really got our heads round them. I mean, up until then we had played a few chords on organs or string synths, but mainly we were having a ball with our three-octave Rolands or Moogs, and looking cool, leaning into those pitch benders or banging up the resonance. Imagine our shock when all of a sudden it was announced that synthesizers were to be standardised at five octaves, and our beloved knobs fell like autumn leaves. I'm sure I wasn't the only one to be baffled by the sudden vast expanse of notes in the vicinity of my left hand; I felt an overwhelming urge to become a pianist overnight. After all, it wouldn't have been right to leave all those nice plastic keys untouched. People would have talked.

The dawn of MIDI saw Liquid Crystal Displays, alpha dials and data entry sliders, yet in some respects we seem to have ended up with less rather than more. True, our synths have become so complex that nobody expects to re-program them on the fly, but few people now have any desire or interest to program them at all. For end results count above all, don't they? Well, for a producer or engineer, I can understand this, but a musician? I wouldn't expect a violinist to be able to glue together his or her instrument, but it is inconceivable that they would not attempt to master every aspect of performance and technique. After all, the wider your vocabulary, the more you can say. Of course I understand that a synth with great factory sounds will sell well, but surely there must be more to it than that — unless we are deliberately building in obsolescence? I find myself sighing inwardly each time I hear the inevitable question, "what's its piano like?" or, "how many bits has it got?". The move towards realistic sounds was exciting for everyone, but somewhere along the line, we have ceased to strive for that bond which once existed between player and synth. Now that the capes have been replaced by baseball caps, and banks of keyboards by racks of modules, maybe it's time to think again about the role of the synthesizer as an instrument, and not merely a sound production tool.

With most of the important functions reduced to pages behind an impassive LCD, a whole generation of previously happy twiddlers have had to adapt to the minimum of performance controls, and that long keyboard. The only alternative was to stick to playing sounds that nobody wanted to hear anymore, or so it seemed. And how depressing it was to be shown up by a succession of spotty youths with six months' piano lessons under their belts who could make your £1000 polysynth sound better than you ever could. Oh, how I longed to hand the little buggers an ARP Odyssey or a Sequential Pro One, and wipe the smiles off their faces! Or how about a Korg MS20 and a bunch of patch cords?

By filling our synthesizers with pianos and saxophones, have we actually lost their real identity? Sure, there's a place for all this kind of stuff, but I suggest that the synth could have been a different kind of instrument altogether and might have been the catalyst for a new kind of musician. I'm not talking about a computer operator type who is more interested in when to trigger a sample, or who inputs melodies in step time. I mean someone who can perform in ways we've not seen yet — unhandicapped by how many keys they can press on their master keyboard, and for whom a single note might be manipulated musically, using a whole variety of controls that we've not even imagined.

I don't know who it was that said it set synths back years by putting keyboards on them [*It was Ian Craig Marsh of the Human League Mk1 actually — Smartarse Ed*], but it is a view with which I can sympathise to some extent. I hope instruments like the Korg Prophecy with its small keyboard, log controllers and knobs are only the first step in recovering some of the ground lost in recent years to the marvels of PCM playback. Great though this instrument is, I'd happily trim off the virtual flutes, brass and guitars in favour of even more performance controls. Maybe a couple of joysticks, some sliders, a proportional pitch controller (some old ARP synths had these — they were rubber pads that generated vibrato when you pushed). Hell, why not a built-in laser harp, MIDI glove and a velocity-sensitive foot pedal that you could stomp on? Sadly, such physical things are relatively expensive. And this isn't the whole story. Why, for example, don't more synths have polyphonic aftertouch? Is it purely down to cost, or is it also because of the additional MIDI data that would be generated, effectively pouring syrup into all those poor computers? I'm sure that with some new ideas on the control front, the synthesizer can rekindle the spirit of the Yamaha CS80, the Minimoog or the great modular systems.

I don't want to spend my time with a collection of antique synths that insist on going out of tune in the middle of my big solo. I like new toys as much as anyone, but it's funny that the two synths that have impressed me most in recent years have both been monophonic. Maybe it's something about my age, but suddenly I don't want to cut my hair anymore. Who knows, maybe you'll see me on stage soon with a cape on — or some other kind of poultry. **SOS**

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