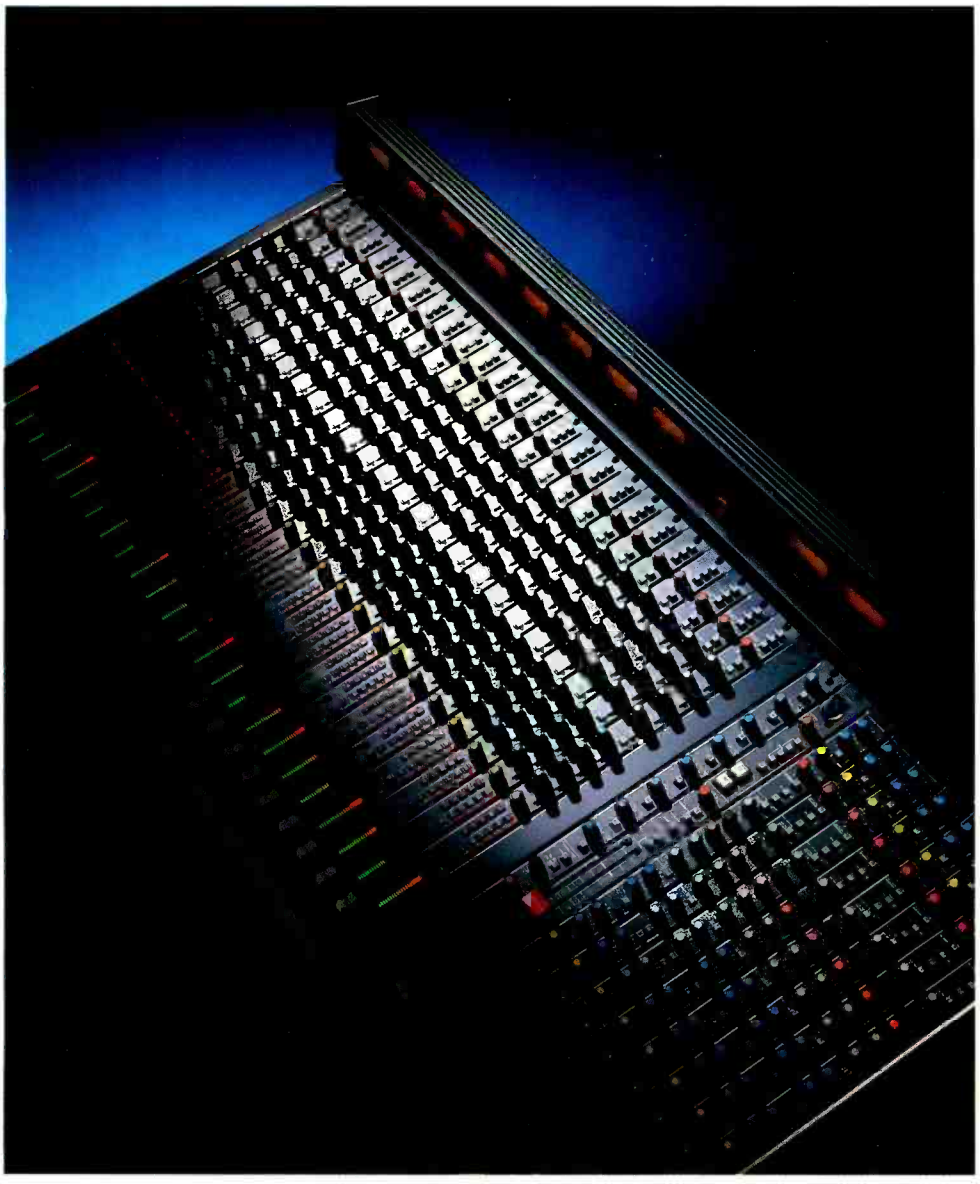
May 1989 $5.00 £2.00

STUDIO SOUND

AND BROADCAST ENGINEERING

MIXING CONSOLES



Series 8000. Now status isn't reserved for the few.

The Soundcraft Series 8000 has set new standards in live mixing technology.

As you'll appreciate the minute you hear it, its electronics are a major advance.

That's why it's rapidly becoming the world's best selling live console.

Yet despite all its innovations, it's certainly not out of reach.

Because with the 'PA' input module, you'll be surprised how easily the Series 8000 will fit your budget.

LIVE MIXING WITH A NEW EDGE.

The Series 8000's technology makes ordinary desks look decidedly overpriced.

The 8-bus design includes sophisticated ground-compensated summing and a grounding system that's hum and interference proof.

'PA' input control facilities range from 8 Aux sends to a 4-band EQ with sweepable mids. (With the 'House' input module, there's a 4-band parametric EQ and dedicated 8-way routing matrix).

You also get an active 2-way talkback interface for a Soundcraft Series 500 monitor console.

And the option of adding 8 effects returns channels with 3-band sweepable mid EQ or an 8 x 8 Output Matrix with parametric EQ.

Just a few of the advanced features we provided at your request.

A LIFE ASSURANCE POLICY.

A clear and familiar layout remains our trademark.

Inside, there's an immensely durable, custom made extruded aluminium frame, lighter yet more rigid than a steel chassis and proven worldwide through thousands of miles on the road.

Add to that our advanced electronics, the use of flexible connections and a stringent, 3-stage quality control program, and you get reliability when you need it most.

The Series 8000 is simply the finest all-round investment in live mixing.

Especially now that it can expand your sound, without expanding your budget.

Soundcraft
8000

SOUNDCRAFT ELECTRONICS LTD. UNIT 2, BOREHAMWOOD INDUSTRIAL PARK, ROWLEY LANE, BOREHAMWOOD, HERTS. WD6 5PZ, ENGLAND. TEL: 01-207 5050. TLX: 21198SCRAFT G. FAX: 01-207 0194. SOUNDCRAFT USA. TEL: (818) 893 4351. SOUNDCRAFT CANADA. TEL: (514) 685 1610. SOUNDCRAFT JAPAN. TEL: (03) 341 6201.

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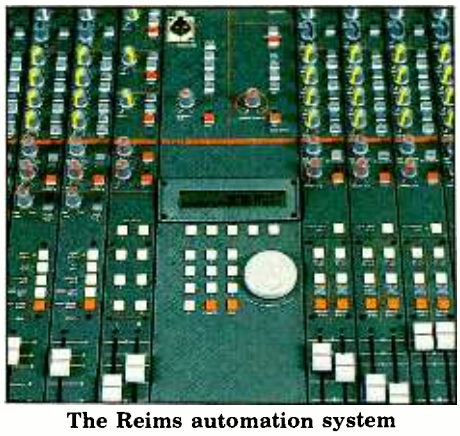

The Reims automation system

SONY

Sony Broadcast
& Communications

European Headquarters:
Basingstoke
Hampshire
United Kingdom

Broadcast, Recording Studio and
Video Post Production Professionals

Dear Reader

Re: New analogue multi-track

Sony are proud to announce the introduction of a new 24 track analogue audio tape recorder as a replacement for the JH-24, which over the years has become something of an industry standard.

The new machine, the APR-24, is eminently suitable for recording studios and audio/video post production. It has been designed to meet the widest range of audio recording requirements, in particular the fast and accurate synchronisation of audio with video.

Featuring comprehensive microprocessor control of both transport and audio electronics, along with versatile remote control facilities for ease of use, the APR-24 represents a major step forward in the world of cost effective analogue recording.

The APR-24 has an internal synchroniser, which being part of the machine's software, gives substantial advantages in terms of cost, space and ease of interconnection for external machine control. It also features a built-in all format timecode generator, giving versatile tape striping without the need for a separate timecode generator. In addition a multi-function metering system is included plus triggered edit synchronisation as an alternative to controlling drop-ins from an external synchroniser or studio computer.

State-of-the-art audio circuits and components ensure superb sound quality and microprocessor assisted alignment provides the user with accurate and repeatable control over machine line-up.

All these features, coupled with Sony's unrivalled reputation for quality and reliability, mean that the APR-24 is the solution to your audio problems. Don't delay - Contact your nearest Sony centre to find out more. You'll not be disappointed.

Sincerely

SONY

For further information contact:
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Lisbon 573046 Madrid 7290988 Milan 618381 Netherlands 02968 81215 Oslo 303530 Paris 49454000 Rome 5290139 Stockholm 7736100 Vienna 61051
Zurich 7333311 Eastern Europe – Vienna 554606 Middle East – Geneva 336350 Africa – UK 0256 55011 Headquarters – Basingstoke, UK 0256 55011

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Past, present and future

I have stayed clear of the topic of exhibitions and conventions for some while now. I felt that there had been enough comment made and it was time to wait and see how certain parties were going to react. Exhibitions and conventions of any scale can take a long time to organise with the need to book some venues a couple of years in advance to be sure of definite dates. Instant change is therefore not possible.

However there has been little change over the last year and if anything it may be getting worse. The exhibition schedule for the coming 12 months looks as equally heavy as other years. And to make it worse it appears that the organisers of the major exhibitions just don't talk to each other—the SMPTE and AES Conventions in October are actually on at the SAME time on opposite coasts of the USA.

The situation in Europe is little better with one London venue hosting pro audio related trade shows to such an extent that some manufacturers and distributors will find themselves in the same venue three times in two months—just ridiculous.

Aside from the frequency and timing of trade shows there is also the question of the venue and location. A good case in point here is the European AES Convention held in March each year. I have received two differing explanations of factors that decide where the Convention will be held. The first is that a Convention is useful to stimulate interest in the AES within the chosen area. The second explanation is it is really only really practical to hold a Convention in an area that already has a strong local chapter as organisation falls heavily on their shoulders.

Whichever emphasis you accept, the positioning of the European AES has slipped into a cycle of locations—Paris, Hamburg, Montreux, another city, and then repeat. The Convention this year was in Hamburg—a very pleasant city with a quite reasonable claim to host the Convention having good communications, a nearby international airport and plenty of available hotel accommodation. The year before was Paris and this probably has an even greater claim than Hamburg for the Convention having all the essential facilities as well as having a large studio, broadcast and film community within the city.

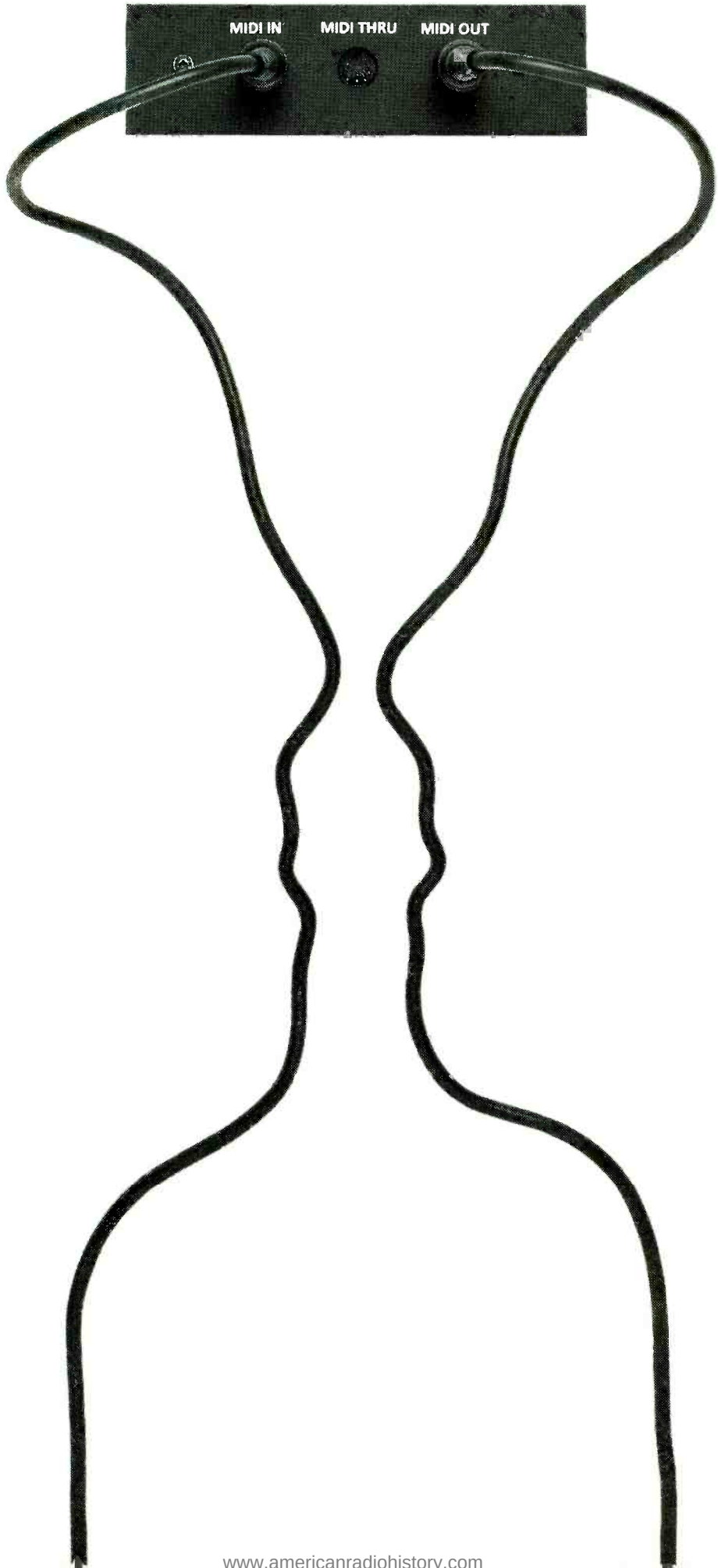
In March 1990 the AES has chosen Montreux, Switzerland, again. Montreaux is a very attractive small town set between Lac Léman and the hills. So far so good, but it singularly fails to meet any of the requirements for the location of an exhibition of the size of an AES Convention. The Convention facilities are not particularly spacious. The nearest international airport is Geneva, some miles away. There is a real shortage of hotel accommodation with many visitors having to stay some distance from the town. The load in and out of the convention centre is highly disruptive to the town. With the local industry being predominantly seasonal tourism, most of the town's facilities are not open in early March and often even getting a hot meal is very difficult. Even the undeniable beauty of the location is frequently lost in heavy fogs that hide the mountains and the lake at this time of year. I can see little to recommend it—so why choose it?

The AES have recently distributed figures on attendance and exhibitor floor space taken at recent conventions and the amount of exhibitor space is growing rapidly. The Palais des Congres in Paris was full. The Hamburg AES was full and really only managed to accommodate the actual number of exhibitors by using fragmented halls on different levels which was quite unsatisfactory for all concerned. It is clear that the exhibition side of the Convention has outgrown all the venues currently in use and something has to be done about future choices. Montreux is a retrograde step and it has to be difficult to explain the choice by logic alone.

Larger venues that provide the financial underwriters of the event with proper facilities are now essential. This will in turn improve the event for the visitor and hence surely the revenues for the AES. It may mean that the exhibition location is not so attractive but this may just be one of the prices of a successful venue. It may also mean that we have to look to the Convention staying in the same location each year which will not be such a problem within a Europe that is being guided towards a greater unification. There will undoubtedly have to be some serious decisions made by exhibition organisers in the near future or they will find support from manufacturers and visitors alike falling away; no longer being prepared to suffer the indignities the organisers inflict upon them.

As a postscript, in the area of self interest I think a static location would be beneficial as it may lead to a consistency in the attitude to the press. Prior to all Conventions we are being encouraged to give as much publicity to the event as we are able, something that generally we are quite happy to do. But when it came to registration at the Convention *every* difficulty was being placed in our way in a manner that was quite contradictory to all the advance information provided.

Keith Spencer-Allen



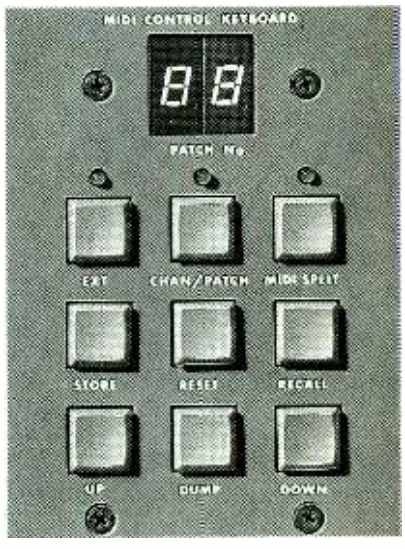
THE UNIVERSAL LANGUAGE ONLY ONE CONSOLE REALLY UNDERSTANDS.

BY ALLOWING INSTRUMENTS TO 'COMMUNICATE', MIDI HAS GREATLY EXPANDED THE CREATIVE PALLETTE FOR MUSICAL COMPOSITION AND PERFORMANCE.

SO, LOGICALLY, IF A CONSOLE CAN JOIN THIS 'CONVERSATION', THE SAME SHOULD BE TRUE FOR MIXING AND RECORDING.

THAT'S WHY WE EQUIPPED OUR PC SERIES MIXER WITH MIDI AUTOMATED MUTING FOR ALL INPUTS, MONITORS, AUXILIARY MASTERS AND EFFECTS RETURNS.

THIS MIDI INFORMATION CAN BE WRITTEN IN REAL OR STEP TIME, EITHER INDIVIDUALLY OR WITHIN PATCHES, THEN RECALLED THROUGH THE CONSOLE'S INTEGRAL KEYPAD OR VIA A SEQUENCER.



MIDI MUTES CAN BE WRITTEN IN REAL OR STEP TIME, AND RECALLED EITHER INDIVIDUALLY OR AS PATCHES THROUGH THE KEYPAD OR USING A MIDI SEQUENCER.

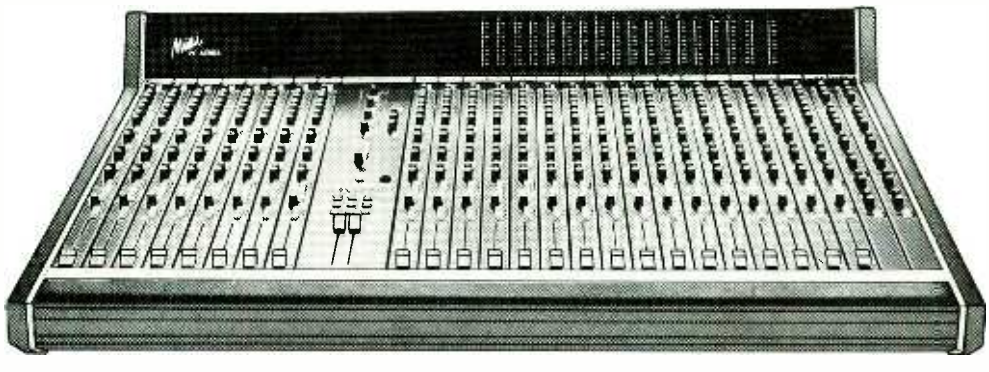
THE PC CAN OPERATE ON ONE OR A MULTIPLE OF THE 16 MIDI CHANNELS TO OVERCOME THE PROBLEMS OF SEQUENCERS WITH LIMITED CAPACITY.

AND AS WELL AS A MIDI IN PORT, THERE ARE FOUR SELECTABLE MIDI OUT/THRU PORTS TO PROVIDE REAL SYSTEM FLEXIBILITY.

DUAL LINE INPUTS ON EACH CHANNEL ALLOW EFFECTS TO BE RETURNED AT THE SAME TIME AS THE TAPE, SO UP TO 56 CHANNELS ARE AVAILABLE ON REMIX, ALL WITH EQ.

SINCE THE PC STANDS ALONE AS AN INTEGRAL PART OF THE MIDI CHAIN, IT'S NOT REALLY SURPRISING THAT IT HAS BECOME ESSENTIAL EQUIPMENT FOR KEYBOARD WORKSHOPS, AND PROGRAMMING SUITES IN MAJOR STUDIOS AROUND THE WORLD.

BUT WHAT MIGHT BE SURPRISING IS ITS SPECIFICATION. FOR ITS PRICE, THE PC PROVIDES A DEGREE OF SONIC PURITY THAT WOULD BE DESCRIBED AS INCREDIBLE IN ANY LANGUAGE.



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PC

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About Dolby SR...

Guy Charbonneau
producer and owner of Le Mobile, Hollywood

It gives one the sound as if it's not on tape, that it's the live performance

Pro Sound News, April 1987

John Cutler
producer for Grateful Dead

SR could save the analog business for many years. It is transparent...

Mix, July 1987

William Hoekstra
recording engineer, Saint Louis Symphony Orchestra

In some ways, SR is better than digital... the 15ips Dolby actually has a better capability for handling peaks

Pro Sound News, April 1987

Brian Masterson
director, Windmill Lane, Dublin

We have bought 76 channels of Dolby SR which is terrific

Eq, June 1988

Hugh Padgham
producer

I'm quite happy with a good analogue machine and Dolby SR

Sound on Sound, May 1988

Simon Phillips
drummer and studio owner

I've done an album with it and I think it's brilliant

Studio Sound, May 1988

Pete Townshend
musician, The Who

Dolby SR has lengthened the life of analog by 10 years

Pro Sound News, August 1988

John Williams
guitarist

Wherever possible I will do all my recordings with Dolby SR

Hi Fi News and Record Review, May 1988

...unsolicited statements, in print

Dolby Laboratories, Inc., 346 Clapham Road, London SW9 9AP, tel 01-720-1111, tlx 919109, fax 01-720-4118. 100 Potrero Avenue, San Francisco, Ca 94103-4813, tel 415-558-0200, tlx 34409, fax 415-863-1373. Dolby and the Double-D Symbol are trademarks of Dolby Laboratories Licensing Corporation. © Dolby Laboratories, Inc 1988 S89/8537.

DD Dolby® SR
spectral recording

WHEN ASKED WHY THEY LIKED THE AUDIOFRAME, EXPERTS LISTED ITS 24 BIT AUDIO BUS, CONSTANT RATE SAMPLING, DIGITAL MIXING AND SIGNAL PROCESSING.

We can give you all kinds of technical reasons to buy our new AudioFrame Production System. But if it doesn't deliver excellent sonic quality, will you care? Not likely.

That's why we designed the AudioFrame with not just your productivity, but your ears in mind. Whether you're doing music composition, sound effects design, mixing or general post editing, sound quality is critical. So we packed the AudioFrame with unique features that keep your sound completely in the digital domain. That way, you can keep your ears, and your clients, completely captivated.

Plug into technology with a present and future.

The core of the AudioFrame is our Digital Audio Bus.™ This 24 bit, 64 channel bus works in conjunction with our Constant Rate Sampling technology to provide a true digital environment for your work. Dramatic non-aliased transposition, virtual editing, digital mixing and processing can all be accomplished without sacrificing timbral integrity. Phase coherency is maintained throughout the production process. So listening fatigue is reduced and artistic values are preserved.

Make the connection.

Another one of a kind feature of AudioFrame is its communication capability. Our Universal Digital Interface(UDI) is multi-lingual, speaking most professional digital standards. Plus it gives you the advantage of format and sample rate conversion in real time.

The DSP is a unique module in our system. It's a 24 bit, 16 channel mixer/processor that plugs right into the Bus. The equalizer is capable of 60 dB cuts

OF COURSE, THERE MAY BE A SIMPLER EXPLANATION.

with Qs up to 100. All control moves are fully de-zippered and real time. So you get analog feel with digital power. Plus you get features you'd expect on a full function mixer, coupled with many you wouldn't. Like dynamically automatable control settings and user-definable stored set-ups.

Make a sound investment.

The AudioFrame also gives you creative tools that streamline the production process from beginning to end. You get Texture, our full-featured MIDI sequencer and EventProcessor, our SMPTE/EBU (VITC/LTC) based time code Edit Decision List. Plus we offer the graphic signal editor and powerful sound design tools of SoundProcessor.

Put it all together, and you've got a package that will really set people on their ears. Give us a call and we'll send you the raves AudioFrame has gotten from those who own one. People like Rob Arbittier, programmer/synthesist for Stevie Wonder, or Grammy award-winning film composer James Horner. When it comes to the best sound, they can really give you an earful.

Complete systems start at $48,900. Lease packages available.

WaveFrame Corporation

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"Neve Je t'aime!"

Polygone Studios has received a design award for their new purpose built studio complex. The studio was "Number One" in France for the number of hits recorded in 1987. "The biggest hit of the studio has been the Neve V series."

Jacques Bally Studio Owner.

"Neve V series Je t'aime!"

Jacques Hermer Chief Engineer.

POLYGONE STUDIOS – TOULOUSE – FRANCE

Blackwood Studios uses the Neve V series for music recording and for live broadcasts from the nearby music club.

"It is in our opinion the most musical console available today, it is very very quiet."

Helmut Edinger
Studio Manager

BLACKWOOD STUDIOS – BASEL – SWITZERLAND

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A Siemens Company

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For Hot Licks And A Great Mix Do It With The Stylyx

Stylyx 31 console with optional meter bridge.

Get the sounds down right with a new D&R STYLYX console. Nothing in its class is sweeter to the ear or easier on the eye than this hot new split format console.

STYLYX sets the tone: The slick meterbridge and smart grey-on-black chassis are sheer elegance, and a contemporary colour scheme allows quick identification of all controls.

An extremely compact design allows up to 40 inputs And beneath those good looks, features like smooth sounding 4 band EQ., super versatile aux section, true stereo input modules, and flexible dual channel subgroup modules make the STYLYX a perfect fit for broadcast production, video post production, as well as high quality sound reinforcement environments.

Eight and sixteen track recording studio's also benefit from STYLYX' digital quality specs, balanced inputs and outputs, custom configurations and one year warranty.

Call your **local D&R dealer** for more information or call us at D&R Holland.

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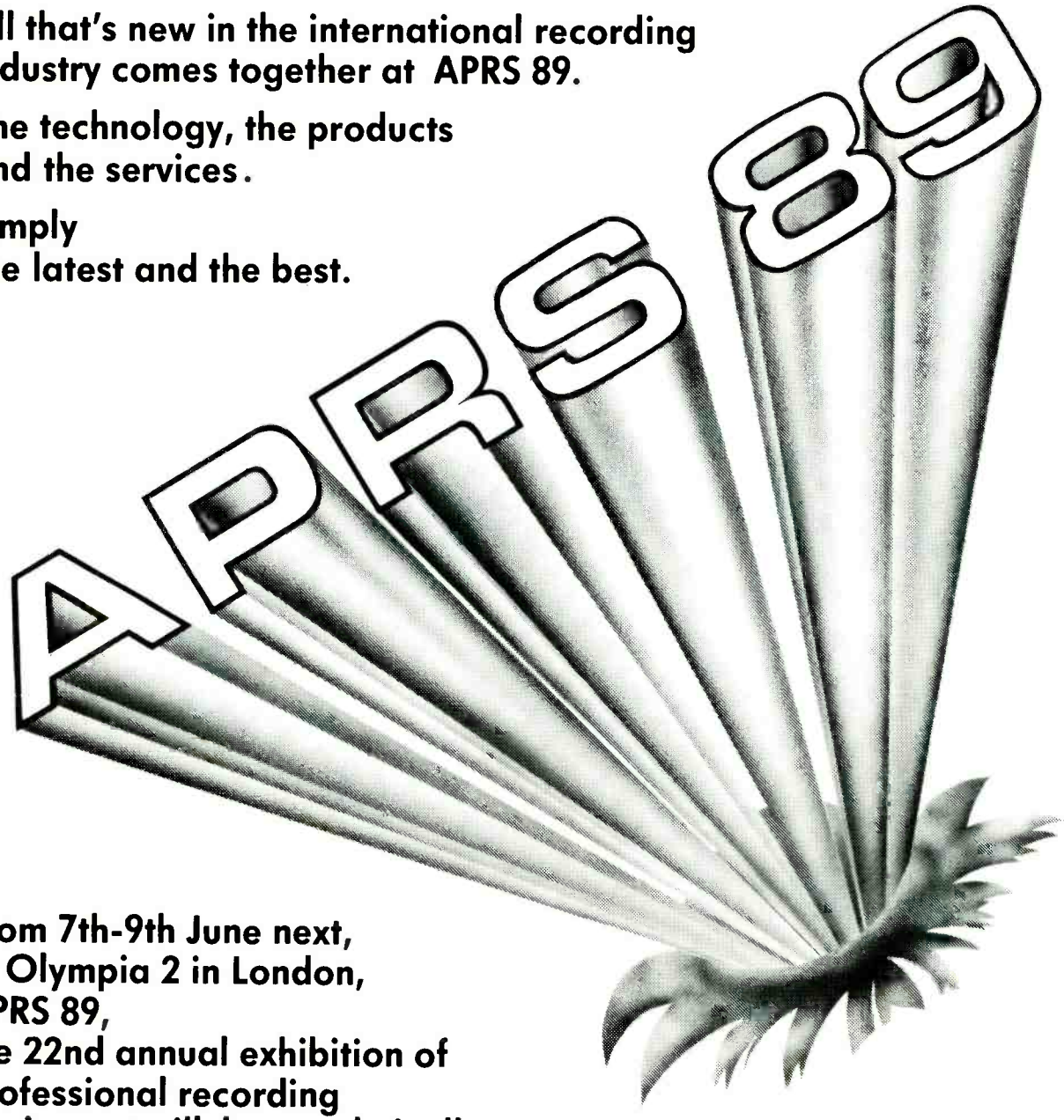
AUSTRALIA, AUDIO&RECORDING, 2019 Sydney, 36-38 Daphne St Botany phone: (02) 6669935. **AUSTRIA,** KÜNL & WURZER, A 4020 Linz, Waldeggstrasse 68, phone: 732668125.**BELGIUM,** ASE pvba, 2800 Mechelen, Kon. Astridlaan 216, phone: 15 421152. **CANADA,** J-MAR, M4H 1E9 Ontario, 6 Banigan Drive, Toronto, phone: 4164219080. **DENMARK,** P.S.S. 2200 Kobenhavn n, Aboulevarden 38, phone: (01) 390037. **FINLAND,** SAHKOLIKKEIDEN OY, 01301 Vantaa 30, P.O. Box 88 Sahkometsa, phone 908381. **FRANCE,** METTLER AUDIO, 75009 Paris, 1-3-5 Blvd de Clichy, phone: 148782911. **HONGKONG,** JOLLY SOUND Ltd, Tower B, RM 1214-1215, Hunghom comm, centre 37-39, Ma Tau Wei Rd KLN H.K., phone: 36202025. **ICELAND,** SAMSTARF, P.O.box 1197, 121 Reykjavik, phone:354153055 .**ISLD, CANARIAS,** MUSIC ACCORD, S. Cruz de Tenerife Puerta Causeco 35, phone: 22-289506 **ITALY,** PROFESSIONAL EQUIPMENT SRL, 20142 Milano, Viale Famagosta 37, phone: 02-817839/02-8910241/2/3. **NORWAY,** VEDUM ELEKTRONIKK, N-1381 Heggedal, Aamotveien 2, phone:2798990. **PORTUGAL,** JORSOM AUDIO VISUAL, 1000 Lisboa, Rue Eca de Queiroz 20-3 phone: 19562850 .**SPAIN,** BOSE SA, 28027 Madrid, Aristoteles 3, phone: 4050611. **SWEDEN,** MONTEZUMA RECORDING, 10265 Stockholm, Kocksgatan 17, phone:8436291. **SWITZERLAND,** ISLER AG, 8048 Zurich, Badenerstrasse 808-810, phone: 14321444. **VENEZUELA,** SOUND AND POWER, 1070 Caracas, P.O. box 76766, phone: 2223201.

BE THERE!

All that's new in the international recording industry comes together at APRS 89.

The technology, the products and the services.

Simply the latest and the best.



From 7th-9th June next, at Olympia 2 in London, APRS 89, the 22nd annual exhibition of professional recording equipment will draw technically qualified visitors from around the world.

There's no show like it . . . *BE THERE!*

For more information please contact the organisers:
Association of Professional Recording Studios Ltd,
163A High St, Rickmansworth, WD3 1AY,
England. Tel: (0923) 772907 Fax: (0923) 773079.

APRS
the professional recording association

COMPANY ANNOUNCEMENT

Change of Company Name

The story so far!

1966 - MAGNETIC TAPE MECHANISMS LTD - Based in Richmond, Surrey - is formed for the manufacture of reel to reel tape recorders.

1969 - Company name changes to MAGNETIC TAPES LTD. Brand name CHILTON introduced, derived from name of factory, Chilton Works.

1971 - Product range expands to include the M Series of audio mixing desks. Beautifully finished in solid teak with black anodised control panels, they prove an early commercial success.

1976 - Owing to the demise of reel to reel due to the difficulty in obtaining specialised parts, a new range - the QM series of consoles - is introduced. The successful M series is replaced by the CM series modular broadcast/production desk.

1985 - Company purchases 6,000 sq. ft. factory in Ashford Middlesex.

1986 - January - move into new factory is completed. Company achieves full export order book for CM2-4 desks.
Receives trial order from BBC Local Radio for seven QM3 24/8 consoles with modifications. This is based on reports on 2 standard QM3 24/8 consoles supplied to BBC Radio Leicester and to BBC Radio Merseyside.

1989 - Company name changes to CHILTON AUDIO LTD. Brand name CHILTON continues.

For the record

No fewer than 36 QM3 consoles have now been supplied to BBC Local Radio for new O.B. vans and A stations.
In other fields the CM2, with its excellent reliability, has demonstrated that it is ideal for the Community and Hospital Radio.

CHILTON AUDIO LTD.
Chilton Works, 6-8 Wolsey Road, Ashford, Middlesex, TW15 2RB
Phone: 0784 247124 Fax: 0784 240159

For fuller details on the CM Series please contact Paul Reps.

AEG terminates business in tape recorders

As of April 1st, 1989, AEG Olympia will have terminated its business in the sector of magnetic tape recorders at its facilities in Konstantz, Germany.

Production of analogue tape recorders in the current range will remain in Konstantz but all marketing activities, including repair service and spare parts supply, have moved to Studer.

Repair services and parts supply for digital recorders will be maintained by the Division of Operations and Services of AEG Hamburg, Germany.

In magnetic recording technology, AEG Olympia has an annual turnover figure of DM 20 million, employing a staff of 60.

Full Sail becomes official Neve training centre

Full Sail of Altamont Springs, FL, USA, have been appointed an official training centre by Neve. The school will now be the only one to offer specialised training on Neve products including *V* series consoles and the recently introduced *Flying Faders* console automation.

Full Sail have also announced the opening of a new 7-studio audio/video complex designed by John Storyk. It will comprise a 48-track analogue audio facility, a 1 inch and ¾ inch video production and post-production suite featuring Grass Valley, CMX and Chyron equipment; a 48-track mobile facility with adjoining studio (mix to picture capability); a MIDI recording studio; plus three full production tapeless studios based on the *Synclavier* system.

Exhibitions and conventions

April 28th to May 2nd NAB, Las Vegas, USA.
May 18th-20th The 11th ABTT Trade Show, Riverside Studios, Hammersmith, London W6, UK. Contact: Theatrical Trading Ltd, 4 Great Pulteney Street, London W1R 3DF. Tel: 01-434 3901.
June 7th to 9th APRS 89, Olympia 2, London, UK. Contact: APRS Secretariat. Tel: 0923 772907.
June 17th to 22nd 16th International Television Symposium and Technical Exhibition, Montreux, Switzerland.
September 10th to 13th The Light & Sound Show '89, Olympia 2, London, UK. Contact: Clare O'Brien, O'Brien Associates Ltd, 10 Barley Mow Passage, Chiswick, London W4 4PH. Tel: 01-994 6477.
September 18th to 21st Media Visie 89, RAI International Exhibition Centre, Amsterdam, The Netherlands. Contact: RAI Europaplein, 1078 GZ Amsterdam. Tel: (0) 20-549 12 12. Fax: (0) 20-461006.
October 3rd to 9th World Broadcasting Symposium Geneva, Switzerland.
October 19th to 22nd AES 87th Convention, New York, USA. Contact AES, USA. Tel: (212) 661-8528.
October 25th to 28th Broadcast 89, Frankfurt, West Germany.
November 28th to December 3rd Sound Expo/China '89, Shanghai Exhibition Centre, Shanghai, China.

1990

March 30th to April 3rd NAB, Atlanta, GA, USA.

News from the AES

Following the successful Sound with Pictures Conference held in 1988, the AES British Section will be running another Conference next month entitled Sound Reinforcement Engineering on May 23rd and 24th. This will cover many of the current topics and problem areas in this complex and developing field. As can be seen from the programme below the speakers represent some of the leading companies and personalities in the field of Sound Reinforcement from the United States and Europe.

Sound Reinforcement Engineering

Conference programme

Tuesday May 23rd
Session A 10.00-12.30
Chairman: John Watkinson, Consultant
A1 Sound Reinforcement Overview, Peter Mapp, Consultant

A2 Audio System Design, Sam Wise, Consultant
A3 Case Histories, Mike Spratt, Wigwam Acoustics

Session B 14.00-17.30
Chairman: Neil Gilchrist, BBC Research
B1 Calgary Winter Olympics Case Studies, Bruce Myer, Bose
B2 Large Scale Entertainment Systems, Derrick Zeiba, Theatre Projects

B3 Theatre Sound, John Leonard, Consultant
B4 Sound Systems and the Architect, Barry Pritchard, RHWL Architects
Discussion Forum, Chaired by Bruce Elliott, Elliott Bros

Evening Lecture 19.30-20.15
Taking the Mic! Bill Reventos, Crown International, USA

Wednesday May 24th
Session C 09.30-12.30
Chairman: John Emmett, Thames TV
C1 Electronic Architecture, Peter Barnett, AMS Acoustics
C2 Commissioning and Operating Systems, Jim Cousins, Consultant
C3 Specifications, Budgets and Contracts, Mark Burgin, Shuttlesound

C4 Conference and Interpretation, Mike White, Auditel
C5 Multi-Channel Radio Microphones, Jurgen Gutmann, Sennheiser, West Germany

Session D 14.00-16.45
Chairman: Allen Mornington-West, Quad
D1 Field Failure and Maintenance, Garry Ashton, Shuttlesound
D2 Loudspeaker and System Design, Bruce Howse, Community Light & Sound, USA

D3 The Flashlight System, Tony Andrews, Turbosound
D4 Sound Reinforcement in TV and Radio, Ron Ferris, Thames TV

Conference Summary 16.45-17.15, Peter Mapp, Conference Chairman

The Conference will be held at the Independent Broadcasting Authority's Headquarters at 70 Brompton Road, Knightsbridge, London, SW3, where full facilities are available to enable illustration of technical subjects and provide an informal atmosphere for discussion and relaxation during the breaks.

For further information on the above Conference, or information on joining the AES, please contact: **Heather Lane, AES Ltd, Lent Rise Road, Burnham, Slough SL1 7NY, UK. Tel: 06286 63725. Fax: 06286 67002.**

Britannia Row acquisition

At the AES Convention in Hamburg Brian Grant, managing director of Britannia Row Productions announced the acquisition of pro-audio distributor Pro Britro.

Britannia Row, one of Europe's largest audio companies, have to date been involved predominantly in audio rental. More recently their activities in the installations and sales markets have become strong and it is these areas that Brian Grant is seeking to expand through the acquisition of Pro Britro, Richard Kelley will retain his position as general manager of Pro Britro and becomes a director of the new company, all Pro Britro staff will continue as before. "We have a long association with Richard," said Brian Grant, "and feel that with increased capital injection and the benefit of our mutual and individual contacts will put us in a strong position to expand our business."

Pro Britro distributes Westlake, Trident, BGW, Aquarius, Lyrec, Altec and Klipsch products and further lines will be announced soon.

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DIGITAL AUDIO RESEARCH
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Frankfurt Musik Messe

The Frankfurt Musik Messe (or Music Fair), held between January 28th and February 1st at the Frankfurt exhibition complex, served as the beginning of the round of pro-audio shows during the year. An established date in the musical instrument industry—emphasised by the exhibit at the entry to the halls saying 40 years of the Music Fair—the show is now showing definite signs of bridging the gap between the MI and professional audio worlds (not to mention lighting systems).

The grey area between the world of the musician and the audio engineer is spreading all the time and it is now very difficult to see where one starts and the other leaves off. Whereas a lot of equipment could be termed 'semi-pro' and suitable for home studios and/or stage systems, there were a considerable number of professional manufacturers serving the sound reinforcement and studio industries.

The inevitable complaint was one of too many shows from the pro-audio people but Frankfurt is now considered an important exhibition for reaching the music shop buyers and the general public.

Previously trade only, this year's exhibition opened its doors to the public for the first two days and this met with mixed reactions. Whereas most exhibitors welcomed a wider attendance, many felt that it would have been better to have had the open days at the end when most of the business was out of the way. A substantial number of buyers missed the first two days, which meant that the stands were busy and the personnel a bit more tired than they would have liked for business.

The European market of 1992 was obviously an underlying factor with a strong European presence from pro-audio manufacturers and countries such as Spain made a very strong effort to profile their products. The Scandinavian countries also made a good showing, especially in the field of sound reinforcement and amplifiers.

Amplifiers almost formed the backbone of the new product releases and were from such diverse manufacturers as Crest, Carlsbro, Adyton, Lab Gruppen, etc.

There were also several new sound reinforcement systems released and the trend would appear to be moving away from the 'one-cabinet-does-it-all' type towards two-cabinet systems.

Some companies were also offering a complete range of horns—either separately or as a complete baffle assembly—for people wishing to design their own cabinets.

The installation market was also well catered for at Frankfurt. There is a growing awareness of the need for medium to high quality installations in clubs, restaurants, halls, bars, etc, and this is reflected by an increasing range of products that are coming on to the market.

Whereas Frankfurt is still essentially catering for the musicians' market, it has been recognised that a musician today often combines the talents of computer programmer, audio engineer and studio owner. It may be just chance that the show dates were put forward so that it did not coincide with the AES but it did mean that a lot of pro-audio faces were seen on the different stands.

Terry Nelson

Stirling buys Syco Systems

The Stirling group of companies have acquired Syco, their trading name, assets and staff. However, Stephen Paine, managing director of the new sales and marketing company Syco Systems Ltd, has said that the companies will remain totally autonomous.

Among the companies Syco distributed equipment for were Akai, Apple *Macintosh*, API, ATC, E-Mu and WaveFrame. The range, now within the Stirling Group, is to expand to cover advances in music production and audio post-production.

Andrew Stirling has explained that Stirling are on the "acquisition trail—because we believe that a grouping of pro-audio and associated companies will offer major benefits to end users both in the private and commercial recording sectors".

Service personnel from Syco and Stirling will be combined in a new technical services group headed by Rod Thear.

The Danish Pro-Audio Group

A group of Danish manufacturers of pro-audio equipment have formed The Danish Pro-Audio Group. The members of the group represent virtually all parts of the audio signal chain from microphones to loudspeakers. The idea of the group is to act as a forum for information exchange between its members and the international pro-audio industry.

The 13 Danish Pro-Audio Group members are Bruel & Kjaer; Dansk Studio Produktion; DK-Audio; Dynaudio A/S; Lydkraft; Lydteknisk Institut; Lyrec; Peerless Fabrikkerne; RE Instruments; SLT Precision Speakers; 3S-Superior Sound System; TC Electronic and Wilson & Wahlgreen.

Address changes

• **Harman UK's Studio Systems** division have moved to Unit 3, Bittern Place, Coburg Road, London N22 6TP. Tel: 01-881 3778.

• **Telesound Recording Studio** has relocated to Breedstraat 60, 8911GJ Leeuwarden, The Netherlands.

• **Simmons Digital Music Ltd** have moved to Campfield Road, St Albans, Herts AL1 5JG, UK. Tel: 0727 36191. Fax: 0727 41755. Telex: 291326 HEXDRM G.

Agencies

• **Amek Systems and Controls** have decided that sales of it's console products in the UK should be direct to the customer. This means the end of their agreement with HHB Communications in London. HHB will continue to handle the **TAC** product line and will have access to Amek products for package installations. Amek Systems and Controls Ltd, New Islington Mill, Regent Trading Estate, Oldfield Road, Salford M5 4SX, UK. Tel: 061-834 6747 Fax: 061-0834 0593.

• **Turbosound** and **Crest Audio** have both selected First Audio as their new UK distributor. First Audio is a new company formed by ex-Turbosound marketing manager Tim Chapman. They will be appointing a number of local dealers, specialising in Turbosound's new *TXD* series wide dispersion enclosures, to augment the current network of Turbosound Regional centres. First Audio Ltd., 95 Ditchling Road, Brighton BN1 4SB, East Sussex, UK. Tel: 0273 693610 Fax: 0273 693620.

• **C-Audio** have appointed LMC (London Microphone Centre) as exclusive UK distributor for all their products. LMC have also been appointed by **Soundcraft Electronics** as a dealer for the series *6000* console. London Microphone Centre, Unit 10, Acton Vale Industrial Park, Cowley Road, London W3 7QE, UK. Tel: 01-743 4680. Fax: 01-749 9875.

• **FWO Bauch** have announced their appointment as exclusive UK distributor for **Invotron** Ltd of Dublin, Ireland. Invotron specialise in the design and manufacture of Video and Audio switchers.

Courses and seminars

May 9th Pulling all the stops out. Contact: AES (British Section), tel: 06286 63725.

May 14th to 17th AES International Conference. 'Digital Audio—Audio in Digital times'. Contact: AES, 80 East Street, New York, NY 10186, USA. Tel: (212) 661-8528. Fax: (212) 682-0477.

May 23rd to 24th Sound reinforcement engineering conference. Contact AES (British Section), tel: 06286 63725.

June 13th Studio Acoustics. Contact: AES (British Section), tel: 06286 63725.

July 11th High resolution ADC. Contact: AES (British Section), tel: 06286 63725.

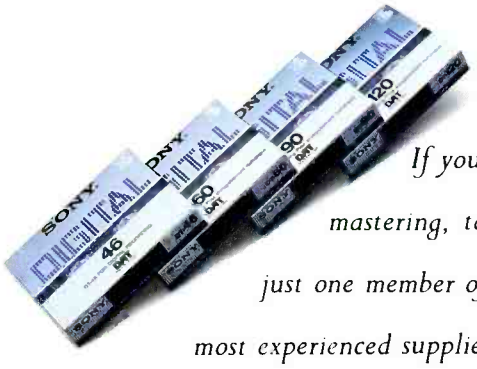
August 26th and 30th Soundscape. The University of East Anglia, Norwich, UK. Contact: Jane Thorp, UEA. Tel: 0603 592802.

Take a fresh look at the industry standard for DAT mastering.

Amongst audio professionals, the Sony DTC-1000ES is now widely recognised as the DAT standard. It's officially supplied by HHB – Sony's leading independent distributor. That means genuine service and spares support, as well as expert advice.

Second generation DAT hardware incorporates rationalised integrated circuitry and single A to D conversion. This may make DAT more accessible to consumers, but it's bad news for the audio professional. That's why we've talked to Sony and secured an extended production run for the DTC 1000ES.

Along with twin A-D conversion, all DTC 1000ES recorders from HHB are now specially adapted to record at 44.1kHz as well as 48 kHz. A modification that's impossible to implement in most second generation devices. For additional professional convenience, we've even designed an optional 19" rack tray.



If you're thinking about a secure future with highly-affordable DAT mastering, take a fresh look at the new DTC-1000ES package from HHB. It's just one member of a powerful family of DAT equipment available from the industry's most experienced supplier of digital recording hardware.

HHB HIRE & SALES, 73-75 SCRUBS LANE LONDON NW10 6QU PHONE 01-960 2144 FAX 01-960 1160 TELEX 923393.

GREAT COMPANY

Since the early seventies, Keith Olsen has been creating for the best. He's produced for the likes of Fleetwood Mac, Foreigner, Pat Benatar, and Whitesnake. His efforts have sold over *65 Million records.*
After working on every console imaginable, his response to the DI-AN was "It's the best sounding and most advanced console ever." And for his own facility, he bought one.
After all, one must consider the company they keep...

The DI-AN from TRIDENT

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2720 Monterey Street, Suite 403 Torrance, California 90503, USA • Phone 213-533-8900 • Fax 213-533-7072 • Telex 5106000019 TRIDENT USA

Contracts

• **SSL** delivered their largest console (96-channel *SL 5000 M* series for film post-production) to Disney-MGM Studios complex in Florida. The company have also announced sales of over 100 consoles to the Far East, success which they attribute to close liaison between their Tokyo sales office and the UK factory. There are over 85 *E* and *G* series consoles in Japan alone.

• Harman UK has supplied film video dubbing facilities Glentham West End, London, with a *REIMS* console and **Fostex** *E2* with **Tascam** *ATR60-16* tape machines, together with Fostex *4010, 4011, 4030* and *4035* timecode products.

• **Trident Audio Developments** have installed a *Di-An* console at producer Martin Rushent's Genetic Studios in London.

• A 46-channel **Amek** *Angela* with *C-Mix* automation has been installed at AXIS Recording Studio, Sheffield, as part of an extensive equipment update which also included a Lexicon *480L* and DAT machine.

• FWO Bauch have supplied the **Philips** *LHH3050* PQ editor to SRT, Cambridge, EMI Records, Chop Em Out, Copy Masters, Nimbus Records and Finesplice.

• **Amek/TAC** Belgian dealers EML Sound & Light Industries have supplied Amek *Angelas* to Galaxy Studio, Mol and Tamara Music, Brussels; an Amek *BCII* to L'Equipe Studio, Brussels; and TAC *Matchless* consoles to Speck's Soundinvest Studio, Brussels, Won Ton Ton, Antwerp and Tomazic Studio, Charleroi.

• Abbey Road Studios have incorporated **Audio Kinetics** *ES 1.11* synchronisers in their recently redesigned Studio Three.

• Recent **DDA** sales include *DCM 232* consoles to producers Trevor Vallis and Chris Porter as well as Shanghai Television Station and Kyriazis Sound Studios (Greece). *AMR 24* consoles have gone to Video & Sound Studios, Berlin; Rafis Studios, Iceland; Studio Zas Productions, Tienen, Belgium; Sound Station 1/2, Hong Kong; Xinjiang Audio & Video Publishing House, China; The Plant Sausalito (formerly the Record Plant), Existia Studios and Christine McVie in the USA. UK *AMR 24* installations include Eden Music and Southlands Studios. The recently introduced *Q* series console has started delivery with the first 30 mixers including contracts with Dietz Music, Nebraska; Sound Craft, Japan; Audio Control Systems, Helsinki. *D* series consoles have gone to the following German customers: Creative Studios, Kalve Music Studios, Tonstudio Europa and Studio Hamburg.

• **C-Audio** have sold over 3,000 *SR* power amplifiers to PA hire companies.

• **Lyrec** have announced major sales of equipment recently. Duplication equipment has been delivered to Eurosound Duplicating Service BV, Nijmegen and Intercassette, Wormer, The Netherlands; Hol Cassette in Cophenhagen, Denmark; MCP Jochler, Austria; and Net Ses Ve Elektronik AS, Istanbul, Turkey. 25 *FRED* editing machines have been delivered to Finnish broadcasting corporation Yleis Radio (giving them a total of 140); 20 went to the Swedish Broadcasting Corporation (total 400); Radio Vaticana in Vatican City took delivery of another *FRED* and further contracts included Radio Botswana, Radio Hundested and Roskilde Dampradio, Denmark; Verbo Filmes, Brazil; Art SA, Top FM and Typoekdotiki SA, Greece; RTV, Seychelles; Tae Gwang and Oasis Record Company, Korea; Nord Deutsche Rundfunk, Hamburg; and the Norwegian Broadcasting Group. Other recent contracts include a *P-2000* system to Societe La Cassette SA in Tunis.

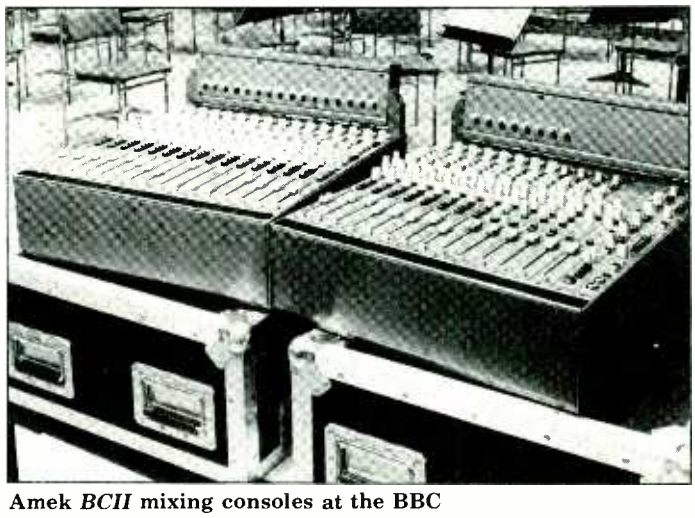
• **ARX Systems** of Australia have completed several sound installations in Japan including Tryard Ltd, Matsumoto; Ingleside Hire, Miyazaki; Pop Sounds, Kochi; Shinomoto Ltd, Hiroshima; and Red Hot Mama, Tokyo.

• Moles Studio, Bath, recently installed **Otari** *MTR90 MkII* and *MTR 12 MkII* tape recorders; 64 channels of *Optifile II* automation on their DDA *AMR 24*; **Akai** digital patchbay system; **Quantec** *QRS* room simulator; **AMS** *RMX16;* **dbx** *160 RM;* two **Teletronics** *LA-2As* and two EAR *822Qs*.

• **Audio Design** have delivered the first of several *Sound Maestro* digital recording and editing systems to Belgium Radio (RTF). Recent deliveries also include London's TAM Studios and, KPM Music and Location Recording.

• **Amek Systems and Controls**, Salford UK, have supplied 10 *BOII* mixing console systems at the BBC.

• Hire company, London Sound Centre, have invested in **Mitsubishi** *X-880* 32-track and *X-850* 32-track tape machines. The *X-880* is for London Sound Centre's launch of The White House, a residential studio in Wales.



Amek *BCII* mixing consoles at the BBC

Chief service engineer Daniel Webb (left) and managing director Paul Hope of London Sound Hire with the Mitsubishi *X-880*

People

• Terry Hodgkinson has joined **DDA** in Middx, UK. He will become part of DDA's R&D team and will concentrate on the software aspects of DDA products, especially the *DCM 232* console. Hodgkinson joins from Rank Xerox and was previously senior design engineer for Audio Kinetics.

• **AMS**, Burnley, UK, have appointed Ken Barnsley sales manager for microphones.

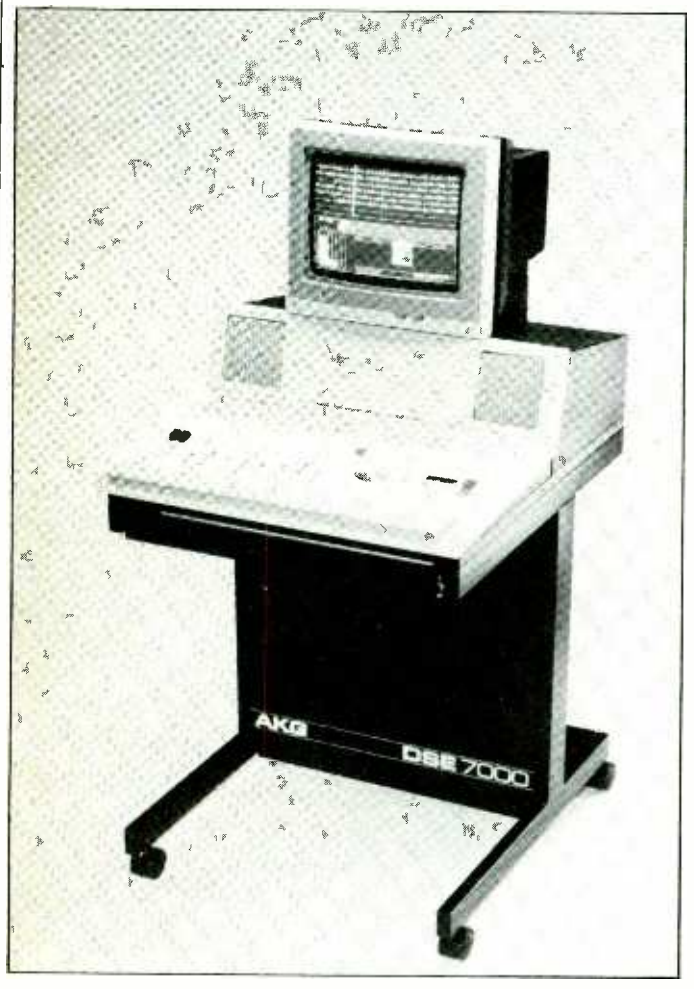
• **New England Digital** and its European distributor **Harman International** have formed a new sales and marketing group within Harman. It will be led by New England Digital director of marketing Mark Terry.

• **Otari Electric (UK)** have a new managing director in Hisao Suzuki who has been with the company for 17 years. Former MD Yoshi Shimizu returned to a product development post at Otari Japan. Sales and marketing management at the UK company has recently been taken over by Jay Denson, formerly with Solid State Logic.

• **Symetrix** recently appointed Will Lewis director of sales and marketing. He was formerly sales and marketing manager for Carver Professional.

• Pippa Willams recently became studio manager at **Picnic Studios.**

• Lee Bartolomei has been promoted to West Coast regional sales manager of **Digital Audio Research,** Hollywood, CA, USA. Bartolomei was formerly with Dolby and Orban.



Valley International Digital Dynamics

Valley International have introduced a stereo digital compressor/expander offering a wide range of level control characteristics from mild compression or AGC action all the way to 'zero attack time' peak limiting.

Housed in a single U 19 inch rack, an LCD display shows variable parameters all of which are fully adjustable. The unit has digital inputs and outputs only, accepting SDIF-2, SDIF-3 and PD digital format devices although an optional analogue interface is available. Remote control of the DCE is possible via RS-422, RS-232 and MIDI.

Valley International Inc, 2817 Erica Place, Nashville, TN 37204, USA. Tel: (615) 383-4737.

UK: Stirling Audio, Kimberley Road, Kilburn, London NW6. Tel: 01-624 6000.

Studer active monitors

Studer has announced its first active studio monitor, the *A723* which is a three-way system. The monitor cabinets have a volume of 70 litres and are intended for applications within small or medium-sized rooms. Each of the drive units is powered by a dedicated amplifier of approximately 100 W and the crossovers contain compensation for drive unit alignment and group delay in the filters. Quoted sound pressure levels are 106 dB SPL, 1 kHz at one metre. Input is via an XLR socket and is balanced with coarse and fine level adjustments based around standard line levels.

Studer International AG, Althardstrasse 150, 8105 Regensdorf, Switzerland.

UK: FWO Bauch Ltd, 49 Theobald Street, Borehamwood, Herts WD6 4RZ. Tel: 01-953 0091.

USA: Studer Revox America Inc, 1425 Elm Hill Pike, Nashville, TN 37210. Tel: (615) 259-7619.

AKG DSE 7000 work station

The Digital Products Division of AKG have introduced the *DSE 7000* which is a RAM-based digital audio work station incorporating the equivalent of an 8-track recorder, an editing system and a mixer. The *DSE* has been specifically designed for preparation of commercials and other short recordings in radio, TV, video post and music.

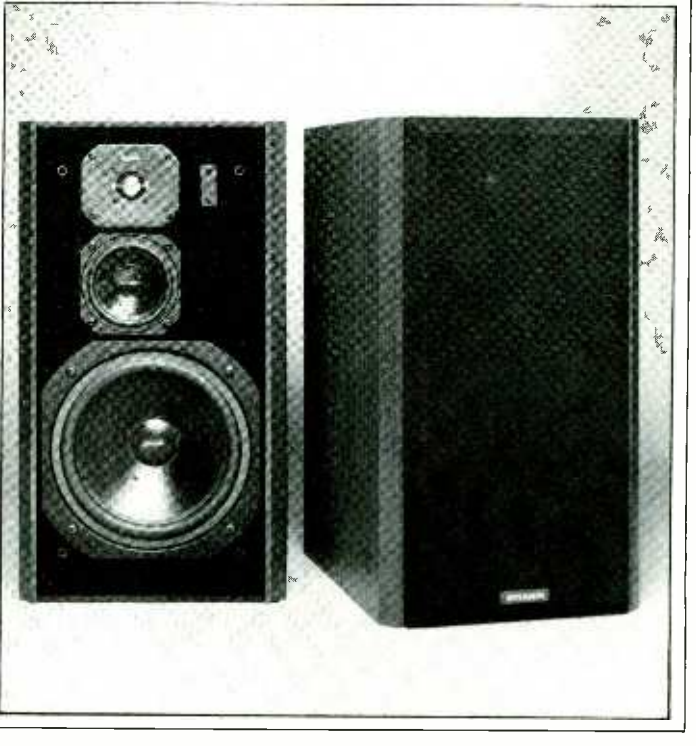
The RAM memory is 4.4 minutes with the one Memory Card and running at 15 kHz bandwidth and this can be freely allocated between one to eight tracks. This is expandable to 17.7 minutes with three additional Memory Cards. The actual production depends upon the sampling rate chosen and the number of tracks used.

The *DSE* runs 16-bit linear PCM at 44.1 or 48 kHz with an option of 32 kHz sampling rate. There is of course the full time-slip, copying, moving, deleting of events with the ability to undo operations. The *DSE* also has an integral digital mixer with 10 inputs with level, pan, echo sends, track bounce and solo functions.

The system has high and low speed search and cueing with variable pitch; autolocator functions; and a conventional computer keyboard in a pull-out draw for other software functions. System options include a free standing work station to house the system; built-in powered stereo nearfield monitors; digital I/O for AES/EBU format and a hard disk for audio storage.

AKG Acoustics, 125 Walnut Street, Watertown, MA 02172, USA. Tel: (617) 924-7697.

UK: AKG Acoustics Ltd, Vienna Court, Lammas Road, Catteshall Road, Godalming, Surrey GU7 1JG. Tel: 04868 25702.



AKG
acoustics

ADVANCED MICROPHONE TECHNOLOGY

The C426B Comb. represents the next logical step in the development of a legend amongst professional microphones, the C422, which itself is derived from an eariler microphone that set new recording standards, the C24.

The operating principles of the C426B remain the same - two twin diaphragm condenser capsules which rotate for MS and XY stereo recording, each with individually selectable polar pattens from a remote control unit. But as engineering standards have developed, so has every aspect of the C426B design, which now offers ultra low self noise operation, in-built electronics for the digital age, and a host of physical operating features which make it ideal for busy recording studios.

You might think it presumptious for us to predict a future legend, but with the

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AKG Acoustics Ltd., Vienna Court, Lammas Road,
Catteshall Road, Godalming, Surrey GU7 1JG.
Telephone: Godalming (048 68) 25702.
Facsimile: (048 68) 28967.
Telex: 859013 AKGMIC G.

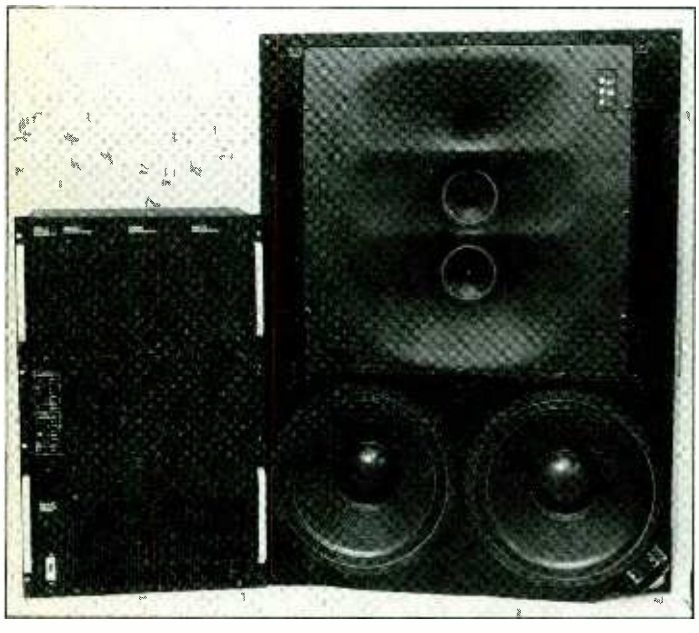
Genelec 1035A monitor

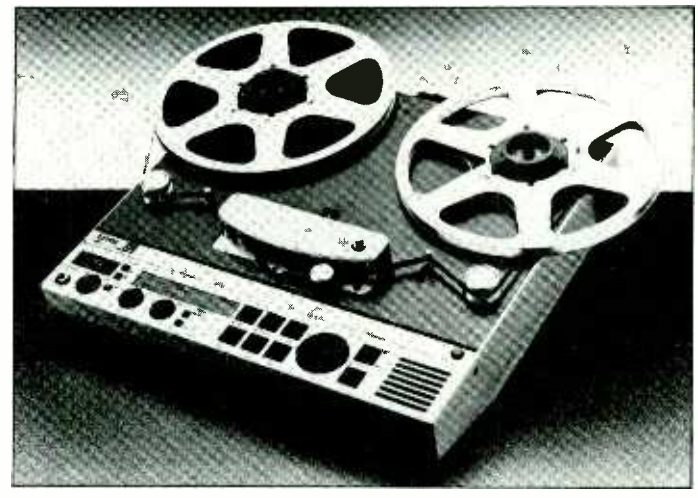
Genelec have added a new high level monitor to their range. The *1035A* is a three-way active system based around a 600 litre enclosure and a modular 19 inch rack power amplifier/processing unit designed to match the drivers used and with power ratings of 1000 W for the bass, 600 W midrange and 300 W HF.

The processing unit contains the crossover, diagnostics/starting sequencer and driver protection processor. The monitor uses two 15 inch (385 mm) LF units in a dual chamber configuration crossing over into a pair of 5 inch (130 mm) direct drivers via 6th order Butterworth filters. The HF is handled by a 1 inch compression driver. The mid and HF units are mounted on a sculpted aluminium driver panel known as the Directivity Control Waveguide that can be rotated through 90° dependent upon the mounting position.

Genelec claim that the design of the mid range direct radiators allows high level output without the problems often associated with other designs at high levels. The quoted peak acoustic output per pair at the engineer's position (2 metres distant) with music programme is 136 dB; with a max continuous sine wave acoustic output on axis at one metre of 130 dB.

Genelec Oy, Tehtaantie 17, SF-74100 Iisalmi, Finland. Tel: 77-13311.
UK: SSE Marketing, Unit 2, 10 William Road, London NW1 3EN. Tel: 01-387 1262.





Lyrec Frida

Lyrec introduced a new portable analogue tape machine described as a 'sister' to the established FRED editing tape machine. *Frida* is two channel weighing 12.5 kg (26.4 lbs) and just 8 cms deep. The machine is three speed and will accommodate spools up to 12 inches without external adaptors and features servo controlled wind. It can be powered from the mains or by 24 V adaptor. Other features include a Dump Mode and a built-in tape cutter; variable speed spooling with a speed sensing tape lifter that keeps tape in contact with heads at low speeds; a return to zero or last position function; monitoring for stereo headphones or on the small internal speaker. *Frida* incorporate Dolby *HX Pro* bias circuitry for improved HF performance.

Three versions are available—twin channel, stereo, and a stereo broadcast version with no meters and no gain controls. Circuitry is modular and will accommodate a future CTCC option. Ports are provided for remote and varispeed controls and sync connection. *Frida* is equipped with a carry handle/stand and can be used free-standing or rack mounted.

Lyrec Manufacturing A/S, Hollandsvej 12, 2800 Lyngby, Denmark. Tel: 02 876322.
UK: Lyrec (UK) Ltd, Ardhaven House, Old London Road, Milton Common, Oxford OX9 2JR. Tel: 0844-278866.

Benchmark Interface series

Benchmark Media Systems have announced a new *Interface Amplifier* series. The *IFA* series currently includes eight different modules with each housed in small 'modem' style chassis with the ability to mount up to three side-by-side within a single rack mount fixing. Modules range from stereo balanced to unbalanced input and output interface to quad balanced input to unbalanced output amplifier. All the balanced output devices have variable gain from Off to +26 dB. The power supply for the range, the *PS-11*, will power up to four modules.

Benchmark Media Systems Inc, 3817 Brewerton Road, North Syracuse, NY 13212, USA. Tel: (315) 452-0400.

Amek APC1000 Reset Software

Amek have announced the Synchronous Reset software package for the *APC1000* Assignable Production Console which allows SMPTE timecode control of the console and MIDI events. Its main function is to allow the 96 switch pages, each containing a switch configuration for the complete console, to be loaded as many times as required allowing repetitive programme structures such as choruses to be followed and duplicated.

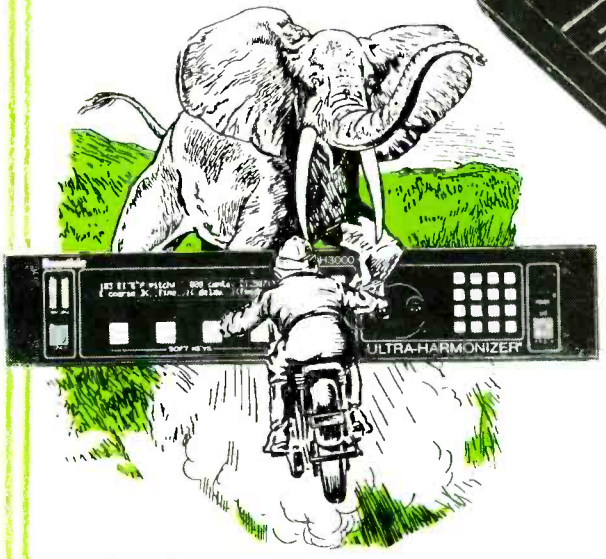
A learn mode is provided which enables the engineer to load timecode positions whilst the tape is running and so create a basic events list that can be edited later. It is also possible for events to be entered off-line. MIDI events such as note on, voice change, controller change and sequence start/stop can also be triggered from a timecode position and a library of standard timecode events can be created by the user. The screen-based Event List comprises timecode position (to 1.4 frame accuracy), event name and event type. Four groups of events are possible in any one list and if the user grouped MIDI and console events separately, by selecting which group is active he will be able to try mixes with and without different events sequences.

Amek Systems & Controls Ltd, New Islington Mill, Regent Trading Estate, Oldfield Road, Salford M5 4SX, UK. Tel: 061-834 6747.
USA: Amek Consoles Inc, 10815 Burbank Boulevard, North Hollywood, CA 91601. Tel: (818) 508-9788.

"OF COURSE THE TECHNICS SV-260 PORTABLE DAT RECORDERS ARE JUST AS GOOD FOR CLASSICAL MUSIC, I ONLY MENTIONED REGGAE IN PASSING" PLEADED REG!!!

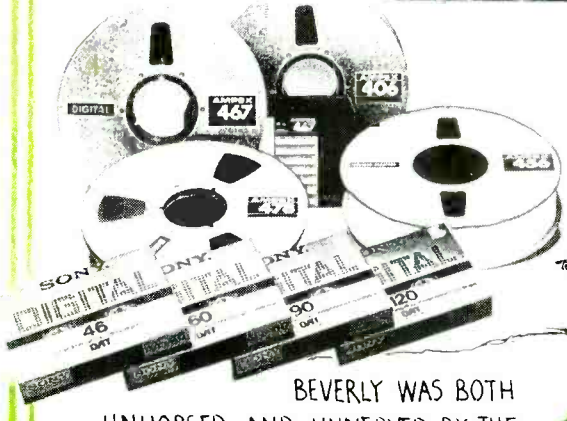
EVEN CYRILS TOGGLE COULD NOT PROTECT HIM, THE STRANGER WAS DETERMINED TO HEAR THE SONY APR 24 ANALOGUE RECORDERS SUPERB SOUND QUALITY FOR HIMSELF.

PERCY AND CLIVE SO LOVED THEIR YAMAHA DMP 7D THEY WERE SURE GONNA USE ITS OPTIONAL DIGITAL INPUTS AND OUTPUTS AT EVERY GIVEN OPPORTUNITY.



NOT EVEN THE EVENTIDE H3000 THE ULTRA HARMONIZERS 16 BIT 44.1 kHz SAMPLING 5Hz - 20 kHz ON ALL EFFECTS COULD COME BETWEEN FORTESCUE AND HIS DANCE PARTNER TEMPEBE.

COLIN KNEW THIS WAS THE ONLY WAY TO PROVE TO THE DOUBTING THOMAS BROTHERS THAT THE NEW DOLBY SR/A NOISE REDUCTION UNIT WAS OBTAINABLE EVEN FOR THEM!!



BEVERLY WAS BOTH UNHORSED AND UNNERVED BY THE AMAZING STOCKS OF TAPE BEFORE HER.

ROLAND WAS TICKLED PINK TO FIND THE NEW ROLAND DIGITAL REVERB WITH GRAPHIC DISPLAY REMOTE WAS NAMED AFTER HIM.... THE R880?!

HHB COMMUNICATIONS. 73-75 SCRUBS LANE LONDON NW10 6QU TEL 01-960 2144 FAX 01-960 1160

Jensen/John Hardy Preamp

Deane Jensen and John Hardy have agreed to produce a new version of the Jensen *Twin Servo 990* mic preamplifier. This device will be built by John Hardy with Jensen's new *990C* discrete opamp technology and is described as offering improved DC circuitry and will be packaged in a more convenient single U rack mount format that can be ordered with two or four channels. A new feature will be the LED metering selectable for peak or VU. Retained old features include lighted buttons for polarity, phantom power and source impedance as well as a feedback gain control with 18 to 60 dB range.

Jensen Transformers Inc, 10735 Burbank Boulevard, Dept MP, North Hollywood, CA 91601, USA. Tel: (213) 876-0059.

UK: SSE Marketing, Unit 2, 10 William Road, London NW1 3EN. Tel: 01-387 1262.

TC Electronic TC2290 software

This update doubles the available sample time. Additional features include new, more powerful, modulation effects; a hold function; new MIDI features, including system exclusive bulk dumps that allow you to save presets to MIDI data recording devices; and the new software now allows for the generation of several different effects at the same time.

The new, longer, sampling times make the *2290* ideal for 'flying in' vocals, and the new fast trigger option is ideal for replacing drum sounds. The stereo sampling option locks the two stereo channels in phase to an accuracy of 4 ms.

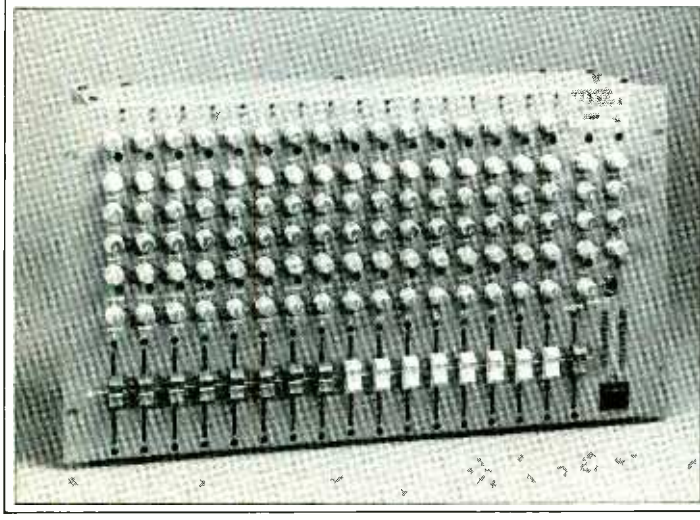
TC Electronics, Grimhoejvej 3, DK-8220 Brabrand, Denmark. Tel: 06-26 28 00.

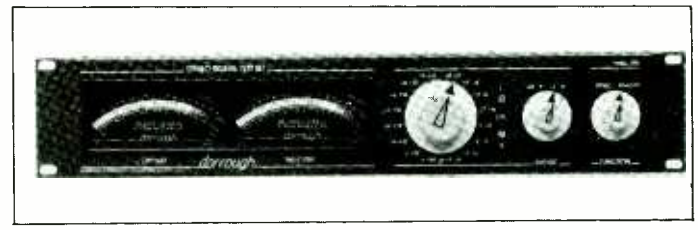
UK: TC UK, 24 Church Street, Oswestry SY11 2SP. Tel: 0691 658550.

Biamp Systems MAXXAM mixer

Biamp unveiled a new rack mount mixer at NAMM aimed at mixing large numbers of electronic keyboards. The *MAXXAM 8+8* has 16 input channels in a 19 inch format, 6 rack spaces high. Eight of the channels are stereo giving a total input capacity of 24 channels, all at line level. The unit also contains two mic preamps with XLR connectors that can be assigned to any of the input channels. All inputs have patch insert jacks and four sends, one of which is selectable pre/post fader. The *MAXXAM* has four stereo returns and all faders are 60 mm travel. Biamp plans to introduce additional modules during this year to enhance the unit's usefulness in MIDI-based applications.

Biamp Systems Inc, 14270 N W Science Park Drive, Portland, OR 97229, USA. Tel: (503) 641-7287.





Dorrough stereo signal test set

Dorrough describe the *Model 1200* as a modern version of the classic 'Gain Set' allowing measurement down to −75 dB and claim that it is the only test set available with the ability of measuring stereo programme signal in both left and right, or sum and difference formats. The test unit incorporates two Dorrough Loudness Meters which simultaneously indicate the peak amplitude and average on a single display. The unit is described as having particular use for level setting, checking crosstalk and channel balance.

Dorrough Electronics, 5221 Collier Place, Woodland Hills, CA 91364, USA. Tel: (818) 999-1132.

ElectroVoice PL series additions

ElectroVoice have added three new mics to their *PL* range using Neodymium technology. The *PL50-N/D* is cardioid, *PL60-N/D* supercardioid and the *PL70-N/D* hypercardioid with the *PL60* and *70* incorporating humbucking coils for electrical noise cancellation.

ElectroVoice Inc, 600 Cecil Street, Buchanan, MI 49107, USA. Tel: (616) 695-6831.

UK: Shuttlesound Ltd, Unit 15, Osiers Estate, Osiers Road, London SW18 1EJ. Tel: 01-871 0966.

Harrison SeriesTen developments and new consoles

Harrison has released their *Macintosh II*-based automation system for the *SeriesTen* console. This will dramatically increase the operational speed of the existing automation facilities. By choosing the *Macintosh II* computer Harrison have ensured that there is a widely available field support system for the computer itself in many parts of the world as well as being able to implement several additional features planned before but not possible to implement due to previous memory limitations in the previous computer system.

The on-screen displays are greatly improved using the *Mac* system of windows and pull down menus. The only internal change is the addition of a Harrison-developed card and the system software.

All existing *SeriesTen* consoles can be updated and Harrison say that it is their intention to make the update available to all existing owners in the very near future. The first system is to be delivered to Arri Studios in Munich, West Germany.

Harrison Systems have also announced two new consoles that are available with the GML automation. The *PP-1B* features all the facilities of the current *PP-1* system with the addition of the GML moving fader system integrated to provide fader, mute and grouping automation, as well as automated control of input select, dual insert point activation and EQ in/out switching functions. The *PP-1B* now features 24 main assignment buses plus 8 reassign buses, a presence of signal indicator on each module and expanded machine control and monitoring logic.

The *MR-20* is a new inline multitrack recording and post-production console also fitted with GML moving fader automation. The *MR-20* features central status control, 4-band parametric EQ, continuously variable HF and LF filters, 10 sends, 8 auxs, stereo cue, and 48-track routing.

Harrison Systems Inc, PO Box 290157, Nashville, TN 37229-0157, USA. Tel: (615) 834-1184.

UK: FWO Bauch Ltd, 49 Theobald Street, Borehamwood, Herts WD6 4RZ. Tel: 01-953 0091.

INSTANT SIGNAL PROCESSING— JUST ADD TALENT.

Orban's new digitally-controlled 787A Programmable Mic Processor integrates an unprecedented combination of vital signal processing functions into one powerful, compact package. It delivers fully programmable **mic- or line-level** processing with access to 99 memory registers through MIDI or RS-232 interfaces, or a console-mounted remote control. All you do is add the talent.

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The 787A is complete audio processing arsenal in a box—a flexible parametric EQ, a smooth compressor, noise and compressor gates, and a handy de-esser. The 787A can be operated in mono or dual-channel/stereo (with the addition of a second-channel slave). An optional Jensen transformer mic preamp with 48V phantom power adds further flexibility.

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Amek Mozart

Amek describe the *Mozart* as the first of a new generation of consoles derived from the technology used in the APC. The 'all-input' approach which Amek describe as dispensing with in-line and split monitoring concepts is used. To this end the *Mozart* is available in 40, 56 and 80 input frame sizes with 32 mix buses, 12 stereo aux returns and 16 aux sends. Each input channel has its own meter.

The *Mozart* has an onboard grouping computer that allows the user to group channel switches to masters and the resulting configurations can be saved as pages in the onboard memory. These pages can then be loaded into the console against timecode. An automation system has been developed in conjunction with Steinberg allowing control of fader levels and mutes as well as 15 other switches per channel. Possible Cue List functions available include MIDI, audio and events triggering to timecode. It will be possible to fit other automation systems such as the GML should this be desired. Further input module configurations and other options will become available during the course of the year.

Amek Systems & Controls Ltd, New Islington Mill, Regent Trading Estate, Oldfield Road, Salford M5 4SX, UK. Tel: 061-834 6747.

USA: Amek Consoles Inc, 10815 Burbank Boulevard, North Hollywood, CA 91601. Tel: (818) 508-9788.

In brief

• **DDA** have announced a bargraph metering system option for their range of consoles. Based around a 100 segment fluorescent display developed in conjunction with Klark Teknik, the display can be switched to VU or Peak with temporary or sustained peak hold capability. Although designed specifically for the *DCM* and *AMR*, the meters can be retrofitted to other makes of console.

DDA, Unit 1 Inwood Business Park, Whitton Road, Hounslow, Middlesex TW3 2EB. Tel: 01-570 7161.

USA: Klark Teknik Electronics Inc, 30B Banfi Plaza North, Farmingdale, NY 11735. Tel: (516) 249-3660.

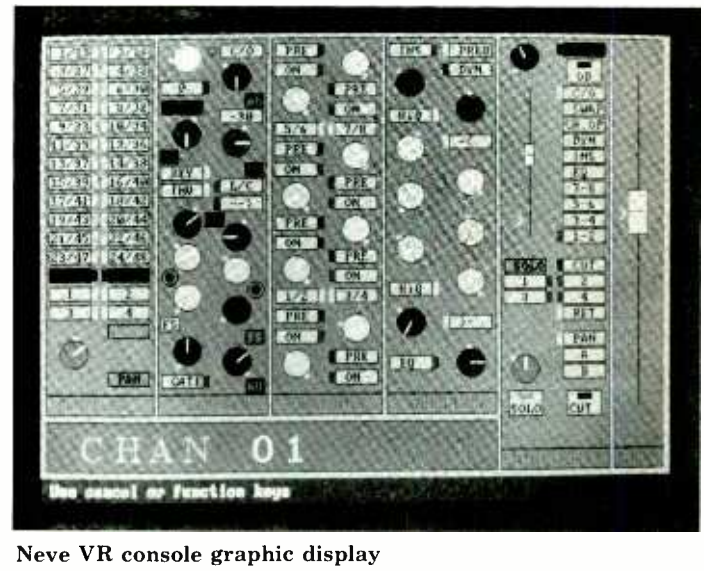
Neve Recalled

Neve have introduced a new version of the *V* series console known as the *VR* that incorporates a range of new enhancements. All new *VR* consoles will be supplied ready to accept an option that allows the storing and recall of all rotary, push-button and fader controls on high resolution colour graphics display. On line data is automatically stored on a 20 Mbyte integral hard disk which Neve describe as being more than ample for long mixing sessions. There is also the facility to copy data to floppy disk with a 3.5 inch disk holding approximately 140 complete stores of a 96-channel console.

Other *VR* features include increased features on a larger monitor section, improved auxs and multi-input overload indicators.

Neve Electronics International Ltd, Cambridge House, Melbourn, Royston, Herts SG8 6AU, UK. Tel: 0763 60776.

USA: Rupert Neve Inc, Berkshire Industrial Park, Bethel, CT 06801. Tel: (203) 744-6230.



Neve VR console graphic display

Alesis 1622 mixer

The *1622* is the first mixer from Alesis and one of their first analogue products. It is a 16-channel console with 6 aux sends and 4 stereo returns. The console has two bus outputs with 16 line inputs on jacks and 8 XLR mic inputs (channels 1 to 8) and inserts on each channel, sub and master. The design of the console makes it suitable for live and small multitrack use. The *1622* is of particular interest from its construction using what Alesis refer to as Integrated Monolithic Surface. This comprises a single monolithic composition of multi layer glass epoxy circuit boards providing alternate layers of shielding and bus conductors (resistive and capacitive) on a surface just a few thousandths of an inch thick. The structure is then injection moulded with graphite fibre reinforced polymers providing shielding, mechanical support and structural detail. The need for traditional potentiometers is eliminated as the tracks are an integral part of the monolithic design.

Alesis have also applied this construction technique to a graphic equaliser, the MEQ-230 which has managed to squeeze 60 bands of ⅓-octave EQ in a single unit of rack space.

Alesis, 3630 Holdrege Avenue, Los Angeles, CA 90016, USA.

UK: Sound Technology plc, 6 Letchworth Business Centre, Avenue One, Letchworth, Herts SG6 2HR. Tel: 0462 480000.

Peavey products

The *MDB* 2×4 is an inexpensive switchable MIDI THRU box, which may be used either as two separate 1 in/4 out units or as a 1 in/8 out THRU box.

The *MAP* 8×4 MIDI-controlled audio patchbay 1U rackmount unit has 8-channel in/out capacity, as well as four programmable send/return loops. It is intended to be used with effects units and signal processors so that signal routing to these units may be automated. There are 128 programmable patch memories and these may be accessed either via front panel controls or by MIDI program change commands. There are LED readouts for loop assign, program number, and MIDI channel on the front panel, and standard ¼ inch jacks are used for inputs and outputs.

The 1U rackmountable MIDI Manager may be used for a variety of MIDI applications. These include MIDI Data Mapping, MIDI Merging, MIDI Data Routing, and numerous other similar MIDI functions. The front panel features a 40-character-by-2-line backlit display, power on/off switch, and control buttons. The back of the unit features one MIDI IN, one MIDI THRU, and four MIDI OUT sockets, as well as a *DB9* Parallel Auxiliary Output socket.

The *EAC 8* automation controller is intended to be used in conjunction with the Peavey MIDI Manager. The *EAC 8* is an active control mechanism capable of translating logic commands from the MIDI Manager into real-world switching functions. This allows the user to accomplish automation of non-MIDI gear via MIDI commands. Heavy duty relays provide normally-closed and normally-open switch action, which is accessed via eight ¼ inch TRS jacks for convenient interfacing with readily available hardware. A *DB9* multipin interface is used to connect the unit to the MIDI Manager. The switch action is triggered via 5 V TTL logic.

The MIDI Director hand-held MIDI remote allows selection of any of the 128 MIDI Program Changes on any of the 16 MIDI channels from a convenient hand-held remote. These program change commands may be used to select preset digital effects, synthesiser patches, and so on, on the various MIDI devices commonly in use. Other command functions include MIDI Start, Stop and Continue commands, as well as Song Select, which typically would be used to control drum-machines or sequencers.

Visual indication of the MIDI Program Change Command number, Song Select number, and MIDI Channel number is provided by a 3-digit LED display. Additional LED indicators signal the control parameters, which are displayed in the LED window and the song/sequence status.

The MIDI Director can operate either with an internal 9 V battery, or by an optional external 9 V DC power supply.

Peavey, Audio Media Research Division, 711 A Street, Meridian, MS 39302-2698, USA. Tel: (601) 483-5372. Fax: (601) 484-4278.
UK: Peavey Electronics (UK) Ltd, Hatton House, Hunters Road, Weldon North Industrial Estate, Corby, Northants NN17 1JE. Tel: 0536 205520.

SHE Turbo RAM cartridge

The SHE *Turbo* RAM cartridge offers mass storage of a library of synthesiser sounds in one compact unit, at a very competitive price.

The *Y-RAM* for the Yamaha *DX* range of synthesisers provides four banks of storage to hold 256 voices and 128 performances. The *T-RAM* for the *TX802* has four banks of storage also but these hold 256 voices and 256 performances. The *D-RAM* for the *D50* holds 256 sounds and 64 effects settings. The SHE *D-ROAM* and *Y-ROAM* are ROM and RAM combined cartridges for the *D50* and *DX* range respectively. These offer the same storage space as the RAM cartridges, with an equal number of ROM locations.

The RAM locations are loaded with potentially useful sounds that you could save on to a MIDI data recorder, such as the *DX711*'s floppy disk, before you write over them, if you do find them useful.

Systems House Exclusive, 22 Rushey Green, Catford, London SE6 4AS, UK. Tel: 01-690 8622. Fax: 01-769 9530.

EMU Systems ancillary products

The *Gold Series* consists of 20 library disks prepared for the *EMax* range of samplers using professional quality TDK diskettes. This new series was launched at the US NAMM show in January. All the sounds were originally sampled and processed using the *Emulator III*'s true 16 bit linear circuitry and extensive digital processing functions. The sounds were then digitally transferred directly into the *EMax* to preserve the sound quality.

The manufacturer claims that the samples prepared in this way have increased fidelity and dynamic range. Many more disks are planned, and the addition of these 20 new disks brings the total of *EMax* Factory Sounds to well over 2,300 on over 150 disks. This is in addition to the enormous library of sounds available for the *EMax* on Optical Media International's *EMax* CD-ROM.

A Small Computer Systems Interface (SCSI) is now available. This is a high speed serial interface, for the *EMax SE* line. Newly developed software for the *EMax SE* allows access of up to eight external SCSI devices at once, from the *EMax*'s front panel.

Devices that may be connected to the SCSI port include the Data Technology *Hyperflex* removable cartridge hard disk drive, which will load an *EMax* sound bank in under 7 secs. Each of these cartridges will hold up to 35 *EMax* banks. Many other hard drives are SCSI-compatible, such as those used by the *Macintosh* computer, so a wide choice of such devices is already available. Unlike most other SCSI-compatible hard drives, the *Hyperflex* features removable cartridges, which can easily be stored or transported.

The *RM45* is a rackmountable hard disk storage and back-up system for the *Emulator III*. This uses a 45 Mbyte removable cartridge and connects to the *EIII* via an SCSI interface. Using this new drive, an entire 4 Mbyte bank of 16 bit sound can be loaded in under 9 secs. In addition to storing and retrieving *EIII* data, the *RM45* is compatible with Apple *Macintosh* computers via the SCSI interface, as long as the cartridges are correctly formatted. This system aims to provide a faster and more flexible system for back-up and storage than tape-streamers.

To coincide with the release of this new storage system, several new banks of sound samples have been released for the *EIII*. Also, EMU will supply up to 45 Mbytes of *EIII* banks on *RM45* cartridges, selected from the total of 32 banks currently available, and these will be offered at a reduced price.

EMU Systems Inc, 1600 Green Hills Road, Scotts Valley, CA 95066, USA. Tel: (408) 476-4424.
UK: Syco Systems Ltd, Kimberley Road, London NW6. Tel: 01-625 6070.

360 Systems Audio Matrix 16

The *Audio Matrix 16* is a programmable audio patchbay that provides centralised control and instant selection of any audio configuration. It will control routing of 16 separate audio inputs and outputs and send program changes to external MIDI devices. Inputs and outputs are ¼ inch phone jacks and any input may drive single or multiple outputs.

Audio routing is programmed through the use of front panel controls, eliminating the need for patch cords. 100 separate configurations may be stored in non-volatile memory. Individual presets can be ordered into 27 chains of 32 steps each for instant recall via front panel controls, footswitch, or remotely via MIDI program change commands.

360 Systems, 18740 Oxnard Street, Suite 302, Tarzana, CA 91356, USA. Tel: (818) 342-3127. Fax: (818) 342-4375.

Audiomatrix MIDI accelerator

This unit plugs into any MIDI IN socket and accelerated data is passed to the MIDI OUT. The accelerator receives standard MIDI data and converts it into a more efficient code by sorting and re-arranging the incoming MIDI events. This re-ordering eliminates bottlenecks, which can cause time delays or erratic tempo changes. The unit is compatible with all MIDI equipment.

Audiomatrix Inc, 1517 20th Street, Santa Monica, CA 90404, USA.

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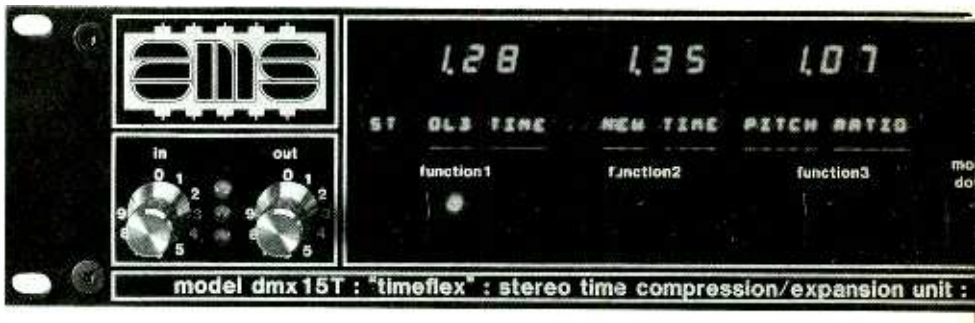

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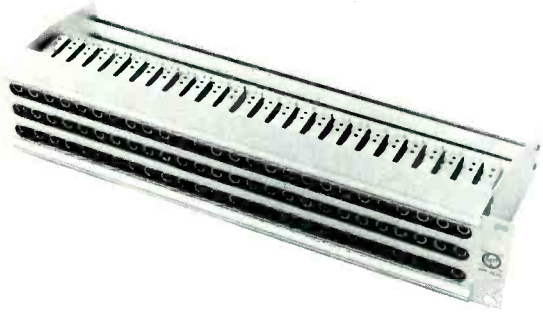

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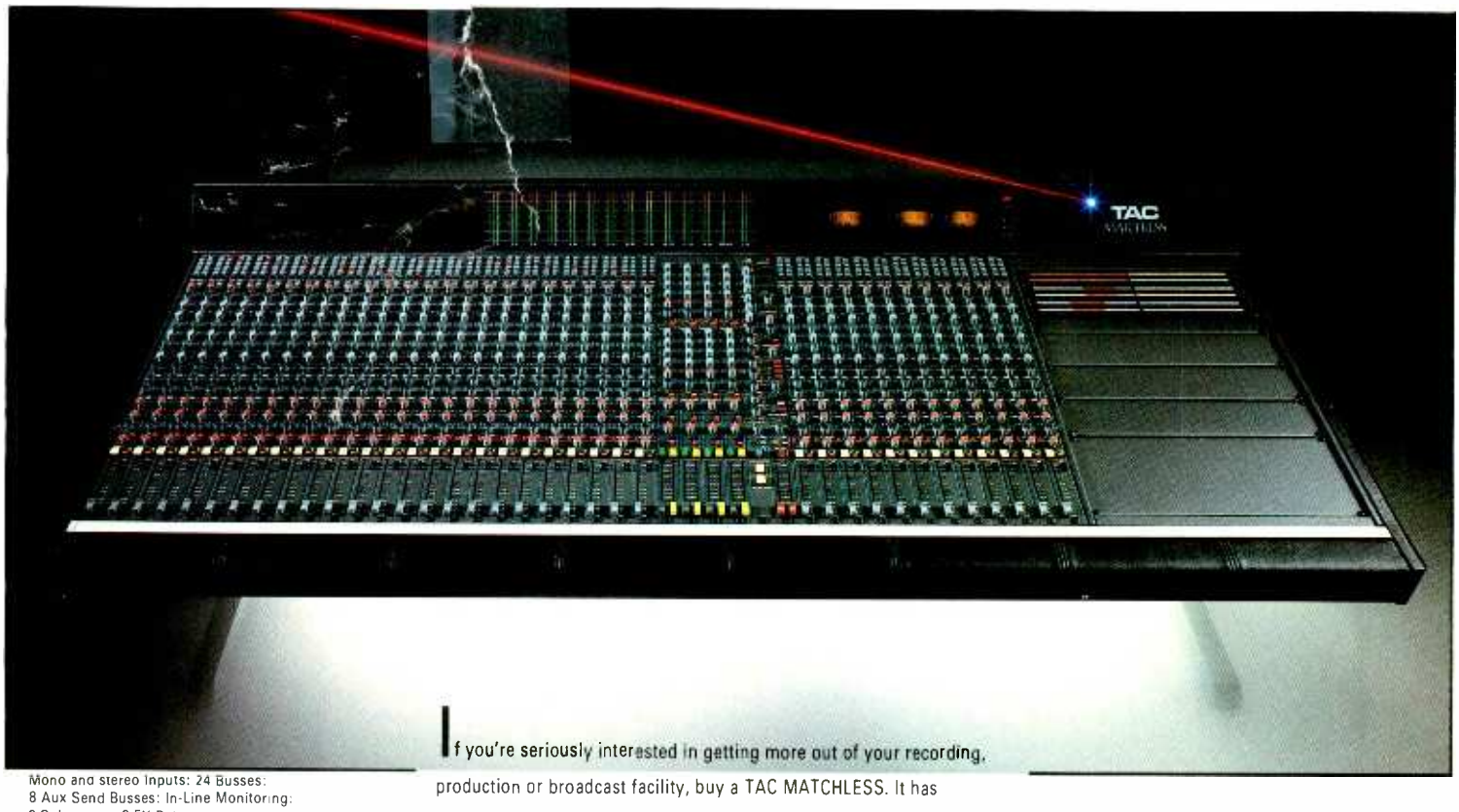

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MUSIC ROOM

James Betteridge visits a studio in the heart of the Surrey countryside

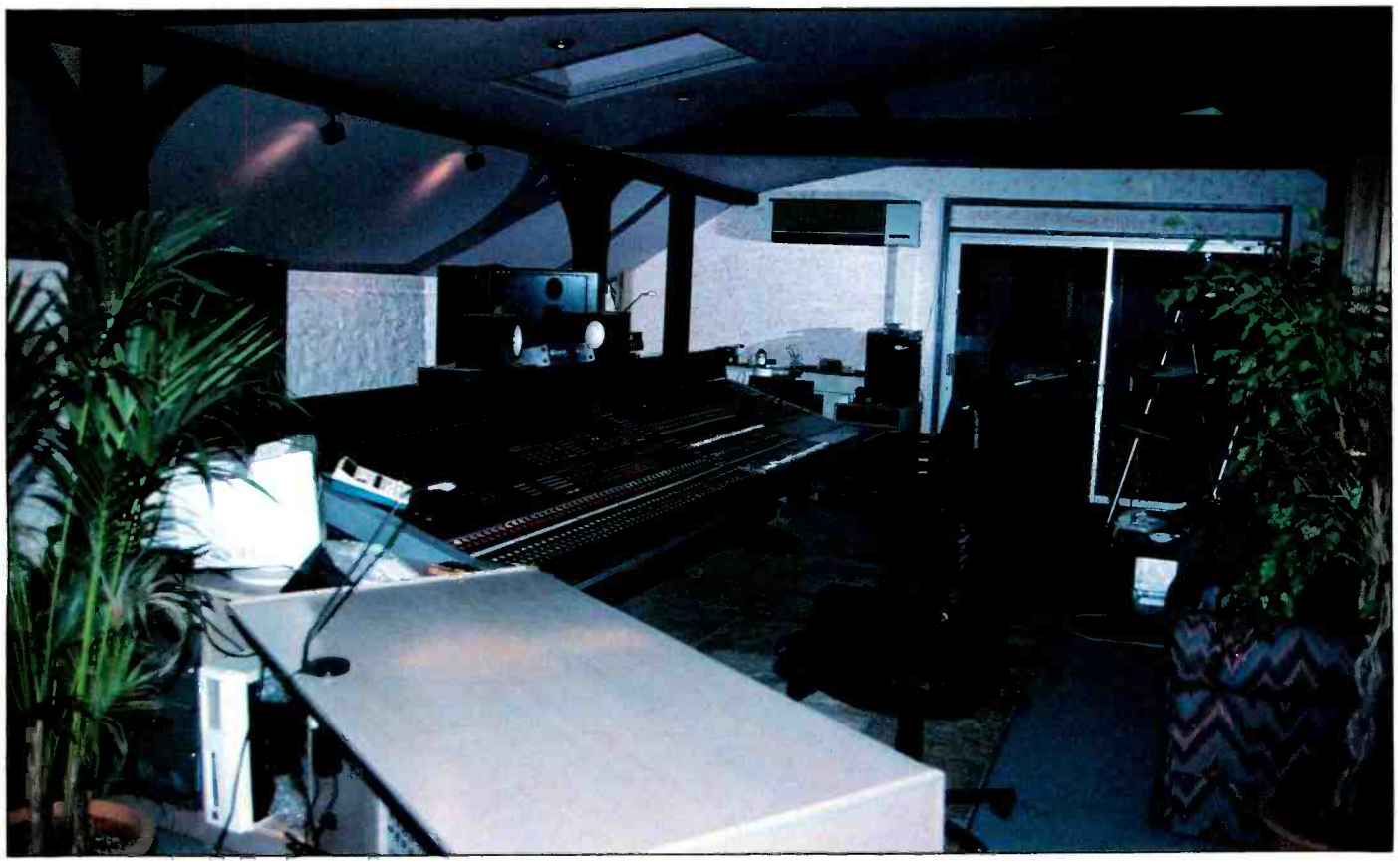
It was at the 1986 APRS exhibition that Trident received the first order for their new *Di-An*, assignable mixing console. The man confidently signing on the dotted line while all others hummed and hawed was 21-year-old Paul Travers. He and his partner, John Hine, were setting up a new record company and had plans for a new, purpose-built, residential studio as its operational base. The *Di-An* was to be the studio's centrepiece.

In late 1987 a large 7-bedroomed house in Guildford, Surrey, complete with indoor pool and well kept grounds, was purchased by way of accommodation. To its rear was a big old corrugated iron hut soon to be rased to make way for the new studio. Unfortunately, the projected environmental ramifications of rock'n'roll in Guildford proved difficult for the local council to consider. Their reluctant acceptance was hard won and came a long and expensive nine months after Travers' initial application for planning permission. It was too late. The long wait, coupled with the 1987 stock market crash, had resulted in terminal erosion of capital. The house was sold and the project put on ice. Though serious delays had also been experienced with the *Di-An*, it was now all paid for and its arrival was imminent. But where was it to arrive? The search was on for a new delivery address.

Prior to his partnership with Hine, Travers had been co-director of Chestnut Studios, a modest 24-track near Farnham in Surrey, about four miles away from Jacobs Studios and 10 miles from Genesis' studio, Fisher Lane Farm. Chestnut had already been in decline when Travers left and now it was struggling for survival. In his opinion the main reasons for Chestnut's lack of success were its generally poor state of repair, low level of facilities and, situated as it was on a farm in the middle of the Surrey countryside, its lack of accommodation. A deal was struck with his old partner, and between April and August 1988 the 230-year-old main studio building was torn back to its basic four walls and roof beams, and rebuilt to Travers' requirements, as overseen by studio designer, Neil Grant. The adjacent 3-bedroomed cottage was also renovated to provide accommodation for clients. So was born The Music Room, and a new home for the *Di-An*.

The basic rectangle formed by the 2 ft (61 cm) thick exterior stone walls of the main building measures approximately 58×18 ft (17.68×5.48 m). This has been divided into three basic areas along its length, the largest being the control room measuring 35×18 ft (10.66×5.48 m), next to which is the 15×18 ft (4.57×5.48 m) studio area, with the last 8 ft (2.44 m) of the building being divided across its width into a tape store, kitchen and toilet. The console is positioned in the control room side-on to the studio area. The room is quite lively with a simple acoustic treatment consisting of a false ceiling of stud work, infilled with 2 in (5 cm) battens of mineral wool and covered with pale grey *Fabritrak* material. The walls are largely unplastered stone. Mounted on the wall behind the engineer's position are two pairs of natural wood RPG diffusers. There's an open and airy feel to the room with plenty of natural light from three 3 ft (91 cm) square double-glazed windows on the rear wall, a large sliding glass door (the main entrance to the studio) on one end wall, and a small roof light above the console. The idyllic view from any of the windows is of sheep and the gentle roll of Surrey's pastures green. Low voltage spots are sunk into the ceiling and provide a whiter light than standard bulbs, allowing a relatively seamless crossover from day to night. The working floor area in front of the console is roughly hewn, brown/grey flagstone, the rest of the floor space being covered in light blue carpet. A single wall-mounted Mitsubishi unit provides air conditioning.

The floor of the studio area is covered with the same flagstones as surround the mixing console. The walls are bare stone with just a coat of paint, the ceiling is plain timber and the only acoustic treatment is four pairs of RPG diffusers distributed around the walls. Hence it is quite live, although optional carpet and 360° curtains on rails were planned to provide some variable absorption. Again there is plenty of daylight from windows and a skylight. ▷



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Paul Travers

The tape machines are housed in the control room. The multitrack and ½ in stereo machine are Studer *A820*s, and both have Dolby *SR* noise reduction. In addition there is a Sony *DTC1000ES* DAT machine and a Sony *701ES* PCM with A&D *Propak II* for mixdown. The main monitoring is a Discrete Research *Boxer 2* system, mounted without undue ceremony on a pair of Black and Decker work benches; although that isn't apparent unless you snoop around the back of the console. Nearfield monitors include Yamaha *NS10*s and Auratones. To the left of the console is a rack containing a Lexicon *480L*, two Lexicon *PCM70*s, two Yamaha *REV7*s, four Roland *SRV2000*s, two Roland *DEP5*s, two dbx *160X* compressors, two Summit Audio valve limiters, Roland *SDE1000* and *SDE2500* DDLs, a Drawmer *DS201*, a *TC2240* dual parametric EQ and a *TC1210* spatial expander. Available instruments include an Akai *S900*, Roland *JX10*, *Jupiter 6*, *MKS20* electronic piano, *D550*, *TR707*, *MC500* and *SBX80*, Yamaha *DX7* and *RX5*, a GT *Groove Tube* guitar preamp and Washburn *Tour 24* guitar. Microphones include a Calrec *Soundfield* a Neumann *U87*, two AKG *C414ULS*, an E-V *PL20*, a Beyer *M88*, two E-V *DS35*s, an AKG *D112* and what Paul describes as a sensible range of other mics. Equipment can be hired in as required.

Though not yet established in England or America, Travers' career has been something of a tape-op's dream. He started at the age of 16 as tea boy at Chestnut when it was 8-track, quite soon becoming a partner in the business as it quickly progressed through being a successful 16-track and finally a struggling 24-track. At 17 he earned a co-production credit on *Midnight Blue*, an album by Louise Tucker, recorded 16-track at Chestnut, which went platinum in France, Canada and Sweden, and gold in many other European countries. This brought him a 5-figure financial reward and great expectations for the future. However, luck seemed to desert him for the next few years as the studio, now too expensive for the existing client base but not professional enough to attract major acts, went into decline. It was during that time that he met John Hine who is a successful businessman and musician. Hine recorded an album of his own music at Chestnut, produced by Travers', and was very pleased with the results. So it was that, aged 21, he had approached Hine with the idea of their going into business together. By coincidence Hine had been thinking along the same lines and the partnership was formed.

The record company has gone ahead as planned and Travers has been busy for some months producing acts they've signed. The intention is to use around 65% of the studio time for in-house projects. The remainder is commercially available and the cost includes accommodation for around four (one of the three bedrooms in the cottage is a double) and a very wide choice of cuisine from a local caterer for up to six people. Travers' stresses that the studio has been designed to suit his own needs and that it isn't being sold as the ultimate facility. With the permanent assistance of a tape-op, he envisages production teams making the place their home for whatever period of time they need; handing over the keys and letting them get on with it, while being only 10 minutes away should there be any problems. Travers: "The studio isn't flash, but the level of facilities is very high. It's for people who don't want to pay £1,200 or £1,400 a day for a big residential, or suffer all the red tape that goes with London studios. It's a great place to work."

Because The Music Room was always intended primarily as an in-house facility, Travers was able to choose the equipment that suited him, free from the pressures of market opinion. This is apparent in his choice of the Trident *Di-An*.

Since its launch in pre-prototype form at the 1986 APRS its arrival at The Music Room had been permanently imminent, delayed by both sides, until its eventual delivery in August of last year. Around that time Trident was taken over by Relyon, a broadly based company with interests in hi-tech products, who provided a substantial monetary injection and instigated a major expansion of staffing. Though the company was now obviously more dynamic, did Travers have any qualms about his choice?

"If I'd been setting up a commercial studio I suppose I would probably have bought an SSL simply because, at that time, that's what people wanted—that's changing, now. But I knew that the basic concept of the *Di-An* was right for me. Prior to the Relyon takeover there were a lot of problems with the production of the desk. Since the takeover, though, it's like a different company. Any ideas we have about the desk operationally are discussed and, if possible implemented; if we have any problems, an engineer is here like a shot. We have the advantage of being very close to the Trident factory but if you talk to Keith Olson of Goodnight LA Studios in Los Angeles, you'll find that he's extremely pleased with the desk and service, too."

And operationally? "It's a very simple console to operate and none of the outside engineers who have worked here have had any problems with it. In the past there's been something of a phobia in the industry about assignability, based on reactions to early systems. In fact, the *Di-An* is operationally very immediate and intuitive, and gives you easier access to the controls and information you need than an ordinary desk. If you want to look at the settings on channel one, for instance, you don't have to lean over and peer at all the little knobs and buttons, you simply tap the channel's access button and the information is clearly displayed in front of you. It's no hardship at all to interrogate a channel with your finger as well as your eyes, and it's less stressful to look at large, bright displays.

"One of the obvious advantages of the *Di-An* is that all its settings can be stored on a floppy and instantly reset when required. When I'm starting a session I boot-up with my default disk and it's immediately configured with channels 1 to 24 as tape monitors and 25 to 48 as inputs, which is the way I work 24-track. All the input trims and aux sends and returns are also configured to a useful start point. Also, if you return to a project to an overdub, say a sax, on a number of tracks, you don't have to go through laboriously getting the monitor mix together or setting the aux sends, etc, you can simply move from song to song, recalling the original mix instantly in each case. It can save a great deal of time and money.

"There was one potentially horrific situation once where I'd just finished a mix to DAT and had taken it next door to run off some cassette copies. I plugged the DAT machine into the mains, not realising that the timer-record function was switched in, and seconds later, while I was sorting out some cassettes, it automatically dropped into record and erased half the mix. Meanwhile the desk had been cleared and a new session was starting in the studio. That would have been a major trauma with an ordinary console. Luckily the patch bay hadn't been touched so I simply loaded the mix data back in from the disk and ran it off on to DAT again in minutes, while they were setting up the drum kit.

"It's just a great way to work. Since the Relyon takeover, the software has been improved a lot and the process continues. Most of the engineers that use it now are amazed at how simple and 'human' it is to use."

The plans for the upmarket studio, though as yet unrealised, are fully developed and over £15,000 has been spent prototyping some of the special hardware envisaged for the installation. Particularly striking examples are the four subterranean equipment racks. Each is hidden beneath one of the squares of black marble intended to make up the floor, until called forth by the touch of a button. A sophisticated optical sensing system has been devised to avoid inadvertent capsising of unsuspecting producers or *Synclavier* systems. Should this fail, the injured party might be revived by the contents of the fourth rack, a combined fridge and cocktail cabinet. Similarly motorised systems were to be used for the nearfield monitor stands enabling them to be dropped down behind the desk when not in use. This is more than just gimmickry, as Paul explained: "It's always struck me as silly that you pay £13,000 for your monitor system, and then shadow the mid and high range by sticking a pair of nearfield monitors in front of them."

The dream is by no means dead but it is likely to be on ice for a minimum of 18 months; probably longer, depending on finances. Ideally, Paul would leave The Music Room just as it is and build and equip the flagship studio from scratch. In any event he thinks it unlikely that he'll sell The Music Room.□

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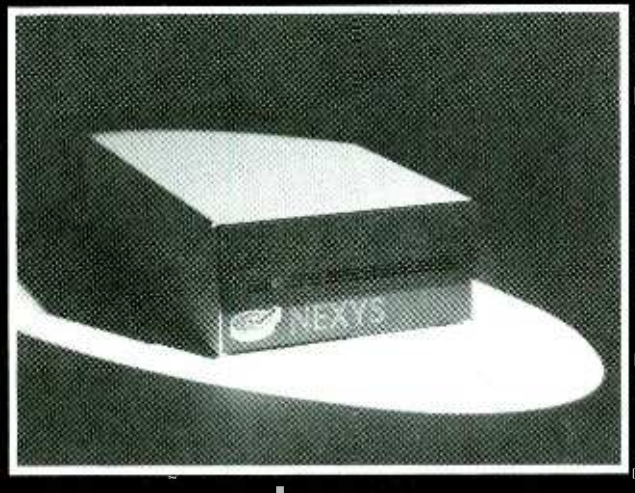

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CUSTOMISING CONSOLES -INSIDE SHEP

Working from a converted brick barn about three miles from the Neve factory in the Cambridgeshire countryside, is a company that specialise in the refurbishment and customisation of used Neve consoles. The company, Shep Associates (named after a favourite Old English Sheepdog of director Derek Stoddart) has been based here for the last four years.

Stoddart himself has close connections with Neve, having worked for the company when it was based in a stable block in Rupert Neve's garden.

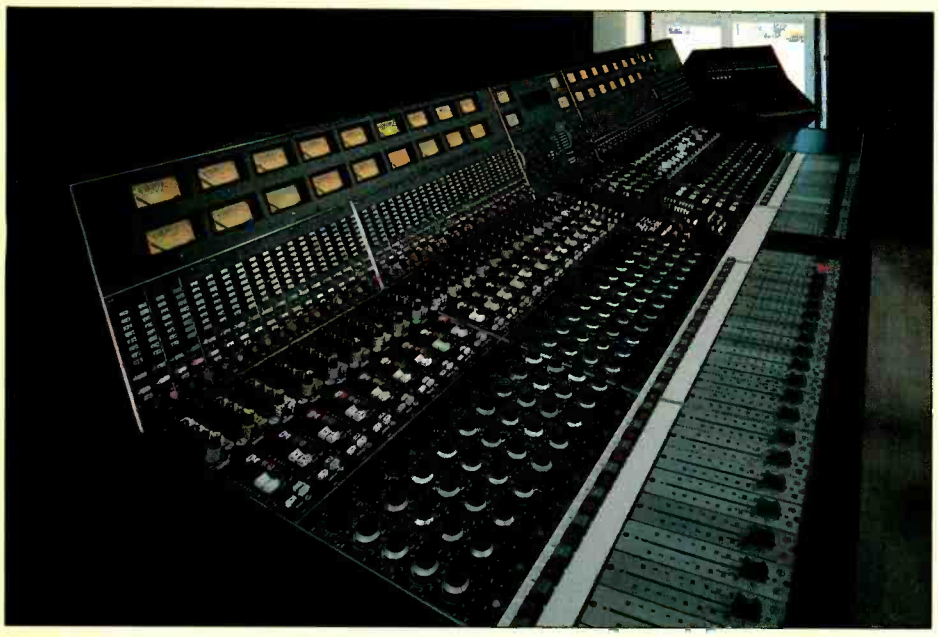
"In those days there were just five of us," he says, "and we would liaise directly with the client to discover what he wanted. We did all our own drawings and circuit diagrams as well as being responsible for getting the metal work made up, the modules built and wired, frames wired, the testing done and the final installation."

Patrick Stapley visits Shep—a growing UK company specialising in the refurbishment and customisation of Neve mixing consoles

Stoddart stayed with Neve for a total of seven years, becoming chief project engineer when the company moved to their present site in Melbourn. His next job was with 3M where he acted as technical manager for the Professional Audio division. This he did for 11 years, gaining considerable experience in a wide range of products as well as becoming more involved on the sales side. It was while he was still with 3M that Shep was set up.

"I used to do work for a lot of musicians, people like The Beatles, who'd say, 'I wish I had a box that could do this or that,' so I ended up building things that nobody else was making. I eventually felt that I ought to be doing things properly, and that's when I formed the company."

Things took time to get off the ground but gradually the word spread and, strangely enough, ▷



◁ Shep's first orders came in from the States. In fact it is only recently that interest has picked up in Britain, with Great Linford Manor and the Power Plant being the first major clients.

Commissions

The mixer, which has now been installed at Great Linford, originally came from London Weekend Television, where it was a much smaller 4-group console and about 12 years old. Shep transformed it into a 36-input, 32-group, in-line desk with six aux sends and a 3-band to 4-band EQ conversion.

When a desk like this comes into the factory, it is completely stripped: the frame is then reconstructed and rewired ready to accept the redesigned modules, central switching, metering, etc. A new bantam patchfield is fitted, the entire desk is repainted and silk-screened, and any woodwork or buffers are replaced—all this non-electronic work is contracted out to the same companies used by Neve. Depending on the client's requirements the electronics can be overhauled or totally redesigned and in the case of Great Linford a considerable amount of redesign work was carried out. The previous routing module was changed into a versatile in-line monitoring section incorporating the six aux sends; the equaliser, which originally consisted of fixed low and high frequencies with a switchable mid, became fully switchable over four bands (HF, two mid, LF), as well as offering a 3-position highpass filter, and with the help of dual concentric controls, fitted neatly back into the original module; the 32-group routing module was slotted into a specially designed section below the new metering. All this was done by making use of the original Neve circuit boards, and any additional components, switches, pots, etc, were either old ones or of a type adhering strictly to Neve specifications. The end result—all Neve audio.

At Shep there are two rooms filled with Neve metal work and salvaged components, waiting to be incorporated back into one of Stoddart's designs. But how reliable are these old components?

"Very reliable indeed, rarely do we have to replace many components in existing boards, because the design of those old boards is quite conservative, nothing is working at its limits and there's plenty of headroom and gain. It mainly tends to be the electromechanical devices, like switches and pots, that cause the problems."

The timescale to deliver a desk like the one at Great Linford, or the *8048* going to the Power Plant, is approximately six months, but is of course a lot less for smaller projects. Considering one is getting a high quality console, which is as good as new and has been customised, it certainly provides an interesting alternative to buying an 'off the shelf' mixer.

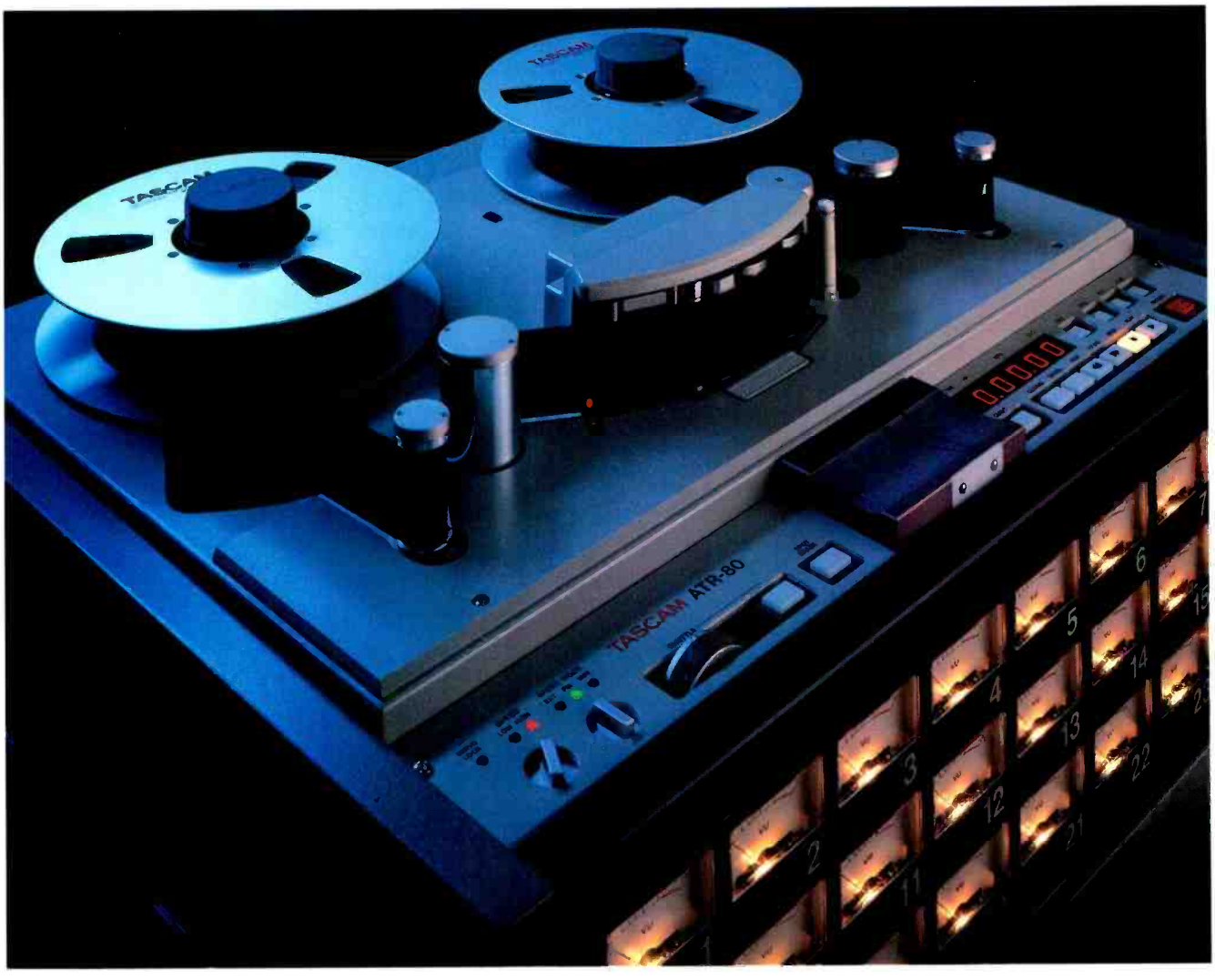
Relationship with Neve

What's intriguing, though, is what Neve thinks about Shep Associates. There seems to be an unwritten understanding between the two companies, with give and take on both sides—a kind of symbiotic relationship. Neve recommend people to Stoddart as well as selling him their redundant stock, in return Shep have given up space in their own factory for Neve projects. But, perhaps more importantly, they provide the kind of service that Neve would not normally offer, and due to their own high standards, they are helping to promote further interest in Neve and its products.

Apart from mixing consoles Shep are involved in some other areas. The 4-band redesigned Neve equaliser, described earlier, can be supplied as a rackmountable outboard package; there is also a parametric equaliser designed exclusively by Stoddart that can be expanded to suit the user by plugging in additional cards, so for example if an HPF is required, an extra card is simply slotted in. Stoddart's knowledge of 3M multitrack machines is not being wasted either, and the company offer full technical back up along with a large stock of spares. Another venture, which became operational in the early part of this year, is to continue manufacturing and servicing the products made by the recently demised Nemesis.

Needless to say, Shep are seriously contemplating expansion both to their premises and personnel, which at the moment consists of a very small permanent staff supplemented by freelance people. The future looks set to be a busy one with a more healthy interest being shown from the UK.□

(Shep Associates are located at Long Barn, North End, Meldreth, Royston, Herts SG8 6NT, UK. Tel: 0763 61686.)



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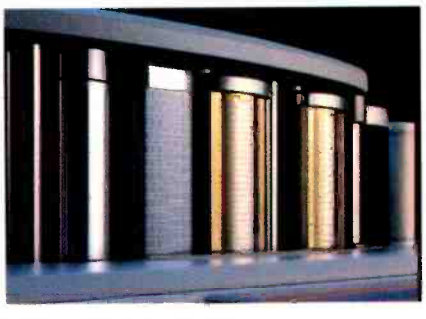

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MARC STUDIOS

Bill Melville visits a studio in Ottawa, Canada, which takes in TV and radio production work as well as all types of music recording

"It's the 'Catch 22' situation. We're offered the challenge: bring in the business and we'll bring in the gear. We say bring in the gear and we'll bring in the business." Charles Fairfield at Marc Production Studios in Ottawa is the man with the communications problem. On the face of it he has a lot going for him—a minor but developing operation with a big backer. It is a situation that should leave time and space for getting on with the job with none of the financial problems that dog the owner operator. But then, appearances can be deceptive.

Marc Studios lie in an industrial estate just off that thundrous river of traffic, the Ottawa Queensway. It rubs shoulders with a coffee wholesaler on one side and a refrigeration company on the other. Local enthusiast Marcel Tessier opened up what was the first 16-track operation in the city at the turn of the decade in a mansion house basement. Two years later he moved into the present three shell factory estate unit.

At one time, Tessier filled a gap in the local music industry. No longer were the only serious alternatives in Toronto and Montreal. He produced his own record label concentrating on French-Canadian music. In early '86 he branched out into video production and shortly thereafter sold out.

The takeover came in early '86 from the Quebec-based French communications company Radio Nord, whose main efforts are concentrated in radio and TV production. They named their new Ottawa off-shoot Marc Productions. They use the facility increasingly for support production work—"they're starting to like it and asking for more"—jingles, background music, station IDs. But there are no sinecures on offer. The management team—Richard Marquis as general manager, Charles Fairfield in charge of audio work and video manager Pierre Larabie—know they have to earn recognition...and investment.

The noise and clamour of the industrial suburbs of the Canadian capital are left at the doorway. Outside, Marc Studios could be just another commercial wholesale premises among many. Inside, the surroundings are quickly forgotten: there are low slung lights in the reception hall; a broad corridor in cream leads off past a glass fronted office suite; round an L-shaped bend chairs and couches await an explosion of exhausted artists from surrounding studios. The hospitality on offer is simple but effective and pleasantly contrived.

The Radio Nord takeover was not without hiccups as Tessier had built up personal loyalties, "It's been something of a struggle to get local artists back into the studio," says Fairfield but prices are competitive. A 'do it yourself' night rate is "as low as thirty bucks an hour... the full rate here," he says, "with technicians and full sync is about $90". Montreal and Toronto companies charge "as high as $190".

Potential customers with money to spend equate a high price tag with expertise and good facilities, however. Bridging the gap requires a quantum leap into the dark. "One of the most logical things to do would be to keep a room for the local market... but the bulk of the investment would go into the others."

Presently, the studio has a firm financial base with 1,000 hours contracted to CBC, who also rent 800 ft^2 of storage space. They also serve a government contract for another 1,000 hours of studio time. Canada has freedom of information legislation, which requires the production of audio tapes for the blind in French and English for nationwide distribution. Production contracts are widely distributed to include all interested companies. Meanwhile, Larabie and Fairfield develop the video and music markets.

The video studio is large enough (8×20 m) to take the advertising scenery that comes with the bulk of their business. Access at the rear allows easy entry. Even the odd car has been imported for product presentation. "It's a beautiful room," says Fairfield in his soft Canadian drawl. "We can play with the curtains and we can adjust the reverb time although the vertical component can pose problems because of the ceiling. We do something about that with movable louvres."

The studio links with the maintenance room and a tie line system not without its hassles. "It's hard to debug. The ▷

Studio B control room

Video edit suite

◁ gentleman who labelled it has gone off somewhere and it's quite cryptic. So we've traced the ones we need. We've kept it to a minimum."

One of the universe of feelers takes in the 1 inch C-format recorder in the video editing room. The 16-track Tascam in the studio control along with a Soundcraft *2400* form the focal point for most of the production and post-production sound recording work.

"I don't know how far back these things go," says Fairfield. "It's on the list for things to update. We'd like a centre-track timecode machine, either the Otari—slightly more accessible—or the Studer. We supply stereo at the moment. We mix it down to 4-track: two stereo and the outside tracks for timecode. When I'm supplied with ¾ inch copy with timecode I can stripe the Tascam *MS16* 1 inch machine with timecode and by extension I send timecode to a converter for MIDI equipment. Using the linkup I'm mixing directly to 1 inch. I'm not even going to 16-track, which is left with the dialogue, sound effects and things like that. It's first generation music. Most of the clients feel the difference and they get a kick out of it. They see the VCR starting with the pictures and then the computer moves in with the music."

Marc Productions have made a move towards the pop video market. They selected a rising band, Noir et Blanc, who seemed to have the talent and music they needed. Then everyone got together in their own time to produce a high quality demo. "It's a calling card that could open doors for us," suggests Fairfield.

Studio A is large enough to house the occasional brass band, which complies with the company policy of covering everything from classical to jazz as far as sound recording is concerned. Big bands, orchestras, "sometimes even the rock acts won't play in the small room. They prefer the (bigger) live room for their drums, etc."

At one time, the control room sported speakers designed by Floyd Toole of the National Research Council but "They had to be taken out. They were horn speakers and we just had to get rid of them." The room sports Yamaha *NS10*s.

Studio B, linked to the 24-track Otari *MTR 90*, is where much of the present investment goes and is being developed. Present walls and ceilings and one of the two isolated booths will be removed. A bulkhead over the control room window, enforced in part by the original shell structure is to be stripped away. Presently it "takes up space for nothing", it has a horn effect on the bounce back from the window and produces problems with the standing waves. "The room isn't dead," says Fairfield, "but it just isn't live enough."

The renovations have already been partially completed in the control room, which has been revamped because of electrical problems. The floor was stripped and the whole place rewired on technical grounds. By the time all is complete, Fairfield would like to see another centre-track timecode machine in here and his present Studer *A80* relegated to the back-up role of the present MCI machine. He is happy with his MCI *JH600* mixing desk but complains of too few inputs. "When you're fitting up 24 tracks with vocals, strings, sax and drums, etc (32), leave very little room for synchronised MIDI gear."

Two prototype *CF 2000* monitors give the studio what Fairfield describes as "state-of-the-art electronics". Now fitted in a number of more renowned studios, they were designed by Claude Fortier using the Ottawa studio as a test site during the development phase.

The processing banks are slim compared with many studios. "I'm happy with everything we've got. All we need is more of it. With processing, of course, you can go on for ever. The more you have, the more you can go into your art."

Fairfield is a musician himself; he started out on guitar, "I found it limiting so I stepped over to piano. Then, I had to get into the MIDI craze."

The Yamaha and Roland machines and the Otari computer used are his own. It is part of the strict central control of budgeting that the studio has yet to outlay on the most basic MIDI equipment. "I've kept myself up-to-date, so at least on the MIDI side of things the studio is up-to-date too. We have good space and good basic equipment. We need that extension into the MIDI and processing areas."□

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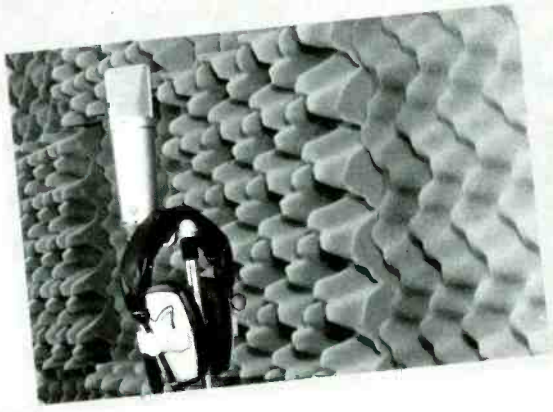

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BLACKWOOD

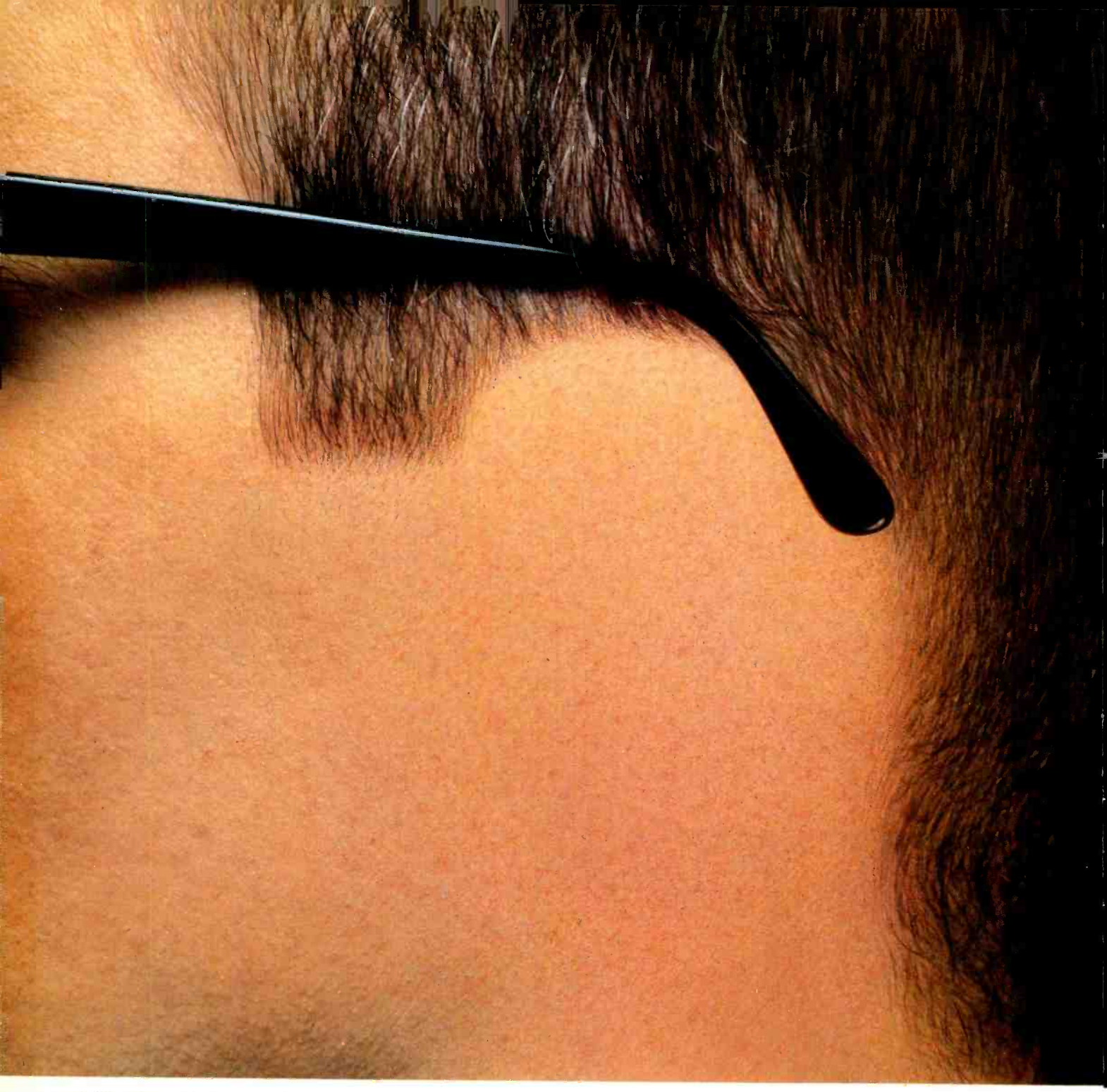
James Betteridge visits a Swiss studio which has an audio/visual link with a nearby nightclub

Just at the point where the Rhine turns sharply northward, and geographically almost in the centre of Europe, lies Switzerland's second largest town, Basle. So close is it to the borders of France and Germany that it has three railway stations—Swiss, French and German—and its airport is actually on French soil. This makes it a logical and political European meeting point and it is host all year round to a number of internationally attended conventions and trade fairs. Though currently something of a backwater as far as the world's music recording industry is concerned, efforts are being made to lend a little of this international attraction to Basle's upcoming recording studios.

While the telephone directory lists eight studios in Basle, there are only three 24-track facilities, one of the most successful of which is Blackwood (no relation to Greenwood, *Studio Sound*, January 1989) owned by Helmie Edinger. In 1981, after three years at the Basle Academy of Commerce, Helmie had originally built the studio to provide a means to realise his own musical aspirations. While working by night as a bass player in MOR cover bands and by day in his parents' doll hospital, he managed to save enough time, energy and money to build his studio almost from scratch, and virtually single-handed. Though high on enthusiasm and dedication, Helmie found his training in commerce didn't support him entirely effectively in achieving the optimum acoustic, electronic or cosmetic results. Nevertheless, the project was successfully completed about a year later. Predictably, it all cost substantially more than had been envisaged and thus, though originally intended exclusively for private use, the studio was now required to offer some financial return.

As luck would have it this decision to go commercial coincided with the decision of the Swiss Government to grant licences for a limited number of privately owned commercial radio stations. This was largely due to the fact that a commercial radio station, Radio 24, established high up on an Italian mountainside about 150 km from Zurich had, to the chagrin of the Swiss Government, been very successfully broadcasting in Swiss German all over Switzerland since 1979. A continuing restriction within Switzerland, therefore, would have been counter-productive. With the new stations came a huge demand for stings, jingles and other recorded material, a demand which Helmie, more by luck than judgement, was well equipped to supply. Business boomed.

At this stage all those years at the Academy paid off and Helmie's business acumen was dusted off and brought firmly ▷



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◁ into play. He soon captured a large slice of the local TV and film production work through the installation of music-to-video synchronisation facilities, and through that became friends with the manager of the local TV production house, Inter-TV. Recognising the potential Helmie became a shareholder and the two companies continued to work in close co-operation.

It's only rock'n'roll, but . . .

Though now enthusiastically steeped in the radio and TV business Helmie's heart still lay largely with rock'n'roll and in January 1987 a plot was hatched to allow his exploration of both interests. It was decided to move Inter-TV to new and larger premises nearby, and to build a second sound recording facility under the same roof designed specifically to cater for the broadcast industries, leaving Blackwood free to be refurbished as a music studio. The newly appointed sound studio was called Inter-Sounds and was equipped with the Alice *Silk* series console previously at Blackwood (one of three prototype *Silk*s ever made), a Fostex *B16* (soon to be replaced with a 24-track), two Otari *MTR-12*s with centre-track timecode, a Giese synchronisation system (very popular in Germany) and Genelec and Yamaha *NS10* monitoring. Careful planning meant there was only a one week gap, in September 1987, between Blackwood closing and Inter-Sounds opening, so financial continuity was maintained.

Part of the new plans for Blackwood involved an audio/video link with the Atlantis club, which stands a few doors down the street from the studio. The Atlantis has been famous in Europe on and off over 35 years for presenting a variety of live music from string quartets to R&B. With no roads to cross and only about 80 m of private land and buildings separating the two, it had been a simple job in January 1987 to cover the distance with standard plastic trunking carrying 32 balanced audio lines and two video lines. The partnership of the club and studio appealed to the national radio station, Swiss Radio DRS, and up until the time of the changeover around 10 live broadcasts had been made from the club via Blackwood. The success of the alliance and its potential to attract acts from all over the world has been a major factor in Helmie's decision to invest in Blackwood as a world class music studio. With the involvement of Inter-TV it is now possible to offer acts a package that might consist of four or five nights at Atlantis, with perhaps just the last two being recorded on video and multitrack, to be mixed to picture at Blackwood. Inter-TV has a fairly large TV studio for extra shots plus sophisticated picture editing and special effects generation facilities with which to shape the final product. A three-room apartment is available at the Atlantis and special rates have been negotiated with local hotels for studio clients.

Tom Strebel, who engineers both at the club and the studio, is excited about using the recordings made at the club as a basis for an album; *not*, he emphasises, necessarily to be finally presented as a live album but simply a recording based on the energy and excitement of a live performance. The club's acoustic apparently offers excellent separation between instruments and between the stage and the audience allowing for extensive replacement after the event. Though the club's stage is not large and the audience capacity is limited to 400, it is hoped that the combination of the smoky atmosphere and the sophisticated production facilities, together with the promise of a much wider audience via television and video, will attract better known acts.

The Quested connection

A new Neve *V* series console with *Necam 96* automation had been decided upon for the new Blackwood and Helmie was now considering ways to upgrade the rest of the operation to match it. It was during this period, at the May 1987 APRS exhibition, that he first made contact with Roger Quested when he visited the Quested stand to inquire about a new pair of monitors. Having established that a Quested system was wanted, the discussion moved on to methods of mounting. Impressed by Roger's rather extensive comments concerning the existing structural arrangements, Helmie decided to bring him in to redesign and rebuild the control room and the studio.

The existing division of the area into control room, studio and isolation booth was considered optimum and so, apart from some strengthening of the original walls, it was only the acoustic treatment that Roger was concerned with. On his arrival this consisted mainly of darkly stained, roughly finished tongue and groove boarding and panelling lovingly, if rather casually, assembled by Helmie himself. The control room was a simple cuboid with carpet on a concrete floor creating an acoustically and visually rather unattractive environment. Work began in the control room by ripping down all the timber cladding to lay bare the basic brick behind it. Though quite high, it isn't a large room and so it was important not to lose too much from the general dimensions. Also, a very attractive feature of the room from Helmie's point of view, and one he was adamant about preserving, was the line of windows running high along both side walls. Not only were the windows to remain, they also had to open so, weather and monitoring levels allowing, sessions didn't have to mean long periods without fresh air and sunshine, although all parts of the studio are also air ▷

◁ conditioned. The existing windows have been replaced with pine-framed, double-glazed units, tightly closing and with rubber seals. The walls are white textured plaster. Mounted below the windows are a variety of pine-framed absorptive boxes with a mixture of light and dark grey cloth covering. The ceiling is highly absorptive and contains most of the bass trapping, with its centre section unusually sloping down from the rear end of the room to meet the monitor wall about 8 inches above the window through to the studio.

Roger Quested commented: "Control room ceilings will often slope down to a low peak at the monitoring position. this means the monitors are driving into a decreasing area, which results in a higher SPL at that point. Unfortunately, this compression also results in greatly increased distortion. This room is designed the other way round for minimum distortion and so that the sound is the same at the back as at the front."

Though mounted flush into the monitor wall, the Quested *Q209*s are designed as mid field monitors for relatively close proximity listening. Hence, the rear edge of the mixer is only about 2 ft away from the communications window. The monitor housings are built from a high mass, concrete-impregnated chipboard—apparently a rare material in Britain. Available in thicknesses up to 45 mm it allows a concrete-like wall to be built on stud work.

Above the speakers on either side is a video monitor, one for the Neve computer's display, the other for general use as a link to the Atlantis or for music-to-picture. In addition, a motorised lift was being installed between the mixer and the window to take a large screen video monitor, raising and lowering it from view as required.

The Holistic approach

A policy considered important by Roger, and one increasingly popular with clients, is that of using natural materials and, more specifically, no mineral or glass fibre products for absorption. He feels that the irritant factor of such materials has a continuously adverse effect on proceedings: firstly, the builders strongly dislike handling the stuff and thus can be rather perfunctory in their installation of it, putting expedience before proper execution. Stories are not uncommon of spaces in studios, supposedly packed with mineral wool, which have been opened up some years after their construction to be found empty. A designer's nightmare. Secondly, even after completion, when cosmetic covers are all in place, tiny particles continue to float free and cause irritation to the respiratory system. In place of such materials Roger uses acoustically designed foam tiles and a specially-made, fireproofed felt wadding. Panel-type absorbers are generally used for bass trapping.

Though measuring a relatively moderate 16×20 ft (4.87×6.09 m), the windows and the split level arrangement in the control room give the impression of more space and the latter seems to allow a greater freedom of movement. The parquet floor on which the console rests is at the lowest level and running around it in a kind of U-shape is a raised carpeted section. Behind the console, sitting on the raised section, is a wide work surface, ideal for computers and synths, etc. Seated behind this at the rear of the control room, anyone involved has a clear view of the console, and beyond through the communication window to the studio area and, further still through a second window, the isolation booth. The body of the work surface also doubles as a rack in which all the auxiliary processors and effects are housed, and being raised by a foot or so, access is easy for the engineer from a normal sitting position. All these different levels and types of surface are not only visually interesting but also help preclude standing waves. A particularly unexpected surface to find in a control room is that of a sink. This was another specific request from Helmie who knows how important it is on long sessions to be able to stay fresh and make hot drinks while staying more-or-less on the job.

The studio area is slightly less than that of the control room but also benefits from large, opening windows. Here the 6 mm parquet flooring rests on a layer of chipboard sitting on rubber pads on 2×2 in battens. Similarly to the control room, the walls are textured plaster on brick with a distributed system of absorptive boxes. The ceiling is an unusual arrangement involving mats of absorptive material below which are suspended a number of rather elaborate looking structures of spaced wooden panels. The whole acts to absorb lower frequencies while diffusing higher ones. By sliding absorptive tiles into the gaps between the panels the acoustic can be modified if desired.

The isolation booth is about half the size of the studio and, rather than ordinary windows, has double-glazed French windows opening to the outside world. Here the wall treatment is similar but the ceramic tiled floor gives a much brighter acoustic.

Virtually all other rooms associated with the studio are finished in the same darkly stained timber that once adorned the studio itself. Immediately adjacent to the control room is an air conditioned lounge which, measuring 15×18 ft (4.57×5.48 m), is a living record of how the control room once looked. A satellite dish mounted on the roof of the studio relays programmes to a large TV, which also acts as a monitor for a VCR and a camera in the Atlantis, so clients can watch whatever's going on there. Two large leather sofas, a hi-fi and hot and cold drinks machines complete the picture.

Attached to the lounge is the machine room and workshop in which are housed the Otari *MTR-90-II* and *MTR-12*, 24 channels of dbx noise reduction, the Lexicon *224* reverb processor and the *Necam* computer. At the time of my visit the monitor amps and crossovers, together with the Neve PSU, were housed in the control room, though out of sight. However, the intention was to move the entire rack to a room on the floor below thereby removing the rather obtrusive noise from the power supply's cooling fans. Up a few stairs, in the opposite corner of the lounge, is a small but handy 'bed cubicle', designed for weary staff or clients in need of a catnap.

On the floor below is another room measuring approximately 35×15 ft (10.66×4.57 m), finished in the same dark timber and connected to the studio by audio and video tie lines. This is used for rehearsals or as a live room for the studio.

At the time of my visit nothing had actually been recorded from scratch in the studio and so it was difficult to assess its full capability. I did, however, witness a live recording of a local band from the Atlantis and was impressed by the tightness and clarity of the sound, not to mention that of the playing. The overall feel of Blackwood is one of light airiness which I'm sure would appeal to many studio people who feel condemned to a life underground. There is a general easy-going atmosphere pervading.

Basle undoubtedly has some way to go to establish itself as an international centre for rock and pop but the ever growing need for product to fill television air time and the convenience and quality of the package offered could well see the bookings books for Blackwood et al filling fast.□

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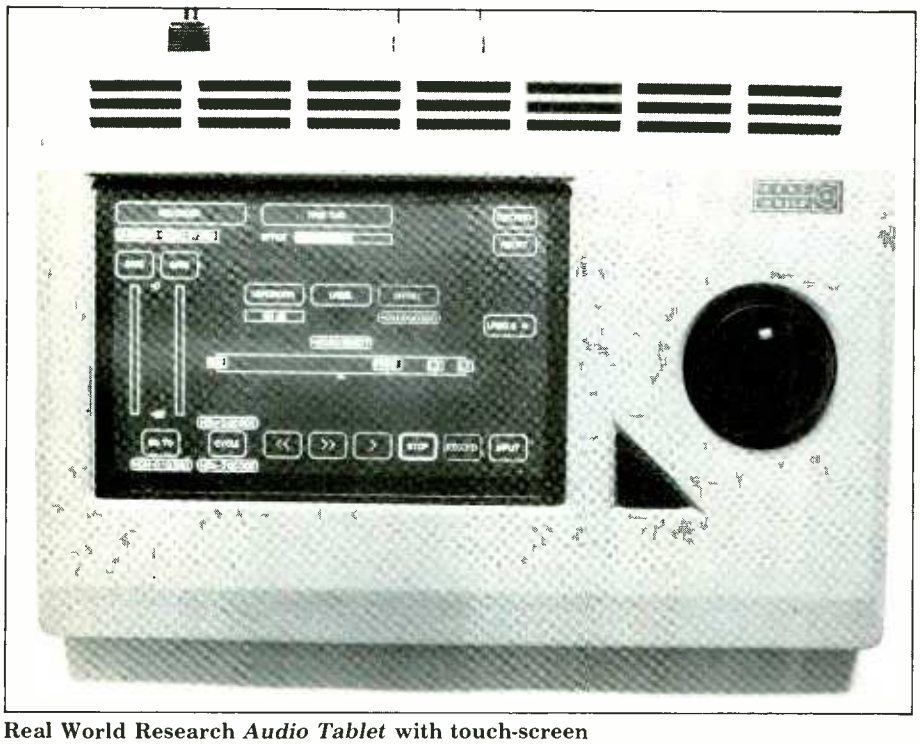
AUDIO TECHNOLOGY AND THE USER INTERFACE

Francis Rumsey assesses the viability of the various types of user interface for computer control for audio equipment

As computer control has now spread into almost every niche of the audio industry, the time seems right for an overview of the different ways in which the user may be allowed to master the computer. This has become known as the user interface and is an area of contention because it is a very personal matter. It is no secret that good user interfaces are usually expensive to implement, partially because they require good research into the requirements of the job to be done and partially because the software and hardware involved are usually more complicated than they would be for a poor interface. In today's competitive market there are two primary criteria that will sell a product: either it has to be the best, or it has to be the cheapest. These days 'the best' usually has a lot to do with how easy it is to use: people will not buy a piece of new technology if it makes their job more difficult. So what are the options open to the manufacturer of audio technology and what implementation problems do the options involve?

Touch-screen

Touch-screens are nothing new but they haven't appeared in audio products very much to date. Recently, this situation has changed. A touch-screen has the advantage that you press the very button that displays the function you want with your own finger. This is at variance with other screen-based controllers, which require you to move some sort of cursor to the button required and press a remote button.



Real World Research *Audio Tablet* with touch-screen

The difference between a touch-screen and an ordinary panel of buttons is that the buttons' functions can be made to change under control of the system, so that one position on the panel can be made to correspond to a number of different functions depending on the 'page' displayed. This makes it more flexible and makes it able to show displays other than buttons, such as meters, numbers, graphs and so on, with some 'live' areas corresponding to controls.

One limitation of the touch-screen is the fairly low number of controls that can be housed on one screen, because each button needs to be big enough to be pressed by a finger without error, as opposed to the smaller size that would be possible under cursor control. Some would say that this is an advantage, because it forces the designer not to clutter the screen with too many controls at one time.

Basically touch-screens have two different methods of detecting the presence and position of a finger. One uses light beams and detectors mounted in a frame around the screen, whereby the finger interrupts the beam at a particular grid reference, the other detects the position of pressure applied to the screen. The former has the disadvantage that it is possible to press a button inadvertently by resting something on the screen or by an unintentional stray finger, whereas the latter will only respond to a positive press in a particular location, ignoring stray fingers. It is hard to speculate about the potential long-term reliability of either, although it might be suggested that the lack of mechanical action in the former system might make it more reliable.

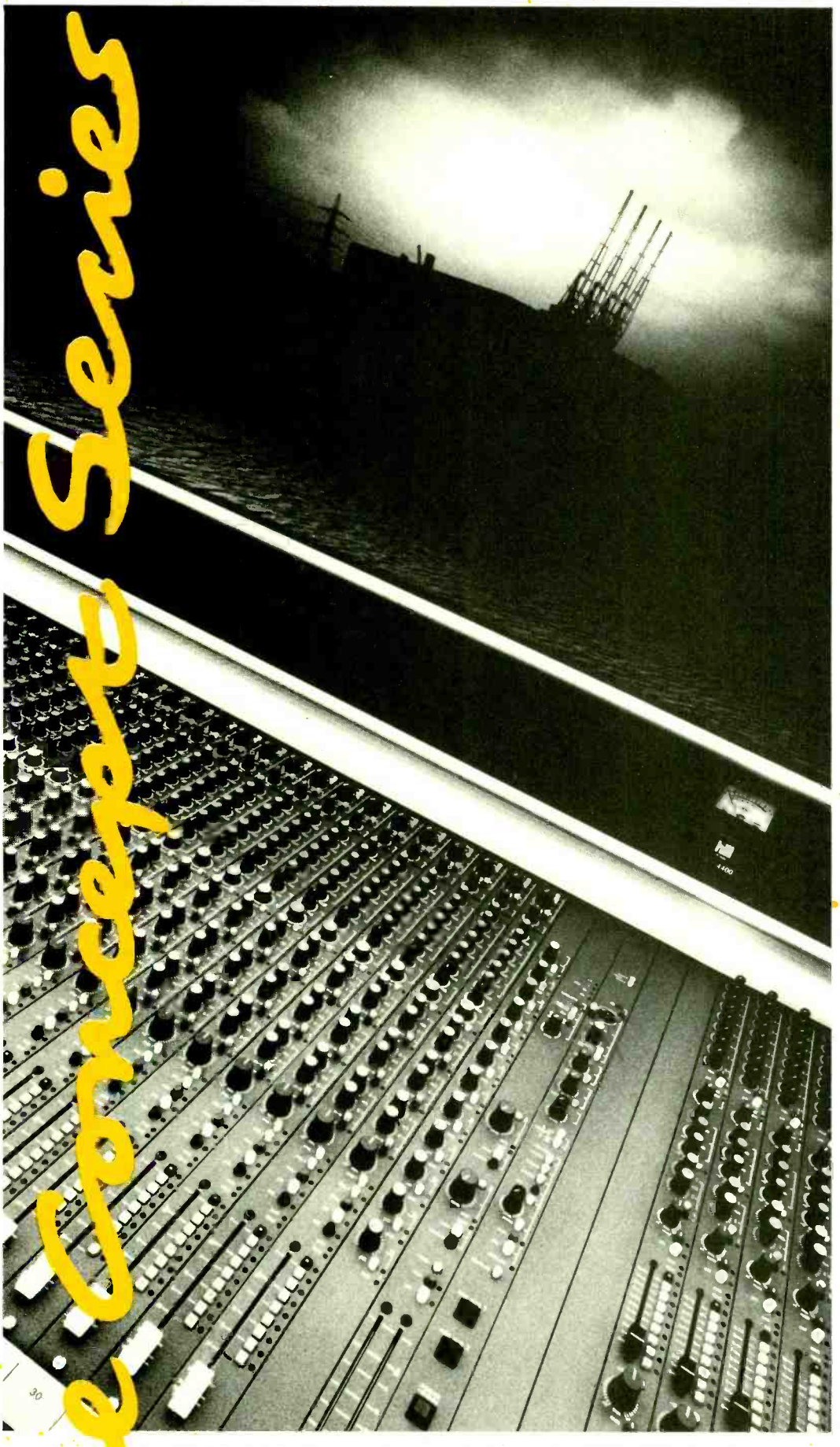
The touch-screen has the major advantage that it doesn't frighten off 'mouseophobes' although it has many of the merits of a mouse-based controller.

Mouse

Mice first appeared alongside such computers as the Apple *Macintosh* as a means of controlling the movement of a cursor on a screen. The idea of pointing at a screen function and 'clicking' on the mouse to select the function was a revolution in computer control as it required the manufacturer or software writer to specify the options open to the user by putting them in boxes on the screen, requiring the user simply to point at the one he wanted. It took away the need for the user to remember long lists of unintelligible command strings and put the ball of user-friendliness squarely in the designer's court.

Not everyone gets on with mice and some have criticised the need for a flat table area next to the screen for them to play on. Nonetheless, they offer a fine degree of precision in selection of objects on the screen (finer than the touch-screen) and reasonable cheapness in production. The software of the operating system will need to be designed around the use of such an input device and it is said that this can slow down operations somewhat when compared with more direct input devices such as buttons.

Mouse-driven systems often suffer from cluttered screens, because the resolution of the screens used and the degree of control possible make it easy to cram a lot of information and controls on to one page. There are two schools of thought in this area: one is that all the regularly used controls and displays should be on one page because it is inconvenient to have to change display changes, and the other is that an uncluttered display should be the most important factor even if it means using a number of pages. Naturally there ▷



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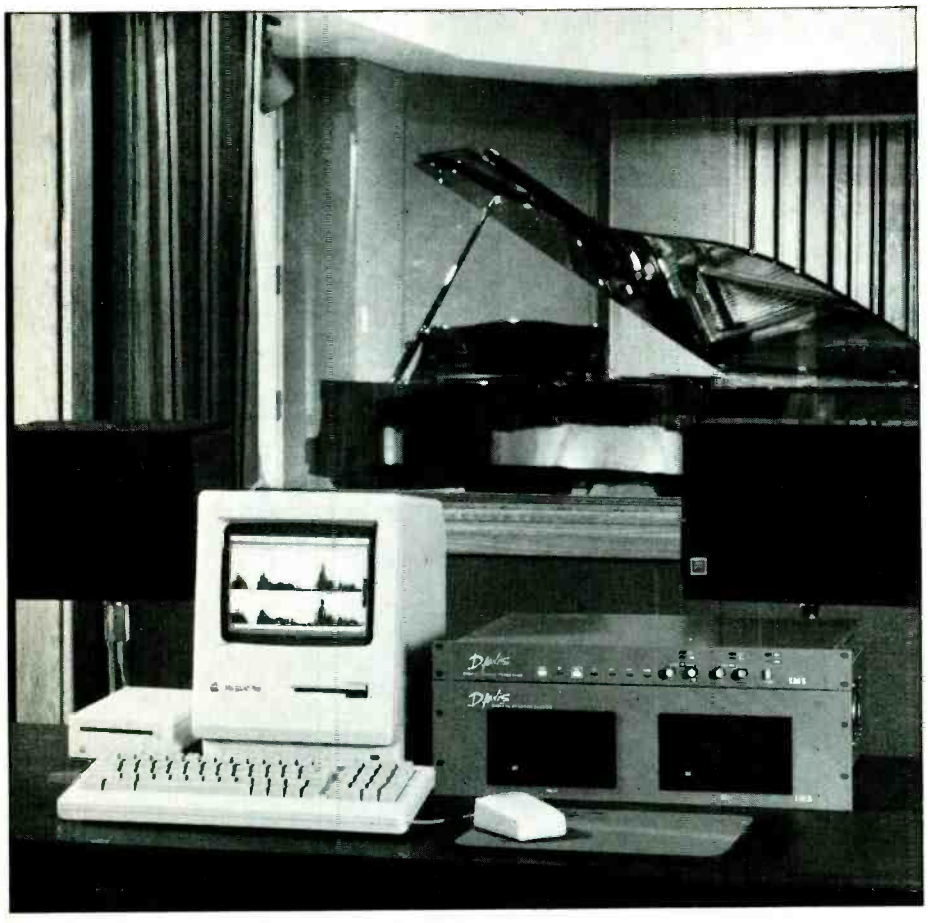
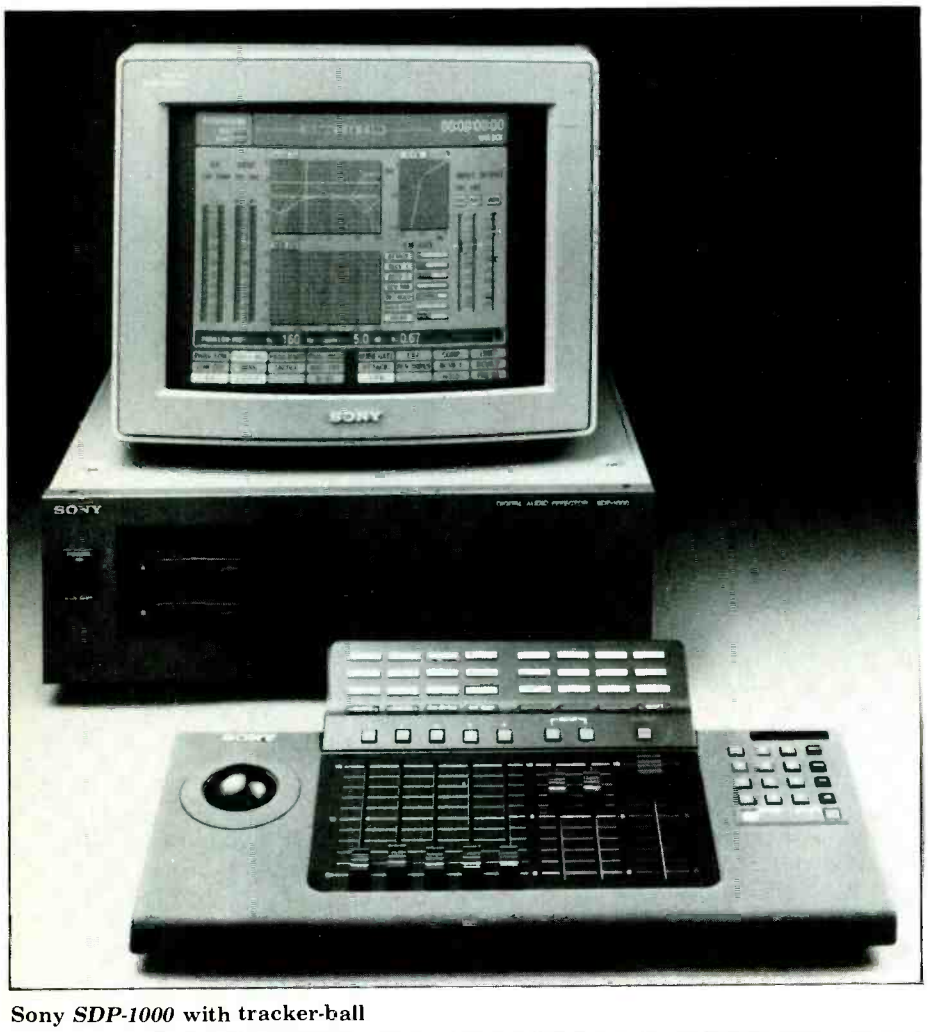


IMS *Dyaxis* system with mouse controller



Sony *SDP-1000* with tracker-ball

are infinite shades of grey between these two extremes.

Tracker-ball

The tracker-ball is really an upside-down mouse, in that the ball which usually rolls around on the table underneath the mouse now resides on the top and is rolled around by the fingers. Instead of a button on the mouse there is a button or buttons on top of the controller, often residing conveniently under the thumb.

Mouse users sometimes find tracker-balls a bit confusing to begin with, the cursor lurching around all over the place, but experienced users claim that they can be faster than a mouse with practise.

Graphics tablets

The graphics tablet involves the use of a stylus and a flat surface. The position of the stylus on the flat surface corresponds to the position of a cursor or pointer on the display and controls may be selected or altered by pointing them and pressing on the tablet. The method of control is very similar to mouse or tracker-ball interfaces in that options are presented on the display for the user to select and change by pointing, dragging and pressing. The graphics tablet, like the mouse, requires a flat area next to the display for the user to move the stylus on the tablet. Such tablets are quite expensive when compared to the cost of a mouse, but may be more reliable in the long-term, and more approachable by some users.

QWERTY keyboards

The QWERTY keyboard, from its typewriter connections, offers the user the possiblity of entering such things as song titles in alphanumeric form. It is still the fastest way to perform such an operation, as most people are familiar with a typewriter keyboard. Whether or not one is offered depends very much on how much of this sort of operation is envisaged. If a title is only to be entered once a day then it is probably acceptable to have some other means of entering alphanumeric characters, such as a visual keypad which can be pointed at by a mouse or a cumbersome multi-function keypad. If these operations are more regular then the user would find it frustrating not to have QWERTY input because it would slow him down.

It is almost certain, nonetheless, that QWERTY input is not satisfactory for controlling the general functions of audio equipment. A user interface designed for a typewriter has no place on a synchroniser. In cases where QWERTY input is required it will be good if it can be offered as an option, with some other means of text entry if possible, because QWERTY keyboards tend to be quite large and will take up valuable space.

LCD displays with multiple functions

The small LCD displays found on many pieces of MIDI equipment such as synthesisers are usually a result of economic necessity, as they have little to recommend them from the user's point-of-view. Control is usually a matter of selecting with a cursor one of perhaps four parameters in the display and incrementing the value of the ▷

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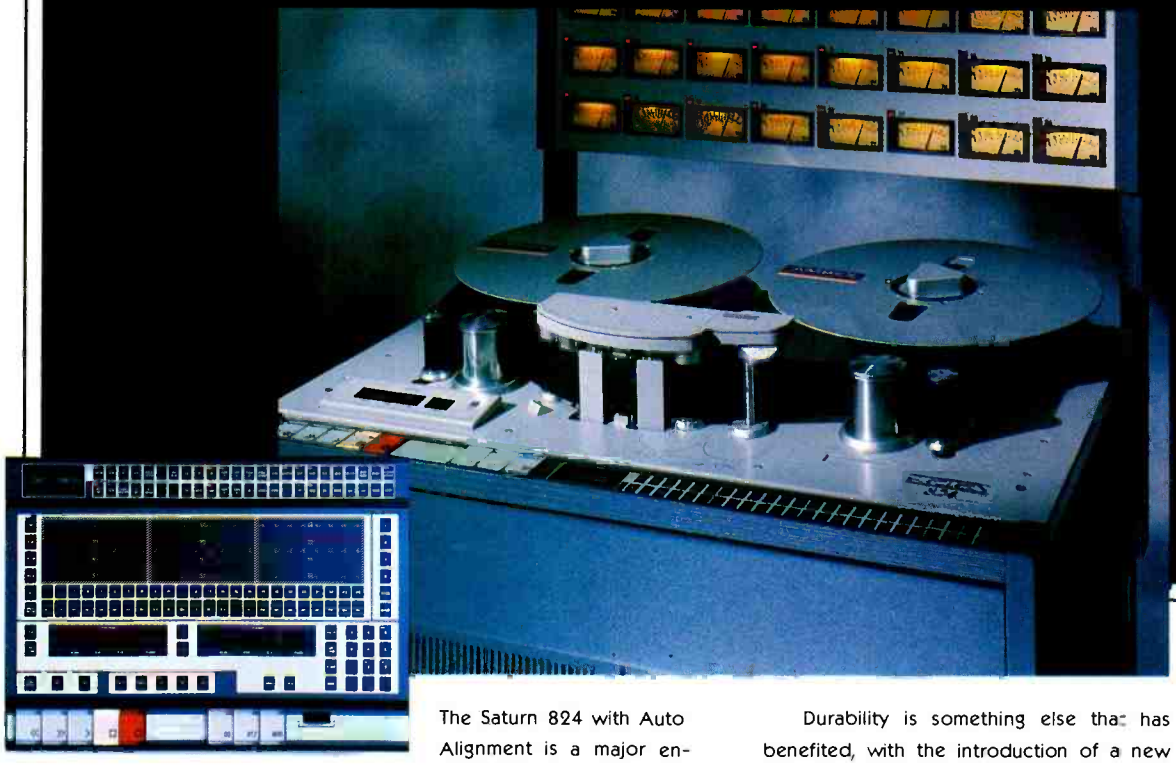

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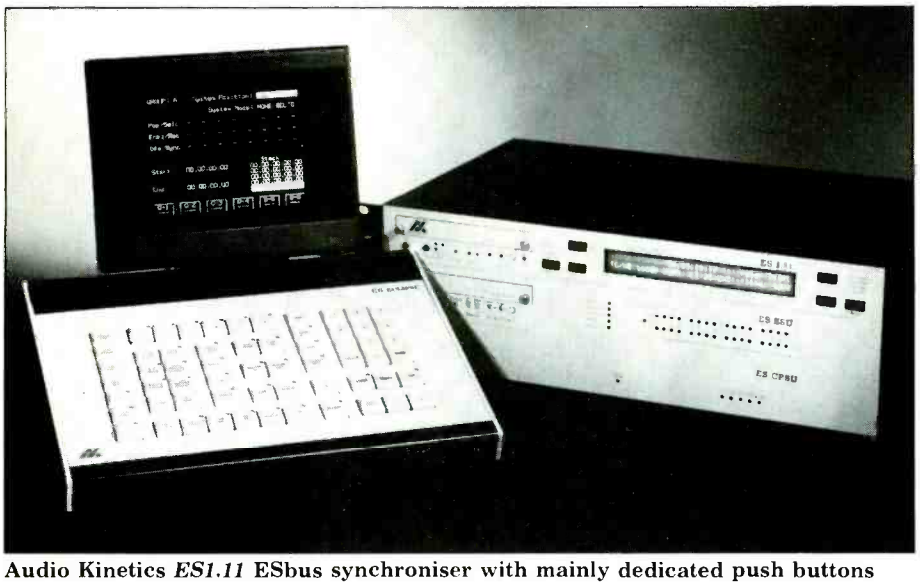

Audio Kinetics *ES1.11* ESbus synchroniser with mainly dedicated push buttons

parameter up or down with buttons or a slider.

For any serious work these are not a sensible proposition, as the speed of operation is very slow when there are many functions to consider, and the displayed abbreviations for functions resulting from the small display can often be unintelligible without the manual.

It is hard to imagine what else is possible in devices costing often less then £1,000 as some of the more comprehensive user interfaces might cost as much as this on their own! Thus they will remain largely the province of budget equipment.

Dedicated controls

Software control has forged ahead so quickly that many manufacturers have forgotten what it is like to have a button that only does one thing. When functions were all fixed in hardware this was usually the only thing possible as the switch was firmly linked to its particular destination, either electrically or mechanically.

The major disadvantage of dedicated controls is that you can't change them once they are defined and this gives designers who can't make up their minds what their products should do the creeps. The closest many products get to using dedicated controls is having hardware buttons with little displays next to them saying what the function is, thus the display can be changed if necessary. One argument put forward against dedicated controls is that they ruin the potential for flexibility and it is confusing for the user to be presented with a sea of dedicated buttons. There is some truth in this, as it is very difficult to decide which functions should have their own buttons and which should not when a product has many functions. There is also a limit to the number of buttons that can usefully be crammed into a control pad without it becoming more sensible to adopt a screen-based system.

Thus dedicated controls are perhaps useful in instances where the number of functions is not large enough to make the control panel confusing. There is a case for the incorporation of some dedicated controls and some 'soft' controls, as the dedicated ones could be assigned to the functions used very regularly, and made the right shape and feel for the job. As the workmen always say: you've got to have the right tool for the job, otherwise you might as well forget it.

Dr Who and the future

Controller types can be divided basically into two groups: the digital and the analogue. The digital ones use pushbuttons and the analogue ones use something that can be turned, slid, twisted or rolled. It is said that the up-and-coming generation of space invader addicts do not turn a hair at having to hold down multiple pushbuttons and execute fast sequences of keys but there are many who find this frustrating, preferring something more akin to human movement. We have not yet arrived at the 'Dr Who' stage of bungy rubber controls that have to be squeezed in the right way to elicit the desired function and it is doubtful whether this would ever be suitable for controlling a digital editor but a move in this direction might not be a bad thing.

The first rule of any user interface is that new technology should make a job easier, not more difficult. Nobody would buy a dishwasher if it meant they had to spend two hours a day in front of the sink instead of one.□

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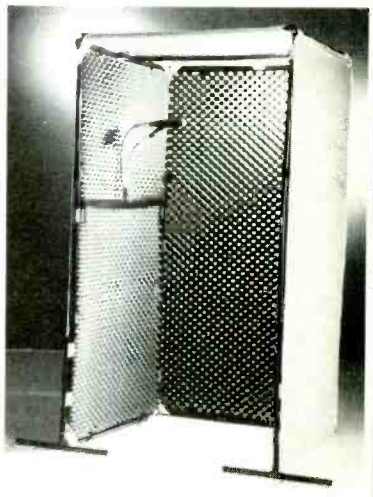

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Martin Polon

The polyester myth and a warning about the effects of loud sound on your health. Comment from our US columnist

There are times when being in the audio business can be very difficult. One of the toughest parts of being identified with this industry is the myths that circulate about the people involved with audio. One of the strongest myths is that all audio engineers wear polyester. At a technical meeting of audio types you can only hope that no one lights up a cigarette. It would make the bombing of Libya look like a fireworks show at a rich kid's birthday party. Of course, the polyester myth is part of the greater myth that audio people cannot dress stylishly. A guest genius of the moment speaking at a local meeting comes in with a Don Johnson outfit of dark tee-shirt with dark sports coat. *Trés chic*, darling, if you happen to be Don Johnson in Miami, circa 1984. Not so stylish, love, if it happens to be West Coast, circa 1989. Foremost, I think, amongst audio people myths is the extreme need for underarm deodorant becoming virtually primal. Some of these audio folks are supposed to be able to clear an elevator in 22 ns by lifting their armpits.

Then there is the myth of more than one of the mandated pair of broken eye glasses taped at the bridge at every gathering of more than two audio people. And that at any time at least 20 percent of all audio people will have plastic pocket protectors in their shirt pockets, loaded with the obligatory pens, screwdrivers and logic probes. The myths continue with at least five pairs of unmatched socks being in residence at any meeting of audio types.

Other myths abound. Audio people don't wear hearing aids or have hearing problems. Audio people all love their jobs. Audio people have little cultural sophistication. Audio people know nothing about gourmet foods or fine dining. How many times have I heard the story since the Los Angeles AES convention, of the chief executive officer of the small audio company who ordered Marquis de Sade Private Reserve Grand Cru for a meeting because it sounded "more French than the others"? In fact, it was a good bottle of champagne. The vintage is one of those marvels of French viniculture. It just so happens that Count Xavier Henri Marie de Sade has a famous or should I say infamous forbear. How curious that the latest descendant of the infamous Marquis has ventured into the business of champagne. Now, the de Sade of *ancien régime* was a man you could count on. You always knew where he stood, even if it was on top of somebody else. But, the point is, a myth is a myth. Like any generalisation, there are probably two sides to the discussion. Audio people will have the same likes and dislikes as the general population as a whole. But unlike most myths, the concept of the audio engineer as a bronzed male god from an acoustic Valhalla with perfect hearing has achieved the status of ritual in our industry. Audio practitioners using hearing aids and/or having hearing damage are like blind airline pilots but audio people are destroying their hearing, their health, their livelihood and their industry, all in the name of the quest for power—in this case acoustic power. De Sade would have understood that. He would have loved tying people up and putting them in front of a big speaker enclosure and sending 1 kW of audio down the line. Except audio people do that more or less all by themselves to themselves right now.

Well, there you are boys and girls of the wonderful world of overly loud sound. I am not angry normally, but this is just a sample of what happens when my poison pen really starts to smoke. Audio pollution really smokes me and, oh yes, loud sound is classed as environmental pollution by several governments. Why am I trashing the industry that I usually so voraciously and frequently defend? Because nothing else seems to work in the case of over-exposure to high level sound. This particular column has to be the written equivalent of hitting somebody over the head with a baseball bat. Nothing else seems to be getting the message across that overly loud levels in monitoring and reinforcement systems are costing audio practitioners their health and hearing and are allowing the officious enforcement types and smarmy legal beagles to threaten the very industry itself.

Let us begin with the direct issue of body and hearing damage from high level sound. Nearly 10 years ago, this columnist and several others were able to reap the rewards of a broad range of medical research that added to the existing body of medical knowledge pertaining to high level sound. The result was the publication of a series of articles on whole body and hearing damage, brain function interference and the concurrent legal ramifications—all from exposure to high level sound. These articles were disseminated in competitive recording industry publications, as AES papers, at AES workshops, and in consumer audio publications. There was relatively complete documentation of negative effects from frequent exposure to post 90 dB sound levels. Numerous empirical clinical references were cited to establish the accuracy of assessment of damage. The body of work presented at that time gave a clear picture that damage to hearing was the consequence of a 'chain reaction' within an ear under assault by high level sound.

This chain reaction was identified as:

1 Firstly consisting of the mechanical effect of energy-induced detachment of portions of the organ of corti (hair cells and supporting cells) within the inner ear from the basilar membrane.

2 The hair cells themselves suffering degeneration in the 'reaction' both mechanical and biochemical.

3 The basilar membrane itself undergoing a change in permeability with high energy loading, that accelerates the damage to the hair cells.

4 During periods of extraordinary amounts of energy exposure, groups or patches of sensory cells will degenerate allowing small holes to leak fluids.

5 The leakage of unwanted potassium ions and/or endolymph fluids can cause secondary isosmotic (osmosis) swelling of otherwise uninjured cells and nerve fibres that will eventually rupture many of them.

Similarly, for whole body damage, the articles delineated the medically accepted mechanism, in which the presence of sound levels in excess of 90 or 100 dB (individual thresholds vary) trigger the body's 'Fight or Flight' syndrome. These anatomical defence measures from perceived external threat, clearly evolved from the need to fight or flee from a sabre-toothed tiger. Today's human being still responds to loud noises. Whether it is a mugger or Bon Jovi at 128 dB, the body manifests the same autonomic response, Tensing takes place, under the control of the main motor nerves. The autonomic nervous system changes heart rate, respiratory volume, blood vessel diameter, bodily secretions, etc. The hypothalamus in the brain regulates changes in hormonal outputs and hormonal activity. This all translates into significant changes in bodily functions.

These include but are not limited to:

1 In the cardiovascular system, peripheral blood vessel vasoconstriction reduces blood flow to the head as well as to other parts of the body. This is ironic in that the inner ears need an increased blood supply to provide energy sources and to carry away the metabolites caused by a high level of auditory metabolic activity. Corollary changes also take place in blood pressure, heart rate, cardiac output, and pulse volume. Long term exposure may cause increased levels of cholesterol and of atheromatous deposits in the arteries.

2 Digestive tract disturbances include increased secretion of hydrochloric acid, abnormal contractions of the stomach, increased motility along the intestines, etc. Long term exposure may cause dyspepsia and subsequent peptic ulceration, irritable bowel syndrome, ulcerative colitis and other disorders.

3 Deep breathing is increased, with the depth of breathing being a definite function of sound pressure level.

4 The central nervous system, the ocular system, the balance mechanism, the endocrine system, the reproductive system, the skin, and the musculo-skeletal system are all affected by high level sound exposure.

5 The production of antibodies needed to fight off infection is reduced during the periods of stress caused by high level sound exposure.

All of the above syndromes represent only a portion of the total effect on the human body of exposure to high level sound. In addition, the time frame for such effects to take place can be a very short one indeed. Once the body is so

aroused, the process is very much like being on autopilot. A brief exposure will probably yield a longer period of systemic change.

Ten years having passed, you might ask what impact such information has had on both the industry and on its practitioners? In fact, there has been very little change in the way high level sound is handled within and without the audio industry. Those early articles and other inputs to the collective knowledge of the audio industry were greeted with derision, cat calls and scepticism. From industry, threats of legal action were received based on the fear that such 'do-gooding' would scare away business for those making high level equipment for the professional audio and the musical instrument sectors. In terms of enforcement of employee protection statutes, the advent of Ronald Reagan and Margaret Thatcher means that all occupational health and safety issues would take a back seat for the bulk of the 1980s. In general, it is safe to say that the vast majority of audio practitioners felt that 'NIMB' was the answer to this most invasive threat. 'Not In My Body' being a kind of "The bullet will hit him, not me. I will cross the beachhead, march to hell and back and escape unscathed and so will my ears."

A psychologist who has several audio engineers as patients opted about the issue of hearing damage: "For the audio mixer, being hard of hearing is a lot like being impotent. With men, no one ever wants to admit that they are impotent. It is a refutation of one's manhood. In virtually the same way, mixers will not ever admit to being hard of hearing, even if the damage came from working with high level sound. It would be to admit being impotent on the job. Using the same kind of reasoning, no one wants to be seen in public wearing earplugs. Macho men don't wear earplugs!"

Reports from medical circles note the possibility of certain trends emerging as audio people labour on into their 40s. It appears that some individuals employed in the audio industry for over 20 years may well have a greater incidence of cardiac, gastrointestinal, and circulatory problems than the general population. In addition, the frequency of occurrence of absenteeism, psychological problems and accidents at work also seems higher than the norm. The problem in correlating such data is the fact that precious few doctors have a practice dominated by audio people. One or two patients do not provide a sufficient epidemiological base for any one doctor to predict occupational outcome. But, the problem has achieved enough notice to be the subject of a recent in-depth news report on American public television. The programme yielded a view of musicians and touring staff with hearing aids, seeing doctors who specialise in sound-damaged individuals and focused on musicians who have had to give up music or modify their music-making because of the high level sound.

Like the efficacy of large diameter cable, analogue over digital, tube versus transistor and several other similar audio *causes célèbre*, the effect of high level sound remains a matter for discussion for many—albeit a category where having the wrong opinion could directly impact one's future health. Unfortunately, the audio industry no longer has the luxury of returning ostrich-like to the sand.

'In the 'good old days' distortion would limit high sound levels. Today's gear does not provide that kind of *de facto* protection.'

External forces have seized upon high level sound and made it an issue for their own specific usage. In the 12 countries of the European Market, the relentless adoption of standardised regulation for 1992 has found the Community lobbying for strict audio level control in all places of public assembly. Ostensibly, the restriction would act to protect audience and performer alike. In fact, it could spell difficulty in production, operations and export for European audio.

According to one English market analyst: "The European Parliament has lots of other things to do besides regulating concert and performance sound levels. Thing is, the Euro MPs need to prove that they are not spending all their time sitting on the loo in Brussels and at Strasbourg. They should be making sure England will indeed come across the line on the 1992 financial issues, finding common ground with the United States on agriculture issues and thus end the risk of a major trade war, placating American fears about 1992 and NATO, etc. Pretty cheeky stuff. Instead, we find the Europarliamentarians dragging miles off the eyebrows of fleas that live on the backs of gerbils. But not to worry—no one will ever lose sleep wondering if those backroom boys in Brussels might win the Nobel Prize for Intellectual Achievement. No chance. And if they succeed in passing these limits on audio levels, then it will bugger up the EEC audio market with products that cannot exceed the limits. Bloody worthless products that cannot be sold elsewhere. They might as well put the European audio business into the coffin with Jean Monet."

In California, a different scenario is unfolding. Lawyers are beginning to file suit for clients 'severely damaged by exposure to concerts with high level sound systems.' Five such suits are now wending their way through the California judiciary. Other such cases are reputed to be 'in the pipeline'. Liability for those attending any event has always rested with the members of an audience themselves, since they are attending said event voluntarily. To win such a case, one would have to prove culpable negligence. Although it would be easy to dismiss the relevance of such litigious activity by quoting the statistic that there are still more lawyers in California than ambulances or divorces—thus creating a financial crisis of sorts in the legal community—the fact remains that the future of touring systems and even house sound systems in major facilities is on the line. Further, a victory in a Californian court could be construed so that the use of all reinforcement and monitor systems providing sound above 90 dB would constitute negligent behaviour. If such a decision were sustained in the courts, it would virtually put an end to all public concert activity in the United States. That could also open the Pandora's Box of employee suits for damage by high level sound. Under the age-old concept of workman's compensation, the token reimbursement available has not justified such action in the past.

Liability insurance also becomes an issue in the face of mounting cost increases for touring systems. Liability insurance in 1989 will cost owners of touring sound systems well in excess of $10,000 per year in the US. A final setting at 90 dB by Eurocrats in a fit of Europhoria would make liability insurance unaffordable in the EEC. If the touring sound operator suddenly found him or herself the subject of a $1m civil suit because one lady at a concert felt ill afterwards and sued, there would be no touring sound business left in the United States. Consider the option of a pregnant woman miscarrying at a concert; California lawyers already have. If liability insurance premiums had to be raised to consider such an eventuality, the cost would force out many of the smaller touring companies. Said liability could even be attached to the sound designer, a chief mixer and subsequent mixers and operators for the system in question.

Where do we go from here? To begin with, as an industry we finally must recognise that high level sound is safe if handled properly. We must convey that fact to all concerned to prevent the regulators and attorneys from devouring the flesh off the healthy body of the world audio industry. We should recognise that the volume of medical evidence is helpful in engineering solutions to the high level sound problem. We need to educate young people in the industry and coming in to the industry. Remember, for many of us, the exposure initially was to 20 and 40 W amplifiers. It is only in the last few years that the ability to produce high power levels cleanly has been within the reach of virtually any performing group and any pocket book. In the 'good old days' distortion would limit high sound levels. Today's gear does not provide that kind of *de facto* protection. Hearing protection must be used by those working with high levels. The argument that one must 'hear it all' to do a good job rings about as true as the chef who must 'taste it all' to see if it's good. Almost all chefs learn to limit their tasting before they weigh in at 450 lb. Similarly, we must all learn to use hearing protection except, and only when, we must make a critical decision. Even then, the attenuation provided by hearing protection will usually allow a significant amount of critical listening when one is listening to 132 dB SPL A. It is quite possible that the 1990s could be disastrous for the audio business if we do not face the hazards as well as the plusses posed by high level sound. The choice is still ours, isn't it? But for how long?□

Barry Fox

Unkept promises of a laser turntable; Peter Pan and the copyright that will live forever; the BPI awards and the need for long term planning; bad taste from Radio London; and a magazine's computer troubles

It was at the annual Consumer Electronics Show in Las Vegas, four years ago, that Californian company Finial first promised to launch a laser turntable that plays ordinary LPs, with a light beam instead of a stylus.

The hi-fi and technical press have been writing about the Finial *LT* ever since. Gullibles have drooled at the prospect. Sceptics have warned that although the turntable might work in a laboratory, it hadn't a hope in the real world with discs that are warped, eccentric, scratched and dirty.

When Finial first announced the *LT* at the CES in January 1985, the turntable shown was in fact only a dummy. Not knowing, or not caring, trusting investors have since poured at least $5 million into the project.

And every year since then there has been another promise of a grand launch, with players available at around $4000 each. Archives and radio station record libraries have been waiting with cheque books open.

And every year the launch has been postponed.

Finial claims to have made around 25 laser turntables as a trial run. These have been used to drum up publicity and money. But I have never met anyone who has seen inside the player and had the opportunity to try their own discs.

All the demonstrations have been in the US, often to a sympathetic audience, under carefully controlled conditions and with carefully selected records.

No-one seems to have asked Finial awkward questions, like how will the LT cope with less-than-perfect pressing; or RCA *Dynagroove* discs, on which the signal is pre-distorted to compensate for stylus tracking errors? With a light beam there are no tracking errors.

The latest grand launch was to have been on January 6th, to coincide with the opening of this year's Consumer Electronics Show.

Surprise, surprise, it was called off at the last minute. But this time Jacques Robinson, chairman of Finial Technology, finally owned up.

"We have decided not to market the laser turntable," says Robinson. "The unit is too expensive to produce."

This doesn't hold water. The archives and record libraries would pay *anything* for a player that worked.

Last November the Copyright, Designs and Patents Act 1988 got Royal Assent. The main body of the Act does not come into force until this summer (probably around June). But one clause, 301, was immediately enacted.

In almost dictatorial manner, the Government has brushed aside long-established laws and traditions. Clause 301 breathes fresh life into the copyright in the play *Peter Pan* by Scottish author Sir James Matthew Barrie, or any adaptation of that work. Its copyright had expired on December 31st, 1987, 50 years after Barrie's death.

Why should the Government re-write the rule book and why did no-one complain?

Because Barrie had bequeathed the copyright of *Peter Pan* to the Great Ormond Street Hospital for Sick Children in London. Until December 1987 the hospital was receiving a royalty on any public performance, commercial publication or transmission in the UK. By extending the copyright in *Peter Pan*, apparently for ever, the British Government has effectively taxed the entertainment industry for the benefit of health care. But with sick children at stake, who would dare to object?

The action creates an interesting precedent, which the record industry will surely note. If the government really wants to make unilateral changes in British copyright law, it will do just that.

This is significant because there is of course one important omission from the Copyright Act. There is no tax on blank tape. The record industry failed in its bid to get this included. And events on the night of February 13th must have convinced the Government that they were right to refuse.

Every year the BPI holds its record industry awards ceremony. Last year the event, broadcast live from the Albert Hall, was a shambles. The Who re-formed for the event, but were cut off mid-performance because everyone and their brother on stage before them had wasted air time with waffling speeches. The BPI had put out no advance publicity outside show biz circles, not even for the fact that the BBC was broadcasting the event in Nicam stereo.

"We'll do better next year," the BPI told me afterwards.

A year passed and I heard nothing. The BPI didn't even try to drum up favourable publicity for the new Government-backed School for the Arts, which was announced by Education Secretary Kenneth Baker a week before the 1989 Awards. The APRS had no information on what could be an important innovation for the recording and music industry. Try the BPI, was all the APRS could suggest.

Again the BPI awards went on at the Albert Hall and again they went out in Nicam stereo. Again there was no publicity outside the glitz circle and again it was a shambles.

'Top of the flops', wrote the next day's newspapers, some with front page stories.

Hosts Samantha Fox and Mick Fleetwood fumbled and stumbled with their autocue, introducing the wrong people at the wrong time. It wasn't their fault. People who are good at over-dubbing music in a studio, are not necessarily any good at talking in real time.

The blame lies with the short-sighted fools who booked them.

Far from over-running, the sorry fiasco ground to a halt nearly five minutes too soon. Most damaging to the record industry, the audience booed and hissed Kenneth Baker when Mark Knopfler and Alan Price praised his music school scheme.

Not surprisingly, Baker did not show up at the party afterwards. He was off back to Whitehall telling his colleagues how right they had been to deny the record industry a tax on tape.

The BPI, IFPI and record companies are now facing their biggest crisis yet—the advent of recordable CDs. They managed to kill DAT, by refusing to release pre-recorded software on the new medium. With recordable CD, there is no such sanction available. Recordable CD exists only to record, usually what has already been released on pressed CDs.

Political analysts predict that Kenneth Baker will continue to rise in the Government, and eventually take over from Margaret Thatcher. I would love to be a fly on the wall when a deputation from the BPI knocks on Baker's door and asks for tax and sympathy.

As Capital Radio, Britain's first commercial radio station, celebrated 15 years of broadcasting in London, the BBC's local radio station, Radio London, celebrated with a change of name and a clean sweep.

Out went Radio London, in came Greater London Radio. Out went all regular presenters, in came new faces; old faces were relegated to backroom production. It is no secret that there are a lot of unhappy people inside GLR.

While the big change was taking place, GLR switched to broadcasting 'test' transmissions, with back-to-back rock and roll, news on the hour and no drivelling DJs.

"Best sounds in the capital," judged *The Sun*.

"Make the most of it," said the *Standard*. "After 18 years Radio London has at last got it right."

I was at a press conference when GLR's Matthew Bannister told what a wonderful station the new GLR would be. By chance I was tuned in on Christmas morning and could hardly believe my ears.

A presenter called Chris Morris played a tape of an outgoing call he had made to the Salvation Army in which he mocked a nonplussed officer.

Morris was apparently answering an advert for volunteers. He prattled on about being good about getting money out of people, being unable to play a musical instrument but wanting to be in the band, liking the idea of wearing a uniform, thinking it was an army of "salivationists", and finally, being upset to find that it was a Christian, not Moslem, body.

There was no qualifying follow-up with a mention of all the quiet work the SA do, eg for the homeless, while never ramming religion down anyone's throat.

I phoned GLR who said, "If we played the tape, we must have permission." Most likely, if the SA really had given permission, it was only because they aren't streetwise about radio stations that make fun of what they do—especially around Christmas when the SA's first priority is raising money and giving food and shelter to those who need it.

Most local radio stations are more interested in drawing attention to urban problems than getting a cheap laugh out of volunteers who are trying to do something about them. BBC Radio Oxford does an OB from the local prison on Christmas Day with the SA band.

I put in a written query to managing editor Matthew Bannister but after two weeks had still heard nothing. So I phoned and was told he had been away for two weeks, was in a meeting and then getting ready to go on holiday.

We already know that the BBC plans in future to sacrifice its local radio stations to carrying news flashes as a service for the national Radio Data System.

Perhaps Messrs Bannister and Morris may find themselves in cardboard city along with London's homeless and unemployed. There they will see first hand the value of what they ridiculed.

After I had made some waves, I got a comment from GLR, back-dated a week. "We were *not* making fun of the Salvation Army," says GLR.

Bannister cannot listen to the tape log because it has conveniently gone missing.

Anyone who uses an Apple *Mac*, either for office work or music synthesis, should contact electro-composer Ron Geesin if they fancy some free copies of the UK *MacUser* magazine. In 1987 Geesin paid £25 to *MacUser* for a year's subscription. Nine months later he had still received only one. Sorry, said the *MacUser* people, who were having trouble with their computerised subscription list.

All will now be well, said the magazine. But be warned, said the magazine secretary, "You may receive two issues in the near future, because this is the second time I am entering you."

Very soon Geesin was receiving three copies a month.

Being the kind of person who worries about wasting trees, Geesin thought of a clever way to cut the flow down to one per month. He filled in *MacUser's* Corporate Charter scheme card, to get on the free circulation list instead of the triple subscription list.

"We run an office, a sound studio and a knitwear design studio and I chair a committee for the Association of Professional Composers," wrote Geesin.

Sorry, said *MacUser* in a standard form letter, you can't go on our free list.

So, by not being sufficiently important to get one free copy a month, Geesin gets three.□

DDA DCM232

John Rivers of Woodbine Street Studios reviews this console from DDA

Woodbine St Recording Studio have now been working with the new DDA *DCM232* console for over a year, having taken delivery of the first one off the production line back in Nov 87. This has given us time to gain a good impression of this interesting new joint development from DDA, known for the *AMR24*, and Klark-Teknik who handled digital and automation design.

The console is a 40-channel, in-line, digitally-controlled analogue type. Twenty-four of the most commonly used switches that would normally be located on the individual modules are controlled from the central computer. One can take snapshots of desk setups and up to 30 snapshots may be stepped through manually or from timecode. They may be recorded on to disk, using the on-board 3½ inch floppy, for later recall. As one would not really need to automate functions such as 48 V or channel phase, only 12 of the functions (the bottom row of switches), can be controlled dynamically on an automated mix. For clarity I have bracketed functions thus <. . .> that are controllable from the central automation terminal.

Signal paths

Each module has channel, monitor and bus (or group) signal paths. Taking the channel path first, each has five switchable sources:

From the two tape machines with B normalised to the fixed gain channel input and A normalised to the variable gain monitor input. The two returns can be flipped locally or globally.

Microphone, which to suit our particular techniques has been customised with 10 dB extra gain (30 to 65 dB). I very much like this preamp. Even on full gain, it is still commendably quiet. Particularly noticeable with dynamic microphones, it is very punchy and unlike most electronically-balanced preamps it doesn't seem to suffer from harshness or brittleness having a warm well-balanced sound. It is also unusual in having a negative-feedback loop that extends right forward to the impedance-converting transistors, something the well-respected *AMR24* preamp does not have. This may well explain the excellence of its sound.

DI, which is derived from the microphone input via a 30 dB pad. This is a little insensitive, even with our extra mic gain and I have suggested to DDA that they reduce the pad to 20 dB. If an instrument has a high enough output, I like to use DI, finding I get a punchier, more solid sound than with any of our transformer or active boxes, particularly with bass guitar. We have our keyboard and sampler returns hard-wired to these inputs, which means we can bring any of them up on the console at the touch of a button. There is a local and global flip between line and mic/DI inputs.

Subgroup takes the channel signal from its modules group sum for audio subgrouping. A minor criticism here is that one can't then route the post-fade channel output to its direct output (group socket) on the patchbay, there being no such output permanently available. (The patchbay group output converts to direct on hitting the direct button on the module's routing matrix but is disabled in sub.) This means that if you wish to set up a subgroup for recording, you must select a group other than the number of the track you wish to record on, then route the result to the track to be recorded. This seems to somewhat defeat the idea of minimum signal path working, apart from being a drag when working under pressure. Looking at the block diagram, it seems that the simple expedient of placing the direct switch after, rather than before the sub switch would solve this problem.

Channel output is controlled by a beautiful little 45 mm Penny & Giles plastic fader.

Working further down the module, we come to the equalisers, the *DCM232* is unusual in that each module has two totally independent equalisers that both cover the whole audio frequency range, albeit in very different ways. Each equaliser may be switched into either signal path, together or individually.

<HF/LF equaliser>: the HF EQ is a classic Baxendall operating at either 10 kHz or 20 kHz. This equaliser is wonderful! Particularly on 20 kHz, it sounds more like an aural exciter than a humble treble control and even on very high boost, remains very clean and pure. The LF EQ has two modes; normally it is a fixed bandwidth, sweep equaliser with a frequency range of 30 Hz to 480 Hz. The range is just right and the bandwidth well chosen to allow heavy EQ with no out-of-band problems. On selecting HPF, the range control is 'stolen' by the 12 dB/octave filter and the LF EQ reverts to a 50 Hz Baxendall with low frequency roll off to prevent 'mud'.

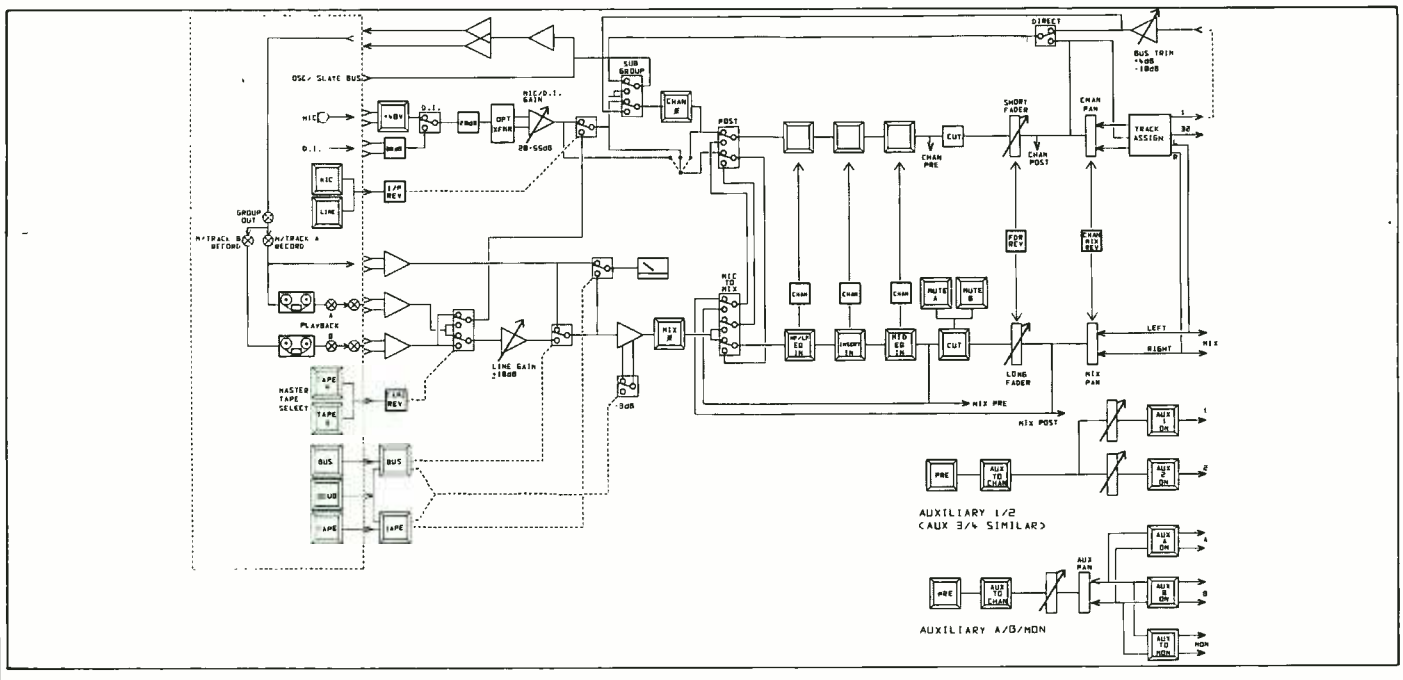
<Mid equaliser>: the mid equaliser is two bands with sweep, bandwidth 15 dB boost or cut and ×3 switch. Although this equaliser uses fairly conventional state variable circuitry, its sound is exceptional. One can boost hard, even in the critical 2 to 3 kHz region and it still stays sweet and stable getting on with the job without giving any audible indication of doing so. At lower frequencies, the sound becomes reminiscent of the MCI passive equaliser, sounding very clean and punchy, allowing one to boost hard even at 200 to 300 Hz without the 'cardboardy' sound one so often hears from lesser equalisers. One very strong criticism I would make of both equalisers is the quite appalling lack of calibration, making accurate noting of settings for recall a nightmare. In fact the same comments apply to the whole console. All the labelling is too small and badly placed, especially the routing matrix where the only real way to be sure is to stand up and peer ▷

Phase to Phase.

Our offer to the monitor-discussion: The arrayable **1220 stage monitor.** In this space we couldn't do justice to this complex subject. For the interested technical person, however, just a few of those emotive words:

linear frequency response, sufficient dynamic headroom, even SPL at earheight within a radius and avoidance of combfilter effects by arraying phase-linearized wavefront segments... Perhaps we can speak to each other some time. Tel. +49-7151-31018 Bob Kelly, Telefax. +49-7151-35943, West Germany.

d&b audiotechnik



I/O module block diagram

at the little numbers before one prods the buttons. Also the decal around the monitor volume has already started wearing off, which doesn't bode too well for the rest of the console.

<Insert>: this is placed between the equalisers, post- the HF/LF equaliser and pre- the mid equaliser, allowing equalisation both pre- and post- the inserted device. I know a console can't be all things to all users but it's a shame the insert isn't post- the mid equaliser. This is the equaliser most commonly used for the more dramatic shaping of sounds and I would feel a lot happier having my compressor, or de-esser, or whatever, after it. This could also make the pre-fade send output on the patchbay more useful.

<Auxiliary Sends>: there are four mono, two stereo and one stereo monitor sends available. They are switchable, in pairs, for pre-/post-, on/off and channel or monitor signal path, both dynamically and statically from the central computer. There are only five gain controls, the fifth being shared by the three stereo sends. All the aux level controls have a somewhat peculiar law that makes them very coarse near maximum level, a typical worst case being 4.2 dB between click stops. As one can imagine, this makes sensitive level control very difficult.

At the bottom of the module we come to a group of miniature pushbuttons. (For people with miniature fingers?)

Chan/mix reverse: this takes the channel signal to the mix bus and the mix signal to the routing matrix. Beware! This also reverses the panpots, so if you have a sub mix setup that you wish to bounce to other tracks, you must replicate your settings on the channel pans.

Perhaps I should explain the 'post' facility here. This is a wonderful little button that allows one to route the monitor post-fader signal to the groups via the channel (short) fader and cut button allowing 32 more auxiliary sends with individual level control and computer controllable muting. This makes a total of 40 auxiliary sends... a very useful feature.

Monitors and groups

Monitors are selectable for all-bus or all-tape and in 'overdub' mode, individual selection is possible. Full PFL, AFL and SIP soloing is provided and level control is by the ubiquitous 100 mm P&G fader. Disappointingly, the panpot is permanently in circuit. For minimum signal path, I would have expected it to be switchable. Group has one control... Level Trim. All that's needed.

Noise and other matters

So what is this console like in operation? In general, it is easy and straightforward to use. We had no problems on installation interfacing balanced or unbalanced equipment to the console inputs. All the signal paths are clean and noise-free. The aux sends are not only quiet but also free from excessive crosstalk. Many console manufacturers don't seem to attach much importance to this aspect but they should listen to what last bit dither on a typical digital processor can do to what was seemingly inoffensive hum and crosstalk. This lack of 'digital scrape' gives an important boost to subjective mix cleanliness. The studio's *DN60* spectrum analyser connected across the mix outputs shows residual noise of around −76 dB... mainly 16 kHz leakage from the CRT monitor. This pretty well confirms DDA's published figure.

Having the controls removed from the channels is a mixed blessing. On the one hand it's nice to sit in the middle of the monitors and listen to the effect of switching an equaliser in or out but one still has to go to the channel to tweak the damn

thing! So the procedure seems to be select channel number on the central processor, switch in equaliser, move to channel to tweak, then switch in and out, back in the middle to verify. The automation we have at the moment has only provisional software and as such functions OK. In operation it has a very fast lock-up time and I must say, having automated EQ's and aux sends is great! I'm told by Klark-Teknik that eventually it will be able to control tape machines for remote start, SMPTE-controlled drop-ins, etc.

The monitor selection and headphone arrangements are pretty good although I personally bemoan the passing of big control room monitor level knobs. One small point about the headphone source selection: it's a shame one cannot route auxs 1-4 singly to both channels of headphones. When setting up two separate headphone mixes, as there is only one gain control between the three stero auxs, one has to use two of the auxs 1-4 when really only one is needed. This of course only leaves two aux sends available when recording. One other point that needs care when track laying: one has to be very careful not to bodge the channel faders when hitting the monitor select buttons as they are right alongside and those P&G faders are light!

Conclusions

The *DCM232* costs nearly twice the price of an *AMR24*, so why go for it? I found the extensive automation capabilities very exciting and I very much like the well-known DDA dedication to quality rather than hype. The versatility and sound of the split equalisers was equally attractive. Eighty channels, all with EQ on mixdown plus 40 microphone and 40 DI inputs is pretty good for a console 98 inches wide and 49 inches deep.□

Editor's note: Since this review was written a VCA fader automation system has been released.

Manufacturer's comment

Thank you for a very constructive and mostly complimentary operational review of the DCM232. Since the delivery of this console, and mainly in response to John's input, the graphics style and size of lettering has been changed to improve readability. The equaliser frequency calibrations show octave frequencies together with five markers between each octave, corresponding to a marker for every two detents on the 41-detent control.

The coarse auxiliary step size noted occurred only at position 40 of the 41 detents, and only Auxiliary A. Our measurements showed this step to be approximately 3 dB, decreasing to less than 1 dB steps by position 35. The normal operational position is usually between positions 25 to 30. However, newer consoles should show improvement in the step size of the last 4 to 5 steps.

Reims Console

The REIMS incorporates 32 channels in a compact frame. Dave Foister reports

The *REIMS* project has been with us for some time. The concept was shown by Bandive at last year's APRS, where its novel approach attracted considerable interest and in the intervening months four pre-production consoles have been in use at beta-test sites. Now that final production consoles are being delivered it is perhaps time to look at the desk and find out what it has to offer.

Most console manufacturers would have us believe that their latest product incorporates new concepts tailored to the ever-changing needs and techniques of the industry; the *REIMS* has a stronger case than most to be taken seriously. Its automation system, fitted as standard, is unusual if not unique in its price bracket, and its attempt to meet the growing demand for enormous numbers of input channels in a compact frame succeeds admirably.

The standard full-frame *REIMS* has 32 channels and 24 groups, and its physical configuration is a curious hybrid of split and in-line whose logic becomes clearer as its other facilities emerge. The surprise is that on closer inspection the desk has a total of 76 line inputs, all of which are eminently usable on mixdown and all of which are addressed by the automation.

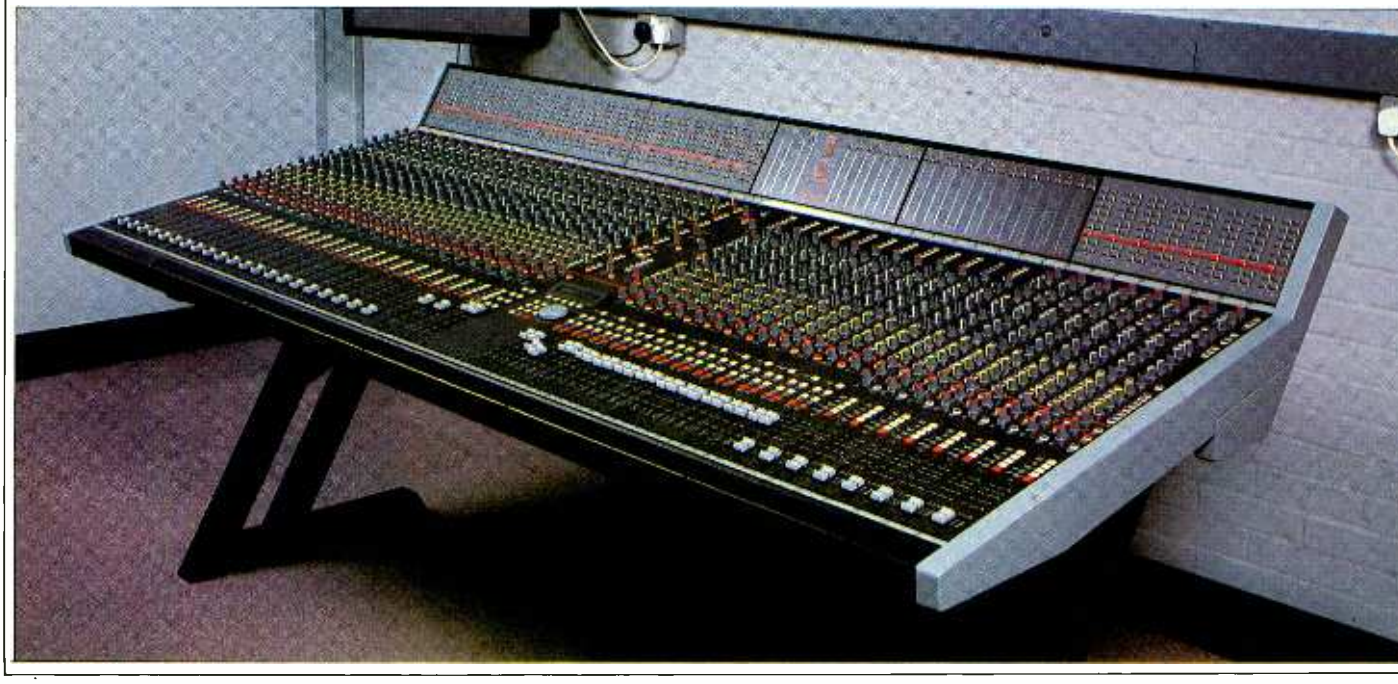
The key to the number of inputs is the use of dual input channels throughout. Each channel has two completely separate signal paths, one of which is used as a traditional in-line monitor during recording. The difference between this and a conventional in-line module is the way the facilities on the channel can be allocated to the two signal paths, allowing both signals to be independently equalised and routed to auxiliaries. Most consoles have fader flip buttons somewhere, allowing a fader to be used to control either of two signals; the *REIMS* has rather more flip buttons than most. Perhaps the most unusual idea is that the EQ is split into three sections, each of which is independently flippable between paths. The sections consist of a highpass filter, sweepable from 8 Hz to 180 Hz, shelving equalisers for HF and LF, and an overlapping pair of parametrics. The overall versatility of the EQ is very good; the HF shelf has a choice of two slopes, the LF shelf has a choice of two turnover frequencies, and the parametrics have a good Q range. More importantly, the EQ sounds very good indeed. On all the signals I tried it was controllable, predictable (in the complimentary sense of the word) and produced the sounds I wanted without unpleasant side-effects. The ability to use any of these sections on either of the signal paths provides a far higher degree of flexibility than might be expected from most dual-channel designs.

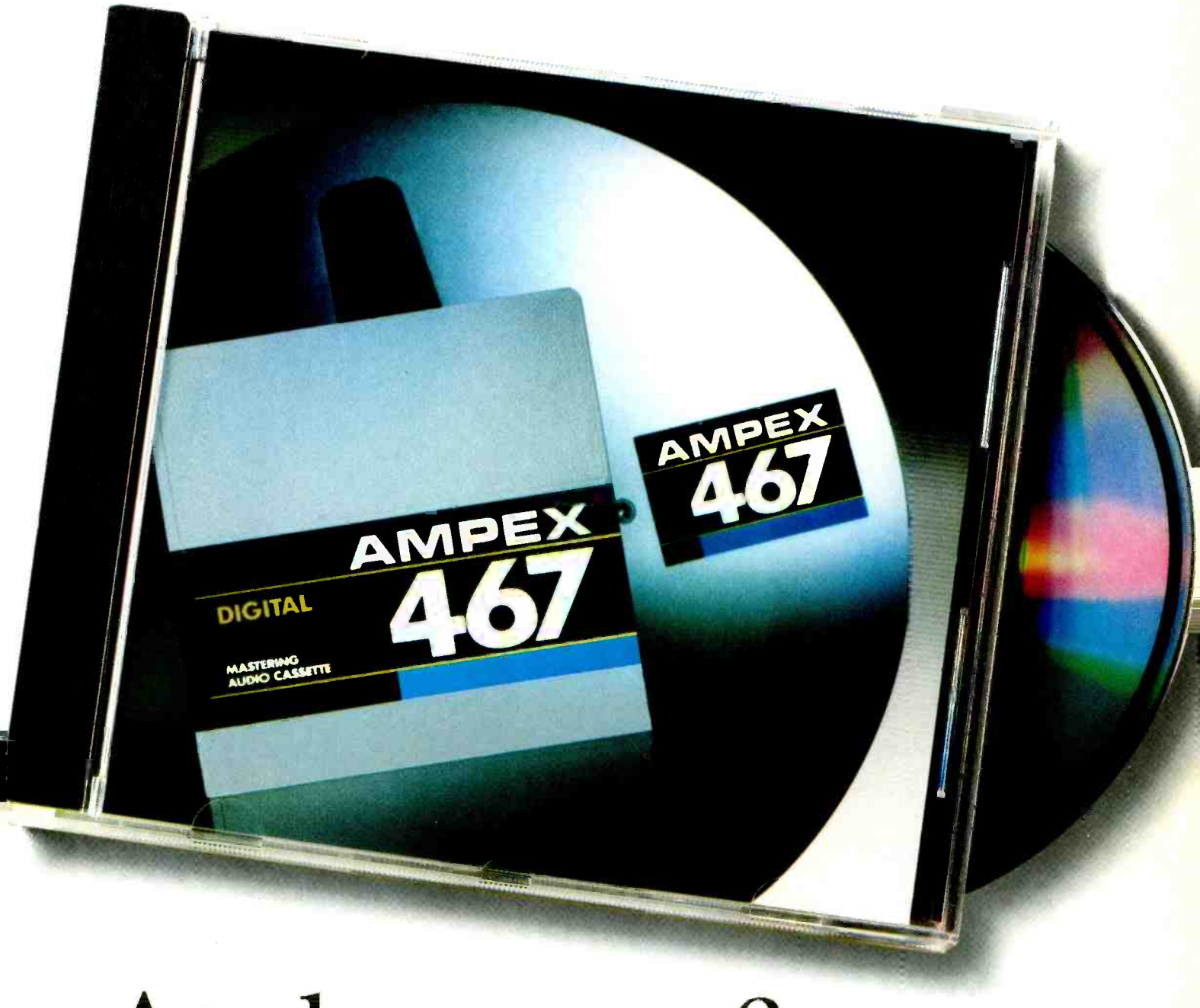
Also assignable between paths are the aux send controls. The console has eight auxiliary buses, although each channel has only four send controls, used in conjunction with routing switches so that the top control feeds either aux 1 or aux 5, and so on. Each control is then individually flippable between the two signal paths. There are two disadvantages to this layout; firstly, the two paths share only four sends, giving an average of two auxes per input, and secondly it is impossible to send both signals to the same aux. It is further impossible to send input A to aux 1 and input B to aux 5; this could lead to some unexpected conflicts of interest, which would take some explaining to the producer and extensive re-plugging and resetting to resolve. Having said that, in most cases problems could be avoided by careful initial juggling of channel assignments, and it is hard to see how else it could have been arranged without enormous numbers of additional knobs on the channel, which would destroy the otherwise excellent ergonomic layout.

As might be expected, there is only one main fader (a 100 mm Alps) per dual module, and also predictable is a switch to flip this between the two signals. Less obvious is the Fader Route Flip switch, which again provides surprising versatility. Normally, as with a conventional in-line desk, the 'A' signal path goes to the channel's routing matrix while the 'B' or tape return signal goes to the stereo monitor bus via its own panpot. The Fader Route Flip switch reverses this, so that not only can the B signal be controlled by the fader but it can be sent to the main channel output. It might appear from this that only one of the signals can be fed to the main mix buses, rendering the other useless on mixdown; this is not in fact the case, as the whole monitor bus can be dropped into the main L/R output via its master level control.

All these facilities combine to provide 64 usable inputs from 32 channels; the other 12 come in the form of sophisticated aux returns. Each of these is provided with an equaliser identical to those on the channels, together with routing to the first eight groups plus the main L/R buses and full routing to the eight aux sends as fitted on the channels.

The other main selling feature of the *REIMS* console is its built-in automation system, and this ▷





At the top of the charts

Ampex hits the top of the charts with Ampex 467 digital mastering tape.

We not only pioneered digital audio tape, we refined it. The result is Ampex 467, a tape that sets the highest standards for all digital audio applications. And it's available in all open reel and cassette formats, including the 80-minute cassette length.

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is so user-friendly as to be almost intuitively transparent. The sensible ergonomics evident in the layout of the desk as a whole are particularly effective where the automation is concerned, with all the functions addressed by the automation presented in a continuous strip above the faders. It should be noted that the faders themselves are not automated in any way, although moving fader level automation is under consideration for the future—the memory mapped control system could be adapted reasonably easily to cope with it. As it stands the automation controls several switching functions, including the obvious ones of mutes on the two channel signal paths. The system also controls aux send mutes on each channel, 'A' channel insert bypasses, group mutes, aux send master mutes and aux return mutes. All these switches have associated LEDs that show the current status at any time. The system is SMPTE driven, and the console incorporates its own generator and reader coping with all formats. Overall system control is provided by a simple central terminal containing a two-line LCD display, a numeric keypad, five softkeys and a Roll knob, together with keys marked Cancel and Help. The whole system is menu-driven, with current softkey functions displayed immediately above the keys themselves.

Programmed events can be entered in several ways. The most obvious is in realtime, 'on the fly'; the system is set to Record, the track is set running and any switch operations are recorded in memory against SMPTE. The design opts for a very high resolution, with the whole desk scanned at 1 kHz; any recorded event will be replayed within 1 ms, or two SMPTE words, of its original execution. This, Bandive point out, is finer than any generally recognised standard SMPTE resolution, and is made possible by the use of two processors, one dealing exclusively with SMPTE and timing, the other handling the events themselves. Actual audio switching is carried out with a fixed ramp time of 5 ms to avoid clicks.

Where required, events may be entered effectively off-line, by setting the system time to the appropriate point and pressing the relevant switches. This can be used, for example, to mute large numbers of channels simultaneously, and may also be used to enter MIDI program change commands on any MIDI channel, which the desk will then transmit at the desired moment. The MIDI spec also includes transmission of full MIDI Time Code, with an adjustable pre-roll time.

Once entered, all events can be edited; not only can they be altered but they can be shifted backwards and forwards in time. The Edit mode is just as self-explanatory as the rest of the system. To find an event, the Roll knob can be used to move continuously through the SMPTE time, or two nudge keys can move stepwise backwards and forwards through the stored events. Each event is shown in the display window in terms of its type (channel mute, group mute, program change and so on) and its timecode location, and the actual change occurring at that point is shown by flashing the relevant LEDs by the switches. This display itself has an added degree of subtlety; if a function is being switched on by the automation, the 'on' cycle of the flash is longer than the 'off' period, and *vice versa* if a function is being turned off. Once the desired event has been found, it can be changed, deleted, or moved to a new position with millisecond accuracy. Cut and Paste type software is under consideration for copying whole blocks of events for things like repeated choruses.

The reason for going into such detail about the operation of the automation is the importance of showing how friendly the system is. There never seems to be any confusion about what's happening or what should be done next, which of course is the way things should be but often aren't.

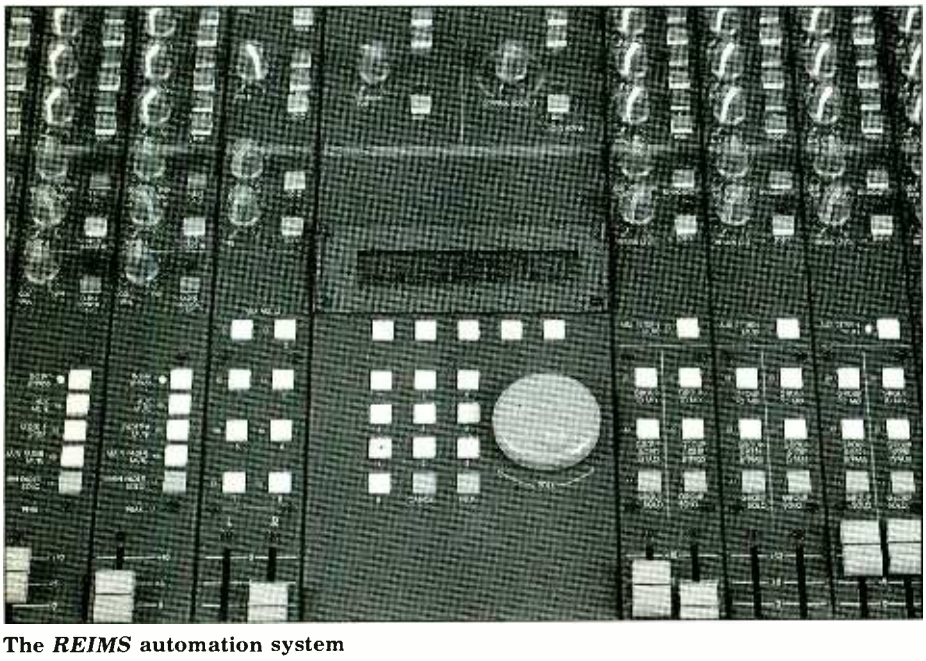
Mix data is archived in battery-backed-up RAM in the form of song files, and the memory will hold several such files, the actual number obviously depending on the complexity of the mixes. Longer term storage and backup is possible with an external computer via the desk's fully-configurable RS232 port, and software for this purpose should shortly be available for STs and PCs, allowing files to be saved, listed and loaded either from the desk or from the computer keyboard. A MIDI SysEx bulk dump protocol is also under consideration.

Constructionally the *REIMS* appears to make few concessions to budget. The frame is extremely rugged, using three massive extrusions and a laminated steel baseplate incorporating screened cable trays, and the electronics make almost exclusive use of 5532s. Digital buses providing computer access to the automated switch functions are all under the switches themselves, as far removed as possible from the audio buses, which are behind the metering and routing panels at the top of the desk. A nice touch on the metering section is the use of magnetically fixed front panels, giving easy access to the meter alignment presets when required. The meters themselves are LED bargraph types, with selectable ballistics—vu, PPM or average—and variable-intensity LEDs giving the impression of a finer resolution than the LED increments themselves would provide. One of the two pairs of stereo meters may be used as a phase meter.

Another impressive constructional feature is the optional patchbay. This uses Mosses and Mitchell bantam jacks, hard wired to ribbon cable headers at the sides of the patchbay. From here ribbon cables run direct to the console buses or to the rear-panel Edacs, thus greatly simplifying access for servicing and rewiring.

The foldback arrangements are flexible if slightly eccentric. Any combination of the eight auxes can be sent to either of the two stereo foldback sends; if only one is sent it appears centrally on the foldback, while adding others sends the odd-numbered auxes left and the even ones right. To those of us used to real stereo foldback this may seem a little bit clumsy, but handled carefully it's probably more useful than straightforward mono.

Talkback arrangements are fairly standard and include the provision of a 25 Hz slate tone. The alignment oscillator makes use of the on-board computer to provide a user-programmable automatic sequence of tones, of variable frequency and duration.



The *REIMS* automation system

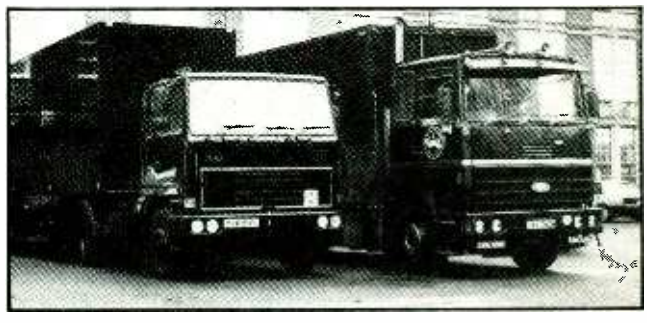
Summary

The *REIMS* console offers some genuinely new ideas. Its provision for large numbers of inputs directly addresses current working practices without sacrificing a console's traditional functions, and its intuitive real-world automation provides facilities, which could only be achieved otherwise by spending a lot more money on a console or by bolting on someone else's automation with all its inherent problems and clumsiness. I expect to see this desk become a very familiar sight.□

Harman Studio Systems Unit 3, Bittern Place, Cobury Road, London N22.

Worldwide: Soundcraft Electronics Ltd, Unit 2, Borehamwood Ind Park, Rowley Lane, Borehamwood, Herts WD6 5PZ, UK.

U2, Michael Jackson, Billy Joel, the Moscow State Orchestra, the Bolshoi Ballet, Jean Michel Jarre *and* Bruce Springsteen *have all been caught with it.*



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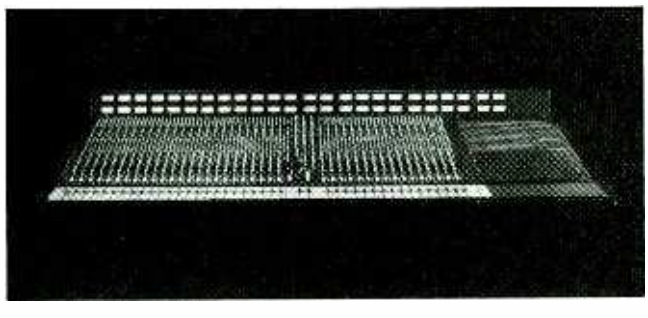

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Soundtracs In-Line

David Hastilow reviews the IL2824 pre-production version of the In-Line console

The late '70s saw a rapid growth in the number of smaller and home-based recording studios. By the turn of the decade MIDI and digital instrument technology only intensified the already prevalent requirement for a budget priced, high-quality console capable of getting on to master, be it analogue or digital, all that greater clarity and depth of sound.

In late '82 Soundtracs debuted their *CM4400* console which featured a unique Digital Routing System that has since been emulated by other console manufacturers. According to the manufacturers the *CM* series was so successful it outsold all other consoles within its market guaranteeing their entry into pro-audio.

Their 'bank manager friendly' design policy of concentrating on functional, no gimmick design to 'speed-up and improve the quality of the task at hand' meeting the needs of multi-track studios, video and film post-production houses, theatres, OB, broadcasting and even ocean liners, evolving through the *CM* and subsequent *MRX* and now the *IL* or *In-Line* series of consoles.

To further assist studio operators in their other requirement of being able to cope with a busy and varied work schedule, often on an hourly basis, Soundtracs developed *Tracmix*, a fader automation and 'instant reset' software package.

The console under review is a pre-production prototype *IL2824* housed in a 24-bus mainframe with *Tracmix* automation. Production models are now available in 48- or 36-channel options based upon a 32-bus mainframe.

Space, will be, or is, the final frontier for many studios. Keyboards, samplers, FX racks, sequencers and people eat ground rent around the console at a rate probably proportionate to that at which available digital reverb devours 'live' acoustic. The technology revolution is your landlord's best friend. But, he won't make a fortune out of Soundtracs. Even in its full 48-channel configuration with master modules and TT patchbay it occupies only 2.6 m^2 (36×48 in/1991×2601 mm). Channel strip length from top to cushion is approx 900 mm.

Four modules are available: mono input/output channel; stereo input/output channel; effects return module; master module (this is two module units wide); TT patchbay (six module units wide).

The review console had 28 mono input/output channels, one master module, a TT patchbay and *Tracmix* automation. (In its preliminary form.)

From an overall height of 1008 mm the meter panel, housing the 40-segment, 1 dB graduation, LEDs present a near vertical fascia, displaying all tracks, mix masters and PFL. A phase correlation between L+R source of up to 180° is also provided.

At an angle of 10° the modules bank down from a channel numbering strip to the faders, which are slightly uplifted at an angle of approx 2°. A 50 mm elbow cushion strip over the width of the module unit area completes the fascia.

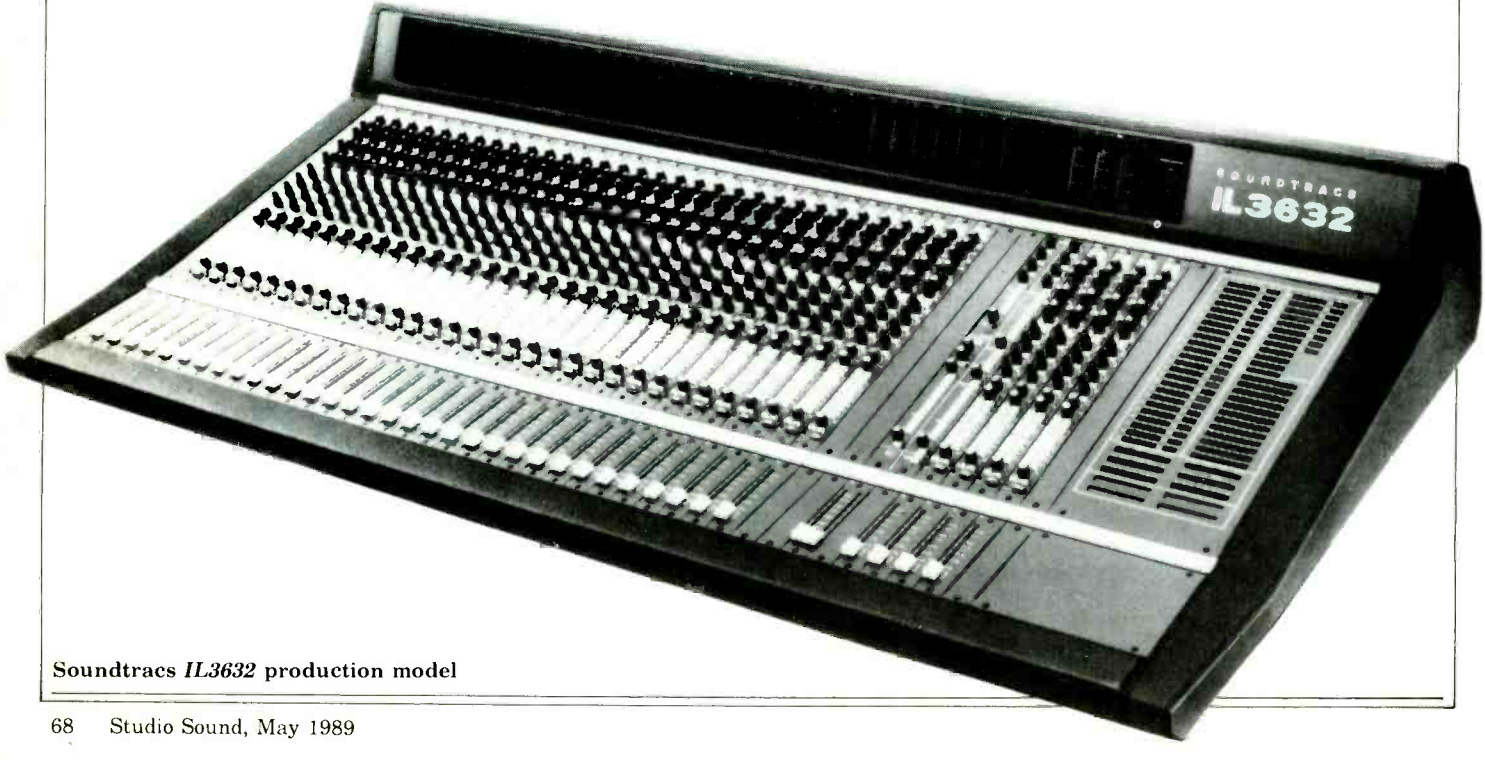
The review console was finished in chocolate brown base with red white and black coloured knobs, but a grey/blue is also available. This, combined with the low level architecture lend a recessive and open aspect making LED and parameter graphics easily discernible even in low-level lighting.

Even so, it is still necessary to stand over the upper knobs to read their actual settings. If all you need is ears then this in itself is unimportant but as many engineers like to *see* what they're doing, the low level aspect of this, and all contemporary consoles, it seems, do not make for a healthy stature, especially if 90% of one's working life is spent at the console.

Some recompense lies in the fact that the scaled down proportions of the IL bring even its outer limits within easy reach and an experienced engineer will have no problem making adjustments from, or very close to the on axis monitoring position by the light of its LEDs alone. It may also be worth noting that, the height of the console is such that a pair of nearfield monitors placed atop and at either end come into the exact position for accurate monitoring both in the vertical and horizontal planes.

Scaled down proportions, though, apply not only to layout but also to the actual knobs themselves. One criticism of having lots of small knobs and buttons bunched closely together is that, in the event that the engineer might have to 'jump' on one in a possible hazard situation, he might easily miss and cause an even greater catastrophe. For instance, the mute buttons on both the mono and stereo input modules are very close to the solo buttons. Miss the mute and you risk losing the whole mix from the monitors. A momentary but, nonetheless, intimidating experience not conducive to a relaxed session or one's credibility, when it happens. On the other hand, closely situated parameters do let your fingers do the

▷



Soundtracs *IL3632* production model

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All module parameters are organised such that similar parameters on different modules are adjacent to each other in the frame. Gain, trim, phantom powering and attenuation at the top. Parametric EQ and pass filters in the upper middle area, auxiliary sends lower middle followed by monitor level, status and routing in descending order to the large red channel mute button and overload LED above the fader.

The mono input/output channel module will accept one microphone (3 kΩ imp) or two line level (>10 kΩ) inputs via an electronically balanced input utilising discrete circuitry protected against high voltage (±50 V) and incorporating RF suppression.

At the very top of the strip four buttons provide +48 V phantom powering, phase invert to rectify out-of-phase sources, attenuation and a mic/line select switch which provides the facility of having either a mic and line input or two line inputs simultaneously on each channel. Below these, two single throw knobs provide mic gain (+20 dB to +60 dB) and line (−10 dB to +10 dB) of input gain. The lower knob trims the second line input between the same levels and is useful for the 'normalled' return from multitrack tape machine.

The 5-band parametric section has high and low pass filters and gives 15 dB of boost and dip over widely overlapping high mid and low frequency ranges, with variable Q from 0.5 to 10 in the mid-band region.

Split EQ

An extremely useful feature of the EQ section is that it may be split between monitors and inputs. High and low frequencies assignable to the monitor, leaving the mids on the input channel or, mids on the monitor and highs and lows on the input. Alternatively, the entire EQ section may be allocated to either the input or monitor.

The auxiliary send section comprises eight individual buses controlled by four dual concentric pots. 1 & 2 being normalled stereo such that the lower pot adjusts pan, and the inner pot, level. 3 & 4, 5 & 6, 7 & 8 being mono selectable in pairs pre- or post-monitor or channel fader.

The monitor section comprises of, level, pan, illuminated mute and illuminated solo, which may be either PFL or in-place. A solo safe isolates the monitor from the in-place solo system. There is also a solo button above the mute button at the bottom of the channel strip. The upper one solos what is being monitored on the channel and the lower one, what is actually coming into the channel from the inputs.

A button marked L-R, shows what is being monitored through the main outputs. On, for instance, the Soundcraft console, this similar function would be labelled MIX.

The status section has multifarious purposes achievable through buttons marked MIX, REV, TAPE and GRP. Firstly, to hear anything at all the previous L-R and Tape (Return) buttons must be depressed. This allows comparison between what is going to the channel and what is coming back from tape. The Mix button is only used when the whole desk is being put into the Mix mode, which, in effect, brings what is coming off tape down to the main fader. Alternatively, and this is where it starts to get clever, if you were to depress the REV function, the off-tape signal is routed to the Monitor gain rotary pot and the main fader becomes the level control of what is being sent to tape. Selecting GRP assigns the monitor fader also as a subgroup fader which in turn may be transposed with the channel fader.

A small quadrant of the Status section is labelled Mute with two buttons labelled 1 and 2. These control channel muting by either or both of the two groups of master mutes by selecting the relevant group 1 or 2. In this way, whole banks of channels, say from a drum mic set up may be assigned to any pair of faders selected in the routing section below. Returning the console to a similar way of working with a normal split console. In this section routing to any of the 32 group outputs is accomplished using the eight switches. The manufacturer's quoted noise figure for 32 routed channels in Mix mode is −82 dBr and for an individual input (gain 60 dB ref 200 Ω) is −127.5 dBV.

The quoted signal crosstalk figures are, between any two groups at 1 k <−82 dBr and 10 k <−78 dBr.

Another extremely useful facility is a 'bounce', marked BNC, switch. This enables a channel that has already been assigned as a group to be, itself, routed to a further group.

Two separate pan controls, one for the monitor and input position the individual signals across the stereo image of the master output, control room or the odd and even numbered sub groups.

In addition to the muting available through grouping an illuminated channel mute button is provided. Above this the illuminated channel solo may be either PFL or in place with a solo safe switch to isolate the channel from the in place solo system.

The peak indicator lamp lights up when either input circuit is at −5 dB of overload level. Below it, the 100 mm long throw fader fitted with a separate fader bay controls the channel level from infinity to +10 dB.

As the basic building block of the whole system, the Mono I/O channel provided every facility to monitor the signal dry, or with added FX, or combined with off-tape and other input signals, as part of the mix or panned alone in position. In a situation involving the subgrouping and bouncing of whole banks of MIDI'd keyboards, off-CD sound effects and live mic'd vox and drum set-up the positioning of the controls and their associated routing and parameter switches made for a hassle- free session. A sound clarity which enhanced, rather than detracted, from the creative process lent a fair amount of tenability to the manufacturer's quoted figures and heightening the confidence and awareness of everyone involved.

To further speed-up this typical, rather than isolated type of recording session, Soundtracs have produced two further input modules. The stereo I/O module and the effects return module. Two of the latter being available for the 32 & 48 input consoles. The former is a 'minimised' version of the mono I/O module accepting just two line inputs and featuring a similar, though not so versatile parametric EQ section. Also, the status and monitor sections are not included.

The balance control, just above the channel mute button may be assigned as a width control.

The effects return modules provided eight line inputs, four with EQ and four with auxiliary sends.

The return inputs allow the same trim range as the normal line inputs, −10 dB-+10 dB routed, via an EQ switch to a 2-band EQ section. Comprising high frequency shelving between 2 kHz and 20 kHz and low frequency shelving between 50 Hz and 500 Hz.

Returns 3 & 4 have a similar input gain..

Four auxiliary send controls may be selected in pairs either pre or post level, access auxiliaries 1-4 or 5-8 using a 'bounce' switch. A level and pan control are provided along with illuminated solo and illuminated mute.

The master module houses the auxiliary masters, talkback, control room, oscillator, headphone, studio and master group mute controls. And no Slate button. Perhaps Soundtracs think that in this age of nearly full automation, the engineer will not benefit from hearing a little bleep when he's running the tape back. Every other conceivable aspect of the console may be brought to the ears via cans or monitors.

The upper section has the eight auxiliary masters, each with a separate AFL facility.

Via the talkback button, below and on the left-hand side, the engineer may talk to phones, studio, aux, grp, L-R, or direct to an intercom system. Adjacent to this the oscillator providing 63, 400, 1k, 10k, 15k sine wave to Aux, Grp, L-R, DIR, or its output maybe attenuated. Not the usual 20 dB but 30 dB instead.

Next is the phones section allowing monitoring via the level control and illuminated mute from any combination of control room monitors and all auxs.

The control room monitor section contains the in-place solo system master switch and level controls for PFL, outputs A, output B, and monitor dim. The monitor sources may be selected from any combination of left/right masters, 2TA, 2TB, 2TC, 2TD, all auxs, an external signal such as intercom, either the left or right signals or a mono sum of both. The control room monitor sources may also be routed to outputs A or B using a selector switch, both may be dimmed and muted. Similarly, the studio monitor system may also be assigned these sources.

The TALK button and Master Mutes 1 and 2 are just above the fader.

Tracmix

With a total 56-channel capability, 72 on the 36-input and 96 on the 48-input console (staggering for such a seemingly small console), to ease any possibility of mental confusion, Soundtracs have developed their own automation system, *Tracmix*. The one hooked into the review console was still on factory test but the final production version is now available.

The *In-Line* represents an interesting development for Soundtracs and is certain to find interest from those looking for a compact, well thought out in-line desk. □

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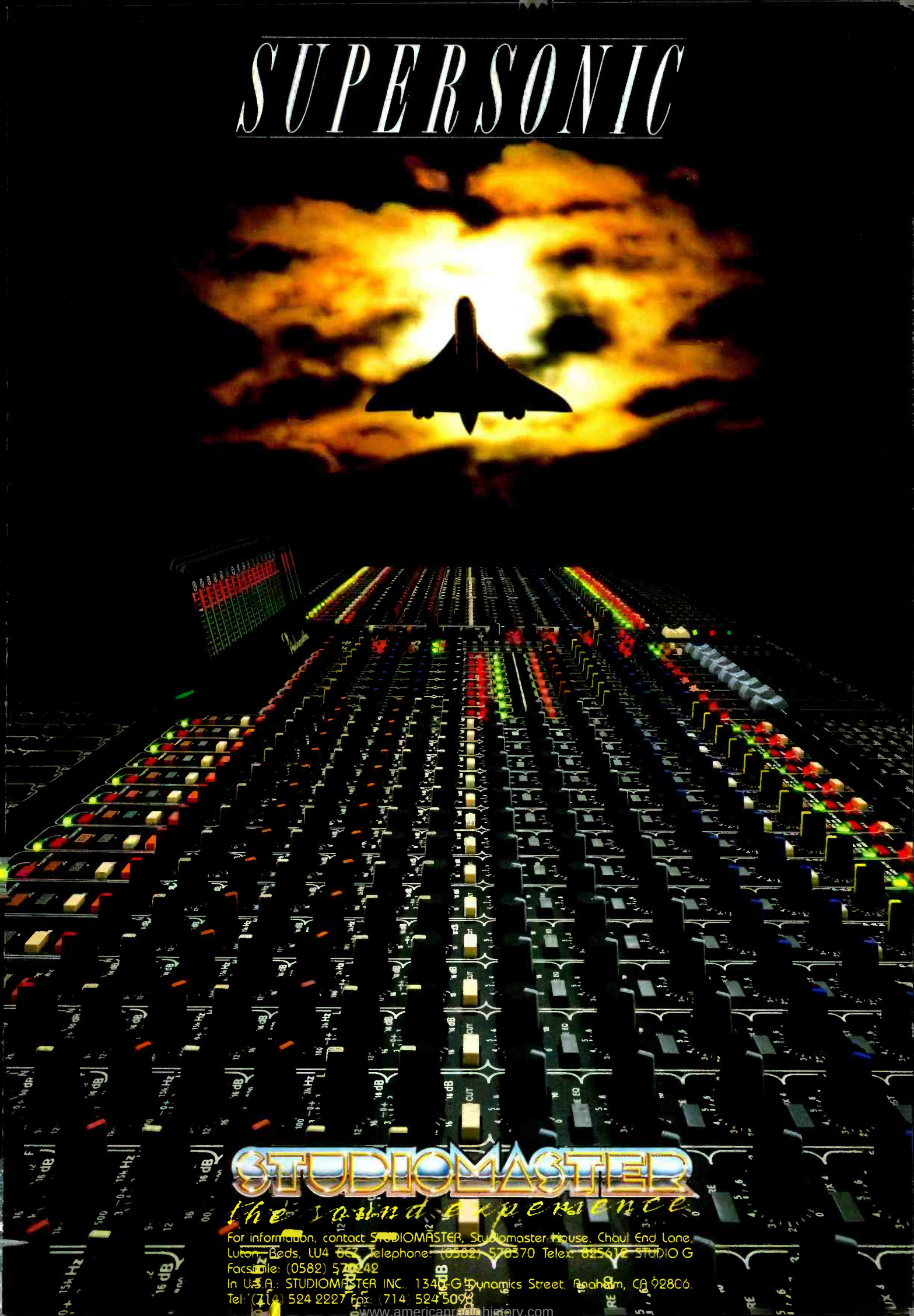

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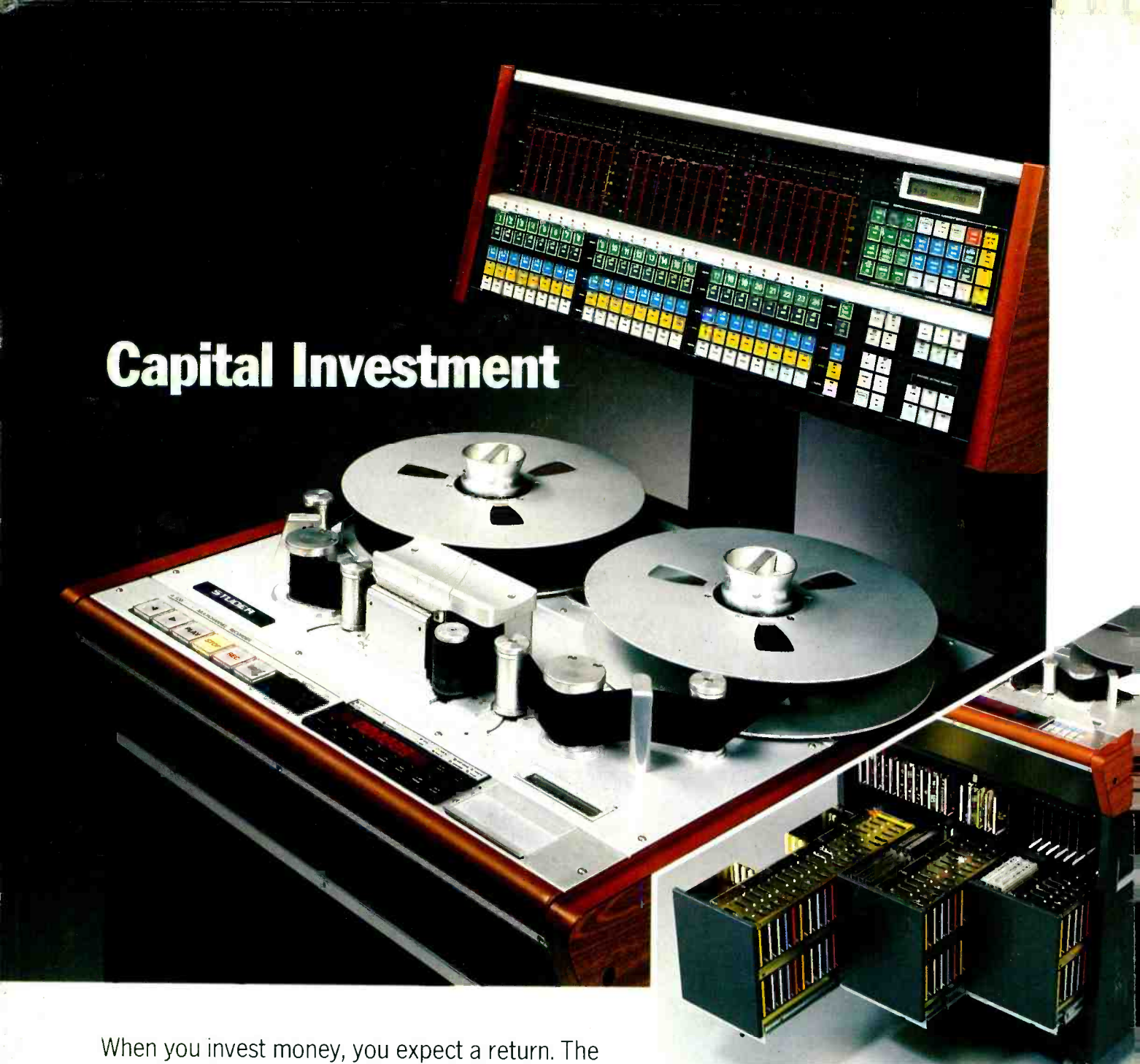

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