

Autumn 1979
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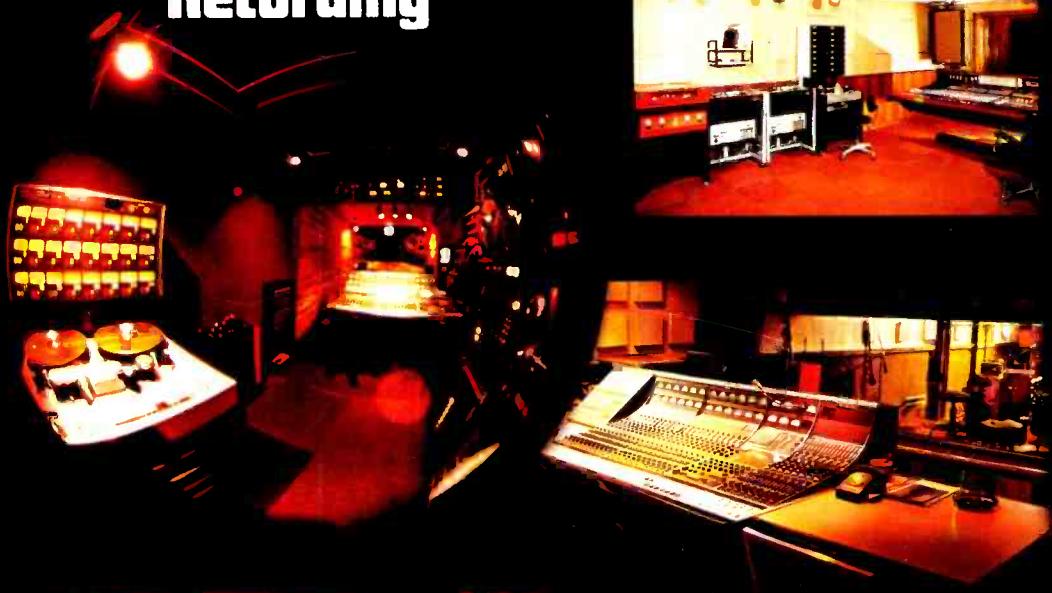
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studio sound

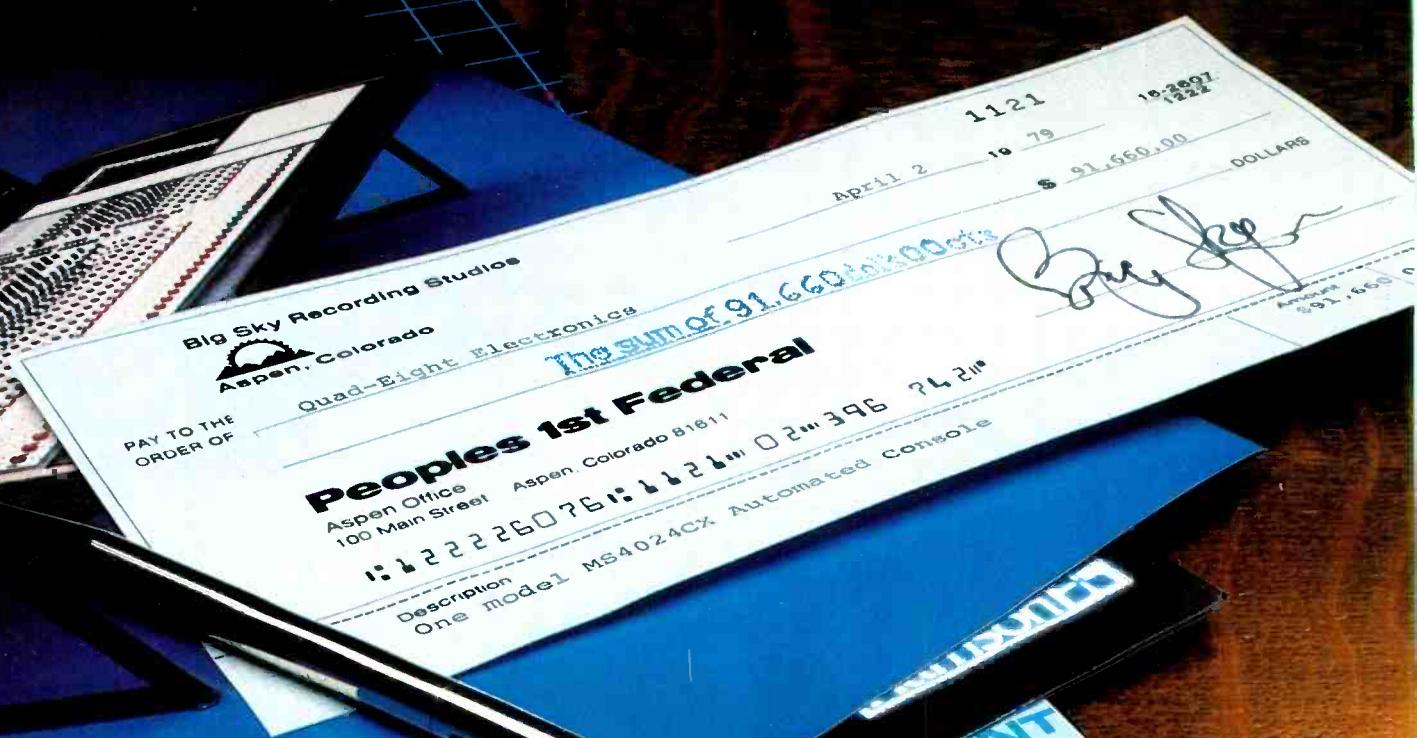
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A LINK HOUSE GROUP
MAGAZINE

studio sound

AND BROADCAST ENGINEERING

SPECIAL ISSUE

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It's over 3 years since *Studio Sound* published an International Issue – examining the recording and music business around the world. And this time, rather than devote a normal monthly issue to provide complete International coverage (thus omitting all our regulars), we are, for the first time, publishing a Special International Issue as a '13th edition' – we hope you like it.

We have attempted to publish reports from widely different areas of the world, in almost all cases written by those living and working in their particular country. Their occupations vary considerably, many are recording engineers, producers or studio managers, but the list also includes a professional musician, equipment distributor and two professional journalists.

Depending upon their local knowledge, each of the 14 articles takes a different outlook upon the particular country in question, but the general brief was to write about developments in the recording studio field, the music market, live music and broadcasting – rather wider than covered by some writers. But generally, the Issue provides an excellent overview of the worldwide recording and music business, sometimes a slightly pessimistic outlook, other times optimistic. One article of particular interest is Japan, since it discusses some technological developments presently unique to Japan, but which will undoubtedly escape their shores.

While I will leave you to form your own overall impression of our business, from my own view it seems apparent that while there have been several recent boom years for recording studios, the record business is now cutting back and it seems possible that prosperity might be slowing down, making it increasingly difficult to raise funds for new studios and for the development of existing ones.

There appear to be many different reasons for the declining record market, including increased marketing costs, causing a high end user price which is resisted by the consumer when the basic cost of living is rising rather more rapidly than take-home pay, the greater percentages are given to talent in the battles between record companies to sign bands (the Sex Pistols being a perfect example), and finally the dent made in profits by home cassette copying and counterfeiting. Let's hope that the trend is not irreversible.

Angus Robertson

AUTUMN 1979 VOLUME 21 NUMBER 12

Lexicon Has a Delay System for Every Application and Budget

The Lexicon Model 91 Delay System

We've taken our sophisticated big-system Model 102 PCM technology and packaged it for small budgets — churches, schools and colleges, community auditoriums and similar installations.

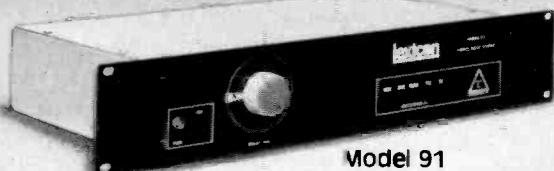
And, we've done it without compromising on Lexicon quality or resorting to delta modulation techniques.

Our modestly priced Model 91 has features that have made the 102 the choice for many of the world's greatest concert halls and studios. You get ultra low (less than .08%) noise and distortion... dynamic range greater than 90dB... 0 to 120ms delay adjustable in 7.5ms increments... 5-level LED headroom indicator... automatic audio bypass for zero delay or emergencies... plus other advanced Delta-T performance extras.

And, like all Lexicon systems, the Model 91 digital delay is conservatively designed and modular for fast, easy, on-the-spot maintenance. There's nothing like it in its price range!

Model 92 System

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Model 91



Model 102

Model 92



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The Technology Must Serve The Music

This one thought is reflected in every facet of Solid State Logic's Master Recording Consoles. From the beginning, we wanted to offer the artists in our industry a truly exceptional instrument which would not limit their expression in any way. After years of quiet and deliberate work, we have created an unprecedented marriage of hardware, firmware and software with advantages and potentials years ahead of any other studio system.

SSL's ULTRA-LOCATOR, for example, brings automation to recording as well as mixing. The multi-track transport is directed to unlimited cue points which may be requested by songtitle, verse or other words, as well as sequential numbers and timecodes. All session data, such as track assignments and comments on takes, can be stored on floppy disc for video display or hardcopy printout. The proprietary SUPERCUE system enables unerringly accurate programmable drop-ins with tandem multi-track, monitor, and foldback switching.

SSL's SOFTWARE ASSISTED MIXING (SAM) is easily the most useful and easy to use mixing automation ever. SAM automatically selects the appropriate fader status, displays VCA levels on a built-in video screen, stores unlimited mixes, and enables extensive off-line manipulation of those mixes. Best of all, SAM is software based, which means he easily learns lots of new tricks to keep you ahead of the pack.

SSL's SIGNAL PROCESSING includes a full-feature compressor/limiter/expander/gate in each module. Front panel "Link" buttons enable an unlimited number of strapped stereo or quad units to be freely configured across the board. The module's four band parametric equaliser has continuously variable Q in each of the overlapping mid-bands, selectable peaking or shelving in the high and low bands, and separate variable HP and LP filters. Pushbutton switching enables the equaliser to be placed at the channel input, the channel output, in the dynamics unit sidechain, or in the monitor mixer. The dynamics unit can also be switched to the monitor mixer.

SSL has developed these and many other innovations to free the production team from the tedious, purely mechanical aspects of multi-track work, so that they may apply their full skills and judgment towards perfecting the artist's performance. If that sounds like music to your ears, contact us for additional notes.

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—at the leading edge of recording technology

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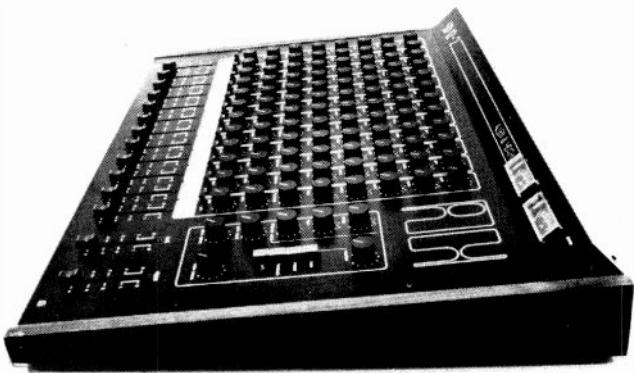
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Our large consoles set standards— our small ones keep them!

The name of Allen and Heath has become synonymous with highly sophisticated multitrack and sound reinforcement consoles. The experience gained in these markets has always been reflected in our smaller units all of which offer the same uncompromising standards of excellence but at prices eminently suited to budget operations.



SD12-2

The SD12-2 offers more than any other mixer in the crowded 12 into 2 market. With features like balanced XLR inputs, direct outputs, PFL and four way stereo monitoring this unit is capable of simultaneous P.A. and recording its low noise circuit is ideal for demo work. Remarkably its price is little more than 'music dealer' type products with far less capability.

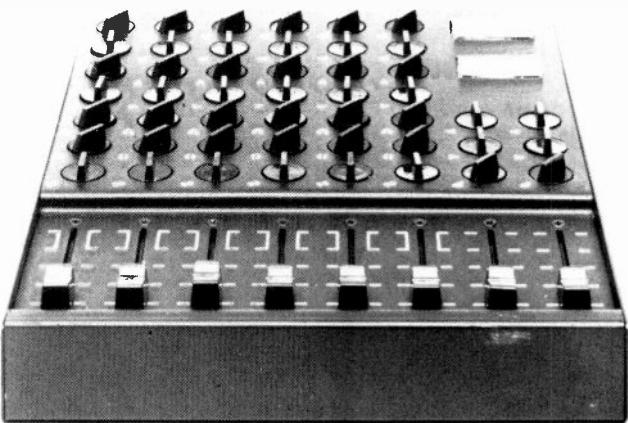
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Pembroke House,
Campsbourne Road,
London N8
Tel. 01-340 3291

Our large consoles set standards— our small ones keep them!

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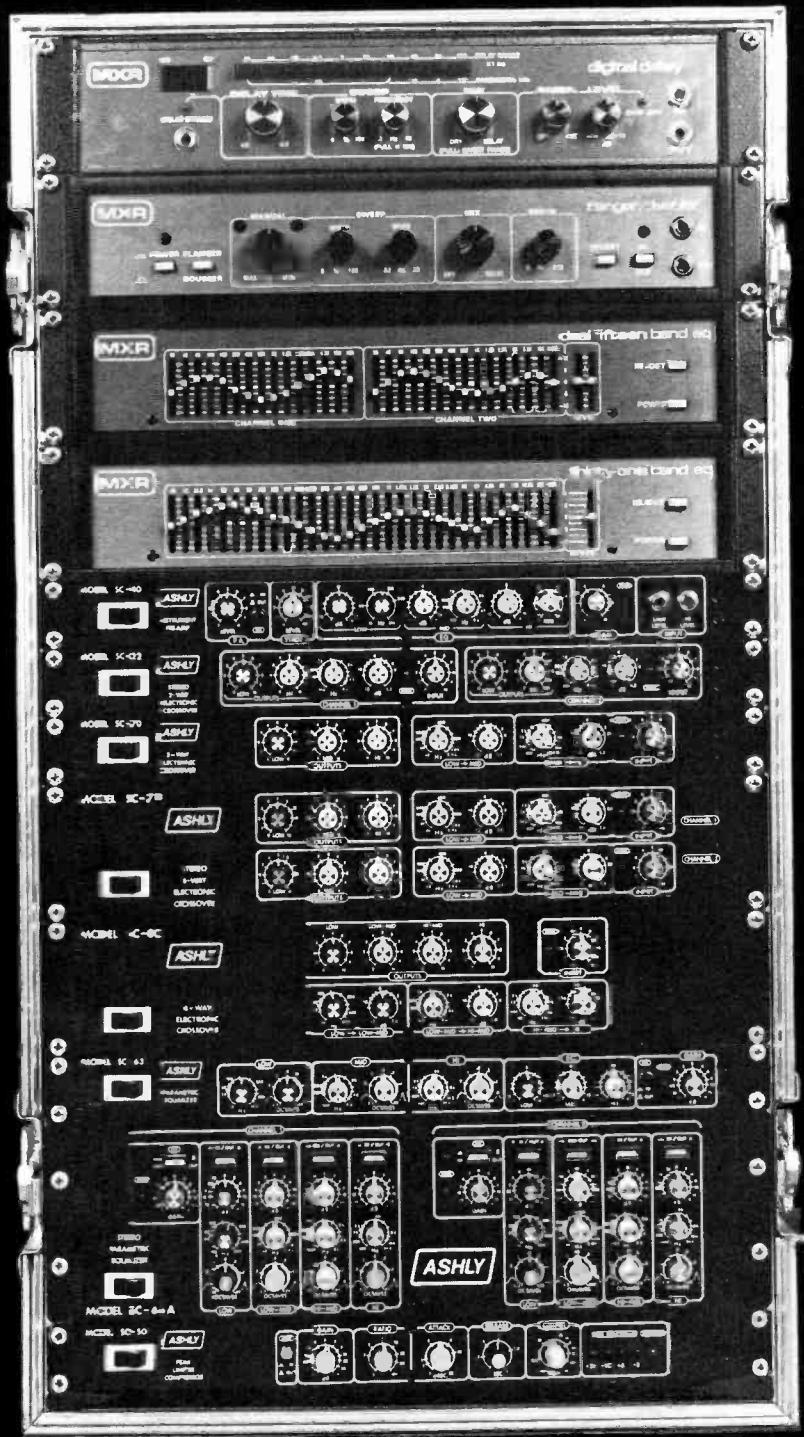
Mini Mixer

The Mini Mixer is the ideal complement to any stereo tape or cassette recorder. It offers professional features such as foldback, echo, three band eq. and monitoring at a most unprofessional price. This amazing 6 into 2 mixer converts any hi-fi system into a mini recording studio.

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THE THINKING MAN'S AUDIO CONTROL.

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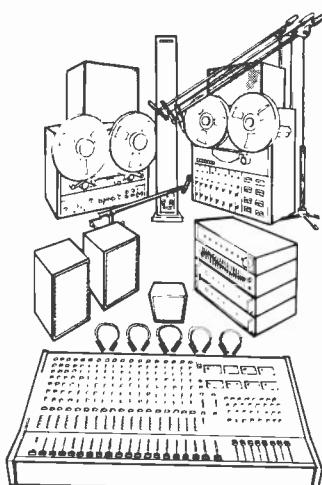
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Considering or upgrading a multitrack system?
We offer a select range of studio equipment, backed with
advice, demonstration and service. Turnkey sell, install, lease or hire.

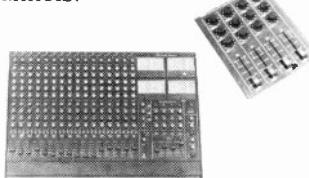


SYSTEMS

As our name implies, at TURNKEY we specialise in systems. From the simplest four channel setup to large eight or sixteen track installations, we can tailor a package to fit your exact needs. This can include acoustics advice, wiring, consoles, training and so on. Ask for our 'Quotation Sheet' or call Andrew Stirling now, on 01-440 9221 and discuss your requirements first hand.

MIXERS

Our exclusive 1478 is a freebie with all four track recorders. Treble, bass, pan and level on four channels.



The RSD, 16 by 4, offers great value for money in budget multitrack mixers. Packed with features and our own mods for 8 track.

MONITORING

QUAD is a remarkable company that has stayed in the forefront of monitor amplifiers for over a decade. Their current series, the 303 and 405 are available for medium and high power use.

JBL and **TANNOY** share the market for studio monitors worldwide. We demonstrate and supply matched systems for budget and big-time monitoring. The renowned AURATONE mini-mighty speaker cubes, are also in stock.

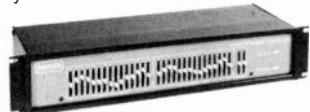


SIGNAL PROCESSORS

The choice is immense. We cannot sell them all so we pick and choose the best. Take MXR for example. This American based company has grown from making effects for guitars to studio equipment for professionals. Their digital

MICRO-PHONES

As with speaker systems, the choice of microphones is very much one of personal preference and we stock a range to satisfy most requirements. Our current favourites are the new CSE range by AKG. This is a system (in similar lines to the revolutionary C451 range some years ago) of interchangeable bodies and capsules. As electret technology is used, the prices are correspondingly low.

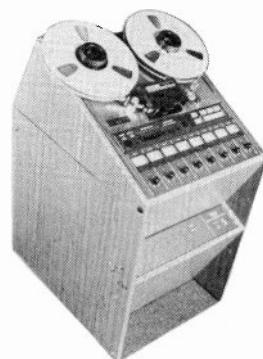


ACCESSORIES

As well as supplying standard plugs, tapes etc., We have developed an exclusive range of 'hard to find' studio accessories.



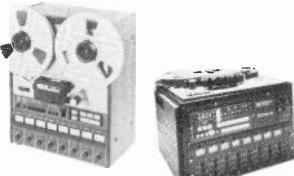
Take for example our 'Great British Spring' - a high quality stereo reverb developed for the budget conscious studio.



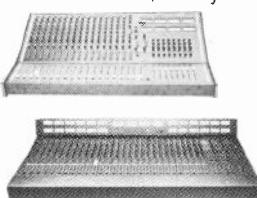
We also have . . . mike boxes . . . track sheets . . . preamplifiers . . . direct boxes . . . rolling consoles . . . and much more. Full details in our 'TURNKEY by mail' catalogue.

TAPE RECORDERS

REVOX lead in the field of 2 track mastering. The new B77 includes all the features that were hot-rodded to the A77.



SOUNDCRAFT is well known for its' state of the art performance. We have extensive experience of the Series Two, 16 by 8.



SYNCON by A&H is a major breakthrough in the design of big consoles for 16 and 24 track. We offer fast delivery and installation.

TEAC's new 3440 is the updated version of the 3440S. Now with varispeed, logic switching, monitoring and motion sensing.

The 8 track, one inch from SOUNDCRAFT MAGNETICS is a sophisticated workhorse with unique remote control facilities.



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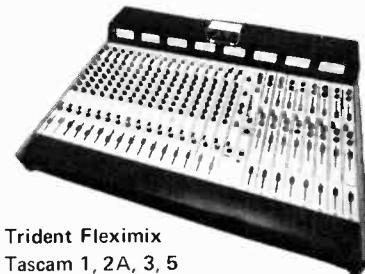
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After a successful launch in America, Ashly sound processing equipment is now available at S.E.S. The range includes two compressor/limiters, parametric e.q. (stereo & mono) instrument pre-amp, 2, 3, & 4-way stereo & mono electronic crossovers, and a keyboard instrument processor.

Allen & Heath Mod 3, Syncon, SD12-2.

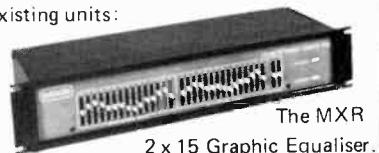


Trident Fleximix
Tascam 1, 2A, 3, 5
RSD 16x4, 16x8



Cable Testers,
D.I. Boxes, range
of pro units.

The latest in our range of MXR Studio Products, the Flanger/Doubler is capable of doubling, true vibrato, chorus effects, pitch harmonising, and many other effects. With up to 70m. sec delay with full band width, it gives an amazingly accurate variable doubling facility, and on the flanging mode can be used as VCF controlled or controllable for linking units together in sync. Features include hi-Z in, lo-Z out, line in, line out, and remote by-pass. The 'Flubbler' matches existing units:



The MXR 2 x 15 Graphic Equaliser.

Two SPRING offers:



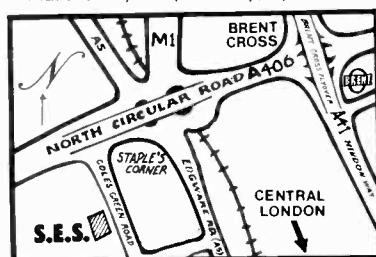
The Great British Spring.

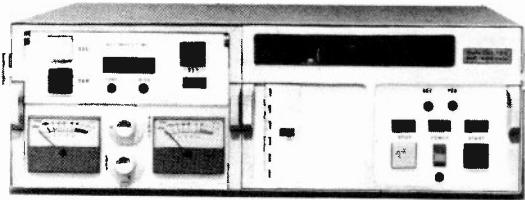
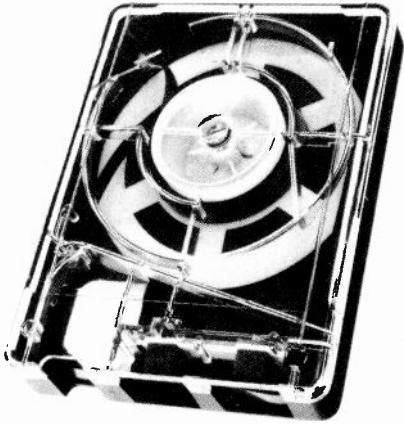


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KEITH MONKS Pretty coloured
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There is a Dolby noise reduction unit for every professional application

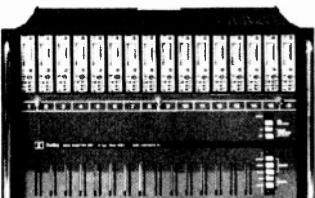
Professional recording and transmission applications

**360**

The Dolby 360 is a basic single-channel A-type noise reduction unit for encoding or decoding. This unit is normally used in a fixed mode such as disc cutting or landline sending or receiving; the operating mode is manually selected.

**361**

The Dolby 361 is similar to the 360, providing a single channel of A-type noise reduction, but with relay switching of operating mode and tape recorder connections. The changeover can be controlled automatically by the recorder.

**M-Series**

The Dolby M16H A-type unit is designed specifically for professional multi-track recording, and incorporates 16 channels of noise reduction in a compact chassis only 10½ inches high. The similar M8H is an 8-track version, and the M8xH allows simple extension of the M16H for 24-track use.

Noise reduction module

**Cat no. 22**

The Dolby noise reduction module, Cat no. 22, is the basic functional unit employed in all A-type equipment. The Cat no. 22 is available as a spare or in quantity to OEM users for factory installation. A half-speed version of the module (Cat no. 40) is also available.



Dolby Laboratories Inc.

Dolby, Dolbyized and the double-D symbol are trade marks of Dolby Laboratories Inc

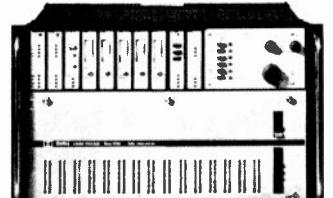
Motion picture industry

**364**

The Dolby 364 Cinema Noise Reduction Unit is intended primarily for use with Dolby A-type encoded optical sound-tracks. The 364 also includes a standard 'academy' filter for conventional tracks, and provision for playback of magnetic sound tracks with or without Dolby system encoding.

**E2**

The Dolby E2 Cinema Equalizer is a companion unit to the 364, and has been specifically designed to solve the response equalization problems of cinemas. Used with the 364 and Dolbyized optical sound-tracks the E2 enables most cinemas to achieve modern sound reproduction standards without replacement of existing equipment.

**CP100**

The Dolby CP100 Cinema Processor is designed for the reproduction of all current and presently foreseeable film sound-track formats including conventional optical and magnetic tracks, Dolby encoded monaural optical tracks, Dolby encoded magnetic sound-tracks and the new stereo optical release prints. Up to three noise reduction modules can be incorporated. Typically, three channels of theatre equalization, as in the E2, will be incorporated, but facilities exist for five channels of equalization and the connection of an external quadraphonic decoder.

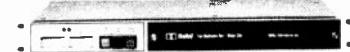
**CP50**

The new Model CP50 is intended for the reproduction of all optical soundtrack formats, Dolby encoded and conventional, mono and stereo. The unit is designed to interface with an existing fader and magnetic stereo installation. A wide range of accessories is available.

Professional encoders for consumer media

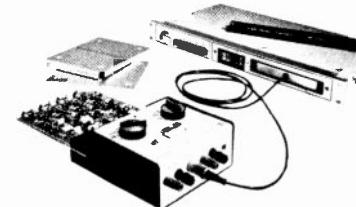
**330**

The Dolby 330 Tape Duplication Unit is a professional quality unit with B-type (consumer) noise reduction characteristics. The unit is used for encoding duplicating master tapes in the high-speed duplication of Dolbyized cassettes, cartridges, and open-reel tapes. The 330 is a two-channel unit.

**334**

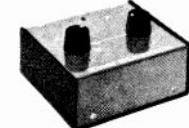
The 334 FM Broadcast Unit allows broadcast stations to encode stereo FM broadcasts with the Dolby B-type characteristic. The unit also provides for a reduction of high frequency pre-emphasis to 25 microseconds; this reduces the need for high frequency limiting, thus allowing a significant additional improvement in reception quality.

Test set (A-type)

**Cat no. 35**

The Dolby NRM Test set, Cat no. 35, permits rapid verification of performance of Cat no. 22 noise reduction modules without their removal or the need for additional test equipment.

Noise weighting filter

**Cat. Nr. 98A**

Noise weighting filter to CCIR/ARM characteristic (recommended by Dolby Laboratories). Filter is used with average responding meter (ordinary millivoltmeter) allowing noise measurements to be made on tape recorders, tapes, FM tuners, etc., with results which correlate closely with the subjective effect of the noise. Filter can be used for the testing of professional and consumer equipment.

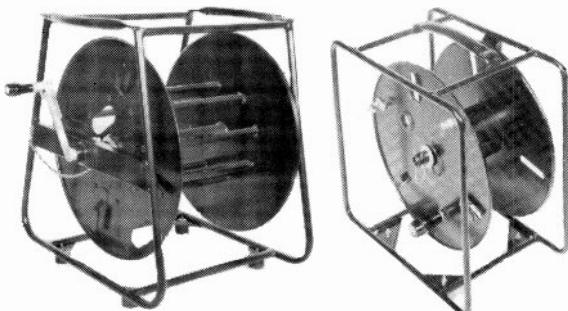
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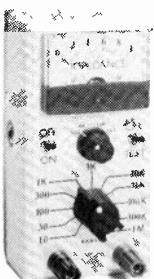
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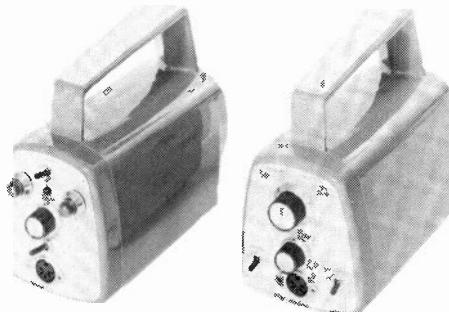
CABLE DRUMS

These nylon coated cable drums cater for single or multicore cables.



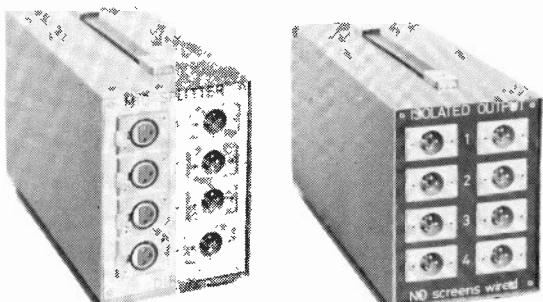
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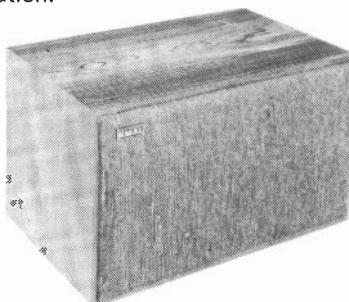
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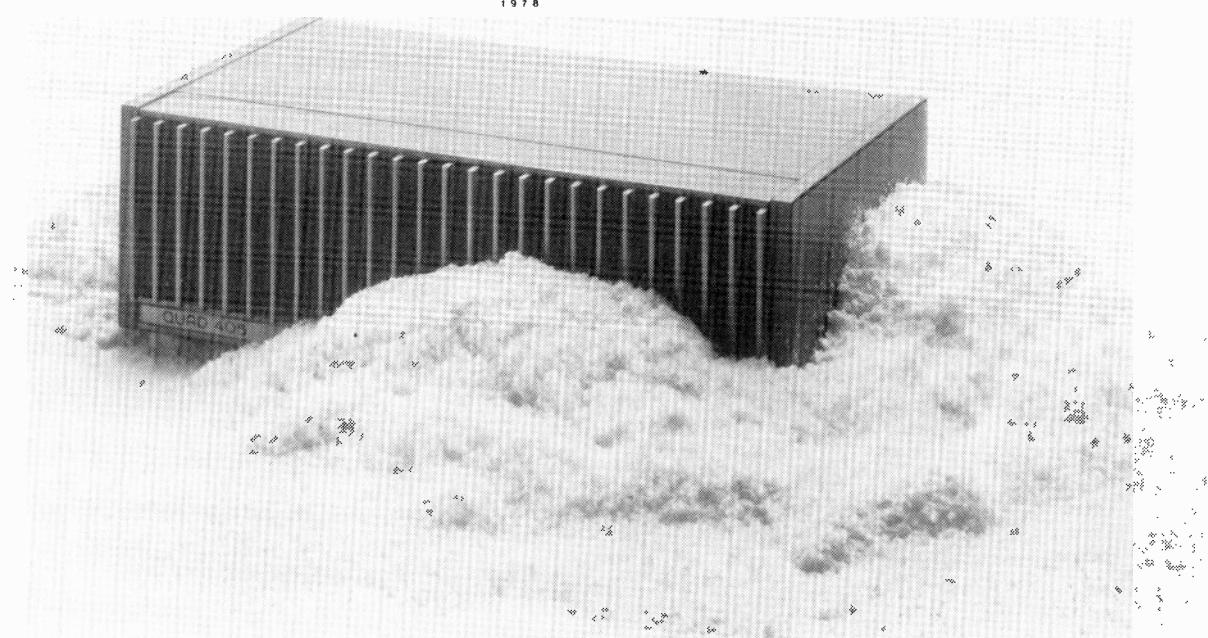
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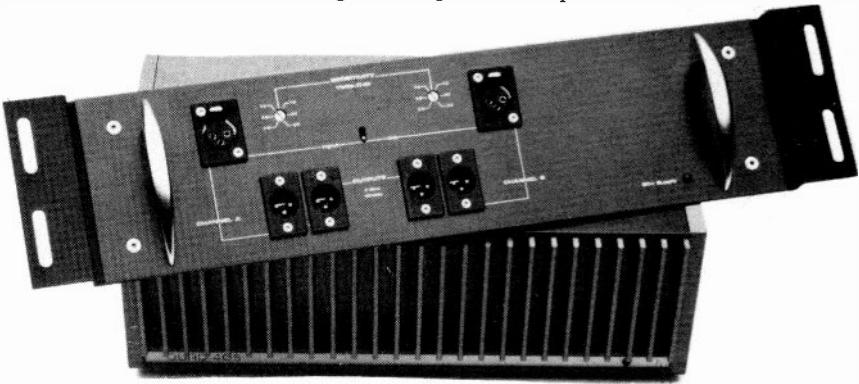
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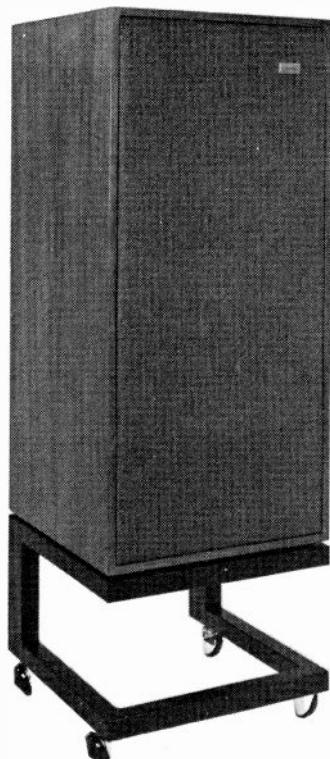
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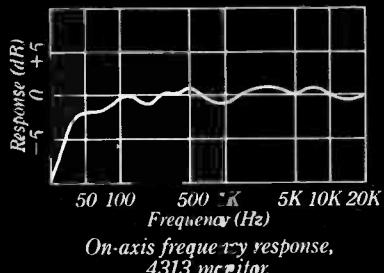
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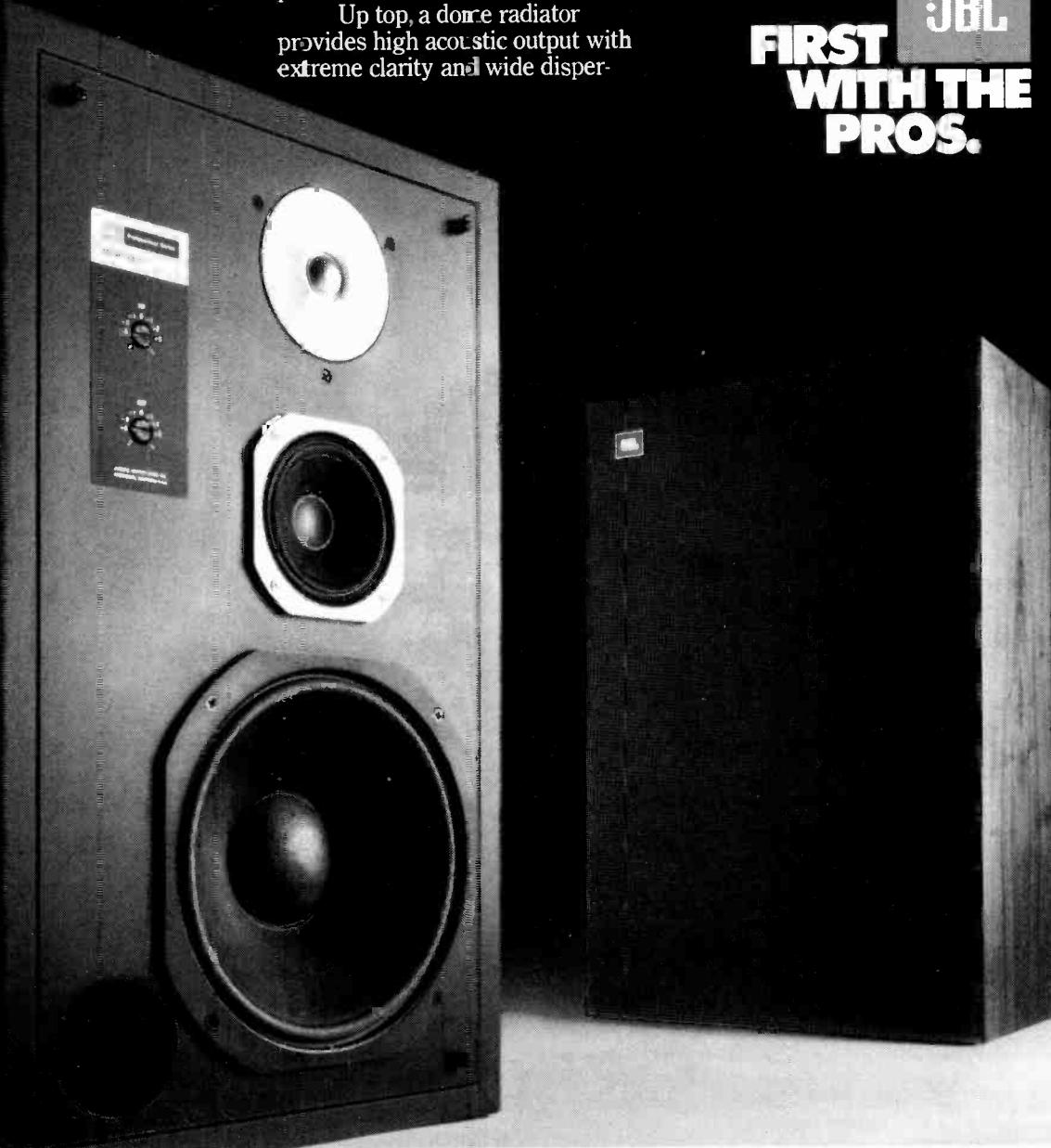
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Robin Prior examines the South African scene, where one of the biggest problems seems to be an exodus of talent to other countries.

To give perspective to the music recording industry in South Africa, comparative population figures are interesting. The total population of South Africa (with an area of 471,445 sq miles) is approximately 24,000,000 people, (made up of 4,300,000 whites, the balance of non-whites), while the population of England (with an area of 50,363 miles) is approximately 50,000,000 persons with 12,000,000 of these in Greater London alone! The sheer lack of buying power has a substantial influence on record sales, live performers earning potential, and recording studios profitability in South Africa. Record sales are pitiful in comparison to most other markets around the world. Gold Record sales of only 25,000 are few and far between, and an average to good sale of 10,000 LPs would cause very wide smiles. A further problem for record sales is that there are two completely different market and musical tastes to cater for, the 'black' and the 'white'. While these tastes may overlap in other markets (both the USA and UK) in South Africa 'black' music is almost 'tribal' in its structure and therefore too ethnic for the 'white' market. There are also seven different 'black' native languages compounding the problem further. Culture and musical tastes differ so widely that they require totally different marketing and music.

The fact that South Africa is a 13-hour, £800 flight away from London (not to mention the political situation), contributes to our isolation from the mainstream of musical thinking and performers. No promoter has yet developed the suicidal urge to gamble hard-earned cash on bringing top weight groups or performers to South Africa, simply because there would be no chance of guaranteed profit. Even if a large enough venue existed to stage a group of world-wide repute, sufficient people do not exist to fill the seats and pay the bill to make it worth the gamble.

The sheer distance is a major factor in cost too. Freight and customs duty make setting up a recording studio incredibly expensive. Any item of professional equipment, by the time packaging, freight, customs duty, sales tax, etc, has been paid, will cost almost 60% more than it would in England or the USA. A well equipped 24-track studio costs not less than £600,000 to set up, an amount that would be difficult to recoup. Despite these very real problems, the music industry is alive and well in South Africa and many fairly well equipped studios exist and struggle on. In Johannesburg, the largest city in South Africa with a population of approximately 1,800,000, there are eight 16-track studios (with three of these updating within the year

Africa



1 Control room of Spaced Out Sound Studios - Cape Town. 2 Videosound Music Studio 'A'. 3 SATBEL's control room with Trident console and also Studer 16-track, shortly being replaced by MCI 24-track. 4 SATBEL's studio A.

to 24-track, and one even considering 32-track digital updating). In Cape Town, with a population of 700,000 there are three 16-track studios and rumour has it that a brand new state of the art 24- or 48-track studio is being planned to open early 1980. Many 8-track demo studios have their place too. Most major names in equipment are to be found in South African studios, ranging through Ampex, MCI, 3M, Studer, Cadac, Neve and Trident to Neumann, Audio & Design, AKG, Tannoy, Electro-Voice, Dolby, DBX, Roger Meyer, EMT, Eventide, etc, etc. However all this gear is spread very thinly over several studios and the common cry of frustration is that there isn't enough work or money to buy all the goodies the engineers and producers want in a single studio. The talent exists to make the best of this equipment too, with several engineers who have paid their dues and worked their way from messenger boys to the hot seat, flying the desk and producing



world-beating sounds.

The front of the mic talent has, despite the comparative smallness of our population, also surfaced and made its mark. It's inevitable that South African musicians should look overseas if they're to achieve any recognition at all, as the industry and market within the country appears to be far too small to support top-class performers. Several of these outcasts have gone to the upper echelons of their particular fields; these include Hugh Masekela, Miriam Makeba, Manfred Mann, Letta Mbulu, Dollar Brand, Ricky Fattah, Duncan Faure, John Kongos, Trevor Rabin, Duncan Mackay and, more recently, the pop/disco band Clout.

Masekela, as a black musician, had difficulty obtaining work in South Africa, and was eventually helped by Johnny Dankworth into the Royal Academy of Music in England, after which Harry Belafonte arranged a 4-

year scholarship to the Manhattan School of Music. Before obtaining his degree, Masekela took to the road and was successful in eventually introducing African jazz to the United States. Since then he has travelled the world, but has never returned to South Africa.

Miriam Makeba is perhaps the most outspoken of the black South Africans who have left this country to pursue careers overseas. She left in 1961 as a member of the cast of *King Kong* and has since become known throughout the world as the 'Black Nightingale', though her political feelings have led to her records being banned by the South African Broadcasting Corporation and she's even had difficulty selling her records in the States, due, in part, to her marriage to political activist Stokely Carmichael. She cannot return to South Africa until, as she puts it, "we have a free South Africa".

One of Makeba's protégés Letta Mbulu, has also enjoyed considerable success overseas. Another *King Kong* tourer, Mbulu played a 3-week gig at the Village Gate in New York in 1964, which opened up a number of recording doors for her. She's toured with Belafonte, and has been produced by Herb Alpert. Johannesburg-born Manfred Mann first hit the charts in Britain with a tune called 5-4-3-2-1 in the early Sixties and he's travelled and remained in that country ever since. He has formed and dissolved a number of bands and played with people like Mike Hugg, Paul Jones and Jack Bruce and remains in the charts even now with Manfred Mann's Earth Band.

Duncan Mackay, although originally from Britain, made something of a name for himself in South Africa as a musician and then returned to Britain in 1972 to begin what has become a highly successful career, culminating in his current position as

keyboards player with 10cc. Trevor Rabin as just completed a fine LP, which he produced himself, as well as laying all the musical tracks. It's unlikely that he'll return to South Africa as a performing musician. And Duncan Faure has recently joined up with the Bay City Rollers as guitarist and vocalist. Dollar Brand has become famous as an inventive jazz pianist and has been recorded on the JAPO label in West Germany. He was born in Cape Town, but spends much of his time touring overseas. *Downbeat's* International Critic's Poll voted Dollar the Top Solo Jazz Pianist in the world in 1975.

Four Jacks and A Jill scored overseas with 'Master Jack'; the Jazz Ministers have toured the States, and Phillip Thabane of 'Malambo' has found his greatest successes in jazz festivals in America. Clout had to get to Holland before real recognition came their way. Musicians, producers, engineers, sound technicians – everybody in the business appears to find that the grass is most definitely greener on the other side.

An interesting aspect of the industry is that it is comparatively small, most studios exist only because they handle far more than just music. Anything from film production, audio visual presentations and radio commercials – from programmes to advertising jingles and film mixing. And, of course, music is fair game. One area of specialisation is drama film post-syncing, as television broadcasts are split between English and Afrikaans. Many programmes are post synced from French and German into English and Afrikaans and from English into Afrikaans. How about *The Sweeney* or *Banacek* into Afrikaans for a giggle. Several studios exist only for this purpose, working 12 hours a day to feed the insatiable 'box'.

The film industry is fairly active with 30 to 50 features shot here each year and three feature film mixing suites exist with many 16mm suites also fully occupied. Two broadcast standard videotape studios are busy and the South African Television Services run some of the world's most modern and best equipped TV studios and post production facilities. There is not one multitrack mobile in permanent commission, much to the disgust of the record producers!

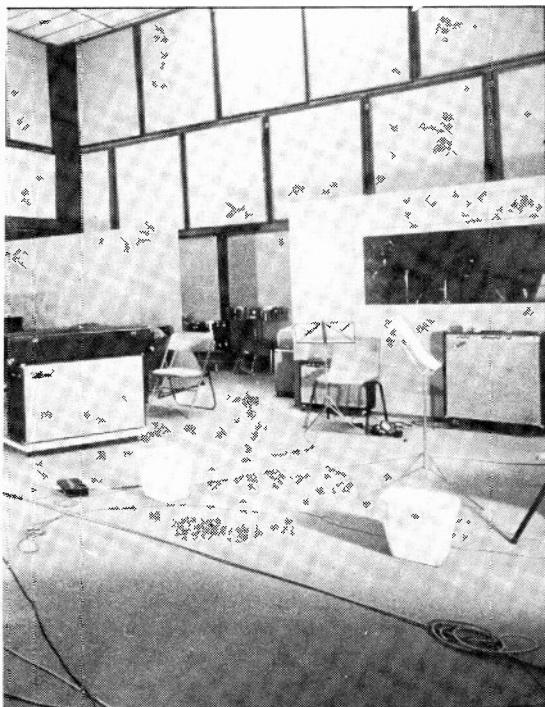
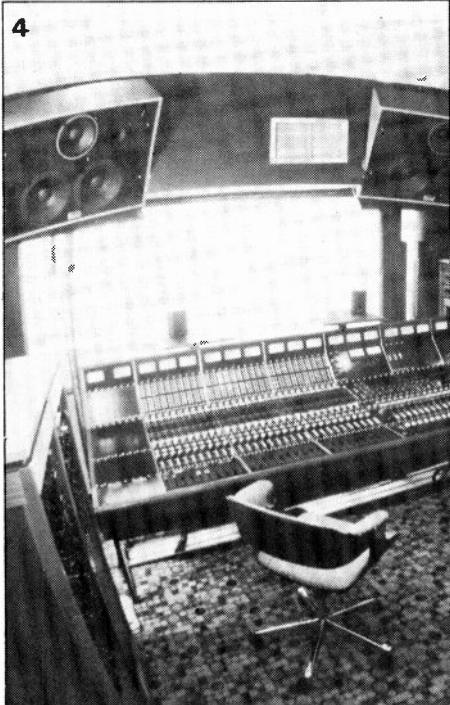
The industry is still a fairly close-knit family with most of the engineers having either been taught by the same guys or having passed through the South African Broadcasting Corporation and moved on. Certainly, nearly everyone knows almost everyone else on first name terms and there tends to be a fairly active passing on of techniques and ideas.

Because South African groups are attempting to come up against the very best around the world they, their producers and engineers are fighting hard to produce exceptional sound, and are managing occasionally to do just that, however, the frustration of working with minimal gear and money inevitably drags the talent away from South Africa to fame and fortune in the big wide world.

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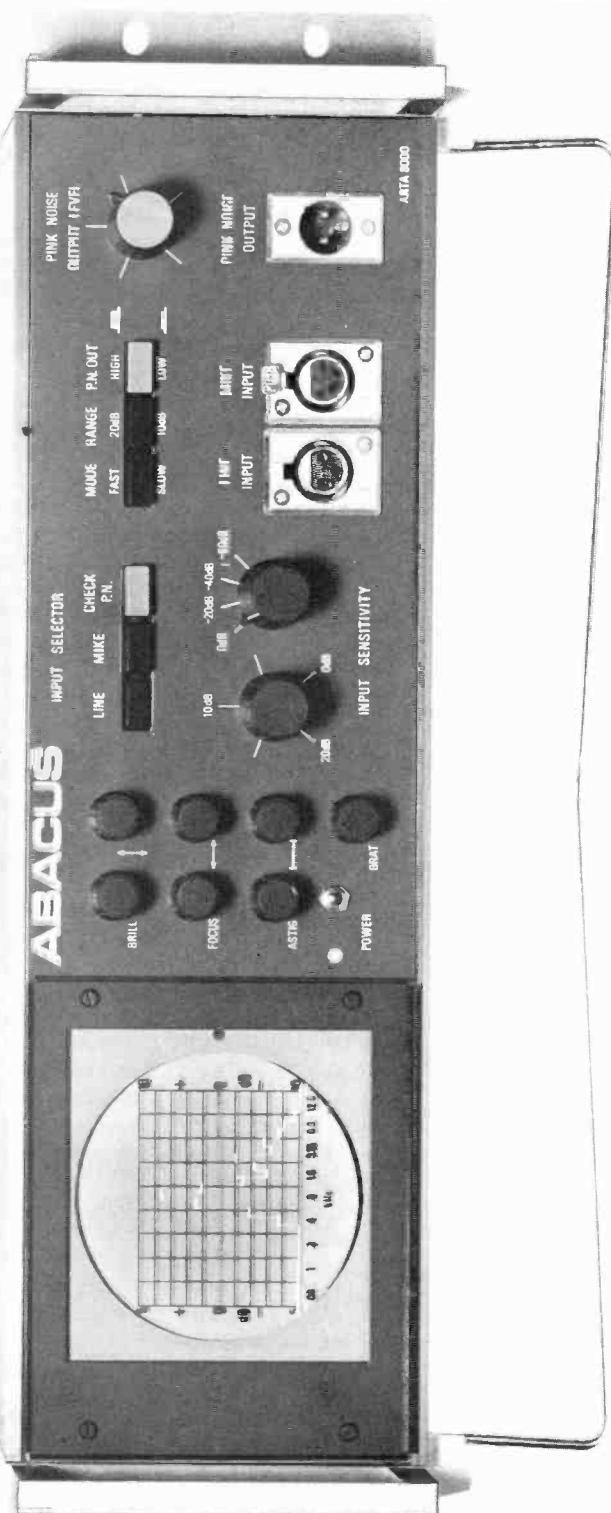
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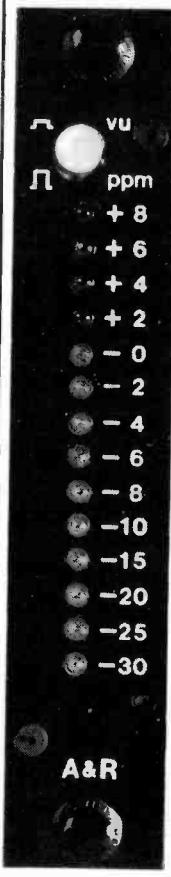
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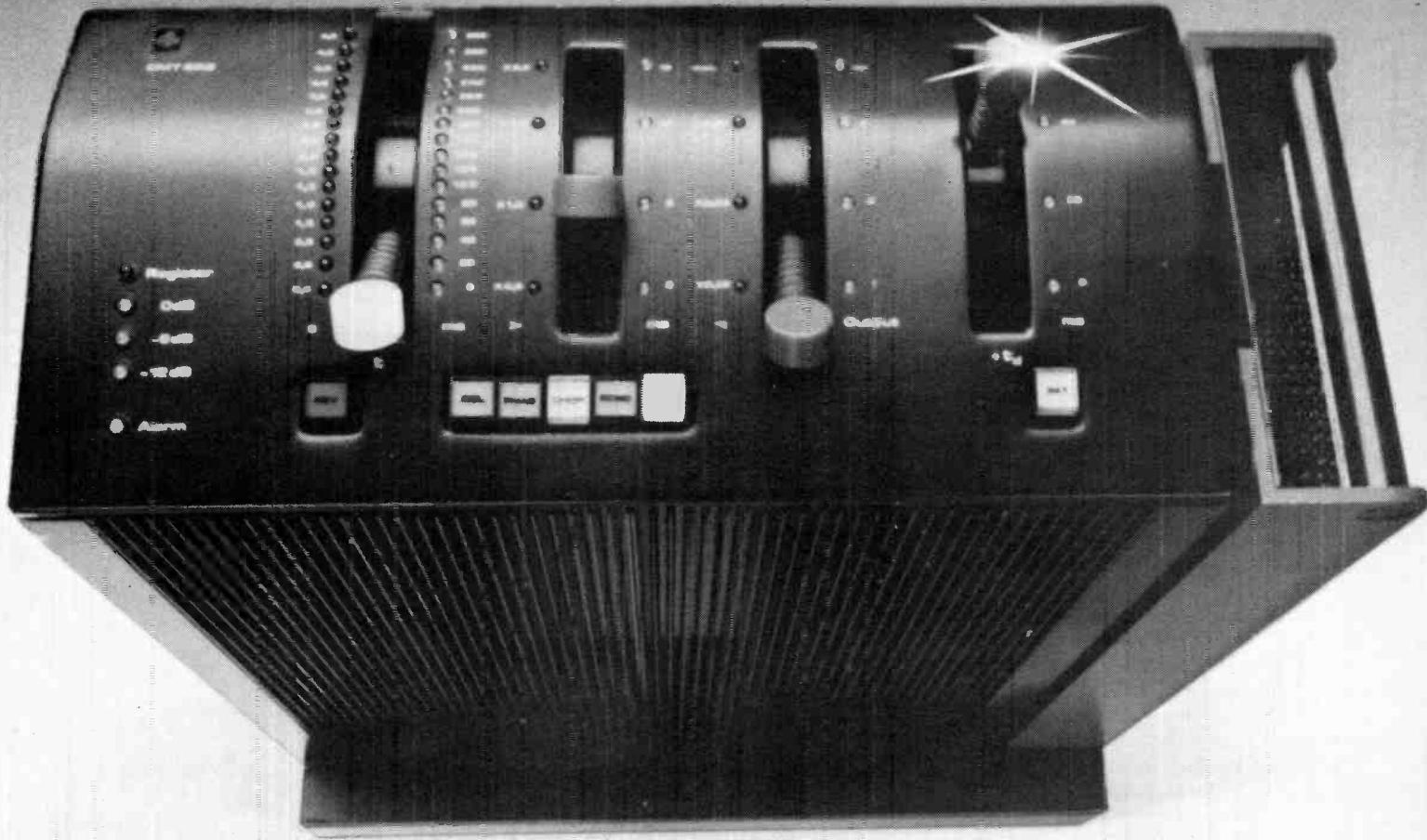
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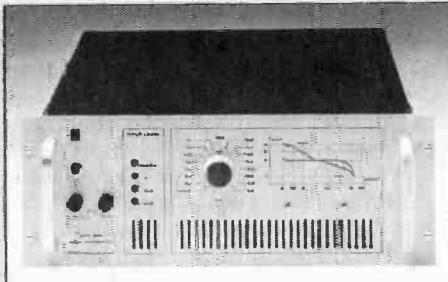


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Comrie Bucknell examines broadcasting and recording in his rather remote part of the world, where commercial and state broadcasting operate together and support much recording activity.

AUSTRALIA – land of many colours, kangaroos, Skylab debris and an enormous future in the audio industry. Over the past couple of years, the face of the audio industry has had quite a deal more than a facelift – gone are the times of 'let's make this old place into a studio'. The approach taken by a large proportion of the personnel in the industry is now far more professional although like most industries, there are the old-timers and their attitudes but it would be fair to comment that many of them are no longer the centre of the action. They are still there, but they have had to move along with the more professional, or risk long and serious talks with accountants and bank managers. The overall atmosphere is very good and we are poised to really hit the big time. The whole audio scene has passed its pubescent years and is now adult in most respects – we still have our problems and I will discuss these later.

Australian radio has come along quite a way in the past years. While not new to many parts of the world, there is now a penetration of FM. It would be fair to say that this area of radio is still in its very youthful stages – the medium has not yet been fully explored, especially if it is compared to what the Europeans are doing. There are three broad areas in FM and the largest of these is the ABC (Australian Broadcasting Commission) with transmitters in Adelaide, Canberra, Sydney and Melbourne, all having the same programme originating from Adelaide. Next comes the Music Broadcasting Society's stations. They are in Sydney, Melbourne and Brisbane, but each city has its own programme. This group has almost exclusively programmed classical music with sprinklings of jazz, folk and pop/rock whereas the ABC features even more classical music with some drama – it is definitely for the minorities. The last group consists of quite a number of stations around the country which are usually the product of tertiary educational institutions. This group is by far the largest but, on the whole, have minuscule budgets with typically, only one or two paid staff, the rest working for love. Most of these stations utilise educational facilities and are worked as an 'access station'. As a result, their programming is far more diverse.

Showing its head in both Sydney and Melbourne are ethnic radio stations broadcasting on AM. 3EA in Melbourne has programmes in at least 40 languages with good possibilities for 50 or more. Rather unfortunately, the ethnic stations are run on

very small budgets and the technical and presentation aspects could be of a higher standard but allowance must, however, be made for the fact that this area is very new to this country. The ABC contribution to AM radio is absolutely huge. It transmits from 70 aerials spread across the continent, through at least three networks in each state. The

audience, certainly the programmes are of a higher artistic quality overall (many programmes originate from the BBC or Thames in London). Ample evidence of the quality of ABC programmes is shown by the fact that for the last few years in particular, many of their documentaries have received international awards. This is not to deny the



programming ranges through classical, drama, light entertainment and jazz to regional interest.

Commercial radio is now far more fierce than ever with ratings being the name of the game, especially in the major cities. Many of the stations are undergoing massive updates in studios and equipment and it is here, almost exclusively, that the various recording studios depend for a livelihood. This is through the enormous amount of commercial production that has to be done as well as albums and singles.

In terms of television broadcasting, there exists only two broad areas – that of the ABC and commercial stations. The ABC tends to have more serious programmes and is suspected of having a more intelligent



2

commercial stations their credit. Their primary purpose is that of a commercial concern and as with commercial radio, ratings are the determining factor.

An increasingly pleasing aspect of the television industry is the awareness of producers in what we listen to when we watch – the sound. There now quite often arises the situation where, after a take, the first question regarding technical quality will be directed towards the sound engineer and if he's not happy, progression is to the next take.

So far I have not made any mention of the increasing number of television post-production facilities. Presently the biggest would probably be AAV Australia in Melbourne. This concern used to be Armstrong Audio Video but Bill Armstrong is now very heavily involved in ethnic media, especially 3EA. AAV is a very large operation and is not only involved in television post-production. They pioneered audio sweetening for television here and have had some remarkable successes in this field.

A new entry into the post-production field is Custom Video Australia with a facility in Sydney. At present only the video equipment has been installed, but a very wide variety of top grade audio equipment will shortly be added. Details at the time of writing are a little scant on this new facility. The temporary installation at Custom Video includes a 20/4

Neve while the recorders are Ampex *MMI200* 16-track and *ATR-100* 2- and 4-track, and also a Mellotron.

One of the largest television operations is Television Centre in Sydney, and this is a total television facility. Facilities are available for optical and magnetic film, television, music and post-production. An adjunct to Television Centre is Atlab which specialises in film work. Atlab has many excellent films to its credit, the most recent international success being *The Last Wave*. Equipment includes Magnatec and Teac 12/4 consoles with 21 playback tracks from six dubbers that can accommodate 16, 17.5 and 35mm film.

Although there are other television post-production facilities, further mention is not warranted for, unfortunately, as far as they are concerned 'pictures is what it is all about'.

Recording studios is an area where Australia is really moving. The past few years have seen a huge increase in not only the number of studios, but also the standard. As in any country where there is a recording industry, the smaller studios are very numerous and tend to come and go, or change hands very quickly. There are, however, quite a number of 4- and 8-track facilities that have been around for quite a while. Of great interest is the quality of the recorded product from some of these small budget operations. Many of the small studios are using Tascam recorders and consoles (usually with dbx)

while the balance tend to use older equipment that has been purchased when another studio has updated to 16- or 24-track operation. The reputation of some of these small operations is quite high indeed and they are excellent examples of the sound engineers really getting to know their equipment very well – realising the deficiencies of the rooms and compensating accordingly.

There are quite a number of larger operations and most of them are very well equipped. It is a fair comment to say that the better studios are on a par with some of the best studios I have seen in the United States. The top studios here, such as EMI's Studios 301 in Sydney are exceptionally well equipped. The facilities at EMI are nothing short of superb, it is a whole concept of 'being in reality, more than state of the art'. The consoles are Neve 8078 and can handle up to 38-tracks by interlocking the Studer recorders (16- and 24-track) with the *TLS2000*. Both Dolby and dbx are available at 15 and 30in/s tape speeds. A unique feature of the complex is the choice of monitoring available – JBL or Tannoy (as well as the ubiquitous Auratones). A very pleasing aspect of Studios 301, apart from the very competent staff, is that all the control rooms and the mixdown unit (with Necam) are acoustically identical. The head of Studios 301 is Nigel Wake who is responsible for the acoustic and systems concepts. He is very ably assisted by Steve Shurtz who was responsible for the installation. The mastering rooms utilize Maxicut, a unique process which has been developed by EMI – using Neumann *VMS70/SX74* lathes and cutting heads, Studer tape recorders and custom consoles. As with the control rooms, JBL and Tannoy monitors are available.

Rates are very reasonable and range from \$95/hour for Studio A (38-track) to \$50/hour for Custom Disc Mastering. To list the range of outboard gear is absolutely superfluous and I shall not attempt to do so, save that there is a lot of it, and it is absolutely up to date. Obviously there is a very wide selection of microphones and direct to disc is available as is video-audio synchronisation. In summary, Studios 301 is a total complex – a



3



26 ►

- 1 Control room of Custom Video, Sydney.
- 2 Sydney's Atlab studio A which specialises in film work.
- 3 Control room of EMI's studio in Sydney.
- 4 EMI, studio – Sydney.

Special Issue

very good one at that.

To the north, near Byron Bay, is another new studio, Music Farm. As the title suggests, it is a studio on a farm, and is equipped with console and tape machines from MCI and a wide selection of microphones and outboard gear. This studio has only just been completed and offers the artist a very relaxed atmosphere in which he can create without the hassles of the big city. As of the time of writing, I have not yet had a chance to visit Music Farm, but I am assured by many that it is a very nice studio, and destined for success. The chief sound engineer is John Sayers, who is well known in the industry here.

Victoria's capital, Melbourne, has not missed out in the update scene. AAV Australia is a very large concern and has many credits to its name, including that of The Little River Band, who are enjoying very wide acceptance around the world, especially in the USA. It has been stated that the band could, without any support act, fill New York City's second largest concert venue. They are a truly excellent band, and AAV have every reason to be proud of being associated with their success. AAV, although very heavily involved in video, have got a very nice audio set-up as well - one of the features being one of Australia's only two Harrison consoles. They have reportedly got the best selection of outboard gear available at any studio in the country.

Back up in Sydney, Paradise studios have recently opened with a full size Eastlake studio, equipped with a Harrison console (Allison automated), MCI tape recorders (2-, 4- and 24-track), a good selection of microphones and outboard gear with more arriving shortly.

Albert's, who are rebuilding at the moment, will soon have Australia's first Live End Dead End control room. This means that Sydney will have an Eastlake, LEDE and, EMI's new generation style of studio all within a 10 minute drive of each other. This certainly is a unique feature in the recording industry anywhere in the world.

There are many other studios that deserve to be mentioned, but space does not allow. At

Exterior of AAV



this very time there would be no less than six large studios undergoing huge updates, which range from new consoles to tape machines to complete rebuilds. Almost (without exception) every studio is adding new smaller equipment, such as master recorders, microphones and effects gear. The equipment suppliers are having booms at the moment, and there is a long waiting list for some lines. This gives a very good indication of how aware the Australian audio industry is becoming, if they are to compete on an international level.

One disappointing aspect of the audio industry here is the general non-availability of remote recording facilities. Don't get me totally wrong, AAV Australia has a 24-track van, but this is virtually out of action at the moment as it is being rebuilt. The only other van belongs to the Australian Broadcasting Commission, and is not available for hire to outside organisations, as it is heavily used for in-house production. Despite its situation the ABC van does, however, deserve mention, as it rates equally with those I have seen in the US. Basically, it has a 40/16 Neve custom console with a 16-track recorder. Monitoring is JBL and has on board an AKG BX10E reverb plate and a limited amount of outboard gear with Dolby available on all tracks. Simultaneous 16-track, stereo and mono mixes are available. A complex talkback system has been incorporated and the van's overall flexibility is excellent. It has been suggested that the ABC may get another van, possibly larger.

On the classical recording scene, the ABC is the predominant performer here. Recordings from soloists to orchestras have been made and sold worldwide. The Sydney Symphony Orchestra is part of the ABC and many direct broadcasts are made of this fine group of musicians as well as recordings. Jazz recordings are a small but important part of the recording scene and not surprisingly, some of the best recordings are made with two microphones and a stereo Nagra.

Live music, I feel, suffers badly here due to the fact that there are no really suitable venues for large audiences. Many a patron has been discouraged from going to concerts because of bad weather. It is not unreasonable for concert-goers to expect to see and hear a group of musicians and remain dry for \$10 to \$15 a head. This is, I feel, a very unfortunate situation and must be rectified as soon as possible. For those who go to clubs for live music, the situation is quite a good deal better but some of the proprietors should install decent PA systems. A real hive of activity for live music are the bars and hotels. Here excellent but not over commercialised musicians perform to usually very enthusiastic crowds.

Education in audio is an area that is very

new to this country and at the moment there are few facilities. The best by far is The Australian Film and Television School in Sydney which is very well equipped and staffed. Moves are being made to introduce more courses in audio at this school. There are other schools but they have yet to prove that they are fully professional in their methods, staff, equipment and syllabi.

Turning to professional societies the AES is very active in Melbourne and holds regular meetings. The AES is, however, not active in Sydney, but The Professional Audio Guild is. This latter group was formed two years ago as a forum for those in the professional audio industry as related to recording and broadcast situations. The PAG holds regular meetings and prints a newsletter, soon to be known as *Print-Through*. The PAG is chaired by the author.

Although not exclusively involved in the recording/broadcasting industry, the Australian Acoustical Society is very active here and in July 1980 will hold the 10th International Congress on Acoustics in Sydney at the University of New South Wales. The Congress is assured to be a huge success with in excess of 20 categories of papers in 14 major groups. Many of the categories are very intimately related to our industry. Also very active in Sydney is the Audio Group of IREE with quite a good-sized membership.

Australia can look to very prosperous times in the future with a very great awareness now being evident in the sound industry. There is, however, the very serious problem of heavy import duties on all equipment, the purpose of which can only be described as revenue earners for the Government. Their purpose is nothing but damaging to the industry here as there is virtually no manufacturing here that needs to be protected. It may be a negative attitude but no one here can seriously compete with the overseas manufacturers even though the foreign product is, without duty, more expensive, and a lot better, than the locally produced item.

Regarding digital audio, the situation is quite guarded. The attitude is very much wait and see what happens overseas. No one studio would make a move until an international standard is arrived at. So let's hope that the manufacturers can come to a decision, but quickly please.

The overseas acceptance of the local product is increasing and I believe that it could be better. I also believe that we do suffer from a case of 'we are in the colonies, you know' but I can see no justification for this attitude. We now have the facilities to make an audio product that can be technically and artistically equal to that anywhere else in the world, and this feeling seems to be gaining acceptance.

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Special Issue

Leon Anderson takes a brief look around the land of reggae which seems to have a promising future.

THE Caribbean is finding increasing favour as the scene for recording studios. As a haven in the tropics it has few equals and of course it is the primary source area for reggae. Comprising as it does a wide variety of countries/islands (many of them are still French, British, Dutch and American dependencies) the area has a small developing record industry and also several local companies issuing licensed material from companies such as EMI.

By far the largest country in the area is Cuba which has a state record company called Egem. Other companies include Julio Tonos C Por A in Dominica and West Indies Records in Barbados which has a 12-press factory and accounts for some 50% of the records issued in the West Indian market. Although both the above companies have issued licensed material from EMI since 1967, the major interest revolves around reggae. This field has been stimulated by the international success of artists such as Bob Marley and the Wailers, Third World, Peter Tosh, Toots and the Maytals, Inner Circle, Burning Spear, and Steel Pulse – and although not all these artists are home-grown their influences can be felt at the raw grass roots level of live music making.

The provision of top quality sophisticated facilities in the Caribbean aimed at attracting

Caribbean

European and American artists is the most recent recording studio development.

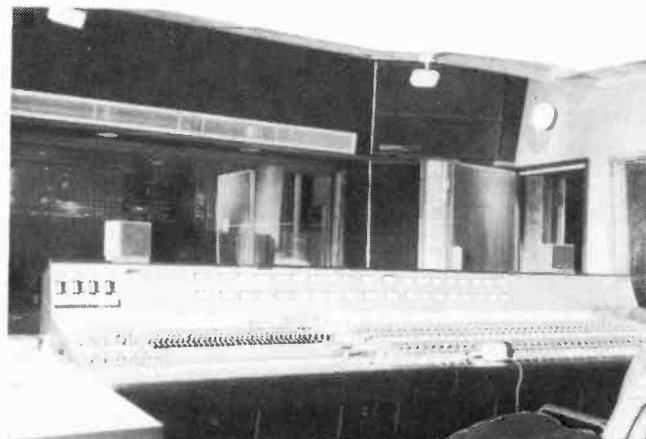
Air Montserrat is one example which we have covered in *Studio Sound* (see Studio Diary, May and August 1979) while another is Compass Point Studios situated at Nassau in the Bahamas. Compass Point are MCI equipped 24-track studios which have already attracted artists such as Emerson, Lake and Palmer; the Average White Band; and Thin Lizzy.

Looking to the future the UK's Virgin Records hope to build comprehensive recording facilities in the Virgin Islands and are presently awaiting the results of negotiations with the Governor of the Virgin

Islands prior to making a final decision to go ahead. A decision is due in the very near future and if the company's plans come to fruition a presently barren island will become the location for two separate single studio complexes with two associated accommodation villages for clients, plus a separate staff village. Other facilities will include provision of a harbour and it is likely the studios will be 32-track with Solid State Logic consoles.

Other studios current in operation in the Caribbean include ZBM Recording Studios in Hamilton, Bermuda; Soul Shack Studio in the Virgin Islands; and Caribbean Sound Studios in Port of Spain, Trinidad.

L to R The Virgin Islands. The control room of Air Montserrat, the exterior of Air Studios and close-up of pool and studio.



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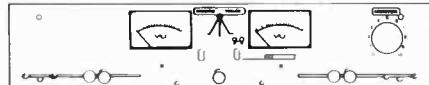
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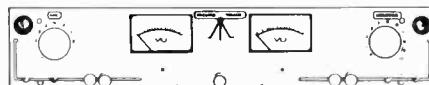


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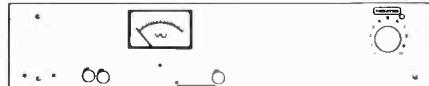
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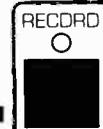
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NEAL FERROGRAPH



Noel Bell surveys the current recording industry situation throughout Eastern Europe. Interesting developments are taking place which augur well for a bright future, here.

EASTERN Europe, with its wealth of folk music and strong classical music traditions, particularly in the USSR, Hungary and Czechoslovakia, is a difficult subject to cover in one all-encompassing article. Not only is information difficult to obtain, especially in the case of Albania which is virtually a closed community, but the number of countries involved makes an in-depth approach impractical due to editorial space considerations. However, in the interests of simplicity I will deal with each country in turn and in alphabetical order.

Albania

The People's Republic of Albania is so publicity shy that details of almost any facet of the country's life are virtually unobtainable. A measure of the isolationism of the country is that even recent population figures are not available. Details of recording activities were again unobtainable, but on the broadcast front there is a national authority based in Tirana and five regional radio stations - Radio Gjirokastra in the south west, Radio Korca in the south east, Radio Kukesi near the eastern border with Yugoslavia, Radio Shkodra in the north and Radio Saranda in the south west close to the coast. In addition Albania also has a national television service, Radiodiffusion Television Albanaise.

With regard to cultural life in Albania the major activities revolve around folk music although the capital Tirana has an opera house, two symphony orchestras, 10 theatres and some 20 variety halls. By far the most important cultural event is an annual festival held in Tirana in which some 2,500 performers take part. Albania has few cultural ties with the outside world, however, it is interesting to note that a programme of cultural exchanges with Greece has now begun.

Bulgaria

Bulgaria, with a population of some 9,000,000, is next to the USSR, the staunchest follower of Marxist-Leninism. Accordingly the greater flexibility and contact with the West which characterises other East European countries notably through co-produced recordings or licensing deals with foreign record companies rarely happens with Bulgaria. Although both Decca and EMI in the UK have on occasion released recordings produced by the state record company Balkanton - usually operatic or choral works recorded in the capital Sofia and

making use of the Bulgarian State Opera - this does not happen often.

There are effectively only three organisations involved in recording in Bulgaria, these being respectively, Balkanton, Studio Za Igraini Filmi (the sound-recording studio for the state film company) and Bulgarian Radio and Television. Balkanton naturally covers all the different facets of the country's culture and in addition to producing pressings for the home market, regularly exports records to the USSR. Balkanton's biggest selling popular artist is Emil Dimitrov, a female singer who has had a smash hit with a song called 'Arleokino' which won the Golden Orpheus Award (Bulgaria) in 1975. This singer has also starred in an autobiographical film called 'Lady Who Sings' based on her career.

Details of what equipment the Bulgarians are using is difficult to come by, but I was able to discover that they use Neumann microphones and that for disc cutting Balkanton has a Neumann VMS32 lathe with SX45 cutter head, fed from a Neumann MT32 console and driven by a VG1 amplifier rack. Balkanton is also known to have Ortofon equipment although precise details were unobtainable. Bulgarian Radio and Television has 13 radio transmitters and nine TV transmitters and is known to use Telefunken M15A $\frac{1}{2}$ in tape machines. The Bulgarian authorities have also recently ordered 16 Enertec DS 16L mono magnetic film transports which are to be interlocked with Rank Cintel telecine machines.

Czechoslovakia

Czechoslovakia has by far the most well developed recording industry in Eastern Europe, and the products of the industry, especially in the classical field, are well known throughout the world. With a population of only some 14,750,000 to cater for as a home market this situation is perhaps slightly surprising, but it is based on a long cultural tradition and a recording tradition going back

to the Twenties and Thirties. While the Second World War naturally caused dislocation of the industry, Czechoslovakia emerged from the war with its gramophone industry relatively unscathed unlike the majority of other East European countries. Building from the pre-war base, Czechoslovakia now has a completely integrated recording industry - this follows nationalisation after the war - which is designed to fulfil the cultural education needs of its populace.

Czechoslovakia is in an unusual position in that it has more than one major state recording organisation, this being due to the fact that since 1970 Czechoslovakia has been a Federal state consisting of the Czech and Slovak Socialist Republics. This situation has led to the forming of a separate Slovak record production company called Opus, alongside the well known Supraphon company and the less well known Panton (which grew out of the publishing arm of the Czech Music Fund in Prague). Supraphon, like Panton, is based in Prague and has its own five studio recording complex - two studios for classical music, two for pop and jazz, and one for plays and the spoken word - together with a mobile unit. Supraphon has 16-track recording facilities as does Opus, which has three studios in the Slovak capital Bratislava. In addition to these facilities Prague's House of Artists concert hall and other concert halls, are also used and equipped for recording/broadcasting. A measure of how the different organisations relate to each other can be gathered from the fact that Supraphon is responsible for issuing some 70% of new records with the remainder being split roughly half and half between Opus and Panton. Incidentally on the broadcast front the federal structure of the state is also mirrored with separate organisations for the Czech and Slovak radio and television services.

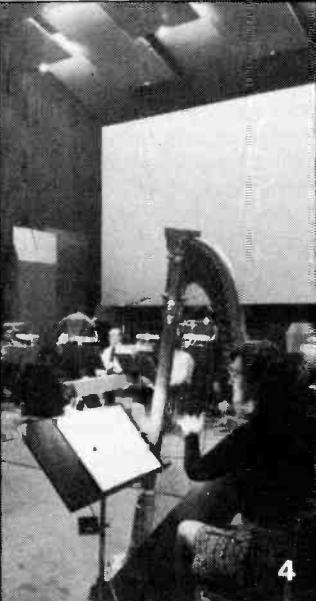
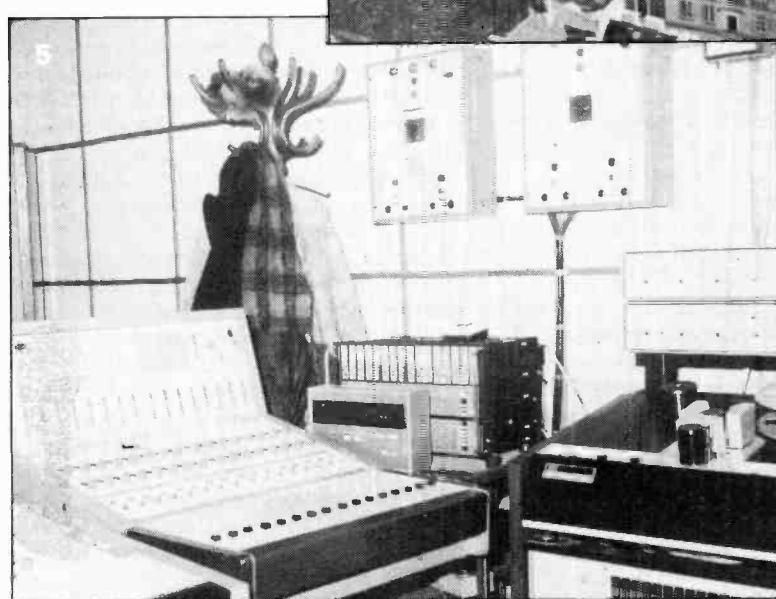
Turning to equipment Czechoslovakia has a pressing plant called Gramofonove zavodny at Lodencice, while the state

Eastern Europe



1 Control room of
Mafilm, Budapest **2**
Mafilm's film and TV
sound production
studio – note movable
acoustic elements,
large observation
window from the
control room (left), and
projection booth (above)

3 Aerial shot of
Warsaw's new town
4/6 Mafilm's film and
TV sound studio
looking towards the
projection screen **5**
Control room for main
orchestral studio M1
Polski Radio i Telewizja,
Warsaw.



4

2

electronics company TESLA produces hi-fi, TV sets, consoles, loudspeakers, radios, etc. Alongside the country's own produced units several western companies have supplied equipment to Czechoslovakia including Neve, Studer, Lockwood, Quad, Dolby, AKG, EMT, Ortofon, Klark Teknik and Neumann. Neumann incidentally have supplied Czechoslovakia with a *VMS70* lathe and ancillary disc cutting equipment as well as microphones.

One feature of the Czechoslovak recording scene is the number of co-productions it does with Western record companies such as EMI and Polydor, particularly in the classical field. This is partially the result of the high recording standards Supraphon sets itself, but is also substantially due to the quality of artists the country has to offer and the progressive cultural stance it takes. The international reputation of the Czech Philharmonic Orchestra and the Prague National Theatre, amongst others, is a major factor in this and the fact that cultural rather than commercial pressures generally decide upon the availability of product is also important. A corollary to this is that the excellent relationships the state recording companies have with other external companies has meant not only Czechoslovakian products being licensed overseas, but also a higher proportion than is usual in Eastern Europe of western – particularly pop music – recordings being licensed for pressing in Czechoslovakia. Well known western artists who have albums available in Czechoslovakia include Cliff Richard, the Beatles, the Bee Gees, Pink Floyd, Bob Dylan and Olivia Newton John.

East Germany

Since the Second World War East Germany has had to completely rebuild its recording industry virtually from scratch. As with most East European countries there is only one state record company, VEB Deutsche Schallplatten, which is based in East Berlin. VEB records a wide range of repertoire but is largely known in the West for its classical recordings of the Dresden State and Leipzig Gewandhaus orchestras in either its own or co-produced recordings. Additionally, VEB is discovering that its MOR and popular artists can tap the large West German market as well as capitalising on their appeal to other East European countries. This naturally has advantages in that royalty payments and licensing and co-production deals both within and outside the Comecon countries is making available a much wider choice of recorded material and also aiding the expansion of the East German record industry.

The latter point is as important to the East Germans as it is to the majority of East European countries, as there is an almost insatiable demand for records and tapes in

East Germany. Such is the situation in fact, that the authorities, as elsewhere in Eastern Europe, actually encourage that bane of the western record companies – home taping – even going to the lengths of encouraging record swapping and the frequent playing of popular titles on the country's seven radio stations. In fact demand is such that even at present production levels the country's 17,000,000 population is snapping up the same number of records and cassette tapes and this is only limited by availability. However, VEB is endeavouring to reduce the problem by increasing production at the company's Potsdam pressing plant to 20,000,000 units per year, although they recognise there will still be a shortfall between future demand and production.

Within East Germany VEB's output appears on five separate record labels. Roughly 50% of its output appears on the Amiga label which is devoted to popular artists with some 150 albums and some 60 singles released per annum. Next is the Eterna classical label, then the Nova label for new music, the Litera label for literary productions, and finally the Aurora specialist label. Licensed material usually appears on the Amiga label and popular western artists include Elton John, Deep Purple, Santana, Abba and the Beatles.

On the equipment front western manufacturers who have supplied East Germany include Telefunken (*M15* and *M15A* multitrack tape machines), Ortofon and Neumann (both microphones and the *VMS70* lathe and ancillary disc cutting equipment).

Hungary

Similarly to Czechoslovakia, Hungary has a long tradition of culture and music recording which it carries before it now. Hungaraton the state record company has provided – mainly in the classical field – many premiere recordings which have been licensed overseas either on the Hungaraton or the Qualiton labels. Hungaraton has two recording studios in Budapest both of which are 16-track facilities. However, it is presently updating its equipment and will be receiving an MCI 528-28 console with *JH50* automation late this year.

MCI equipment appears to be very popular in Hungary as the state film company MAFILM which has two studios, and has just opened a new recording complex in Budapest, (for further details see *Studio Sound*, August 1979, p30), has ordered an MCI 636-24 console and an MCI 2-track tape machine for a new sound mixing studio in what was previously a post-sync production studio. This new studio is expected to be completed during September and is a fully floating studio with acoustic

isolation to a West German design. Alongside the MCI equipment I understand that MVR optical sprocketed recorders are to be used. Further developments are likely at MAFILM as it is hoped that 1980 will see the addition of a new, small dubbing studio. Incidentally, the state radio service, Magyar Radio, also has an automated MCI 528-28 console.

Returning to Hungaraton, it, like most East European companies, has a restricted home market, the population being only 10,500,000. However, it supplements its home market by exporting records to the USSR, Czechoslovakia and the DDR (East Germany) which are major external markets. Hungaraton, incidentally, uses Neumann *VMS70* lathes and ancillary equipment for disc cutting, and is known to have some Klark-Teknik units.

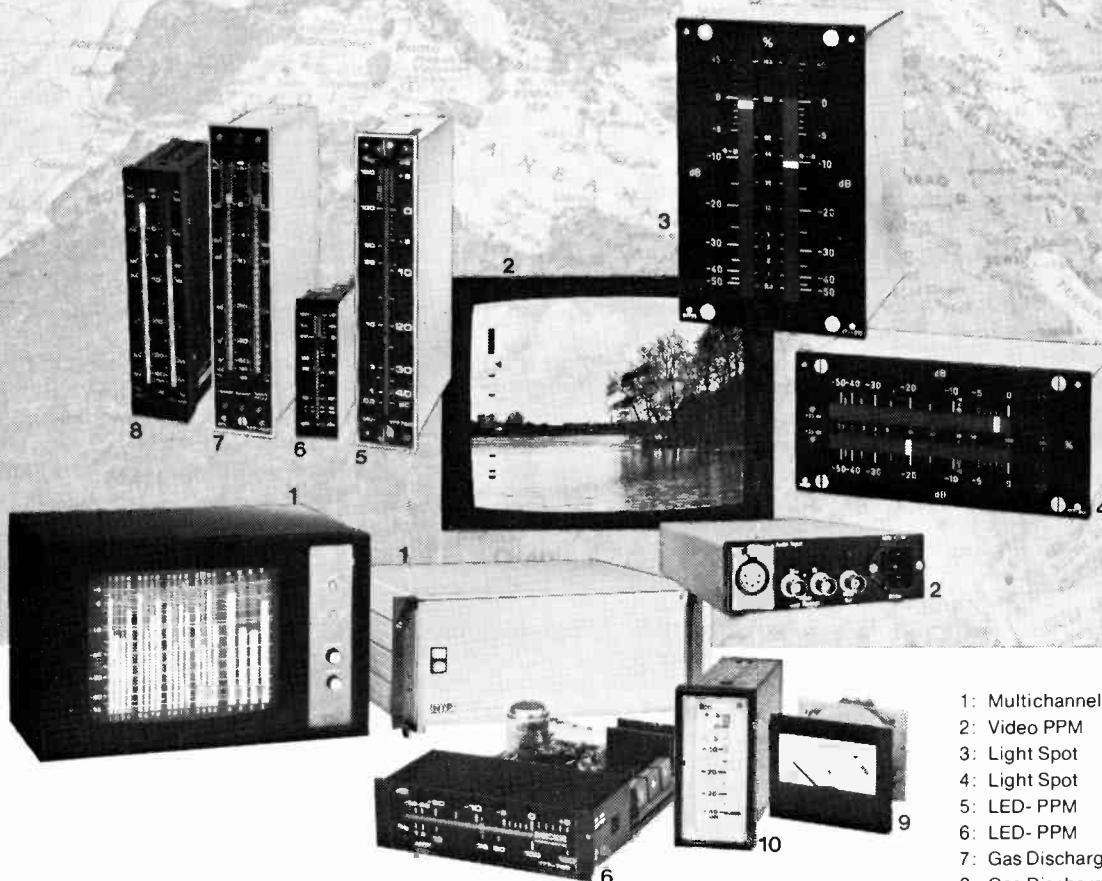
What is perhaps rather surprising is that MCI has made such inroads into the Hungarian market when Hungary possesses the most modern Eastern European studio equipment manufacturers in BEAG (the Budapest Elektroacoustical Factory) and Mechlabor (Mechanical Laboratory), both more commonly known in the West as Elektroimpex – the Hungarian foreign trading company for telecommunication and precision goods. BEAG produce the *FIT-JC* modular consoles which are used by Hungarian and USSR radio stations, together with broadcast commentator units and switching matrixes, while Mechlabor produce the *STM 600* mono and stereo tape recorders, cassette recorders, and the *SL 101* studio turntable. Although primarily an export company Elektroimpex occasionally imports western equipment and is known to have imported Marshall *5002* time modulators and Rebis *RA402* parametric equalisers.

Poland

At the beginning of this year I visited Polskie Radio i Telewizja in Warsaw to attend a broadcast symposium held in conjunction with MCI, and a full report on my visit will be appearing in a future issue of *Studio Sound*. However, as a preview I can give the following details. A new radio complex is being built in Warsaw at the site of the present television studios which will have 12 studios including a large orchestral concert hall. When completed in 1980 this new complex will operate alongside the 20 studios situated at Warsaw's two present radio centres. It is likely that the new complex will be MCI equipped and if so it will join RTV Poznan and RTV Szczecin which already have automated MCI 536 consoles. The present radio centres in Warsaw, however, are currently equipped with consoles manufactured by Fonia, the state electronics company, other equipment being used includes a 3M 16-track recorder and Telefunken *M15* 2-track machines.



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Turning to the recording industry the most important company is the state recording company, Polskie Nagrania, with three studios in Warsaw. Polskie Nagrania is responsible for the majority of record pressings and has a large home market of some 33,500,000 people. While this gives the company a stronger home base than most East European countries, it does suffer the same problems as VEB in East Germany in that demand outstrips supply. Another problem that Polskie Nagrania has is a limited amount of competition from Tonpress which specialises in licensed single and EP material from the West – such as music by the Beatles, Procol Harum, Boney M, Jethro Tull and Wings – while another company Wifon, although mainly producing educational material, also has Abba under licence.

Perhaps, slightly unusual is the existence in Poland of a private mobile studio called Mores. Although only a 4-track studio using Teac-Tascam tape equipment, a Gately Electronics 12/4 console, and Harman Kardon amplification driving Viedeon and AR301 loudspeakers, plus other western ancillary equipment – this studio, which specialises in recording live jazz, has recorded 18 albums which have been released by the Poljazz company. As an example of initiative and perhaps as a sign of things to come – ie a wider availability of small semi-professional recording capacity in private hands – it will be interesting to see whether other independent studios will begin to appear in greater numbers and make their productions available via the state companies.

Rumania

Rumania, with a population of some 21,000,000, has the necessary home market to sustain a lively recording industry. The nature of the country's culture, however, means that the majority of recorded material is folk music or MOR based. Like most East European countries there is only one record company, the state organisation called Electrorecord, which has an 8-track studio in the capital Bucharest. Unfortunately little is known about what equipment Electrorecord use but they are known to have a Neumann VMS70 lathe and ancillary disc cutting equipment including some old Ortofon equipment.

Turning to other sound recording activities Rumania Films have a 4-track studio at the Bucharest Film Production Centre and this has recently been subject to re-equipment with Quad-Eight having supplied a QE-2441S film re-recording console to them. The other major organisation in Rumania is Radioteleviziunea Romana based in Bucharest, which has a TV-sound studio and two 4-track radio studios. RTV Bucharest is also known to have a number of Telefunken M15A tape machines.

USSR

Population wise by far the largest country in Eastern Europe, is the USSR with a population of 260,000,000. Accordingly, the needs of this vast population are extremely difficult to meet. Although in 1978 the state recording company Melodija pressed some 204 million records (this includes some 60 million flexidiscs mainly for advertising, promotion and educational usage) the major problem the industry has in the USSR is a shortage of records. Even allowing for supplementation of the domestic supply by the importation of around 700,000 albums from other Eastern European record companies (Balkanton, Hungaroton, Deutsche Schallplatten, Polskie Nagrania, Electrorecord, Supraphon, Opus, etc), plus records from the Cuban state record company Egrem, demand cannot be met. The Russians are well aware of this though as they are planning to build the world's largest record plant in Moscow with construction due to commence after the Moscow Olympics. This plant will utilise automatic record presses – the first Russian-made and designed equipment of its kind – produced by the Odessa-based company, Forging & Pressing Equipment. Prior to the availability of Russian manufactured equipment pressing equipment was imported from companies such as US manufacturer, Lened International.

One of the major factors behind the demand for records and cassettes is the increasing availability of consumer electronics equipment including car cassette players, music centres, etc. However, Melodija has a wide range of material available totalling some 30,000 titles. These are split as follows: classical music 34%; pop, jazz and MOR 20%; folk music 12%; children's material 10%; and the remainder devoted to literature, drama and historic product. The major demand, however, is for pop material, including licensed material from the West including artists such as Elton John, Wings, Abba, the Bee Gees, etc, but also interestingly including classical recordings from western orchestras. This latter is rather surprising considering the quality of the USSR's classical orchestras, opera and ballet, which is reflected in the number of Melodija recordings which appear in the West, especially through the licensing agreement with EMI.

Turning to the recording industry in the USSR, Melodija is the major organisation with its main studios in Moscow and Leningrad, although it also has recording facilities at the major concert halls and Houses of Artists. Melodija also can call on the facilities which exist at the DZZ Recording Houses and Radio and TV stations in all the major cities. Incidentally Melodija has both Neumann VMS70 and

VMS80 lathes and ancillary disc cutting equipment together with some Ortofon units. Melodija also uses Telefunken M15A in tape machines.

On the broadcast front matters are complicated by the need to provide services in a variety of different socialist republics each with its own ethnic and cultural backgrounds. Although the overall control is with the Committee for Radio Broadcasting and Television, regional committees also control the needs of the ethnic groups. Also, because of the sheer size of the USSR and naturally local time differences, the number of radio stations is substantial, there being a total of 23 stations of which nine are in the Ukraine.

By far the biggest change in the USSR's broadcast needs has been brought about by the decision to stage the 1980 Olympics in Moscow. This has entailed a major expansion of facilities all of which had to be in working order in time for the 1979 Spartakiades – the dress rehearsal for 1980. While a number of Western companies have supplied equipment for the Olympic Centre, such as AKG, Storno, Thomson-CSF and Produkts Perfectone, the major supplier has been Elektroimpex of Hungary. Elektroimpex has supplied all the radio studio equipment as well as all the audio equipment for the TV studios of the Olympic Radio-Television Centre, this comprising 135 consoles, 500 switching matrices, 576 monitor loudspeaker systems, 77 technical and control desks, 620 intercom units, 1,112 studio tape recorders, 70 synchronised tape recorders, 160 portable reporters cassette recorders, 1,292 commentators units, and a large number of studio turntables. This huge amount of equipment no doubt explains why Elektroimpex has had little time to supply other Eastern European countries including, of course, its own country, Hungary.

Yugoslavia

Yugoslavia is undoubtedly the Eastern European country with the most frequent and closest ties with the West. It is, therefore, not surprising to find a much higher quantity of western multitrack recording equipment in use there. Also, despite the medium sized population of some 21,500,000, there is a much wider availability of product and the recording and broadcast industries have a greater awareness of commercial pressures than elsewhere.

The availability of western equipment is reflected by the number of contracts Western companies have gained. For instance RTV Zagreb have placed substantial orders with Enertec and MCI; RTV Belgrade, Radio Skopje and RTV Novi Sad, plus the record company arm of RTV Belgrade (PGP Belgrade) have also placed orders with MCI; while RTV Novi Sad has been supplied with a 40-channel sound recording mobile 38 ▶

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Jean Marandet states that while the record business is going into decline, France has a large number of well equipped and developed studios which seem to be doing good business.

FOR the past three years, France has been a profitable market for the record business – sales of singles and LPs have risen from 140,000,000 in 1976 to 200,000,000 in 1978, with an estimated value in the home market of 3,200,000,000 francs (\$760,000,000). Unfortunately, the wholesale cost of records has risen 30% and sales of records are expected to fall during 1979. This is a direct result of government action which abolished the price code system for LPs, under which all albums had to be individually priced. Also, records are considered a luxury item and carry value added tax at 33%, one of the highest rates in Europe. So the average price of a new record is around 45 francs (\$10) and often imported records are a similar price, particularly for rock records. Another problem is the quality of pressing which seems to get lower and lower while hi-fi quality is improving, the poor quality being attributed to both 'greed' and the incompetence of those in the pressing plants. So there is a demand for direct-cut classical records and high quality imports such as EMI, Electrola, Decca and Telefunken. This is a poor situation since we have some excellent cutting rooms in France eg Translab, Cidis and Barclay, all with the latest Neumann lathes.

There are around 110 recording studios in France, of which about 75 are in Paris or on the outskirts. There are 28 studios offering 24-track facilities in the Paris area, and two new studios offering 46-track opening later this year; one being Star's Music with two 3M 24-tracks, SAJE CS3200 40/40 console and Eastlake TMI monitors; while a new studio complex is being created under the Palais des Congrès by Studio de la Grande Armee which will include two studios. The first is 2,200sq ft with a Plus 30 RS80 36/36 console and 3M 24-track, while the second studio is 880sq ft with a Plus 30 52/52 automated console and two 3M 24-tracks, all control rooms and acoustics are Eastlake design. The whole complex is arranged to allow recording in the Palais des Congrès by means of tie lines, much like Mountain Studio in Montreux.

But there have been few new studios opening over the past few years, because the price of building is very high and the investment must be tremendous to compete with the main studios which have been operating for six to 10 years. But there have been a few new studios including Family Sound and Delphine which are both 24-track and Metronome and Ramses, both 16-track.

There are still many major studios including EMI-Pathe Marconi (four 24-track studios), Decca (three studios), Polydor-Studio des Dames (two studios), Barclay (two studios), Vogue (two studios), Studio 92 (two

studios), and all are owned by particular record companies. Nevertheless, many independent studios also operate, the most famous is Château d'Herouville (known simply as The Château) which is one hour from Paris, includes full accommodation and has been visited at various times by the Bee Gees, David Bowie and Rick Wakeman. In Paris itself, well known studios include Ferber (two 24-track studios), Davout (three studios), Aquarium (two studios), Studio de la Grande Armee (two studios), Studio 10 (two studios), Acousti (two studios), and Gang (one 24-track studio), Studio Davout, in co-operation with Richard Pinhas from Heldon, offers almost unmatched facilities for electronic music productions. The room includes a 3M 24-track recorder and several synthesisers including Moog 3P with sequencer, Oberheim polyphonic, Polymoog, ARP Odyssey, EMS Vocoder, and customised sequencers.

In the provinces of France, there are only four 24-track studios (Super Bear, Condorcet, Publison, Miraval) all in the South (Toulouse or the Côte d'Azur) and around 15 16-track studios. I believe that any new studios will be built away from Paris (now at saturation point) where, as many other countries have discovered, the atmosphere for recording is often rather more pleasant.

The 24-track studios usually offer a high standard of equipment with standards similar to Britain and the United States, but acoustics and control room monitoring are often the downfall of French studios. Matters are improving, but there are still good deals for Eastlake! Monitoring found includes Eastlake, Eastlake copies and a number of JBL 4343 or 4350 units. There is approximately an equal split between Studer and 3M 24-track recorders (EMI-Pathe Marconi for instance has about 25 A80 recorders in 24-, 8-, 4- and 2-track formats – EMI's London studio, Abbey Road, has about 75 A80s!), while other manufacturers take only a small part of the market.

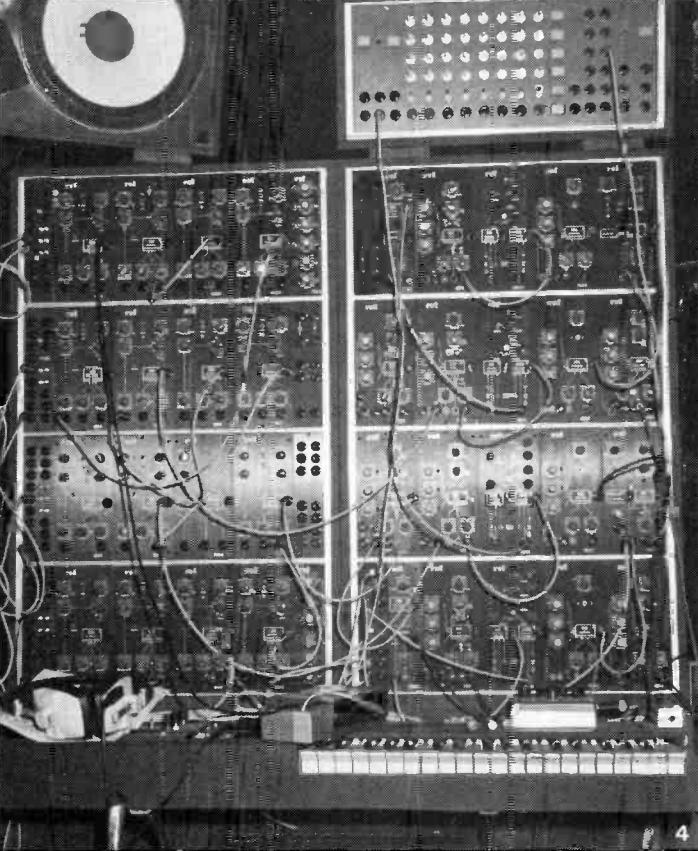
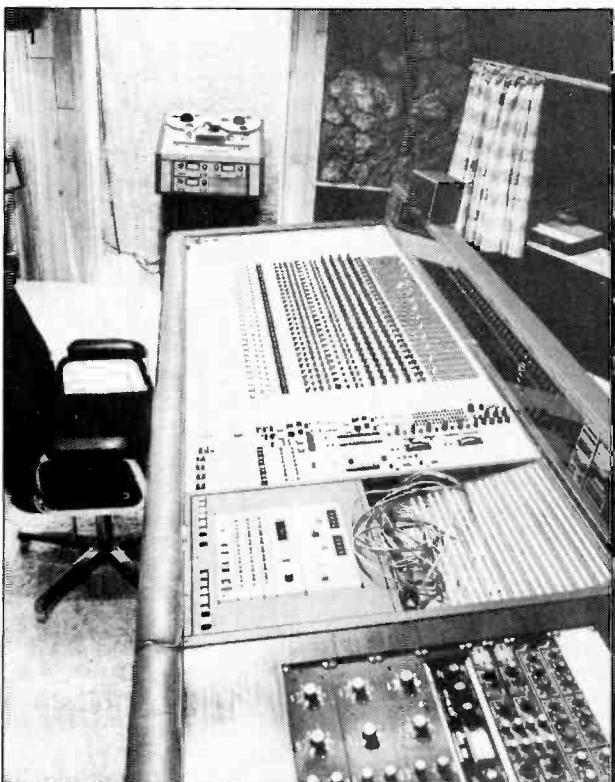
France

Mixing consoles are from a number of manufacturers, particularly Automated Processes and Neve (of various ages), and there are also Cadac, Polygram, MCI, SAJE, Plus 30, and Harrison consoles, with a wide range of outboard equipment including harmonising units, digital delays and Time Modulators. For microphones, Neumann remains supreme (U47, 87, KM84 and 88) but the Sennheiser MD441 is often used for drums. Radio France uses almost exclusively the Schoeps range, and have selected Cabasse speakers as monitors. While Dolby-A is universally accepted, dbx is occasionally used for noise reduction on echo delay recorders, but not for mixing since there are no cutting rooms with dbx equipment – Telefunken's Telcom is awaited with interest. In the Paris area, there is an equal split between the use of 30 and 15in/s, while recorded flux varies from 185 to 320nWb. While many studios have made investments of over \$800,000 for their equipment, the equipment in smaller studios can be very variable – there is even one 16-track studio with only a single 2in tape, which must therefore be regularly erased before re-use!

Over the past few years, the recording studios have stopped isolating themselves and are trying to become an organised industry.

For instance Zero-VU is a magazine devoted to the French industry, which started in November 1977 edited by Dominique Blanc-Francard. Last October the first pro-audio show was held, ETEAP, and there is now a society called ATEAP which is similar to the British APRS, and is holding an exhibition this November. And there is another society named ANSES that provides a forum for recording studios.

One large problem is training young sound engineers because there is no school here. Contrary to many other countries, many senior engineers do not behave responsibly towards training assistants who thus have difficulty learning 'the trade'. On the other hand '*la chanson*' is not necessarily a good school for them because the same recipes are used!



1 I/MCI desk in the control room at SuperBear, 24-track in the French Alps.

2 Control room of Studio Zelphine.

3 The exterior of Le Cateau d'Herouville.

4 A bank of modular synthesizers from the French manufacturer 'RSF'.

France

However, we do have a number of good engineers that expect perfection from their equipment. But the customers still don't understand the economics of automated mixdown for instance, and the high price of equipment (which carries the hi-fi VAT rate of 33%), means that the hourly rate for 24-track recording is about 700 francs (\$170).

In France, we have two principal companies manufacturing mixing consoles, Plus 30 and SAJE (previously Audio Help). Plus 30 started in 1976 with Pierre Antonini (who previously built Sonag desks) and they first offered a 16/4/16 desk for demo studios and PA, but now offer the RS80 with 16- to 52-in/out channels, 24-busses, 4-band parametric equalisation, light meters and 1-octave analyser, as standard. Automation is fitted using a microprocessor per channel to allow separate mute and level encoding — to lower the price, wiring looms have been

eliminated and replaced by connectors. Consoles have been sold to Ramses, Grande Armee Izason, and the new Palais des Congres complex. SAJE has a full range of desks, from the CSM6 (for demo and PA), to the impressive CS3220 with which Star's Music and Delphine are equipped. These two companies offer a high standard at a realistic price (about \$50,000 excluding tax for an automated RS80), and there are export opportunities. In the PA field, Freevox build excellent desks, active crossovers, parametric equalisers, comp/limiters and power amplifiers. Sonetec offers PA desks for French radio, and also a professional turntable (based on the Technics direct-drive unit). Publison is known for its range of effects equipment and the Fullmost relief enhancer. Enertec-Schlumberger manufacture principally broadcasting equipment including the F400 2-track, but there are no multitrack tape recorder manufacturers in France. Other manufacturers include Pyral (tapes and blank discs), Girardin (portable mixers), LEM (microphones), Electronique Acoustique Appliquee (16/4 desks), Technicobel (noise gates and desks), and Cabasse (monitors).

Matters are rather better than they were five years ago, but manufacturers are not assisted by the banks or the State — a loan of only \$10,000 is often hard to obtain. So it is

difficult for French mixing console manufacturers to reach the British or American markets due to the investment required. In the PA field, mass production is necessary to recover development costs and provide competing products. In the music field, RSF (in Toulouse) offers modular synthesizers with comprehensive facilities which compete with the big Moogs and Roland. Meanwhile in Paris, Didier Badez builds complex sequencers and electronic programmed drums, so here at least is one field in which we have success.

There are few French bands sufficiently strong to embark on a European tour (Magna is one of the best) although a number of artists are successful outside France. Other people like Jean-Luc Ponty or Francois Cahen have left France for the USA because they have been disappointed by the policies of French record companies. There are many excellent musicians in the rock and jazz scenes, but companies will not take the risk. If Virgin or Island Records had kept the same judgement, we would never have known King Crimson or Gong!

For that reason, studios only operate at a fraction of their capacity, and time and budgets allocated to LPs is usually inadequate (recording is rarely budgeted at more than \$18,000). We have only one radio station in stereo all day, another only intermittently, and the quality is not the same as in West Germany. Also this year, the State monopoly of broadcasting has been broken by pirates, but we have no wish to see the same situation as has happened in Italy.

In television, it is interesting to note that the SFP (French Company of Production) has bought a big cinema, l'Empire, and changed it to a television studio, where a live rock band is recorded each Saturday, the programme is replayed the following week, in mono only. The PA system is from Altec with 3kW of power amplifiers and 4-way speaker systems, while the mixing desk is a Televic 24/4/4 with Girardin and Altec premixers. Foldback is provided by Altec with JBL power amplifiers and a 12/6 desk. The recording side of the operation includes four 2-track A80s, an Ampex 16-track and four AKG plates, while the mixing console is a Girardin 40/8/8.

Although the 3M digital recorder is not yet available in Europe, there are several studios showing an interest since the recorders are currently the weakest link in the recording chain. The quality of ancillary equipment is improving and new delay lines have good bandwidths, while there are a number of good, but very expensive reverbs. Some studios are tempted by 46-track recording, but as one engineer said, "some come to 46-track without controlling 24-track". We have good studios, why not try them? ■

Eastern Europe

equipped with a VHF stereo relay transmitter and self-power for five hours. In addition Gauss has supplied a 64:1 cassette duplication system with Superscope winding machines to the state record company Jugoton, to substantially increase cassette production. Other companies who have supplied the Yugoslavs include Telefunken, Ortofon, Neumann and Klark-Teknik.

The availability of recorded material also reflects the western influences. On top of the Yugoslav produced popular artists in both the pop and MOR fields, a large proportion of sales are taken up by licensed material. In fact all the major international record companies have licensees in Yugoslavia with Jugoton handling Decca, EMI and RCA; PGP handling Polydor, Philips, A&M, and Pye Ariola; RTV Ljubljana handling United Artists and Chrysalis; Suzy Records handling CBS and WEA; and Diskoton handling Tamla Motown. Naturally enough the UK and US releases take the major share of the

market reflecting the world market, but it is interesting to note that home produced artists are beginning to move into the rock music market. An important facet in this restructuring of the industry is the growth of music festivals devoted to popular music where the songs which appear generate sales in the thousands. The total market arising solely from the song festivals is claimed to be a total of some 1,000,000 singles per year.

Summary

Eastern Europe is at an interesting point in its development within the world recording industry. Consumer demand and the increase in licensing deals reflects the awareness there exists of having recorded material available on demand. Whether this will cause any reduction in the support given to live music — at present the only alternative other than broadcasting — remains to be seen but without doubt re-equipment, better technical facilities, and a desire to improve the quality of life through the provision of greater entertainment opportunities is noticeable. The increased number of western artists doing concerts in Eastern Europe reflects this awareness, but it will be some time before the Eastern European recording industry catches up its lost ground. ■

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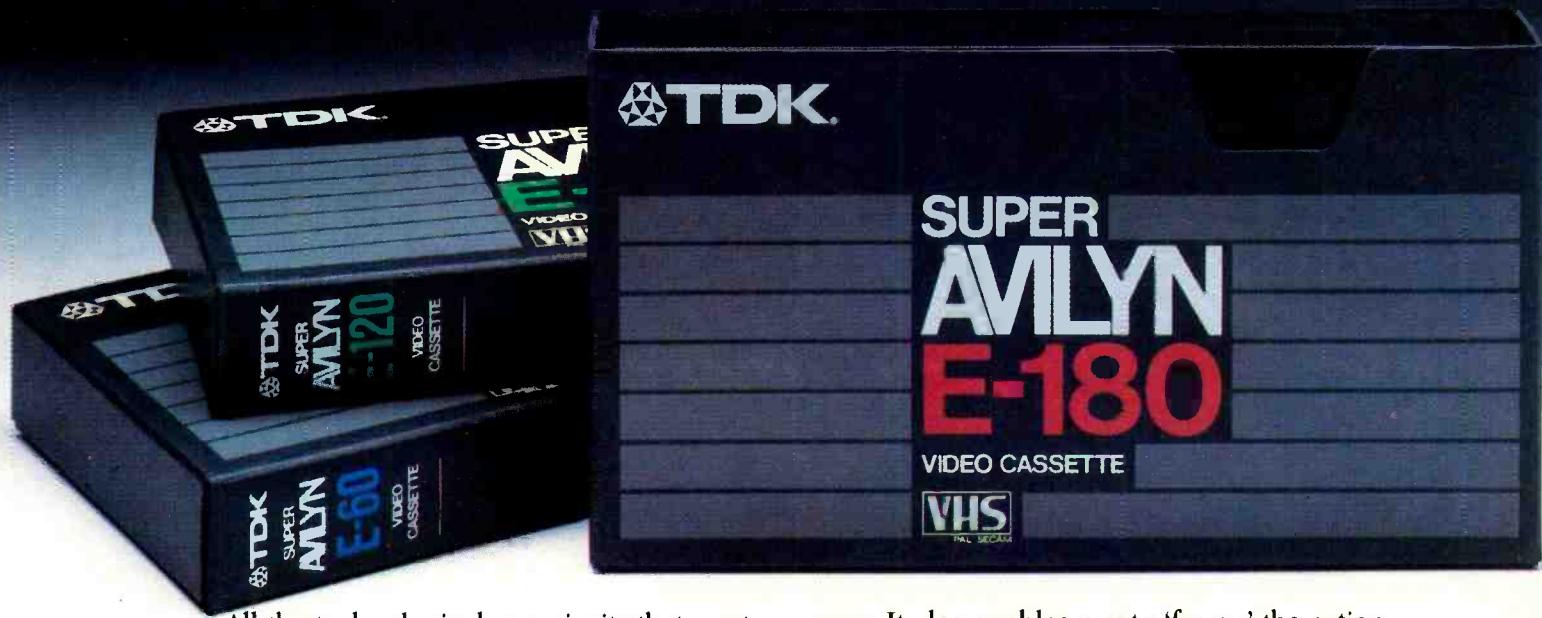


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The great name in tape cassettes

Terry Nelson glimpses at the music and recording scene in West Germany which seems, unlike many other countries, to be totally under control and booming!

IT would be surprising to find a country with such a rich musical heritage as Germany without an active recording and music industry and it would be no overstatement to say that Germany must be one of Europe's foremost countries in terms of these activities. Many studios are internationally known and produce records destined for the world market. In common with most European countries, Germany has a strong home market which rarely extends beyond the boundaries of the German speaking peoples – Germany, Austria and German Switzerland. The music itself is either the regional/national folk music and 'schlagermusik' or the Anglo-Saxon influenced rock. In some ways this could be a bit of a sweeping generalisation, as it could tend to submerge the fairly small but important movement of experimental and avant garde music as well as those styles drawing from traditional classical sources.

A large part of the home hit parade market is dominated, as we said, by the 'schlagermusik'. This is a type of song which many may find familiar and which stays pretty rigidly to the same formula: boy meets girl – boy likes girl – they live happily ever after. The only difference with other hit parade style songs elsewhere is that the schlager songs are *always* in a happy vein, no lovesick yearnings or miseries of broken love affairs over the coke machine. The other thing that is usually de rigueur is that the sun be shining! Well-known artists in this vein include singer/pianist Udo Jurgens. One of the problems facing the hit parade market – and this includes disco – is that everyone wants to get on the same bandwagon and who wants to fight success? The end result is that nearly every song sounds the same, even down to the arrangements and special effects, and that production companies, producers and artists are very reluctant to try anything new for fear of it not being commercial. From this situation it can be seen that change is very slow and studios whose bulk of work consists of the hit parade market complain of getting into a rut and have no chance for experimentation or trying out new ideas. Evidently, there are studios that do take a chance but these tend to be the independents and not the studios owned by production companies.

Covering both the German and international scenes is, of course, the disco phenomenon – in fact one could almost say that this is the German sound, seeing as they started it! Certainly people like Boney M, Amanda Lear or Donna Summer are not complaining. Studios catering for disco

productions include Hansa Tonstudios, Berlin, EMI/Electrola, Cologne and Union and Arco studios in Munich. These names obviously only represent a small selection of top quality studios putting out successful productions. For the rock scene Musicland in Munich is probably the most well known.

The main recording centres are not restricted to one city and cover Berlin, Cologne, Frankfurt, Hamburg and Munich. Get-away-from-it-all studios are not being forgotten either and one very good example is the new Country Lane Studios near Munich which offers everything discriminating clients could ask for – as well as having the distinction of being the first studio to install a Solid State Logic desk, (the one at the Hamburg AES, remember?).

The music scene in Germany is also very healthy with a strong public interest in music for music's sake. Though British and American acts are very popular, they also hit back with their own in the form of groups like Tangerine Dream, Kraftwerk, Triumvirate and Nektar. The first two groups, together with others such as Amon Duul II, formed the spearhead of what was known as 'German rock' and represented a 100% European style of music, owing nothing to US influences. In the Fifties when 'musique concrète' had already been around in France, the radio station at Cologne founded its electronic music studio – NWDR, Cologne, featuring such instruments as the Bode Melochord and Trautwein Monochord – using the revolutionary concept of using tape as the medium with which to make music and opening the door for artists to compose for electronic – or electronically processed – instruments. German TV is no slouch either in the presentation of music programmes and live televised rock concerts such as the recent Johnny Winter/J Geils/Patti Smith show from the Rock Palace at Essen demonstrate that it is possible to do live broadcasts of this type and get it right!

Another aspect that I feel is of interest is

that German theatres seem to have realised the advantages of having complex sound reinforcement systems and incorporated studios. And here we are talking about opera houses and not just music halls! Obvious uses are the production of sound effects and/or live recordings, but having studio facilities also solves the problem of scores that call for an unusually large brass section or a 140-piece orchestra when there is only room for 35 in the pit! Tapes can be made to be played with the house orchestra to render the score faithfully so our friends the Pink Floyd need not feel alone out there!

Many studios belong to, or have, production companies while the big companies such as Polydor, Phonogram and Hansa have their own 24-track equipped studios. The disco boom has also enabled the independents to equip themselves and it is from them that changes in the current trends can be expected. As has been already noted, everybody watches everybody else resulting in a musical and artistic stalemate. Studios run by disco and hit parade orientated production companies are kept on a pretty tight rein leaving the independents with all the room to manoeuvre plus putting them in the position to attract clients who want to get out of the rut and into the groove!

On the technical side German technology is also world-famous with names such as Telefunken, Neumann, Schoeps and EMT ranking among the top echelons of studio equipment (and who hasn't heard of BASF and Agfa!). In the race for more tracks German studios are well in the running and since the introduction of the Telefunken M15 32-track, quite a few studios have made the move upwards.

All in all I think we can say that music and recording are alive and well in Germany though it will be interesting to see whether in a year's time disco will still have the same grip or if something different (I won't say new) will have replaced 'thud x 4 plus heavy breathing' with a sequenced synthesiser! ■

West Germany



Above: Control room looking through to studio at Studio Hamburg, Left: Control room of Country Lane Studio, near Munich, Below: Cadac console in the control room of Union Studios, Munich.





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Noel Bell examines the problem areas and strengths of the music industry in the UK and Ireland. Here it would appear that all is not well.



Kate Bush

If you were to glance at any of the music trade papers in the UK recently you would be forgiven for thinking that the recording business and in particular the record companies, were about to suffer the equivalent of the 'Wall Street Crash' of the Thirties. Gloom and despondency about the available talent, product and retail situation, not to mention in-fighting within the industry, seems to be the order of the day. However, once we get away from the limelight of accusation and argument about what is wrong with the music business, a comparative, although not exactly unworried calm, prevails. It would appear – discounting the more alarmist prophets of doom – that, yes, the UK music industry does have problems and these should not be belittled, but they are not insurmountable.

To some extent the UK is only now realising that having spawned the Beatles and all the infrastructure which grew from their success, that the recording industry here is not entitled by God given right to maintain its position in the world industry. It would be true to say that we may have been guilty in recent years of resting on our laurels, but everyone now seems to realise that something more than retrenchment is needed. However, we are not helped by the fact that the UK music industry does not have a large home market – with a population of some



The Stranglers

56,000,000 in the UK (12,000,000 in London alone), plus roughly another 1,000,000 in Eire we rely on overseas markets to sustain the industry. Fortunately though, despite the current downturn in record sales – apart from the classical market which always holds up well even at moments of crisis in the popular market – the UK music business possesses the necessary durability to survive in its present form and recover from its present problems. After all not only in the UK but in fact almost anywhere you go in the world you will find UK artists, producers and engineers hard at work and held in the highest esteem.

There is no short answer to the UK's problems. Popular record sales are down, although you might well wonder at this if you were to see most High Street record stores on a Saturday as they look as busy as ever. The

major problem is that the price of singles and albums has increased despite the activities of the large discount store chains. This is largely due to the escalating cost of raw materials, especially oil-based products, plus inflation. The biggest sufferers of course are the major record companies who are having their profit margins squeezed by the downturn in sales. This is not their only problem though, as they are also suffering from the effects of the buying power of the large discount chains, the level of artist royalties, the level of advances to artists, the cost of advertising, particularly on TV, the high cost of recording, the activities of the bootleggers and pirates, and the availability of cheap imports of the same material from abroad due largely to the continuing strength of sterling.

The Beatles



Another problem for the UK majors is the general standard of record pressing in this country. This is certainly not good and it is an indictment of the pressing plants that a number of the smaller independent UK labels have ceased pressing in the UK and transferred their custom to foreign – in particular Dutch and German – presses as an answer to the problem of pressing quality. This may seem strange to you, as it does to me, since pressing plants throughout the world use basically the same equipment, so why can't we produce pristine pressings when the Dutch and Germans obviously can. Perhaps the answer lies in the attitude of the British worker who seems incapable of sustaining enough interest to get it right, or perhaps it is that the UK record companies think they can get away with issuing non-perfect pressings. If the latter is the case then it is unfortunate for them that with the increasing availability on a large scale of good quality reproducing equipment in the home, that what could pass as a good quality pressing five years ago, is now rapidly returned to the retailer with a request for a new pristine pressing.

It is a fact that the level of record returns has increased substantially in recent years and while the record companies can point, with good reason, to the fact that many of the returns are fake, in as much as they have been subject to home cassette copying, this alone cannot be the reason for the high level of returns. Nor will the fruitless search for an anti-cassette copying device provide any succour. Perhaps the advent of laser-read digital discs in the Eighties will solve the problem and give a much needed software boost (think of all those re-issues!) to the industry, but this doesn't solve the present situation.

Record Companies

UK record companies are not exactly in a healthy state. An indication of this can be gathered from the much publicised financial problems which have beset EMI and the proposed but not yet finalised deal with Paramount. However, EMI are not the only major label with problems. Polydor and Phonogram have just announced a rationalisation of their A&R/marketing units by merging the two together with each sharing central services. A measure of how serious the situation is can be gleaned from the fact that a complete merger of the two companies was contemplated was finally rejected. Much the same events have also taken place at WEA where radical changes to the company's sales, promotion and merchandising departments have resulted in the merging of their three sales teams into a new unit.

Rationalisation is one answer to the record companies financial problems and these moves are perhaps overdue. For too long the thrust of the respective company's marketing strategies have been top heavy with too much duplication of effort, however, staff

redundancies have not only hit the marketing forces but have also hit the pressing plants too. The smaller record companies appear to be surviving remarkably well as are CBS and to a lesser extent RCA, which might account for some of the problems the other majors are suffering. But then a dose of stiff competition shouldn't do them any harm and seems to be persuading them to put their own houses in order. What is slightly more worrying is the present confrontation between the record companies and the retailers.

This confrontation arose from the increase to over £1 singles, legal actions by the record companies over imports, and the decision by several of the record companies to reduce the margins available to dealers; to reduce the settlement discount and in the case of Pye to introduce interest charges on overdue settlements; and perhaps even more antagonistic to the retailers the decision by WEA to threaten the stoppage of supplies if they considered the number of faulty record returns was too high. The retailers, in the light of all this, are feeling hard done by, for they see these moves by the record companies as a way to recoup their losses and reduce their financial problems at the expense of the retailer. The crux of the matter is that the retailers see themselves as in no way being responsible for the factors such as home-taping and counterfeiting which have prompted the record companies' actions, and therefore it's not surprising that they feel they are being unfairly treated.

At present the situation remains unresolved with soothing noises coming from both sides in an effort to prevent an impasse where both sides become basically unco-operative and where drastic threats from retailers to refuse stocking certain labels do not come to fruition.

Yet another problem area is that of recorded talent. At present we appear to be suffering from an overwhelming urge by the major labels to overcome the dearth of big selling new bands by relying on the old faithfus. Whether it be re-issues in the form of the Greatest Hits format or compilation albums such as The Best of British Rock, this cannot change the basic fact that since Queen and Supertramp, the only really big name to appear on the scene is Kate Bush, hence the understandable reliance on the past or on new albums (often much in the same mould as before), from bands such as The Rolling Stones, The Who, Yes, Led Zeppelin, Pink Floyd, Thin Lizzy, etc. Couple this with the frustrating sameness of the majority of singles and albums – more irritatingly so when it comes to the disco scene – then it can be seen that to a large extent, despite the fresh impetus of the new wave punk bands, there is a danger of stagnation setting in.

Although the record companies are making valiant efforts to introduce new artists in the hope that from somewhere several Messiah-like figures will emerge, capture the public's imagination, and greatly increase sales, there is a scarcity of really big selling new bands and solo artists. While bands like The

Stranglers, Ian Dury and The Blockheads, Police, the Boomtown Rats, Tubeway Army, Dire Straits, the Buzzcocks, the Sex Pistols, and Sham 69 (the latter two both having recently broken up) and solo artists such as Kate Bush and Donna Summer, have all added some much needed zest to the singles and album charts, they have not substantially redressed the balance. Although the up and coming talent is creating its own market, both here and overseas there is a tendency for many of them to make their appearance on smaller independent labels. This has meant that, recently for example, labels such as Chrysalis, Virgin, Stiff, and Beggars Banquet, have been eroding the predominant and fairly constant positions previously held by EMI, CBS, WEA, Polydor, Phonogram, RCA, A&M, Decca and Pye.

On the classical front, as previously stated, little has changed. All the major labels retain their predominant positions with EMI, Decca, CBS, RCA, Philips and Deutsche Gramophon taking the limelight, but with the Lyrata, Classics for Pleasure, Enigma and Unicorn labels as useful adjuncts often issuing material the majors overlook or specialising in more off-the-beaten-track fields. Alongside these we also have Selecta and Redifusion active in the import fields, the latter, for example, issuing recordings produced by Supraphon, the Czech national record company.

By far the brightest prospect of rekindling the public's enthusiasm in the short term presently exists in practical form in the classical market, namely the digitally recorded disc. Decca have already made a number of digital recordings available including the New Year's Day Concert double album from the Vienna Philharmonic Orchestra under Boskovsky, and they have several more including Beethoven's opera Fidelio with Solti and the Chicago Symphony Orchestra awaiting release. EMI have also made a number of digital recordings including Sir Adrian Boult conducting the London Philharmonic Orchestra in Holst's The Planets, but as yet none has appeared commercially due to editing difficulties. In addition both Enigma and Unicorn have made digital recordings using the Sony PCM-1 adaptor with a U-Matic video cassette recorder.

Live music

The availability of live music on a large scale has always been a feature of the UK music scene. Whether it be regular tours by big name groups, the university and college circuit, festivals devoted to particular branches of music, regular orchestral, operatic and ballet performances, the activities of amateur operatic societies, or just the provision of live music at dances or in pubs; we are well catered for in as much as we can go and listen to live music almost whenever we want. Naturally enough this is particularly true in London and its environs with live music being very much to the fore, but it is also true of most of the country 46►

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although you may not be able to find exactly what you want to hear at any given time.

Despite the current problems affecting the music industry the live music scene is very much alive and kicking. The top name bands and artists still continue to tour although perhaps a little less frequently than in previous years. Part of the reason for this is the increased costs involved, but of greater importance is the problem for some UK artists of only being able to spend a limited amount of time in this country before opening themselves up to the attentions of the Inland Revenue. Hence many UK artists who have moved outside the UK for tax reasons can only spend up to three months in any given financial year in this country. Accordingly, tours in the UK are increasingly becoming part of European tours rather than being purely UK tours.

Broadcasting

Broadcasting in the UK has recently received a boost by expanding the number of local radio stations. This results from the decision taken by the government to place another 18 local radio stations on air. The stations are split 50/50, with the BBC gaining a further nine stations, some of which will have to wait for the availability of funds before coming on air, while the IBA has already advertised, and in some cases awarded, the contracts for their additional nine stations. All the new stations are to transmit on both MW and VHF and all the new commercial stations will broadcast in stereo. With the recent change of government

there is also the possibility that further stations will be allocated as the Conservative Party is a firm believer in the future of local radio and when last in government was instrumental in the birth of commercial radio in this country. Dedicated as a party to the concept of free enterprise and competition, the government has also just awarded the fourth television channel to the IBA although this will not be coming on air until at least 1982.

Both the IBA and BBC are currently experimenting with the Ambisonics surround sound system developed under the auspices of the National Research and Development Corporation, and articles describing the system and the BBC's experiences with it and the Calrec *Soundfield* microphone appeared in the October 1979 issue of *Studio Sound*. Ambisonics opens up a number of possibilities to the broadcasters and has the advantage that unlike other quadraphonic systems it is mono/stereo compatible. The BBC have also experimented with digital modulation broadcasting from their Pontop Pike transmitter and although few details are available it appears that the multipath problems are little different from those experienced with conventional VHF frequency modulation transmissions. Another area the BBC are experimenting in is the use of a single discrete carrier frequency at

the bottom of the MW band as a traffic information source.

The BBC still remain the only broadcasting organisation with a national network – this being supplemented by their local radio stations – and retain their four networks. In addition to these, however, the BBC have also been allocated fifth networks in Scotland, Northern Ireland and Wales, the latter having both English and Welsh language services.

The state broadcasting organisation Radio Telefis Eireann have two television colour services, a national radio network broadcast on VHF (equipped for stereo broadcasting) and MW, and in addition, a national Irish language radio service called Radio Na Gaeltacha also available on VHF and MW. RTE allow advertising on their services but this is not allowed to exceed 10% of airtime. RTE have also been pioneers in Europe of community radio and this facility is provided either by a mobile studio and transmitter unit or from one of RTE's regional studios. Broadcasting at low power on VHF or MW, this service has a range of roughly five miles and all programmes are researched and presented by the local community, RTE are solely responsible for providing the facilities, technical staff and a senior producer to manage the studio and advise the participants.

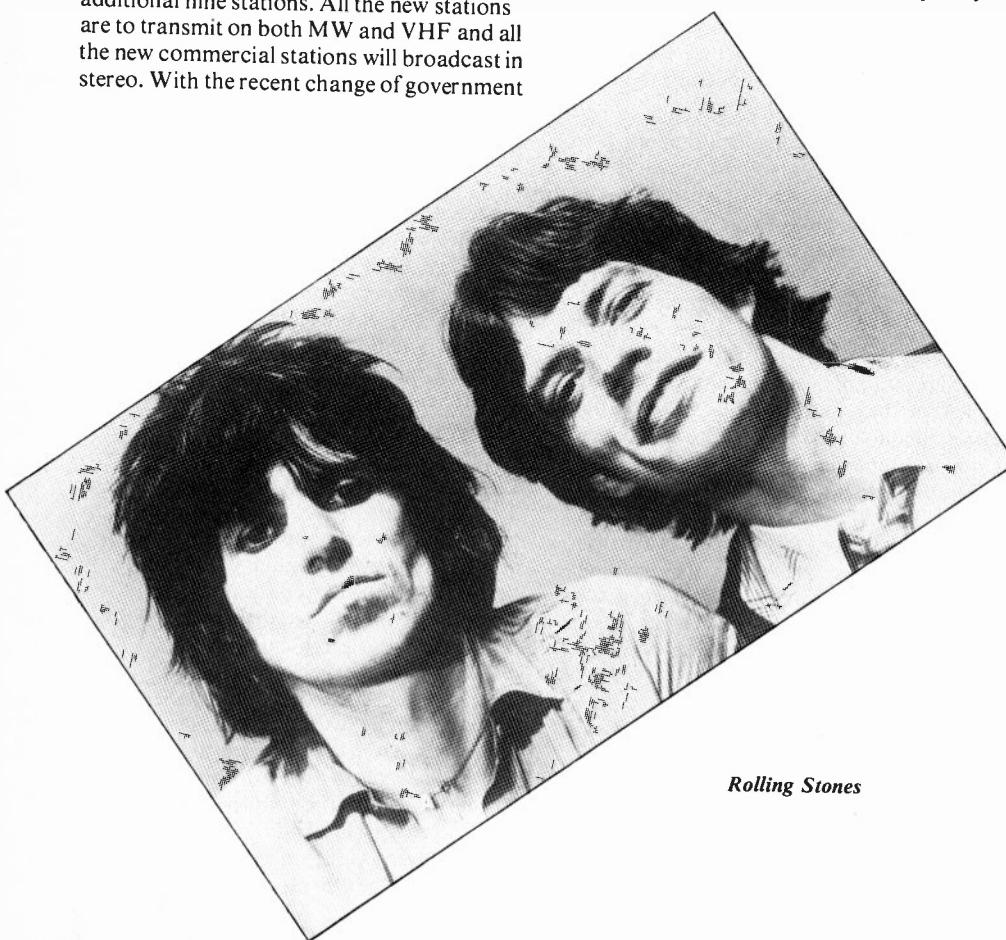
As the prominent partner in broadcasting, television has an important part to play in the progress and fortunes of the UK music industry. The advent of TV spot advertising on ITV for particular albums, pioneered by K-Tel in this country, is an illustration of how TV can affect album sales. By the same token the use of TV as a breaking ground or publicity spot for artists allowing them to reach large audiences is important. Both the record companies and publicists are well aware of this, and the same applies to national radio and local radio.

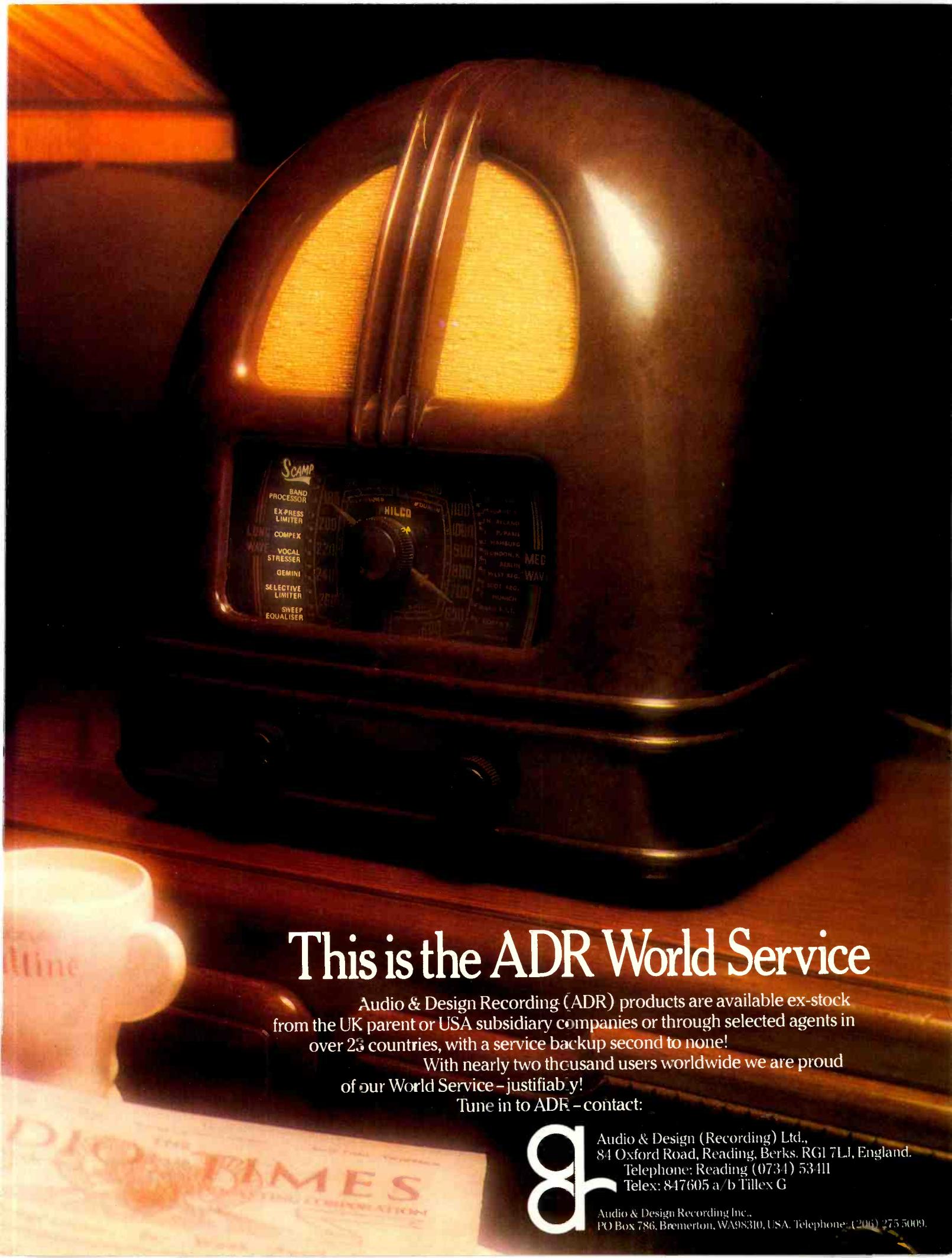
Recording Studios

Despite the problems the record companies are labouring under the UK recording studio scene is showing every sign of remaining healthy. Bookings remain at much the same level as usual and the general policies of updating and the improvement of facilities are continuing apace. While London remains and is always likely to remain the hub of the UK recording industry, a number of studios have been opened or continue to operate further afield.

One trend becoming increasingly prevalent, is the opening or taking over of studios by independent record companies. For example, Red Bus Records have recently opened their own 2-studio, MCI-equipped, complex; Barn records have taken over the old IBC Recording Studios, modernised them and renamed them Portland Recording

Rolling Stones





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Studios; while State Records have only just opened their own studio complex named Odyssey Studios, this again being MCI equipped. Other independent record companies – other than the majors – with their own studios include Bronze Records (Roundhouse Recording Studios), Island Records (Basing Street Studio), DJM Records (DJM Studios), and Virgin Records (The Townhouse Studios). In addition to these it is also becoming prevalent for some studios such as Phil Wainman's Utopia to set up their own independent record labels. These developments have naturally affected the major recording companies by offering competition to them, but it is not quite so clear how this trend has come about. While it obviously makes sense for record companies with enough artists to have their own studios, it appears that only recently has the finance become available. In most cases this is attributable to increased income and profits and a natural reluctance on the part of the independent record companies to part with profits to the tax man when capital investment to the benefit of their activities can result from the setting up of their own studios. Interestingly with all these new studios now available one is tempted to think that there is too much recording capacity in the UK, but studio bookings appear to disprove this contention.

The general policy of up-dating equipment and refurbishing studios shows no sign of abating. Britannia Row, Konk and Marquee have all been updated, Regents Park Recording have gone 24-track, and the old CTS film and television sound studios have become the basis for the new and still developing Marcus Music UK studios. Meanwhile, Majestic Studios, who suffered

the ravages of a severe fire earlier this year, should be reopening in the near future. Incidentally, both Scotland and Eire have received their first 24-track studios, these being respectively Highland Recording Studios near Inverness and Windmill Lane Studios in Dublin, both studios are MCI equipped.

Another trend in the UK recording scene is the opening of studios out-of-town. Highland are one example who aim to attract artists away from the hub-hub of London, and another new studio is Farmyard Studios based at Little Chalfont in Buckinghamshire. Both these studios are in addition to the established out-of-town, get-away-from-it-all venues of Rockfield in Wales and, of course, The Manor. Another new studio outside London is Rock City at Shepperton and Liverpool has its first 24-track studio, Amazon.

London still remains the orchestral recording mecca of the world for classical recording. With so many top quality orchestras available and the large pool of artistic talent, not to mention highly competitive recording costs, it is unlikely that this situation will change much in the short term. Classical recording, however, is not confined to the major London orchestras alone as the Bournemouth Symphony, City of Birmingham, Halle (Manchester), Scottish National and Northern Sinfonia (NE England) are all utilised.

Looking to the future for UK recording studios is a little like crystal ball gazing. Although it would appear that a recession in bookings is not going to occur it would be foolish to believe that the record companies are not likely to cut back their recording activities to some extent as a part of their

present belt-tightening.

Manufacturers

In the UK the list of manufacturers is almost endless and ranges from console manufacturers such as Neve, Solid State Logic, Trident, Soundcraft, Amek, Raindirk, Alice, Midas, Tweed, Audix, Allen & Heath, and Malcolm Hill; through tape recorder manufacturers such as Soundcraft, NEAL/Ferrograph, Cadey and Brenell; to ancillary equipment from Audio & Design, Klark-Teknik, EMS, Audio Kinetics, Tannoy, Quad, H/H, AMS, Keith Monks, etc, etc. While we have a strong manufacturing base the UK audio manufacturing industry is not without its problems though. Console manufacturer Helios Electronics is presently in the hands of a liquidator although servicing arrangements in the interregnum have been made, and likewise console manufacturer Cadac have also had their troubles and has now emerged as a new company, CA Audio Systems.

Most of the UK manufacturing industry for the future appears to be well equipped to continue its strong presence in the world market. The developments in the digital field have certainly not gone unnoticed and indeed, the UK has not been exactly uninstrumental in many of these developments. However, one possible threat does exist. That is the efforts now being made by the large Japanese corporations to expand into the professional market with the advent of digital recording. For most of these corporations there was little point in trying to break into the market whilst it remained primarily analogue as the returns on capital investment were likely to be low as long as the UK, the USA and Europe had the market tied up. However, the advent of digital recording has created an entirely different ball-game. The UK, accordingly, will have to look to its laurels if it wishes to retain its position in the future.

Summing up

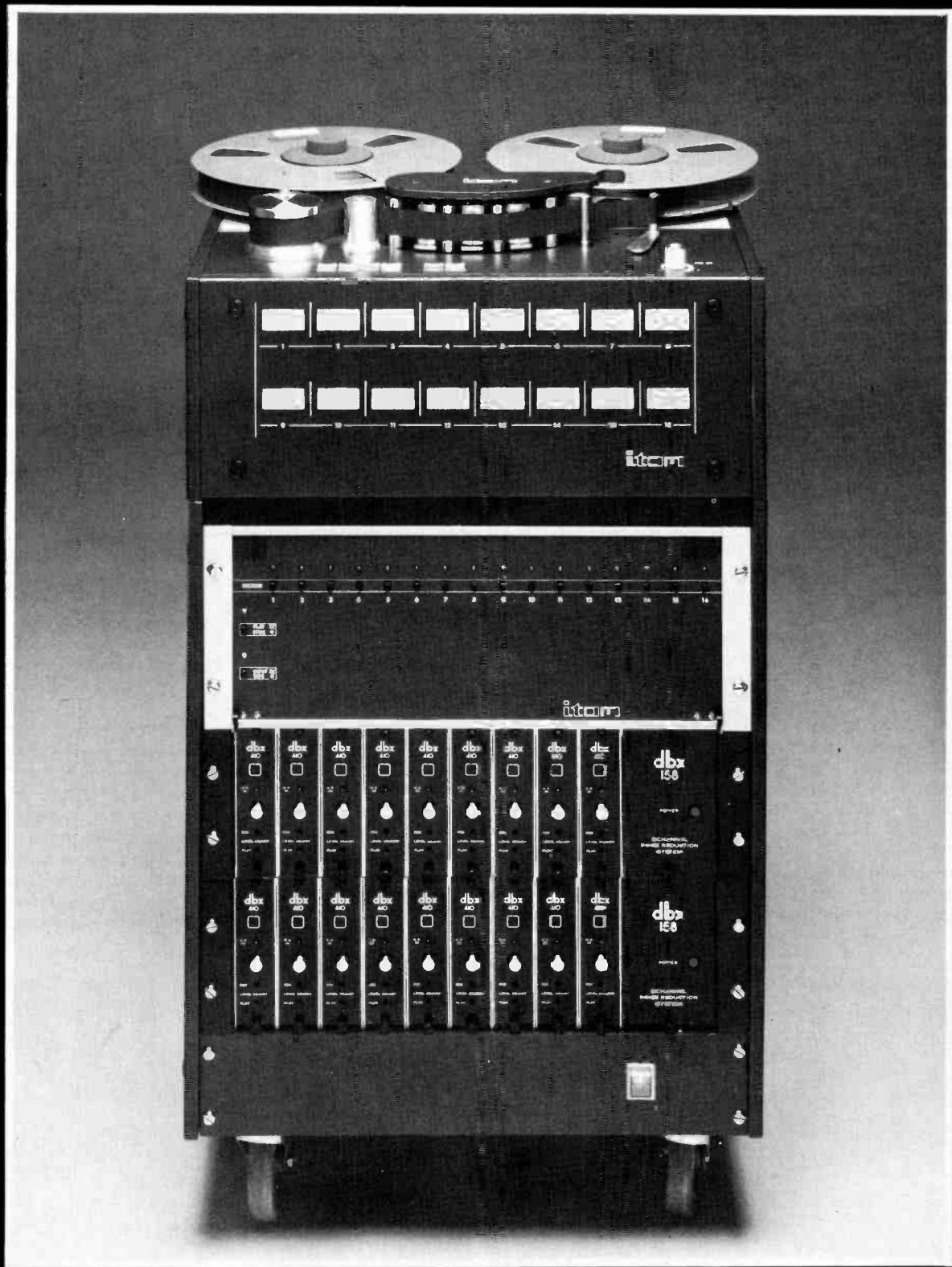
To conclude, the UK music industry is in many ways very healthy, however, as outlined above there are pressures at work which are having a debilitating effect. In particular the record companies are going through difficult times which they do not expect to end in the immediate future. The prevalent view is that over the next 18 months to two years times are going to be particularly sticky. The problems being suffered here are, however, only part of a worldwide recession and the effects of the downturn in the US market (on which many UK companies rely to a great extent) are also being reflected in the UK music industry's performance. However, despite these problems, we British are a durable race and no doubt we will rise from the ashes phoenix-like to continue our major role in the world's music industry.



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Güichi Hirata, who also wrote about Japan in the last International issue, examines how the scene has changed in the three years, and looks at new technological developments that the Japanese are using in their studios.

THE music recording market in Japan is very much two-faced, one side continually developing, while the other is rather more conservative, and this somewhat perplexed state makes it difficult for record companies who have to buy foreign music for the young, while local music sources, represented by Japanese Pops or Japanese Enka (chanson), meet only limited demand from Japanese and some people from Asian countries – indeed many overseas record companies consider the Japanese market financially very rewarding. However, after many years of an increasing record market, it has now levelled off and a 5-6% depression in sales is forecast for this year – and it is also becoming much harder to achieve chart successes.

But despite this depressed market, the last two years have seen a substantial increase in the quality of music recorded in Japan, and some particularly innovative recording studios. Surprisingly, despite Japan's success in the exporting of hi-fi equipment, almost all equipment used in recording studios is imported from Europe and the United States. 16-track recording was introduced to the Japanese market almost 10 years ago during which period our engineers have been working hard developing multitrack recording techniques, we, however, delayed the upgrading into 24-track recording until after most European and American recording studios had taken this step, and 24-track had become the worldwide accepted standard for pop music recording. But last year several large record companies built new recording complexes which were specifically designed around 24-track recording and all the other advances that have taken place – this has provided stimulation in the market and most

other studios are now going over to 24-track as rapidly as they can. This upgrading is very fortunate since it enables studios to be planned using all the latest digital techniques that have become available.

A good example of this change is the new studio of NTV Music Co where some important problems have been solved using new techniques, although the equipment in the studio looks like any other, viz a Quad-Eight console and Studer A800 24-track tape recorder. What is unusual is that there is absolutely no manual patching required in the studio, it is all controlled by a computer using a light pen and a television screen. All patching of microphones is done by simply touching the pen to the screen indicating what type of microphone is being used on which instrument, and which channel to which it is connected, all the patching being displayed on the TV monitor. For instance, if a capacitor microphone is selected, appropriate phantom powering is provided.

When we built our first studios, we often used a patching bay that was built entirely from XLR connectors, with XLR double

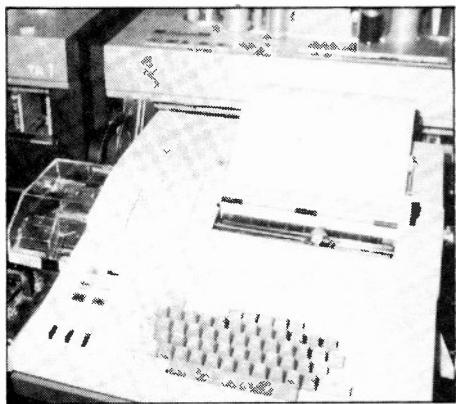
enders for patching leads, and although this was very reliable, patching was not very convenient. So like many studios, until now we have used 2394 and 110 telephone jacks, and also miniature jack plugs which have become worldwide standards, but again as any engineer knows, these often give intermittent connections, require occasional polishing and interruptions to sessions. It is also very difficult to confirm which connections are made to which, and often mistakes happen causing further delays to sessions. So, after much thought as to how to replace the jack patch bay, this computer assisted system was developed by the NTV engineers.

Since the switching element must be operated by the computer, Swiss Odilog relay matrices have been used, and although the manufacturers do not recommend the matrices for use at levels below -25dB, repeated testing has shown them capable of operating at microphone level. Another advantage is that the television monitor enables any patching program to be displayed enabling simple tracing of circuits. Another

Hitokuchizaka Studio (Canyon)



NTV Music with Quad-Eight console, Studer A800 in background, and electronic patch display beside console



Printer producing hard copy of patching layout

problem that faces console manufacturers and users is the identification of channels, and this is usually performed by writing on a cleanable strip, although cleaning often causes problems and some solvents attack the console engraving or even spill inside. So in this computer system, each channel on the console has a 4-character alphanumeric display that repeats the information from the TV monitor onto each particular channel, automatically following the arranged patching. A final feature is particularly useful for those who normally use Japanese or Chinese characters, because we find it very difficult to use a Western-style keyboard, and only people specially trained normally do so, but not recording engineers! I am rather ashamed to report such things, but it is a considerable problem, since the technical terms we use are always in the English language, but with our light pen all we have to do is pick the correct word from a pre-assembled list, and indicate where it should be used – very simple for us. Finally, the system allows the output of all information on a printer (fig 1) and also on paper tape for later use. The computer will provide statistical information about which microphones are used, etc, how long the studio has been used and other such data.

To give some idea of the present state of Japanese studios, it is worth examining a few

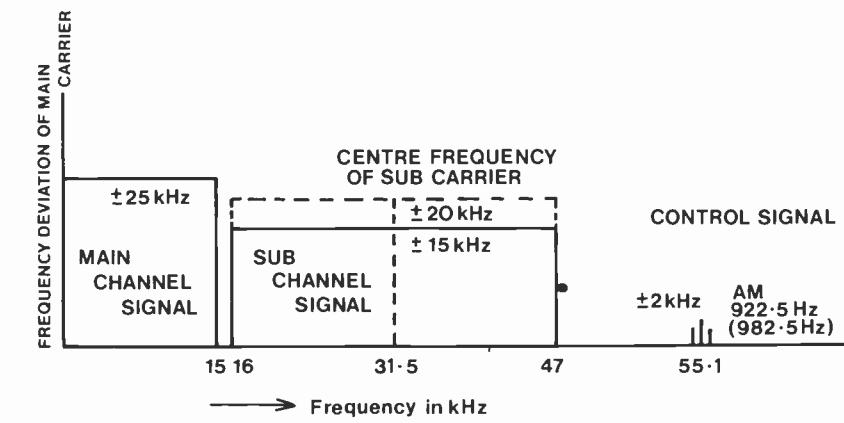
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*****
* <ALCOVE-1> . <CHIMNEY> . <DRUMS-BOOTH> . <ALCOVE-2> *
* . <1> <2> . (BTom) (H-H) . (A.P1) *
* . (MTom)(STom)(S-Dr) . (TOP)(TOP) . (A.P1) *
* . (B,Dr) . <CHIMN-3> . (E.P1) *
* . . (E-B) . *
* . (VC) . (COND)(RBOX) . (TP) *
* . (V1a) . (BSax)(TSax)(ASax) . (TP) *
* . (V1-2) . . (Tb) *
* . (V1.1) . <NEUTRAL-ZONE> . (B,Tb) *
* . * ==CLIENT== * *
* . <LIVE-ZONE> * N T V - M * <DEAD-ZONE> *
***** * * ARTIST--- * *
* (Vib)(Mar) * * PRODUSER- * *
* . * DIRECTOR- * *
* . * ENGINEER- * (L.P)(L.P) *
* . * OPERATOR- * *
* . * SAMPLE 1 * *
* . * <CONTROL ROOM NOI> * <BOOTH-2> *
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Fig 1 Printout showing studio areas, instruments and mic positions

Fig 2 Specification of 2-channel and stereo television sound systems

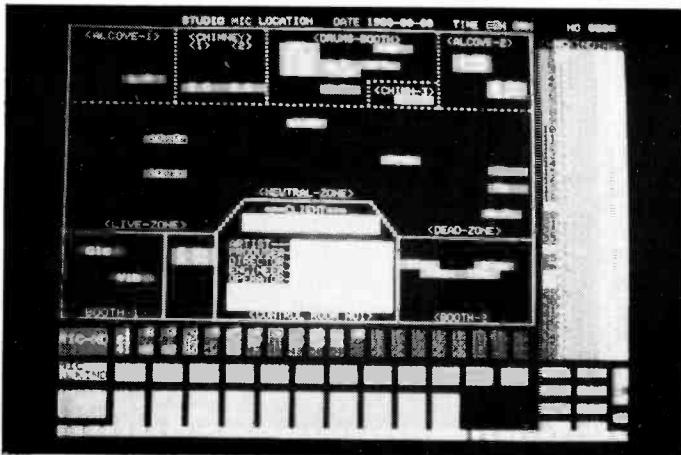
Main signal	Max frequency deviation	$\pm 25\text{kHz}$
	Pre-emphasis	$75\mu\text{s}$
Sub-Signal	Modulation	FM
	Frequency	Twice TV line frequency
	Max deviation	$\pm 10\text{kHz}$
	Frequency band	16kHz to 47kHz
	Max deviation	2-language $\pm 15\text{kHz}$
		stereo $\pm 20\text{kHz}$
Control signal	status	continuous
	2-language	922.5Hz
	stereo	982.5Hz
	Carrier	Three times TV line frequency
	Modulation	AM 50-70%
	Max deviation	$\pm 2\text{kHz}$

Fig 3 Frequency spectrum of 2-channel TV sound



in detail. CBS/Sony was designed by Tom Hidley as his first Eastlake design in the Orient, and it features several studios with Neve consoles and Studer A800 24-track recorders. The mixdown studio is fitted with Necam automation, and this is operating very successfully, after other companies had invested money in earlier undeveloped systems which did not work particularly well, but having waited, we now have a practical system. We believe that automation will

become a necessity for both efficiency and accuracy of mixdown and we are expecting even more practical automation systems in the next couple of years. Also, some record companies are considering automated equalisation since much equalisation used in pop music is very similar, and considerable time could be saved by allowing particular engineers to keep their own favourite equalisations and we expect this system to come on the market next year.



Television display of patching showing mic locations and instruments



Alphanumeric display on console channels automatically showing which instruments are patched to which channels

Digital recording is another idea that everybody is talking about, but I am unable to go into detail in an article such as this. However, all our manufacturers here have completed prototype digital recorders, and digital discs, and are now waiting for standardisation or specifications from the users, before going ahead further with manufacturing. For example, in broadcasting because of editing, they want a fixed head machine and this will come on the market very soon, although rotating head machines (based on video tape recorders) are becoming popular with electronic editing. This is particularly worrying in digital disc because we had four quadraphonic systems, we have two video cassette formats and we are now thinking of which digital disc is going to replace the present disc. However, we hope that nobody will rush into marketing such discs, so that we are eventually assured of a good system.

Another problem that we have is strict fire regulations and wood will soon not be permitted in studios, so a number of Japanese manufacturers and University Labs are

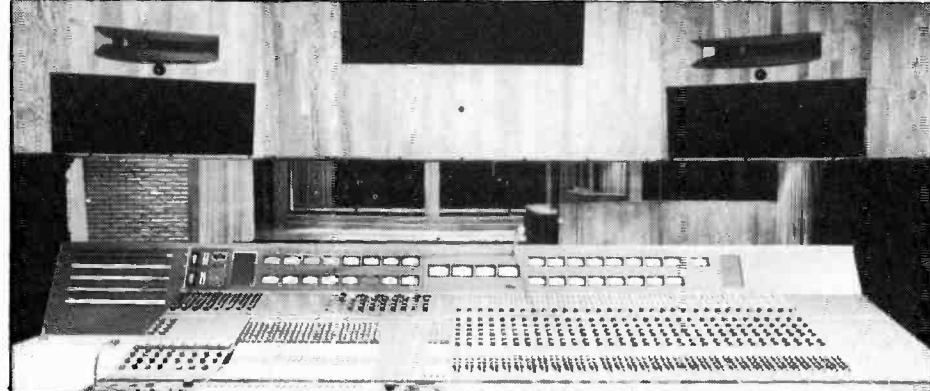
currently developing fireproof acoustic materials which we hope will ease our problems.

But one of the biggest developments in the Japanese sound field is the introduction of stereo television sound. Last year, the government gave stereo test licences to all our TV stations, and they have been broadcasting stereo for about a year now. While some

stereo programmes are transmitted, it is strictly 'simultaneous transmission of two sound channels in television' and 2-language broadcasting is just as important. Stereo is used mainly for music and baseball games, and 2-language for news, feature films with original sound and dubbed Japanese and so on. Although similar systems have been

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CBS/Sony Eastlake designed control room with Neve 32/24 console and Studer A800 (one of three identical rooms at the complex)



CBS/Sony Studio 1 with four different acoustical areas, photo taken from isolation room. CBS/Sony Mastering Room with Neumann lathe and CBS Discomputer vari-pitch system



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Special Issue



developed for almost 20 years, we believe ours to be the first regular broadcast using only the television sound carrier. The system used is different from normal stereo radio broadcasting because better crosstalk is required for 2-language broadcasting. The system was developed by NHK (the government broadcasting operation) and uses FM-FM rather than FM-AM as used in normal FM stereo because crosstalk is lower and creates less interference on the AM modulated picture, and also causes less problems with existing single channel TV sets.

Figs 2 and 3 show the 2-channel sound specification and frequency spectrum respectively, and one important difference from FM radio is that the deviation of the subcarrier can be varied depending upon whether stereo or 2-language are being transmitted and to provide better signal-to-noise in stereo. A third control carrier at 55.1kHz provides switching of the receiver decoder to disable the stereo demodulator for 2-language.

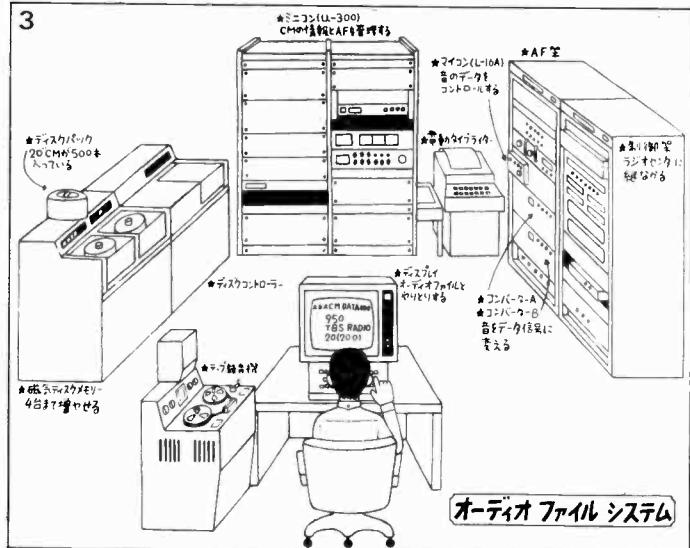
This development in television sound has meant that many television sound studios are being updated to handle stereo and 2-language. All TV links are being modified to handle two channels, and set manufacturers are expecting a large market demand for new sets incorporating two channels. But of most interest to us is the development of television post production studios using multitrack tape recorders, timecode synchronisers, large screen TV projection and automated consoles. Up until now in Japan we have used a special type of video tape recorder using 2in wide tape, but the audio quality has not been satisfactory, but now that synchronisers have become available, we are making use of this technology to provide stereo television. Again, the Studer A800 has been finding wide acceptance in television post production (usually with only 16 tracks), and TBS, Fuji and NTV all have such post production studios.

1 NTV television sound post production studio using Studer 16-track A800 and Tapelock

2 TBS television sound post production studio using Studer A800 with Tapelock, a Neve console with Necam automation, and large screen TV

3 Schematic of Audiophile digitally automated commercial storage system

4 Equipment room for Audiophile system, with bulk disc storage on left, processor in background, and interfaces on right



So now television sound production tends to go along the following lines. First the backing orchestra is recorded in a music studio on 16-track, and this is brought into the television studio for the main video recording. The video will now typically be recorded on a 1in SMPTE C-format video tape recorder such as the Sony BVH1000, while the vocals, timecode and narration, for instance, are recorded on the 16-track, with the cueing output from the console recorded on the video tape recorder to provide a guide sound track for video editing. Once video tape editing is complete, the video tape and multitrack audio tapes are taken to the post production studio and timecode is used as a basis for the final dubbing (or sweetening as the Americans call it). We use the Studer Tapelock system for synchronising, and this allows us to use off-set timecode and to keep instructions on paper and floppy disc. One typical studio is that of TBS, and this uses a 16-track A800, Neve console fitted with Necam automation, Sony BVH1000 video tape recorders, and a large screen television projector to provide a big TV



picture. When timecode is superimposed on the picture on the large screen, it is simple to read. The system also allows additional effects to be added to a spare track of the multitrack, before the Necam system is used to provide the final dubbed mix all locked to timecode, with the final mix recorded directly onto the video tape recorder in the correct edited sequence by commands from the Tapelock system.

But this system has caused certain problems because it is necessary to

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synchronise the video tape recorder, multitrack and data recording system, and there were also initial difficulties in locking the video tape recorder to the multitrack, since it normally happens the other way around. It has been necessary to overcome complex problems in ensuring that the two tape recorders, *TapeLock* synchroniser, *Necam* automation and its floppy disc, all operate together, but this has now been achieved.

While the stereo transmissions are currently only experimental, we expect the full go ahead will be given for stereo TV programme production this autumn, and the system will be proved for the next decade. Indeed, all television stations want to develop this production system further so that fully automatic operation will become possible.

In common with a number of other countries, Japan has the technology for the production of glass fibres and laser diodes, which together allow wide bandwidth communication, and this is expected to enter use in television for programme links in the near future.

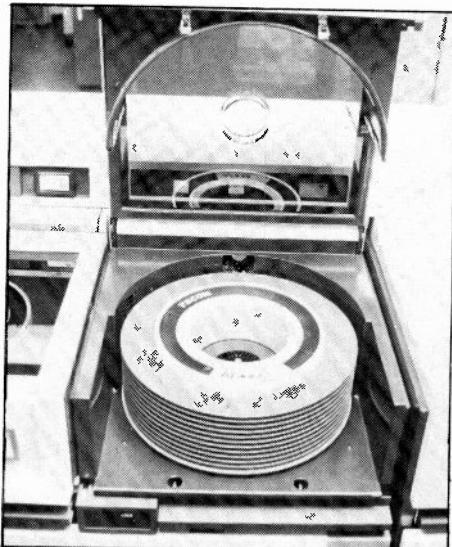
Digital technology has also entered the broadcast radio station with the TBS/Matsushita Lab *Audio File* system which handles all operations concerning commercials, including transmission, automatically [and is remarkably similar to the system suggested in *Studio Sound's* October editorial, Ed]. For example, in the TBS station, some 2,500 commercials are stocked with about 900 being transmitted daily and 200 replaced each week – it is estimated that the stock will shortly have to increase to 3,000 commercials. There was no equipment available capable of handling all the different procedures from selling to automatic transmission on line, and so previously all commercials have been transmitted manually requiring organisation and stock control with commercials on separate cartridges. To overcome some of these problems, radio stations have been using Denon's automatic programming and playback machines. The programming machine contains both replay and record decks, with a third deck for programming data, and the commercial is copied onto the record deck automatically with suitable addressing thus making a single tape of all the commercials required for transmission. Replay is similarly automated. While these machines are currently being used by radio stations, they will gradually be replaced by the *Audio File*.

The *Audio File* is a system having a large store where all commercials are kept, it accepts transmission commands, automatically assembles the programme and sends it in realtime with output data for transmission, all functions being controlled from a central processing unit. While some European manufacturers have been

developing similar systems using the *Unisette* for storage, *Audio File* is unique since all storage is digital on magnetic computer discs, which are able to replay audio in realtime under control of the central processor. Another benefit of the system is that all information about particular commercials is stored in the system, and provided that programming is correct, the system can automatically produce transmission logs and certificates for clients, together with the final bill, thus eliminating much paper work.

While conventional digital PCM coding systems would require an excessive bandwidth, the *Audio File* uses a specially developed coding system called D.PCM-AQ (Adaptive Quantiser Differential Pulse Code Modulation). This takes a standard 12-bit linear code, consecutive samples are compared and only the difference between them finally stored, after being folded by a variable length code system thus saving several bits; the linear 12-bit code having been condensed to six or seven bits, eight actually being stored in the final system. Using a 400 Mbyte computer disc, more than 1,000 commercials may be stored using this special coding system. The actual audio specification for the system is as follows: frequency bandwidth 50Hz to 9kHz, sampling frequency 20kHz, 8-bit words, S/N better than 55dB, dynamic range 72dB, maximum recording time in one segment 195s, capacity 19,956s with disc, access time 0.1s and playback at normal or twice normal speed. These figures compare favourably with a normal tape recorder running at 7½in/s, but is far more versatile than the original system. As stations begin to need stores of up to 3,000 commercials, the manual system will become unwieldy, and so most Japanese radio stations intend installing *Audio File*.

Multi surface computer disc which digitally stores about 1,000 commercials



Other Asian markets

Seoul, a large recording studio in Korea's capital, has been acoustically designed by JVC (Japan) and is equipped with 16-track recording and a wide range of musical instruments. It's large enough for classical music recording and already several Japanese groups have used this studio for particular recordings – the Korean's are excellent string players.

In Taiwan, the record market is also very active and there are three recording studios equipped with 16-track, and now First Record Company in Taipei is building the first 24-track studio, which should be completed by the end of the year. A great deal of musical talent is being 'exported' from Taiwan to other Asian countries such as Hong Kong, Thailand and Singapore, this is because rhythm players in Taiwan seem particularly skilful. On the other hand Taiwan is manufacturing vinyl resin powder for record pressing, and exporting it to Japan and other Asian countries. Hong Kong is not such a large music market however, and nobody has disc cutting in the area, although Hong Kong EMI, Polygram and Panasound all have 16-track studios. Unfortunately, each Asian market has its own nationality, speciality, language, melody etc, but Japan is providing assistance to these other countries, although most of the equipment used comes from the West.

Conclusion

Several new 24-track studio complexes are being built in Tokyo, and most have an orchestral studio with a couple of 'rock' studios, and mixdown room, but we believe we are now on the final few years of analogue recording and this will bring big changes.

In the TV field, 16-track post production is becoming accepted using Studer *TapeLock* synchronisers, and the main local stations will be using this system next year. Also the TV commercial music production field is awaiting this technology and five or six private studios expect to install similar systems next year.

In the consumer field, metal cassette tape is providing some improvement, and the manufacturers are considering standardising on double speed cassette decks with the new Dolby system, which will provide a considerable increase in quality. For consumer PCM stereo recording, an agreement on standards has been made among several manufacturers, and they are already developing and testing prototypes.

Japan is fortunate in having excellent technology with which to meet the demands of the sound recording field, and technologies for mass production – particularly quality control which is very important. And despite the economic climate, considerable research is still being carried out, and we are always ambitious about innovating technology.

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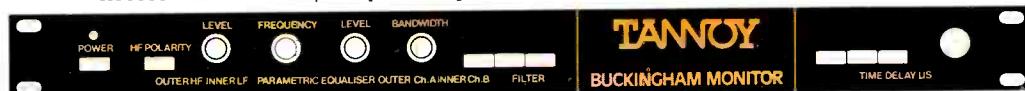
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Special Issue

Bill Third looks at the Netherlands, home of Philips, cum Phonogram, cum Polygram, where the local market is well developed (in the English language) and where record companies are actually supported by broadcasters.

THE recording and music scene in the Netherlands is small but strategic. Both the industry and the record buying public are very open to new trends. And it's quite common for a new record, sound or group, to take off in Holland before they make it in their home market or major countries like the USA and the UK. Size, again, plays a role in this. A good degree of exposure on the one FM pop station, Hilversum 3, and a well made film or video tape, preferably with plenty of visual gimmickry, for showing on any of the three main pop shows on television means that a large percentage of the record buying public will see, hear, remember and buy.

The Netherlands is also the home country of Phonogram, owned by that well known Dutch giant Philips. Their joint venture with Polydor, owned by Siemens, is Polygram. It is one of the, if not the, biggest record companies in the world, with a whole string of labels, distribution and licence deals all over the world. Polygram's deal with Robert Stigwood's RSO label made them third biggest in the US market for the last book year. Mr Solleveld, president of Polygram, is now permanently resident in the States. Polygram's catalogue covers a wide variety of music types; classic, light classic, pop etc, but they are not really into taking risks preferring to sign established, or nearly established, artists.

Phonogram's new Wisseloord studios in

Hilversum are certainly the most modern in the Netherlands. 24-track is standard and all the four studios are as well equipped and bursting with peripherals as you would expect from this large, rich company. Most of the artists who have recorded here up till now are signed to one of Phonogram's or Polygram's labels. The product is largely pop and popular and up until now has largely been for domestic consumption. Honourable exceptions to this include Status Quo, who made their last album at Wisseloord, and Steve Hackett.

The other large recording organisations in the Netherlands are Dureco, EMI-Bovema Ariola, and Johnny Hoes. EMI-Bovema has a two (or three) studio complex featuring a 24-track Neve with Necam in the larger (largest) studio. Quite a number of foreign acts record

here as well, of course, as domestic artists. These include Smokey and Suzi Quatro, both produced by Peter Coleman who found it 'a very good studio'. He was particularly taken with the facility for splitting the studio in two with a large piece of wood, otherwise suspended from the ceiling. Ariola specialises particularly in recording the Dutch WEA stable, including Maggie Macneal. Johnny Hoes' studio at Weert in Limburg is equipped with computerised mixdown as is Dureco at Weesp. Both studios were started by men who had been successful in other sides of the business.

The success world-wide of *Venus* by Shocking Blue helped Rob Aartse's Dureco which is not only a recording studio, but also presses and distributes discs, as does EMI-Bovema.

Independent studios of note include Dick van de Velden's Relight studios and Frans Mijt's Soundpush. Relight was the first 24-track in the Netherlands (with a Midas desk), has an English engineer, Robin Freeman, and the studio has succeeded in attracting top domestic talent like Gruppo Sportivo, Herman Brood and Sweet d'Buster as well as foreign acts and artists such as Genesis, Cat Stevens, Peter Gabriel, Gentle Giant and Black Sabbath. Frans Mijt's also offers 24-track and is currently rebuilding his demo or overdub studio to 24- or 16-track. Soundpush has also attracted top domestic and foreign acts.

There is a large and growing number of 16-track studios and smaller. These often make their bread and butter from recordings for regional, if not domestic, record markets, as well as doing demos and advertising spots. Some of the older members of the club already feel there are too many studios and compare the rash of new studios to the lifespan of the mushroom.

In general, standard of equipment, and service are good in the seven or eight studios which are significant to the recording scene. Personnel and approach generally are the

Soundpush Studios, Blaricum



deciding factors, technical facilities being equal. There is no fixed price for studio hire although Hfl 250 to Hfl 270 are top whack for the best 24-track studios. Daily rates are probably around Hfl 2,250, and there is good discounting in most cases for block bookings. There was a move by one or two representatives of the larger studios to arrive at a fixed rate round the Hfl 250 range, but this would not be of much advantage to the smaller independents. 15-track usage varies between Hfl 130 to Hfl 180, and around Hfl 35 hourly for 4- and 2-track.

Brief exposure to the cadences and sounds of the Dutch language will clarify why hits in the pop charts are almost always in English, whether the artist is foreign or Dutch. Recording in English also means that the product is marketable outside the domestic



Top: Phonogram's large Studio One. **Centre:** Phonogram's Studio Two large glass walled isolation room for hard acoustics.

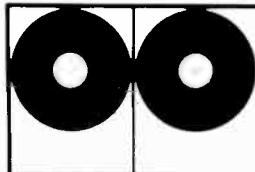
Left: An internal street which runs the length of Phonogram - the studios lead off to the right.



market, and indeed a growing band of Dutch artists have made the charts outside their own country. These include Golden Earring, Pussycat, George Baker, Kayak, Herman Brood and Gruppo Sportivo. The popular music market is more Dutch language oriented, but here too the artists are not averse to recording in foreign languages such as English and particularly German. Father Abraham, for instance, conquered Germany first with his Smurfs before descending upon the UK market. There are large numbers of such novelty items produced here for domestic and continental consumption.

Future trends

The music and recording business should continue to do well in the Netherlands. The number of foreign acts discovering the joys of high times in the Low Countries is on the increase, and domestic acts are very strong both at home and abroad. Practically everyone in the country has a good hifi installation, every bar and club has an expensive system and with record prices coming down in the last few years with the beginning of price cutting, things look healthy. Live music venues are on the increase and the current disco revolution has got a very undancing nation back on its feet. A wide range of music styles continue to prosper including straight pop, progressive, country, soft rock, classical and jazz from trad to avant garde.



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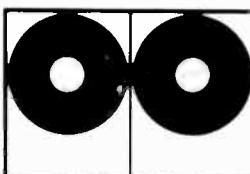
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Pepe Loeches takes a survey around the principal Spanish studios which offer equipment and facilities to rival any in 'greater civilisation'.

THE recording industry in Spain is primarily based in Madrid and Barcelona, though there are a number of studios in other cities, but these are small and primarily demo studios and rarely up to the full international standards of the major studios. The industry in Spain, although not as large as many other European countries, is nevertheless, on the whole, exceptionally well furnished with most of the modern equipment. There are also a large number of well qualified recording engineers and the capability of many studios is up to full international quality enabling bands to record an album, and take the master tapes back to London or California for mixing. The weather in Spain is usually fine all year round (which is why half of Europe flies to Spain for their holidays each year) and the atmosphere is particularly conducive to relaxation and siestas, although the major centres have all the typical facilities of modern European cities. Many sessions have taken place for countries such as the USA, Mexico, Brazil, Argentina, Venezuela, West Germany and some countries are particularly favoured because of the language links. There is a substantial home market too, because it's only in the past few years that Spain has been 'opened up' to many European customs and products – prior to this almost all the entertainment was locally produced, although of course much international work is carried out.

Right:
Sonoland SA, Madrid



Left: Philips console at Fonogram, Madrid



One of the biggest problems we have to contend with is the acquisition of recording equipment – as there are no local manufacturers it all has to be imported. Consequently arranging orders and shipping of equipment can cause considerable problems and high import taxes can often double, and sometimes treble the cost of the equipment. Nevertheless, the money, time and patience are usually found, to thoroughly equip studios.

In Madrid, the principal studios are Audiofilm, Eurosonic, Fonogram, Hispavox, Krios, Musigrama, RCA, Scorpio, Sonoland and Torres, while Barcelona features Carbonell, EMI, Gema and Moraleda.

Audiofilm SA is a complex comprising three different studios all equipped with Neve

consoles. Studio One is the largest and has a 24/16 console with a Studer A80 16-track recorder fully fitted with Dolby, and a mastering recorder from Telefunken. Monitoring is by four Tannoy with Quad 405 amplifiers, while the studio also has EMT and AKG reverberation. Studio Two is smaller, and equipped with a Neve 16/8 console, and 8-track Telefunken M10 and two stereo M15s – the monitoring here is only stereo with two Tannoy and one AKG reverb. Finally Studio Three is the baby with a Neve 10/2 but a 4-track M10 and again twin stereo M15s.

Eurosonic was covered recently in *Studio Diary*, but is the first Eastlake designed studio in Spain and includes a Neve 24/24 with eight subgroups, Studer 24-track A80, stereo A80s and an Eastlake monitor system with H/H amplification; two EMT and one AKG reverb units.

Right: control room of Eurosonic



Right:
Control room of Studio One Audiofilm SA

Fonogram SA is a 16-track studio that has a capacity of 100 musicians, is 75 x 45 x 24ft and has a wide selection of instruments including Yamaha piano, Hammond organ, ARP synthesiser, Fender Rhodes electric piano and percussion. The control room has a Philips 24/16 console with extensive equalisation, column VU meters, and six Pye compressors. Tape recorders are Studer A80 with one 16-track and three 2-track, and reverberation is from EMT and AKG. Outboard equipment includes Eventide Harmonizer and flangers.

Kirios Recording Studios in Madrid boast the only Harrison console in Spain, this being a 32/32 and used with a 3M 24-track and Telefunken M15 2-tracks, while monitoring is by JBL and H/H. Kirios Studio B only has a



Left:
Gema Studio Two with Cadac console and 3M 24- and 16-tracks

Neve 24/8 console, but nevertheless still features a 3M 24-track enabling it to be used as a mixdown room while Studio A is recording.

Sonoland Recording Studios is another twin studio complex, this time one 24-track, the other 16-track. Both studios have Neve consoles, the larger a 32/24, the smaller a 24/24, with Studer tape recorders throughout. In addition to EMT echo plates, there are two natural echo chambers, while monitoring is JBL. Studio A has a capacity of 40 musicians, while Studio B accepts 15. Both studios are linked by closed circuit television.

Torres Recording Studios in Madrid has departed from the Neve/Studer tradition, and has instead an API 24/24 console with 3M 24-track recorder. But variety is the spice of life.

Finally, turning to Barcelona, Gema has two studios on different streets, Studio Two being 56 x 45ft with a reverberation time of 0.53s, and has Steinway Grand, Hammond organ, Fender Rhodes electric piano, Moog synthesiser and various guitar amplifiers, while the control room has a quadraphonic Cadac 28/16 console with 24-track monitoring. There are two multitracks, 3M 24- and 16-track, together with Studer A80, B62 and Ampex 440 2-tracks. Monitors are from Altec and Tannoy and outboard equipment includes Klark-Teknik graphics, Marshall Time Modulator, and EMT and AKG reverb. Studio One is the smaller, being only 27 x 25ft, and has 24/16 Cadac console with 16-track 3M multitrack, Studer B62, Ampex 440 and 300 tape recorders.

From the above, it is obvious that Spain has many superbly equipped studios that certainly rival anything that larger countries can offer, and we can offer superb weather and an excellent atmosphere.

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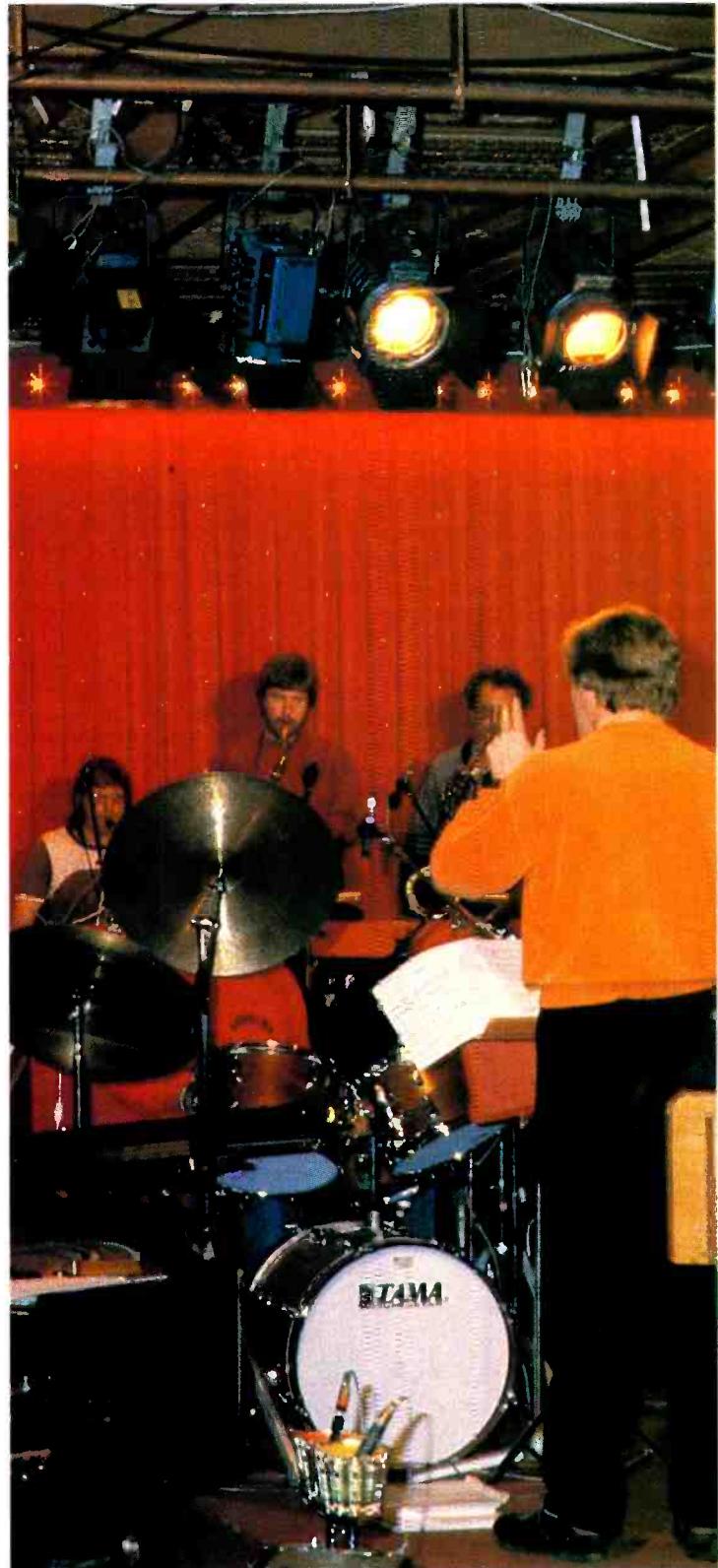
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Enrique Gaviria reports on the South American music and recording scene, where the markets are rich for exploitation.

WHILE one does not often consider South America when discussing the world's music scene, there is indeed an expanding market in this part of the world for both live music and recording. Established companies are finding new markets in South America and the surrounding areas such as the Caribbean and Mexico. For instance George Martin has moved closer to Latin America with his new AIR studio on Monserrat, while Jeff Cooper, an acoustic consultant from California, has designed a studio in Mexico. Sugarloaf View, the leading architectural and design firm from New York, has just finished a studio in Trinidad, and has designed Fono vision International studios in Bogota, the capital of Colombia. MCI has sold equipment in Ecuador, Peru and Colombia, Ampex Panamerican has sold MM1200 and ATR100 tape machines to Chile and Colombia, Neve has a console in Brazil and soon one in Bogota, while Soundcraft and Allen & Heath also have consoles being used in PA systems in Colombia.

Taking a trip around South America, one can see that studios are becoming more complex with reliable standardised equipment, so that recording may later be completed or mixed in studios elsewhere in the continent or other countries. In Argentina for instance, In Studios have just opened two new rooms, studio A with a capacity for up to 60 musicians and with 24-track recording, and studio B which is smaller with only 8-track recording. In Ecuador, the record company Fediscos has just set-up a 16-track recording studio located in Guayaquil, and another record company, Famoso, use 16-track MCI equipment. La Discoteca, in Venezuela, has served the record companies for many years with their 16-track studios located in Caracas.

In Colombia, two record companies, Brazil's very popular samba group – Conjunto Nossa Samba.

Codiscos and Sonolux (located in Medellin) both operate 16-track recording studios serving the local record business, while in Bogota, Ingeson (who also represent MCI) have two 16-track studios. The most recent studio complex is Fonovision International which is being built under the personal direction of John Storyk, president of Sugarloaf View, with the aim of producing a studio that will be truly up to international standards and able to meet the demands of international artists, groups and producers. The studios are due to open in early 1980, and equipment will include Neve 28/24 and Allen & Heath 24/8 consoles, Ampex MM1200 24-track and ATR100 2-tracks, Crown and Yamaha amplification with custom Sugarloaf View and Big Red monitors, and AKG reverberation.

Record companies, producers and musicians are looking toward South America, searching for markets not just in the record business, but actually in the whole of show business. This is being reflected by the fact that the form of musical expression can be widely expanded just by the experience of living in a totally different environment which offers different types of musical backgrounds to the unaware foreign musician. For instance Patrick Moraz and his Brazilian connection.

Noting this approach, South America is preparing itself in all technical and musical aspects in order to raise its music to an international level and become an important part of the record business. But unfortunately it is very difficult for most underdeveloped countries to achieve these goals.

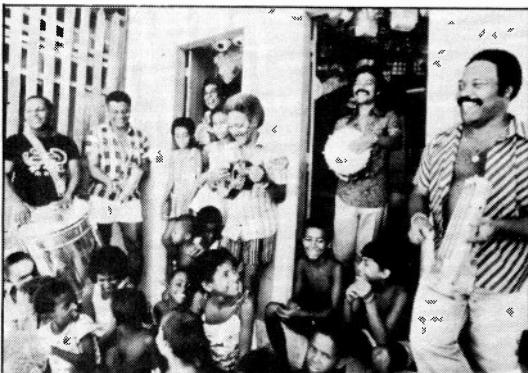
A few years back the only training for sound engineers was in radio, and in order to achieve a sound engineer position, it was necessary to spend years in a station doing all kinds of different jobs from drama to musicals – it was necessary to become heavily involved in audio, and then hope to find a position in TV or a small studio. Nowadays, it is common to see engineers from Brazil, Venezuela, Argentina or Colombia being

trained in audio schools like the Institute of Audio Research in New York.

One very important problem that we have in South America is disc cutting. In Colombia for example, there are just three cutting rooms, all of them in poor condition and without proper acoustic treatment (one was even a closet before becoming a cutting room). The reason for this mess is the difficulty of importing equipment into our countries – just the paper work is sufficient to 'blow one's mind' and added to this there are the extremely high taxes that have to be paid to our bureaucratic governments. Also, most South American currencies are very weak compared with those of the USA, West Germany, England and Japan, from where most equipment has to be imported, and this makes the prices even higher. To avoid this disc cutting problem, we now send master tapes to the United States for cutting, and that guarantees us good quality, although we are hoping that now new studios are opening, that there might be sufficient demand for a properly designed local cutting room.

Because of the high density of young people in South America, the record business is booming with most record companies doubling their sales of foreign artists each year and these imports now represent over 50% of the South American market. Bands are now increasingly considering adding South America to their obligatory European, American and Far Eastern tour schedules, and American bands such as Santana have had huge success in South America. Unlike many countries, we have many large halls, stadiums and coliseums which can be easily filled when the top acts come here on tour. At the same time, we can supply all the organisation and technical coordination required for a successful tour.

Much time and effort is being devoted to the recording and music business in South America, and we hope that our lucrative markets will be rapidly expanding over the next few years.



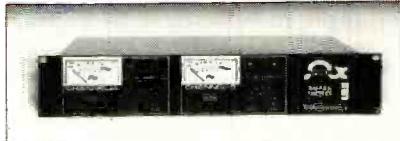
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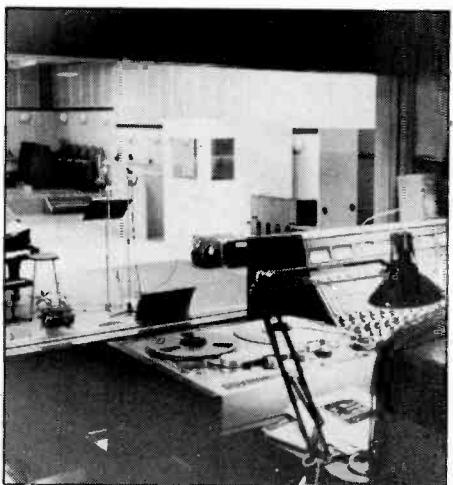


Source: Studio Sound, Effects Survey, Sept 1979

Michael Tretow explains how the Swedes have taken their own rather unusual outlook on the recording business, with government activities unintentionally promoting record sales, rather than vice-versa.



EMI Studios – Stockholm



AFTER 10 years of constant growth, Sweden now finally seems to have reached its peak. A yearly increase in record sales at between 15 to 20%, two years ago stopped at the nevertheless astonishing figure of 16,000,000 units sold per year. And that is in a country with just 8,500,000 people! That is more records sold *per capita*, than any other country in the world can claim! The reason for this enormous amount of records sold in a country this size, is partly to be found in what used to be the highest standard of living in the world, and partly in the Swedish Radio's reluctance to play contemporary music such as disco and rock and roll. The car-stereo boom during the last part of the Seventies increased the demand for popular music, and if the radio can't supply the music, the record shops surely will.

What happened in 1978 and 79 in the Swedish market is not so much a result of the strained economic situation, as it is a result of the declining popularity of the dance-bands, small 4 or 5-piece combos, playing Top 40

songs in the dance halls all around Sweden. They used to be the back-bone in the industry, covering one fourth of the Swedish market when at its peak. For some reason or another the audience got tired of the dance-bands and stopped buying their records, which has affected the whole structure of the business. The public keeps on buying records, but the records are not Swedish anymore, and this naturally affects the studio-situation as well.

Swedish studios used to be booked 24 hours a day up until a year ago, but now we're slowly getting back to normal again. As a result of the declining dance-band business, more and more dance halls are going disco, leaving fewer jobs to the musicians. As if this crisis alone wasn't enough, the Employment Agency run by the Government decided that all promotion and artist agencies are illegal and that the Government Employment Agency only is entitled to operate in the future. Unfortunately the artists seem to have a very strong disbelief in letting the bureaucrats take over, claiming that bureaucrats are not exactly famous for their flexibility, nor are they known to be notorious swingers. So the artists reacted in a very typical Swedish way – they formed a union, The Professional Entertainment Artists Association, and called a strike! Fortunately they called off the strike, but the Government hasn't yet had the time – being occupied by much more important matters – to sort this problem out.

One of the most successful acts in Sweden this last year has been The Boppers, a 5-piece group completely devoted to the music of the Fifties. These guys are genuinely in love with the cars, the greasy hairstyle and the clothing of the Fifties, although all of them were born years too late to have any memories of their own from that time. (Probably their fathers took them aside when they reached 15 and said "Son, there are some facts you must know about Tommy Steele and Elvis Presley"). They appear with the same well-



scrubbed image as many of the white young bands you remember from old record-sleeves. Bands like Danny and the Juniors, and Dion and the Belmonts and such. Incidentally, one of their biggest hits is a note-for-note cover version of the old Dion and the Belmonts hit *A Teenager in Love!*

In spite of the huge success with The Boppers, the general trend seems to be towards singing in Swedish instead of the usual way to record the songs with English lyrics, hoping for export to 'English-spoken' countries like Germany, Belgium, The Netherlands and Denmark.

EMI artist Harpo has been extremely successful in the charts in all the above countries. Sonet's Sylvia had a huge hit in England with *Hasta la vista* and Polar's Svenne and Charlotte have been high in the charts in Denmark, all of them singing in English. Over the last few years though, Magnus Uggla has achieved an enormous success on CBS with his own songs, all in Swedish, and Factory, a new Swedish group on CBS, do all their songs in their native tongue.

Ulf Lundell, Ola Magnell, Thomas Ledin and Pugh Rogefelt are other highly successful singers/writers in the Swedish language, with Pugh Rogefelt as sort of a pioneer singing rock and roll in Swedish. This language was for many years considered as impossible to sing rock and roll in, as Bulgarian or Czech. Along came Pugh in 1968 and changed all that and opened up a totally new world to Swedish rock and roll. Ulf Lundell is an acclaimed author as well as being a writer/performer. With two bestsellers to his credit, the first one *Jack* is rated one of the biggest selling books of all times in Sweden.

Naturally ABBA holds every record there is to break in the Swedish recording history. The 1977 album *The Album* released at the same time as their movie *The Movie*, sold 760,000 copies in Sweden alone! If that figure should be transferred to US conditions, it would equal some 35,000,000 sold! No other recording act has sold more records than ABBA, and the whole recording industry is depending on ABBA to keep up its reputation as an extremely profitable market. Polar Music International, that's Stig Andersson and ABBA's recording company, last year was rated the single most successful company in Sweden! And that is compared to such heavy acts as Volvo cars and trucks (oh, so you thought they were Japanese?), Swedish Steel and Ingmar Bergman!

To the Swedish studios, ABBA's been a blessing since their latest album took one and a half years in the making. The whole industry dropped some 10% because of the absence of a new ABBA album in 1978, but the studios were extremely prosperous! In May last year Polar Music Studio opened a brand new studio facility that immediately became a success, booked by super-groups like Led Zeppelin, Genesis, of course ABBA and the legendary Gösta Hansson, 'the singing football player'. The opening of the Polar Music Studio became the 17th fully



Bastun Studio – Stockholm

professional 24-track studio in operation in Stockholm alone. In case you did not already know, Stockholm is the capital of Sweden, with some 1,500,000 people living in the town and its close surroundings. 17 24-track studios and a handful of 16-track operations, not to mention the numerous 8- and 4-track demo studios is quite a lot for a city this size!

As a result, the studio charges have gone down to a great extent, making Stockholm probably one of the cheapest cities there is for renting a studio, despite the extremely high standards of the average studio. It is pretty safe to say that every one of the 17 24-track studios in town can offer you almost everything there is of outboard gadgets, like harmonisers, phasers, digital delays and such, which certainly is not the case in the States, where almost everything but the console itself is rented.

The search for a studio standard in recording equalisation is still on, with some studios favouring NAB and some preferring CCIR, but there definitely is a trend towards switching off the Dobbies and going 30 in/s, especially since all studios have their own Dolby level; and it is getting more common for producers and artists to switch between studios, something virtually non-existent a few years back in Sweden. Automation is rapidly becoming a must for the Swedish studios, following the trend set by Marcus Music as the first automated facility in Stockholm. Of the nine automated studios in Stockholm, five are Allison, two MCI, one Necam and one Solid State Logic.

So far only Polar Music Studio and Marcus Music can offer the facilities of two 24-track machines linked for 46-tracks. But at HZ Studio you can record on 32-tracks on a machine Hazze Ostlund, studio owner and genius, has built himself from scrap-parts and an old cuckoo-clock!

The only direct-to-disc attempt so far is the Swedish HiFi journal *Radio & Television's* recording of the Gugge Hedrenius Band at



Metronome Studio. Engineering was by Anders Oredson using the Metronome Neve 24/16 desk, and the cutting was performed by Rune Persson on a Neumann lathe equipped with a Westrex cutter head. The record is reported to sell very well although this is a very limited market. Next project is said to be a digital recording using the Sony Digital Recorder.

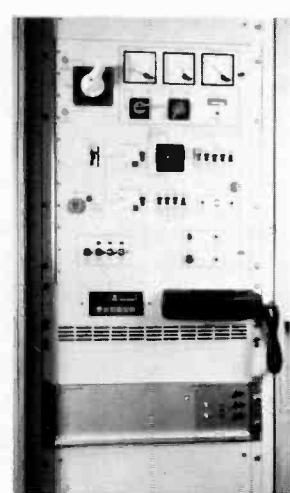
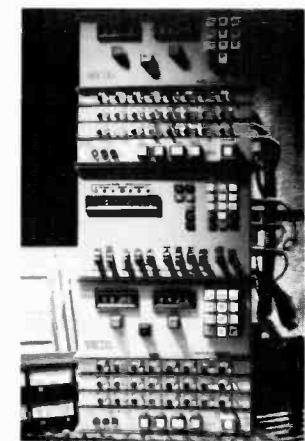
The Swedish Radio Corporation is now separated into three different companies: national radio, regional radio and national television, but still no signs of commercial radio. But when the benefits of commercial radio were pointed out to the politicians, they naturally took the chance. So local radio was invented, which is commercial radio, but not for products like cigarettes and supermarkets, but for non-commercial products like – you guessed it! – political parties and such! ■

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Terry Nelson takes a look around multi-language Switzerland, where it seems talent has to pay for the privilege of performing!

ASK anyone here what the Swiss scene is like and you can be sure that the reply will be in the order of "What scene? There isn't one!". Although that may be somewhat extreme, it does sum up the general attitude here over the past few years. Though Switzerland is very well placed as a jumping off point in Europe - easy access to France, Germany, Italy, Austria, etc - it is also a busy crossroads with a lot of people going through but not many stopping. However, there now seems to be a feeling that things might just start to get moving and that the 1980's hold the promise of an expanding music - and therefore recording - industry.

One of the problems facing Switzerland apart from its size - about 6,000,000 inhabitants - is that it is virtually three different countries and cultures rolled into one: the Romande or French speaking part, the Tessin or Italian speaking and the German speaking part which forms the majority. From a local point of view, this means that general tastes are governed either by France, Italy or Germany with the international music scene forming the link between the three. Because of this 'foreign' domination there is a noticeable lack of Swiss artistes of any importance, the two most well known internationally being such diverse characters as Patrick Moraz and Hazy Osterwald! The general public can also share some of the blame as they tend to be very blasé about the whole thing - big international acts visit the country so why worry about homegrown products? This points out a difference with say, British audiences where people will often go to a pub or club to hear live music and never mind who is playing, let's go see. Here the case is very different and local groups often have very small concert attendances which in turn has a very discouraging effect on the musicians. In fact, many groups have spent large amounts of money on instruments and equipment solely for the pleasure of playing in their rehearsal rooms and never think of going out in public!

Another very local trait are the dances or bals, tanz, etc, which have no real British counterpart apart from perhaps the village hop. Here the music played is hit parade, popular dances, rock (usually badly), etc, etc, and while some groups are made up of very competent musicians who play the dances in order to finance other projects, once caught up in the mill they find it difficult to stop and the situation has a stifling effect on their creativity. Attitudes among musicians themselves tend to be very negative with petty

jealousness and rivalry damaging any possibility of fruitful co-operation, though this tends to be more noticeable in the French speaking areas. The opportunities for live music are also pretty limited and many of the small concerts that take place are organised and financed by the groups or artistes themselves. Once again it is the chicken and the egg situation, if you are not well known no one will come and if you don't play in public how do you get well known? A problem that one. Perhaps you may now be thinking that if the situation is that black we may as well all go home and forget about the whole thing, however, perhaps things may be starting to look up.

On the recording front the situation would appear to be looking up as several studios have taken the decision to update to 24-track operation and several more multitrack studios are either in the process of opening up or are projected. Switzerland is possibly best known internationally for Mountain Studio at Montreux which must owe some of its notoriety to the fact that it records most of the Montreux Jazz Festival each year. Due to its situation and quality of facilities, Mountain has been a natural choice for groups wanting to get away from it all and record in relaxed surroundings, combining work with a holiday. Among the more well known names who have been there are Yes, Rick Wakeman, David Bowie and Queen. More recently Mountain has been involved in doing co-productions with local talent in an effort to stimulate things and make use of any down time. The latest development has been the acquisition of the studio by Queen, and Dave Richards, (the chief engineer) and André Gauchat, (the assistant manager) assured me that some changes were on the way. One possible change will be the synchronising of the two 24-track machines, but as the Neve desk is only 32 inputs, this is likely to be in a two 16-track format. There is also some Necam talk in the air and the acquisition of

more up-to-date toys. I will be keeping *Studio Sound* informed with the new developments when they come into being so watch this space!

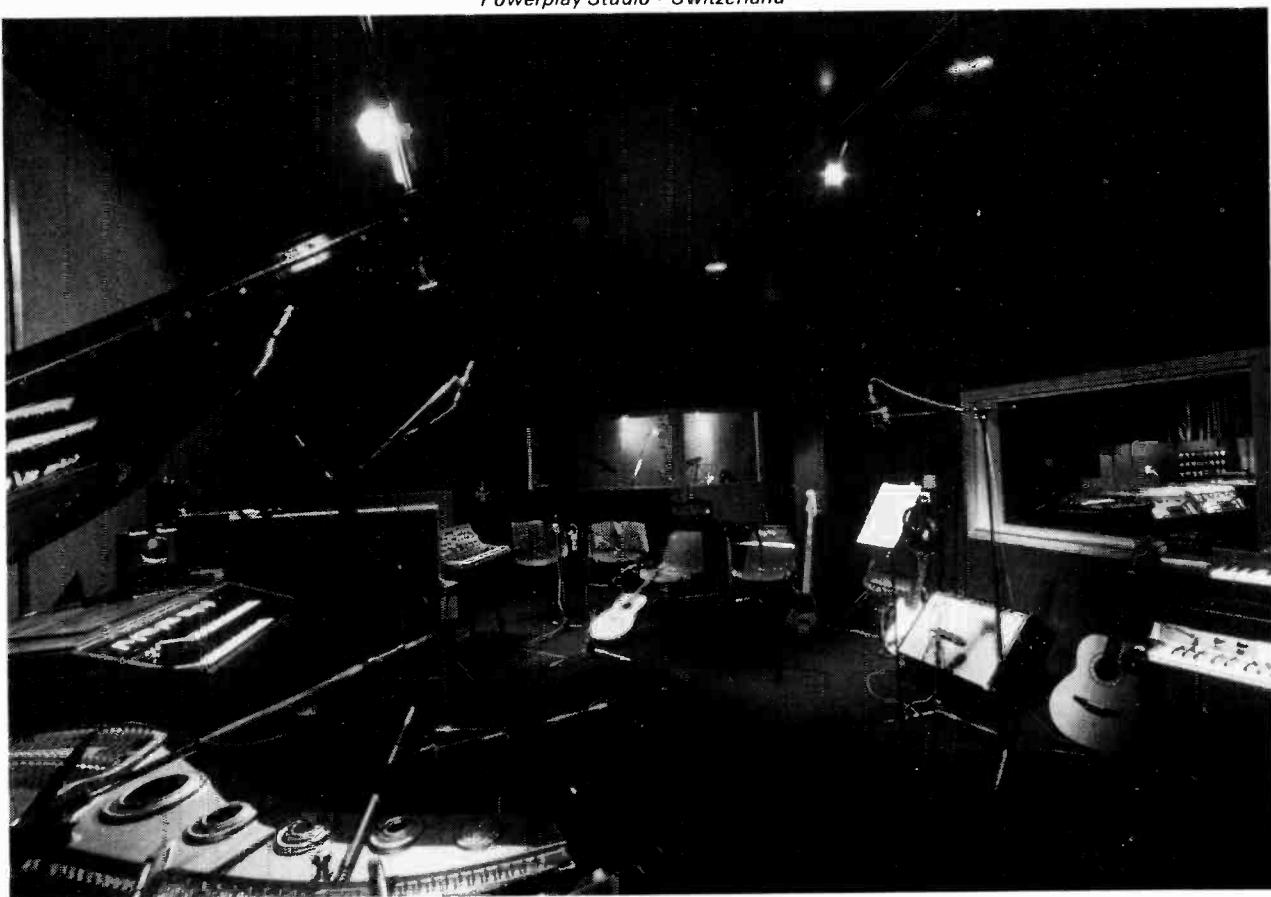
Geneva, at the other end of the lake, will have two 24-track studios in operation by the end of August, Aquarius now in its new premises, and a new studio nearing completion which has yet to be officially named for M Records. At the moment, Aquarius with its 2,000 sq ft studio must be one of, if not the, largest self-contained recording centre in Switzerland and is principally known for its connection with Patrick Moraz. At the moment the studio consists of control room and main studio but a re-mix room is under construction and scheduled for completion by the end of August. Aquarius also does a lot of work for the Swiss offices of large international record companies, as well as co-productions, and also hopes to foster interest among the local talent. Geneva also has two 8-track studios, Art Studio which specialises more in modern experimental music and filmwork, and THC which is the local Teac-Tascam-Itam studio putting recording within reach of the more impoverished musicians! Montreux and Geneva being the principal recording centres for French Switzerland, Lausanne comes up for second place. A former 8-track Tascam studio, Prisme, has recently gone 16-track (and will be 24 just as soon as they replace the worn 24-track headblocks) as well as being in the process of moving to large premises. To keep the local musicians happy a new Tascam studio will be opening shortly. Projected new studios include a small 16-track "in the country" near to Lausanne to be opened around the New Year - just as soon as they can get their guarantees for the bank together! (and not unconnected with the writer, Ed).

Lost in the wilds of Valais are JOP studios, a Teac-Tascam setup who seem to specialise in package deals - recording and records -

Switzerland



Powerplay Studio – Switzerland



for local artistes and choral societies and the like. Formerly 8-track, my latest information is that they have acquired two Tascam 16-track machines which seems a strange move as it condemns them to in-house work only. So much for French speaking Switzerland.

Moving into the German speaking part of Switzerland, we also move into the land of automation, the two most well known studios, Sinus at Bern and Powerplay at Horgen, both installing MCI packages with computer. Both these studios obviously felt the need was there to make the change from 16 to 24-track and

the contrary, they fill the gap left by studios updating and putting themselves temporarily out of reach of former clients on restricted budgets.

Though I will no doubt be accused of chauvinism, most of the studios mentioned are British run or have English engineers and it must surely be only a matter of time before a club of expatriate engineers is formed! The positive side to this is that there is a genuine desire to get things moving and inject a bit of life into the Swiss recording and music business in general. The general feeling is that

one hears in and out of the studios is of the lack of competent producers in Switzerland. Most of the major international record companies have offices in the country, but often these are little more than just that – representing the company for visiting artistes or passing on tapes to the larger main offices in France, Germany, etc. Very little homegrown production is done and it is in this field that there is a lot of room for expansion. Certainly, local market records are made – either for the French, German or Italian speaking cantons – and these form the staple diet of most of the studios; however, the producing is done by the same handful of faces most of the time. Many of these productions are done on a 'dish it out' basis and very little time is spent on the finer aspects of recording or experimentation. '15 minutes to get the drum sound right' is a current experience for studios and any time spent over that is considered a waste and would seem to indicate a lack of competence on the part of the engineer. Well, given a well-tuned kit, good drum booth and the minimum of mics plus a good drummer, this should seem quite feasible; however, when our 'producer' has seen a photo in the latest music magazine showing a drumkit festooned with mics and stands and read that multitrack is the way to go, problems can start to set in. It is probably



Kritz International – Switzerland

that subsequent business has warranted the investment. As well as installing new equipment, Powerplay intend to build an Eastlake designed studio around the end of the year and are awaiting confirmation upon the availability of their new premises. Zurich also has two 16-track studios, Phonag Tonstudio and the specialist Studio for Electronic Music run by electronic music and synthesiser wizard, Bruno Spoerri. Again, Bruno is in the process of completely updating his studio which will be 24-track by the end of September. It is worth mentioning that this latter studio is semi-private as it is mainly used for Spoerri's electronic music realisations though quite a bit of work is done for commercials and films, including special effects. On the new studio front the latest to emerge is Platinum One near Baden. Opened on July 1, this is a 24-track MCI equipped studio, complete with automation, and aimed at the international market. As well as these 24-track studios, there are 16-track studios at St. Gallen and Basle, as well as one 16-track in the Tessin at Lugano. The Teac-Tascam invasion already seems to have started but not enough to worry the established studios. On

it is necessary to co-operate in publicising the fact that Switzerland offers a lot to foreign artistes as a whole, both in terms of recording facilities and relaxing surroundings, and that once the clients start coming, there will be enough of the cake for everybody. The other effect of this should be to develop the home situation and encourage local talent to develop alongside an expanding music market. One of the most common complaints

for this reason that more studios here *per se* have a house kit permanently installed and mixed up in order to gain time. The general attitude often seems to be spend the minimum of time possible recording, sort it out at the mixdown if there are any problems (!) and bung it out onto the market. If it doesn't sell well it's "Well, lads, didn't do too well this time so better have another look at that contract!"

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Special Issue

It is possibly as a counter-reaction against our would-be producer friends that it is now quite common for studios to do co-productions, where the artist or group supplies the music and the studio its facilities with a fifty/fifty split on the proceeds should the venture become successful. This way down time can be put to good use allowing studios to experiment without disagreeable pressures breathing down their necks and local musicians have the opportunity to get into the studios if their music holds promise without robbing a bank to pay for studio time. Though mostly on a local basis so far, several of these productions have been quite successful and it does make for the possibility of the record being taken up by one of the larger companies. The other positive side of this state of affairs is that the studios become far more capable of delivering the kind of sounds demanded by real producers and record companies, thus paving the way for a larger clientele. This has been reflected especially in the studios in the German speaking cantons such as Sinus or Powerplay who have made the move to 24-track and automation. As well as productions being made in Switzerland that would otherwise have been made elsewhere, clients are now coming in from Germany and Austria. Though much of this work is still mainly for the German speaking market, a start has been made on making inroads into the international scene. Similarly, for the French speaking side, artists are coming in from France where before Paris was the place to go. Though the flow is still small, if producers can be persuaded that it is to their advantage to come to Geneva or Lausanne instead of getting caught up in the hustle and bustle of Paris, not to mention the high prices, then the market potential could be quite large.

Another development that is possible is that musicians from the other side of the Atlantic may form a considerable part of a new clientele. Because of its central position and tranquillity, touring musicians have often expressed a desire to stop and lay down some tracks – especially if the tour is going well and the inspiration is flowing. With New York and Los Angeles studio rates not being exactly cheap, these desires risk to become the reality and Switzerland may find an hitherto unsuspected market with the U.S. musicians, even to the point of them finding more advantages to come here for combined holiday and recording sessions! With all these possibilities in mind it is up to the Swiss studios to play their cards right and expose the advantages of recording here to the mutual benefit of everybody in order that the possibilities become realities.

Moving onto broadcasting, owing to the tri-lingual situation existing in Switzerland, the Swiss Radio Society or SSR is split into

three channels, each one catering for a different language. In the case of the French speaking cantons, this means a potential audience of about 1,000,000, less for the Italian part with the remainder and largest part being the German side. Considering the smallness of the populations relative to say, England or France, and thus the limits this imposes on the revenues in the form of radio and TV licences, the SSR produces a creditable variety of programmes to a high standard. Technically there is little to reproach on the production side which compares more than favourably with foreign programmes that can also be picked up in Switzerland. In addition to licence revenue each TV channel earns extra revenue from the limited amount of commercials that it screens. These are at the beginning of the evening and between programmes, never during, thus avoiding the irritation that comes from one's concentration being broken in the middle of a programme in order to extol the virtues of Sudso! In addition to the TV, there are the two radio channels, one specialising in 'serious' music and dramatic productions while the other features music, interviews, news and variety. Most of the radio programme content is homegrown whereas the TV features a fair amount of foreign programmes and series from diverse countries such as France, Britain, USA, Germany as well as the co-productions made with other TV companies. The main studios are based in Geneva, Zurich and Lugano depending on the language.

The biggest single live music event of the year is of course the Montreux Jazz Festival which unites internationally known names – as well as new discoveries – from all over the world and needs no further introduction. Classical music is not ignored either and both Montreux and Lausanne have important music festivals covering large orchestras to chamber groups, as well as soloists and opera. This is not only restricted to these two places and most of the major towns and cities in Switzerland have their annual music festivals. For rock and pop music, the festival of Lenzburg is an important event and though primarily intended for Swiss names has started to extend its programme recently to international names. The Nyon Folk Festival is also growing in importance and this year saw such names as Ry Cooder and Fairport Convention. Earlier this year we had the New Morning Blues Festival at Meyrin-Geneva and this should now become an annual event, the promoters having been greatly encouraged by the public's response which showed that there was an audience for these kind of concerts.

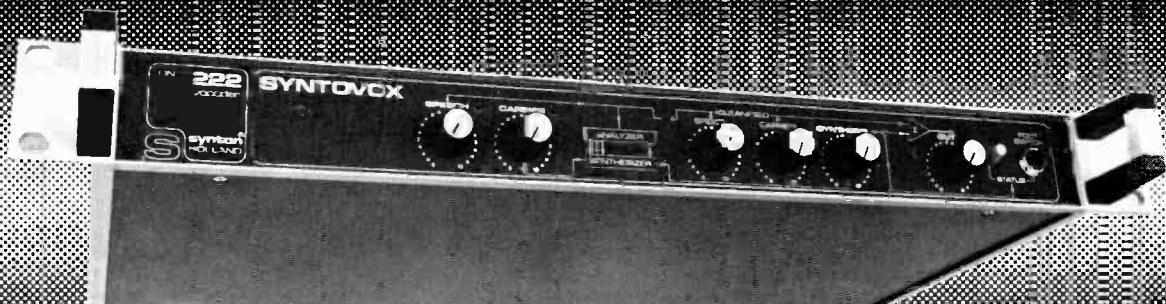
For the touring groups the main centres are Zurich and Bern followed by Geneva and Winterthur though occasionally Lausanne

plays host as well. Since the burning of the old Casino at Montreux – immortalised by Deep Purple with *Smoke on the Water* – rock concerts have virtually ceased in this once major port of call for European tours, a point bemoaned by music fans in the French Swiss regions who now have to make the pilgrimage more often than not to Zurich. On a much smaller scale, the local music scene is starting to show some encouraging signs and certain pubs (or *bistros!*) with small halls are letting local groups in to play concerts. Though the musical side of things is more developed in German Switzerland, the public being more receptive to the idea of live music for music's sake, with the opening of places such as the New Morning at Geneva and the increase in local concerts given by groups who want to get out into the public eye – and ear – the situation would appear to be getting a bit more healthy. The big question at the moment is whether there is a real awakening of the Swiss music scene that will lead to something worthwhile, or if it is just a passing fancy. It is to be hoped that it will be the former.

No piece on Switzerland would be complete without some mention of the world famous equipment manufacturers based here. The name of the country alone conjures up Studer, Nagra (Kudelski) and Stellavox for audio people while those in the film industry will be equally at home with Perfectone and Sondor film recorders. Hi-fi enthusiasts – and studios – will also be equally familiar with Revox and Thorens. All of these firms are in a more than healthy state and you had better not be in a hurry if you want to order an *A800* or *A80* master recorder from Studer! In fact this sort of situation can be worrying to a certain extent for the manufacturers in that their high quality construction methods do take time and that off-the-shelf business is the exception rather than the rule and that some potential customers will buy elsewhere rather than wait. However, the demand would seem to indicate that not everybody is in a hurry! Though not a Swiss originating company, mention should also be made of Electro-Voice SA which is the Swiss run and staffed factory, and European head office for the American company. Starting from very humble beginnings – Larry Frandsen's flat! – the firm now has modern offices and factory space sufficient to deal with an ever increasing demand, even though some of the products they just can't get out fast enough.

Switzerland – a small country internationally known for the excellence of its professional audio products but probably down on the list as a thriving recording centre. The next six months or so will no doubt clarify the situation as to whether the signs of a possible emergence into the international studio fraternity will come to fruition. As they say in the newspapers, watch this space. ■

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Special Issue

Malcolm Addey, who first joined EMI Abbey Road Studios in 1958, and produced a string of hits during the Sixties before moving to New York in 1968, and who is now a freelance engineer and producer specialising in jazz, takes a critical look at the United States record market, and does not hold high hopes for new developments.

THE record industry in the United States is a \$4 billion-a-year business that has enjoyed the sort of growth that could only lull its executives into a sense of security the envy of their counterparts in, say, Detroit's automobile empire. Recent reports in the press, however, have made the entire American music business sit up and take stock of itself. Earlier this year we were being told how business had never been better and was growing steadily (the kind of copy stockholders like to read) but now two respected lay-journals proclaim a slump in the record industry, the first such report in 25 years! Even if 'slump' may be journalistic scare mongering it would be well for us to pay heed to any downward trend in record sales, and consider its impact on the recording studio industry.

The warning signs that all is not well stem from reports of reduced sales, marked increases of returns of unsold records by retailers and fairly substantial staff reductions and management shuffles. Other documented evidence includes a reduction in sales of stereo equipment for home use and even a fall-off of pop music concert attendance. Of course there are other peripheral causes worthy of speculation. The American teenager, still the majority of the record-buying public, is not only suffering from rising

United States



Below: Jack Clement's Recording Studio A, Tennessee and above speaks for itself



unemployment but has to spend much more on gasoline (petrol) than six months ago and, therefore, less cash is available for entertainment of any kind. But whatever the causes may be, there is no escaping the fact that as such a large proportion of the world's recording occurs in the United States, any policy changes due to an economic upheaval will inevitably lead to repercussions in other nations with substantial music industries.

We, of course, are primarily concerned here with the effect on professional sound recording. Let us be careful not to fall into the trap of thinking that only studios that rate the headlines are the bulk of the industry. On the contrary, they are distinctly in the minority. But their voices are powerful and consideration will be given later to the enormity of the responsibility that accompanies that power, but first a look into recent record company policies is necessary.

Competition between some major labels during the acquisition of certain big name acts led to deals being created by lawyers and agents that have ended up becoming accountancy disasters. Some of these artists have more prestige value than sales potential

and could never earn back the millions of dollars it took to buy their signatures. Even with the profitable artists, A&R executives, through either ineptness or an over anxiousness to not rock the boat, have allowed recording costs, through lack of supervision, to reach absurd levels. Perhaps we have inadvertently created our own monster – the technique of multiple track recording has turned out to be the artists' tool of self-indulgence, encouraging the fostering of their insecurities. This is particularly so when artists are permitted to produce themselves – a situation that by its very nature does not encourage objectivity, let alone productivity.

This concentration of often wasteful expenditure on a few big names can only cause a situation to occur depriving less 'super' acts and new talent their fair slice of the recording budget cake, which means, for the most part, studio costs. Superstars with superbudgets recording at superstudios charging superates! One New York studio has just arrived at a base hourly rate of \$230. But in fairness to high-priced studios, overheads are phenomenal when providing the kind of service, equipment and personnel that is demanded and must constantly be available – usually around the clock. We must not forget either the impressionable producers out there with dangerously little technical knowledge eager to have available every piece of equipment they read about in the professional, semi-professional and quasi-professional technical journals, whether appropriate to their needs or not.

No doubt record playing equipment manufacturers are hoping that similar forces are at work hyping the general public into believing that there is a revolutionary new reproduction device around the corner. Even if manufacturers were to stop elbowing each other aside to push their latest and greatest idea forward and were to produce as standard, as convenient, and as cheap a new device as the present vinyl disc, it is very doubtful the public would be interested in spending money on new hardware at this time. If the industry is suffering from a depression, surely it is the artistic content that is lacking, not the medium! The dreamers among us are reminded of the quadraphonic fiasco!

A sense of good timing is considered to be a performer's great asset. Timing is of the essence! This is no less true when technical decisions have to be made, especially decisions involving hundreds of thousands of dollars. That we have arrived at a technological crossroads is a subject that is on every studio manager and owner's mind. In many cases it is causing great anxiety and well it might – for it is the pending emergence of digital recording that is to blame. Digital recording in itself (or any other technological advancement) will not make more records into hits. It will, however, make hits more expensive to make and therefore less profitable. So if we accept the premise that cut-backs will be made as part of the

measures taken to remedy an industry in recession, this does not seem like a good time to increase studio costs.

The right time to invest?

Bearing in mind the unquestionably better technical specifications of digital recorders – given the establishment of standards allowing compatibility and interchangeability of tapes – even a price similar to that of analogue machines, it is still doubtful that the investment is warranted right now. The end-product is still a vinyl pressing of generally mediocre quality and narrow dynamic range (with the exception of classical recording and a few others). A deliberate and necessary restricted dynamic range, I might add, as few of us live in sufficient isolation from our neighbours to enjoy a 90dB dynamic range! And since mankind's amazing discovery that oil is a finite substance on this planet, the vinyl situation is likely to get worse rather than better. As the manager of a famous British studio once said after hearing his first digital tape machine, "When was the last time you heard tape hiss and wow and flutter on a record, anyway?"

The current economic climate dictates that much mature thinking and responsible decision-making is needed in the selection of new equipment and adoption of new techniques. The recent announcement of the formation of a new organisation, the Society of Professional Audio Recording Studios,

may herald hope and guidance. Annual membership costs \$2,000 so clearly the exclusion of less than upper bracket studios is assured. Among other qualifications member studios must have at least two 24-track rooms and have been in business for two years or more. Manufacturers are specifically excluded which suggests at least an intention of independence. The Society's aim is "the establishment of a code enumerating professional standards of quality and expertise, and dedication to the advancement of engineering hardware and recording techniques."

Returning to the industry as a whole, one wonders how the moguls will respond to this change of economic direction. One thing is certain and that is they will act quickly and probably dramatically in the best American business tradition.

We were in grave danger of imitating Motion Pictures: an industry that 'grew' from producing hundreds of features a year to the mere handful of mainly blockbuster films made today. Films requiring such huge budgets that they become financially 'safe' packages, assembled by lawyers who know the conservative tastes of financial backers, rather than pieces of entertainment.

The American musical scene is exciting and virile because of its diversity and hopefully all branches of the industry will work together selflessly as equal partners to keep it so.



The Model 4240 Active Equalizer is a hybrid of ONE-SIXTH octave filters, which are concentrated in the *speech intelligibility* region between 250 and 2000 Hz, and broader bandwidth filters on either end. The intended application of the Model 4240 is the equalization of sound reinforcement systems employing *voice* as the main program material as in corporate boardrooms, meeting halls, legislative chambers and courtrooms.

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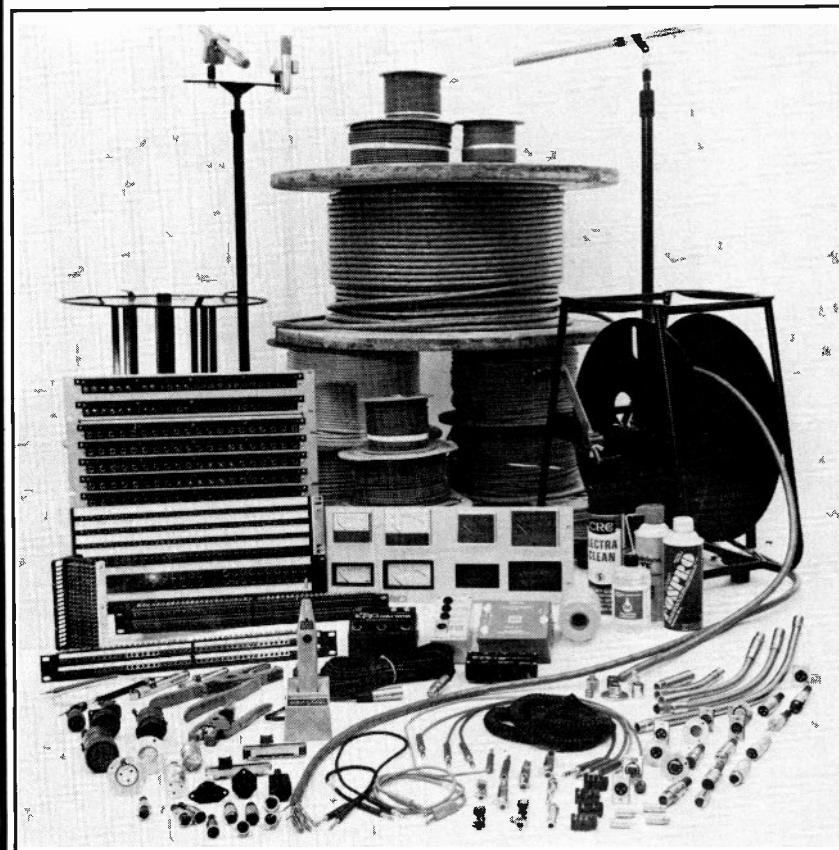
For the first time, we present an index to coverage of studios in *Studio Sound* over the past four years. Over these years, studios have been mentioned in a variety of different forms, earlier in Work, then short items in News, and currently in Studio Diary. We have indicated how long a mention each specific studio had, so that you can distinguish the 'meatier' articles. The current practice is for studios to receive a maximum of one page, since this enables us to cover many more in depth, than when we devoted two or three pages to a particular studio. We have a limited number of back copies at 75p each, or we can provide photo copies of particular articles for 30p.

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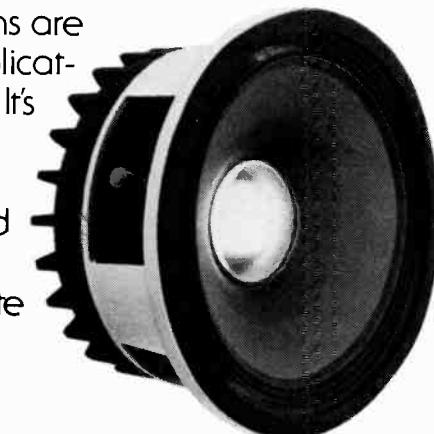
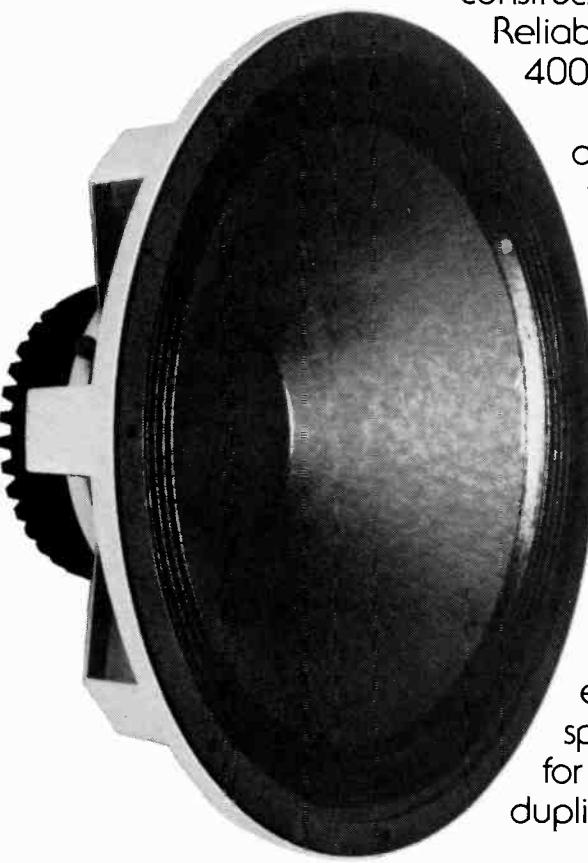
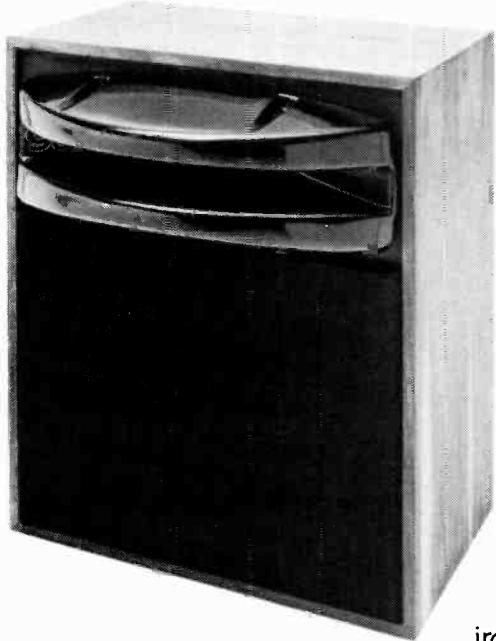
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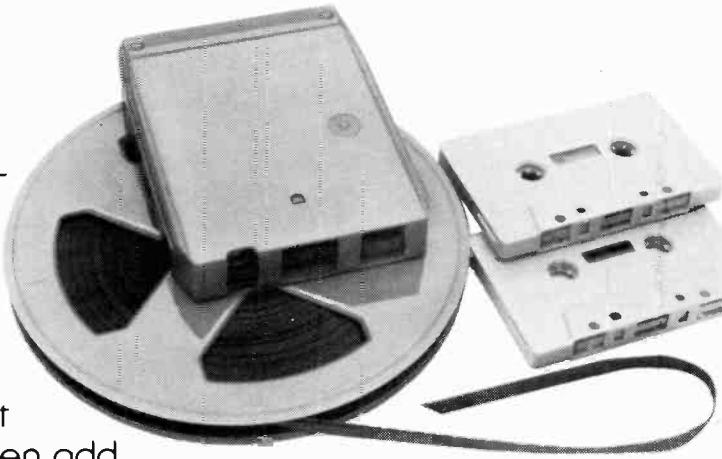
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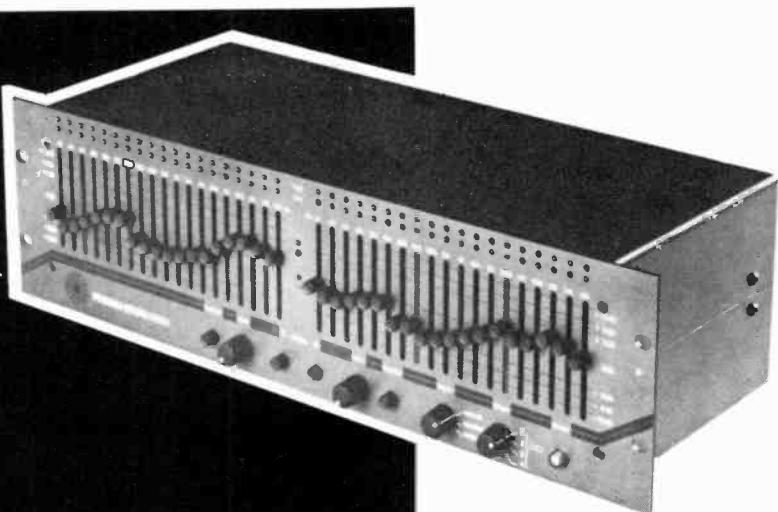
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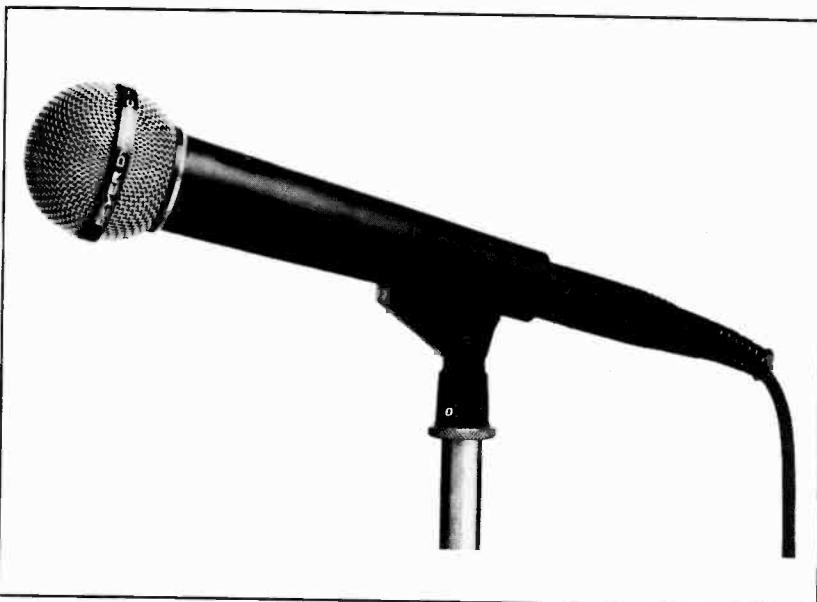
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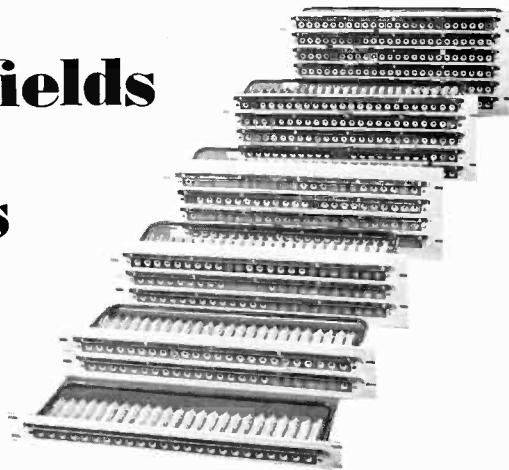
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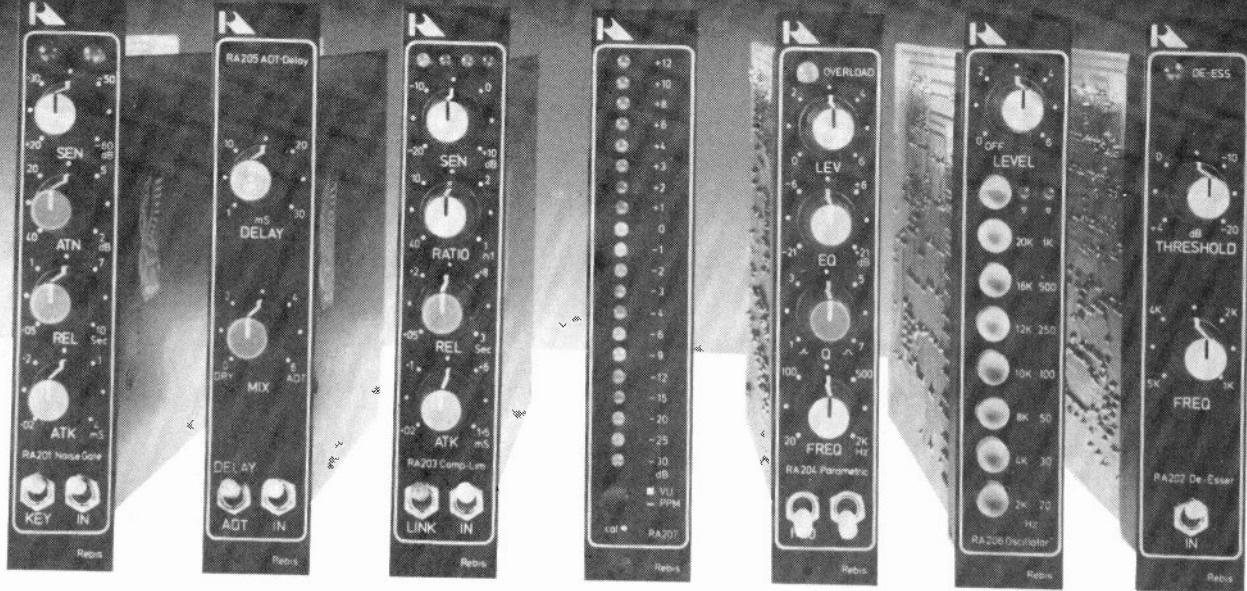


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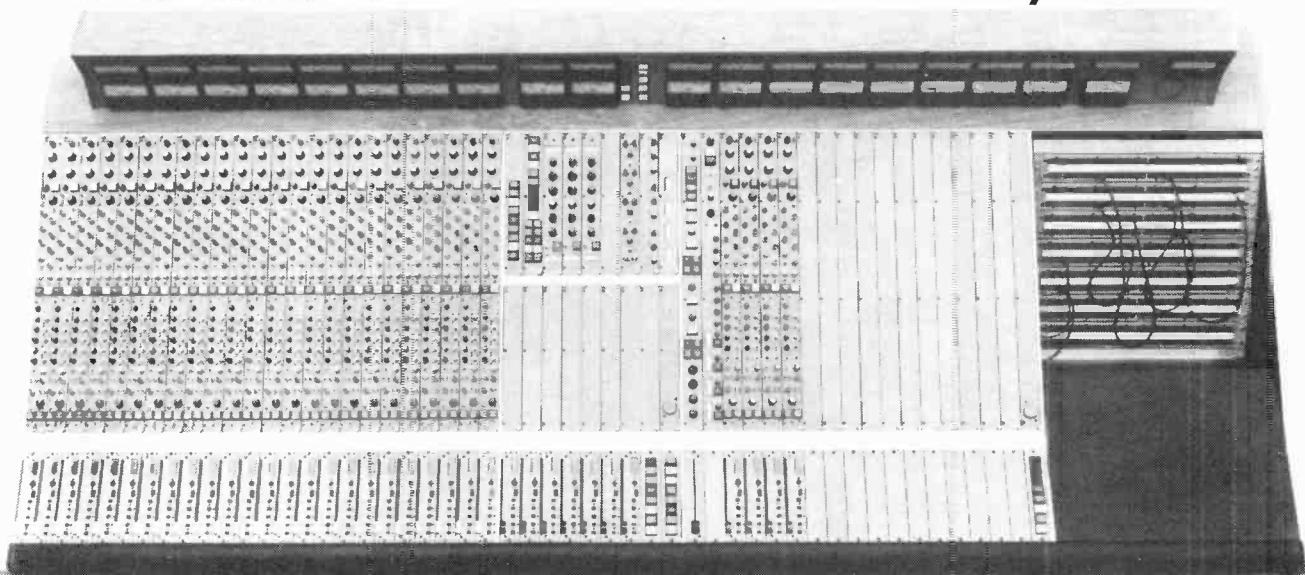


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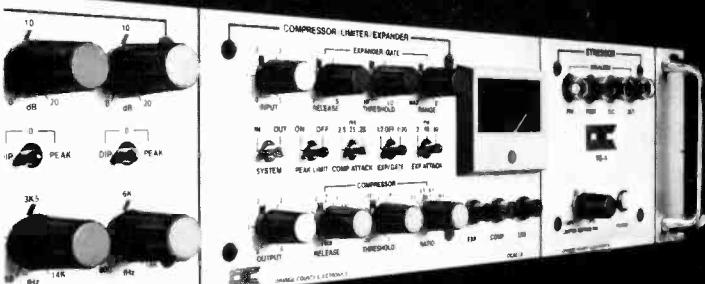
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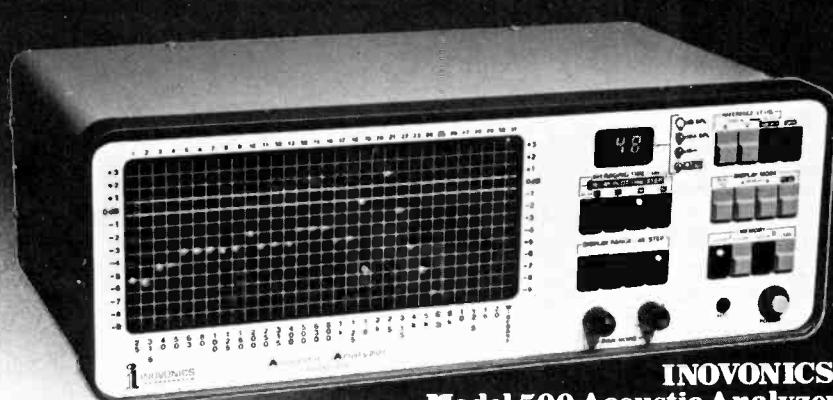


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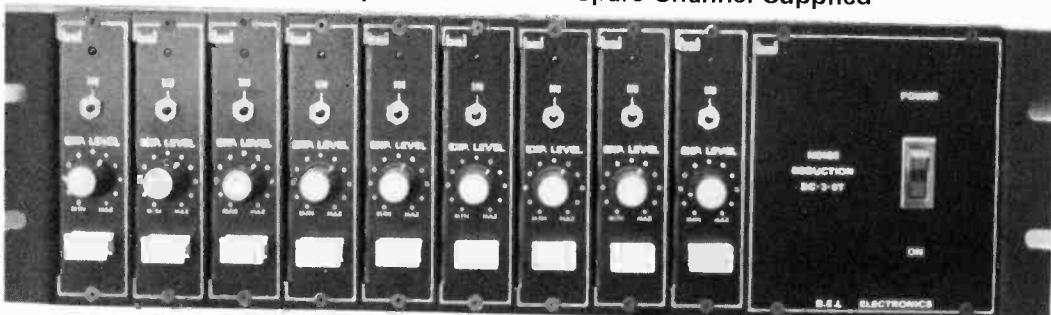
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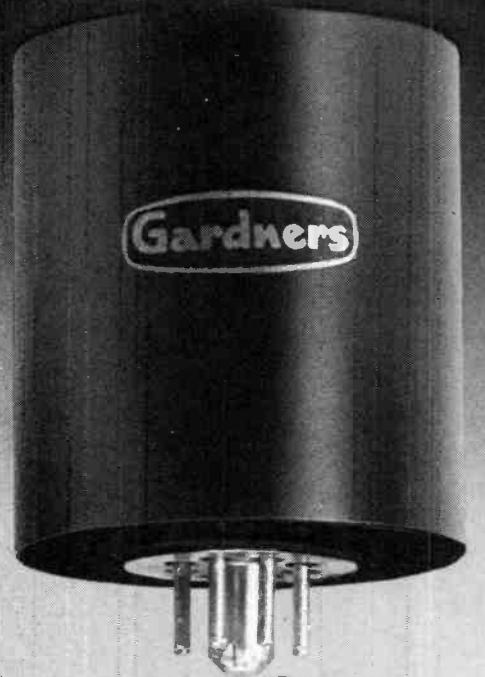
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Let's Talk About AUTO-SET

Auto-Set is a complete self-contained automation programmer made by Harrison Systems. It is specifically designed to interface with all Harrison consoles ever built. Interface is quick and simple through the use of multipin connectors.

Auto-Set is a simple piece of equipment to operate. It can operate as simply and with as little facility as the other available automation systems. All that is required is the pressing of one button.

Auto-Set can also be a very powerful tool to the experienced operator, and that experience can be had very easily. The Auto-Set commands have been written in such a way that an inexperienced operator can gain operating expertise in small steps. There is no need to know the complete instruction set in the beginning as features can be learned one at a time.

WHY DOES AUTO-SET LOOK LIKE A COMPUTER?

Because it is a computer. Auto-Set contains two Z-80 microprocessors operating under firmware control to make your life easier and your final product better. There is no need for you to be a computer programmer as all programs are supplied, safely locked away in non-volatile memory.

HOW DOES AUTO-SET STORE DATA?

It can store data in two different ways because Auto-Set is in reality two separate automation programmers living in one box.

Normal Automation Data is stored on a standard studio tape machine. This is a very good way to store automation data as it is not necessary to purchase

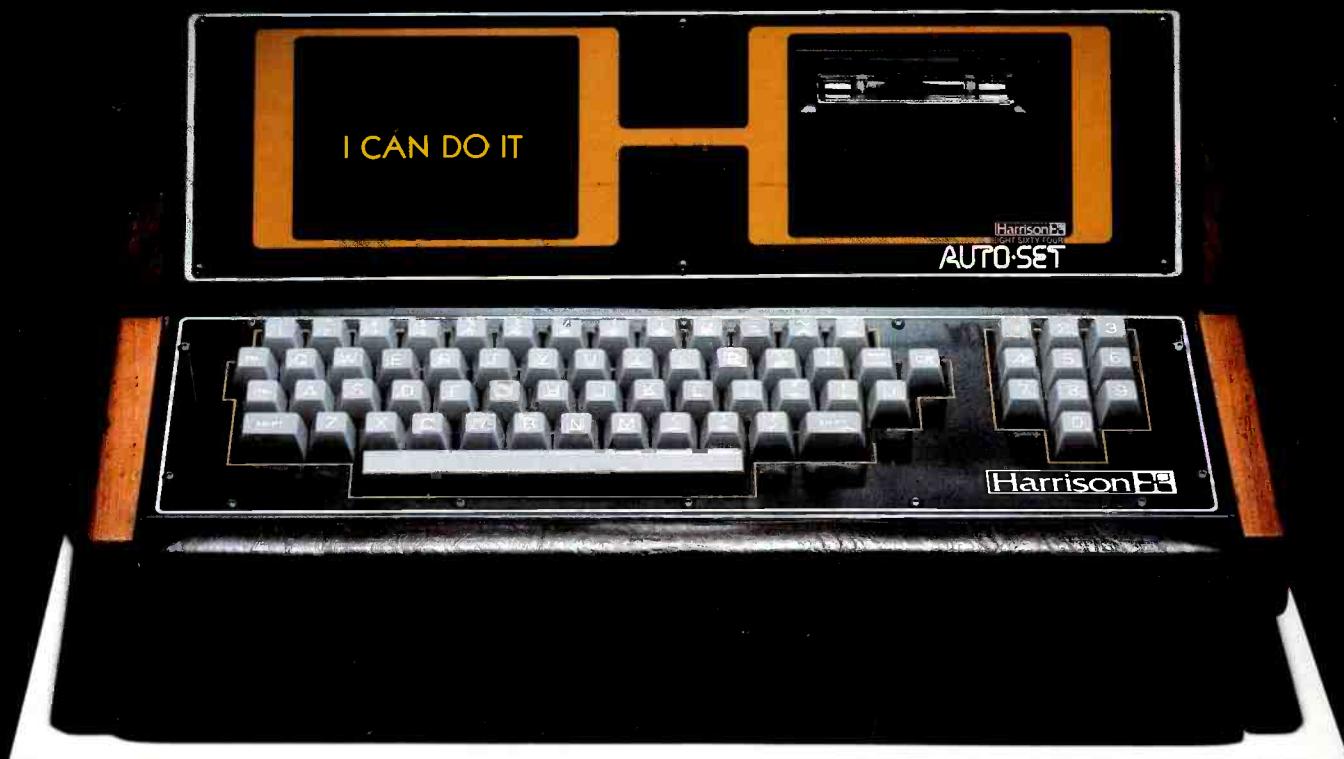
an expensive mass storage device and a time code system. Also, you never run out of data storage space as the data space increases with the length of material to be mixed.

Auto-Set allows the storage of four separate and independent mixes on one channel of a standard audio tape machine. Two channels of a machine must be allocated to automation for bouncing the data back and forth as a mix is built. Auto-Set allows you to independently select any one of the four mixes for each console fader. This selection process can be repeated 10 times for different parts of a mix and the selections recalled sequentially in a real time as the final mix is recorded.

Pre-Set Automation data is stored on special certified data cartridges which plug into the front of the Auto-Set. Preset automation is a totally different way of storing automation data. The previously described dynamic automation stores continuous changes in real time. Preset automation stores "snapshot" mixes only when you press a button, up to 630 of them on one data cartridge. Likewise, when you are ready to use the "snapshot" mixes they can be recalled one at a time with the simple push of a button.

The uses of preset automation are many and varied. It can be used for direct to disc recording using mixes taken in rehearsal and recalled by the mixer as needed. Also, it can be used in broadcast, live performance, theatre, or any other application where mixing is not from a prerecorded multitrack.

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