

INTERNATIONAL Musician AND RECORDING WORLD

OCTOBER 1979 60p

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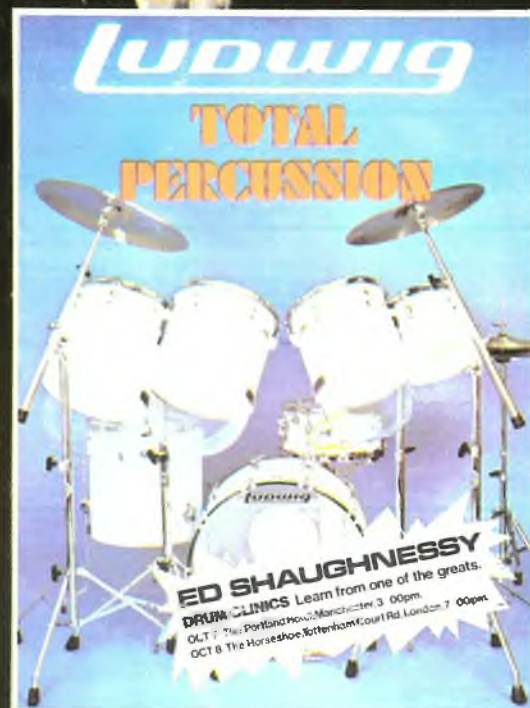
**Stanley
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Mick Taylor ★ Grover Washington

Albert Lee ★ Gary Boyle

IN THE STUDIO
Jimmy Iovine ★ Recording Synths

TESTS: MUGEN JUMBO • YAMAHA CS40M SYNTH •
SISME 448P ORGAN • DARBY DAV 100M COMBO •
PA:CE MOS -FET SR402 POWER AMP • LUDWIG
DRUM KIT • MICROPHONES PART 1
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THE KEY THREE

The Jupiter-4, the RS-505 and the MP-600; three outstanding keyboards from Roland.

The Jupiter-4 is a four voice polyphonic synthesizer with built-in computer memory. Eight different sounds can be "patched up" before a performance and held ready for instant re-call. In addition the Jupiter-4 offers an unlimited variety of programmable sounds, 10 pre-set sounds and special features such as an "Auto-Arpeggio" make you feel like you've got three hands. The Jupiter-4 interfaces happily with most modern synth equipment and full line in/out and remote control facilities are included.

The RS-505 is a paraphonic string machine offering unbelievably realistic string sounds with the range of a symphony orchestra. The three sections of the RS-505—strings, synth and bass, can be played either separately or together. Three modes of pitch shift are available: manual, automatic and pedal and a pitch slider is located on the front panel for convenience. A 49 key six octave keyboard allows full technique to be employed.

The MP 600 has proved to be the ideal piano for live performances. The 64-note keyboard has a weight-balanced action and a built-in graphic equaliser allows the player complete control over sound shaping. A damper pedal provides realistic control over sustain. See the Key Three at your Roland dealer now.



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stroke our necks

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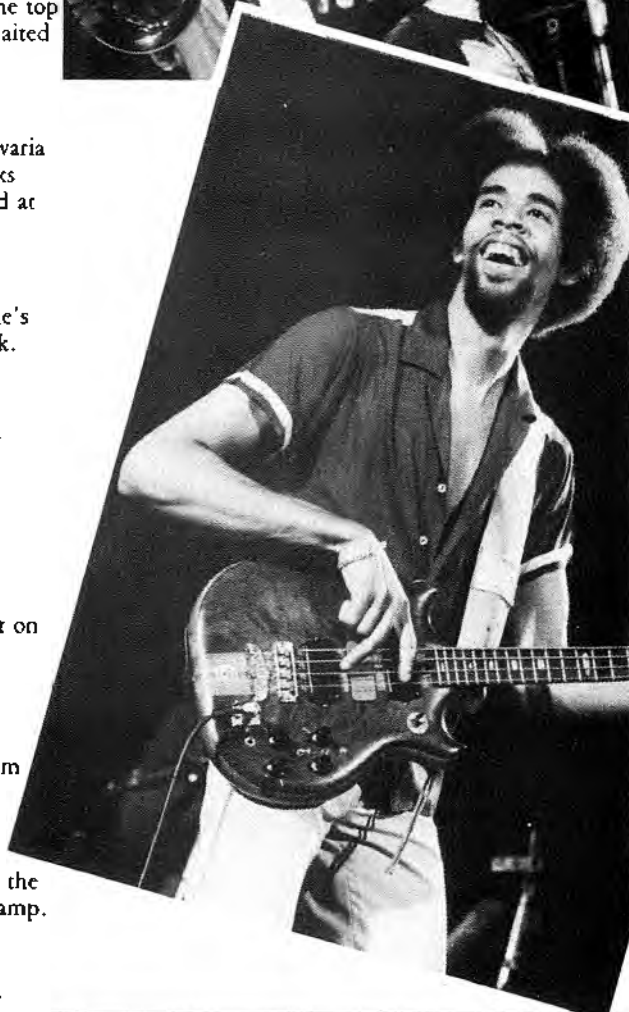
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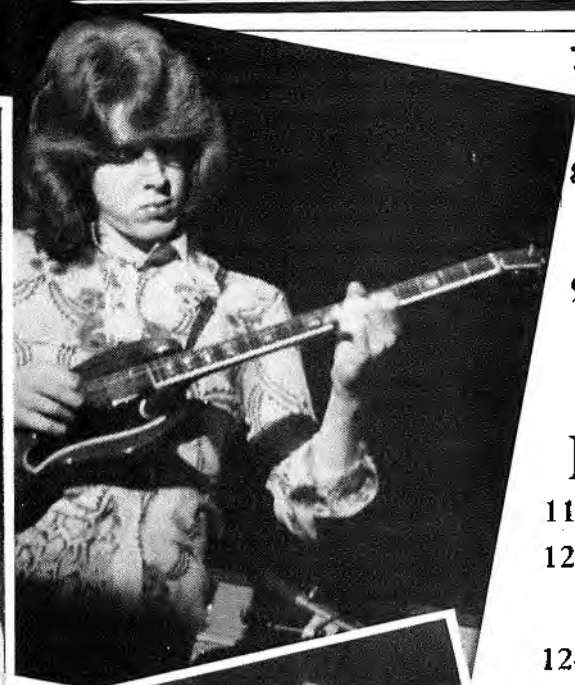
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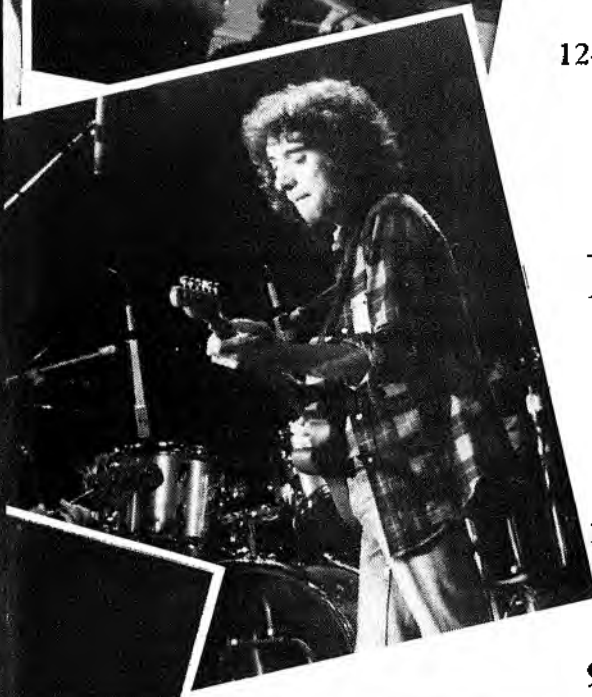
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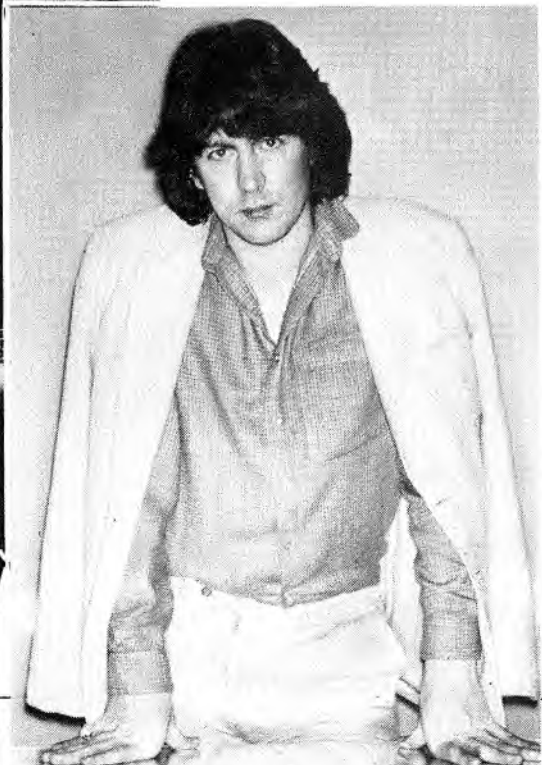
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EDITORIAL

It's a common complaint, not only in the music business, that everything is centred around London, and the rest of the country — including dealers, manufacturers and the public — never get a fair crack of the whip.

However, the balance will be somewhat restored this month, when, following in the wake of the hugely successful Olympia Live Music Show, the North holds its own exhibition at Belle Vue, Manchester. As with the London show, both the public and trade will be admitted and it is hoped that the occasion will be met with the same amount of support and success.

All the top manufacturers will be there, and live music will form the backbone of the show. As usual the IM stand will be at the centre of things offering everything from advice to orange juice. Make sure you stop by and check us out.

It will not have escaped the eagle-eyed among you that the cover price has increased from 50 pence to 60 pence. It is regrettable, but when you consider that our last increase was in March 1978, you will appreciate that this is by no means extravagant in these inflation ridden times.

To soften the blow we have a PA competition this month in which we give away thousands of pounds worth of top quality equipment. You can also be assured that the quality of the magazine will continue to rise, bringing you outstanding interviews, such as the one this month with Stanley Clarke, and the instrument and equipment reviews which are second to none. Overall I think you will agree that we still give great value for money.



VOL. 6 NO. 10
OCTOBER 1979 (UK)
NOVEMBER 1979 (USA)

UK. ARP TOUR

with

MIKE BRIGIDA

A graduate of the Boston Conservatory of Music, Mike Brigida has worked with ARP synthesisers since 1971, demonstrating their incredible powers to musicians and concert audiences around the world.

Mike travels more than 100,000 miles a year to perform clinics and workshops in schools and music stores across the U.S. and Canada. In addition, he works closely with ARP's engineering team on the development of new technology for musicians.



BILL SINGER

Born in Bedford, England, and raised in Washington, D.C., Bill Singer first plucked a guitar in 1962. By 1964 he was working professional gigs and eventually found himself playing studio sessions and backing up concert acts like the Righteous Brothers and Fats Domino.

This year, Bill personally instructed more than 150 retail salesmen on how to demonstrate the Avatar by means of regional guitar synthesiser training sessions sponsored by ARP.

featuring

the ARP AVATAR Guitar Synthesiser

the sensational ARP QUADRA

and

the new ARP QUARTET

Together with

the ARP Axxe, Odyssey, Omni, Pro DGX, '2600' and Sequencer.

LONDON SYNTI

22 Chalton Street (off Euston Road), London NW1. Tel. 01-387 7626/7449

“A synthesiser concert that will open your eyes, your ears, and your mind.”

—ROLLING STONE

TOUR DATES

TOWN	DATE	VENUE	STARTING TIME
NEWCASTLE:	Sunday, October 21st	Collinwood Suite Royal Station Hotel, Neville St., Newcastle-on-Tyne	7.30pm
GLASGOW:	Monday, October 22nd	Kintyre Suite, Central Hotel, Gordon Street, Glasgow	7.30pm
BIRMINGHAM:	Tuesday, October 23rd	Grosvenor Suite, Grand Hotel, Colmore Row, Birmingham	7.30pm
CARDIFF:	Wednesday, October 24th	The White Hall The Park Hotel, Park Place, Cardiff	7.30pm
MANCHESTER:	Thursday, October 25th	Ullswater Suite The Portland Hotel, 3-5 Portland St., Picadilly Gdns., Man. 1	7.30pm
PORTSMOUTH: (INSTEAD OF SOUTHAMPTON AS ON THE TICKET)	Friday, October 26th	Nelson Room, Portsmouth Centre Hotel, Pembroke Road, Portsmouth.	7.30pm
LONDON:	Saturday, October 27th	Society Suite, New Ambassadors Hotel Upper Woburn Place, London W.C.1	7.30pm

**FREE TICKET INSIDE THIS MAGAZINE
ALSO TICKETS AVAILABLE FREE AT VENUE
ON NIGHT OF PERFORMANCE. COME EARLY!!!**

SYNTHESISER CENTRE

58 Oldham Street (off Picadilly), Manchester. Tel. 061 236 6794

Letters

Missing Mutron?

Dear Sir: About four years ago, I purchased a small effects unit that went by the mysterious name of 'Mutron', — then new to the British market.

After spending a few weeks messing about with it, and attempting to utilise some of the many weird and wonderful sounds emitted from the said unit, I promptly sold it! I have not since heard of, or seen this unit anywhere at all, and am wondering if you can shed any light on the case of this missing effects pedal?

Thank you for a highly informative and immensely useful magazine.

*C. Stock,
Wilmiston, Cheshire.*

The company who made your effects unit is an American company called Mu-tron. As far as we know there is no distribution outlet for them in the UK but you could write direct to the company for details. This is the address:— Mu-tron Inc., 45 Hartwell Avenue, Lexington, Massachusetts 02173, U.S.A.



Ghana Musicians Benevolent Society

Dear Sir: Recently, musicians in Ghana have inaugurated the *Musician's Benevolent Society*. The aim of the Society is to raise funds towards rehabilitation of mentally-retarded and disabled patients who are themselves musicians.

Musicians gigging around here face 'strings and things' shortages, which we need for our various instruments to enable us to gig to raise money towards charitable services. The *Musician's Benevolent Society* therefore wants to appeal to all manufacturers, musicians, stars, bands and readers of *International Musician and Recording World* to come to the Society's aid (possibly by donating things like strings, plectrums, picks, jack plugs, strap, drumsticks and electrical accessories which the Society intends to sell to raise money towards rehabilitation).

The Society feels and thinks that musicians of the UK, USA, Europe and Africa have common aspirations, thus the Society would like to assure all would-be donors that donations would be greatly appreciated and put to proper use to help make the fund-raising programme a success.

We would like to thank *IM&RW* for the great work it is rendering to musicians all over the world through the magazine.

Long live *IM&RW*!

*Atta Solomon
(Secretary)
University of Ghana,
Legon, Accra,
Ghana.*

A Sound Career

Dear Sir: I am 17 and a half and have four 'O' levels and one A level. I am very interested in starting a career in sound

engineering, not on the technical side but in mixing etc and general sound production. I have a keen interest in music and play in a band.

I would be very grateful if you could give me any suggestions as to what I should do to pursue my ambition either in finding a job or studying further to gain qualifications. Also I would be very happy to find a job which included a day-release or sandwich course. I am sorry to trouble you but I am at a loss to know where to start.

*The Warren,
Rock Robin Hill,
Wadhurst, Sussex.*

Thank you for your letter. I am afraid there are a lot of people in your situation. First of all, as regards further education, there is really only one course available in this country and that is the Tonmeister



The Tonmeister course at Surrey University

course at the University of Surrey. This course trains people in recording engineering, acoustics etc. and is also a Music degree course. You may have read about the course in the May edition of IM. However, you have not got the required qualifications to gain university entrance — I don't know if you would be prepared to study for further A levels — but the entrance requirements for this course are extremely high since it is the only course of its kind, and only four or five students are accepted per year. As you may have gathered, this is not the normal way of going about learning the 'Studio Trade'. The normal way, I am afraid, is by starting at the very bottom. Most people start off as a tea-boy, just being around and learning about what goes on. You then graduate to being a tape-op, which can be boring, but you really have to earn your status! After a few years of tape-opping you will have learned a lot about engineering and will finally become an engineer yourself.

So far so good. Now here comes the bad news. Hundreds of people want to do what you want to. Studios receive literally hundreds of letters every week from people who are just begging to work for them. The most important thing you must put across when you write is that you are very, very keen, and you really don't mind where you start — even if you have to sweep the floors! It might be an idea to actually present yourself at the studio rather than simply write to them. Then at least they will know how keen you are. One advantage you have got is your age. Most studios prefer to take on young tape-ops because they are likely to be the most keen, and prepared to learn and not get bored.

Any knowledge you may have already of recording techniques would obviously be an advantage — so if there is anything, make sure you let the studios know about it. What I suggest you do for a start is go through the list of recording studios which you will find at the back of any issue of the magazine and write or visit Every Single One. But please be prepared for a lot of refusals. If you are keen, and if you really want to make your career in the recording world you should be able to keep on trying until you get what you want. It is one of the hardest fields to get into, but once you are there, it is worth everything. Good luck!

Costly Hazard

Dear Sir: I am the lead singer and guitarist of a rock band in Cambridge, called Hazard, and I would like to thank you for the best music magazine around.

I was reading the Editorial in a back issue, stating "all you out there, if you have something to shout about, shout about it in our Letters column." So here's some shouting. We all know how much a cassette costs, but multiply that by 100, add dubbing time, letters, envelopes,

stamps and biographies costs etc. and you have a large bill.

Why do record companies return unsigned photostats and only part-played tapes? It surprises me that they don't hear completely through what comes their way — individually on its own merit, because I would have thought *that* is where their future lies. Sometimes, you get the impression that only a tea boy may have heard it. Seriously, there must be many bands who, like us, want record companies to hear material and really 'listen and think' about it. Some companies, I

think, are 'strangling' music by not thinking of 'long term bands' and only of 'short term money-spinners' — still, that's not my job. Bands can't survive today without a record company's backing — 'a deal' — but if they don't *listen* and *think* carefully and sign or retain bands, their panel may miss a lot of good new music.

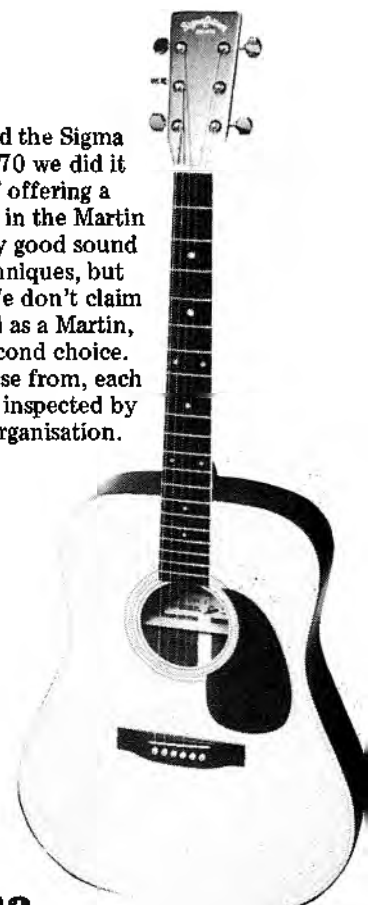
Maybe we should just resign ourselves to studio work and endless cassette and stamp bills.

Mick Venning,
Blenheim Cottage,
Pampisford, Cambridge.

Martin, the real thing.



Sigma, almost the real thing.



When we designed the Sigma guitar back in 1970 we did it with the idea of offering a quality instrument in the Martin tradition. Not only good sound construction techniques, but good sound too. We don't claim a Sigma is as good as a Martin, but it's a great second choice. 24 models to choose from, each one imported and inspected by the CF Martin Organisation.

Sigma,

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Box 8968, S-40274 GÖTEBURG, SWEDEN

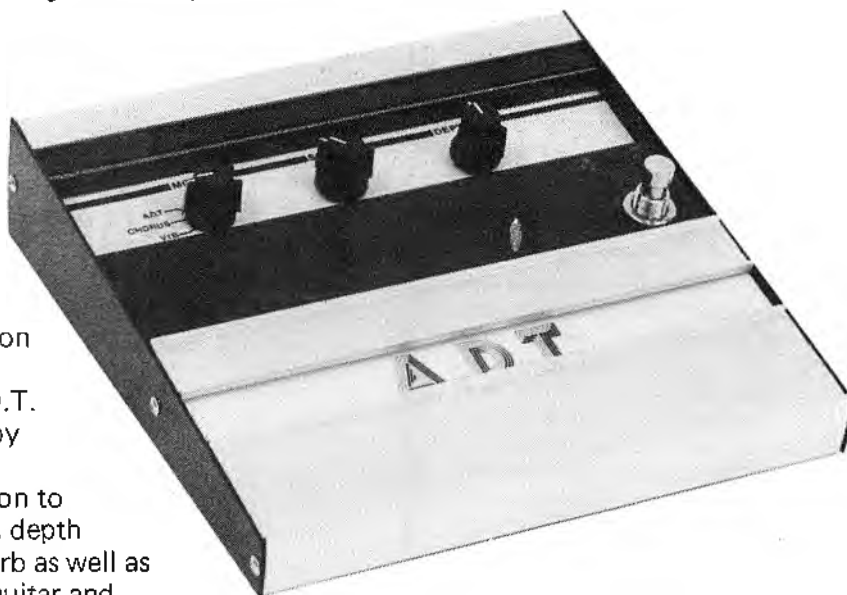
CARLSBRO

ADT & CHORUS EFFECTS

The CHORUS and ADT are the latest models in our superb range of effects pedals for Professional musicians. These units are mains powered and feature solid steel and aluminium cases with protected recessed panels plus high quality electronic components for guaranteed performance.

ADT

Double tracking is a studio recording technique used to give body and depth to a solo voice or instrument. The combination of two recordings of the same track with their natural variations in timing and pitch creates a deep rich sound. The difficulty is that the method is obviously impossible on a gig and this has led to a need for automatic double tracking. The Carlsbro A.D.T. simulates this natural random variation by changing pitch and delay characteristics electronically. It provides a unique solution to the problem of adding extra warmth and depth to your voice without using echo or reverb as well as being a superb sound effect for electric guitar and keyboards. The Carlsbro A.D.T also features built-in Chorus and Vibrator effects; controls for Mode, Speed and Depth; footswitchable effects on/off plus LED indicators for power and effects status.



CHORUS

Sounds a bit like Flanging, more like a 12-string guitar, something like a rotary speaker -- it is virtually impossible to describe this fabulous sound effect on paper. Why not call into your local Carlsbro dealer and try one? This mains powered unit features controls for Chorus or Vibrato Mode, Speed and Depth: two LED indicators for power and effects status plus footswitch selection of effects on/off.

Circle 779 on Reader Service Card

The little things that make Ludwig great.

Everyone knows Ludwig, and everyone knows that Ludwig means excellence. That gives them quite a reputation to live up to, and that's why they put the same meticulous care and attention into everything they make - from outfits to sticks. When you're looking for accessories large or small, don't settle for anything less than Ludwig. That way you'll know you're getting the best.

Supra-ponic 400 Snare Drum

These all-metal snare drums have long been the world's most popular drum, outselling all other makes and models.

The reason for this is obvious from the moment you first play one. You get instant response over the entire drum head, a vivid, crisp beat, a brilliant sound that stays choke-free at full volume, full power without distortion, full projection at all dynamics and increased stick rebound for fuller action with less effort.

And the sturdy, seamless shell construction means that you

keep on getting the same response as long as you keep playing.

If you want a snare drum that plays as well as you do, you need the Supraphonic 400.

Drum Stool 1020

This vinyl padded stool with its solid tripod base gives you safe, dependable support with greater portability and compactness.

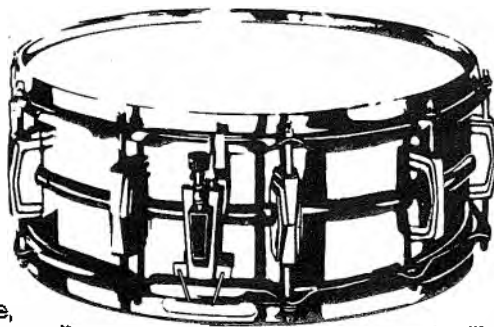


Speed King Pedal

Over 30 years of continual improvement have made the Speed King the most popular pedal available today.

The Speed King has a precision die-cast stand, footboard, rocker shaft, heel plate, skid proof rubber mat - and it's the **FIRST** pedal to feature twin compression springs completely enclosed in the pedal posts.

No wonder the Speed King is known as the Professional pedal.



New Tuneable Practice Pads 378 & 379

Practice makes perfect and Ludwig makes the perfect practice pad.

The very latest in modern design, these pads can be tuned to any desired tension with a standard drum key. They can be used on any flat surface for either stick or brush and the

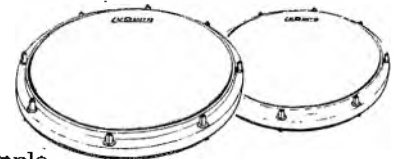
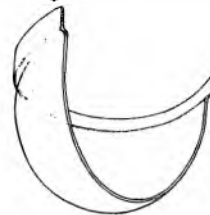
Weather Master Mylar plastic heads will give you the touch, feel and rebound of an actual drum.

Ludwig Sound Projectors

Ludwig engineers

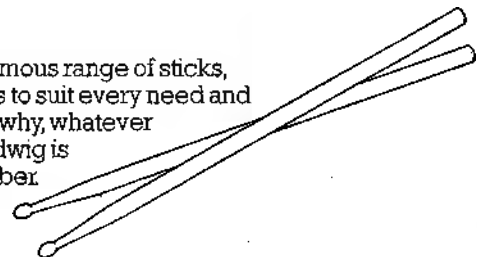
developed the "scoop", a simple but ingenious attachment that gives you increased volume and projection, bouncing the sound straight AT the audience.

Ludwig Sound Projectors come complete with hook-up tabs for easy fitting on any single aerial Power Tom or Floor Toms, and they're available in a wide range of colours to match your kit.



Drum Sticks

Ludwig sell an enormous range of sticks, brushes and mallets to suit every need and playing style. That's why, whatever sound you want, Ludwig is the name to remember.



Please send me more information about Ludwig percussion.

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Address _____

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32-34 Gordon House Road, London NW15 1NE. Tel: 01-267 5151

LA-10-79

Rose-Morris
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Get right down to the basics!



The Marshall 4150 Bass Combo

Designed to complement the new country and club combos, the 4150 is an entirely new bass combo, which features an all valve 100W amplifier driving into 4 x 10" (25.40 cm) 50W Celestion speakers for a tight, punchy bass sound. Never before has the bass player had such control over his sound with treble, bass, mid-range boost, and sweepable mid-range controls, compression, and mid-high presence circuit for a really superb sound. As with all the club and country range, the 4150 is finished in brown oak leathercloth with straw coloured speaker fret.

And the country combo that gives you more!



The Marshall 4145 Combo

For the musician who wants the facilities and easy operation of the versatile 4140, with that something extra, the new Marshall 4145 is the combo. Utilising the same amp section as the 4140, this combo has four 50W 10" (25.40 cm) Celestion speakers for a rich, but biting sound which will please the most discerning of musicians.

Please send me more information about Marshall Combos.

Name _____

Address _____

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M-10-79

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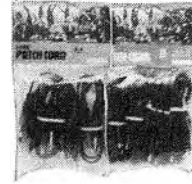
Korg Accessories. The small addition that makes a big difference.

Korg technology doesn't stop at synthesizers, it extends to an astonishing range of interface units and accessories to improve your sound and add to the variety and dynamics of your playing. Just some of the add on units are featured on this page which will take your music into a whole new musical experience. Korg think of everything you'll ever need and all at an astonishingly low cost!



MS01 Foot controller for live performance

Equipped with a voltage processor to provide control voltages for all synthesizer modules. Plus, the built-in attenuator perfect for volume and vibrato depth variation while performing. R.R.P. **£42.83** inc. VAT.



Patch Cord Sets

High quality, low noise cables for patching. R.R.P. **£15.39** inc. VAT.

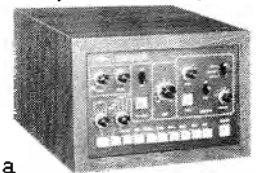


MS03 Signal Processor. Allows any instrument to play a synthesizer

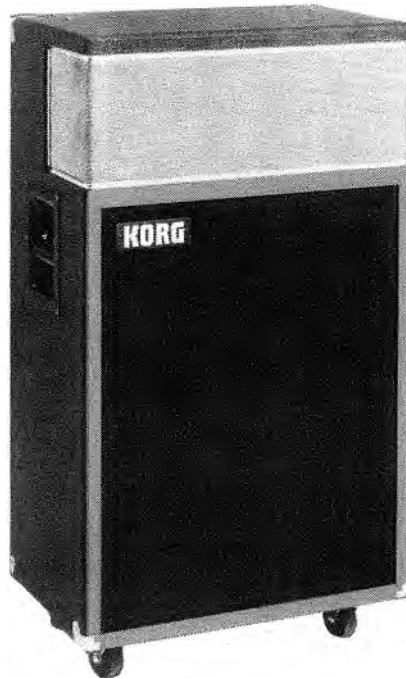
Connect an MS03 between your mic (or any instrument,) and your synth, and it converts an audio signal, vocal or instrumental, into a synthesizer control signal - which means your voice or your instrument actually plays the synth! No alterations to your equipment, just plug in your MS03 to any synth with CV and trigger inputs, adjust the controls and you are adding a new dimension to your music. Footswitchable for live performance and to add additional effects. R.R.P. **£165.00** inc. VAT.

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The MP120W has a choice of the five full-ins or breaks, and lets you switch the basic rhythm structure to an alternative pattern as you choose. R.R.P. **£281.11** inc. VAT.

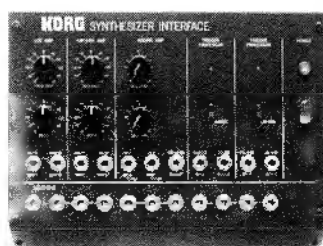


KA180 Keyboard Amplifier

To get the best sound from your synth, Korg have developed the KA180 keyboard amplifier. Three 5" drivers and a big 15" bass unit provide a flat response and crystal clear reproduction across the entire keyboard frequency range, with plenty of power, peaking up to a massive 270 watts: R.R.P. **£599.03** inc. VAT.



The Mini Pops 45 may be small but it incorporates advanced Korg circuitry to deliver a range of percussive effects in line with current music styles, including cymbals and L/A percussion. R.R.P. **£199.33** inc. VAT. Look at the entire Korg rhythm machine range and see now you can expand your playing!



MS02 Interface for the interconnection of synthesizers

The MS02 is ideal if you want to upgrade your synthesizer by adding on other synth units having different kinds of keyboard control voltage and trigger signals. The built-in, fully adjustable log amp, anti-log amp, and trigger processors ensure complete system flexibility and compatibility, between any presently available voltage controlled synthesizers. R.R.P. **£128.34** inc. VAT.



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FROM THE USA**

**Drum clinic in Manchester
on October 7 at 3.00 pm**

Ed Shaughnessy is one of the world's greatest drummers. He is an entertaining teacher and one of Ludwig's official clinicians.

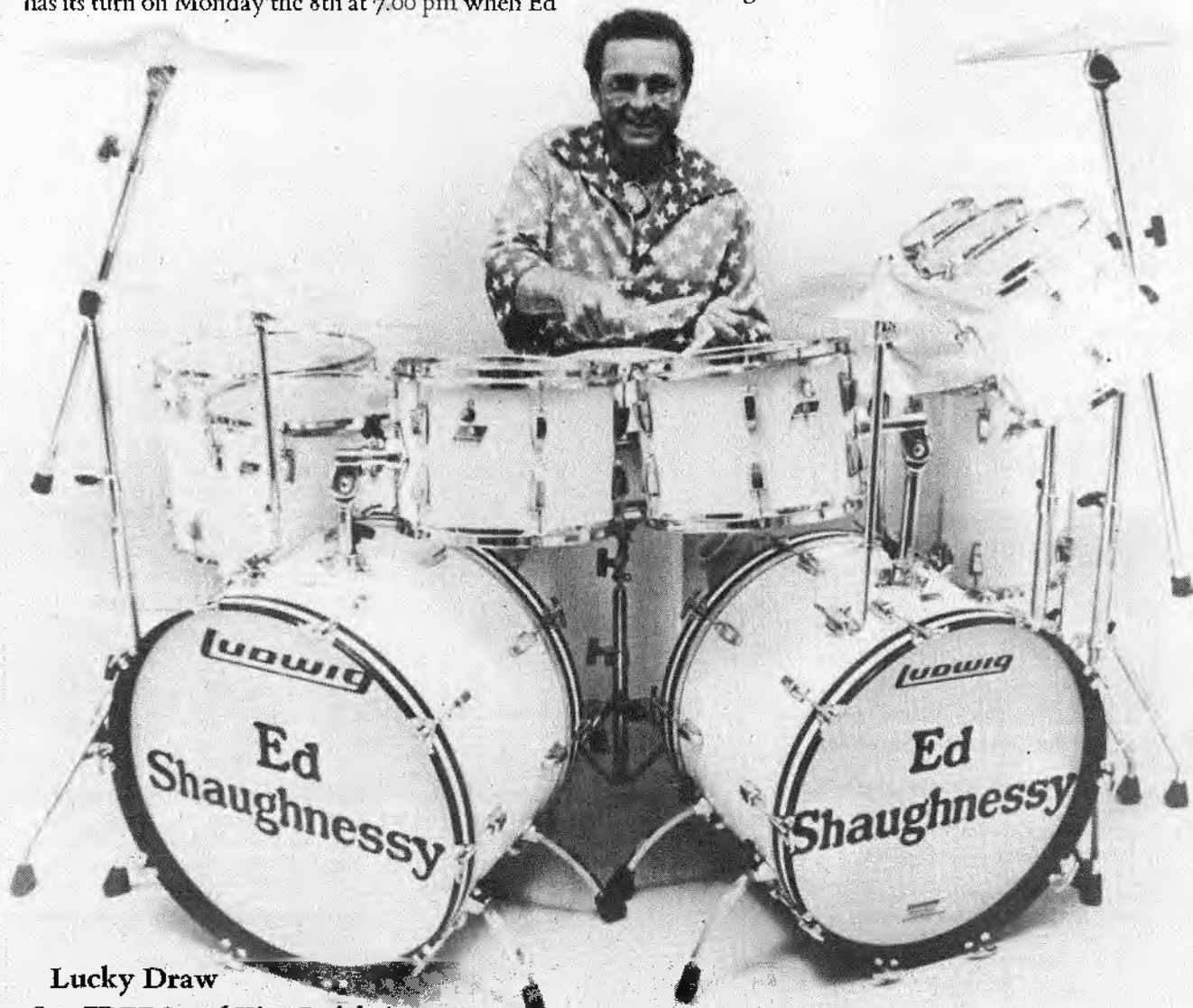
Drummers looking to learn from one of the all time American big band "greats" should not miss these rare opportunities. With his combination of sheer talent and enthusiasm, Ed Shaughnessy can be counted on to make these clinics informative and entertaining events.

The first, at the Portland Hotel in Manchester, will be on Sunday, October 7th at 3.00 pm. London has its turn on Monday the 8th at 7.00 pm when Ed

**Drum clinic in London
on October 8 at 7.00 pm**

gets behind his big kit at the Horseshoe Hotel in Tottenham Court Road.

Ed is in England as part of a European teaching tour and these two dates in Manchester and London really should not be missed by anyone serious about drumming. Ed Shaughnessy is the power behind the big band "Energy Force" and the star drummer on one of America's biggest network television programmes, the Johnny Carson "Tonight" show. He's a world renowned expert percussionist and author of books on jazz and rock drumming.



Lucky Draw

**One FREE Speed King Pedal given away
at each clinic.**

Tickets are 75p for each clinic, and are available in advance by enclosing a postal order and sending it to Gwen Alexander Rose Morris & Co Ltd, 32-34 Gordon House Road, London NW5 1NE.

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Buzz

What's happening in the music biz

The Jags

Jags are currently riding on a wave, if not actually yet on the crest. This relatively new band from Scarborough have been impressing the press (and punters) at recent gigs in and around London and on a past occasion our intrepid reporter saw them bring the house down at an impromptu appearance at Camden Lock. Jags comprise Nick Watkinson (vocals and rhythm guitar) John Alder (lead guitar and vocals), Steve Prudence (bass), and Alex Baird, who joined them early this spring on drums after a stint with bands Stumble and more recently, The Banned.

They play a tight rock set and their own song writing talents are mixed with old rock classics like 'Route 66', but their mainstream energy is firmly in the pop new-wave. Their style has been com-

pared in the past with Costello's although it should be pointed out that they *do* have their own originality (to foil all potential slag-offs), as their rapid rise through the charts will bear witness. Jags have recently been in Surrey Sound Studios to do four tracks for their first album, due to be released at the beginning of next year, with the very capable Andy Summers of Police doing the production. So we await their next appearance and album with anticipation. For all record-buying fans — Jags have a debut disc out, a 12-inch EP which is a limited edition of 10,000. On September 8th the band set off for Holland for two festivals, and judging by their reception in the UK they should have had no trouble in rubbing off some of that success onto the Dutch. Watch this space.



Camden Jazz Festival

October 22nd-27th

Bi-annual jazz weeks organised by the London Borough of Camden and the JCS are now well-established as London's longest running and most adventurous jazz festival.

The six concerts planned for the Roundhouse, Chalk Farm, this October mark the 9th in a series which has combined musicians and groups from all over the world with the best in British jazz. This autumn's festival will be no exception, and although final details are not yet available, some of the artists appearing are as follows: *October 23* — Contemporary Drummers Night. American percussionist Andrew Cyrille makes a welcome return visit to London with an exciting quartet which includes Ted Daniel (trumpet), David S. Ware (tenor saxophone) and Nick di Geronimo (bass). Sharing the concert will be John Stevens' Dance Or-

chestra, an unusual 15-piece Big Band led by one of Britain's leading drummers and including guitarist John Martyn. *October 24th* — The virtuoso America guitarist Ralph Towner plays a rare solo concert. One of the major artists on the ECM record label, Towner is one of the few guitarists committed to the acoustic instrument (both classical and 12-string), and has recorded with Gary Burton, Keith Jartett, Jan Garbarek and Weather Report as well as tucking a number of excellent albums under his own belt. *October 27th* — For the first time the festival is presenting a Blues Night, with the American Blues Legends '79, featuring Eddie C. Campbell, Good Rockin' Charles, Eddy Clearwater, Lester Davenport, Chico Chisholm and Little Smokey Smothers. Contact Alan Giddings on (01) 580 8532 if you require any other information.

A Kinky Tape Story

The saga of the kinky tape has just been revealed by the giant Agfa-Gevaert organisation. It started when an unusual complaint landed on the desk of Ted Bowden (Agfa's Magnetic Tapes Product UK Sales Manager), at Brentford the other day.

It was from a cassette tape user in Essex who referred to a method of straightening kinked tapes by means of a domestic iron, which Agfa include in their leaflet on Hints to Cassette Tape Users.

The letter added: "It may well work with Agfa tapes but it does not with other makes" — and the kinky tape was included to prove the point. The writer pointed out he had used a well-known make of iron, set at 1½ on a scale of 0-5 "which works fine on nylon shirts". Ted Bowden consulted the leaflet to refresh his memory. The relevant paragraph states: "To remove kinks in the tape surface, lay the tape, base side up, on a smooth, heat-resistant surface and gently apply a warm iron to the affected area".

Nothing wrong with that, he thought, but on the evidence of the kinky tape decided to draw it to the attention of Agfa-Gevaert's magnetic tape experts in Leverkusen, West Germany. He wrote to the complainant in these terms, and sent him a complimentary Agfa Superferro tape cassette "which I am sure you will test and find satisfactory".

Agfa also offered the following basic rules for removing kinks in tapes with an iron:

1. Never try it on anything but Agfa tape, the manufacture of which includes only the highest quality materials.
2. Ask your wife (or girlfriend!) for some instruction in ironing before starting work on the tape (e.g. move the iron to and fro to obtain the best results).
3. Do not leave the iron on the tape when answering the 'phone or being absent for any other reason, as this will have some negative influence on the very important overtones.

Well, this should iron out things for the man from Essex, and anyone else who wants to try his/her hand at laundering cassettes.

Bulldog Guitar Straps

This company offers an unusual line in guitar straps. They have been in business for three years now and are growing all the time. Originally part of a craft centre in Cornwall they can now be found at Sloop Craft Market, St. Ives in Cornwall. They work with traditional harness leather customising to order anything the customer requires. The person to contact is John Grey (073670 7114/6051).

Chichester Jazz Festival

The Chichester International Jazz Festival will take place at Chichester Festival Theatre from Wednesday, 24th October to Sunday, 28th October 1979, each evening at 8.00 p.m. Spike Milligan has been engaged to introduce the programme of international star performers. The details of the performances are as follows:

Wednesday 24 October: National Youth Jazz Orchestra, Oscar Peterson.

Thursday 25 October: Kathy Stobart Quintet, Oscar Peterson.

Friday 26 October: Nigel Kennedy, David Heath and the Jay Bianchi Trio, Jacques Lousster.

Saturday 27 October: Dutch Swing College Band, Memphis Slim.

Sunday 28 October: Otilie Patterson, Chris Barber Band, The Great Guitars, Herb Ellis, Barney Kessel and the Charlie Byrd Trio.

Tickets can now be obtained from the Chichester Festival Theatre Box Office from £4.00 to £6.00 with reductions of 10% for parties of 10 or more. If you want further information please contact William A. Sutton or Bruce Montgomery on (01) 353-7071.

Going for a Song

Sometime this month Sotheby's are holding a Musical Instrument Sale. So what? Well, it seems that this is a real landmark since Sotheby's have finally come round to realising the quality of Gibson guitars and their potential as collectors' items. The guitar which is likely to attract the most interest is a Gibson Flying 'V' (1958) which is being put up for auction by EFR's owner Max Kay. The guitar is currently on sale in the shop at £2500 but they don't seem to be too worried whether they sell it or not, and it will have a 'sensible' reserve price on it at the auction. It will be interesting to see whether predictions that this event will put guitars on the map as investments and antiques will come true.

Here are just some of EFR's collection in stock.



Back Line Frunt Amplification For Brand X

The original line-up (plus one) of Brand X are back on the Rock Scene again comprising John Goodsall on guitar, Phil Collins on drums, Robin Lumley (our very own keyboards consultant) and Peter Robinson on keyboards, and Percy Jones on bass. The band are currently on tour in the States to promote their newly released album — *Product*. They seem to be quite taken with the popular Frunt Amplification range, for they are using it for all their back line amplification.

Percy Jones is using the 400 watt bass

amp and bass cabs, and John Goodsall is using a combination of lead amplifiers and lead cabinets. Percy and John have been so pleased with the gear that they insisted on taking the back line amplification with them on all the gigs, which is a revelation in itself since they are all solid stage. Before they went over to USA the band did three warm-up UK gigs and they will be completing the tour back in good old England with an appearance on The Old Grey Whistle Test.



The original Brand X line-up (minus Peter Robinson)

In Memoriam

It is with deep regret that we note the passing of Herman Carlsson Levin AB of Sweden, as a manufacturing guitar company. We are informed that production of instruments at the Levin plant came to an end on October 1st, 1979.

Perhaps the best-known Levin instruments in the UK were the 6-string "Goliath" jumbo and the sensitive 12-string models built in the same pattern.

Levin AB is owned by the CF Martin Company. It has, for some time, provided a European base for the distribution of Martin and Sigma guitars, and it is understood that this arrangement will continue. A range of Japanese-made guitars under the Levin name is expected to be available in the UK around the end of the year.

Drum Competition

The Contemporary Drummers Society, in conjunction with the Avedis Zildjian Company are holding a competition for young drummers. The first prize is a complete set of Zildjian cymbals and the Louie Bellson Drum Award.

Competition heats will be held in selected areas around the country and the final will be held in London on April 6th, 1980.

The competition is open to CDS members between the ages of 14 to 20 and if you are not a member, you can of course, join before the competition (£4 for the

membership). For full details and application form, please write to Phil Solomon, 41 Upper Lewes Road, Brighton, E. Sussex BN2 3FH and enclose a stamped, addressed envelope.

London Calling

World Service are a five-piece 'high energy' Jazz/Rock outfit based in London and will be embarking on a British tour that will be taking in various colleges, clubs and pubs around the country. To coincide with the tour a three-track EP titled "Definite Uncertainties" (Warp 001) will be released by Warp Records and will be available at most of the gigs, price 80p.

World Service consist of Gerry Hunt: Guitars, Saxes and Flute; Steve Lodder: Keyboards; Kevin Dunford: Bass; Alan Hayman: Percussion and Flute and Roland Kerridge: Drums. For further information ring Graeme Cooper on (01) 240 0955 (Day) or (01) 249 6642 (Evening).



Soundstar

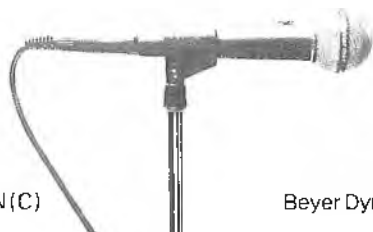
FROM BEYER DYNAMIC

The soft Irish lilt in Rory Gallagher's voice is projected perfectly by the new Beyer-Dynamic Soundstar microphone.

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Mick Taylor

Cutting it on his own

When Mick Taylor joined the Rolling Stones, more than the odd eyebrow was raised in music circles. After all here was a blues purist who had gained a considerable reputation as a guitarist with John Mayall, joining a band who at that time seemed more preoccupied with image than music.

Taylor's contribution to the Stones, however, was considerable. His enormous talent obviously rubbed off on the rest of the band, they became tighter on stage and recorded some of their best material *Let It Bleed*, and *Exile on Main Street* during this time. In 1974 Mick quit and apart from a brief stint with Jack Bruce and Carla Bley, nothing has been heard from him except reports that he was working on a solo album.

Now nearly four years away from the limelight, he is back with a self-produced solo album and a real urge to tour. It marks a big turning point in the development of a musician who is now following his own path by broadening the scope and direction of his music.

With help from musicians such as Pierre Moerlen, Richard Bailey, Mike Driscoll, Jean Rousell, Alan Spenner and Kuma Harada, the album simply titled *Mick Taylor*, acts as the ideal showcase for his many talents. Laced with some classic guitar playing the album was produced by Mick and he wrote all the songs, sings and even plays bass and keyboards on a number of tracks. From acoustic blues through to hard driving rock there is a diversity of styles which also encompasses material with a jazz feel.

"I've always listened to jazz especially sax players," said Mick, "but I don't play jazz and I'm not a jazz guitarist. I suppose there's a slight jazz influence harmonically but I wouldn't call my instrumental music jazz/rock either because it's got very much a rock'n' roll beat to it however subdued or laid back it might be. They're melodic instrumentals with a blues style guitar, the style I've always played, but broadened and extended a bit to become more harmonically interesting."

A blues style which he developed at an early age on world tours as a teenager with John Mayall's Bluesbreaker's. At the age of 16 in his native Hatfield he went along to watch a Bluesbreaker's gig at a local college. "Eric Clapton didn't turn up so we watched the first set without a guitarist. Everyone was disappointed because Clapton wasn't there and with a great deal of prodding from my friends at the interval I very nervously went back stage and asked John Mayall if I could play with him.

"At that stage I was still listening to records and copying guitar licks so I knew Eric Clapton's solos note for note. I couldn't go far wrong because John Mayall

was only playing 12 bar blues and I felt quite confident. Much to my surprise I asked him and he said 'Yeah, sure' so I used Eric Clapton's guitar which was there and at the end he seemed quite satisfied."

Mayall must have been more than pleased because a year later Peter Green who had in the meantime replaced Clapton, left the band and his place was taken over by young Mick Taylor. His previous experiences of playing had been confined to bands formed with school friends, rhythm guitar on old Shadows material and later, after he had discovered rhythm and blues, Mick became interested in the guitar as a lead instrument. It was the period of the British blues boom and he was hooked. One day he was still playing with local musicians in Hatfield and the next day following in the footsteps of Eric Clapton and Peter Green.

"He auditioned a lot of people for the gig but for some reason chose me. I still felt very much a beginner when I joined John Mayall but after playing with him for nearly four years I'd begun to develop my own distinctive way of playing, as opposed to copying and imitating. It starts to come naturally if you're working every night of the week with musicians who are better than you and more experienced."

During this period with John Mayall he recorded three albums, *Crusade*, *Bare Wires* and *Blues from Laurel Canyon*. Despite almost constant changes in the line-up of the band Mick stayed on until a final shake-up, after the Laurel Canyon album and a three month American tour, changed the band beyond recognition. "John decided he wanted to change his musical policy. He's always played blues but likes to change the context in which it is played, sometimes using a saxophone or violin, but this time he decided to form a band without a conventional rhythm section, adding an acoustic guitarist and saxophone player. The band I was with towards the end with Colin Allen on drums and Stevie Thompson playing bass just folded, so that was it."

A short while afterwards in the summer of 1969, Mick joined the Rolling Stones just in time to play the momentous free festival in Hyde Park. He had been recommended to the band by John Mayall who knew they were looking for another guitarist. "Mick Jagger phoned and asked me to join them. I didn't feel nervous, or intimidated or in awe of the Rolling Stones because by that time I felt quite confident about myself as a guitarist. Apart from their huge popularity, they were an almost legendary rock'n' roll band even then, they started off in the same way as John Mayall. The Stones were very much a rhythm'n' blues band in their early days and I had a great affinity with

them, so it seemed quite natural to leave John Mayall and join them.

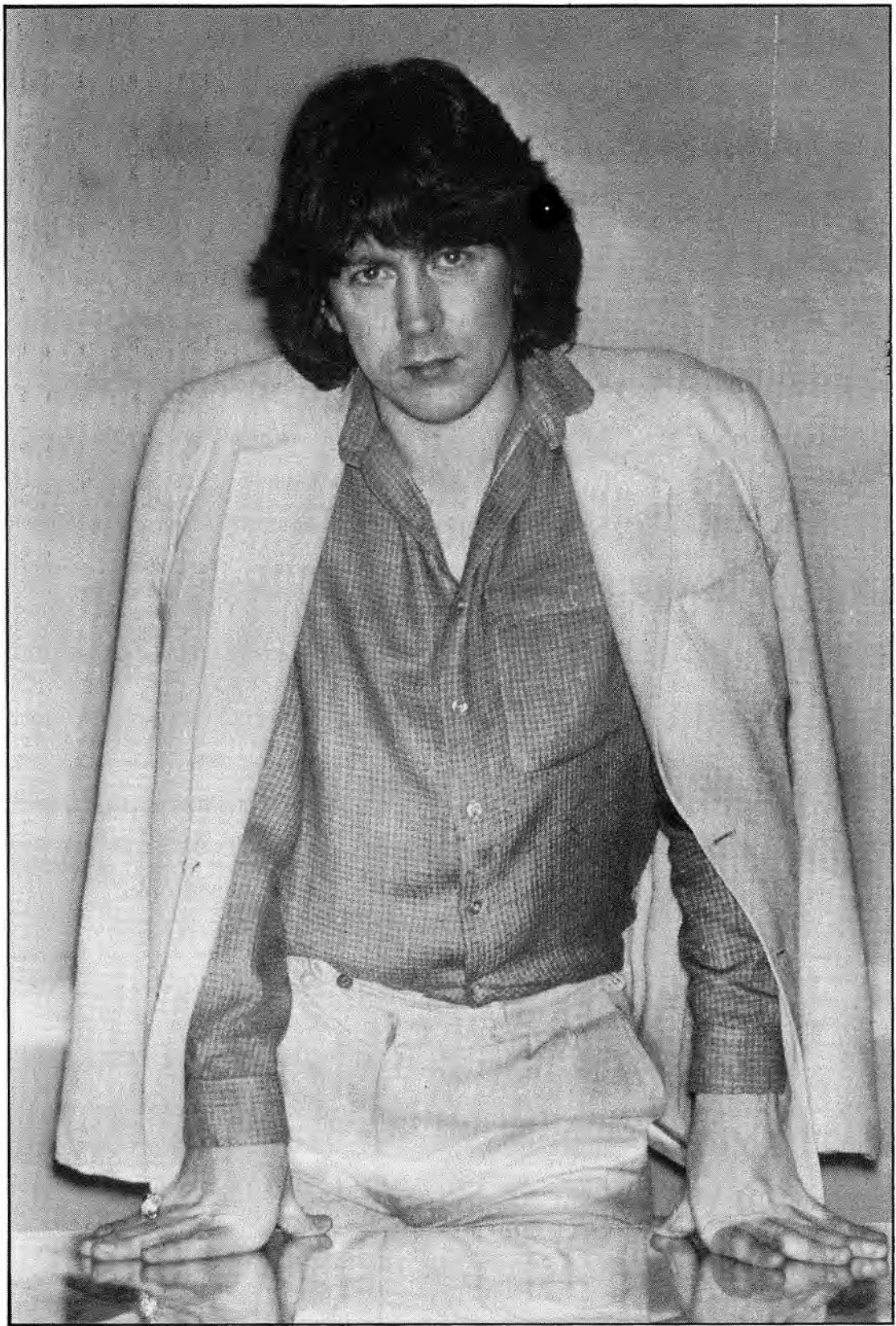
"On a musical level it was more high powered and a bit more glamorous than John Mayall. It wasn't such a big deal for me because in some ways it was like a new band. They hadn't played together live for about two years and that's really why they asked me to join them. The Stones wanted to re-activate their career and start touring again, so it was like a new beginning for them. At Hyde Park, the gig was very rough and ragged. I'd had about five days rehearsal and it was the first time any of us had played to such a huge audience. After that we rehearsed a bit and went off on an American tour."

He was to stay with the Stones for more than five years playing on five albums, *Get Yer Ya Yas Out*, *Sticky Fingers*, *Exile on Main Street*, *Goat's Head Soup* and *It's Only Rock'n' Roll*. Mick made a significant contribution to the final product though he never actually wrote anything for the band. His partnership with Keith Richards proved to be very fruitful. "I contributed a lot both on stage and in the studio towards the music but never really wrote anything with them. They used to take a lot of songs into the studio on tape but until they were played by the rest of the band, they wouldn't be complete. The songs would often change from an acoustic version on a cassette to an amplified version played by the group which would be radically different.

"A lot of stuff was very spontaneous — it would just happen. At the end of one track on *Sticky Fingers* the song goes into a jam, which is the result of me not stopping when the song stopped and everybody else joining in. Things like that would happen all the time. Towards the end of my time with them though, I didn't think there was much point in trying to contribute too much to what they were doing. I'd been with them for five and a half years and wanted to leave and find my own musical direction. I was just beginning to write my own music and didn't think it was possible to stay with the Rolling Stones and do my own music as well.

"There was never any conflict between my music and their music but I just felt that as a guitar player, I was developing all the time and there were a lot of things I couldn't play with them which I've since been able to play." Mick left the Rolling Stones as they were about to record *Black and Blue*, but did not feel ready at that stage to pursue a solo career. He joined forces with Jack Bruce and Carla Bley in a band which promised great potential.

The venture only lasted six months before they parted company because of differences in opinion. "I've always ad-



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mired Jack Bruce and when he asked me to do something with him, I thought it was a great idea. It was quite a good band but not really the right kind of band for me. The group was formed around Jack and we played material from his three solo albums. It would have been better if we'd have tried to create some new music together, because we both admired each other's playing. I enjoyed it and learned a lot from Jack but there was no way it could possibly last."

With no commitments Mick stayed at home for about a year after this, concentrating on his own music. A serious interest in playing the piano opened up a whole new range of ideas and he began to experiment and write with a passion. This continued until Mick felt he had enough material to base an album on.

"I began to write a lot of music on the piano which surprised me because I was and still am basically a guitarist. Maybe it was the fact that the piano was so unfamiliar to me. I'd find lots of chords that I wouldn't think of doing on the guitar. If you've played guitar for a long time you can get into a certain way of thinking, so that instead of sitting down and letting it come out naturally, you often find that you just slip into a riff or chord sequence. On the piano there are chords which are almost impossible to play on the guitar."

Producing the album proved to be a challenge in itself. He thought it would be best to take charge of the project himself as the material was to evolve slowly in periodic recording sessions. The album was recorded in a variety of studios with different engineers. "This would have presented formidable difficulties even for an experienced producer. It's difficult for an artist to produce an album anyway, because if you're involved in the creative process it's difficult to step back and be objective which a producer needs to be sometimes.

"It's all a case of taking control both in the studio and the control room and communicating your ideas to the engineer. I'd sat in before on other people's mixing sessions and pushed a few faders — but that's nothing to producing. I had to learn about digital delay lines, bouncing down, putting tracks together, everything. It was really hard work but I'm glad I did it that way, because I think now I'm quite a capable producer."

Mick, who owns some half a dozen guitars, took most of them in for the recording sessions. He has two Gibson Les Paul guitars, Gibson Firebird, Gibson SG, Gibson S I, Fender Stratocaster, Fender Telecaster and a Martin D35 acoustic. "I've never been a great guitar collector and use most of the guitars I have. When I was with the Rolling Stones living in the South of France, I used to have a lot more, but there was a burglary at Keith's house, where they were all stored and a lot of good guitars got ripped off.

"I like to play the Fender Strat, it's a very tough kind of mechanical guitar and I like to use the tremolo arm. There are a lot of tuning problems with it though, especially with the way I like to use the tremolo arm, which is not just to create a

vibrato effect but to actually bend the notes up and down. It tends to go out of tune very easily. I like a Fender guitar to retain its natural electrical acoustic sound properties whatever it's going through and however you alter the sound.

"It's nice if you can use effects pedals just to broaden the scope of the music and the range of what a guitar can do. There's not much point in radically altering the sound that's there, because Fenders do have a very distinctive sound. All guitars have a unique sound. I've never used effects pedals a lot because I like to get the best out of a guitar as it is. I'll use an effects pedal when I think it complements the music."

Mick allows himself the use of an Electric Mistress flanger and MXR phaser. On one track of the album there is a guest ap-

pearance by the late Lowell George who teamed up with Mick on a visit to London with Little Feat. "We met up and got on well together. He asked me to go down to the Rainbow to play with them, which I did and a little later he came down to one of my recording sessions to overdub some slide guitar."

With the release of the album Mick is now busy putting together a band, made up of the musicians who accompanied him during the recording sessions, for an American tour. He is also hoping to bring the band over to Britain, possibly in the New Year. "Musically and production wise it's been like a voyage of self discovery for me. It will be more of an instrumental band because they all like playing and improvising. It's going to be very interesting."

Sean Higgins

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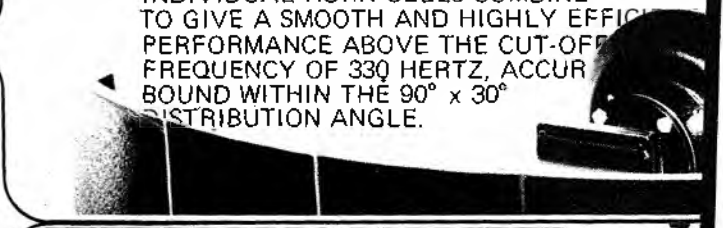
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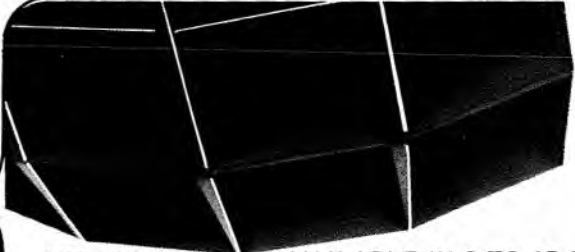
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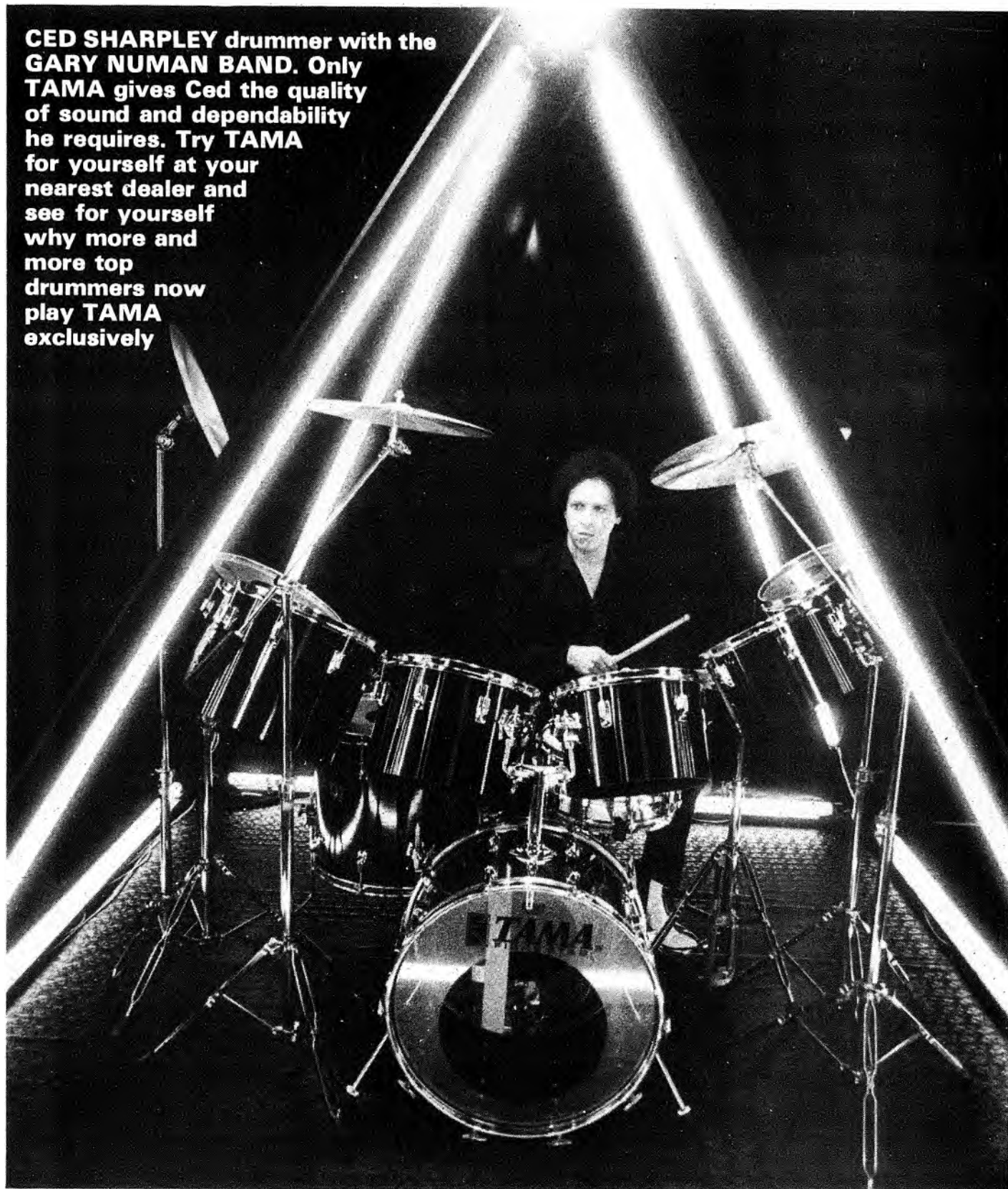
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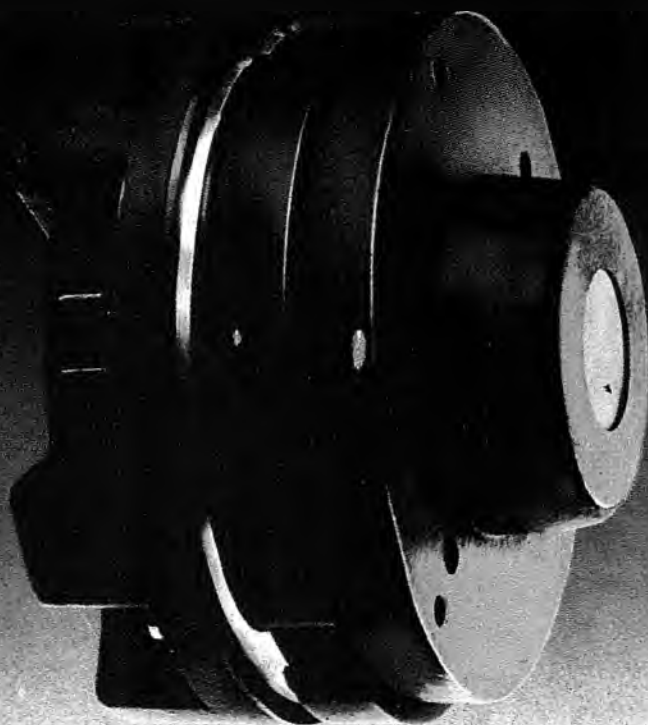
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In 1975, an album called *Mr Magic* by Grover Washington Jr got into the American national album chart. It rose to number 14 — thus creating the industry term 'crossover jazz'. In the process it opened up record company cheque books to today's current crop of jazz funksters many of whom would be anonymously jamming in their local bar if it were not for Grover, Creed Taylor's Kudo records and Bob James, the arranger and conductor. This album created a style and a trend which still continues to be successful for many, even though the man who is *Mr Magic* has since moved on.

Grover's father had a C melody sax which the then very young G. Washington Jr liked to try out his budding talents on until, lo and behold, one Christmas his very first tenor sax appeared under the tree.

"I really wasn't into the one and two hours of practising a day" said Grover. After I got past the mundane exercises and started playing some of the melodies, that's when things started to happen as far as my involvement with music is concerned.

"I took it upon myself to play more and more, working on my tone, technique and different moods and colourings of music. The first mouthpiece I had was for a beginner, but I found very shortly that I used a lot of jaw pressure which means that I had to use a harder reed. On my tenor I play a number 4, on my soprano 5, on my alto a 4. My tenor mouthpiece is a 130/0/M Berg Larsen which is equivalent to a number 10 and the one I have used for around 14 years. I think most sax players have a record player in their heads playing exactly what they want to sound like or what kind of compositions that they want to do and strive to get as close to that mental record as possible."

His progress was very rapid and he claims to have been working in clubs at the age of 12, but the big break came after a spell in an army band and a succession of

do the album instead of Hank, who couldn't make the date. After half an hour's practice the album was duly cut and *Inner City Blues* became Grover's first album for CTI. This was followed by *All the Kings Horses* and *Soul Box*, an increasingly successful series of which the last five: *Mr Magic*, *Feels So Good*, *A Secret Place*, *Live at the Bijou* and *Reed Seed*, have all been gold. *Reed Seed* was produced by Grover and marked the end of his association with CTI which went bankrupt. A remarkable feat considering that they had George Benson, Herbie Hancock, Stanley Turrentine, Bob James, and Hubert Laws signed to the company at various times.

As one of the most consistently successful recording instrumentalists, it is interesting to find out how Grover sets about making an album. "I start practicing before I go into the studio with the group I am going to use for the record, so that we know exactly what we are going to do before we go in. We lay the basic tracks down over a period of two weeks and then there is a couple of weeks for overdubbing the 'sweetenings' of which there really aren't that many. Then we get down to the cleaning of all the tracks and the mixing, taking the album to Rudy Van Gelder, who is the only one so far as I am concerned, who can really master an album and bring out what musical content is there so that it stands out.

"Then we start working on the test pressings and get an approval on the cover art which can take six or eight weeks to be completed and has to be started before we go into the studio. We get the liner copy and copyright stuff for the tunes and all the people who were involved in the production of the album and then just wait."

He has a set pattern of recording which is fairly straightforward and doesn't involve too many "tricks". "In the studio I don't really have any special tricks. I like to put the sax down at the same time as everybody else is playing because you feel electricity between the musicians. If you have to do it after the rhythm section has already laid their tracks down, you have to work yourself into a kind of psyched up thing. You close your eyes and visualise yourself doing it with all the musicians. I have been fairly lucky in that I can do that in different contexts for other people when I have to, but I prefer to do it when everybody is there instead of playing off earphones in an empty studio.

"What I play affects what they play, also there is eye contact and the things they use to get you going. So far as mikes, I don't have a real preference except that Rudy Van Gelder has a special mike he made up himself which records soprano real well, looks like a super thick Big Mac hamburger and hangs above the horn, but he won't give the secret away to anybody. On stage I use a Sony ECM 50 condenser lapel mike of the type interviewers wear on TV. I just clip it by its crocodile clip to the bell of the horn I am using."

His current band is called Locksmith and is the result of checking out a lot of musicians till the right ones were found and they have been with Grover since *Live at the Bijou*. After being forced to work with the CTI 'Mafia' of backing musi-

cians, who at one time seemed to appear on so many albums, it had long been a personal goal to have a permanent unit to take out on the road as well as record with.

Grover has solved the hazards of travelling with four saxes by having a gigantic Anvil case made like a small wardrobe into which his set of H Couf saxes fit into recesses cut into thick foam rubber. A fascinating solution to a difficult problem. The drawback is that you can't get to the saxes before the sound check, but according to Grover it makes them difficult to steal, as it takes two strong roadies to lift the case.

"I don't like to fly at all, as it takes at least a couple of days for my ears to pop and, with airlines getting stricter about taking instruments in the cabin with you, I had the big case made which really protects them well.

"On our recent tour we were doing seven concerts in 21 days and because I can't take the saxes up into the room I am thinking at least part of that day about the adjustments I have to make with the horn. So lately it's become a thing of mental practice as opposed to physical and mental practice. The sound check is the only time you get to play and try to get a sound that will be representative of the sound you hear on record.

"When you do a concert you have to make it feel like a warm club. You have to change a place like the Hammersmith Odeon into a little 250 seat place where everybody feels like they can put their feet right up on the edge of the bandstand."

So where does Grover see his music going?

"We are trying to not be predictable but also not changing for changing's sake. Just as you feel it, and as you are growing as an artist. Each piece is like a musical tone poem and in a way like painting with different colours in sound.

"We try to keep every new album different so that we are not prescribing to a formula. You are allowing room for your personal growth and the growth of your audience. Hopefully you are learning something so that you can keep all future albums different. The current album *Paradise* has more music on it than any of the others to date and I hope the next will be different again.

"I would like to think *Mr Magic* opened up territory for other artists to be accepted on their musical merits and not just because some record company paid them to play it. It widened the audience to the point where many of them who wouldn't normally go to a club, would come to check you out to see if you were as good as the album. To check and see if the album was a studio contrived hype and not a happening in person. This puts pressure on us to be at least as good as the record and show other things too. Like putting an Oliver Nelson tune 'Stolen Moments' into the set to let the people know that we just didn't learn the music of today, we started to learn about music from yesterday, so we have a foundation and are not shallow musically or intellectually and this is a natural extension of the music. From our own point of view, we just try to let them know that everybody has a different point of view.

GROOVING WITH GROVER

Alan Holmes talks to the Mr Magic of the sax

day jobs and club spots in the evening. These spots became very depressing and he admits to giving up playing for a while until his wife made him get started again. He had been given a chance by John Hammond to record for the Impulse label and when Hammond moved to CTI's Kudo label, he took Grover with him.

One day at the studio, he was running through some horn tracks for an album by altoist Hank Crawford when Creed Taylor asked if he could play alto. Grover admitted he didn't own one and was asked if he could play a rented one the next day and



As the father of young Grover 3 who plays cowbell at the end of the stage set, Grover Jr has some specific views on teaching even though he doesn't have time for individual pupils. "I like to talk to kids about the kinds of experiences I've had. It is the kind of information I like to impart to the younger kids who think it's all just a lark, because it isn't. It's like any other profession or art. There's a lot of desire, a lot of hard work and a lot of overcoming the misconception of the public about what a musician is.

"We don't get the respect of the public as professional people. Just because the saxophone is not a symphonic instrument and one of the last to be invented, people say it's a bastard instrument, they automatically say that it's not a *bona fide* instrument and it's up to us to work and communicate our point of view.

"In the future I think playing is going to open up like a big oak tree. It will flower and drop off seeds here and there and they will make their own mainstreams. These will have their own offspring and it will just go on and on until hopefully it will become a universal thing where no kind of music is really put down, it will be looked at as an art form in itself if they are serious and they present it in the right kind of way."

Grover's equipment

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* (Source: *Billboard's International Recording Equipment and Studio Directory 1978-79*.)

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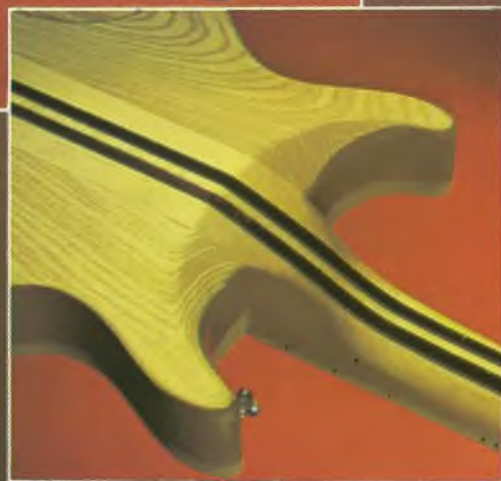
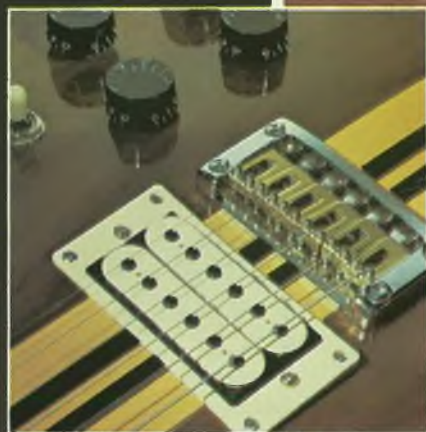
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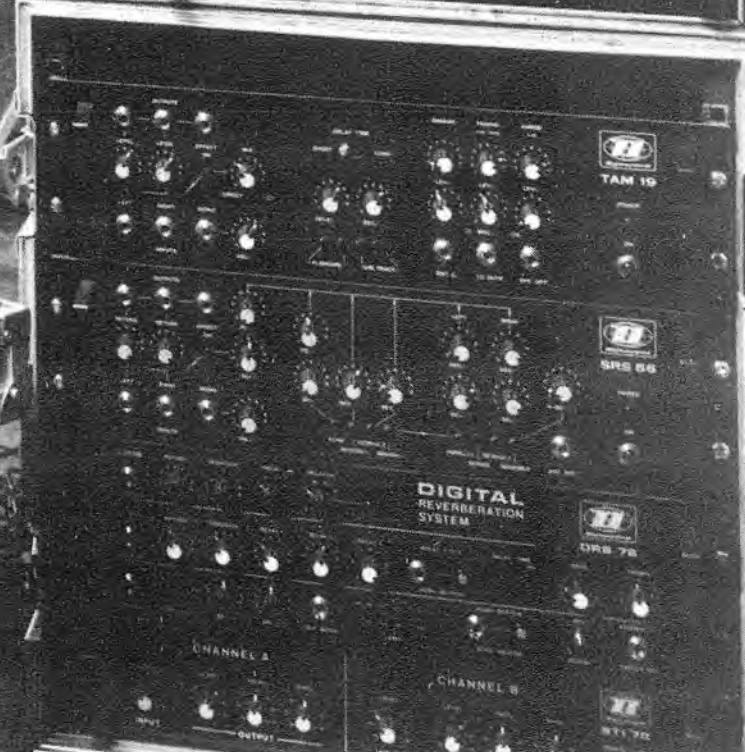
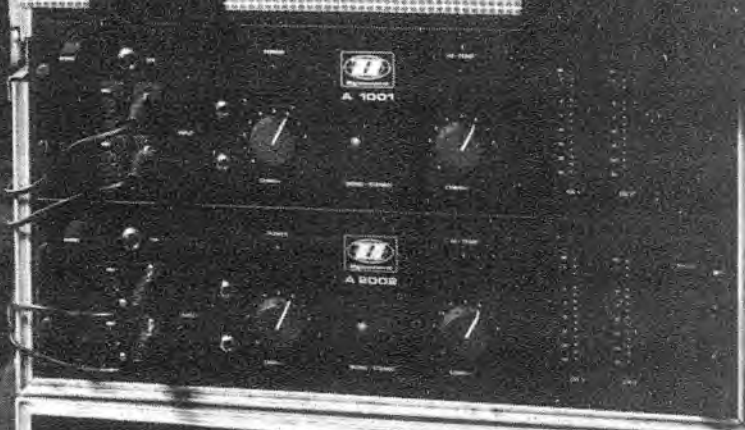
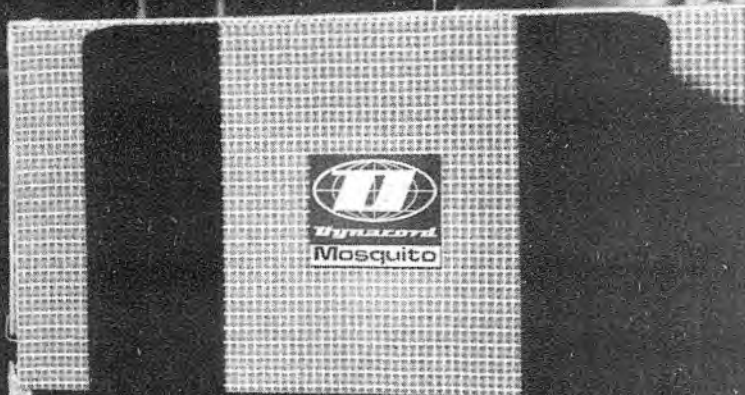
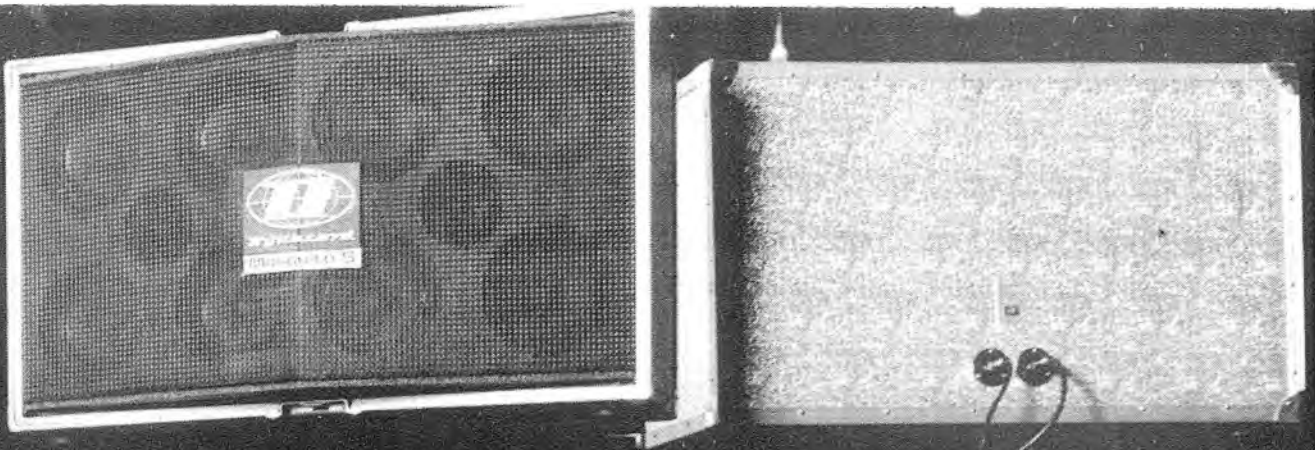
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DYNACORD

THE FACTS

	Description	Uses
DRS-78	Digital Delay line. Used either rack mounted or free standing (flight case available). Perhaps the most sophisticated delay line available to the musician anywhere in the world.	Use for creative effects, echo reverberation. ADT etc. Providing hall reverb, ambience etc. Cancelling hall reverb. For high quality PA systems and as creative musicians tool.
TAM 19	Time Axis Manipulation unit. Used either rack mounted or freestanding. Offering creative effects and mono/stereo conversion.	Stereo flanging, stereo phasing, stereo pitch shifting, double tracking, mono/stereo conversion and stereo spacesound simulation. PA and back line application.
A2000-2	Twin channel stereo PA power amp. Output 2 x 250 watts RMS. 19" rack mounted. LED overload indication. A1001, 2 x 150 watt version available.	Professional PA systems. Permanent installations.
ST-1 78	Studio type interface unit capable of accepting both balanced and unbalanced lines.	Used to match and interface equipment to provide full balanced output. Advantages include minimum interference and signal loss on long cable runs, matching for recording equipment and elimination of earth hum loops.
MC 1200 MIXER	Professional 12 channel mixer with three outputs. Left, right and monitor. Four band equalisation on each input channel. Full echo send, pan facilities.	Master mixing stage use, master mixing studio use, monitor mixing, sub group mixing.
MOSQUITO SPEAKERS	Compact loudspeaker enclosures with eight full range Dynacord speakers in each cabinet. Vanes provided for directional sound throw.	Monitoring, small format PA use. On stage monitoring with vanes for directional sound.
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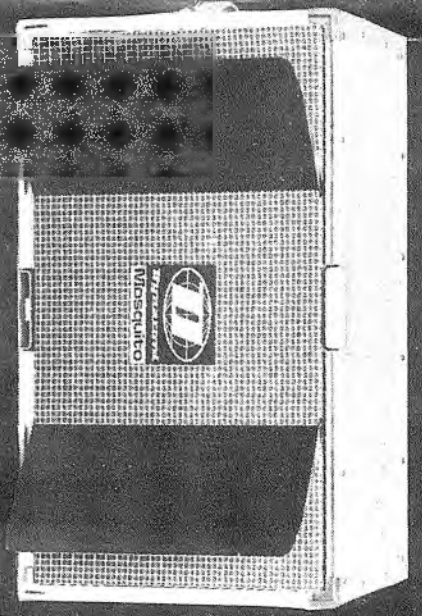
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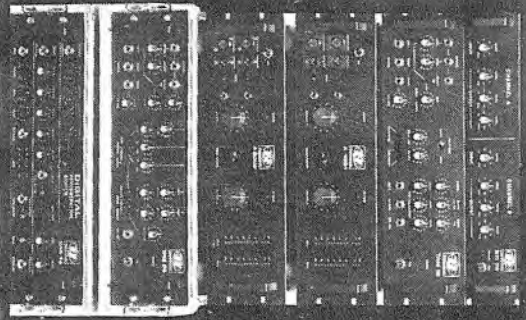
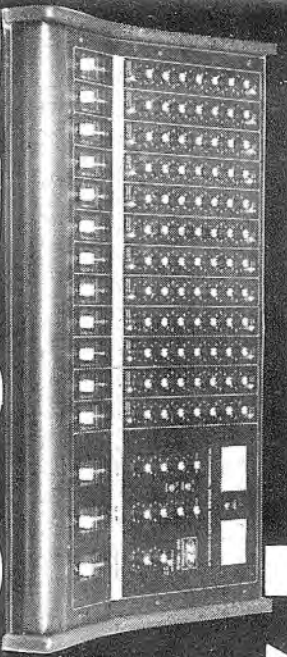
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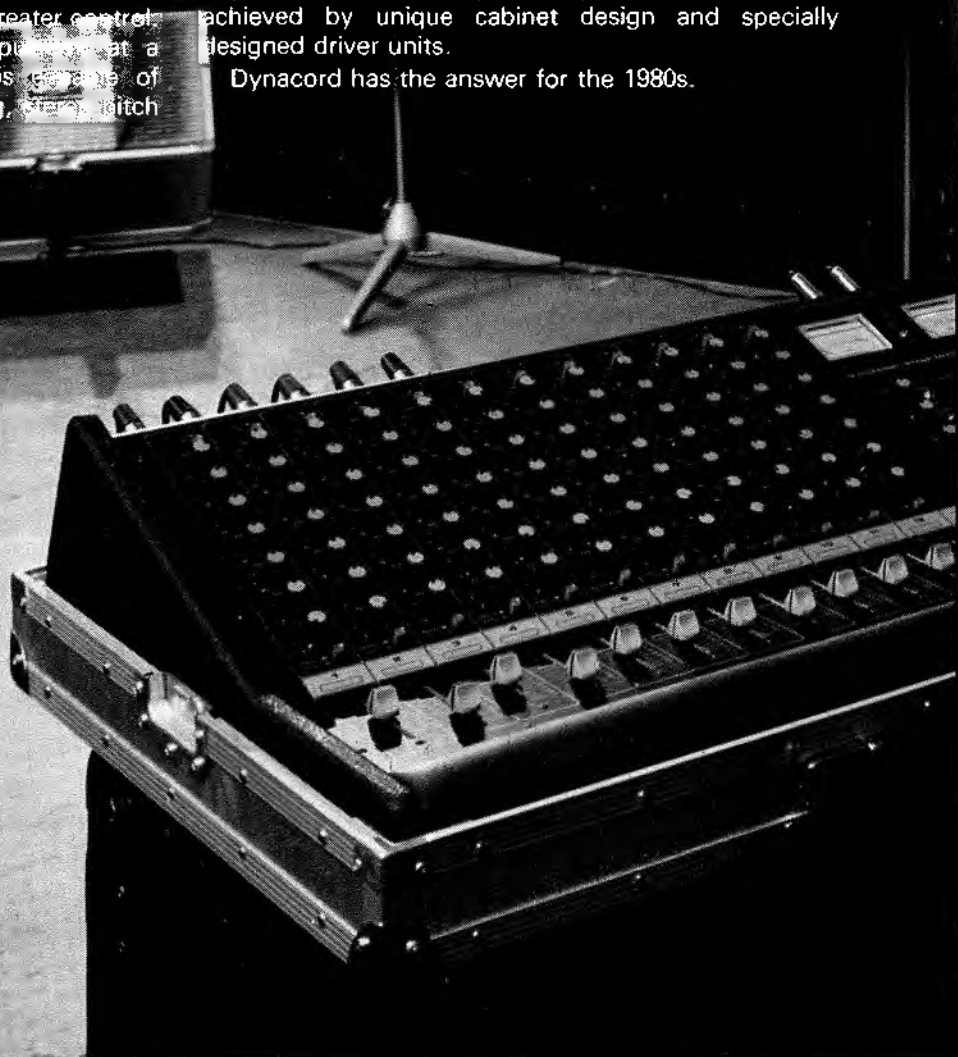
shifting, double tracking, mono-stereo conversion and stereo spacesound simulation. This is the ultimate effects box and guitar players could spend a lifetime experimenting and still not exhaust the nuances of this system.

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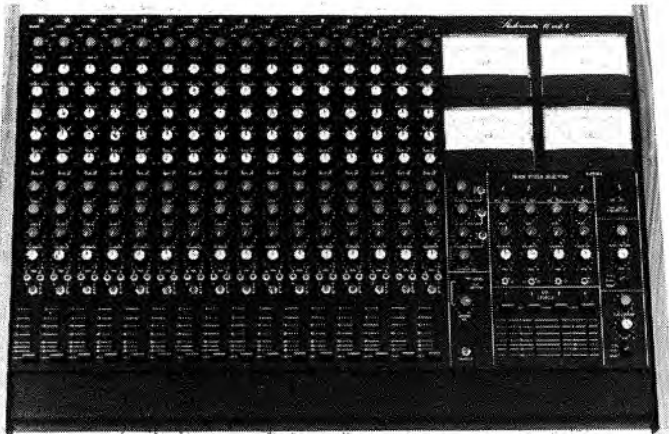
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Write your top seven in the downward columns, using the identifying letters.

The minimum entry fee is 10p for one downward column, although you may complete all 12 columns for only £1.00. Please keep a copy of your entry.

All entries must be accompanied by payment in the form of a crossed Postal/Money Order or Cheque in £ STERLING, made out to Europrize Competitions Ltd. and with your name and address written clearly on the back.

Entries should be posted in a sealed, stamped envelope to the address on the entry form, to arrive no later than the second post on Friday, November 9th, 1979.

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Stranded in Frankfurt with no money to get home, young British band Headline News had learned about the perils of playing abroad the hard way. Like many other bands who went out to Germany in the Sixties in search of fame and fortune, they had fallen foul of unscrupulous agents and club managers.

It was the end of the road for Headline News but for drummer Gilson Lavis, though he did not realise it at the time, his apprenticeship as a musician was only really just beginning. Today, far removed from the bitter disappointment experienced in Germany all those years ago, he's riding high on the wave of success that has elevated Squeeze from pub band to a headlining act at venues all over the country. With two successful albums and hit singles, notably 'Cool For Cats', the band has also made a considerable impact in Europe and America.

Yet Gilson has had to work hard for his success — which has been anything but overnight. The German experience was followed by his own music shop in Southend, and then a wide variety of sessions which included working with George Hamilton and Chuck Berry, before hitting the jackpot with Squeeze.

He began to play drums in his early teens after a brief flirtation with the guitar. He found that in groups formed with school friends there was never a shortage of guitarists but drummers were hard to find. A series of makeshift drum kits made way for a proper Ludwig kit at the age of 15, by which time the drumming bug had bitten deep. "I remember being the only one at school with a proper drum kit and because it was during the early Beatles era, there were always lots of bands to play in. Originally I started to teach myself how to play but soon realised I

wasn't getting anywhere. After a while I went for lessons with a drum teacher, which lasted for about a year, and he taught me how to hold the sticks properly and some of the rudiments. I'm more or less self taught but was put on the right lines by a teacher."

Young Gilson travelled up to Scotland to join his first real gigging band after replying to an advert in one of the music papers. It was the nucleus of the band which in later years was to become the Sensational Alex Harvey Band, and included Zal Cleminson.

But as Gilson recalls: "They were a Glasgow band and I was only with them for about six months because I got really homesick. Being brought up in a suburb of Bedford I just wasn't used to the heaviness of Glasgow. It wasn't much fun for a young lad of 15 so I went home thinking I knew it all and formed my own band." Headline News was born and they eventually headed for Germany where, after a small measure of success, things began to go drastically wrong. The band worked hard playing at American bases, the usual foundation work, and had a single released which made it onto German jukeboxes.

"After a while we started to do cabaret work. One of the set-ups in those days was that you were booked to play in a place for a month and then you were taken out playing different places every night. You had to concentrate your five hours down to one hour for a quick floor show. It was good experience and that's where I started to learn how to juggle the sticks. After all that though, we didn't get paid and we were broke, so we made our way to Frankfurt where we got a job down the K52 Club in the Kaiserstrasse, which was run by a guy who lived off all the bands who didn't get paid in Germany! You got to sleep on the floor of the club and a fiver a night, or something ridiculous. We managed to save enough money to buy a ticket home and drew straws to see who got it, until one by one, everyone got back. I got a job as a taxi-driver, armed with my A-Z of Frankfurt and pidgin German and eventually drove it to Ostend, left it and got home."

Back in England he began to work as a back-up drummer and later went into

GILSON LAVIS

Squeeze's cool cat drummer

business by opening a music shop in Southend. The business was to close with the advent of the three-day week, but in the meantime Gilson had been doing session work in London, which led him to playing with top country artists such as George Hamilton. This in turn developed into rock'n' roll work with among others, the man himself, Chuck Berry. Gilson was allotted the task of forming a backing band for one of his European tours.

"The first time I met Chuck was on stage at Lewisham Odeon! There I was shitting red hot conkers and he just walked on and started playing. He's got these little signals, he lifts one leg up for you to stop, crouches down a bit for you to quieten down and he does amazing things. In the middle of a 12 bar he'll do an 11½ bar solo and change key in the middle because he's looking at someone and doesn't notice his big fat fingers have moved up a fret. When all is said and done he's a great performer. On the right day the man's sensational, but on the wrong day you've blown your money. I did a few tours with him and it was good fun and an experience because it was the first time I'd toured with a big set-up — a huge PA and roadies running around everywhere. It was a real pop star-type trip."

Encouraged by his agent Gilson went on to form another band called Beaver, playing country music but after the release of a few singles which failed to make any impression, he became disenchanted. Taking a job in a brickyard he was stacking bricks for three months until a real urge to play again took over and quite by accident he came across Squeeze who were playing in a pub in Deptford.

"I saw an advert in one of the music papers and went down to check this band out but they were awful, so I went down the road to another pub and Squeeze were playing. The band was great but the drummer was terrible. Anyway a fight broke out and the drummer got his nose broken, so I played with them during their second set and I've been with them ever since. This was three years ago and it's the longest I've ever been with any band. When I first saw them play there was a certain kind of electricity about their performance which I'd not seen since the very



early days when you'd go and see the Kinks play and there was some real spark there, some electricity. They weren't worried if the guitars went out of tune, it was just the fact that they were getting some energy across and the audience were going mad. This is why I gave up the job in the brickyard and joined them."

At the moment Gilson has three drum kits, an old Ludwig Super Classic which he keeps at home and two Ludwig Octaplus kits. It has eight tom toms ranging from a 6" through to a 16" single headed mounted concert tom tom, an 18" inch floor tom tom and two bass drums. He only uses six of the smaller tom toms from the 6" through to the 14" and one bass drum because he feels that two bass drums tend to complicate the bottom end of the music. In addition, he has four snare drums and three sets of cymbals.

"I've a Ludwig Black Beauty snare drum and it's so pliable, you can get so many sounds out of it. It's got that distinctive Ludwig sound too. Then there's the Ludwig 400, metal snare drum and I've also got a Pearl which gives me a really gutsy rock 'n roll sound. I recently bought a Piccolo which is 13" in diameter and 3" deep and by tuning it really high I can get an almost Tamla Motown sound out of it. If you deaden it the sound is like those electric drum kits. I mix and match the cymbals depending on what is needed, I've got a rockier heavier set, a lighter set and a very light set."

Although Gilson has used electronic drums occasionally, he believes that in general the range of Syn and Moog drums is too limited. "They sound like a gimmick. I know you've got a board and you can change the sound but all the interesting sounds have already been done

to death. I did see a kit in America though which looked very interesting and I might investigate that."

He has fond memories of the years he spent as a back up and session drummer which helped to develop and shape his style, but points out that this type of experience can also have an adverse effect on a musician. "It can get very oppressive because you can only inject so much into the music and then you've got to hold back. There's a difference between playing what's needed and what you think is needed. You can't be an individual if you're doing the job properly, so you're stuck between doing the job properly and not being an individual, or being an individual and not doing the job properly. It stunts your development as a musician, it must do."

Gilson is in the happy position with Squeeze, which comprises, Chris Difford (guitar), Glenn Tillbrook (guitar), John Bentley (bass) and Jools Holland (keyboards), of having an equal say in the presentation and direction of the music. "I don't always get to play what I want, beat for beat, there are always compromises, but we're a very democratic band. If there's a difference of opinion about anything we always take a vote and because there are five of us we always reach a decision. Everyone gets their fair shout."

"The root of the band is the songs which Chris and Glenn write. And it's our total honesty value which gives us credibility and is our strength. We're not pretentious — we don't pretend to be anything we're not. Chris writes about what he knows and that's why he writes with authority, whether it's about being down at the pub drinking, pulling birds or whatever. He won't attempt to write about anything he doesn't know about — like driving down Maine Street in LA. Although we've done it, we don't know about it, it's not the way we were brought up. And Glenn's melodies are back-to-basic melodies — let's have melodies for a change instead of having big fat chords all over the place. It's basically a question of getting good lyrics and good melodies. The way the band is at the moment I feel we could be together for another 50 years!"

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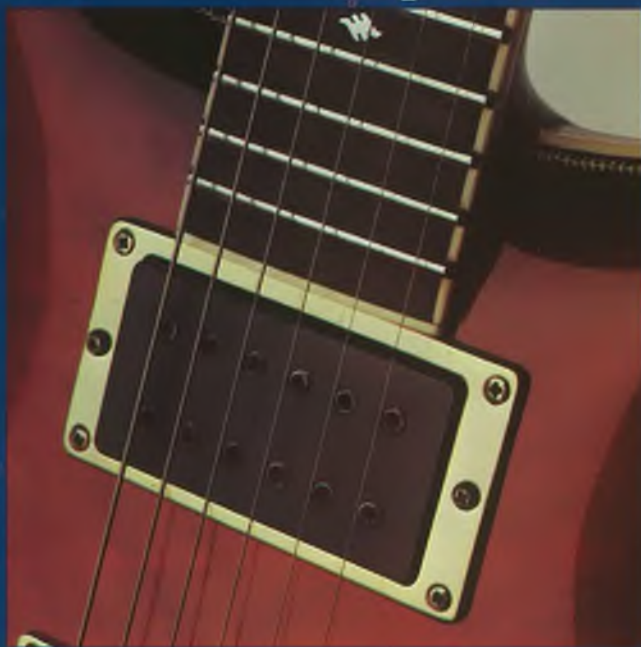


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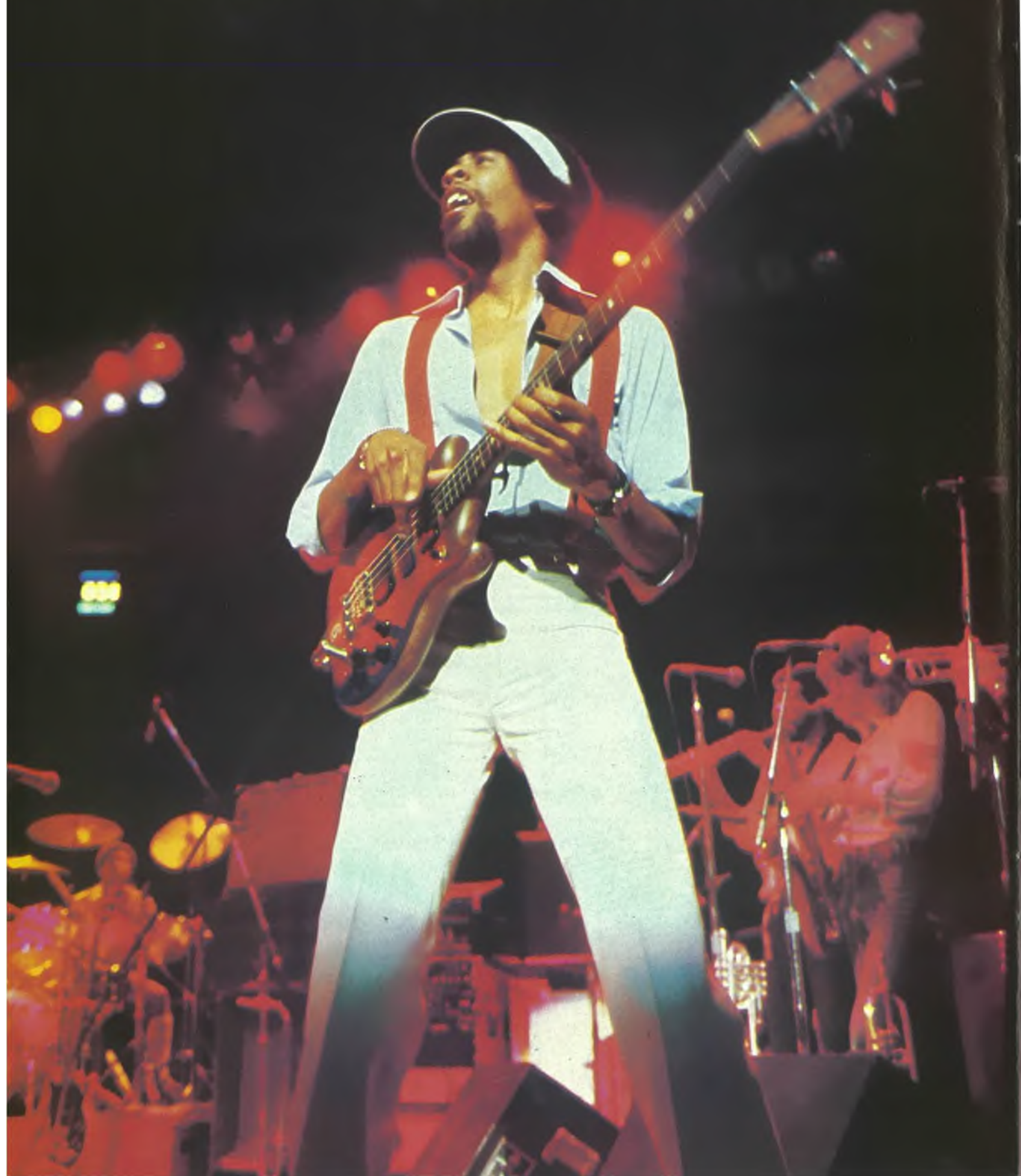
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STANLEY CLARKE

"I've been coasting for the last two years"



Both the jazz and rock press have been quick to condemn Stanley Clarke's latest album, *I Wanna Play For You*, a two LP set of live and studio material intended as a summation of his solo career since leaving Return To Forever, for its repetitiveness, "showiness" and the inevitable jibe in this situation, its *self-indulgence*. Ironically enough, many of these judgements are easily as facile as what the critics conceive Clarke's music to be on recent solo albums. They bespeak the obvious while completely missing the point.

Until a surprisingly frank and open exchange of views via the transcontinental phone lines, I also had some doubts about Stanley Clarke's latest recording. At times, the sequencing on *I Wanna Play For You* does seem haphazard and somewhat unfocussed. And Clarke's flashier tendencies as bass soloist are more pronounced than ever: his playing on tracks like "My Greatest Hits" and "School Days" virtually overwhelms the listener with its full panoply of effects, "unreasonable" speed and pyrotechnics.

But this was not destined to be a "reasonable" album. Judging from the collective heat of the live tracks and the extensive use of photographs from live concerts on the inside gatefold, Clarke takes the title of this album quite literally. Added to the fact that this album doesn't promise anything radically new or different (for reasons which he made clear further on in our conversation), *I Wanna Play For You* stands as a somewhat impressionistic overview of Stanley Clarke's dazzling and always controversial rise to the top rank of contemporary bassists — something he was quick to acknowledge in a conversational exchange marked by an unusual degree of honesty, generosity and reflectiveness.

"That's real perceptive of you. That was my whole intention with this album. A lot of people don't get that, but it's actually a summation from the early days of Return To Forever, actually from the first time I picked up the electric bass until now.

"While I was doing that album, I was writing for my next album in which the music is *really* different. This new music I'm coming out with is much more 'experimental' than anything I've done before and the writing is very involved. So I was also putting out this album (*I Wanna Play For You*) which was rather easy to do. I got the studio stuff, mixed it up — a few live things and some things that were already there — put it together and got it out. It was like I was saying to myself or whoever was listening to it, 'this is a period, a statement of things that I've done, and here it is.' "

This "new" music which Clarke made constant and enthusiastic references to

throughout our conversation is obviously different enough to elude easy definitions or labels. The most apparent change involves an entirely new cast of supporting musicians and a more strictly *compositional* approach, but the underlying attitude behind Clarke's impending stylistic transformation reveals more about the man and his attitude toward his craft than rooms full of liner credits or track-by-track breakdowns.

"This new stuff I've been working on is gonna be very interesting. People are going to be shocked when they hear it. There's a lot of acoustic bass stuff, I've been practising a lot. I'm a funny guy, before I make a real heavy statement about something, I have to make sure all the loose ends are taken care of. Sometimes I go through periods where I do things that aren't worth more than a 7½ or 8 on a scale of ten. When I do that 'ten', I like to make sure it's a ten, not go for a ten and lose because something's f.... up. I'd rather skate a little bit. To be honest about it, I've been coasting for the last two years as an artist. I don't feel embarrassed or weird about saying it either. I've been doing a lot of thinking about music and society and I'm very close to making another statement. Something where someone might say, 'Wow, I've never heard *anything* like this before.'

"That's the beautiful thing about statements. When they come, there's nothing else like them and it's obvious. When I came on the so-called jazz scene, the way I was playing was really wild and arrogant but the bass players at that time *needed* that. All the guys I'd see were into boredom and apathy. I got fired from a lot of gigs, but in the end a statement was made."

Another recurrent theme in our talk was youth and that special kind of energy expended by younger players who seemingly have nothing to lose. At one point, he mentioned that the New Barbarians tour with Ron Wood and Keith Richard made him "feel like a kid all over again. It was a ball." More importantly, his new band is made up of "fantastic" young players who, despite the fact that they're still semi-unknowns, "sound the closest to the music I'm going to be making in the future." A somewhat tentative query about who they are brings forth a voluminous and excited response from Clarke.

"It's wild. They're a brand new band, same instrumentation but the players are different. You might know the drummer even though he's not that well known yet. His name is Simon Phillips, he's 22 years old and he's one of the most exciting drummers I've ever heard. He's been practising for the last couple of years and now he *really* has his shit together. I got a *Jaco* player who played with me on the *School Days* album — this guy's from

Hawaii and his name is Icarus Johnson. And I finally got a great keyboard player, a guy named Steve Boch. All of these guys are closer to the music I want to play, more 'comfortable' with it. You listen to them play and you get the immediate feeling that these guys are totally, 100 per cent professionals, as opposed to the guys who are great players but their professionalism is inconsistent.

"The last band I had was a very exciting band, but they just weren't consistent. Some night we'd sound fantastic, some nights we'd sound all right. This band has that excitement, probably a bit more 'cause they're younger and they have that 'thing'. When a guy is 21 or 22, there's something that comes off the body that I remember having when I was 21. It's like an uncontrollable energy and all you need is someone to say, 'Try this . . .' Like Chick Corea did with Al DiMeola, myself and Lenny White. We were wild dudes, wild people, but we went to school to study the music and we could read any type of music he could put in front of us. That's what this band is about. All the guys are real young and I'm just channelling each guy's energy enough so the music sounds great. This is the most energetic band I've ever had."

A rather extravagant claim, considering all of the high-powered instrumental units Clarke has been associated with over the years. But it is generally acknowledged that energy is a coefficient of youth in almost any musical context, and the key here is Clarke's reference to *professionalism*, which means more than consistent standards of performance. It means the ability to read anything Clarke puts in front of them and interpret it. A crucial facet, that according to Clarke, is lacking in most young jazz-rock or 'fusion' players and is quite possibly one of the main reasons why the fusion movement has largely deteriorated into funk re-hashes and "desperation-disco" music.

"When I think about the jazz-rock or 'fusion' movement or whatever you want to call it, I actually get sad. There was a movement there — like today you have the 'punk rock' thing and the re-emergence of old rock 'n' roll. Jazz-rock was a new thing and it definitely got diluted. And the reasons are obvious. The groups basically broke up because of guys trying to be stars, personal hassles, egos, bad leadership, all those problems.

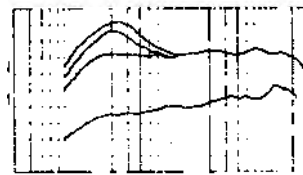
"Back in the beginning, you had three 'name' groups — The Mahavishnu Orchestra, Return To Forever and Weather Report. I've got to hand it to Joe (Zawinul) and Wayne Shorter especially 'cause they're sticking it out although their music's changed a lot. When they added Jaco Pastorius I thought it was a great move because I really like his

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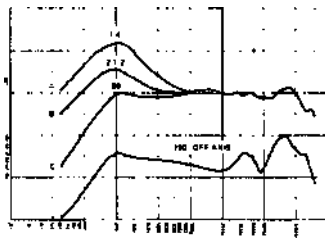
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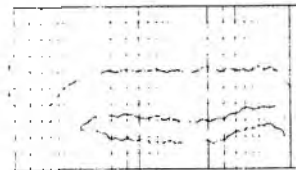
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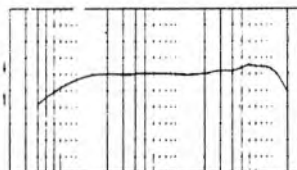
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playing. But anyway, Mahavishnu Orchestra broke up and each one of those guys formed a band. Return To Forever broke up and those guys formed different bands, and the guys that had spun off from Weather Report formed bands, and then all those bands broke up! And the reason why it happened *isn't* because the artists are trying to sell out and it *isn't* because the artists don't want to do it. It's because the *players* aren't there, I'm tellin' you man. No offence to the younger guys but there's only a handful who could do it. This band is the first band I've had in my solo career where *all* the guys could read. So now I can write music a particular way and get it done."

Point well taken, but what of the plain fact that many jazz-rock "pioneers" like Clarke, Chick Corea and John McLaughlin have done some of their best work when bouncing off each other? Isn't there a special inter-relationship between the original players from the first three fusion bands that can't ever be duplicated, no matter how talented the supporting players?

"It's obvious. When I get around guys like John and Chick you can see it in their faces, realizing the mistakes that were made. It's stranger for me and Chick to be on the same show but not in the same band. I have a feeling that all of this stuff

is gonna come around in the Eighties. In my opinion, the funk-jazz thing has run itself out, all the guys are starting to sound the same. It's like disco, you don't have 'originals' any more. It'll take a big push to get things going again, but it's happening. Everytime I see a young musician who's 18 or 19, every bass player I hear, they're sayin' 'Yeah man, you're the greatest, but when you were with RTF, that was the *shit*.' I've only heard that statement about 3,000 times. As a matter of fact, I am personally going to see to it that Return To Forever records again. We are going to make another record, I'm gonna see to that."

In the meantime, Clarke will continue to pursue his musical directions with a great deal more foresight and intelligence than people give him credit for. To accomplish that end, he has an impressive collection of electric and acoustic basses (lovingly detailed in a photo on the liner sleeve of *I Wanna Play For You*). Besides a dozen "original" Alembic custom electric basses in different woods, Clarke has a varied and extensive collection that mirrors his eclectic approach to the music.

"Yeah, I used to use Gibson and Fenders. I like the old ones. I still have an old Fender 'Precision' and an old Gibson. The rest are custom basses or basses that companies give to me. The Alembic basses

are the 'earlier' ones — I had a bunch made in the days when they were hand-made. Each one has different features, different woods, different weights, I'm into the weight of basses. I have one Alembic that sounds incredibly heavy but is actually very light — a kid could play it. That's my favourite bass.

Clarke also uses an interesting variation on the electric bass, the Carl Thompson "piccolo bass." "To be honest, it's not totally his (Thompson's) instrument. It was my idea and he built it. He thought I was crazy when I first asked him to build one. It's actually a bass that sounds an octave higher than a normal bass, but it has to look exactly like a conventional electric bass. The strings had to be as long, though not as thick, the frets had to be as wide — that was the problem, I have big hands and I couldn't play it if it was just gonna be a guitar with bass strings on it.

Clarke's collection of old European contra-basses includes an old Italian bass (late 1790s or early 1800s) and a hundred-year-old German instrument. He is actively searching for an old French bass like the one Ray Brown has ("it's shorter than normal basses") and if anyone actually has a legitimate one to sell, he or she is encouraged to let Stanley know about it.

His amplification set-up consists of four bass bins (he uses two at a time) with Gauss speakers and four mid-range cabinets (two have tweeters for full-range response) with Vega speakers — all powered by Crown amplifiers and an Alembic pre-amp. The only effect used by Clarke is the Roland "Space Echo," to get a little delay in his sound.

Normally he takes four Alembics on the road with him and he's just had a new one made for the prepared or "open" tunings which he is currently using. An avid endorser of Rotosound strings, he mentions that "the Rotosound people have just developed some special strings for me to use with the new Alembic. Their strings have always given me the clarity and tone I need for my sound. They do chew up the frets a bit, but I just have my basses re-fretted if it becomes a problem."

In closing what has been a genuinely pleasureable and informative exchange, I ask Clarke about his totally distinctive attack on the electric bass, an underrated component part of any instrumentalist's approach.

"The attack and fingering or shaping of the notes is *so* important, man. That's what makes a sound *likeable*. Jaco has that, too. In fact, his electric bass sound is closer to what I get on an acoustic bass. My electric bass playing is harder. It's all in the way you pluck the bass — not the types of notes, that's secondary — its something so subtle, its often overlooked."

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Guitarcheck

Mugen
limited edition
Jumbo
£179.80
inc. VAT

There is no need for this to be a very long review. I have seen two samples of this model of guitar: the second one, as reviewed here, was chosen at random, unseen. Both samples were, in my opinion, very pleasing instruments suitable both for private and for on-stage use.

One generally expects "limited-production" guitars to be more expensive than the maker's standard models. In this case, the 'limited edition' Mugen is in the *middle* price range of a group of three jumbos and three 12-strings. From my memory of instruments at the Olympia show I would probably choose this mid-range model in preference to the more expensive one — irrespective of price.

The review sample arrived without any label inside, but I am fairly certain that the maker is not actually called Mugen: the machine heads, incidentally, are labelled "Yamaki". It is my experience that Japanese guitar companies tend to keep to the same basic neck design and shaping, once they have found a successful and reliable method.

I believe I have seen this neck before, on more than one brand of instrument. However, importers like to give an individual name to their own chosen range of instruments, and why shouldn't they, if they are able to offer this sort of quality for £180!

This Mugen guitar is called "Heritage '78" in the importer's catalogue. The stamp on the neck block inside the body reads "The '78". Apparently, both refer to the same guitar: the other two Mugen 6-stringers are the Mark I and Mark V.

According to the catalogue, the front of this instrument is made from solid cedar, with a brown antique-mahogany finish. This is quite correct. However, the catalogue does not tell you that on the inside of this cedar soundboard is a very neat and precise strutting job, incorporating the 'scalloped bracing' which you may have read about in histories of old Martin guitars and advertisements for expensive Japanese steel-string acoustics. There are various styles of this scalloped (or thinned-down) bracing which is generally intended to make the guitar more responsive and to improve the tone. The shaping of braces in this Mugen is not precisely the same as you would find in an old Martin of similar shape and size, but there would be no advantage in making an identical copy of the bracing, for use in a quite different guitar. The final test lies in the performance, and for a reasonably-priced factory guitar, the performance is excellent. It would be fair to assume that the internal bracing, while similar to that in some old American instruments, has been modified to give the optimum performance with this particular model of guitar. The carving and shaping work inside this review sample, shows no signs of hurried production or cut corners. It is quite possible to find other guitars in this price range which exhibit rather scrappy work inside.

The sides and back look like dark-finished mahogany and are described as ovancel. Both sides and back appear to be laminated, rather than solid wood, but the back in particular has a bright resonant response to tapping. Most laminated backs are a bit lacking in resonance, when compared to a solid back of suitable wood. Some Japanese jumbos sound loud and impressive, but somehow muddled at the bottom end. This Mugen, in addition to a good overall sound, has unusually clear articulation between the bottom notes, even when the strings are no longer new and fresh. It occurs to me that a "soggy" back may possibly be a useful feature in a loudspeaker cabinet, but it is not likely to do much good in an acoustic guitar. I wonder whether the unmuddled bass of the Mugen has anything to do with the construction of the back panel. It might be the wood or it might perhaps be a different process of glueing the laminations together.

Although this review sample was sent to me with some really fresh strings, and I do appreciate this luxury, I deliberately played it for a couple of days until the strings had reached the usual slightly-worn level found on review guitars. The Mugen still sounded good and 'open', although obviously not as crisp as with good quality new strings. Incidentally I believe the strings are light-gauge bronze from the Mighty Mite string range, also distributed by Rosetti. I am equally pleased with the strings and anyone who like acoustic steel strings with a rich and crisp sound should give them a try.

The neck is made from natch wood finished in a light mahogany colour. Match looks a little like mahogany, but with larger pores in the grain, and it is also porbably a bit softer than mahogany. In a steel-string neck with a good solid fingerboard and an efficient truss rod, this is not of great importance unless someone decides to cut a big hole out of the neck, behind the nut, for the truss rod adjustment



point. This is the weakest point of the neck and head in most steel string guitars, and cutting away wood from the inside does nothing to help. The Mugen neatly side-steps the difficulty by putting the truss-rod adjustment point at the other end of the fingerboard, just inside the soundhole. This design can also be found on several other makes of guitar and I think it is a very sensible arrangement.

The fingerboard, bridge and head facing are made from dark rosewood. The position dots in the front and edge of the fingerboard are polished brass, as are also the nuts and saddle. I have been a bit cautious about brass bridge saddles on acoustic guitars, but from the evidence of this instrument, they obviously *can* work well, if designed and fitted with enough attention to detail. The wooden bridge pins are inlaid with small pearl dots. The dots don't improve the sound, but they look nice against the fairly plain rosewood bridge, and the wooden pins will not bend or break as easily as the usual plastic ones.

Both front and back body edges, the edges of the fingerboard, the front outline of the head and the ring around the soundhole are bound with pale maple wood banding with a fine inner layer of a darker wood. Please note — this is all *wood* edging, not cream plastic. Very tasty it looks, too!

The frets are not brass; they are the usual polished nickel-silver, well fitted and trimmed. Incidentally, I am waiting for the first guitar manufacturer, (swept along on a tide of enthusiasm and brass accessories) who tries to claim that his guitars are better because they are fitted with *brass* frets. Remember that first guitar you had, with the gold-coloured frets which turned green and rotten with the sweat from your fingers? Those were brass frets!

All six machine heads work smoothly and accurately, and there is no sign of strings sticking or creaking in the nut grooves as they are tuned. To my taste, the strings are too high over the first fret and I would probably cut the nut groove a little deeper. I would also raise the bridge saddle about 1mm on the bass side. While the present action is ideal for fingerpicking, it is just too low on the bass side for some of the things I like to play with a pick. Occasionally the bottom string buzzes. This is a marginal point and open to disagreement. Someone who played slightly less hard or who used a lighter pick would find the action quite satisfactory.

The neck is straight and rigid, and the back is carved into an unusual shape, like a 'triangular' Martin neck with a rounded over point at the back. It is not particularly slim but it is certainly comfortable, and it has the right sort of feel for an American-style jumbo.

Conclusion

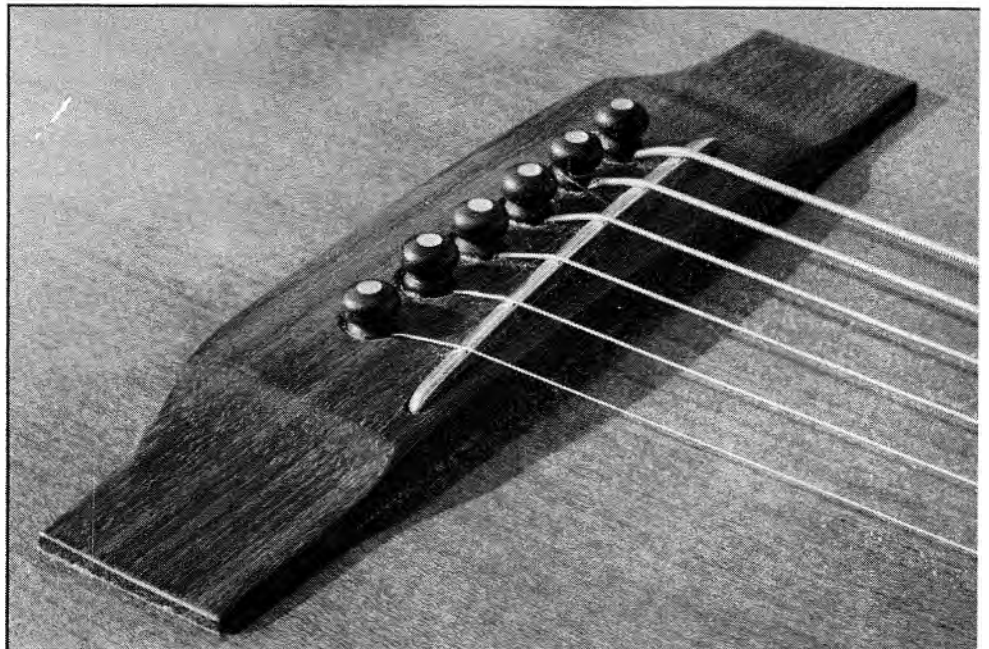
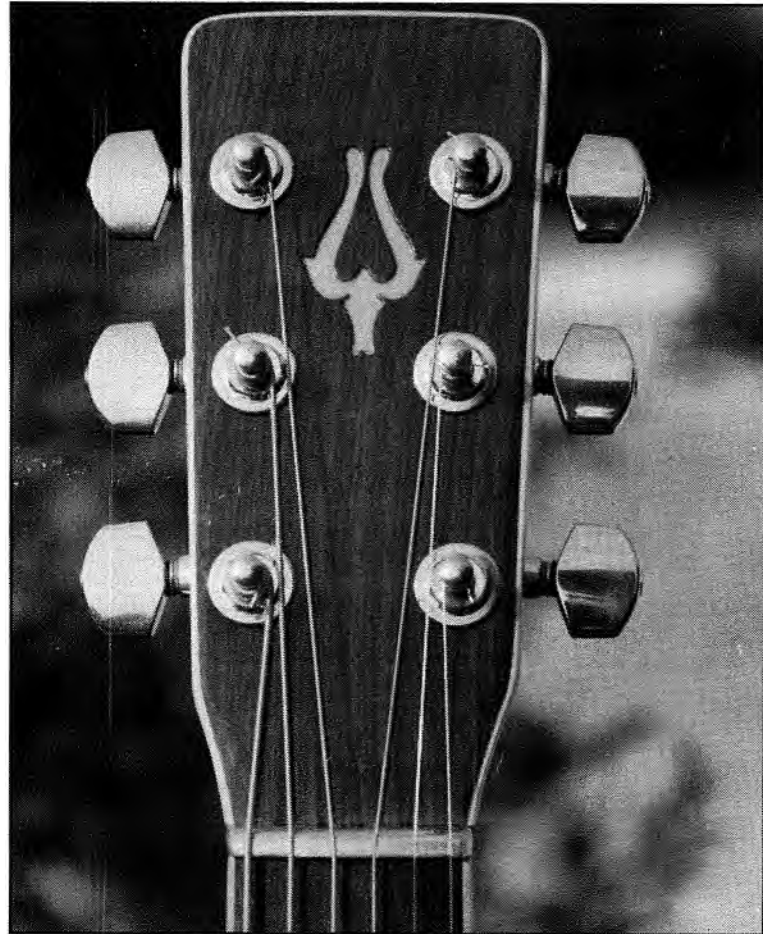
For £180 it is difficult to find any serious criticisms of this guitar. There is a tiny smear of brown colour on the pale soundhole surround. I think perhaps black or dark wood dots in the *edge* of the fingerboard would be more visible against the maple edge binding. My sample performs well when picked gently, but it also sounds good when played hard with a pick. Much though I like its reserved and unflashy appearance, I think there should be an (optional) stick-up scratchplate to protect the front from the ravages of heavy-handed players. A good imitation tortoiseshell would look nice. This is a fine instrument at a reasonable price. My congratulations to the designer, and to Rosetti for making it available to the UK.

Stephen Delft

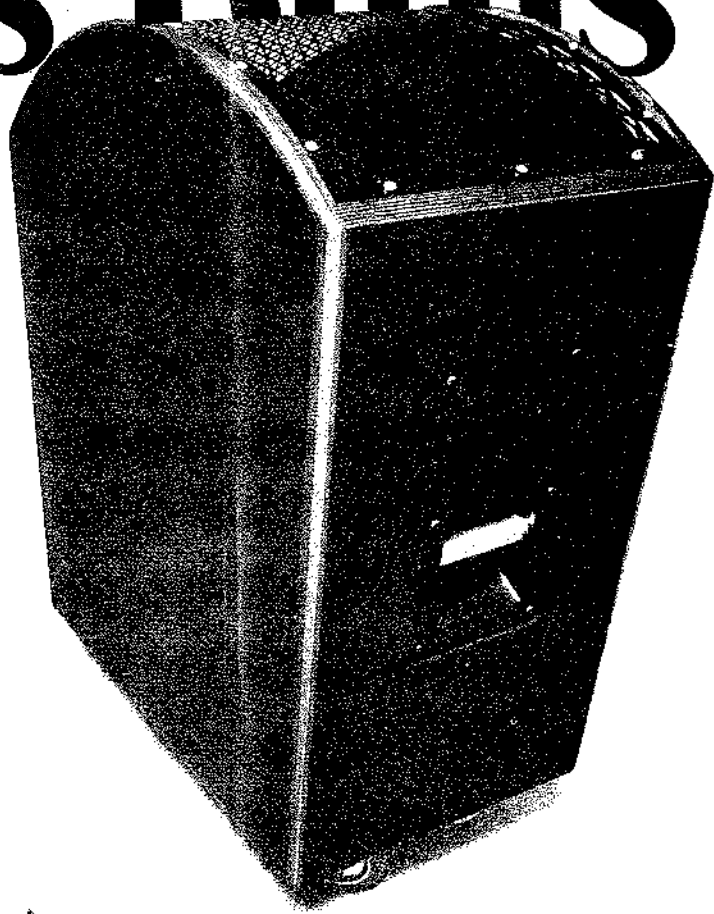
Measurements on Mugen '78 Ser 9062211.

Scale length	640 mm
String spacing at bridge	53 mm
String spacing at nut	36 mm
Fingerboard width at nut	43 mm
Depth of neck at 1st fret.	22.5 mm
Depth of neck at 10th fret.	26.5 mm
Heel begins at fret 11	
20 frets on fingerboard.	
Body joins at fret 14.	
Action as supplied	2 mm treble / 2.7 mm bass
(Preferred action)	1.8 mm treble / 3.2 mm bass)

Stephen Delft is a maker and repairer of guitars and other instruments, and a member of the Institute of Musical Instrument Technology. He is also a more than capable performer on the guitar.



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Soundcheck

Darburn SRV 100M Combo £294 inc. VAT

Another *Soundcheck* debut for a combination amplifier from Darburn Limited of Peterborough, Cambs — proving the indisputable fact that a lot of new things are going on in the audio industry at the moment. For many of our readers, the Darburn name may be new, so let's have a quick look at a few products from their new instrument range. *The Darburn Bass 100 Combo*: designed as a very portable unit for the bass player (100 watts, single 15" loudspeaker and one bass channel) with a weight of under 40kg. *The Darburn KGP100 and KGP50/80 Combos*: designed for the keyboard player and guitarist and all keyboards including synthesizers, organs, electric pianos and even electronic accordions, 100 wRMS (KGP 100) or 50 wRMS (KGP50/80). *The Darburn 100 1x15 combo*: designed for pedal steel guitar and again the keyboard player, 100 wRMS delivered by one 15" loudspeaker, two channels (four ¼ inch jacks). But for Darburn's debut, we selected the *SRV 100M combo*, manufactured with the lead guitarist in mind, featuring a "no fuzz" sustain, adjustable to "deep fuzz" effect if required. Fitted with a special sustain sensitivity control to eliminate mechanical feedback, a 'noise gate' to reduce background noise while playing sustain, and also including a separate remote control switchable volume control for normal and sustain operation, a bright switch which 'cuts the audience in . . . half' and a master volume to achieve 'overload'.

Construction

Beginning with the control panel, there are two channels. *Channel One* provides two ¼" jack inputs, Volume (normal operation), Volume (sustain operation), Tone (adjustable sustain effect), Bright switch and Tone controls (treble, middle, bass), Vibrato controls separate for speed and depth and Reverb level control (independent of either volume setting — Hammond spring). *Channel Two* again provides two ¼" input jacks with the standard volume, treble, bass and middle controls. Finally the far right side has the Master volume potentiometer. Additional features include: one 15 ohms extension speaker socket, slave output (approx. 800mV/600 ohms) to suit most slave amplifier inputs, mains voltage (110-120V/220-240V; 50/60Hz) and selector switch. Everything is encased in a smart 18mm thick cabinet with plated steel corner pieces and

Mark Sawicki MSc.(Eng.)Ph.D. is a consultant in electronics who also designs and builds electronic equipment.



permanently fixed white nylon heavy duty castors.

Before explaining the most interesting features of the SRV 100 M Combo, the *guitar effects* provided, I should mention that this combo is a really exciting piece of equipment for experimenting musicians as its effects circuits are both comprehensively designed and efficient in audio terms, thus allowing for a bit of experimental work to be done without going for the usual chain of add-on boxes.

Sustain is the most important feature for a rock guitarist, and without doubt the provision of good sustain at any volume, including low volumes is essential. The SRV 100 M's sustain volume is also controlled by a special volume control; thus disposing of the problem of increasing volume when switching to sustain. Additionally, the volume controls are selected by remote footswitch provided with each SRV 100 M amplifier. The sustain unit is of the compressor type, which in no way limits the overall volume of the amp, i.e. the output level is independent of the input signal. There are two outputs from the sustain circuitry and as Darburn claim, with one output, the peaks of a sinusoidal waveform are slightly rounded giving an effect very similar to that of a valve amplifier at the point of overload. The other output consists of a square waveform giving the expected fuzz sound. The two outputs are fed to a mixing control on the front panel (sustain tone) so that an infinite number of variations from pure sustain to deep fuzz can be easily achieved by adjusting a single control. The sustain effect description cannot be completed without mentioning the sustain effect sensitivity control (anti-feedback control), which is provided in order to minimise/eliminate feedback problems associated with very high gains necessary to achieve sustain. This control is located at the right hand end of the chassis looking at the back of the amplifier, thus certain guitars which normally suffer from mechanical vibrations of the pickups, work just as well on the amplifier. Also this control can be used to reduce or lengthen the sustain period if necessary.

Well, that was the Sustain. The two remaining effects are *Vibrato* and *Reverb*. The *Vibrato* sound is quite good with the depth control giving the required depth balance. However, I feel that the vibrato speed pot on the 'slow' side could go into even slower regions because, as it is now, there are no speed changes from zero to approximately three before the modulation speed really starts up. The reverb sound quality is of the usual high Hammond standard, objectively accepted by the audio industry as one of the best available. The tone controls are Non-Baxandall type, i.e. "connected in series" and give very little output when all controls are in the full anti-clockwise position — you should always remember this. One thing which confused me a little was the specific wiring arrangements with inputs 1(A) and 2(B) on both Effects/Normal channels. As there are separate volume controls provided for these inputs you should use input 1(A) before input 2(B), i.e. a second instrument is plugged into input 2, and eventually this rule applies to both channels.

Conclusion

As a *Soundcheck* debut, it is a good one for Darburn, as the amp produces the right sound with a full 100 wRMS continuous power output and meets the manufacturer's specification adequately (where appropriate). Unfortunately, as on many occasions, the manufacturer provided us with very little as far as the SRV 100M specification is

concerned, and I don't think that the SRV 100M operating notes provided explained everything sufficiently, as the amplifier has a lot to offer and really deserves a proper user's instruction manual.

Electronically, the amp is professionally built with total exclusion of op-amps and uses only transistors and standard components — for easy servicing.

There is a small, but nevertheless *important*, criticism. The mains lead, which is soldered directly to the circuit, enters the chassis via a rubber grommet and is not secured (plastic clips would do the job); with rough handling it may become

dangerous. I would be pleased to hear Darburn's comments on this. The second point concerns the mains selector switch protected by (in my view) a too small and too fragile piece of hardware, so that the wrong operating voltage selection is made easier and consequently damage to the amplifier may occur.

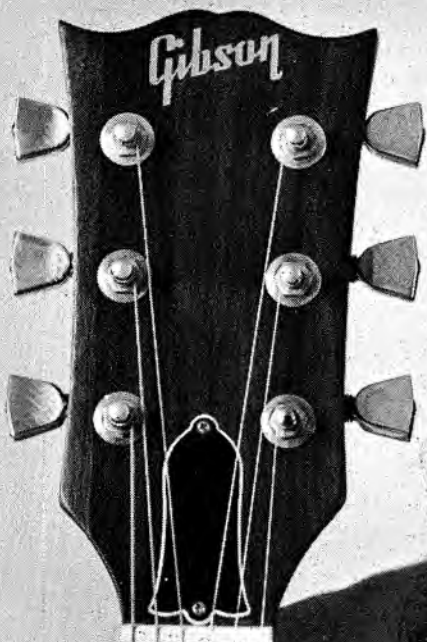
Both these points may be simply corrected and I'm sure Darburn will accept these important comments constructively. Apart from this I'm impressed with the SRV 100 M combo's performance which, soundwise, can always be recommended.

Mark Sawicki

Apologies: The Traynor price for the TS25 Combo which we reviewed in the August issue should have been £158.70 including VAT not £242. We apologise for this error.

PARAMETER	RESULT	CONDITION	COMMENT
Specific power output (WRMS) at 1kHz	105.06 WRMS 87.78 WRMS 72.25 WRMS	Onset of clipping into 4 ohms Onset of clipping into 8 ohms Onset of clipping into 16 ohms	The Darburn SRV 100 M is a 2x12" solid state combination amplifier giving a full 100 WRMS continuous sound output. Speakers: 2x12" G12/80 (Rola-Celestion) metal domed loudspeakers. Power Amp: Output Stage: 2x2N4348 (RCA) matched pair. Driver: 2N 3055 (RCA).
Total harmonic distortions (THD%)	4.55% 3.92% 3.70% 3.41% 3.18% 3.05% 3.35% 3.53%	at 100 WRMS at 80 WRMS at 60 WRMS at 40 WRMS at 20 WRMS at 10 WRMS at 5 WRMS at 1 WRMS	THD measurements refer to: "Shape" at minimum "Sustain" sensitivity at 2 "Master" at 7. Master volume operates over both channels thus allowing the additional facility of overload. The master volume also overrides the sustain effect volume control thus allowing overload and sustain to be mixed.
Tone control range (swing in dB)	Channel No.1 29.2dB swing 25.5dB swing 15.9dB swing Channel No.2 27.5dB swing 29.1dB swing 18.9dB swing	Treble at 10kHz, Bass-10, Mid-5 Bass at 100Hz, Treble-5, Mid-0 Mid at 400Hz, Treble-5, Bass-0 Treble at 10kHz, Bass-10, Mid-5 Bass at 100Hz, Treble-5, Mid-0 Mid at 400Hz, Treble-5, Bass-0	Quite efficient. The tone controls are connected "in series" and give very little or no output when all controls are turned fully anti-clockwise. The overall bass response of the SRV 100 M is further increased by a specially designed power stage giving an output impedance of approx. 8 ohms which does not overdamp the speakers.
Input sensitivity in mV RMS for 100 WRMS (20 VRMS) output signal Ref. 1kHz	Channel No.1 5.1 mVRMS Channel No.2 10.2 mVRMS	Ref. Bright s/w — Off; 1kHz/4 ohms dummy load; Treble/Middle/Bass — Max. Master — 9. Ref. 1kHz/4 ohms dummy load; Treble/Middle/Bass — Max. Master	Darburn claim nominal sensitivity Ch.1 — 10mV; Ch.2 — 15mV at 1kHz. Ref. controls clockwise. Bright switch — Off. Two channels are provided, each fitted with 2 x 1/4" jack inputs.
Sustain compressor threshold level	Approx. 3 mVRMS	Ref. 1kHz; sensitivity and gate controls fully clockwise	Input 1(A) should be used before input 2(B), i.e. a second instrument is plugged into input 2(B). This rule applies to both channels. Sustain circuit incorporates a 'noise gate' which mutes the amplifier in the absence of an input signal thus reducing background noise to a minimum when the guitar is not being played.
Slave output level	0.891 VRMS	Ref. 1kHz/600 ohms at nominal power output	Manufacturer claims slave output 800 mV into 600 ohms to suit most slave amplifiers inputs
Reverb	0-100% Mix	Hammond spring (electro-mechanical device)	Reverb Driver: single RCA 40361 transistor. Reverb controls: level pot (calibrated 0-10) and footswitch (On or Off marked "R")
Capacitive load test	OK	2uF non-electrolytic capacitor and 4 ohms dummy load	External speaker output recommended load is 16 ohms
Open circuit stability test	OK	Dummy load removed. Tone Controls/Bright/Master Volume / Max	Stable during D.C.S. tests
Short circuit test	20 seconds		Passed this test

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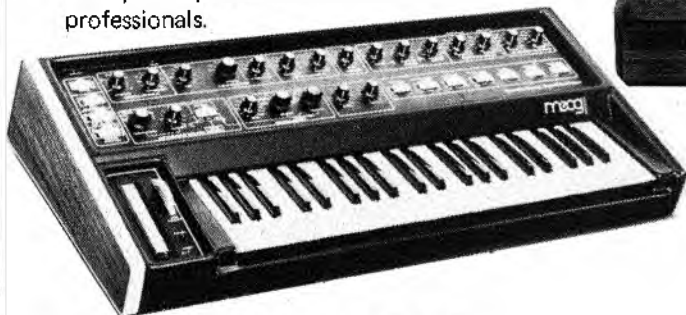
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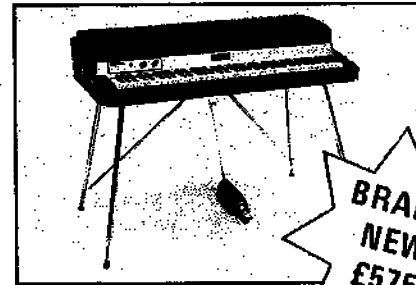
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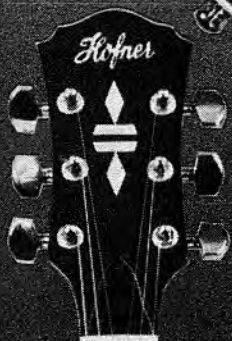
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PA:CE MOS-FET SR402 Power Amp £747.50 inc. VAT

Since their original introduction around the mid-Sixties MOS-FET power transistors have undoubtedly been accepted as one of the most revolutionary types of semi-conductors in recent years, opening up new and exciting applications technically impossible so far with the old bi-polar transistors. Power MOS-FET devices appear to have three fundamental advantages important in audio power applications; (a) extremely rugged, (b) very easy to match, (c) can be paralalled (to increase the output power capability) — without fear of disastrous consequences. With all these points in mind PA:CE Studio Equipment Ltd of Peterborough, rushed in with this new technology, launching their new SR402 Slave type Power MOS-FET Amplifier, designed for quality stage PA's and/or studio monitoring applications.

Construction

The SR402 Power Amp is a 400 watts into 4 ohms, dual channel power slave using Hitachi MOS-FETs as output devices. This amplifier offers quite low harmonic distortion levels with relatively small amounts of negative feedback and a good transient response which is due to the excellent high frequency characteristics of the output transistors. The amplifier also features such things as high slew rate, comprehensive protection circuitry, AC or DC coupling, LED indication of peak power, complete thermal stability, optional electronically balanced inputs etc. Basic amplifier dimensions are 19" (483mm) wide, 5 1/4" (130mm) high, 15 1/2" (394mm) deep, and its weight is 21 kilos.

The SR402 amp is initially designed for a 19" rack mounting, however, rubber feet are provided as standard, therefore the amp might also be used as a separate unit. The front panel painted in black matt really incorporates the minimum of indicators and controls with twin LED columns for power output indication of 200,100,50,25,10,5 watts (into 8 ohms), a mains on/off rotary switch, and finally a pair of 1/4" thermal and mono indicators. The lower centre part of the front panel is blanked with a rectangular, easily removable metal plate hiding a pair of fuses and both left/right channel gain potentiometers.

Electronically, the SR402 is a very interesting design, with dual FETs on the input stages, giving accurate thermal tracking and eventually allowing the following circuitry to be DC coupled without all the usual problems. The second stage consists of a pair of high voltage transistors with a substantial constant current loading, to ensure that transient intermodulation distortion is not caused by the usual inability to charge the compensation capacitors. Finally the output stage consists of three pairs of complementary Hitachi power MOS-FET devices connected in parallel to increase the output current capability. PA:CE claim that although the SR402 is totally DC coupled, in applications where high levels of very low frequency energy may cause speaker damage, internal capacitors may be switched into the circuit to limit frequencies below 20 Hz. For normal audio use, especially for tape editing, PA:CE recommended that AC coupled position should be used.

Another feature of the MOS-FET transistors is that there is no minority "carrier storage" time, or in simple words, the magnitude of a few amperes for example, of the passing current can be switched very fast, i.e. in a few nanoseconds, which is about 10-200 times faster than the best bipolar transistors, and this feature enables the SR402 to have quite a low distortion level without the usual use of large amounts of negative feedback signal. On the other hand, the improved open loop response means that

distortion does not rise drastically at high frequencies. PA:CE claim that the SR402 will give over 150 watts at 100 Hz with less than 0.1 per cent of THD — something rather difficult to find in bipolar designed amps.

To finish off, the remaining MOS-FET design advantages, one more term should be mentioned — thermal stability and associated secondary breakdown or current hogging. Because of the negative temperature coefficient (bipolar's is positive) of the transistor's drain current, in situations where this current density increases, thus resulting in an increase of temperature, the current automatically equalises itself by the MOS-FET transistor, so that thermal runaway should not take place (at least in theory!).

Thermal stability combined with good short circuit protection enables the SR402 to be recommended for delivering high power levels even into a complex load configuration. Concerning details of the amp's construction. The service access is dead easy from top or bottom of the enclosure, just by removing a few small screws. The central part of the box is used for housing a massive toroidal mains transformer with each channel's separate rectifier and smoothing electrolytics with a total capacitance of 64,000µF — AAgH!

The input stages of the SR402 are powered separately by a high voltage stabilised supply, consequently the mains hum should not be injected into the voltage/gain stages.

Conclusion

The SR402 inputs are 1/4" jacks and unbalanced XLR Cannons of 50 kohms impedance, however, PA:CE can supply electronically balanced instrumentation input amplifier units for this job. The amp can be operated in bridged mono mode in situations when over 500 watts into 8 ohms is necessary. On practical tests, the specified power levels are quite conservatively rated and the SR402 gives even slightly more with the specified load impedances ranging from 2.5 to 16 ohms range. Other specifications and parameters are generally in agreement with those claimed. The manufacturer could calibrate the power output LED indicators more accurately, however this depends on the tolerance and class accuracy required by the user. As it is now, the peak reading ability seems to be superior to that obtained with most popular electro-mechanical meters, as continuous indication of the output power is available on the spot.

Another general remark referring to the practical use of the SR402. The heatsink operational temperature when the amp is driven to mid-high power levels, reaches about 75°C, so one has to remember that for prolonged and especially heavy-duty operation, an accessory fan unit should be attached to the rear of the SR402. Internal temperature sensors controlling the output socket are provided so that the fan operates only when necessary.

Summing up, the PA:CE SR402 MOS-FET power slave's performance, advanced new technology and quality of workmanship puts this piece of equipment on the quality end of the audio gear market and seems to be a substantial step forward in power amp technology. From the practical reliability point of view, we will have to wait for a while for the comments from engineers and musicians as the products have only recently been launched on the market, however, it seems to be an extremely promising construction, and I'm looking forward to comments from future users.

Mark Sawicki



**PARAM-
ETER**

RESULT

TEST CONDITION

COMMENTS

Specific power 558 W RMS
Output 552 W RMS
A = Left channel 449 W RMS
B = Right channel 434 W RMS
243 W RMS
241 W RMS
170 W RMS
169 W RMS

A: 2.5 ohms) }
B: 2.5 ohms) } Ref. 1 kHz
A: 4 ohms) }
B: 4 ohms) } Ref. 1 kHz
A: 8 ohms) }
B: 8 ohms) } Ref. 1 kHz
A: 16 ohms) }
B: 16 ohms) } Ref. 1 kHz

} at on
} set of
} clipp-
} ing

More than specified PA:CE claims; power output per channel into:
16 ohms 120 watts
8 ohms 240 watts
4 ohms 400 watts
2.5 ohms 550 watts
The output stage consists of three pairs of complementary power MOS-FET devices (2SJ50/2SK135 Hitachi) connected in parallel to increase the output current capability.

Total Harmonic Distortions (THD) 0.04%
0.029%
0.013%
Ref. 1 kHz 0.003%
0.002%
0.002%
0.04%
0.027%
0.011%
0.002%
0.001%
0.002%

@ 400 W RMS) }
@ 300 W RMS) } into 4 ohms
@ 200 W RMS) } Ref. 1 kHz
@ 100 W RMS) } Channel A
@ 50 W RMS) }
@ 10 W RMS) }
@ 400 W RMS) }
@ 300 W RMS) } Into 4 ohms
@ 200 W RMS) } Ref. 1 kHz
@ 100 W RMS) } Channel B
@ 50 W RMS) }
@ 10 W RMS) }

Manufacturers claim less than 0.008% THD at 1 kHz; 200 Watts into 8 ohms. The high switching speed of the power MOS-FET devices has enabled the SR402 to have quite low distortion levels without the use of large amounts of negative feedback. The improved open loop response means that distortion does not rise drastically at high frequencies — for example with its H.F. filtering removed this amp will give about 150 watts at 100 kHz with less than approx. 0.1% THD!!!

Intermodulation Distortions I.D. Less than 0.02%

Ref. 200 watts into 8 ohms;
60 Hz and 7 kHz test.

Acceptable. The 2nd stage of the SR402 amp consists of a special pair of high voltage transistors with "constant current" drive. Man. claims that current fixed in this stage is much greater than in usual MOS-FET amps to ensure that transient intermodulation distortion is not caused by its inability to charge the compensation capacitors.

Input Sensitivity (for 400 WRMS (40VRMS) output signal) Ref. 1 kHz
A: 1.179 V RMS
B: 1.193 V RMS

Ref. 1 kHz. Gain controls set at MAX in both left and right channels.
4 ohms dummy load applied.

Satisfactory. PA:CE claim for SR402 input sensitivity of 1 volt RMS for rated output level.

Input impedance Approx. 50 kohms

Ref. 1 kHz

Normally unbalanced. The SR402 can be supplied with electronically balanced instrumentation input amplifier units if required.

Frequency Response +0 to -0.2 dB

Ref. 20Hz - 2 kHz

Very good. The SR402 is totally D.C. coupled in applications where high levels of very low frequency energy may cause speaker damage. Internal capacitors may be switched into circuit to limit frequencies below 20 Hz.

Hum and Noise -112 dB

Below 400 watts RMS

Acceptable for most normal applications.

Slew Rate 80 V per microsecond

Fast and adequate for all applications.

Damping Factor Greater than 100

Ref. 100 Hz

Satisfactory.

Power Output LED indication (Peak Watts 80 ohms)
A: 202.00 watts
B: 183.36 watts
A: 100.82 watts
B: 98.00 watts
A: 56.19 watts
B: 54.60 watts
A: 32.32 watts
B: 31.64 watts
A: 16.15 watts
B: 15.62 watts
A: 9.79 watts
B: 9.20 watts

Ref. 200 W. Level }
Ref. 200 W. Level }
Ref. 100 W. Level }
Ref. 100 W. Level }
Ref. 50 W. Level }
Ref. 50 W. Level }
Ref. 25 W. Level }
Ref. 25 W. Level }
Ref. 10 W. Level }
Ref. 10 W. Level }
Ref. 5 W. Level }
Ref. 5 W. Level } 1 kHz

Man. claims "Peak Watts" reading. Power output indication is given by twin LED arrays at 200,100,50,25,10,5 watts into 8 ohms.) Continuous indication of output power is available. Useful however could be more accurately calibrated (see results column). Power measurements accuracy is ± 1%.

Capacitance Load Test OK

Two microFarads non-electrolytic capacitors and 4 ohms dummy load.

Stable work with a load impedance from 2.5 to 16 ohms selected.

Open circuit Stability Test OK

Dummy load removed. Both channels gain controls set at Max.

Stable during O.C.S. tests.

Short Circuit Stability Test 60 seconds

The SR402 has comprehensive speaker protection, if an amplifier fault should develop high level DC voltages cannot appear at the output terminals. (For details see text.)

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- Two comprehensive voltage controlled low frequency oscillators with variable waveforms.
- Two ADSR envelope generators with LED displays.
- Analogue delay line for echo, chorus, flanging and reverberation effects.
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The EMS POLYSYNTHI is played by means of a 4-octave pressure sensitive mechanical keyboard. This supplies polyphonic information to the oscillator bank, plus two control voltages corresponding to the highest note played and the pressure applied. These voltages may be routed to the other devices.

Above the keyboard is a 6-bus switching system. Coloured switches allow the performer to choose between two low frequency oscillators (VCLFO), two envelope generators (ADSR), and the

two keyboards control outputs (highest note position and pressure). The switches are centre-off and situated directly below the device to which they relate. Coloured LEDs indicate which voltages from the busses are being routed.

The main panel is divided into five coloured sections. The two red sections are the CONTROL units: envelope follower, the two voltage controlled low frequency oscillators and the two ADSR envelope generators. The centre (blue) section contains the sound SOURCES: the three waveforms from the oscillator bank, the output from the noise generator, and an external input. These sources are mixed together in any desired proportion. The two yellow right hand sections contain the TREATMENTS. One section has the voltage controlled switchable two- or four-pole filter and the voltage controlled amplifier. The other has the analogue delay line (ADL) with voltage control of delay and with variable feedback and mix.

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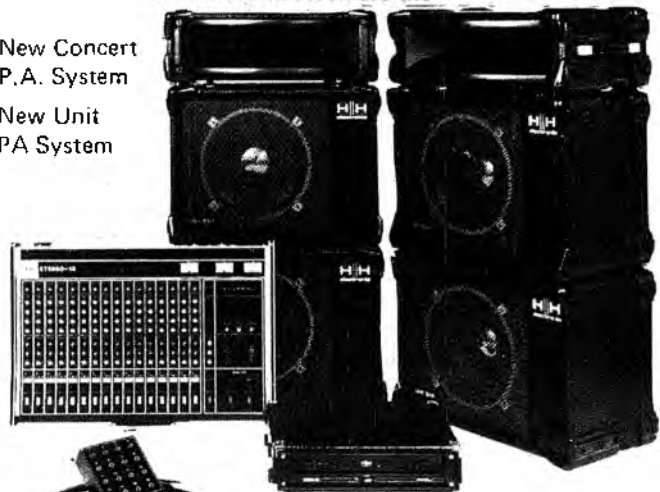
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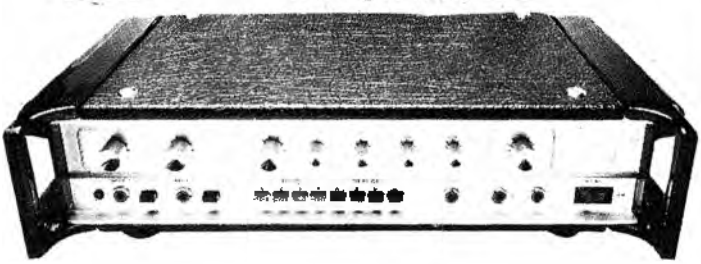
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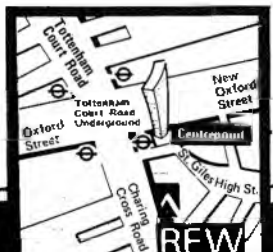
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AT 18

Keyboardcheck

Sisme SC448P £1,587 inc VAT 'Space Master' Rotor amp

The original Godwin organs were created by Sisme, an Italian company that uses its own name on its speakers and public address systems. Their first professional portable organ, the SC444P was first distributed in this country by Sisco and was later taken on by the WEM company. This new model, with increased specification, is similar in appearance to the original and is available from Sisme (UK) Ltd.

The range and quality of the sounds from this stylish, sturdy instrument without unnecessary gimmicks will attract the musician needing a rich organ tone combined with string orchestra and piano section in a portable package for stage or studio. It also has its own 'Leslie effect' rotary cabinet, the SM100 'Space Master', tailor-made to match the organ, which can be used on the straight organ output or on the full registration mix.

Setting up

The organ arrived for review in two large packages, the first containing the floor base unit which has foot-pedals and expression pedal tucked inside and main power connections located at the right hand end, with illuminated on/off switch, fuse, power lead socket and output jack sockets. The foot pedals are pulled out on a sliding frame that operated fairly stiffly to reach their normal playing position and the expression/swell pedal can be lifted out and reinserted to lock in place. On top of the base unit is the well-chromed support stand for the organ keyboard console and this is simply lifted up and fastened with two large knobs. The second package contained the console and this is easily lifted on top of the frame and seated correctly by means of two guide rails underneath. The base unit has its own simulated black leather carrying case and the console has a similar type of cover for protection

in transit. The whole organ is very quick to set up, and while the base is a one-man job, the console can easily be carried by two people, using inset handles at each end.

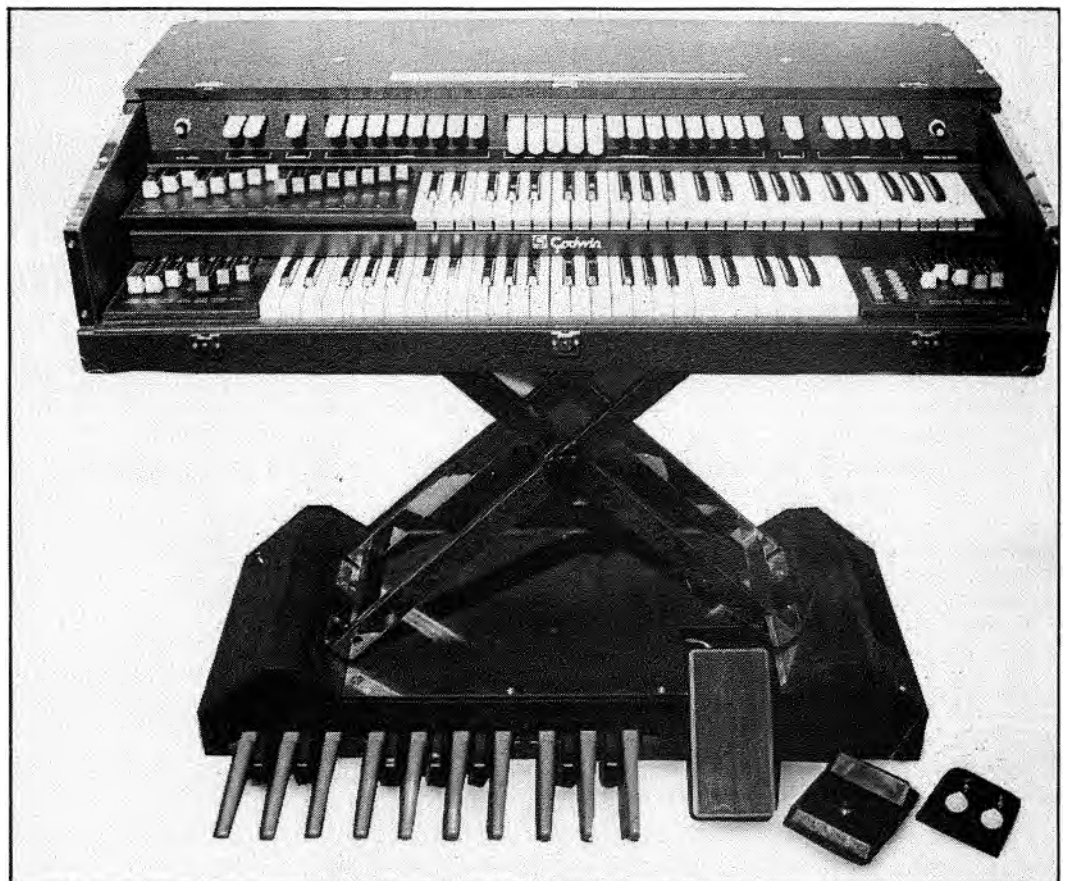
The finish of the unit is termed 'antiscratch' black vinyl, with plenty of chrome-metal corners and side-strips for protection. With the keyboard cover removed, a simple music rest of angled metal rod can be inserted, although you will probably have to bend it back a little to stop your music falling forward. The console design lends itself to piling it with synths and other keyboards — its length allows a Yamaha CS60 to fit comfortably on top! The weight quoted in the specification is 108 lb for the upper section and 67 lb for the lower section. It comes apart just as easily and can be carried in a small van (and some estates) along with the rotary cabinets.

The electronics of the instrument are easily serviced with access via the rear and top console panels. Control circuitry to and from the console reaches the base section through a multiway plug that has its lead concealed in one leg of the base frame. The mains transformer is sensibly placed away from the rest of the electronics in the base unit to avoid mains hum.

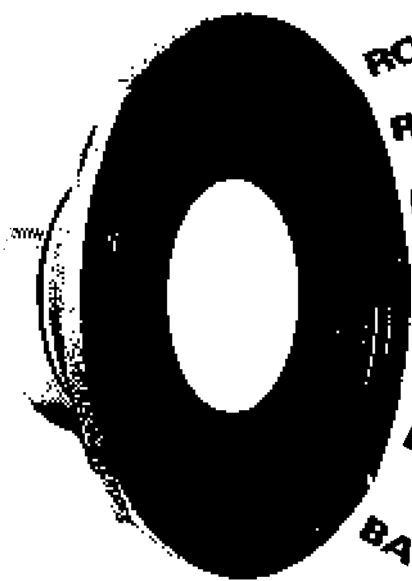
The organ uses up-to-date circuitry throughout and uses electronic key switching instead of the multi-switch contacts found on other organs. A large 'note-generation' board slides out at the rear and will enable adjustment of the overall tuning (from the master oscillator) if needed, using a screwdriver.

Main sections

The organ's controls can be divided into nine sections: Upper Manual Drawbars, Solo and



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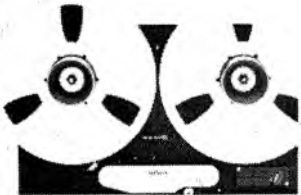


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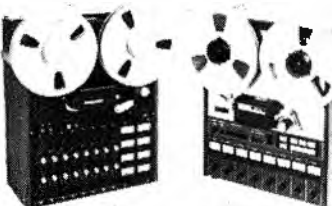
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The volume and sustain of these sections can be individually set using drawbars at the left and right of the lower manual. Twenty-nine switch-tabs stretch across the top of the upper manual, giving direct on/off selection of controls and effects, including solo, percussion, reverb and vibrato sections. A pre-amplifier output is available as a mixed mono signal and/or a 'stereo' output, with separate jack sockets for organ and strings/piano. The organ section only has its own Hammond reverberation spring-line unit with on/off tab and 'reverb blend' control, although I found the depth was not enough to warrant intermediate setting very often. Reverb is important on any organ and the overall effect was a clean sound without 'ringing' or distortion.

Both upper and lower manuals contain 49-note keyboards from C to C, the lower keyboard sounding one octave below.

Upper manual

In traditional electronic organ style, this instrument boasts a full section of drawbars. The sliders used are not the normal Hammond 'click-stop' type but slide smoothly from 0-8. Drawbar position eight is obscured by the panel above it (so if you use old registrations, subtract one for correct setting) and sliders may need some grease on their edges for smooth operation. All the normal pitch ranges are given, except $1\frac{1}{2}$, and are $16' 8' 5\frac{1}{2}' 4' 2\frac{1}{2}' 2' 1\frac{1}{3}'$ and $1'$. Each pitch is formed from a sine wave of good purity and this drawbar section alone gives a large range of tone selection, the organ controls are conveniently colour-coded and upper manual drawbars are brown. A tab switches this section on and a second tab gives 'full organ' using all these drawbars at full. A volume drawbar sets the level of the whole section.

The upper manual SOLO section contains presets with strong harmonics: oboe, clarinet and viola. These can be mixed together and the section has an on/off tab and volume drawbar. The oboe tone is a pleasant contrast to the drawbars when used with a light vibrato and clarinet is filtered to a smooth tone resembling its namesake better in the upper octaves. The viola is more like a clarinet with extra harmonics added and the least useful in playing.

Sustain can be added in short or long sound decay to the upper manual and gives further depth to the overall sound, especially with reverb as well.

Percussion and effects

A very comprehensive percussion section (coded red) is supplied for the upper manual, with tabs for $16' 8' 5\frac{1}{2}' 4' 2\frac{1}{2}' 2' 1\frac{1}{3}'$ and $1'$. Two tabs give on/off and repeat, with speed controlled from a drawbar, and two further tabs give four percussive decay lengths from short to long. A long section like this can be used for tremendous punch to the sound as well as giving bell effects reminiscent of theatre organ 'glockenspiel' and 'chimes'.

A new innovation on this organ (not even shown in the specification sheet received) is the addition of 'key-click'. This simulates the click originally heard on the tone-wheel and electromagnetic organs. It can be varied in intensity and is heard on every note played on the upper manual, unlike the percussion

which needs a separate keying action for operation. Very fast runs have impact using key-click and give the organ's drawbars extra clarity. It is not really needed when using other organ sections as lead-line.

Apart from reverb and sustain, the only other 'effects' control is vibrato, set by four tabs. These switch on slow or fast vibrato speed and 'attack' which gives a slight delay before the effect takes place. As on the earlier model, this vibrato acts on both manuals over the whole circuitry at once (it modulates the master oscillator before division of notes takes place). This can be a little irritating, although with judicious use is still useful, especially with 'attack' on, so that arpeggio passages only receive vibrato at the end of the phrase.

Strings and piano

Two complete new sections have been added to this model — strings and piano, with controls located at the right of the lower manual. The 'String Concert' section has seven small red switch-buttons for selecting violin, viola, cello on upper and lower manuals, and 'attack' for softening the initial entry of the string sound. Three drawbars control balance of upper/lower manuals, overall volume and upper manual sustain. A good sustain length of up to four seconds is provided and gives a realistic 'Mantovani Strings' sound. I would have preferred two separate volume controls for upper and lower manuals instead of the balance control. The string sound is really very good, being formed by three stages of bucket-brigade delay circuitry to give a smooth phased string effect. Generally, this tone section will be useful as solo or accompanying strings that contrast exceptionally well with the main organ without sounding heavy or over-phased.

The piano section operates on the upper manual only and the four tones available are guitar, clavichord, honkie-tonkie and piano. These can be added together using some more small switchbuttons and a further button brings in 'sustain'. A foot-switch is also provided to control this piano section sustain. The section is not 'touch-sensitive' using normal organ key action and 'piano' provides a pleasant quite realistic tone, especially in low/mid range (considering it only uses one oscillator per note) and sounds well on solos or broken chords with string and/or organ backing. 'Honkie-Tonkie' adds more top harmonics to the basic piano sound and 'clavichord' is effective for harpsichord sounds when used with short sustain. The 'guitar' tone is really not a guitar at all to most people and could be described as a mellow trumpet or high piano depending on the amount of sustain used. Nevertheless, the piano section provides a new tonal area with its distinctive sound envelope and gives this organ an extra that is definitely not a gimmick.

Lower manual and pedals

The yellow-coded drawbars give the lower manual a basic organ registration with pitches $8' 4' 2\frac{1}{2}' 2'$ and $1'$ provided. As already mentioned, strings can also be switched to the lower manual. A single 'sustain' tab operates on both drawbars and strings.

A well thought out pedal section has a 17-note pedal board instead of the usual 13, these extra notes making bass-line playing much easier. Three drawbars (coded white) select $8' 16'$ and $32'$ pitches, the latter not often found on portables, with two

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Keyboardcheck

more drawbars controlling volume and pedal sustain. A 'percussion' tab gives a fast decay to the 8' pitch for bass guitar effects.

That completes the description of the organ and will now turn to the SM100 Rotary Cabinet that arrived with it. This particular unit was obviously designed to compliment the SC448P, but most rotary cabinets and other sound systems will operate from the organ.

SM100 'Space Master' rotary speaker system

The unit is in two separate sections. The lower section contains the bass/mid-range speaker and rotating drum and is provided with two inset carrying handles and strong castors. The upper section holds the amplifier (70W RMS power rating specified) and high frequency rotating horn, with two inset carrying handles. The finish of both cabinets is in black vinyl with silver trim, name plates and chrome-metal corners. It is sensibly designed, with split sections for easy handling and smart stretched black cloth front panels and rear mounted amplifier controls that can be set and left during performance.

Controls and construction

As with the organ, a detachable mains lead is supplied — in fact, all leads pack up neatly into the organ carrying case. There is an illuminated on/off switch, fuse, high or low impedance input and controls for volume, bass and treble. A foot-operated switch box plugs in here via a four-pin socket to control rotor speed. The plug seems to be a loose fit and can cause intermittent clicks through the sound system if it shakes out slightly, unlike the lower unit connecting lead which terminates in a six-pin spring-locking plug. Apart from this, the use of different style plugs should make wrong connection impossible. Rotor speed, selected by the foot, is either slow/chorale, fast (tremolo) or off. The on/off button did not always work and needed a sturdy press right in the middle to switch on, although I suspect that this particular box had been well used at the factory and normally would not be faulty.

The low frequency section is of standard 'Leslie unit' design, with a 12" speaker for middle and bass ranges mounted vertically over a rotating polystyrene/paper drum that operates at the two speeds selected, driven by its own motor via a belt system. The high frequency section gives a lot of extra top to the sound and uses another motor driven system with two rotating plastic horns. One of these receives the high sounds via a transducer mounted underneath.

Mechanical cabinets of this kind can be prone to a certain amount of noise and this is only evident in close proximity to the unit at high volume with rotors turning. Earthing is best done through the organ with coupling through the input jack and the solid-state transistor amplifier produces a clean output with adequate bass and full top. The cabinets are well made with Fibreglass lining and sealed foam edges for optimum sound.

Ideally, the organ should be played with the organ output only connected to the rotary cabinet and the string/piano output connected to a straight full range cabinet of equivalent rating. If you want to improve the sound still further, you can split the string/piano output through an analogue delay to give chorus, ADT and echo effects into a stereo speaker system.

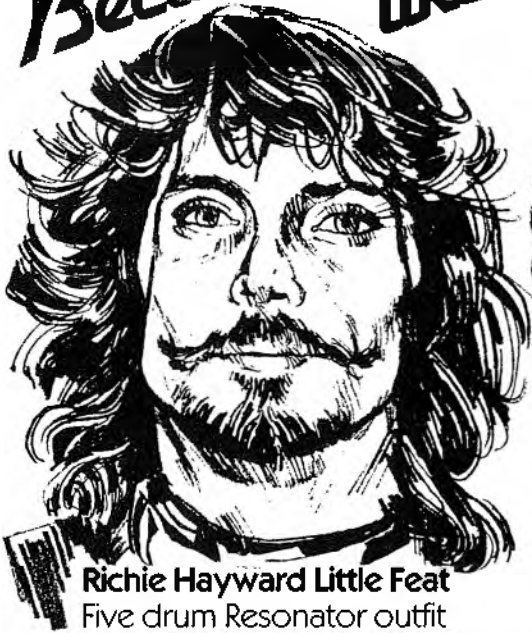
Summary

The overall effect of the Supersonic using the system described above is very good and the sound quality will be good enough for studio direct inject and fairly close miking of the rotary cabinet. Noise level at full output through the SM100 amp with flat tone controls was acceptable with very little high harmonic break-through, sometimes heard when the swell pedal is on full on other organs. In comparison with other portables you will not find: detune controls for string/piano sections, external input for linking in another keyboard, a headphone socket for private practice, synthesizer control/trigger voltage outputs, pedal to lower manual or a drum effects box. But none of these are features especially needed by most professional musicians. Apart from points already mentioned I would have liked an external tuning control on the main panel, use of the piano on the lower manual and a preset for brass — but these are just personal preferences of mine! Having said that, this instrument really does achieve what it intended to do — its wide range of controls, with extra percussion above average string tone and the ability to balance together rich layers of sound should satisfy the most discerning musician. Furthermore, its easy portability and quick setting up coupled with it being solidly built should attract many group and gigging club organists.

Mike Beecher



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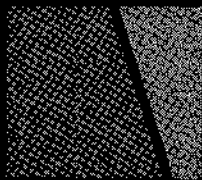


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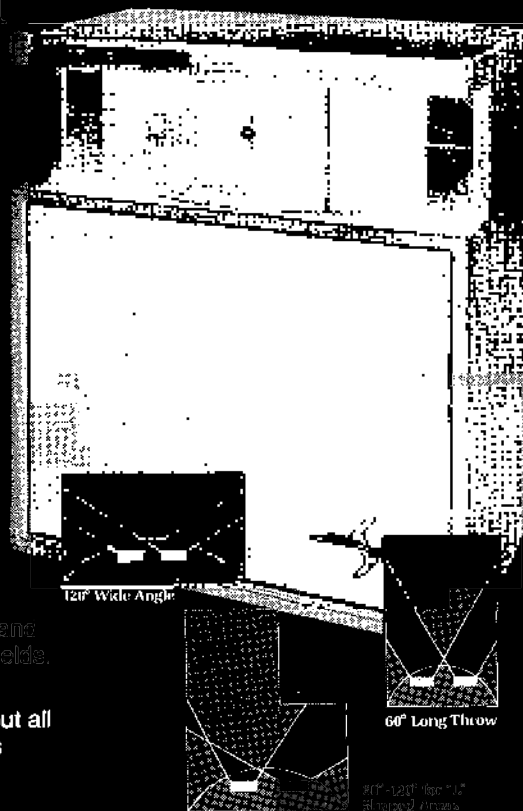
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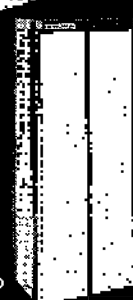
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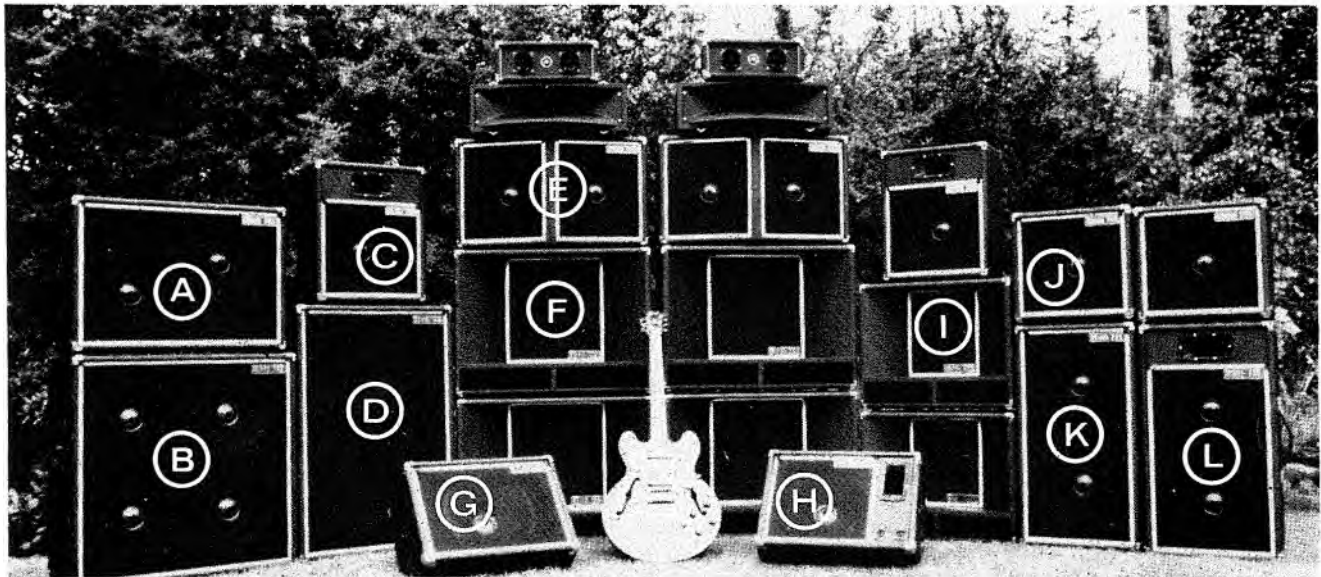
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Synthcheck

Yamaha CS40M Memory synthesizer £1,375 inc VAT

This new synthesizer from Yamaha gives for the first time virtually unlimited tape memory storage of your patched sound settings programmed with its controls and connected directly to an ordinary mono tape cassette recorder — without the need of special interfacing or an additional sequencer/microcomputer.

Memories for ever!

The CS-40M has a built-in digital programmer of 50 parameters to permit storage of 20 separate settings of the controls by the performer. All the programmable controls are coloured yellow and the rest are white, the latter allowing variation of VCO one and two pitch, initial volume, output volume and headphone output plus keyboard control and modulation facilities.

Selection of each 'patch' programme you have stored in the Programmer is done at the touch of a button — there are 10 white buttons just above the keyboard numbered 1-10 and also 11-20. Two further white buttons give selection of Memory 1 bank: 1-10 or Memory 2 bank: 11-20. The remaining white button marked 'panel' allows all the controls on the synthesizer to be operated and set for programming of the memories.

To enter a desired patch into the memories, first you select a memory position that is not already programmed, e.g. press memory one switch and button one for programming the first memory. Then while holding button one, press briefly the red 'write' button which has a red LED light to indicate transfer of all 50 yellow control settings to the memory allocated. This procedure can then be adopted for all 20 memories to give the performer more than enough storage of his favourite sounds to use on stage or in the studio — at the touch of a button! There are no problems of setting up and pauses between numbers — a big bonus for the musician who wants comprehensive control of a sophisticated synthesizer without the burden of lengthy programming during performance. All programmes stored in the programmer will be preserved by alkaline battery back-up power after the CS-40M is switched off at the mains.

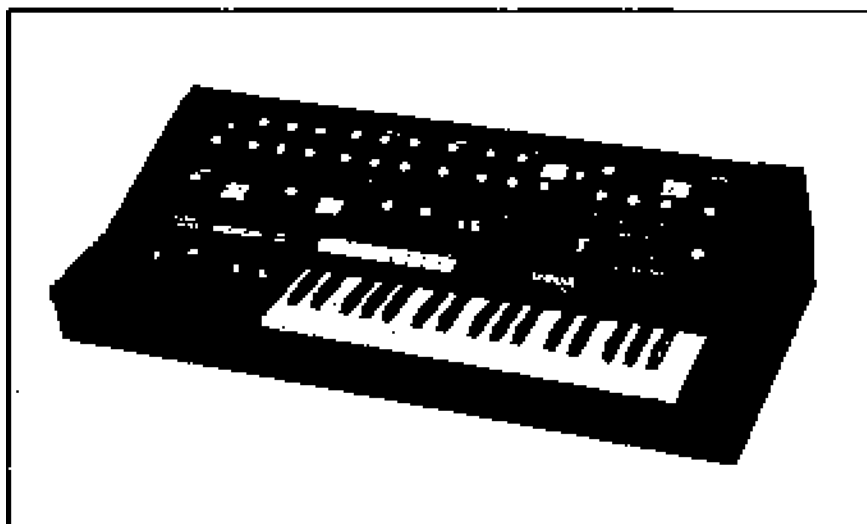
Using tape storage

Back to the biggest innovation of this machine — all of its 20 memories can be stored on a cheap mono cassette recorder so that a complete 'tape

library' of sounds can be built up. The whole operation is so simple that anyone able to use a portable cassette recorder can transfer all 20 programmed sounds in a couple of minutes. First, a connection is made to the cassette recorder input via the standard jack socket at the rear of the synth. Then the cassette machine is switched to record and (if you are monitoring) a high-pitched sustained note will be heard. When the 'store' and 'write' buttons are pressed simultaneously, the data can be heard transferring to the tape recorder in the form of a modulated signal (as used in home computer systems). In practice, once levels have been set, there is no need to do anything while the recording takes place because the 'store' button has a red LED that stays on until all the information has been sent to the tape machine. During the whole procedure, which lasts only two minutes, the synth panel controls and memories are not accessible and the keyboard does not play. All 20 memories are always transferred in one batch and editing of these sound patches is not possible, except by using the white controls available — and this does give adequate variation in performance.

Loading a cassette with patches that you have already pre-recorded is just as straight forward. The normal 'line' output of the tape recorder is connected via a suitable lead to the jack socket 'programme from tape' at the rear of the synthesizer. Once the tape is playing back, the red 'load' button at the far left of the programming section comes into operation. Directly above it are two red LEDs and one of these will light as soon as the signal tone is received from the tape. Before information is transmitted, the 'load' and 'write' buttons have to be pressed simultaneously — and the second LED will light to show that the synthesizer is now in the 'load' mode. During this time, as in the 'store' mode, the keyboard and controls have no effect, with the whole load lasting two minutes. The first LED will be modulated on and off from the tape input and thus gives a clear indication that loading is taking place satisfactorily. At the end of the information transfer the LED once again holds on and after the tape playback is stopped, both LED's turn off and the synth is back in normal playing operation again.

It seems to be a foolproof system that works exceptionally well, with no change in the information from using the tape transfer. Provided the tape heads of your recorder are kept clean and a generous signal level without overload is set (works well with AVC or limiter in operation), then the system is highly accurate. The Programmer section is based on a microprocessor system that can do 20 separate scans of the 50 analogue control knob/slider settings and switch positions, convert them into digital information and then store this in its large RAM memory. The Random Access Memory (RAM) has each of its memory stores in a particular directly accessible location, so by pressing one of the programmer's preset buttons 1-20 you are calling up specific memory locations and so, provided the digital information that they contain is converted correctly back to 'analogue' levels or switch settings, then the presets will be loaded accurately. The tape recorder receives the digital information stored in the RAM memory in 'serial' form — just as if all the memory stores had been lined up one after each other and dumped onto the tape. On playback, the information is loaded in exactly the same order and so fills the RAM as before to produce the same sound patches that you programmed.



Cabinet, keyboard and controls

The synthesizer cabinet is made of plywood with a Rosewood veneered finish (watch the sharp corners which are easily damaged) and contains the horizontal mounted keyboard and angled main control panel of semi-gloss black metal. Since no case or lid is provided, a flight case or carrying box seems essential and there is also no provision of a music stand.

The keyboard has 44 keys and this range of $3\frac{2}{3}$ octaves is extended to a full range of $8\frac{2}{3}$ octaves using the foot switches. The notes are digitally derived and are duophonic, playing the lowest and highest notes pressed. Alongside the keyboard are controls directly associated with keyboard playing.

Above the keyboard, the main control panel features four VCO's, two VCF's, two VCA's, four EG's, one LFO and Programmer section. The duophonic system operates through the use of two separate note memories which are assigned to upper or lower notes played as needed (in order of playing) and at the cabinet rear, two red LED's indicate which note memory is in use. Apart from that, no memorising of your melodies are done, the title 'programmable memory' applying only to control settings. Yamaha designers in Japan have not specialised in sequencer and note storage systems (as in EMS Polysynth+ sequencer, Roland Microcomposer or Korg's new analogue/digital sequencers) for the emphasis has been on making instruments that can be creatively played through the musician's skill.

Each of the memory note channels uses two VCO's for greater depth to the sound and pitch 'detuning' allows each note to have an added interval from VCO two, of a fifth up or fourth down compared with VCO one pitch, set at centre position. Playing two notes with VCO two tuned a fifth above gives interesting parallel chords, e.g. CE gives CEGB (C maj seventh) four-note chord.

Incidentally, layout of the circuitry is very neat, with the main panel lifting up on hinges for easy servicing and revealing double layers of large circuit boards that give plenty of space for ventilation, using Yamaha's own CMOS integrated circuits and large scale LSI's.

The VCO sections

Each note played on the keyboard produces pitches from two identical oscillator sections labelled VCO1 and VCO2. The desired octave pitch is selected by a six-position 'foot' switch covering 64' 32' 16' 8' 4' and 2' ranges. A 'pitch' control enables tuning with other instruments to be matched over an octave variation span of a fifth up or fourth down from concert pitch as already mentioned. Four waveforms are available — either triangle, sawtooth or square, with additional sinewaves from both VCOs located in the VCA section. The pulsewidth of the squarewave can be set manually from 50 per cent to 90 per cent, changing the basic clarinet-like sound to a much thinner texture. This can be done automatically through the pulsewidth modulation controls — 'depth' sets the amount of change that occurs from the setting of the 'pulsewidth' control, and the 'function' switch selects the type of modulation used — either a sine wave (with speed set by the LFO) or from a normal or inverted Envelope Generator waveform set by a separate EG-VCO section. Modulation of the VCO pitch is available in

seven ways — the first five give separate sine, sawtooth, reversed sawtooth, squarewaves and 'Sample and Hold' (random voltage levels) at the speed set in the LFO section, and the remaining two give modulation through the normal and inverted waveforms of the EG-VCO section. A 'depth' control sets the amount of pitch modulation.

A mixer section allows VCO1, VCO2 and Noise to be mixed as required and the output signal goes into the VCF section for tone treatment, and then on to the VCA section and the main signal output. The VCF and VCA both have their own Envelope Generators (ADSR's) and the third EG-VCO also operates with the LFO and Ring Modulator to give a wide range of modulation treatment effects.

Apart from the control section next to the keyboard, which are all white controls for use in performance, the synthesizer is laid out in typical Yamaha fashion, with two VCO's going to one VCF to one VCA to output configuration and wide ranging EG's with sliders that are easy to use. Each section shown on the synth is actually doubled to allow complete independence of playing two notes in duophonic mode.

Modulation treatments

The EG-VCO section is very useful for modulating pitch by setting its 'Attack' and 'Decay' envelope for 'one-shot' pitch changes on each note trigger. There is a switch for normal or 'times five' duration, giving maximum attack up to five seconds and decay up to 50 seconds (these times also apply to the two other EG's).

The LFO section has a wide ranging 'speed' control giving one cycle every 10 seconds to 100 cycles per second. An interesting addition to the LFO is variable control of speed done automatically through the setting of the EG-VCO controls. Both normal and inverted waveforms can be used to affect the LFO speed through the 'speed depth'. Increasing this control gives speeding up and slowing down (or vice versa using invert switch) of the LFO 'speed' set. Although automatic in operation, to the listener it sounds as if the performer is cleverly manipulating the controls as he plays. In this section there is also a 'repeat trigger' switch that re-triggers all the EGs at the LFO rate as long as a key is pressed. This is a normal operation sequence for Yamaha synths, but would be more useful if LFO triggering could take place without key operation as well.

The Ring Modulator works from the end of the VCA section and has its own separate oscillator as its second sound source — a ring modulator requires two input signals and gives the sum and difference of their frequencies at the output. Its first signal source comes from the final one or two-note signal from the synthesizer which is routed through the RM prior to the main output. The RM's own oscillator has a speed range of one cycle every two seconds to 100 cycles per second. The EG-VCO can alter the speed through the 'speed depth' control and normal/invert waveform switch as described in the LFO. There is also a switch for routing the audio signal through the RM or bypassing it when not needed straight to the output.

Filter and amplifier sections

The three-way filter section includes all the controls necessary for tone treatment. Low pass,





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Synthcheck

band pass and high pass filters are available, with the usual 'cut-off frequency' and 'resonance' controls. These are used in conjunction with the 'EG depth' control which governs the effect of the VCF envelope generator on the filter.

The envelope generators used for the filter and VCA are identical in performance and contain the normal ADSR slider controls for attack, decay, sustain and release time setting. The final control waveform produced can be inverted (in the VCF EG only) and a normal/times five switch extends the 'release' time to 50 seconds. This switch is useful in practice for setting up both very short percussive effects and long delays without any noticeable volume drop during release that is often evident on other synths. For normal operation of the keyboard, a KCV switch in the 'on' position gives suitable opening of the filter as higher notes are played, so that tone is balanced over the keyboard range. Finally, the filter can be modulated by sine, sawtooth, reverse sawtooth, squarewave and sample and hold, operating at the LFO rate and set by the 'Modulation depth' control.

The VCA receives the VCF signal directly and also has separate volume controls for VCO1 and 2 sinewaves. Modulation controls similar to the VCF are available, but without S&H modulation, and instead of 'EG depth' there is an 'Initial level' control that acts as a hold control, keeping the sound on between triggering of the VCA's EG.

The main control panel description is complete except for the final output section. Volume output can be set and gives high and low preamp output from a standard jack socket as well as balanced output via an XLR socket. There is a low impedance (eight ohms or more) stereo headphone volume control, with its output socket conveniently situated at the front of the synthesizer. The final feature in the output is an on/off switch marked 'POA' which means 'pass over amplifier' and sends the VCF signal direct to the output section if required. The sine waves from VCO one and two still operate through the VCA and an internal mixer block combines VCA/VCF output signals to go (via the RM) to the output.

Keyboard control section

All the controls next to the keyboard can be used during performance, being independent of the memory settings in most cases. In this block are Unison, Portamento, Brilliance, Sustain and two rotary wheels for Pitch Change and Modulation. The 'Unison' switch turns the CS-40M into monophonic mode, and because it does not lock

the VCO1 and 2 oscillators together, the pitch controls have to be set to play in unison or detuning effects will be heard. The 'Portamento' slider gives the usual slide from one (or two) notes to the next, at the rate set, or can be switched to play 'glissando' — sounding all the black and white notes between two keys played as a chromatic run — a very special feature not normally found on this type of solo synthesizer (taken from Yamaha's Poly CS range). The 'brilliance' control is really a second cut-off frequency control which can override the main panel filter cut-off settings to brighten or soften the sound, and is not simply a tone control. Sustain can be added to extend release times of the VCF and VCA EGs, either by holding on the last two notes played (Sustain 1), or by the last note played (Sustain 2). The final controls in this section are two vertical rotary wheels — the first gives pitch control of up to plus or minus an octave, fifth, or major third (five semitones) on all four VCO's at once, with a centre notch position for normal playing, and the second is used for modulation of VCO, VCO + VCF, or VCF. This second control can produce some startling sounds, because its function can be programmed along with other controls so that each preset will use this wheel for entirely different effects.

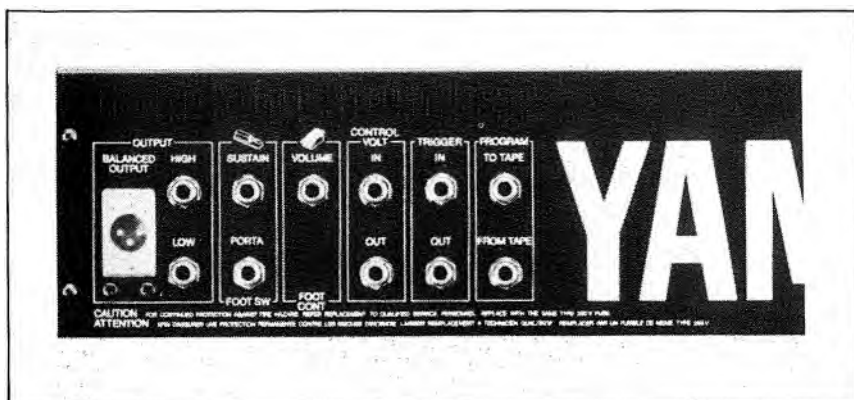
Rear Panel Facilities

More and more emphasis on interfacing synthesizers is evident these days and this synth has a variety of in/out and foot control facilities. Yamaha synths work on the Hertz/Volt control-voltage system (also used by Korg) and use a trigger voltage that can vary between 0 and -10 volts (on) and three and 15 volts (off). There are separate trigger and control voltage inputs and output sockets for both note memories — allowing programming of pitch from two different sources such as sequencer and another synth. Besides tape in/out sockets and output sockets already mentioned, external VCF and VCA control voltages can be used in the -10 to +10 volt range (this will prove useful for special synths like the Lyricon wind synthesizer) and there are two foot switch sockets for Sustain and Portamento and two foot controller sockets for volume and filter variation. The mains lead is removable and has an on/off switch located next to it. Turning and correct tracking of all four VCO's can be done by inserting a small screwdriver into the holes at the rear normally covered by rubber plugs.

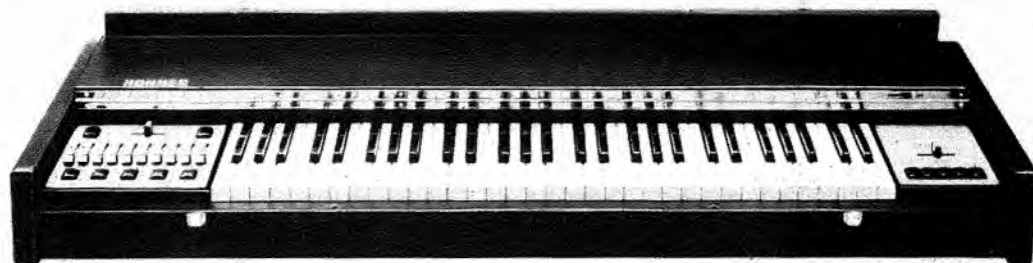
Summary

The special programming features and wide range of controls on this synthesizer speak for themselves and the overall standard of workmanship is high, with smooth action sliders and pots, and acceptable studio signal output quality. The programming procedure is quickly learnt and will enable even the most inexperienced player to produce his own original sounds without the problem of trying to patch a large number of controls under the pressure of a live audience. A smaller monophonic version of the synth is called the CS-20M and retails at £950 including VAT. It contains eight programmable memories of 32 parameters and tape store or load only takes 32 seconds. The CS-40M retails at £1375 inc. VAT and at this price will undoubtedly cause a stir in the world of solo synthesizers.

Mike Beecher is Director of the Wickford School of Music and is a musician specialising in electronic keyboards.



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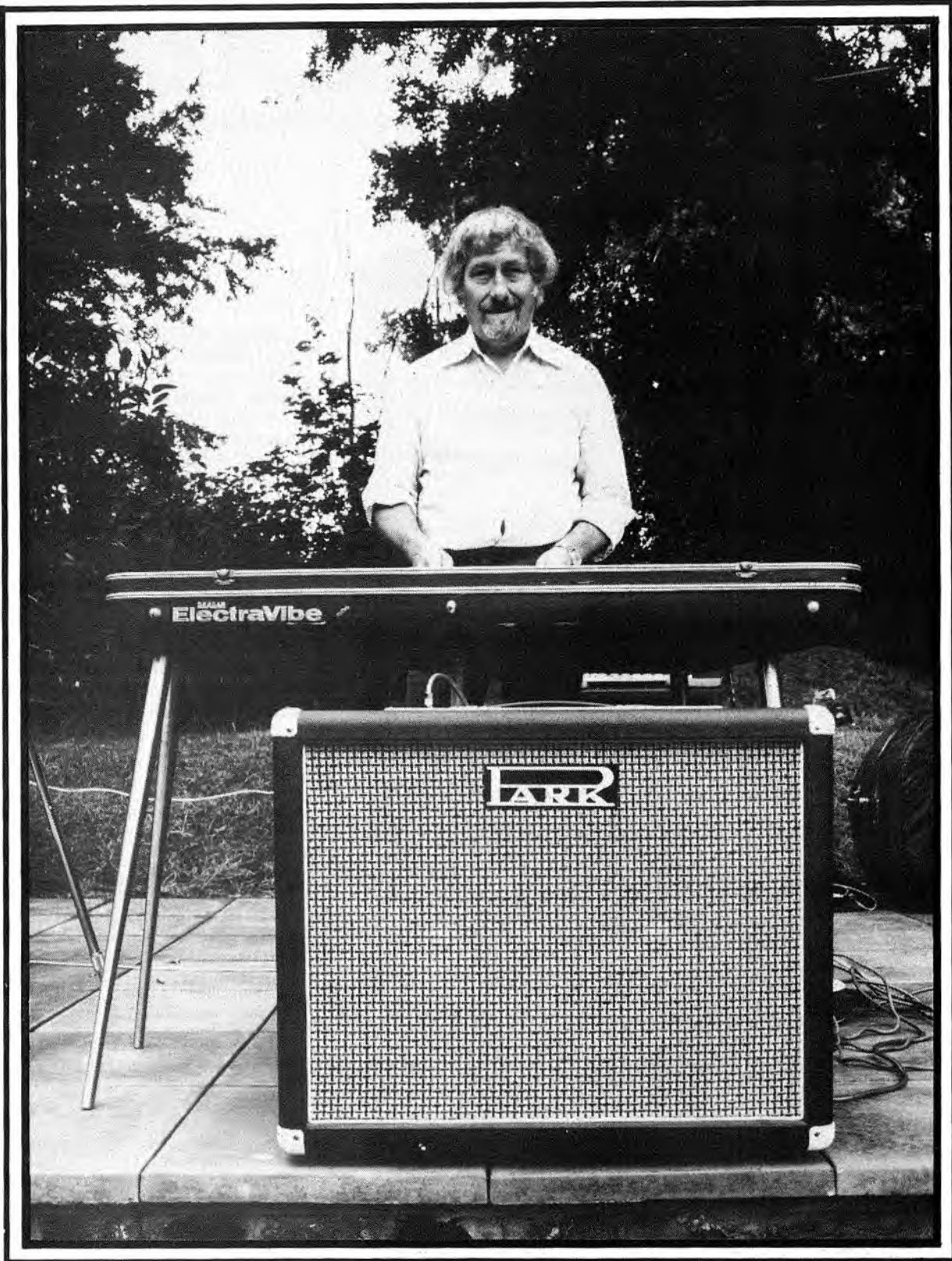
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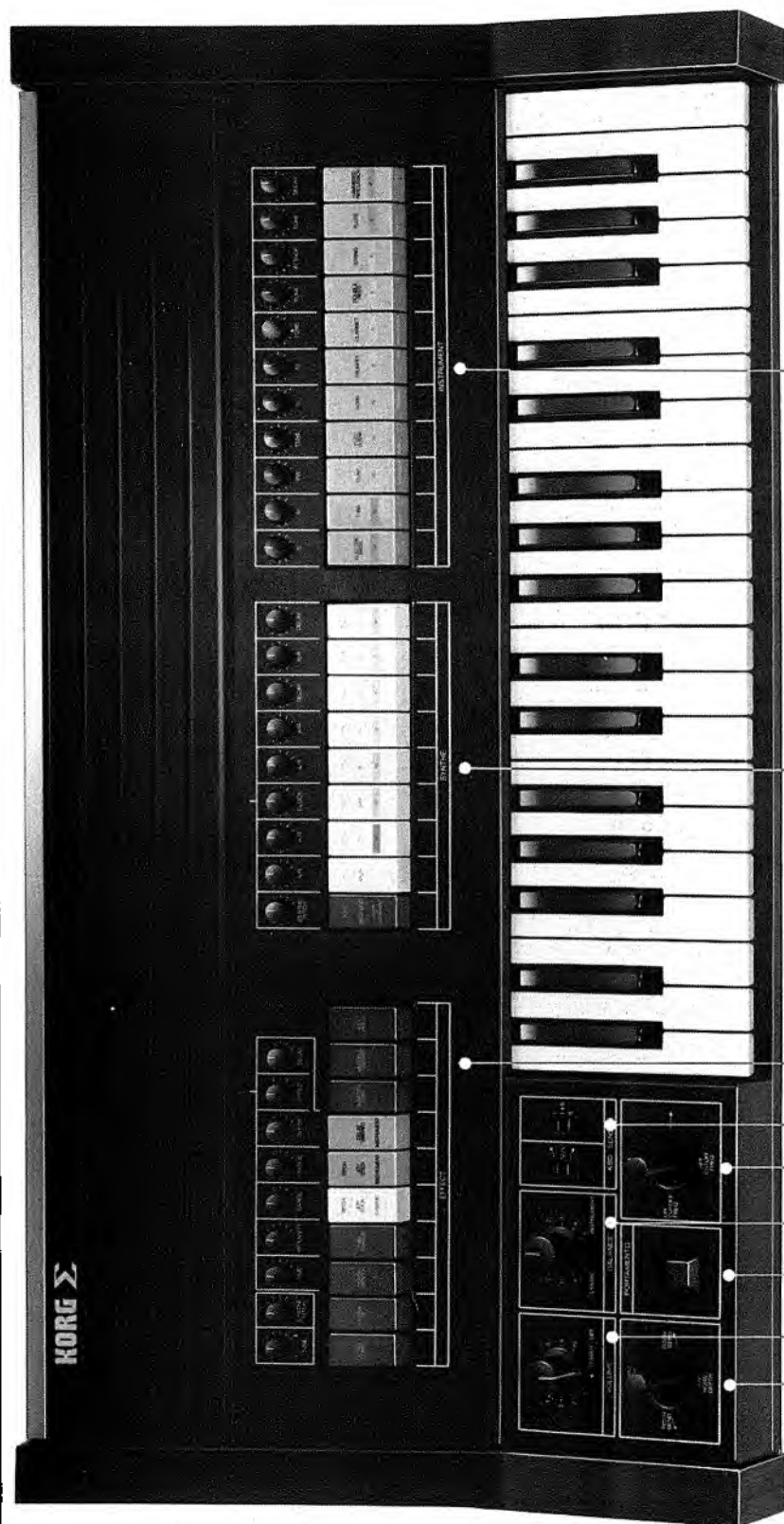
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Drumcheck

Ludwig Sound Projector II £1101.2 inc VAT

This month's test set from Ludwig is a little unusual inasmuch as I can't find it anywhere in the Percussion 80 catalogue. I can find the individual components but not, the actual set (at least not in the same material). Really it's a Sound Projector II outfit number 2102 but made from six ply, wood shells and features Ludwig's extra-long, open-ended power toms and their power bass drum.

The actual sizes are 10×9, 12×11, 13×12, 14×13 with a 16×16 floor tom, 22×16 bass drum and of course the inimitable 6½-inch deep Supraphonic 402 snare drum. Additionally, the set has completely Hercules stands, two boom cymbal stands, two concert tom stands, hi hat and snare drum stands and as-per-usual, Ludwig's trusty 'Speed King' foot-pedal.

The reason it's called a 'Sound Projector' I hope will be obvious from the accompanying photograph. Fitted beneath each of the open ended drums are plastic scoops (projectors) which do just that. They direct the sound in a forward direction to give better audibility. Let me explain.

With an ordinary double headed tom tom the two heads and the shell work together in a sympathetic way — first of all to produce a round sound, i.e. clear, and secondly to *spread* that sound. The latter function is taken care of by the shell. Drums without shells, eg. Roto-toms do not have this facility for sideways spread and the sound simply goes up and down. This is why most knowledgeable drummers who use Roto-toms *without* reflectors play them at what often seems to be a painfully acute angle in order to stand some chance of directing their sound towards the audience. So, Remo invented his reflectors, half-shell and full shell with the intention of directing the sound at the audience without necessitating play at an uncomfortable angle.

The sound projector is actually a lightweight scoop about 3/16-inch thick made from high impact ABS. It's actually a half parabola (you *could* say like an inverted Hollywood bowl), a demi-hemisphere which has all its curves equal to the radius *r*, of the drum it is to be fitted to. ($r=5$ on the 10-inch drum.) Anyway, enough of the physics lesson. The inside of the scoop is completely smooth, presumably to enable the sound to flow, and the outside has a sort of leather-grained feel to it. I tested the projectors both from the playing position and from the audience position and, as with North drums, it's very difficult to hear any real difference from the playing position — on removing the projectors (a very simple step since all the projectors are held on with Velcro) one can hear a slight change from behind but nothing really significant.

However, from the front the difference is particularly marked, the drum becomes more audible. I'm not convinced that the scoops make the drum louder as Ludwig claim they do. I would say that the sound becomes better directed, therefore clearer, and more audible — which possibly *seems* to amount to increased volume. Ludwig also say that the projector offers pronounced definition of the fundamental notes. I found this difficult to

appreciate until I simulated fitting the unit to the snare drum. (I can't understand why Ludwig don't do this — they could attach it via the snare head tension screws.) I then began to notice a *real* difference in the sound as it was directed forward. But, without instruments to measure this difference I couldn't tell exactly what was happening, except there seemed to be more bass fundamentals becoming audible. I'd be interested to see what the scoop could do for a *narrower* snare drum!

Remo Belli demonstrated this Roto-tom principle to me in his car park in 1975. He stood about 50 yards away from me and played the Roto-tom in its normal snare-drum-type playing position. I could see that R.B. was hitting the drum but couldn't hear much. He then lifted it up until its playing head was vertical hitting it all the time. As it approached the perpendicular it became startlingly audible. Now, back to our single headed tom-toms... Since they don't have a sympathetic head to round out their note they put out a flatter, less resonant sound. This bottom head also helps to contain the sound, so without it we arrive at a flatter, less resonant sound without such good spread characteristics. Obviously, it makes sense for a drum company to look at the latest developments like Remo's reflectors and Roger North's horn-loaded drums and apply these principles to their own product. This, Ludwig seems to have successfully accomplished.

Bass Drum

This is the first Ludwig power bass drum I've played, although I've seen them at a couple of Trade Shows. The power basses are all six-ply and built with solid rock-maple counterhoops. The difference is in the extra depth shells though — 16 instead of 14 inches deep. This gives as Ludwig claim, extra punch since it results in approximately 13 per cent more drum.

The drum has the usual 20 'classic' nut-boxes with pressed steel, double claw-hooks and the usual cast handled, curved 'T' shaped, timpani type tension screws. The drum also boasts not one but *two* pairs of the latest ½-inch, square-stock, forward-pitched, heavy-duty, fixed-radius curved spurs locked solidly into position with Ludwig's big plastic 'hand-sized' knobs with angled, sure-grip rubber feet. The drum comes as usual with felt strip damper(s).

The sound of the drum is very fine, its got 'balls' and plenty of definition. I preferred it without the front head on since this is far more the sound I'm into these days. Double headed it sounds pretty good but for me it is somehow passé. Mind you there are lots of musical styles it would suit double headed, although I don't see that anyone would need the extra depth of the 'power bass' for this.

Tom Toms

This 'Sound Projector II' outfit has five tom toms all open ended, *including* the floor standing one. As I said the 'power toms' are all an inch deeper than normal. 12×8 becomes 12×9 etc. etc. The 10 and 12-inch drums are mounted together on the hi hat side of the bass drum and the other two on the right. All the mounted toms have more nut-boxes per head than normal — the 10 has six, 12 has eight so has the 13, and the 14 has ten. These extra tensioning positions make for much more even tuning. Well done Ludwig! The 16-inch floor drum has the normal eight casings. Every drum with the exception of the snare had Ludwig's own 'Silver-Dot', see through plastic heads which I like. Strangely enough none of the mounted toms have



internal, under-batter-head operating dampers. This omission I'm in two minds about. The 16-inch drum has the damper and benefits from it, and since the Ludwig P-4066-2 Internal tone control doesn't rattle in the 'off' position (unlike most other manufacturer's mufflers) I would have thought it not too costly to fit them anyway. All the mounted toms have a female clip attachment to connect to the up-dated Sturdi Lok concert tom holder stand, bolted to their shells — more of this later. All the mounted tom toms have a good bright sound which their extra depth shells help to round out a little. The floor tom is actually an ordinary 6-ply classic tom tom but with only *eight* nut boxes. (On reflection the bottom edge of the tom is not *meant* to be a head bearing edge and so is not machined like one. So there is slight difference.)

The floor tom tom's leg blocks on the set I saw had their eye-bolts locked-up with large metal wing-nuts but I did see another drum in the warehouse which had the more up-to-date black plastic hand-sized tension screws to do this job. The legs themselves are the usual Ludwig double-bent, steel rod type with their upper part knurled where it locates into its holder block and their bottoms finished-off with rubber crutch tips.

Snare Drum

As I said the snare drum with this outfit is the renowned Supraphonic 402. In my last Ludwig review I talked glowingly about the other Supraphonic — the 400. Well, this snare drum is exactly the same as the 400 except for an extra one and a half inches in the shell depth. This one is 6½ inches deep. Last time I wrote that these Supraphonics have been around since the early Sixties but Ludwig have actually been making a 10 lug, metal shell snare drum since 1911. Mind you, in those days the drums were not made in one piece since little was known about the art of spinning metal.

The 402 has a beautifully made one-piece seamless shell whose edges are flanged at 45 degrees into the drum. This is known as an *inverse flange*. There's a strengthening bead in the shell centre which is a concave indentation around the circumference. This serves to stop the shell from 'buckling' out of line. Ludwig's tasteful Imperial double-ended, nut boxes, of which the 402 uses 10, seem to be the same now as they were on the 1932 Ludwig and Ludwig I bought in New York many moons ago. The drum has pressed steel, triple-flange hoops which go a long way to giving the drum its bright cutting sound. (I once replaced the hoops on a 400 with a pair of Gretsch cast hoops and the difference was, very interesting. The sound became much 'darker', more what I look for in a recording drum.) The snare strainer mechanism is the part-cast, cam action P85. It's adjustable and the 18-strand metal snares are attached to it with cord. The strainer is a single end throw-off type and its buff-end the P32 just keeps the snares still (and straight). The 402 like the 400 does not have a snare bed (an indentation in the shell edge which accommodates the snare), nowadays snare drums have gradual decreases in their shell depth for 2½ inches or so to left and right of the snare mechanism points. This maintains equal, even tension on the snare head and means it's no longer necessary to change tension on the two screws about the snares to get a good seating. In the case of a snare bed this was the way it was done.

The 402 and the 400 have a large spring steel, felt padded damper which works internally under and

against the batter head. This damper is actuated by a strong looking chrome thumb-screw. Some years ago all Ludwig dampers worked on a lever which pushed against and wedged the rectangular damper to the head. Unfortunately, this unit could be knocked from 'on' to 'off' by strong playing. It couldn't be used *half-on* either.

The sound of the 402 differs very little from the 400 at the high end of the spectrum — it's the bottom end where the extra shell depth shows. It's still as bright but has a lot of depth and 'balls'. It's my considered opinion that any adjective of the superlative kind can be applied to the 402. I'll start off with crisp, bright, sharp, cutting, strong, loud, beautiful, fantastic, etc. — you can supply the rest.

Accessories

The 'Sound Projector' set comes complete with Ludwig's Hercules stands. They are made from much wider bore tubing and all have bent tubular-steel tripod legs with massive rubber feet. The feet aren't like the walking-stick ends these days but instead are angled at the bottom where they 'sit' on the ground and thus give a much larger contact area. This eliminates the chance of 'slipping and sliding'. As I said, *all* stands have these tripod bases and as I remember I said once before, it would be an unfortunate player who could persuade one to fall over. Nowadays the height arrest screw at the top of each stand uses an old style cast block with a captive nut inside and large plastic handled screws called 'hand-sized-knobs' which really do allow you to lock-up tightly every adjustment position on the set including the cymbal tilter. As far as Ludwig is concerned I preferred their clamps which came with the Atlas stands which were made of pressed steel and held constant pressure all around the tube. The cast variety of clamp grip at only one position by pressing *into* the tube.

The Hercules hi-hat stand has tubular tripod legs and thick down tubes. As far as I can see it's the same specifications as the 'Big Beat' stand with centre-pull and an adjustable expansion spring. As usual there are two spurs fitted — one adjustable in the bottom of the twin post assembly frame and the other below the heel-plate. The top cymbal clutch is new — launched in Summer '78 it has a large wing-nut on the bottom, a sensible oval over-sized locking nut on top and a strong height adjustment and locking 'T' bolt. All other locking screws use the hand sized plastic wing-nuts. The pedal itself is joined to the centre pull action with a very strong plastic substance called Lexan which has been with Ludwig for a long time and I personally have never broken (or seen broken). I've commented on this pedal before and although the Hercules is not as gigantic as some of its competitors it does much the same job and with a positive action.

Ludwig's snare drum stand is almost the same as the old and famous Atlas. Now though it has tubular steel legs (the tripod type of course) instead of the flat steel which it used to be made from. The principle is the old Buck Rogers one with its adjustable basket type retaining action to lock the snare drum to the stand. The unit has three arms which have their ends bent at right angles and sheathed in rubber and are joined to the threaded down tube on a boss with a clearance hole. A nut with a pair of rods sticking out diametrically, acts as a locking ring when it pushes up against this boss and tightens the arms to the drum. There's also a flat steel, drum tilting mechanism actuated by a flat plate pressing against the basket top which is positively locked with one of our large plastic screws,



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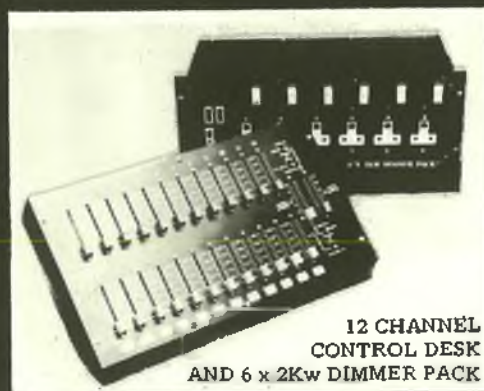
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Drumcheck

as is the height adjustment.

I've reviewed Ludwig's Speed King pedal before but just in case you haven't heard my comments on what must be the most famous foot pedal in the world, I'll go over the facts again. It was first manufactured in 1937 and it's an adjustable compression-spring model with a one or two piece cast foot-plate and a beautiful feel. The connecting link between the footplate and the cam axle is made of pressed steel and I feel this link's strength is the pedal's weakness. Because this link is so strong other parts of the pedal, like the cast-footplate or the cast rocker assembly which retains the beater have the tendency to fracture. If the pedal had a leather strap, which would no doubt spoil its feel — that strap would be a weak link but when it broke it would be easily and cheaply replaceable. This would save excessive strain on the cast parts. I would have thought that the Lexan pull that the hi-hat uses would have solved these problems. In the past I have broken 'Speed King' pedals at every conceivable position. Footplates, saddles, the feet which go under the bass drum hoop and in one severe case the beater rod have fallen foul of my heavy foot. Nevertheless I have cheerfully paid out for replacements over the years. I find it the easiest pedal to use because its feel is so perfect, smooth and easy. The spring tension is not easily adjustable since one needs a screwdriver and the pedal upside down off the bass drum which is a little inconvenient. Mind you once the Speed King is set up it normally doesn't need any further adjustment.

The Ghost, which retails at £74.49, including VAT, is grey stove enamelled and is of completely cast construction — except, that is, for the normal Ludwig beater rod and its retaining wing bolt. I'm surprised that Ludwig haven't beefed up this rod for both of their foot pedals, as so many of the other manufacturers have. There's a one-piece cast foot-plate and once the stretcher bass plate underneath it is joined to the pedal proper, the pedal plate itself is difficult to move sideways. This is because two shallow but fat pins on the base plate locate into a pair of holes on the framework. The Ghost has two springs joined inside a pair of shallow cups fixed with their faces vertically to the side of the base assembly. I wasn't able to open these cups up to look at the springs, but I understand there are two clock-tupe flat springs inside. One is wound clockwise and the other anti-clockwise, i.e. one throws the beater towards the drum head, the other away from it. In its factory setting I found the pedal unresponsive even sluggish but once I changed the stroke and moved the beater position away from the drum it became more manageable. I also found the pedal much more controllable with my heel down (an alien way of playing for me), on the one-piece foot plate. It may well be the best way to get fast backwards and forwards movement of the beater. This control characteristic has everything to do with the very firm, double parallel cast metal linkage which joins the beater unit to the foot plate. This strap/linkage allows the player to bring the beater back from the head with his heel (rather than lifting off the toe pressure and letting the spring do it), but this method gives no bounce at all. So, if you're a bounce player — i.e. you play with your toe down and your heel up — this may not be your sort of pedal.

The Ghost is a jolly good pedal with quite a pedigree but with I feel a limited market which, strangely, is at opposite ends of the playing spectrum. The jazz or traditional/orthodox player

who doesn't lift his heel — and the heavy rocker who's looking for strength in a pedal. I have seen broken Ghost foot plates in the past and I understand it is possible to break the springs. Inexplicably, Ludwig do not seem to list replacement springs in their parts catalogue but I'm sure they must be available. I found it fiddly to set up the pedal as far as locating the base plate to the framework is concerned — it's downright painful to join to the bass drum hoop from the sitting position. I suppose it's meant to be fixed from a kneeling position. Mind you, once attached it's a very solid piece of engineering.

Two mammoth cymbal boom stands come with this five tom tom set. Their tripod bases are exactly the same as the snare drum stand's. The bottom and second stages are of very large bore tubing and at the top of these is a huge, cast, splined ratchet which looks after the boom's angle. This boom is held in position by a large eye ring which encircles and holds the boom and is locked ready with another plastic hand-sized, wing-nut. The boom arm itself is telescopic and the first stage of it seems to be the same diameter as the top stage-down-tube. Its second stage is the top part of the ordinary, standard Hercules cymbal floor stand. At the very end of this tube is an extremely heavy-duty cast-ratchet tilter which has two large metal washers at top and bottom with two good thick felts in between. Around the threaded part is a plastic sleeve and everything is locked in position with a large metal wing-nut. This screw thread is ridiculously puny compared with the rest of the stand — I realise that this is to accommodate the cymbal but I have it on good authority that a larger hole in the cymbal would not have any terrible effect on the sound of it.

The concert tom tom holders use the same tilter mechanisms as the cymbal stands although they only have two stages. It's called the Clip-Lok model and instead of a hand size plastic knob to lock the tilter position (like on the cymbal stand) it has a nut and bolt to enable it to fit in between the toms. Other than this it uses Ludwig's spring-steel-loaded, inverted, slightly 'V' shaped, pressed-metal female receiver plate bolted to the drum shell which contains and locates one of the also inverted 'V' shaped spade fittings fixed at the top of the tilter. There's a felt ball which fits on to the top tube below the 'V' shaped clip and successfully stops the tom toms from rattling. Ludwig's holder is without doubt the *'sine qua non'* of all concert tom toms. They were also, to the best of my knowledge, the first.

Conclusion

So, what do I think of this Sound Projector set? Well in principle I like it. It's strong in sound and construction; its fittings are strong and up-to-date; its image is also strong and up-to-date. Oh yes, its price too is strong and also alas up-to-date! Mind you, it *is* imported from America, it *is* a seven-drum set, and it *will appeal* to a certain sort of drummer who wants a single headed set but with extraordinary projection. This guy no doubt will save up to buy it, especially since it's now available with wooden shells. I should like to try the projectors on a *double-headed* set — that would definitely be food for thought.

While I think of it the set I saw was in white Cortex but is apparently available in any one of 20 different finishes except stainless steel.

Henry Roberts




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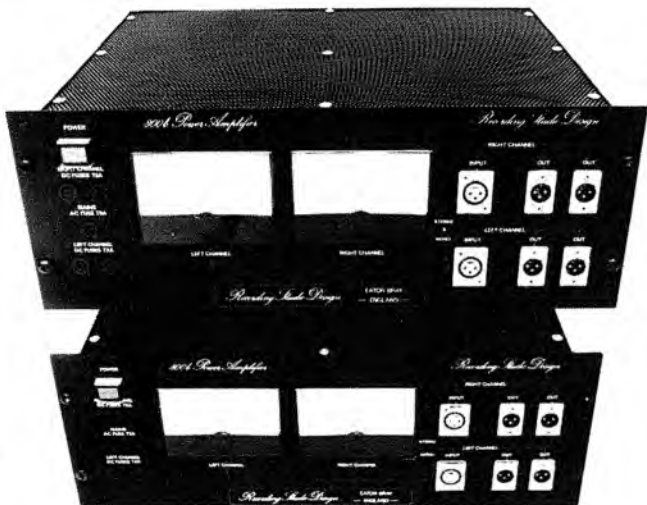
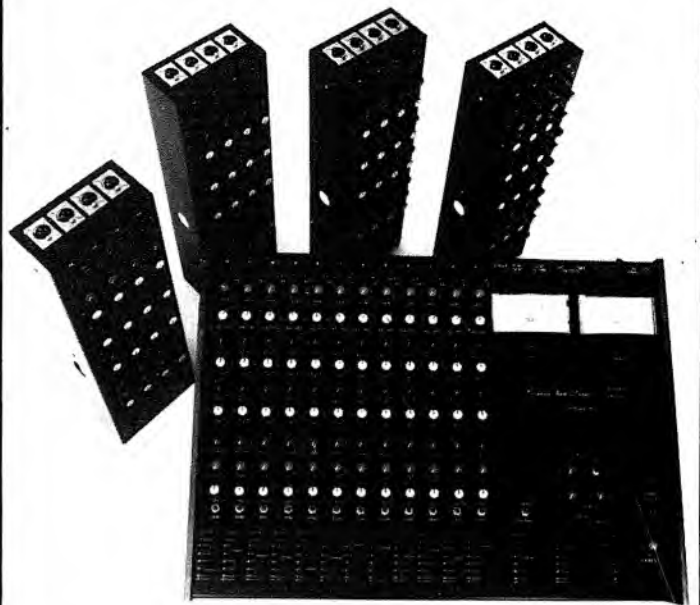
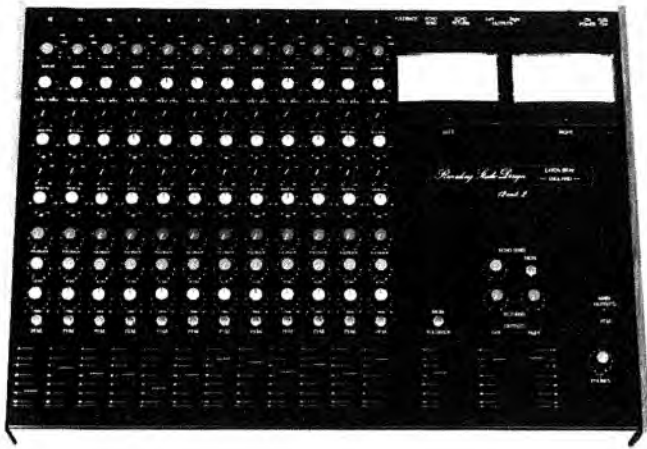
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Cone Drivers Revisited

Over the next six months, we shall be taking another look at the performance of 12", 15" and 18" loudspeaker units, and will also include a special feature on some of the smaller high power units with cone sizes of between 8" and 10" which we have not hitherto included. It is almost two years since we first began testing loudspeakers in readiness for the launch of the Speakercheck project back in February 1978 and since that time, there have been so many new loudspeakers come onto the market and so many re-designs of existing models have been introduced that we consider it is time we took a fresh look at the current marketplace. As before, we shall divide the products up into 'general purpose' and 'professional' categories for each cone size — so that we are comparing like with like. The programme as planned will go something like this:—

November 1979 issue — General purpose 12" units.

December 1979 issue — Professional 12" units.

January 1980 issue — General purpose 15" units.

February 1980 issue — Professional 15" units.

March 1980 issue — 18" units—all types.

April 1980 issue — 8", 9" and 10" units — all types.

This present article is intended as an introduction to the current phase of activity, to explain what we are doing, and to set out in clear language, the testing procedure we shall adopt, how the results will be presented and how these can be interpreted. Our criteria for acceptance of a sample for inclusion in our tests remains unaltered — it must be available over the counter at your music dealer. This does not necessarily mean that all products tested will be in stock, but they must be available to order. The idea is to exclude products that are only available to manufacturers for inclusion in commercially made cabinets, as such loudspeakers have little relevance to the musician who wants to up-rate an existing cabinet, build his own cabinet, or who may be building a PA system. As before, we shall be objective in assessing each product submitted. We shall bring the readers attention to good and bad points as appropriate, whether these are of an electrical, acoustical or mechanical nature and will interpret the results obtained from our own testing schedules in context of the manufacturers' published specification. In the past, we have often found loudspeaker units which exhibited a perfectly acceptable performance capability, but was simply over specified by its manufacturer. Occasionally, the

reverse has been found — where the manufacturer is not doing his own product justice by under-specifying its performance.

The Tests

As in previous testing of cone loudspeaker units, each sample will be mounted in a standard enclosure for each nominal size of loudspeaker. This is necessary because it is impossible to carry out any meaningful evaluation on a loudspeaker chassis hanging in fresh air, as the unit must be baffled in order to avoid cancellation effects due to sounds being emitted from the front and rear of the loudspeaker cone simultaneously. Also, the cone must be acoustically loaded in some way — especially if the unit is to be driven hard. These requirements are always met whenever a loudspeaker unit is used in practice and therefore our tests more nearly simulate expected conditions of use. The standard enclosures used are constructed from 18mm high density chipboard as an integrated shell to ensure absolute rigidity, and are internally lined with an 80mm thickness of Fibreglass wool. The loudspeaker chassis is mounted through the front onto a cork gasket to ensure good air seal and is clamped in position with wing-nuts to permit rapid changover of units. The enclosure sizes are given below:—

All 12" units — 50ltr. internal volume.

All 15" units — 90ltr. internal volume.

All 18" units — 130ltr. internal volume.

The 8", 9" & 10" units will be mounted in the 50ltr enclosure using an adaptor plate to reduce the 12" aperture.

Tests are conducted in the acoustics laboratory of the GEC-Hirst Research Centre at Wembley. The loudspeaker under test, mounted in the appropriate standard enclosure, is placed in an anechoic chamber (an acoustically dead room to ensure that only the direct

sounds from the loudspeaker are measured, rather than sounds reflected from nearby walls, windows etc.) The chamber we use has a reverberation time of virtually zero down to 100Hz and only rises to about 0.1 sec below that — and even this is electronically equalised. A whole range of sophisticated equipment is used to measure the performance capability of the loudspeaker unit and for those interested, this is listed below:—
Bruel & Kjaer Heterodyne Analyser type 2010
Bruel & Kjaer Distortion Measurement Control Unit type 1902
Bruel & Kjaer Chart Level Recorder type 2305
Bruel & Kjaer ½" condenser microphone
HH Electronics power amplifier type S500-D
RCF Spectrum Analyser type SA-1
Shure equaliser type M63-2E
Techtronik dual beam oscilloscope with Polaroid camera attachment.

1. Frequency Response

The loudspeaker unit, mounted in the appropriate standard enclosure, is set up in the anechoic chamber with the measuring microphone positioned at a distance of one meter on the central forward axis of the loudspeaker cone. The loudspeaker is then fed with a sine wave signal, swept from 20Hz to 20kHz at an RMS voltage level calculated to dissipate one watt at the manufacturers' stated nominal impedance. The reproduced sine wave is then picked up by the measuring microphone and fed via a measuring amplifier to the chart recorder where the frequency response of the loudspeaker is plotted out in graphical form. This is the plot that is published as part of the presentation of test results for each loudspeaker tested and a typical example is shown in Fig. 1. Additionally,

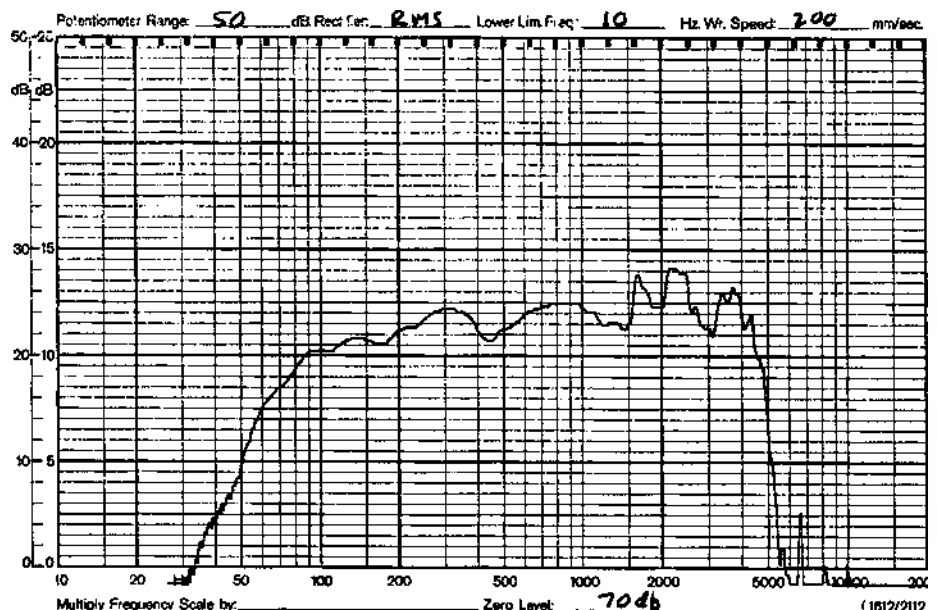


Fig. 1 Typical Frequency Response/Sensitivity plot

we state in the results table, a 'useful frequency response' and this will be given as 'up to N kHz.', where N is the upper frequency limit where output falls to 12dB below the average level as given for the loudspeaker sensitivity. No figure will be given in respect of the lower frequency limit as this will be dependent upon the volume and design of the enclosure in which the unit is housed and in any event, the small volume of our standard enclosures will not permit the maximum low frequency response capabilities of some of the units tested to be realised.

Any of these factors, if present in a given product, will manifest themselves in terms of increased distortion. Further tests have shown that the nature of such distortion is predominantly second and third harmonic, fourth and fifth order distortion being negligible by comparison. It will be appreciated that long term thermal testing is not a practicable proposition when time factor in the laboratory and the large numbers of samples we have to test are considered.

Therefore, for this test, a second sine wave plot is taken in just the same way as before, but this time with an input voltage calculated to dissipate the maker's maximum sine wave power rating at the stated nominal impedance. Underneath this plot, two further traces are added representing the second and third harmonic components. The ratio between the fundamental plot and the sum of the second and third harmonic plots is then calculated and appears in the results table as a percentage figure. We have established that a norm of up to about five per cent distortion is acceptable, at six per cent it will just scrape through, but if distortion is above this level it will be failed as regards confirmation of the maker's power rating. However, it must be realised that this in itself need not necessarily indicate that the unit is not capable of handling the rated power level in electrical terms. It means that other factors are interfering with the proper operation of the device and creating stress at some point. In cases where a particularly low distortion figure is recorded, we will run a second test at a 3dB increase over the stated power rating (i.e. twice the stated power rating) and observe the performance under these conditions. Although we will state any such higher power level in our report, this **MUST NOT** be taken to imply an uprating of the manufacturers power rating figures without first obtaining the manufacturers consent for a given application, as there are other factors that have a bearing on power handling that we have not investigated.

For information purposes, we publish as Fig. 2 a typical full power distortion curve for a typical cone loudspeaker. The large peak in distortion at the low frequency end of the scale is due to

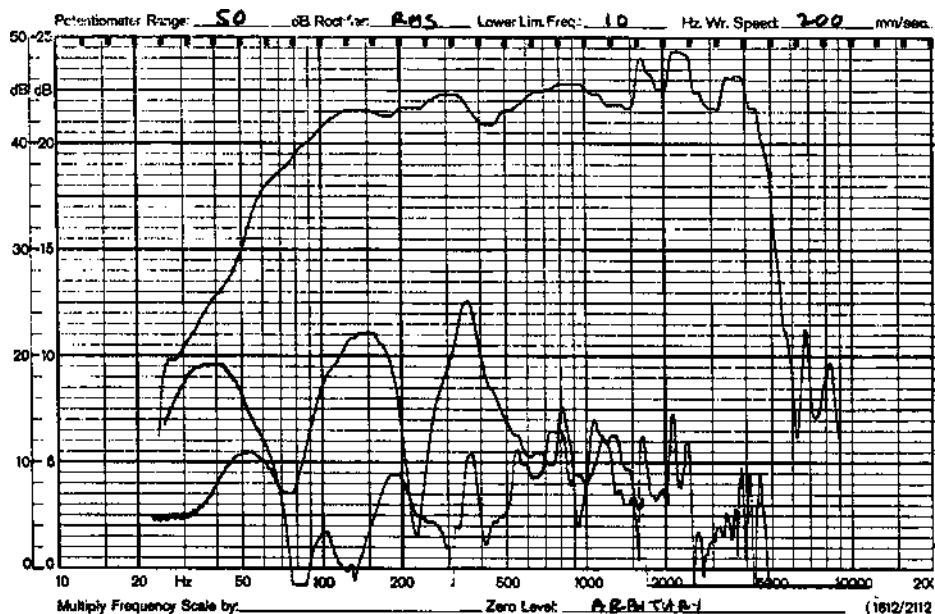


Fig. 2 Typical Full Power Harmonic Distortion plot

system resonance and loading effects within our standard enclosure, and will not necessarily be present when the unit is mounted in a larger enclosure volume, or in a tuned or horn loaded cabinet. Therefore, this peak is not taken into account when the total harmonic distortion figure is calculated.

Many manufacturers currently state in their published specifications only that the frequency response is between, say, 50Hz and 8kHz. Such a statement is generally meaningless unless the parameters are quantified, as it tells us nothing of the deviation between the two extremes. By publishing both a full frequency response plot and also a quantified statement, a truthful estimate of a loudspeaker's likely performance can be assessed by technician and layman alike, according to his needs and interests.

2. Sensitivity

This parameter is also taken from the one watt sine wave response plot and represents the output level recorded from the loudspeaker, averaged over a specific band of frequencies. The actual frequency band used will vary from one loudspeaker to another according to individual performance characteristics, but will generally comprise about three octaves in the middle register. In our results table, we shall simply state a sensitivity figure of so many dB for an input level of one watt at a distance of one meter averaged between two points.

3. Sound Pressure Level

For this test, the loudspeaker is fed with a wide band pink noise signal, filtered to the approximate frequency response range of the particular loudspeaker under test, at an input voltage calculated

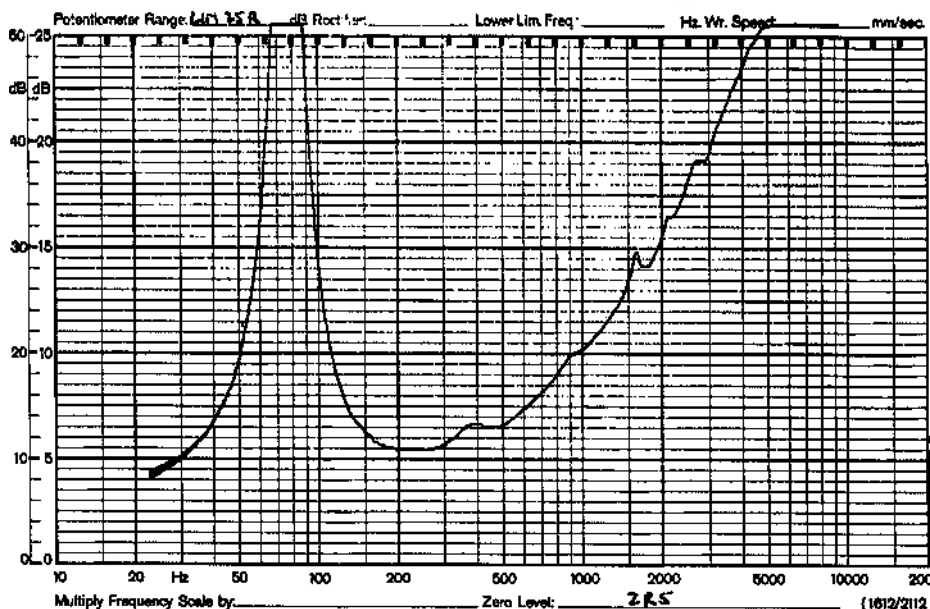


Fig. 3 Typical Impedance plot showing Resonant Frequency

Speakercheck

to dissipate the full RMS power rating of the loudspeaker at the manufacturers stated nominal impedance. With the measuring microphone still at its one meter position, the sound pressure level in dB(A) is measured. This is a parameter that we have not previously included and it is introduced now to give an indication of how loud the loudspeaker will be under music conditions at full power. The term dB(A) is the common expression for measuring the loudness of sounds and will be familiar to most musicians.

4. Power Rating

The ability of a loudspeaker to comply with its manufacturer's power rating will be assessed in terms of the amount of distortion generated by the unit at full sine wave power. Extensive testing and analysis have shown that distortion levels from a cone type transducer can be expected to remain within acceptable limits until such time as the unit is overdriven, at which point, any appreciable increase in input power results in a disproportionate increase in distortion. This increase in distortion could be due to a number of design inadequacies, either of a mechanical or electrical nature — such as the voice coil being driven out of the air gap, overstressing the cone suspension system, the voice coil being off centre, cone break-up, etc.

The B & K Heterodyne Analyser is used as a precision, low distortion sine wave signal generator and as a measuring amplifier which is interposed between the measuring microphone and the chart recorder. The sine-wave generator is also linked to the chart recorder in order that these two units are synchronised to

each other. The distortion measurement control unit is used in conjunction with the Heterodyne Analyser to enable the distortion products of the reproduced sine wave signal to be plotted out on the chart recorder. The HH S500-D power amplifier is used to ensure that at any power level that might be required to fully drive a modern high power loudspeaker unit, a clean, low distortion test signal is available. It is necessary to be certain that it is the loudspeaker performance, and not that of the driving amplifier that is being measured, and the S500-D has the performance parameters and massive reserves of available power to ensure that this is so. The RCF Spectrum Analyser, and its integral pink noise generator is used in conjunction with the Shure equaliser to provide a wide band pink noise signal, filtered to the useful response of the loudspeaker under test, for the SPL at full power measurement. The pulse generator is used in conjunction with the oscilloscope and camera to record the transient response characteristic. Full details of the actual tests applied and the testing conditions are set out in the following paragraphs.

5. Impedance

Although all manufacturers state a nominal impedance for their products, in practice, the stated value only applies at a very narrow band of frequencies. The impedance vs frequency plot shown in Fig. 3 is typical for a cone type loudspeaker and it can be seen that impedance varies from a low of exactly 8 ohms at 200Hz to a high of about 30 ohms at 5kHz. The generally adopted criterion for impedance is that the lowest impedance reached at any frequency

must not be less than 0.8 of the stated value and we shall only dwell on this aspect of things in instances where this is not found to be the case. We shall state in our results table the lowest impedance measured immediately after resonance and also, the highest value attained at the manufacturers' stated upper frequency response limit. It should however be realised that in situations where a cone loudspeaker is used as a full range unit, with no horn and associated filter or crossover network, the impedance value will continue to rise at an exponential rate and that at 20kHz, very high values of anything up to 50 ohms are not unusual. There are however the odd exceptions to this general rule, where, due to specific design attention, the impedance curve has been kept within controlled limits right across the frequency spectrum. In all instances so far recorded, these products have been from the Italian manufacturer, RCF.

6. Resonance

This result is also taken from the impedance plot as shown in Fig. 3 and is the centre frequency of the large 'blip' that occurs somewhere in the 100Hz region of the plot. Our figures in this instance will be at considerable variance with those published by the manufacturers owing to the fact that we have chosen to measure the resonance with the loudspeaker mounted in our standard enclosure; while the manufacturers figure will almost certainly relate to a free air condition. In view of the fact that loudspeakers are never used in free air, we consider it more pertinent to do an in-cabinet test in this respect.

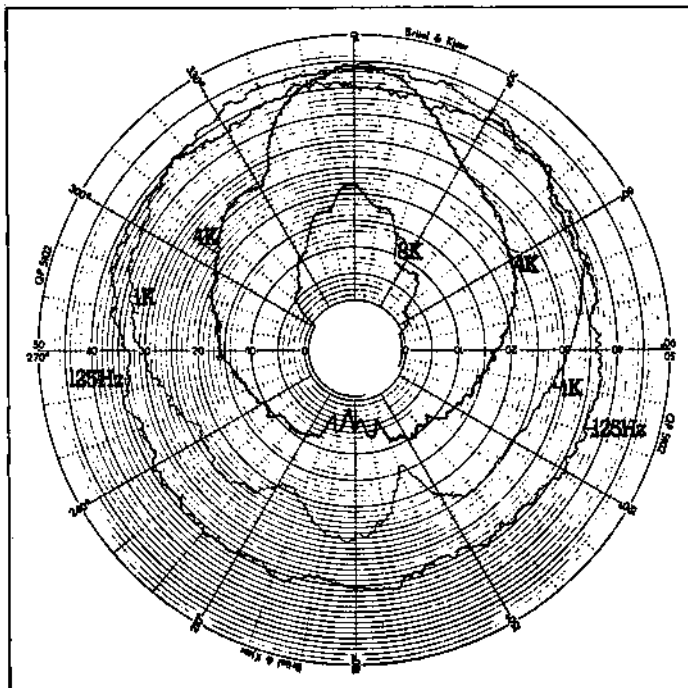


Fig. 5 Typical Polar Response plot of a general purpose 12" loudspeaker

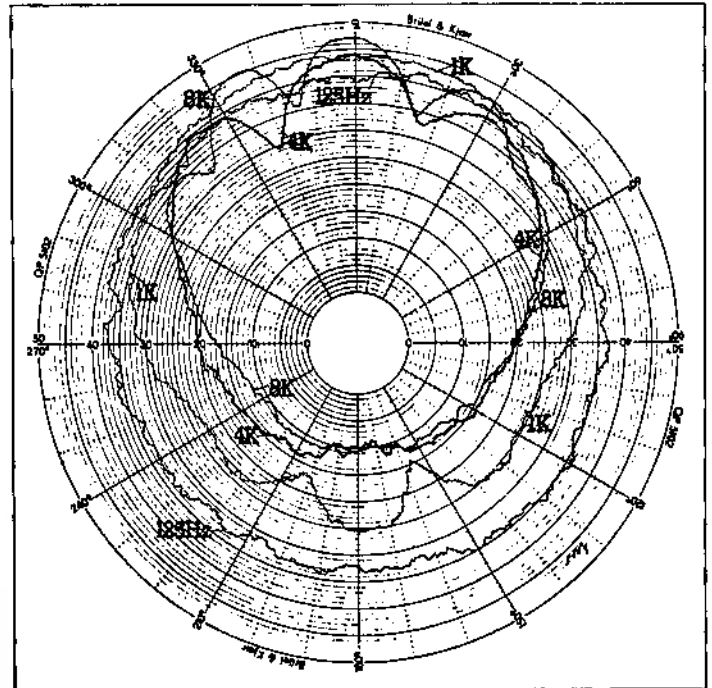


Fig. 6 Typical Polar Response plot of a twin cone 12" loudspeaker

7. Transient Response

This is a new test that we have not used in previous reviews and is introduced now in order to provide an indication of the speed with which a loudspeaker can respond to rapidly changing signal information. For the purpose of this test, the loudspeaker is fed with a series of pulses, at an amplitude of 10 volts, of one millisecond pulse width and at a repetition rate of 1kHz. The pulse is positive going only, i.e. there is no negative half cycle as with a sine wave. This is a particularly cruel test to apply to any cone type transducer and we do not expect to find any loudspeaker that will faithfully reproduce such a signal. To start with, it is unlikely that the cone can be accelerated at a sufficiently fast rate to reproduce the leading edge of the pulse. Secondly, once in motion the cone will usually overshoot the amplitude of the pulse before settling. At the trailing edge of the pulse, the cone is again unlikely to return immediately to its normal rest position and will in all probability overshoot in the other direction before settling. It may also continue to vibrate long after the pulse has been removed due to its 'brakes' being insufficient to bring it to an immediate halt.

The design factors that will effect its performance in this respect are the flux density of the magnetic circuit, the way in which the voice coil is arranged in the air gap, the mass of the cone assembly, the compliance of the suspension system and the damping factor provided by the driving amplifier. The HH S500-D has a very low internal impedance across its output terminals and provides good damping, and as all samples will be tested on the same amplifier, this aspect can be disregarded as far as the results are concerned. We measure this transient capability by displaying on one trace of a double beam oscilloscope, the input pulse as applied to the loudspeaker, and on the other trace, we display the resultant response of the loudspeaker cone as detected by the measuring microphone. We then use a special Polaroid camera attachment fitted to the oscilloscope to record the two traces simultaneously and will publish the photograph thus obtained as part of the results presentation. Although no loudspeaker is ever likely to provide an accurate reproduction of the pulse, it is possible to see the degree to which the loudspeaker response approximates to the pulse shape. The size of the overshoot can be assessed by comparison between samples and the time taken for the loudspeaker to return to a settled state between pulses can also be assessed.

8. Polar Response

For general purpose cone loudspeakers, it is mainly physics that will dictate the polar response and therefore there is little to be gained by taking up a lot of space with separate plots for each loudspeaker tested.

Instead, Fig. 5 shows a typical plot for a general purpose 12" loudspeaker unit and Fig. 6 a similar plot for a similar loudspeaker fitted with a twin cone diaphragm assembly. It can be seen that while radiation is fairly uniform for both types up to 1kHz, the general purpose unit has narrowed considerably at 4kHz and has degenerated into a narrow beam at 8kHz, while the twin cone unit has a wide uniform pattern throughout the range. The actual radiation characteristic for a given loudspeaker unit will depend upon the relationship of wavelength to cone diameter and upon the shape and design of the cone itself, but Figure 5 gives a fair idea of typical characteristics.

The Results

What assessment then can you, the musician or soundman make of the results we publish for each loudspeaker? The following paragraphs point out some of the more important aspects.

From the frequency response plot published and from the quantified statement in respect of the useful frequency response range, you can see firstly, whether or not the unit meets the manufacturers specification, and secondly — and probably more importantly, you can see whether or not it will be suited to your purpose. If you are a guitarist for example, you will not be too bothered about its low frequency performance, but you will want a bright middle and plenty of top-end response. Therefore, you would look for a unit with a pronounced presence peak over the middle band, and a useful response of 6kHz or better. For use as a mid-range reproducer in a PA rig however, the last thing you want is a presence peak. Instead you need a smooth response between about 400Hz and 2kHz. For both these applications, you would probably choose a unit with a fairly high cone resonance and mount it in a fairly small enclosure. If you are after a bass driver for a PA bin however, then you are particularly interested in the low frequency energy level, and if the response rolls off at 3kHz or so, so what?

To integrate the foregoing with the transient response trace and distortion figures, guitars and other musical instruments are often enhanced by a certain amount of harmonically related distortion components and by some 'hangover' effects due to a poor transient response. The world renowned Marshall and Vox sounds are due in part to the characteristics of the loudspeakers fitted as well as to the amplifier circuitry and this is the reason why. So for this type of sound, choose a unit with five or six per cent harmonic distortion and a good overshoot and hangover characteristic as shown on the transient response trace. However, for PA or similar applications, no way will this do. Look instead for the lowest distortion figure you can find and

the most faithful transient performance.

The sensitivity figure is really one of the most important of all. Far more important in fact than the wattage rating — assuming of course that your amplifier cannot drive the loudspeaker to destruction! For example, if loudspeaker 'A' can deliver 96dB of sound at an input power of one watt, when measured at a distance of one meter, while loudspeaker 'B' can deliver 99dB under the same conditions, then you will only need **HALF THE AMPLIFIER POWER** for exactly the same acoustic loudness to drive loudspeaker 'B' than for loudspeaker 'A'! Keep in mind, that a difference of 3dB sensitivity either way makes a difference of double or half the amplifier power by a factor of 4. So a single loudspeaker of 102dB sensitivity will produce the same acoustic output level as a cabinet containing four loudspeakers of 96dB sensitivity and require only one quarter of the amplifier power into the bargain!

In addition to this basic sensitivity figure, you will also find a sound pressure level — SPL for short, given in dB(A). This is a wide band measurement to provide an indication of how loud in real terms a given loudspeaker will be at full rated input power. DB(A) is the unit of measurement used to measure traffic and aircraft noise, noise levels in factories and offices etc and is the unit the local environment health inspector will use if he should call in at your gig to make sure that your band is not playing too loud. This is why we have now included this additional measurement — so that the loudness of each loudspeaker can be expressed in everyday units that people can relate to.

I hope that most of you will have been able to follow at least the general gist of this introductory article and that some aspects of loudspeaker characteristics will be better appreciated as a result. I recommend that you retain this article for use as a point of reference for the next six months series, as this information will not be re-printed with each set of reviews. Next month we shall kick off with a clutch of about eight 12" general purpose units and most of the leading manufacturers will be represented.

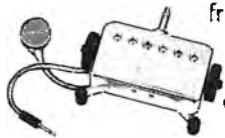
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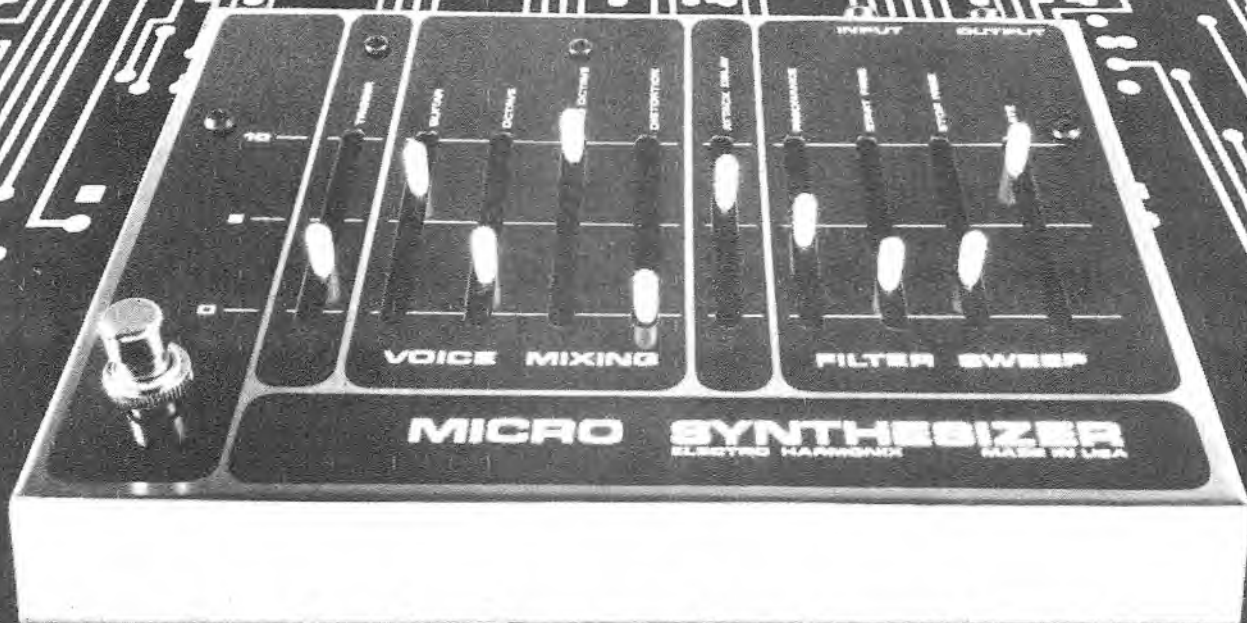
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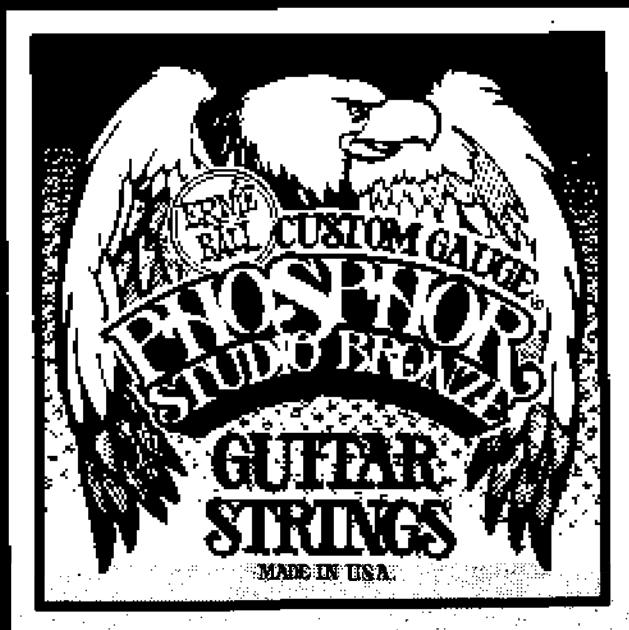
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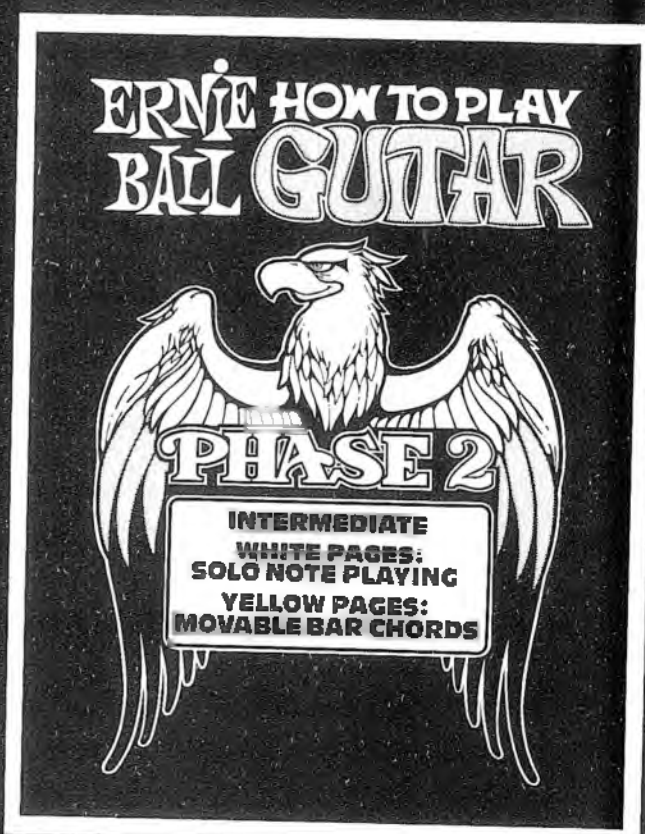
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Albums

Robin Williamson & The Merry Band

The Slits

Wailing Soul

Mike Oldfield

Robin Williamson & The Merry Band

A Glint at the Kindling (Criminal)

You might call this a composite album. Robin, who produced it himself, arranged it around his own persona, or rather, the persona of himself as a growing boy. With this theme, you may imagine a record that's probably sentimental, inevitably self-centred, pretty likely to have the false ring of nostalgia — and if none of these, then surely limited in scope.

Well — not a bit of it. *A Glint at the Kindling* is an album of incomparable purity, vision, wit, and artistry, both in the music and in the lyrics. Some people have to go searching for their tradition; not so the architect of these songs and arrangements. He's completely attuned to the heritage of traditional music, and he's completely attuned to 20th-century Britain, the setting for all his songs. The result is successful contemporary folk — which is a rare thing. And the Merry Band have a lilt and sparkle to their acoustic backings and instrumentals that justifies the name.

"The Road the Gypsies Go", "Lough Foyle", and "The Poacher's Songs" are perhaps the finest examples of the way Robin can keep the age-old themes of folk (Itinerants, Recruiting, Poaching), but give them relevance to today. The *pièce de résistance* of the album is different in approach, and is unique. It's tempting not to mention that there's a 13 minute, 57 second poetry recital on "A Glint at the Kindling" — just so as to prevent some people from doing themselves the incalculable wrong of not listening to it. "Five Denials on Merlin's Grave", however, is not only likely to persuade some people of the effectiveness of poetry in a folk (or rock) context, but is accompanied by some captivating instrumental work (note especially harps and whistles) improvised round one of the most stirring musical themes ever worked into 8 bars.

Listen to this album to restore lost inspiration.

Paul Ashford

Produced by Robin Williamson and his Merry Band, Recorded at Dirk Dalton Recording, Santa Monica, California.



Mike Oldfield

The Slits

Cut (Island)

Though the Slits have been around for over two years, due to various problems they have had with drummers and managers, and in maintaining their musical momentum, this is their first album. Perhaps it's because of their lack of experience and public exposure (only a handful of gigs and the odd John Peel session) that this album sounds so fresh and uncalculated.

The songs are all rooted in reggae (their main influence) and are brought to life admirably with some carefully understated guitar work, Tessa's booming bass and the precise clean drumming from Budgie. Everything is kept together nicely by producer Dennis Bovell who always has a trick up his sleeve, but never lets things get out of hand.

All in all this LP is a very pleasant surprise for those people who thought that the initial spark of inspiration must have long since faded. It is a fine, challenging album which makes the majority of

their anachronistic counterparts seem quite pathetic and impotent in comparison.

Janet Angus

Produced by Dennis Bovell. Engineered by Mike Dunne and recorded at Ridge Farm Studios.

Wailing Soul

Wild Suspense (Island)

On this one *Wailing Souls* have been playing with their basic line-up — vocal section consisting of Lloyd 'Bread' McDonald, George 'Buddy' Hays, Errol 'Garth' Dennis and Winston 'Pipe' Matthews (the same line-up since 1965, although they changed their names several times). They also did some recordings on Bob Marley's Tuff Gong Label during 1971/72 when they were called Pipe & The Pipers.

Wailing Souls put a heavy emphasis on vocals, which alone would make the album worth listening to. But there is a lot more to this, because the album was recorded with a kind of Reggae "Big Band".

It is the arrangement of the horns and vocals that makes this album so enjoyable to listen to and gives it a distinctive sound. My favourite track is "Wild Suspense" which features an amazing organ sound, which reminds me of... well, you have to listen to it, because it'll probably remind everybody of something different. While side one is merely rock-influenced Reggae with lots of rhythm, that makes you want to move, side two features a few more traditionally-arranged songs and vocals which come closer to the West Indian origins. A beautiful album and a good deal if you are keen on fine vocals.

Frank Spahn

Mike Oldfield

Exposed (Virgin)

A few weeks ago, my local folk club was treated to a one-man performance of *Tubular Bells* — by an acoustic guitarist who could also make synthesizer-type sounds, with his mouth. Six months earlier, Wembley was treated to a performance of the same piece of music — by an electric guitarist and a forty-piece backing orchestra. Neither of these performances bore very much relation to the one released in 1973. Both were superior. Moral? Keep on flogging dead horses, but don't forget to change the whip every now and again.

On *Exposed*, Oldfield has brutally edited "Incantations" down to about 45 minutes, making it an even more disjointed piece than the original, and totally re-arranged the composition that brought him fame, fortune and the money for a haircut. Not only has he changed it, but he's actually done the impossible and improved it!

This version of "Tubular Bells" has a sense of unity lacking in any other piece of music Oldfield has written. The different moods he creates manage to complement each other whilst still retaining their individuality. The opening counterpoint is still as haunting, but somewhat beefier due to the addition of bass and drums, and the simplicity of the closing section is brought out beautifully as one by one the instruments join in, resulting in an almighty jam.

Oldfield has taken a great risk changing his masterpiece, and the new version does not have the peaceful sense of beauty which haunted the original. But then again, beauty isn't everything.

Rob McIvor

Produced by Mike Oldfield and Tom Newman. Recorded on tour in Europe.



Robin Williamson

Rocking Dopsie

Hold On (Sonet)

Rocking Dopsie's music, launched on his recent British debut at major folk, jazz, rock, and country festivals with fine indiscrimination, is officially known as Zydeco and certainly is a distinctive sound that doesn't fall immediately under any established heading. Basically a 12-bar style (at least, as far as this album is concerned) it has the direct, uncomplicated air of music developed by a tough, tight-knit community (black Louisiana) that knows how to enjoy itself. Rocking Dopsie is said to be a (the?) leading exponent of his style, and 'Hold On' gives no reason to doubt it. What men like Son House and Elmore James have been to their different kinds of blues, Rocking Dopsie is to his.

What distinguishes this Zydeco from any of the R&B material to which it might otherwise have been compared, is the accordion. The musical associations of this (Dopsie uses the 'French' button-type model) lay a refreshing new character over the well-tried musical structure. As an accordionist Dopsie is, according to his idiom, first-rate. The sound varies from cadences that might recall the Paris Boulevards to the quick blow-suck movement that gives the instrument an effect very similar to that of expertly played blues harmonica. Having said that, it must be added that on the greater part of this album he vamps rather than plays leaving John Hart (tenor sax) and Major Handy (guitar) with the lead breaks. One suspects the accordion played in this style could be used in some striking virtuoso pieces either solo or with minimal accompaniment, but perhaps there'll be some examples of this on Dopsie's next album. Tracks that show the accordion to great advantage are "Hold On" for the up-tempo effect, and the fascinating "Opelousas Waltz".

This entire album goes with tremendous bounce and confidence — the band has no weak points, and to round off their appeal, Dopsie has a classic blues voice of considerable power. An album of pure entertainment, and one that may induce others to experiment with accordions or melodeons as rhythm instruments for rock or blues.

Paul Ashford

Sonet Records Ltd. (Distributed in UK by Pye).
Produced by Sam Charters, Recorded at Mastertrak
Sound Recorders, Crowley, Louisiana.

XTC

Drums and Wires (Virgin)

For a short while after Barry Andrews' departure earlier this year, things in the XTC camp didn't seem too bright. Luckily they have made a quick recovery, after adding a second guitarist, and are now in better form than ever. This is their first album with the new line-up which, in short, is great. From the first offbeat drum pattern to the last discordant chord XTC surprise, tickle and delight always, without compromise. The songwriting credits are shared pretty evenly between Colin Moulding and Andy Partridge — the latter's style, on the whole, being the more quirky and abrasive of the two.

Tracks which at first stand out are "Making Plans for Nigel" the new single "Scissor Man" which is concerned with the kind of Bogey Man figure which used to appear in Victorian fairytale books, and "Complicated Game" which builds up from a whisper to a demented roar and reminds me of their version of "All Along the Watchtower." Ultimately

though, primary analysis is pointless. XTC's sheer unpredictability does not allow the listener to become complacent at this early stage. Songs which may not have registered at first, gain strength and start creeping up on you from behind — which is really the way it should be.

Janet Angus

Recorded at The Townhouse Studios. Produced by
Steve Lillywhite and engineered by Hugh
Padgham.

Mike Batt & Friends

Tarot Suite (CBS)

This will be an extremely popular album. Mike Batt and Friends (happy the man whose friends include Colin Blunstone, Rory Gallagher, Chris Spedding, Roger Chapman, and the London Symphony Orchestra) have made two sides that range from hard rock to soft rock (Simon & Garfunkle would not have been ashamed of 'Lady of the Dawn') to classical music (the orchestra is not there merely for 'orchestration').

The concept behind Tarot Suite is to do a musical interpretation of the Major Arcana of the Tarot pack. Now it is very difficult to produce effective musical interpretations because music doesn't invoke the same things for different people. But the idea has been a success on two counts. Firstly, at its best, it has been able to capture the underlying element of the macabre, with which the symbolism of cartomancy is often associated. Second, the concept has obviously been an inspiration to Mike Batt as a composer/arranger so the finished product is a splendid work of the composer's art in its own right.

The material is, as I said, very varied, but no-one can argue with good songwriting, and "Imbecile", "Lady of the Dawn", and "Run Like the Wind" are just that. They are arranged with plenty of first-class guitar work from Jim Cregan, Rory Gallagher, Chris Spedding and Tony MacPhee and (generally) avoid the trap of using the orchestra merely to give that smoothing over effect characteristic of 'easy listening'. The guitars also give bite to the instrumental tracks (a nice performance by the LSO). A criticism someone is liable to level (so it might as well be me) is that with the extended instrumentals "Mr Jingles" is giving us a kind of kitsch — an accompaniment or interpretation (like a film theme) which without pictures (the record was launched in a spectacular AV show) seems not to be leading anywhere. But inevitably just when this thought begins to form in your mind, a solo instrument (often guitar) breaks through and your attention is once more rivetted. "Tarota" is perhaps the most successful instrumental track, with an instrumental line-up equivalent in musical terms to the Lion lying down with the Lamb. Surprisingly, they get on.

Classifying *Tarot Suite* isn't easy. *Schiztophonia* was a departure and this is different again. You could mention Mike Oldfield's work, but this album ranges wider and cuts deeper. Of all the attempts to marry classical arrangement and rock, I like Jefferson Airplane/Starship's best, and there's a basis for comparing this album with some of their work. And then there's Darryl Way's latest work — but always the resemblances are limited. This album is worth listening to as something unique.

Paul Ashford

Produced by Mike Batt, with recording engineers
from a number of studios.

Rocking Dopsie

XTC

Mike Batt & Friends

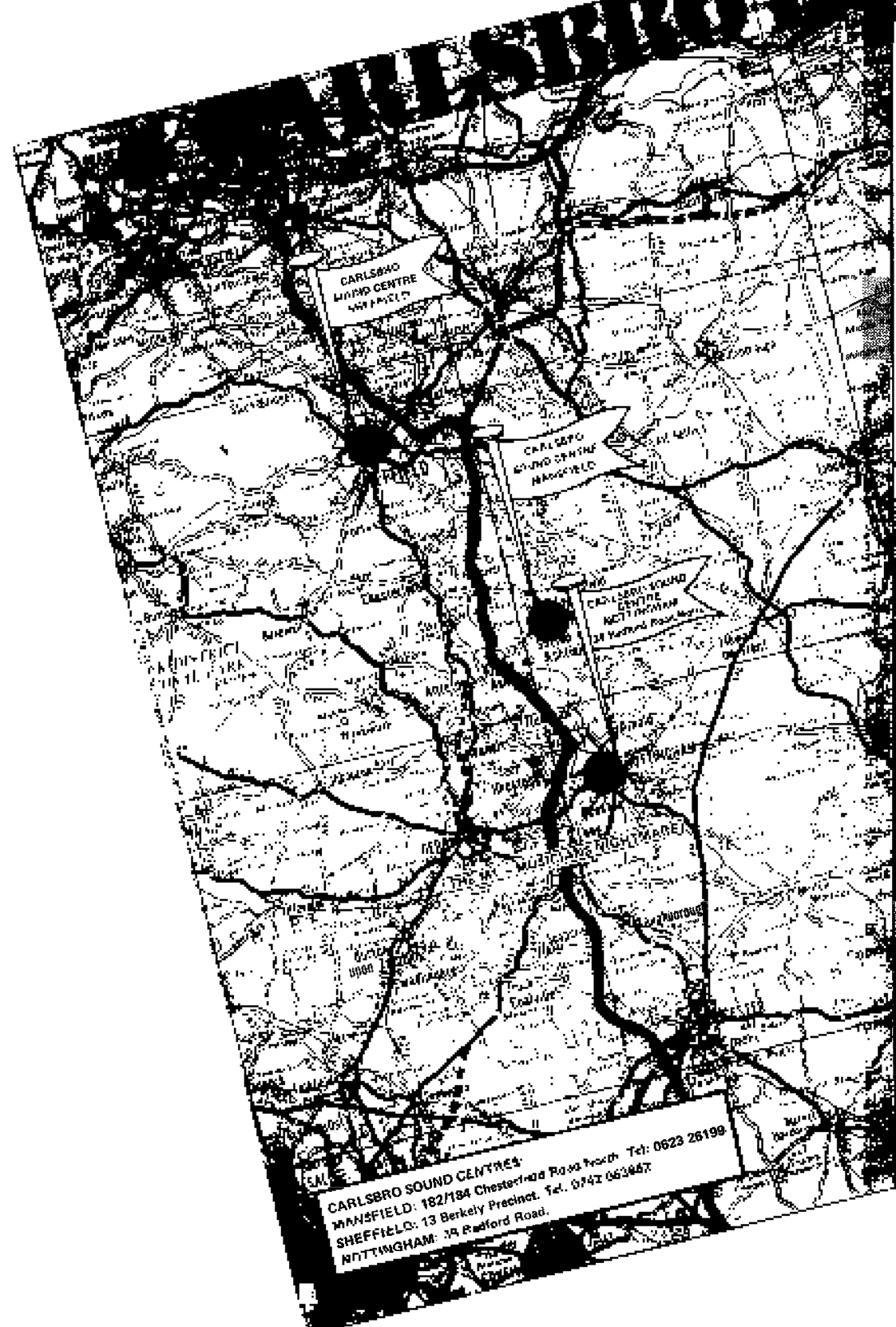


XTC



Mike Batt

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OPENING OFFERS

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Popular Boss Keith Woodcock



Artist's impression of the new superstore at 39 Radford Road, Notts.

**Britain is a winner
 says eno**

TOLWO

Albums

Airwaves

Next Stop (Mercury)

Airwaves present an album with a whole lot of well-tried ideas expertly patched together in an electric pop/rock style geared to the middle-of-the-road market. As a style it's rock that won't offend, rock you could take anywhere, rock with the cutting edges removed. The lyrics complement this attitude and it was definitely a mistake to print them on the dust cover. "You had the measure of the new revolution/now learn to cope with your own evolution", is a piece of moral advice which one suspects Airwaves see as paralleling what they're doing musically. But to get to *Next Stop* from the material of rock revolution is simply a softening.

All members of Airwaves are songwriters and the credits on this album are divided between them with the lion's share to John David. "Now", and "Next Stop" in particular are nice tunes, and "Mail Man" sounds as if everyone is having an only slightly inhibited good time. The production is extremely polished, and there is some very professional arranging. Professional arranging and production shows through (as a rule of thumb) when the instrumental introduction to a song has tremendous promise, and then the song itself is a bit of a let-down by comparison. There are several tracks like that here. Instrumentally, Ray Martinez' guitar playing sounds as if it could have been exciting had the material given him more scope. The number of other instruments and effects used would stock a music store.

An album that pulls its punches, while pretending it doesn't.

Paul Ashford

Produced and engineered by Pat Moran, Recorded and mixed at Rockfield Studios, Wales.

Thin Lizzy

The Continuing Saga of the Ageing Orphans (Decca)

The trouble is it's not a continuing saga but a continuing re-cap on a saga lots of people would like to see continue. Thin Lizzy's second compilation which follows on from the great success of *Remembering Part 1*, say Decca, takes its material largely from the first three albums (with 'Things ain't Working Out Down at the Farm' thrown in). And very fine albums they were, too, but there remains some question as to whether the best Thin Lizzy material couldn't have been concentrated on one rather than two compilations.

Still, if this distinctive rock ensemble want to re-package old material, they will undoubtedly find plenty of takers. The re-mix brings a consistency and unity to the *Continuing Saga* and as you'd expect it's very atmospheric. The selection (including "The Hero and the Madman", "Dublin", and — my choice for the most definitive and best ever Thin Lizzy track "Vagabond of the Western World"), is unobjectionable. The rest, Phil Lynott's dynamic vocals and imaginative writing, Eric Bell's inimitable guitar, and so on — I'm afraid you already know.

Paul Ashford

Produced by Phil Lynott and Nick Tauber, re-mix at Studio No. 2, Decca West Hampstead.

The Shadows

Strings of Hits (EMI)

I have always regarded The Shadows as being good tight musicians who have always had the misfortune to be kept in the background. The track which made me pick the album up for review was, rather predictably I'm afraid, the theme from the *Deerhunter* (Cavatina) which we all know and love (don't we?).

However, my opinion of the rest of the album is, frankly, that it is very dull. These artists are all very good musicians so why must they insist on wasting their talents on music like this? A lot of my criticism is directed at the arrangements which at best are naive and at worst corny. So how about it Shadows? Why don't you pull yourselves together and realise your potential and show us all what you are made of?

Janet Angus

Recorded at Abbey Road. Engineered by Peter Vince; arranged and produced by The Shadows.

Tim Curry

Fearless (A&M)

Throughout this album I can see glimpses of a talent which, with a lot of work admittedly, could become something really good. For the most part the performance can best be described as unobtrusive (classic example — the final track "Charge It").

The second side is definitely the better, with "Paradise Garage," "No Love on the Street" (much more subtle!) and for those of you who like the romantic numbers "Something Short of Paradise" is really very well done.

There are in fact a lot of good ideas in this album and I will be looking out for the next one in the hope of hearing a more polished effort overall.

Janet Angus

Recorded at the Hit Factory, New York; Long View Farm Recording Studio, Massachusetts.

Engineered by Kevin Herron and produced by Dick Wagner and Michael Kamen.

Short Cuts

Sam Cook When I Fall in Love (EMI)

Great! Lots of corny Golden Oldies. If it's a trip down memory lane you're after you couldn't beat it. JA

Dick Morrissey/Jim Mullen: Cape Wrath (Harvest)

String-sodden bland-out from two very capable British funk-jazzers who are old enough to know better. Depressing. JP

Barbara Mandrell Moods (MCA)

Pure musak and I have never heard anything like it. More specifically, I have never heard such corny lyrics set to such dreadfully inappropriate (and bad) music. JA

Airwaves

Thin Lizzy

The Shadows

Tim Curry

Short Cuts

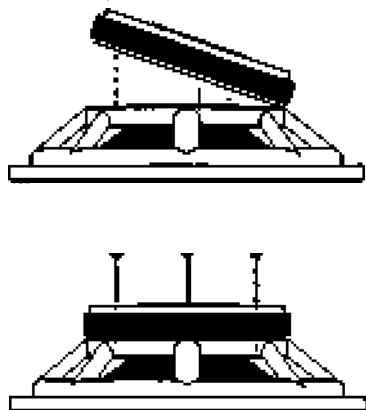


Phil Lynott



The Shadows

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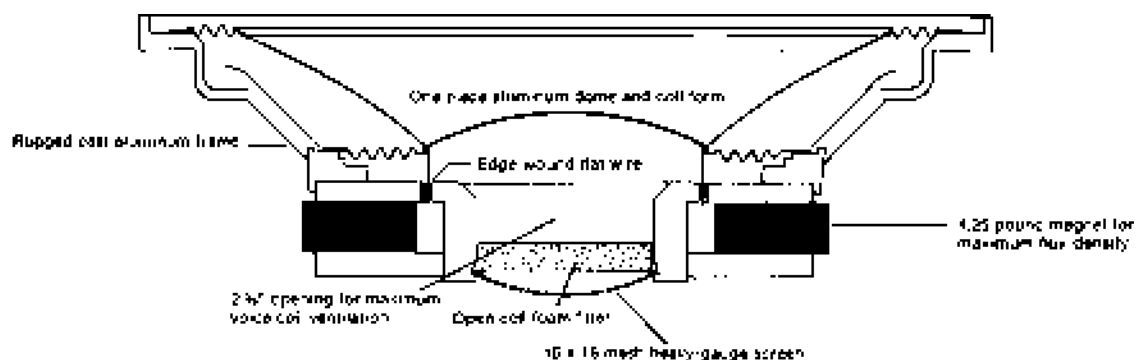
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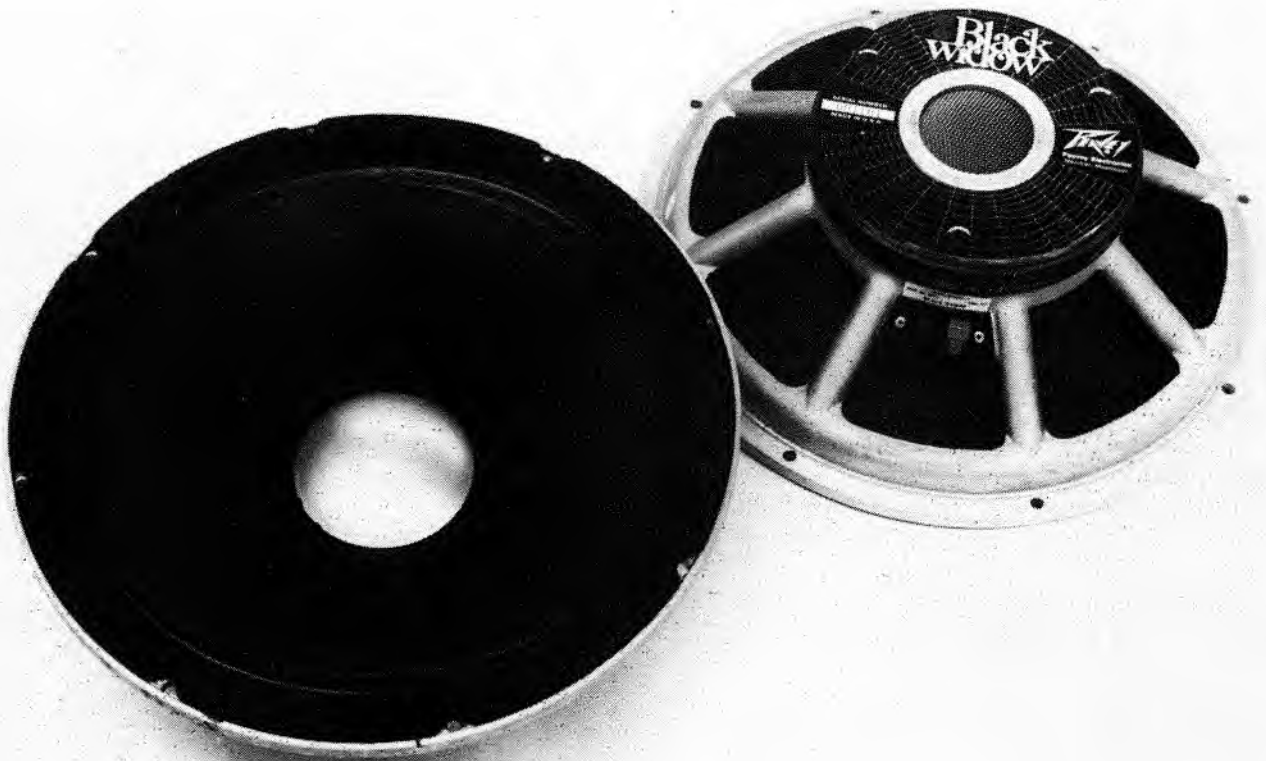


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For the speakers we have gone for the Dynacord Mosquito S range. This particularly versatile system is suitable for just about every kind of use, from stage monitoring to conventional theatre PA work. They deliver 180 degrees of sound dispersion while smooth response and high technology cabinet design ensure the lowest possible feedback characteristics. We are giving away a pair of these speakers complete with hardy flight case.

The microphones in a PA are probably the smallest items, but they invariably make the biggest impact. For our system we've collected a couple of Beyer products, which must be among the best.

Before you carry off this beautiful hardware

down to your next gig, you have to explain a few well known phrases and abbreviations. Complete the set of questions below and send the answers to International Musician and Recording World, Grosvenor House, 141/143 Drury Lane, London WC2. Please mark your envelope "PA Competition".

Below are three answers to the competition questions. Please circle the one you think is correct.

1)What is Groundlift?

- a)Drum riser
- b)Hoist for PA
- c)Means of preventing earth loops

2)What is EQ?

- a)Extra Quality
- b)Equalization
- c)Equal energy per octave

3)What is Snake

- a)Multi core
- b)Mains cable
- c)Guitar leads

4)What is Talkback?

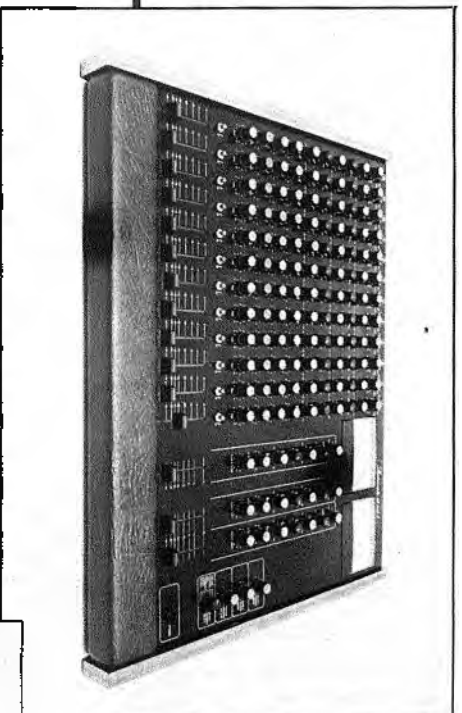
- a)Stage monitoring
- b)Transmission line
- c)Echo unit

What is meant by Crossover?

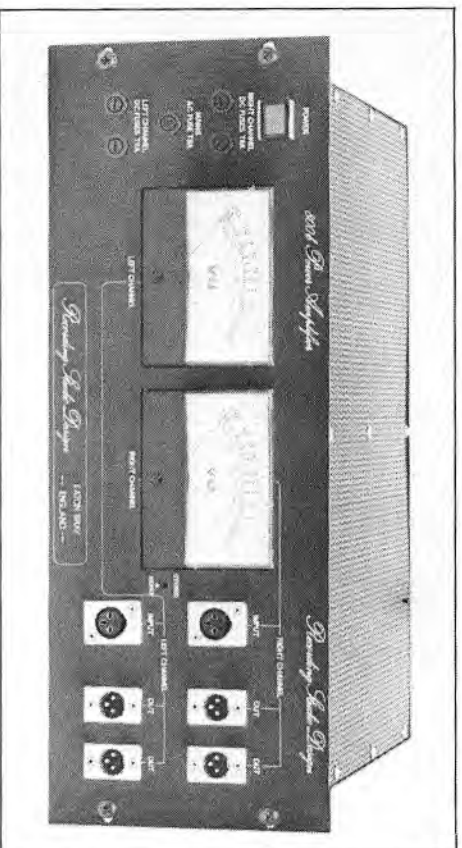
- a)Multi application
- b)High voltage rail
- c)Frequency dividing network

6)State in not more than 20 words what you consider to be the most important factor in achieving a good live sound and why.

All entries must reach this office by the end of November and the winner will be announced in a forthcoming issue of IM&RW.



Studiomaster 12.2.B



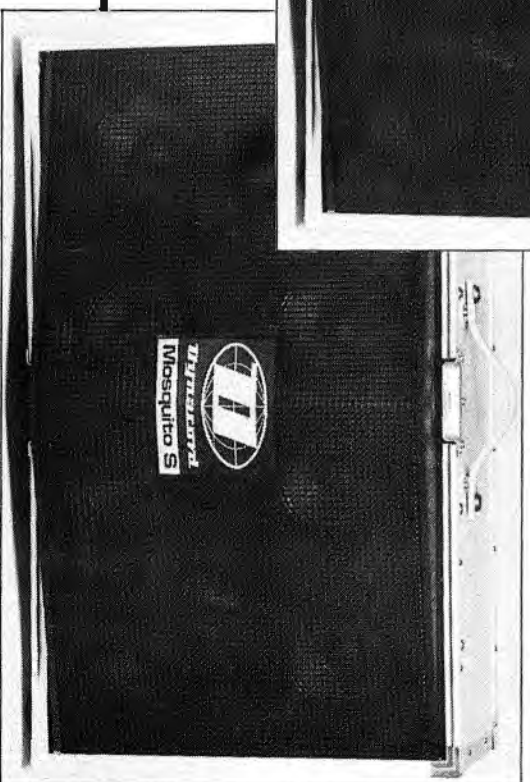
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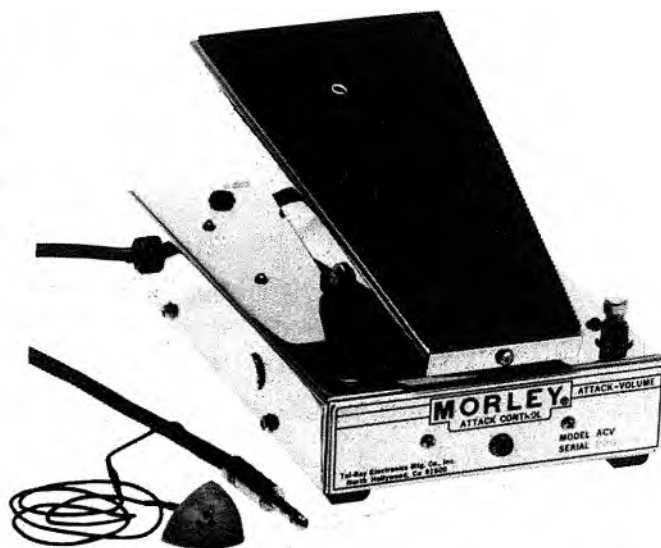
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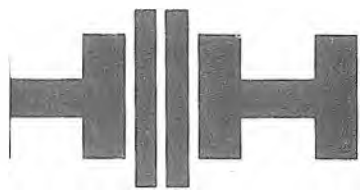
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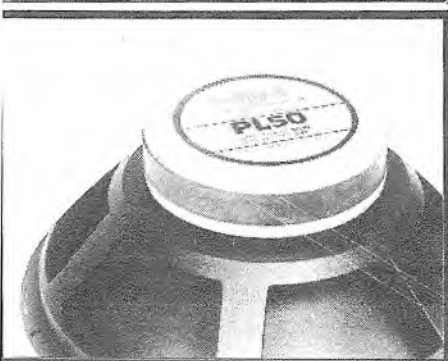
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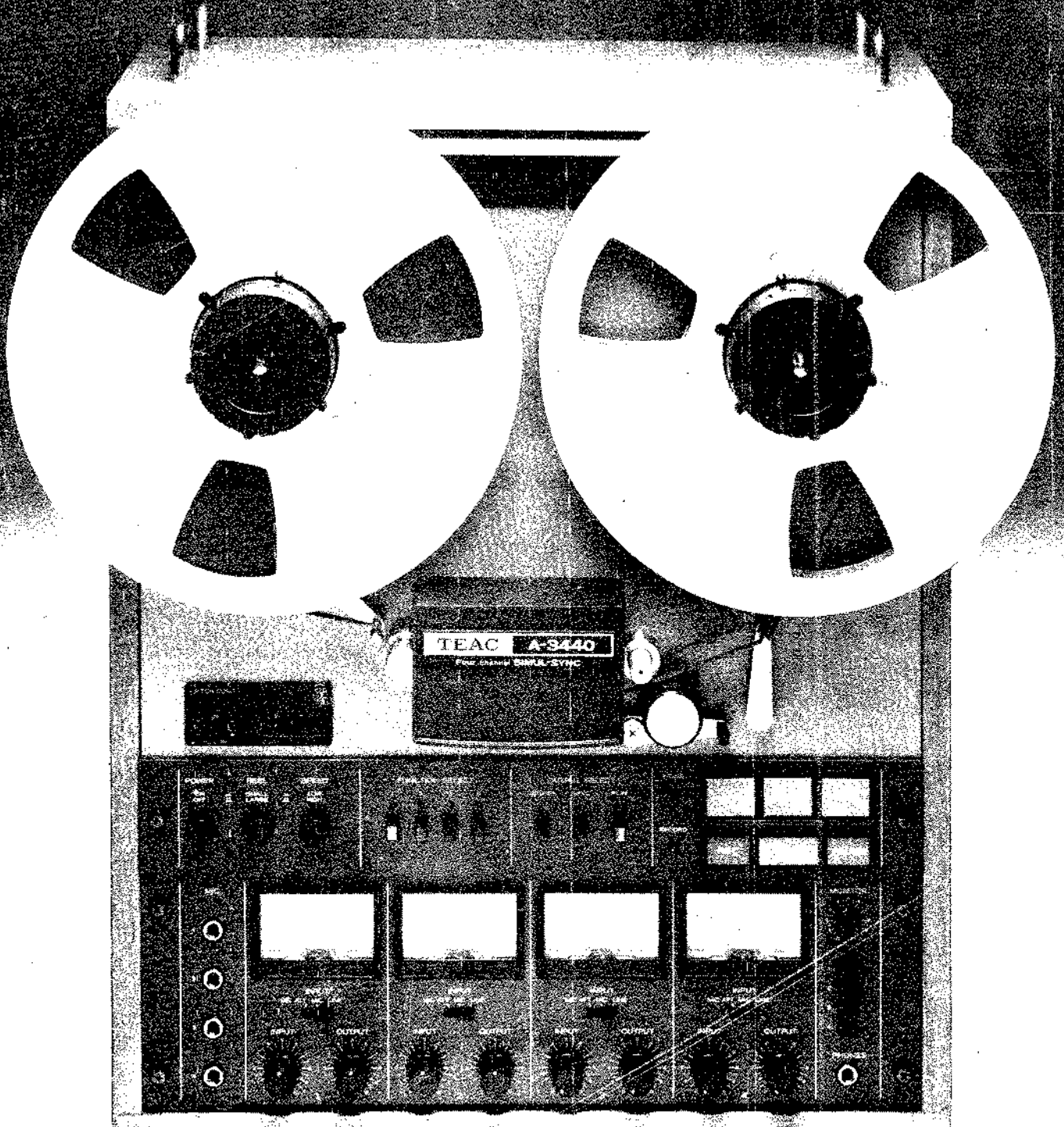
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STUDIO DIARY

Whos BEEN RECORDING WHAT, WHERE ...

At Abbey Road during last month things have been as busy as ever. Once again **Little Bo Bitch** have been in with ace producer Andy Arthurs and Pat Stapley engineering ... Rachel Sweet, relatively new to the scene (with one successful single under her belt — *Baby*) has been in, with two engineers — Alan Winstanley and Pat Stapley, and they were working with producer Martin Rushent. Pat Stapley must have been a very busy man because he was also engineering on a mobile — he spent a 'long weekend' recording the **Ian Dury** gig at the Hammersmith Odeon...

Over at Air Studios, expert engineer John Punter, having finished his work with **Marseilles**, has been working on an album with **Japan** (the producer was Colin Fairley)... Other new albums on the way include the **Pretenders** and **Vitesse**. Jon Kelly has been producing **Ali Thompson**... Other musicians visiting the studio included **Lawrence Juber** and the **Strangers**...

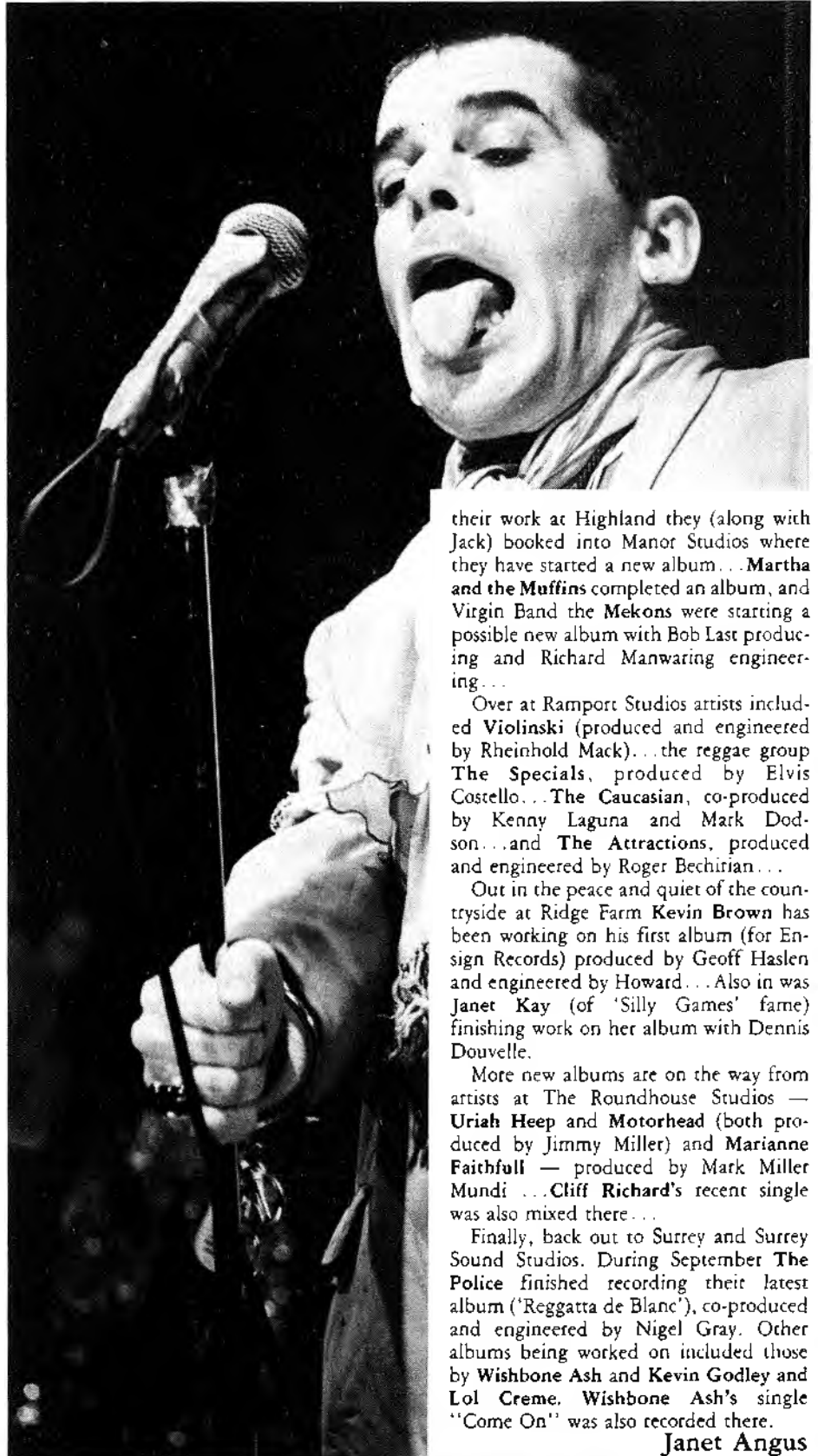
It has been fairly quiet down in Basing Street Studios because Studio 2 has been closed for re-furbishing. All the same **Peter Bardens** has been in recording for Arista Records, co-producing with Norman Mighell (who also engineered)... **Roxy Music** have also been in, and they will be starting their new album during October...

Still in London and DJM Studios, where **The Tourists** (produced by Tom Allom and engineered by Dick Plant) and **Dr. Feelgood** (produced by Mike Vernon) have both been finishing off albums... **The Rumour** have been in mixing down some tracks... The studio was also doing some work for Deutsche Grammophon recording a band called **Wednesday** — produced and engineered by John Acock.

Right up in the wilds of Scotland, Highland Studios have had the 'soul/reggae' band **Inner Circle** in, laying down tracks for an album with American producer and engineer Jack Nuber... Alan Gotrie (of **Average White Band** fame) flew in from America to produce **Black Market** (a band from Dundee — Alan's home town) who were recording a single...

Back down to London and Marquee where some more furniture removals have been taking place, which has put the studio out of action. However the mixing room was still functioning and **Steve Hillage** was in doing his own producing and working with engineer Phil Harding...

Inner Circle have certainly been getting around for it seems that in addition to



their work at Highland they (along with Jack) booked into Manor Studios where they have started a new album... **Martha and the Muffins** completed an album, and **Virgin Band** the **Mekons** were starting a possible new album with Bob Last producing and Richard Manwaring engineering...

Over at Rampart Studios artists included **Violinski** (produced and engineered by Rheinhold Mack)... the reggae group **The Specials**, produced by Elvis Costello... **The Caucasian**, co-produced by Kenny Laguna and Mark Dodson... and **The Attractions**, produced and engineered by Roger Bechirian...

Out in the peace and quiet of the countryside at Ridge Farm **Kevin Brown** has been working on his first album (for Ensign Records) produced by Geoff Haslen and engineered by Howard... Also in was **Janet Kay** (of 'Silly Games' fame) finishing work on her album with Dennis Douvelle.

More new albums are on the way from artists at The Roundhouse Studios — **Uriah Heep** and **Motorhead** (both produced by Jimmy Miller) and **Marianne Faithfull** — produced by Mark Miller Mundi... **Cliff Richard's** recent single was also mixed there...

Finally, back out to Surrey and Surrey Sound Studios. During September **The Police** finished recording their latest album ('*Reggatta de Blanc*'), co-produced and engineered by Nigel Gray. Other albums being worked on included those by **Wishbone Ash** and **Kevin Godley and Lol Creme**. **Wishbone Ash's** single "Come On" was also recorded there.

Janet Angus

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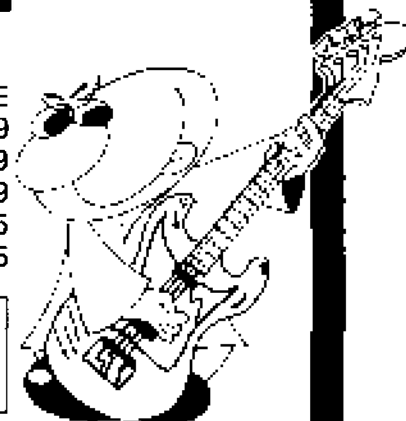
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MAJESTIC STUDIOS

In the search for a recording studio with real character, it would be hard to beat London's Majestic Studios. Occupying the upper circle of an old cinema, this three level complex is a fine example of how to convert a disused building into a professional set-up.

When the cinema at 146 Clapham High Street closed down in the late Sixties to make way for a bingo hall, owner Mike Collier realised its potential. After the changeover he was left with an unused upper circle and being a musician decided to install recording facilities for his own use. Now, some 10 years later Majestic is about to start operating with a fully computerised 46-track system.

Unfortunately staff at the studio are more likely to remember 1979 as the year of the great fire. It has only just re-opened after an eight month closure brought about by a mystery blaze in January. Studio manager Roger Wilkinson has vivid memories of the fateful night that nearly spelt complete disaster for Majestic. "The manager of the bingo hall noticed smoke coming through the extractor fans late one Saturday evening," recalls Roger. "We'd all left the studios on the Friday and it remains a complete mystery as to how the fire started."

"It took eight fire engines and 40 firemen to bring it under control. Apparently the fire started in reception and because the electrics were badly damaged we can only assume it was an electrical malfunction. There was dense smoke and the heat must have been tremendous because our television just melted."

The control room door was burning but the flames were contained in the outside corridor. Firemen axed the door down and the room which had been safe from the fire was engulfed in smoke and this proved to be just as damaging. Although much of the studio's recording equipment did not suffer too badly the heart of the system, their Trident B console, was effectively ruined.

It was decided that the studio would be closed down in order to install a new desk and repair the general damage caused by the fire. An added bonus was that during this closure period they were able to make structural alterations which pressure of work had previously delayed. The corridor running the length of the control room was knocked down and the control room correspondingly enlarged.

Majestic's main recording area,

overlooked by the control room through a large glass panel, can accommodate up to 50 musicians with ease. On the third level of the complex, below the main studio area are three additional recording booths. A Trident TSM desk now takes pride of place in the control room which will be linked by a locking device to two MCI 24 track tape machines. Other equipment includes a full 48-track DBX noise reduction system, Studer and Ampex tape machines, Marshall Time Modulator, Orban Parasound Parametric Equalisers, DBX 160 Compressors, Audio and Design Equalisers, Eventide Digital Delay and Instant Phaser and Audio and Design Stereo Compressors.

The studio has over the years had a wide variety of clients from orchestral work through to four-piece rock bands. Says Roger: "People really like the atmosphere here. Mike Batt and Billy Ocean have been frequent visitors and we even had the Sex Pistols in before they became famous. The acoustics are really bright."

There is ample room for relaxation between sessions and stocks of games destroyed in the fire are being replaced. Roger who also acts as chief engineer is ably assisted by Steve Picco, John Buckley and Brian Evans. They provide a comprehensive service with full hire facilities for instruments and easy access complimented by the studio's own car park.



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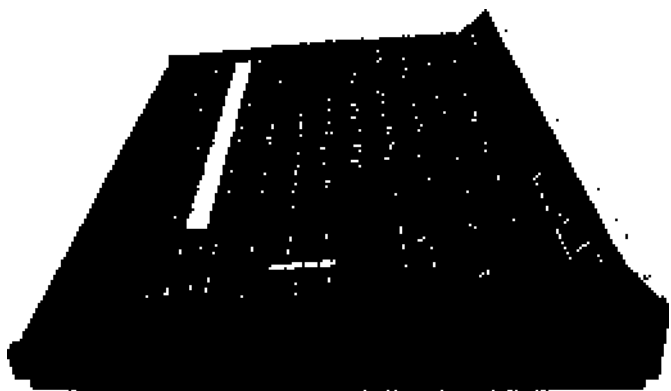
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Jimmy Iovine

From Lennon to Springsteen

Jimmy Iovine (pronounced I-veen), a hyperactive Brooklyn kid now living in a super deluxe apartment on Manhattan's Central Park South, has never been able to survive very well away from his mother's cooking. That's why he pays her a generous amount each month to stock his freezer with home-made veal parmesan and pizza which the two of us are presently gorging ourselves on.

At the same time, we're listening to an extremely impressive three song demo by David Byron (no relation to D.B. of Uriah Heep) which Clive Davis, president of Arista Records, has sent over for Iovine to listen to. Byron, from New Jersey, is a talented songwriter who sings like Elvis Costello if Costello could sing. Having just been signed by Arista, he is a definite artist to watch. And Davis would like Iovine to produce him. The reason? At 26, Jimmy Iovine is one of a handful of legitimately hot "new breed" producers in America.

As it turns out, Iovine has been playing the tape over and over all day and is so knocked out, he's already decided to do the record.

The phone rings as the tape winds down. Jimmy mostly listens, then says, "Can't. Don't have the time." And hangs up.

"Know anybody who wants to make a lot of money?" he asks with a laugh. "The Outlaws are looking for a producer."

He could probably make more money by producing the Outlaws than David Byron, I suggest . . .

"Only about \$150,000 more!" he rants.

\$150,000??? Producers make that much these days on medium selling acts?

He nods his head and finishes the last of the pizza. "More," he stresses, "Todd Rundgren made \$1,000,000 producing Meatloaf! That's right," he says as my mouth drops. "A million bucks."

Explaining the mathematics involved, he adds, "most producers get between 2½ and 4 points a record — a point being 1 percent of retail, or 7.9c. The average producer deal is usually around 21c a record and Meatloaf sold five million records. Figure it out. Bob Ezrin just signed a deal to produce Pink Floyd for about a million bucks. They sell around four, five million records.

"Most producers' tendency is to go to an act that sells at least four hundred to

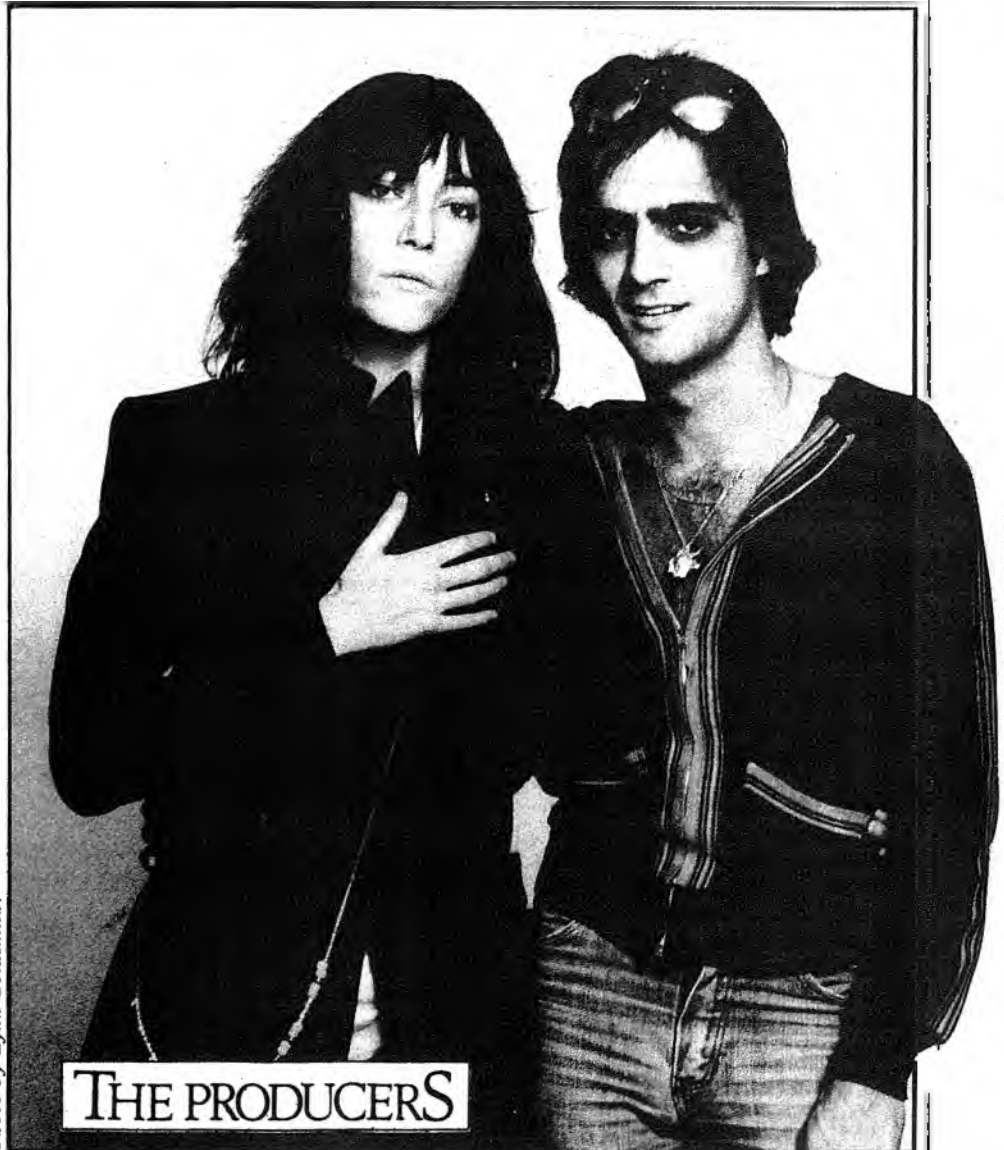


Photo by Lynn Goldsmith.

six hundred thousand records. The Outlaws are like that and you can make a lot of money. Like if someone offers you Blue Oyster Cult, you go with that because it's a guaranteed one hundred grand minimum. And if the record takes off and goes platinum or double platinum, the producer can make a half a million dollars." He stops to laugh at himself. "And I'm gonna produce David Byron!"

Referring to the phone call of a few minutes ago, he says, "I think the Outlaws are real good but I can't do them right now. I would pass up a lot of things to do this kid's record. I want to have a

big record with a new act. It means a lot to me. To bust a new act gives you a lot of satisfaction. Like Michael Chapman with the Knack right now. That must feel great!"

Jimmy Iovine has had his share of success already — at an especially early age — but most of it has been as a recording engineer. It's only recently that he's been making his mark as a producer. After getting a job as an assistant engineer at the Record Plant Studios in New York, he fell into a mind-boggling first project: working with Phil Spector on what are John Lennon's last two studio albums to this date, *Rock 'N' Roll* and *Walls And*

RECORDING WORLD

Bridges. Not bad for the old resumé. From there, he went on to engineer for Bruce Springsteen (*Born To Run*, *Darkness On The Edge Of Town*), mix Meatloaf's only US hit single, "Two Out Of Three Ain't Bad," and produce Patti Smith's first hit album, *Easter*. Since then he's produced Golden Earring and Mark Farner, and completed most of the production on Tom Petty's third album. Later this year, he'll be producing previously mentioned David Byron in addition to the Motors and Graham Parker. In between all these have been other projects as well. But not surprisingly, he remembers his first session like it was yesterday. Maybe even 20 minutes ago.

"John Lennon's *Rock 'N' Roll* was the first record I ever sat at the control board for," he says, shaking his head at the remembrance. "It was wild. I didn't understand what it was at the time. I was 19. I thought every engineer did that for Phil Spector and John Lennon. I didn't know I was very lucky at the time."

Iovine had got a job at the Record Plant as owner Roy Cicala's assistant

through Ellie Greenwich, who he had met while in high school. Greenwich had written "Be My Baby," "Chapel of Love," "Da Doo Ron Ron" and others for Phil Spector and Jimmy frequented her apartment listening to tapes she made. Since he wanted to be a producer, the only way he could do it was by starting out as an engineer. His producer influences, he says, are Phil Spector (of course) and Bob Crewe (Four Seasons, Mitch Ryder's "Devil With The Blue Dress On," and the Shangri Las).

Roy Cicala broke him in and one day, Iovine says, Cicala told him, "By the way, you're gonna work with John Lennon." "I went to California with Lennon and along with Roy and Shelly Yakus we did those two records. I was the only one who could go," he laughs, "because I had no wife, I was 19. My mother packed my bag and I went. It was a gas, a part of my life I'll never forget." Phil Spector is listed as producer for *Rock 'N' Roll* and Lennon for *Walls And Bridges*, but he adds, "It was really John for both records." Immediately following those,

feels right. It takes practice. For example, if we were in the studio and I played you six takes in a row, if you're not used to doing it every day, you might say, 'They all feel the same.' But they don't." Bruce, he adds for people who might not know it, is "the best."

Springsteen's *Darkness On The Edge Of Town* is probably the last record Jimmy Iovine will strictly engineer on, unless Lennon decides to go back into Capitol Records released Lennon's *Shaved Fish LP* — a greatest hits package — and for the past four years John Lennon has not ventured into a recording studio. "He's just taking a vacation," Jimmy says, "and I think it's a well-earned one. He deserves it."

Iovine went from Lennon in 1975 directly to Bruce Springsteen, and as far as what he learned concerning the intangibles of Rock 'n' roll, he says, "Bruce was the big influence. You learn a lot from him about how music should feel as opposed to how music should sound. Bruce has a very good sense of feel. You can learn that from people — when it

Jimmy and Bruce





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RECORDING WORLD

the studio or Bruce makes a live record. Following *Darkness*, Jimmy produced Patti Smith's *Easter*, and now says, "I don't want to engineer records any more because you can just go so far. I don't mean financially or career-wise as much as creatively. I like to be part of making the music. It's where I was headed all the time."

Bruce made Jimmy's transition all that easier by writing the song which broke Patti's album wide open. Iovine actually had his eye on the tune after Springsteen made his final selections for *Darkness* and passed on it. "I asked Bruce for a song for Patti," Iovine recalls, "and I figured I could talk her into it. I wanted Patti to do 'Because The Night' in particular. Bruce didn't want it and I thought it was a hit. Patti liked it and we got lucky."

On *Easter*, which was Patti Smith's third album, Iovine says he "tried to make the arrangements a little more cohesive if possible. Patti's got one thing that all great artists have which is a lot of conviction. She believes. And that's great. That's why I worked with her."

Easter going gold for Patti rescued Jimmy from a difficult period. "There was a time after I stopped engineering when the only records I was getting offered to produce were records that I didn't really believe in (Golden Earring, Mark Farner). And I had to live, so I did them. I found out later that Atlantic didn't even want a Mark Farner record. After it was released they dropped him. And I fucking died for that record. It takes years off my life when I produce a record. Every record producer will tell you it's a strain. So now, instead of taking whatever comes along, which is the way I was brought up as an engineer I'm being real careful. I did Tom Petty's record, I'm doing the Motors, I'm doing David Byron who I adore rather than a big band like the Outlaws. And Clive wants me to do Graham Parker which I'm really excited about. Plus, I just signed a production deal with Epic."

Jimmy Iovine's style is a synthesis of ideas picked up from various people he's worked with and came into focus on *Easter*. His records will always sound like rock 'n' roll was meant to sound — spontaneous and hot. Presence is a key word. "Rock 'n' roll should knock you over," he says. "It might sound obvious but I got a thing inside me that feels a certain way when something excites me. And it doesn't sound right until it excites

me. That's all I use. I don't use anything else. I sit down and I say, 'It ain't gettin' me off. It ain't right yet.' And when it's right, boy, you know it immediately."

The opening seconds of "Till Victory," from *Easter* are a perfect example. For the first time on a Patti Smith record, the drum sound leaps off the track. "That was my influence" Iovine allows, "but that was there I didn't play the drums. They played the drums like that. I just brought it out in the mix. I just tried to make it more dynamic than her other records."

The long awaited Tom Petty album which should be out soon following the settlement of a Petty vs. MCA lawsuit is another example of Iovine's craft. After hearing the rough mixes of the songs, one can only hope that this collaboration will continue to work together on future albums. Petty's voice is recorded to perfection, with both power and grace. The band sounds possessed and each track is pushed to its limit without losing any of its subtlety. Petty has even written a song reminiscent to "I Need To Know," his classic from the second album. It is an extraordinary record which hopefully will not be delayed much longer.

Now that Jimmy Iovine has made the rounds as a producer, what kind of studio does he prefer? "The main thing," he says, "is I need it to have a 35 by 40 or 50 foot room. It's the only way for me to get a record to rock these days. Besides the playing, which has gotta be great, I need that ambience of the room, that live sound. In a small room I have a lot of trouble. Although, I made some of my best records in a small room — 'Because The Night,' for example. Also, the monitors have got to be comfortable to me. The Record Plant uses JBL and they're perfect. And I also know what the speakers sound like so as soon as I hear a playback, I know what it'll sound like on the radio. That's important."

As for specific equipment, "I like the new Neve consoles. At the Record Plant they use EPI which I also like. Lately, though, I've been getting into recording in this big house upstate which I'm going to use for the Motors. It has a remote truck behind it. The Record Plant rents it. They did it for me because I need a big room and they don't have one. The largest room in the city is the Power Station where Bruce is doing his next album."

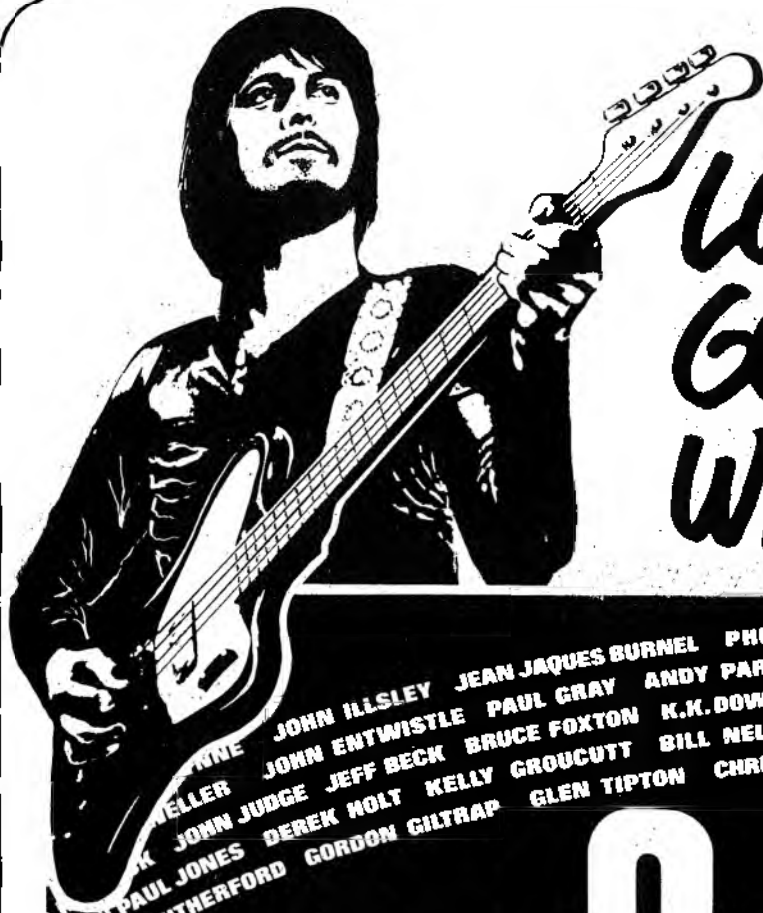
Concerning new recording techniques, Iovine adds, "This digital thing is going to be hot. I did an interview for *Newsweek*



about this (laughs) and it was so confusing what I said to the guy, he didn't print it (more laughter)."

One other thing Jimmy Iovine is concerned with when he makes a record is who his audience is and how they plan on listening to the music. "The music that I really love right now," he offers, "is the dance music they're playing in places like the Mudd Club and Hurrahs in New York, where nobody sits. Stuff like the Police, Joe Jackson, the Knack. Did you ever see Sly at the Electric Circus? There'd be 1,000 to 2,000 people, everybody dances, and Sly plays. What the f--- is better than that? To me that's what I want to make records for. You can't do that for a lot of acts but you can do it for Bruce, J. Geils. And you can do it for Tom Petty. In fact, I think that Tom Petty will lead the pack. He's got the soul that I need. He's got good feel, great songs, a great band and he sings with a tremendous amount of conviction. Tom, to me — along with Bruce — is the ultimate. I'm very lucky to be working with him. And I also think it's great that kids are dancing again to rock 'n' roll. That can only help the music."

Steve Weitzman



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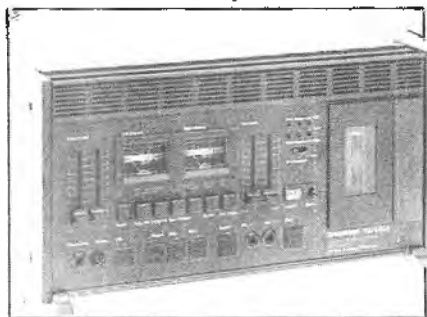
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New Products

Tandberg's New Cassette Deck

Tandberg have taken all the top selling points of their existing range of cassette decks, including the Tandberg Actilinear Recording System, have added a 'Tandberg Dynamic Equalisation System' and have put the whole thing into a Bruno Oldani styled deck and called it the TCD440A.

The new deck has already been distinguished by the CES Design and Engineering Award, and its wealth of performance features have attracted considerable attention. A new erase head gives greater than ever efficiency, and Tandberg quote a frequency response of ± 3 dB from 30-20,000Hz and a signal-to-noise ratio of 70dB ('A' weighted) with top quality ferric, CrO₂, or metal tapes.

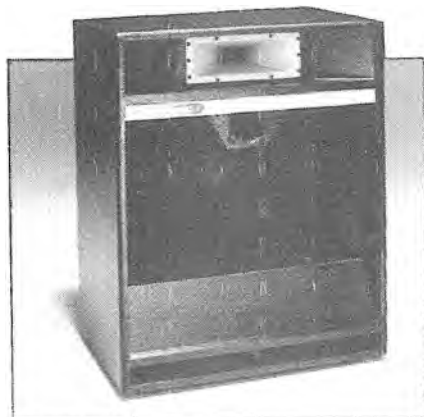


BGW Professional Power

The BGW 600 is the first in a series of economical, basic power amplifiers from BGW. Incorporating the quality and ruggedness found in the well-known line, a few appearance and convenience features have been deleted.

The continuous 175 watt per channel stereo amp offers THD of no more than 0.1 per cent (8 ohms, 20Hz-20kHz). At 4 ohms there is 250 watts with no more than 0.15 per cent THD, and from a convenient rear-panel switch, the mono mode yields 500 watts, 0.15 per cent THD (both load impedances measured 20Hz-20kHz, 250mW to rated output).

Hum and noise is better than 106 dB below rated output into 8 ohms (unweighted, 20Hz-20kHz) and frequency response is $+0, -0.25$ dB, 20Hz-20kHz. The 600 retains many exclusive BGW features in control, performance and construction despite the relatively modest price tag.



Acoustic News

By popular demand Acoustic are bringing back their Model 806 PA Enclosure. The 806 is a full range, high efficiency horn loaded reflex enclosure with one 15" speaker, one midrange horn and driver, and one piezo tweeter. Designed to complement the vocal range this enclosure is suitable for amplifiers of up to 125 watts at 8 ohms. This unit is compatible with all acoustic sound reinforcement equipment. A special feature is a sensing circuit protecting the midrange horn by lowering the signal level to it when potentially damaging signals are present.

A further announcement is put forward by Acoustic in an attempt to provide the answer for anyone searching for a small, modestly priced PA column with lots of sound. They offer the Model 803 as their solution. This newest addition to the Acoustic range contains two 12" woofers and two angled piezo tweeters. Although only 36" high it is said to give ample power with an excellent vocal response, and is suitable for amplifiers up to 125 watts into 8 ohms.

Graph Transducer System

Turner Electronics announce the availability of a revolutionary new system designed and developed in Great Britain by Aragon Dynamics Limited, for which they are the sole agents. It is said to be 'the embodiment of the system to create a low cost, precise, reliable and visual way of interfacing graphical parameters.'

Initially, two formats are catered for: *Voltage versus Time* and *Level versus Frequency* (Equaliser) and are supplied in individual cases with a power supply. A stackable extender (Serial or Parallel) for

the V/t format is also available with or without a purpose designed multimeter. Each unit will have a selling price of under £200 and can also be supplied as rack mounting units with the option of their Custom Flat-Rak case.

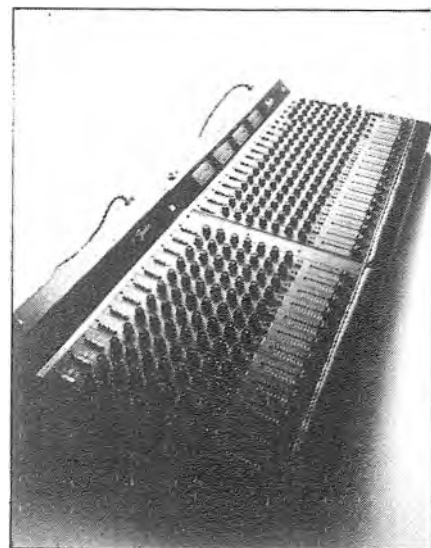
Fender's new 12-channel expander

A 12-channel expander, designed to couple with their recently introduced 12-channel M-12 Live Performance Mixer, has just been announced by Fender Musical Instruments. When mated, the two units give 24-channels in, 4-channels out, fully assignable, with nearly infinite mix combinations.

As with the M-12, the Fender Expander's 12-channels allow individual mix down on each of the submasters and masters with the capability of assigning signals anywhere on the board while running multiple effects simultaneously.

For driving external power amplifiers efficiently, fast attack-slow release limiters are included in each of the two submasters and the four output busses. Variable threshold control and indicator LED are included within each limiter's circuit.

Separate talkback facilities are provided allowing communication with 'programme', with any three monitor mixes, or with 'cue', without using input channels. Any channel may be soloed through earphones, since cue function is also independent of programme and monitor.



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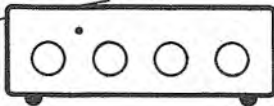


**Professional
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Accessit

Signal processing beyond the facilities of mixers is essential to provide correct interfacing and creative control of audio signals. Five units launch the ACCESSIT range, which will be constantly expanded to provide the most up to date signal processing products. The processors can be used separately or racked together in a 19" compatible format. ACCESSIT is sold direct, to ensure the best possible back up service and value for money.

£30.77



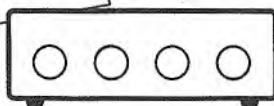
COMPRESSOR

The Compressor is an automatic gain device, essential to help control and maintain signal levels. Variable attack and release times give scope for a wide range of effects. An LED indicator shows when gain reduction occurs.

Automatic microphone amplifier
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Output from 0dBm at 600ohms
Noise less than -60dBm
Attack from 0.5ms to 5ms
Release from 0.1S to 2S
Ratio approx 6:1

£30.77



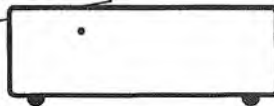
EQUALISER

In addition to the basic tone control in mixers, more extensive tonal effects are often desirable. The Equaliser uses the latest parametric design, over two bands, enabling the boost and cut circuits to be tuned to any spot frequency.

Sweeping pop music effects
Improving reverb unit response
Selective mixer signal equalisation
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Soundtrack "cleaning" process
Anti-feedback device for PA

Input 0dBm at 10kohms
Output 0dBm into 600ohms
T.H.D. less than 0.1%
Bass + or - 16dB at 50/300Hz
Treble + or - 16dB at 3/14kHz
Noise less than -80dBm

£27.32




POWER SUPPLY

All ACCESSIT units offer two-way powering. Internal decoupling means that they can be operated from batteries or an external, low voltage source. The optional mains supply is housed in a standard ACCESSIT case and has

independent outputs for up to four processors. The outputs are electronically smoothed, regulated and protected against inadvertent short circuit and overload. An LED indicator features on the front panel.

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Ground Negative reference
Ripple Less than 200µV
Regulator Power I.C. type
Size 142 x 132 x 43mm

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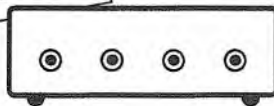
REVERBERATION

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ACCESSIT — ACCESSIBLE AUDIO AIDS

The Accessit range of products from Bandive is quite simply intended to be a collection of signed processing devices at a budget price, in fact an almost silly price! Cost leads me to a very important point; this range of products are not toys, I'm sure that many people will take one look at the prices, and think that for that kind of money they can't be much good, and then proceed to forget about them. Don't! This range allows home recording enthusiasts and small studios to have available effects which they could not otherwise entertain.

The next obvious question is how can anybody manufacture products which are any good at these prices? The answer is really relatively simple. All units use a common injection moulded case, with similar controls and connections. If you consider that a punched and finished 19" front panel can cost upwards of £5, the rest of the case another £3, XLR connectors £5, five knobs at 20p, and a mains transformer £2, you have a total of £16. Not much you may think, but consider that so far you don't really have anything, just a box with sockets and knobs. Still, £16 may not sound like much, but add to this packing and dealer profits, and £16 becomes £30. If the product is imported from the States, for example, £16 becomes £60! And we still only have a box!

Having gone on at some length about cost, what units are available? There are five units at present, plus a power supply to drive them. They consist of Compressor, Parametric EQ, Reverb, Compander and Booster amp, each of which I will look at in turn.

Compressor

There are four controls on this unit, input level, attack rate, release time and output level. While the unit is basically designed to work at line level, the output control in conjunction with the input control allows for great flexibility. In fact, with the addition of a matching transformer, the unit can operate direct from a microphone.

The attack and release controls allow the compressor to be matched to virtually any signal, and of course permit the unit to be used as an effect. For example, if a slow attack is used on vocals a quite dramatic sound can be produced with a little fiddling around. An LED indicator shows when the compressor is operating, giving a visual indication of just what is going on. With careful setting up, necessary with any compressor, I found that this unit can give results close to any unit I have used.

Parametric EQ

This unit has two sections, one covering the bass range of 60-300Hz, the other the treble range of 3-14kHz. While this obviously does not cover the mid-band of frequencies, if the equalizer is used in conjunction with a mixer, it will

usually be found that it enables you to sort out the areas outside the range of normal controls.

By definition, a true parametric equalizer has a Q control — in practice few units have this facility. This unit has a lift/cut control with a fixed Q and as such is perfectly adequate for the vast majority of uses.

A Q control allows the bandwidth of the lift/cut to be varied, for different effect. Again, in practice only the most costly of units have such a control. The Accessit unit does have a sensible and fixed Q, many units on the market are built in such a way that the Q varies with frequency, not a desirable feature.

Reverb

The reverb unit is equipped with four controls, echo send, equalisation, mix and output. Echo send is obvious, but it does allow different degrees of echo depth to be obtained if used wisely. Equalisation is very useful, giving the facility to vary the tone of the reverb — surprising how effective this is. The mix control varies the amount of direct-to-echo-signal. If the unit is being used with a mixer in the normal way this control would be on max the whole time. Finally the output control just adds to the flexibility of the unit.

In use I found the unit to be susceptible to mechanical vibration, but here again all reverb units are, emphasising the need for careful positioning in use. With this done, I found the range and variety of effect amazing, particularly with the tone control.

Compander

Not an effect as such, but a way of avoiding an undesirable effect — noise. This unit will find its main application with tape recording, and will perform much the same function as DBX or Dolby. In fact the unit contains the same basic circuitry as other available units costing one hell of a lot more.

When used with four track or other multi-track machines, the Compander really reduces noise dramatically. Not only that, but it allows a much wider dynamic range to be put on tape than would normally be practical.

Booster Amp

This unit at first sight appears to be no more than a little box with four buffer amps inside, but is in fact much more. As supplied the unit has a gain of 8dB (x2.5) in the unbalanced mode, or 14dB (x5) in the balanced mode. This makes the unit ideal when a small boost is required for matching or making up for losses in a system. Not only that, but of course the unit can act as a balanced to unbalanced matching system.

An internal adjustment allows the unit to be set to unity gain so as to act as a pure line driver, added to this the unit can be supplied with virtually any reasonable gain requirement.

Not only does the booster perform the aforementioned functions, it is also a distribution unit. If input one is used, the signal appears on all higher numbered outputs. If all inputs are used the signal appears only on their respective output.

The Rest

The power supply is capable of driving up to four units and is housed in exactly the same proportions as the rest of the series. Alternatively the units may be powered from two 9 volt batteries. In the very near future a rack system is to be made available for the small units, which will make the system almost unbelievably compact.

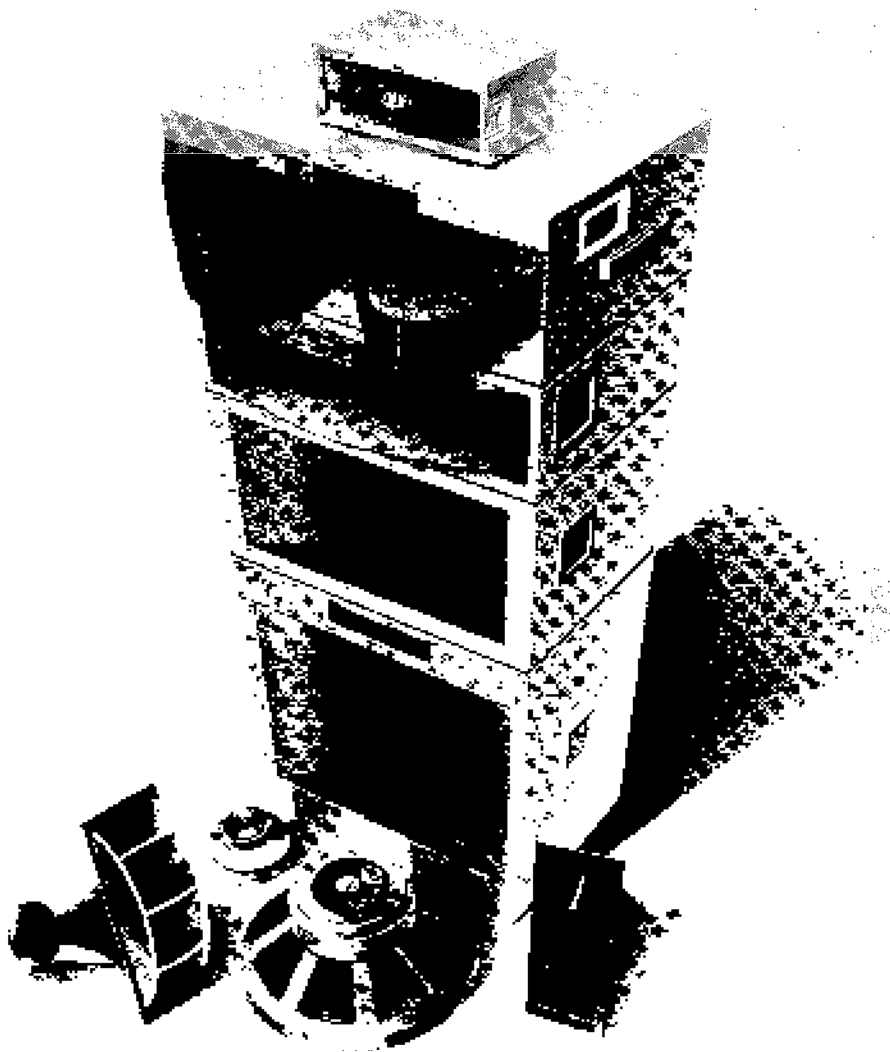
Low cost, yes, low quality, no, if your budget is small these units are for you, if your budget is large, get more for your money. Well done Bandive.

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RECORDING SYNTHESISERS

Part 3: FOUR-TRACK RECORDING

To make your own multi-track recordings using synthesizers or other electronic musical instruments, the bare minimum of recording equipment required is two mono recorders, as I described in Part 1. Any two stereo recorders can be used in a similar way, playing back from one recorder while performing a new part (or even two!) and recording both the new and old parts on the second recorder. Last month I described a particularly versatile kind of stereo reel-to-reel recorder with which it is possible to record on one track without disturbing the contents of the other, and explained how such a machine can be used alone to make multi-track recordings. However, there is a practical limit to the number of times a recording can be 'bounced' from one track to the other (about six times), because at each stage there is some degradation of the sound quality and more noise is introduced into the recording.

This month I am going to describe a typical 4-track tape recorder with a very important and essential feature called "synchronization". With such a recorder, much of the repeated copying and mixing involved when mono and/or stereo recorders are used for multi-tracking is removed, and very high

quality recordings can be made containing seven or more parts, which is plenty for most purposes. Although 4-track machines such as the TEAC A3340S are costly, they are a good investment (particularly when your music is commercially successful!) and the combination of a 4-track machine and a stereo half-track reel-to-reel recorder is a particularly flexible combination which I have used in my studio over the last three years.

4-track format

Figure 1 shows the layout of the heads in a 4-track recorder; as always, the tape meets the erase head first, then the record head (centre) and finally the playback head. Each head contains four layers, each layer working on one of the tracks shown in Figure 2. The tracks are numbered 1 to 4, track 1 being furthest from the plate on which the heads are mounted. Any number of tracks up to four can be recorded and/or played back at the same time.

Synchronization

Referring to Figure 1 again, the centre head is labelled 'record or playback (sync)' indicating that this head performs a dual role. Each track has its own playback amplifier inside the recorder, but instead of this amplifier's input being permanently connected to the playback head it is routed by a switch *either to the*

playback head (normal mode) or to the record head (sync mode). This is illustrated for one of the tracks in Figure 3; in practice there are four separate 'mode' switches, one for each track. There is also a separate 'record' switch for each track.

Recording in sync

Why is this kind of mode switching useful? The answer is that by monitoring existing tracks in sync mode, new tracks can be added in time with them. The delay normally introduced by the physical separation of the record and playback head (which necessitates re-copying existing material when using the sound-on-sound approach, as described in Part 2) is temporarily removed while recording new material. This will become clearer with an example.

Suppose a recording has already been made on track 1, and the musician wishes to record another part on track 2 without having to re-record the part on track 1. He simply listens to track 1 in sync mode and records on track 2. The centre head then performs two different functions, recording the new track while playing back another, and whatever is recorded on track 2 is in time with the contents of track 1. When track 2 has been recorded, if another track is to be added, tracks 1 and 2 will be monitored in sync mode

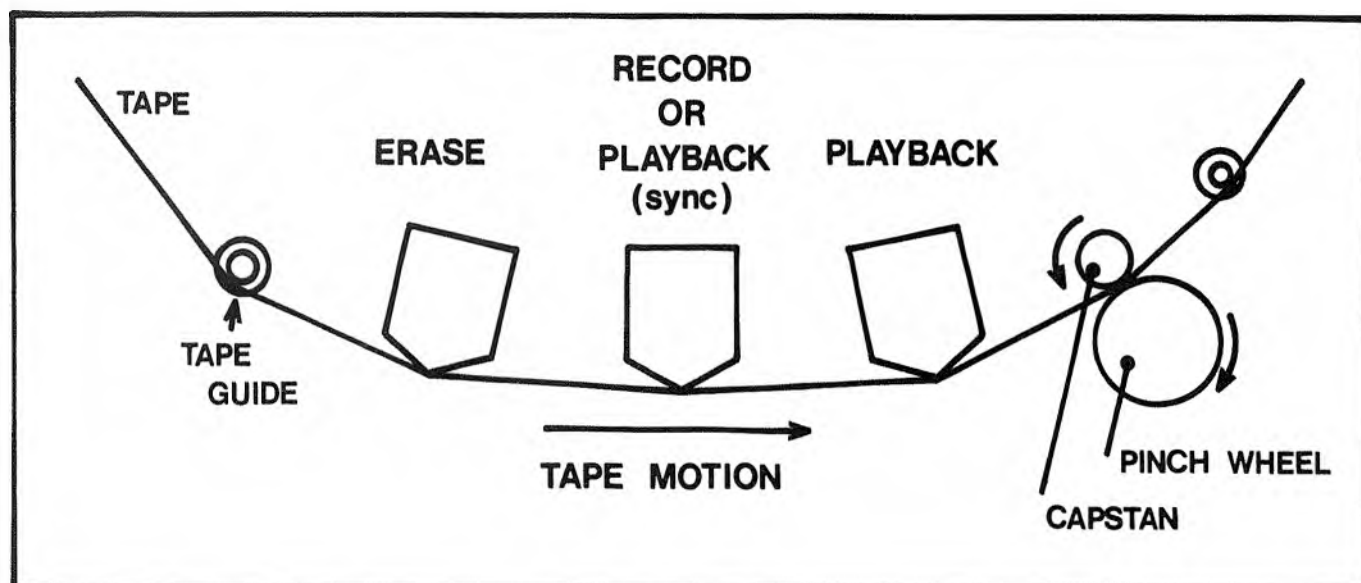


Fig. 1. Layout of the heads in a 4-track tape recorder with the synchronization facility. The centre head is normally used for recording but can be used to play back selected tracks for monitoring purposes while recording new tracks.

while recording on track 3, and so on. Thus the sync feature allows four independent tracks to be recorded separately in perfect synchronization (apart from the player's limitations!) without re-recording any track. All the tracks are then said to be "first generation".

Notice that, because no mixing has taken place, if after recording the fourth track the musician is not satisfied with the first, he can re-record it, listening to the last three. (Any other way of recording four parts at different times would necessarily involve more work if this kind of alteration were to be made.) One further point is that because the centre head does not have the optimum characteristics for playing back, some quality is lost when monitoring in sync mode. Whenever synchronization is not required, the normal mode should be selected so that playback occurs via the playback

head which is specifically designed for that purpose.

Older generations

Suppose an arrangement requires more than 4 tracks? The procedure is quite simple. If no other recorder is available, the first three tracks are recorded, then mixed down onto track 4 (say). The first three tracks are then free for more parts, but it has to be remembered that track 4 is second generation and the sounds it contains were slightly degraded when copied from existing tracks. It is fairly easy to work out that with a 4-track machine alone, a seven part arrangement can be reproduced where no track is worse than second generation.

Stereo Images

With a 4-track machine and a stereo reel-to-reel machine (preferably half-track), there are many more possibilities. For example, 4 first-generation tracks can be

recorded on the 4-track machine. These can then be mixed into a stereo image (using a 4-channel stereo mixer) and recorded on the stereo recorder. The second generation tape can then be moved from the stereo machine back to the 4-track machine and two more tracks added. The new tracks plus the two second generation tracks can then be mixed into a stereo image and recorded on the stereo machine, and so on. Using this approach it is possible to keep tight control over the distribution of sounds in the stereo image, and two new tracks can be added before a transfer from one machine to the other becomes necessary.

Next month I will be describing various ways in which a synthesizer or electronic rhythm unit is used to lay down a timing track which acts as a foundation for subsequent recordings of the other instrumental parts.

Tony Horsmann

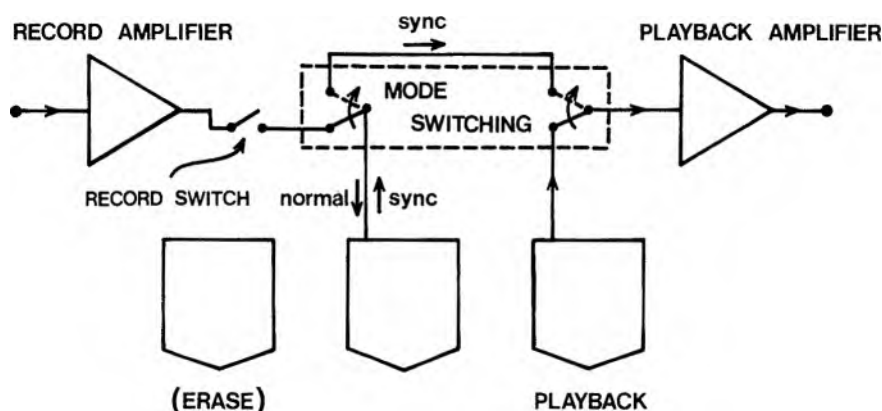


Fig. 2. Track format produced by a 4-track tape recorder. Track 1 is furthest from the plate on which the heads are mounted.

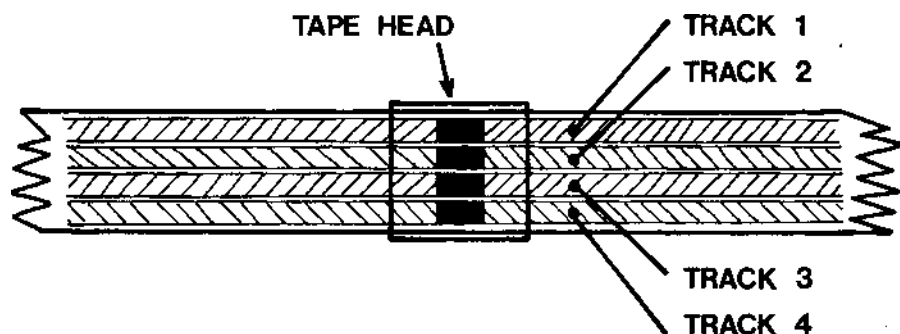
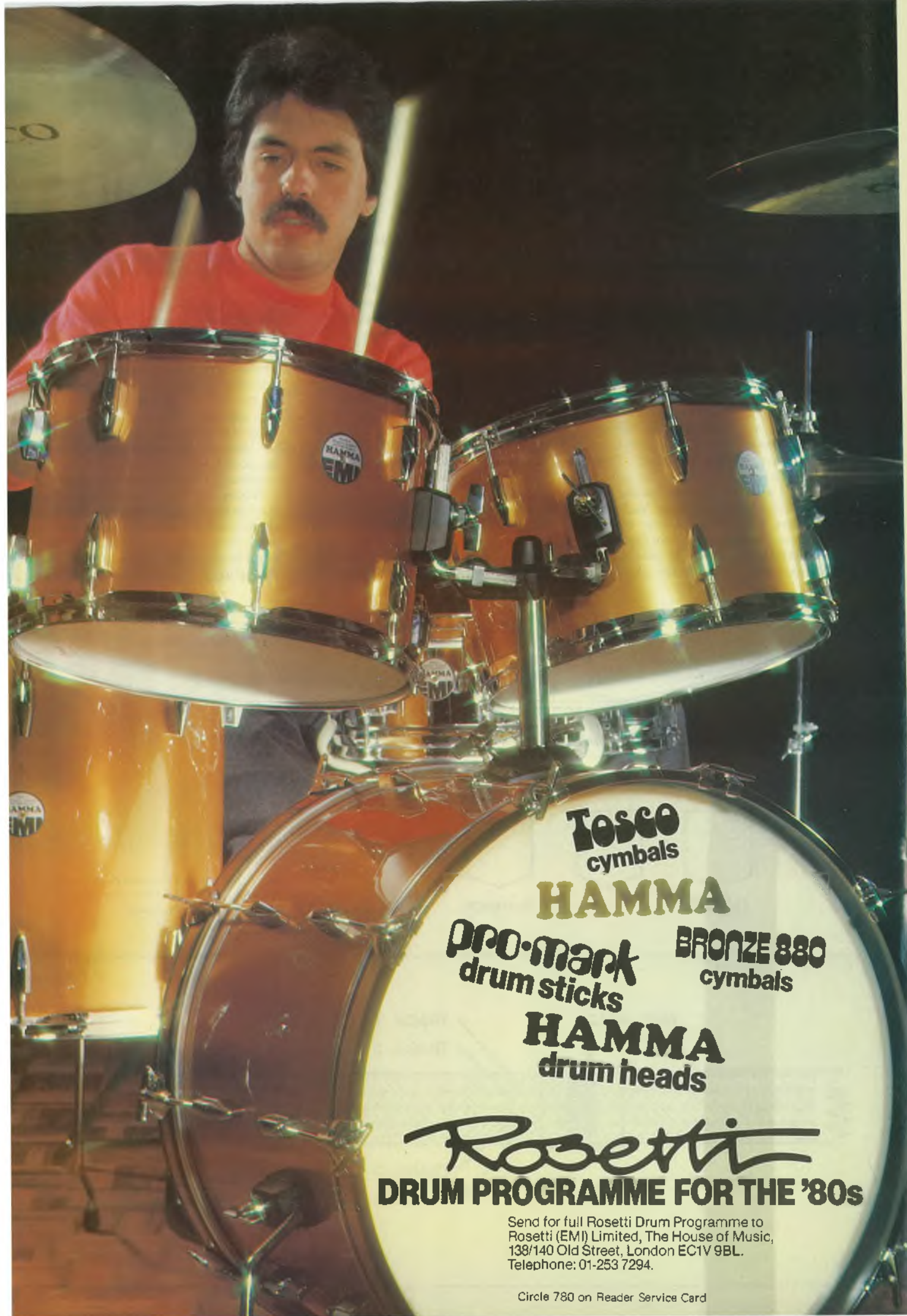


Fig. 3. Synchronization switching. In this diagram, one mode switch only is shown. It has two mechanically linked parts and is set to "normal mode". In this mode, the playback amplifier receives its signal from the playback head and the record amplifier can drive the centre head if the record switch is "on". When "sync mode" is selected (dotted), the playback amplifier receives its signal from the centre head and recording is prevented on this track.



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drum sticks

BRONZE 880
cymbals

HAMMA
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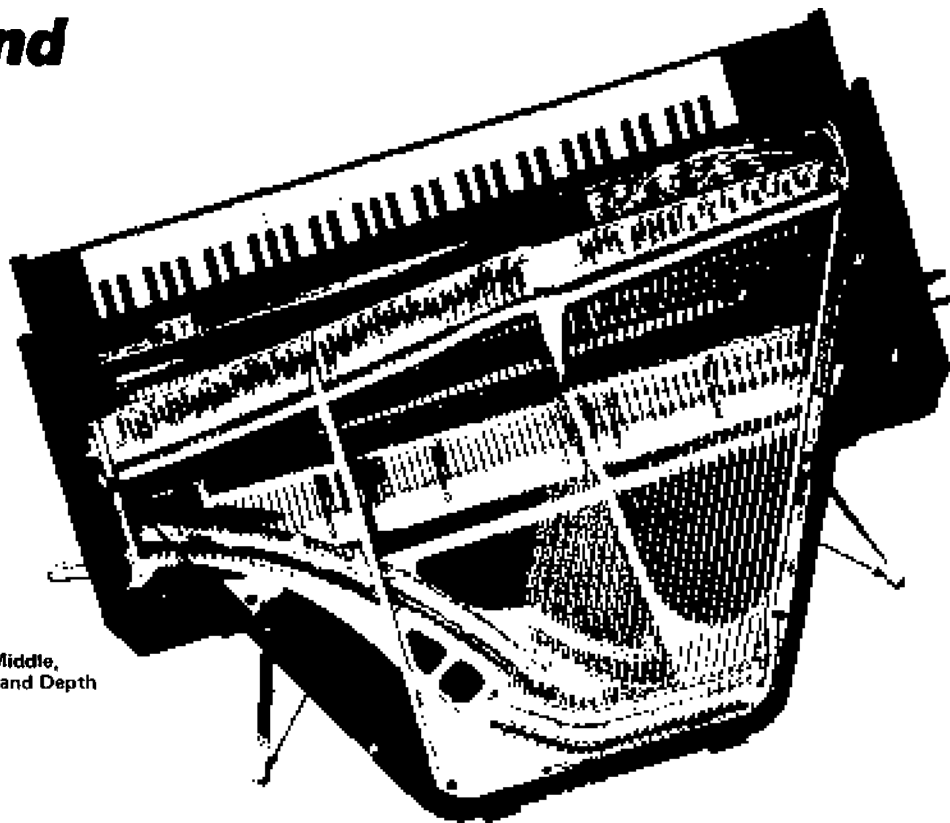
COMBO KEYBOARDS

Electric Grand

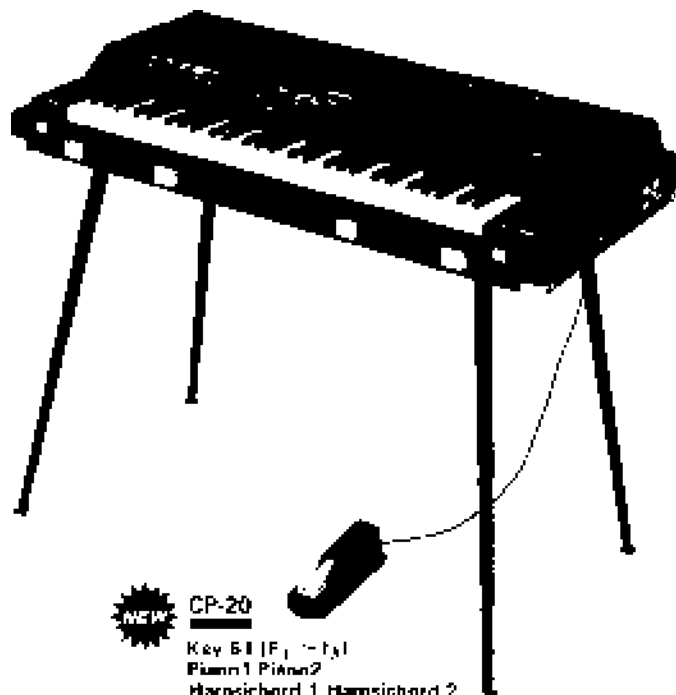


CP-70B

Key 73 (E₁ ~ g₄)
Effect Controls: Bass, Middle,
Treble, Tremolo Speed and Depth



Electronic Pianos



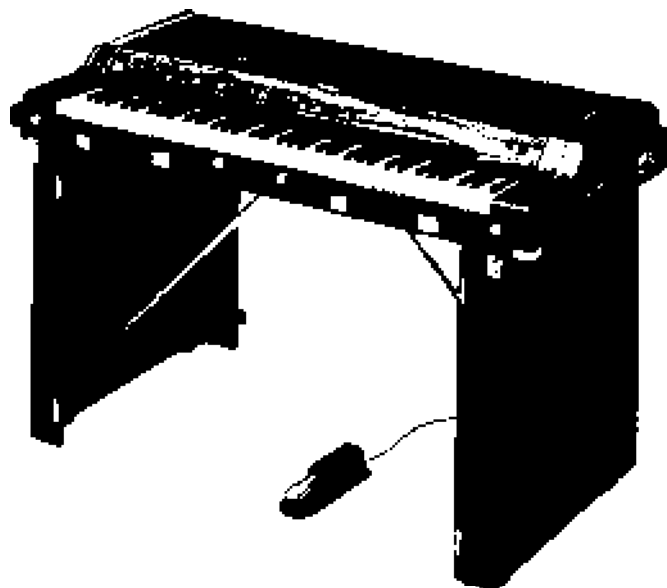
CP-20

Key 61 (F₁ ~ f₄)
Piano 1 Piano 2
Harpichord 1 Harpichord 2
TREMULO CONTROLS
Speed, Intensity



CP-30

Key 76 (E₁ ~ g₄)
Tone Selectors: ch.1-4, ch.11-4
Effect Controls: Pitch, Decay,
Tremolo Speed and Intensity,
Bass, Treble





YAMAHA

SYNTHESIZERS

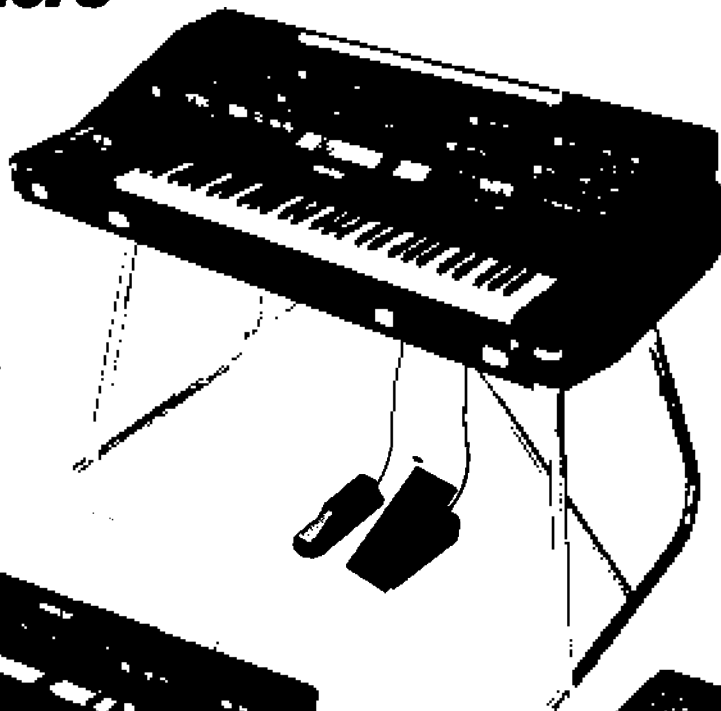
Synthesizers

Distributors and/or dealers need special service training

CS-80



Polyphonic (8 notes x 2ch)
 Keys 61 (C ~ c₄)
 Tone Selectors: ch. I-11, ch. II-11
 Programmable Section Levers: 24 x 2
 Memory Banks: 4
 Effect Controls: Ring Modulator, Touch Response, Sub Oscillator, Sustain, Portamento/Glissando, Slide Controller, Resonance, Brilliance, Keyboard Controls, Tremolo/Chorus, Feet Selectors



CS-60



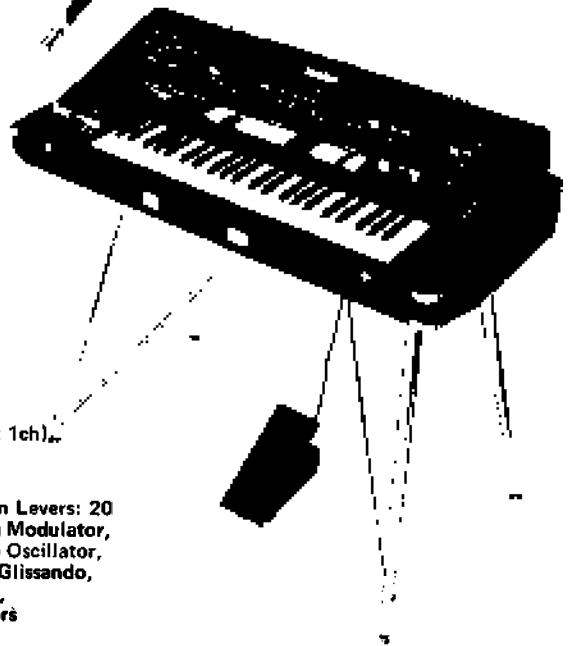
polyphonic (8 notes x 1ch)
 Keys 61 (C ~ c₄)
 Tone Selection Levers: 20
 Memory Bank: 1
 Effect Controls: Ring Modulator, Touch Response, Sub Oscillator, Sustain, Portamento/Glissando, Slide Controller, Resonance, Brilliance, Keyboard Controls, Transposition Selectors



CS-50



Polyphonic (4 notes x 1ch)
 Keys 49 (c ~ c₄)
 Tone Selectors: 13
 Programmable Section Levers: 20
 Effect Controls: Ring Modulator, Touch Response, Sub Oscillator, Sustain, Portamento/Glissando, Resonance, Brilliance, Transposition Selectors



CS-30L



monophonic
 Key 44 (F ~ c₃)
 VCO-1, VCO-2, VCF-1, VCF-2, VCA-1, VCA-2
 Ring Modulator
 Envelope Generators with LED Indicators
 LFO



CS-30



monophonic
 Key 44 (F ~ c₃)
 VCO-1 VCO-2 VCF-1 VCF-2 VCA-1 VCA-2
 Ring Modulator
 Sequencer
 Envelope Generators
 EG-1 EG-2 EG-3
 LFO



CS-10



monophonic
 Key 37 (c ~ c₃)
 VCO
 VCF
 VCA
 TRIGGER Selector (External/Single/Multi)
 LFO
 NOISE GENERATOR



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YAMAHA AMPLIFIERS

Built-in Guitar Amplifiers

G26-112

30W
1 x 12" (JA3015)
Controls: Bass, Treble, Distortion, Reverb

G50-112

50W
1 x 12" (JA3059)
Controls: Bass, Middle, Treble, Bright, Distortion, Reverb

G50-210



50W
2 x 10" (JA2556)
Controls: Bass, Middle, Treble, Bright, Distortion, Reverb, Tremolo, Pre-set Volume

G50-410



50W
4 x 10" (JA2554)
Controls: Bass, Middle, Treble, Bright, Distortion, Reverb, Tremolo, Pre-set Volume

G100B-212

100W
2 x 12" (JA3059)
Input Channel x 2
ch. 1 Controls: Bass, Middle, Treble, Bright, Distortion, Reverb
ch. 2 Controls: Bass, Middle, Treble, Bright Switch

G100-212



100W
2 x 12" (JA3059)
Controls: Bass, Middle, Treble, Bright, Distortion, Reverb, Tremolo, Pre-set Volume

G100-115

100W
1 x 15" (JA3802)
Controls: Bass, Middle, Treble, Bright, Distortion, Reverb, Tremolo, Pre-set Volume

G100-410

100W
4 x 10" (JA2556)
Controls: Bass, Middle, Treble, Bright, Distortion, Reverb, Tremolo, Pre-set Volume

G100-412



100W
4 x 12" (JA3059)
Controls: Bass, Middle, Treble, Bright, Distortion, Reverb, Tremolo, Pre-set Volume

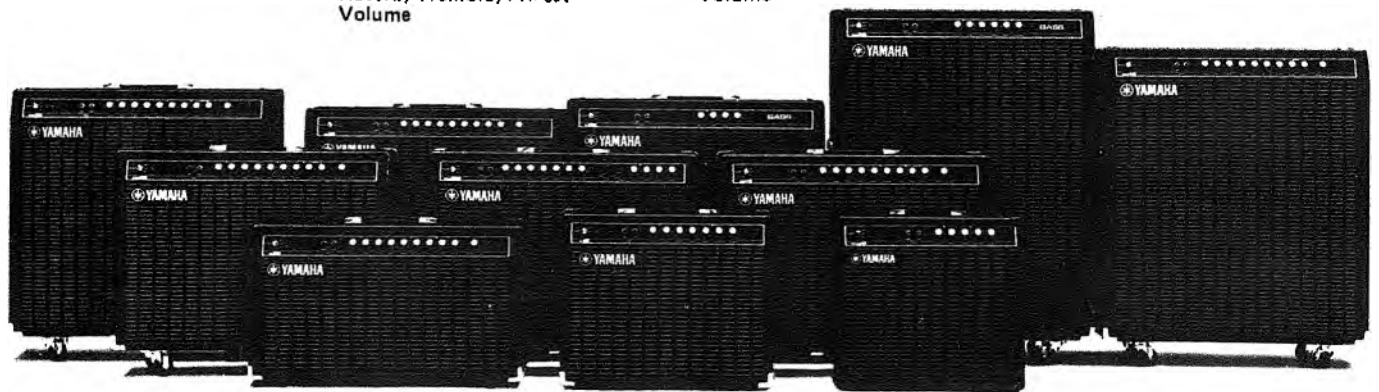
B50-115 (BASS)

50W
1 x 15" (JA3851)
Controls: Bass, Middle, Treble

B100-115 (BASS)

100W
1 x 15" (JA3802)
Controls: Bass, Middle, Treble, Bright, Distortion

★ not available in Europe



Combo Amplifiers

RA-70R

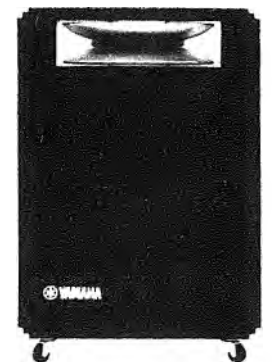
50W
1 x 15" Main Speaker (JA3852)
1 x Rotary Speaker (JA1701B)
Controls: Bass, Treble, Reverb, Tremolo Speed

RA-100

90W
2 x 12" Main Speaker (JA3052B)
2 x Rotary Speaker (JA1701B)
Controls: Bass, Treble, Reverb, Tremolo Speed

RA-200R

200W
4 x 12" Main Speaker (JA3052B)
3 x Rotary Speaker (JA1701B)
Controls: Bass, Treble, Reverb, Tremolo Speed



A4115H



100W
Woofer: 1 x 15" (JA3803)
H.F. Driver / Horn: 1 x (JA4201)

Circle 784 on Reader Service Card





YAMAHA SOUND REINFORCEMENT

Mixers



PM-170
PM-180
F1030
P2100
P2200



PM-700

Input: 12 Channel,
2 Auxiliary Stereo,
4 Auxiliary Mono
Output: 2 Program A, 2 Program B,
2 Monitor A, 2 Monitor B,
1 To Echo, 2 Aux Out, 1 Phones
Input Channel Controls: Fader,
High, Middle & Low Equalizer,
Monitor 1, Monitor 2, Pan Pot
Sensitivity Selector, Cue Button



PM-430 **NEW**

Input: 8 Channel, 1 Auxiliary
Stereo, 2 Auxiliary Mono
Output: 2 Program A, 2 Program
B, 2 Monitor, 1 To Echo, 2 Aux
Out, 1 Phones
Input Channel Controls: Fader,
High & Low Equalizer,
Monitor 1, Monitor 2, Pan Pot,
Sensitivity Selector



PM-210 **NEW**

Input: 8 Channel, 2 Auxiliary
Mono
Output: 2 Program, 1 Monitor,
1 To Echo, 1 Aux Out, 1 Phones
Input Channel Controls: Fader,
High & Low Equalizer,
Monitor, Reverb, Sensitivity
Selector



PM-180

Input: 6 Channel, 1 Auxiliary
Stereo
Output: 2 Program A, 2 Program
B, 1 Phones
Input Channel Controls: Volume,
High & Low Equalizer, Pan Pot,
Sensitivity Selector, High Pass
Filter



PM-170

Input: 6 Channel, 1 Auxiliary
Stereo
Output: 2 Program A, 2 Program B,
1 Phones
Input Channel Controls: Volume,
High & Low Equalizer, Pan Pot,
Sensitivity Selector, High Pass
Filter



P2100 **NEW**

Dynamic Power:
130W + 130W (8Ω @1KHz THD
0.1%)
Continuous RMS Power:
95W + 95W (8Ω @1KHz THD
0.05%)
85W + 85W (8Ω 20~20KHz
THD 0.05%)
Frequency Response:
5Hz ~ 100KHz (+0, -1.5dB
@8Ω 1W)



Power Amplifiers



P2200

Dynamic Power:
340W + 340W (8Ω @1KHz THD
0.1%)
Continuous RMS Power:
270W + 270W (8Ω @1KHz THD
0.05%)
240W + 240W (8Ω 20~20KHz
THD 0.05%)
Frequency Response:
5Hz ~ 100KHz (+0, -1.5dB @8Ω
1W)

Dividing Networks



N1020 **NEW**

Passive Crossover
Power Rating: 100W
Crossover Frequency: 800Hz
(12dB/octave)
Impedance: L.F. 8 ohms, H.F.
8 ohms

F1030

Electronic Crossover (Active)
2 Way-1/2, 3Way Selectable
Crossover Frequency
Internal Switch: 40Hz
(12dB/octave)
Left-hand Set: 250, 500, 800,
1K, 1.2K, 1.5KHz (12 or
18 dB/octave)
Right-hand Set: 2K, 2.5K, 5K, 6K,
7K, 8KHz (12 or 18dB/octave)





YAMAHA ELECTRIC GUITARS

Solidbody
Humbucking
SG Series

SG-2000



Cherry Sunburst,
Brown Sunburst,
Cherry, Brown,
Black

SG-1500



Cherry Sunburst,
Black

SG-1000



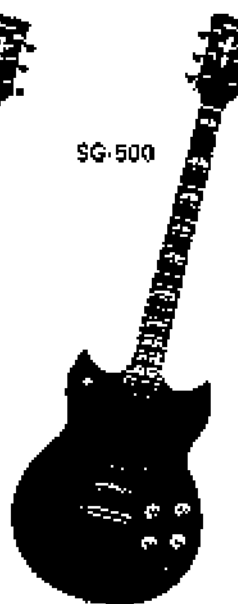
Cherry Sunburst,
Brown Sunburst

SG-700



Cherry Sunburst,
Brown

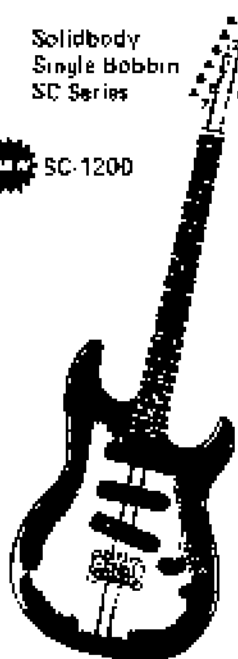
SG-500



Cherry,
Black

Solidbody
Single Bobbin
SC Series

NEW SC-1200



Natural,
Brown Stain

NEW SC-1000



Blor
Bro

NEW SC-800



Solidbody
Humbucking
SF Series

NEW SF-1000



NEW SF-700



Stain,
man Red

NEW SF-500



Ivory White,
Brown Sunburst

Circle 786 on Reader Service Card



YAMAHA

ELECTRIC GUITARS

Solidbody
BB Series

BB-1200



Natural,
Brown

BB-1000



Natural,
Sunburst

BB-600



Brown,
Black

Semi-Acoustic
SA Series

SA-2000



Brown Sunburst,
Natural

SA-1000



Brown,
Persimmon Red



YAMAHA

MIXER AMPLIFIERS

Mixer-Amplifiers

EM-150

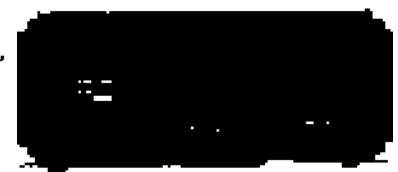
Output Power: 150W
(75W + 75W)
Input: 6 Channel, 2 Auxiliary
Stereo (AUX, REC OUT),
1 Auxiliary Mono (FROM ECHO)
Output: 2 Speaker, 2 Monitor,
2 Record Out, 1 Phones, 1 To
Echo
Input Channel Controls: Volume,
Bass, Treble, Reverb/Echo,
Balance, Input Selector (MIC/
INST/LINE)
7-Band Graphic Equalizer



Circle 790 on Reader Service Card

EM-120 NEW

Output Power: 90W (45W + 45W)
Input: 6 Channel, 1 Auxiliary
Stereo (PHONO), 3 Auxiliary
Mono (2 AUX IN, FROM ECHO)
Output: 2 Speaker, 2 Record Out,
1 Phones, 1 To Echo
Input Channel Controls: Volume,
High & Low Equalizer, Reverb/
Echo, Input Level Selector,
Output Channel Selector





YAMAHA SPEAKERS

Speaker Systems



S0110T **NEW**

Power Rating: 50W
Woofer: 1 x 10" (JA2511)
Tweeter: 1 x (JA0556)
Nominal Impedance: 8 ohms



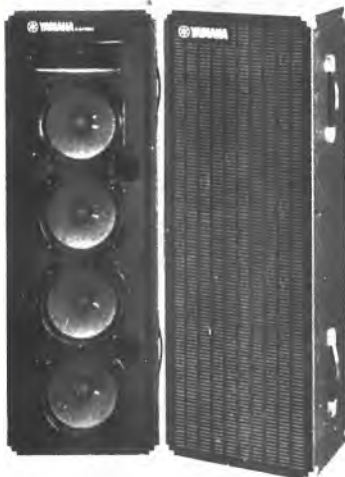
A0112T (Self-powered) **NEW**

Output Power: 75W RMS
Woofer: 1 x 12" (JA3061)
Woofer: 1 x 10" (JA2507)
Tweeter: 4 x (JA0554)



S0112T

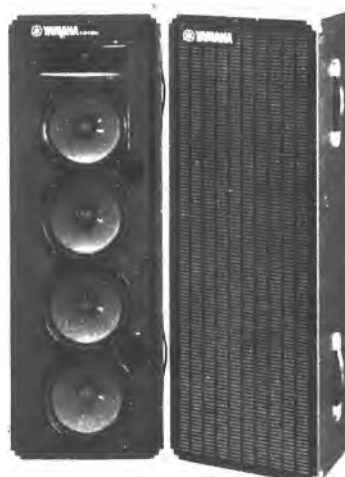
Power Rating: 80W
Woofer: 1 x 12" (JA3061)
Woofer: 1 x 10" (JA2507)
Tweeter: 4 x (JA0554)
Nominal Impedance: 8 ohms



NEW

A0410H (Self-powered)

Output Power: 100W RMS
Woofer: 4 x 10" (JA2511)
Tweeter: 1 x (JA4204)



S0410H

Power Rating: 100W
Woofer: 4 x 10" (JA2511)
Tweeter: 1 x (JA4204)
Nominal Impedance: 8 ohms



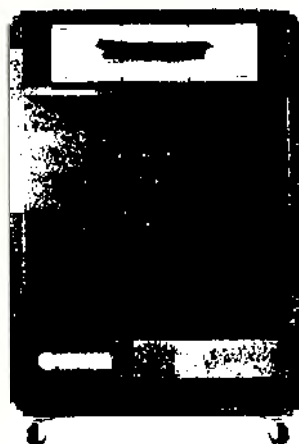
S2115H **NEW**

Power Rating: 100W
Woofer: 1 x 15" (JA3803)
H.F. Driver & Horn: 1 x (JA4201)
Nominal Impedance: 8 ohms



NEW **A4115H** (Self-powered)

Output Power: 100W RMS
Woofer: 1 x 15" (JA3803)
H.F. Driver & Horn: 1 x (JA4201)



S4115H

Power Rating: 100W
Woofer: 1 x 15" (JA3803)
H.F. Driver & Horn: 1 x (JA4201)
Nominal Impedance: 8 ohms



NEW **S6115H** (S6115 + H6115)

Power Rating: 120W
S6115: 1 x 15" (JA3804)
H6115: 1 x (JA6601)
Nominal Impedance: 8 ohms

Circle 789 on Reader Service Card

Gordon Smith

BRITISH WORKMANSHIP GUARANTEE 25 YEARS



GRADUATE MODEL

Gordon Smith guitars are hand made in Manchester using only the finest materials available. Every instrument is fitted with Gordon Smith pickups available in humbucking or single coil versions. All versions have a coil tap facility operated by push/pull volume pots.

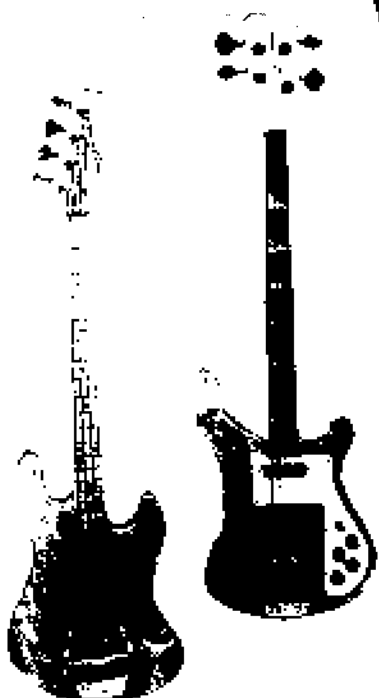
Look out for the new GS Model at only £150 plus VAT.



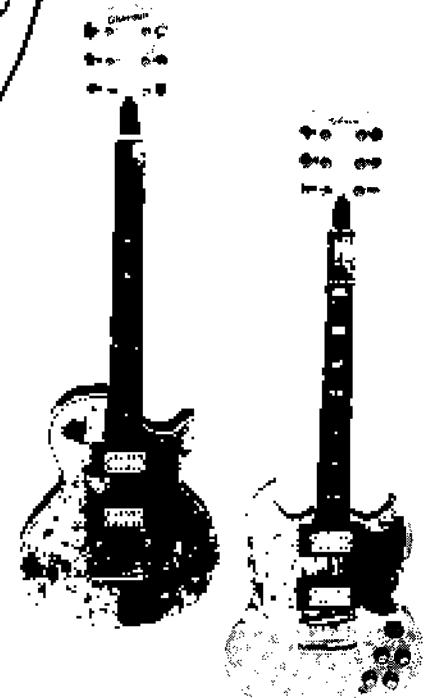
GYPSY 1



Gherson



Remember over the last five years how every magazine has raved about the range of Gherson guitars in their reviews, professional musicians likewise? Well, now check out the new Ghersons using DiMarzio pickups. Built to compete with tomorrow's guitars.



Gherson guitars from £135 to £195 plus VAT.

Eccleshall guitars, Bluebird flight cases, Rickenbacker, Resounder pedals, Leech amplification, Vinci strings, Invader loudspeakers, Remo, hide and leather straps, Gaffa, guitar cases, Kenny Clare Atlanta drums, Beldon cable, Prostix and Regal Prostix, Chandler, Natal and Perc Serv.

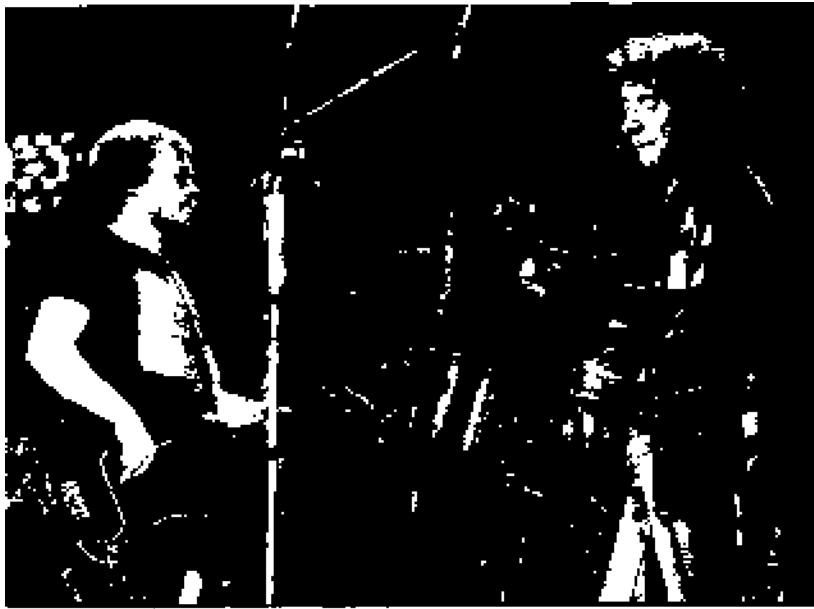


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Circle 773 on Reader Service Card



ALBERT LEE

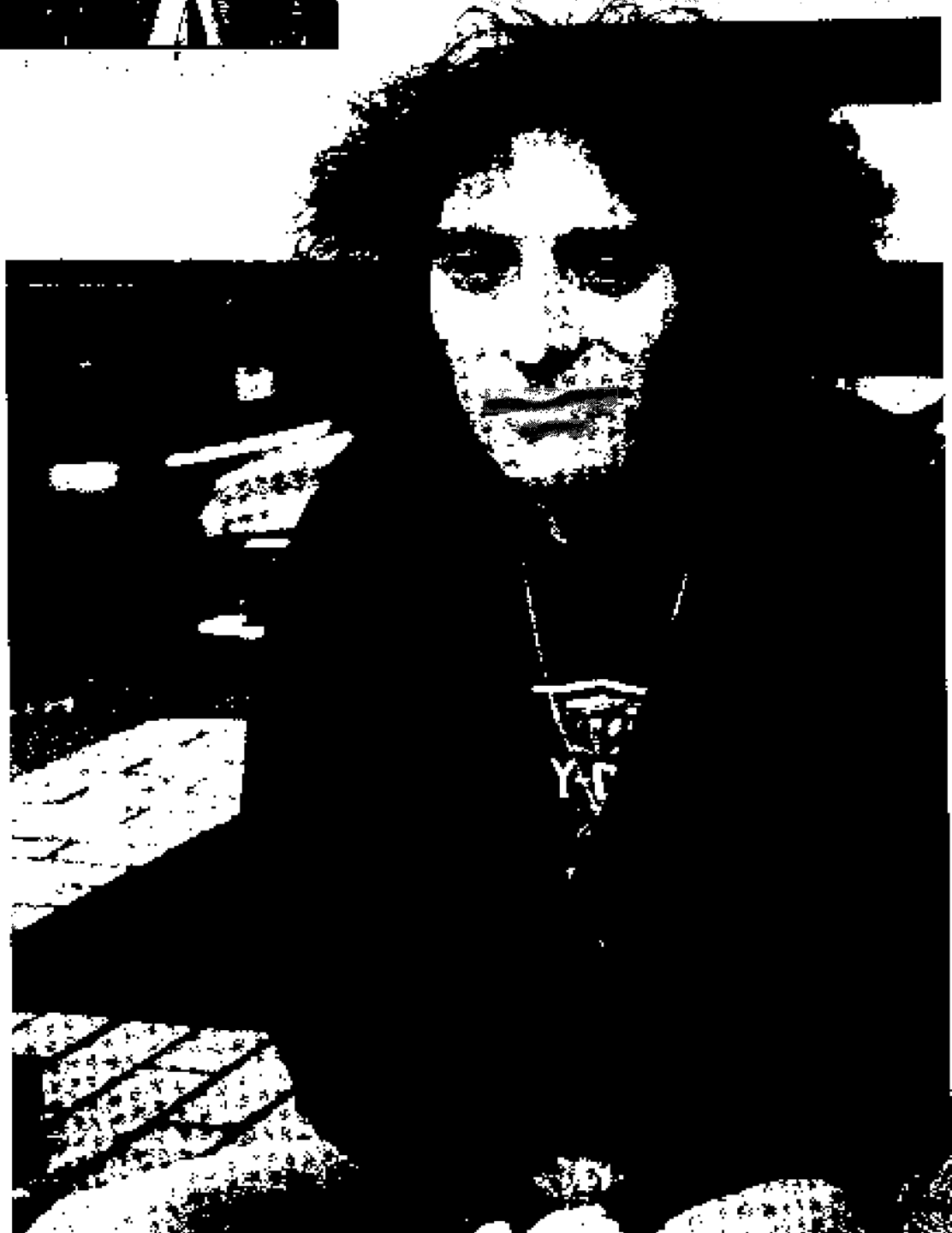
Going Solo

It was with a sense of relief that Albert Lee put the finishing touches to his first solo album. For a while it looked to be an ill-fated project with a history stretching back to 1975. As a much sought-after top flight guitarist, circumstance seemed to conspire against its completion. It was only recently that this quiet spoken Englishman finally felt ready to put together his long overdue album.

The release of *Hiding* on A&M reflects the many influences that have shaped his style over the years. His track record is impressive and his reputation has opened the way for him to play with a whole host of luminaries. At different stages he has played with Chris Farlowe and the Thunderbirds, the Crickets, Joe Cocker, and was a key member of Head, Hands and Feet who broke up after cutting three albums. For over two years he was a regular with Emmylou Harris and the renowned Hot Band and more recently has been touring with Eric Clapton.

"As far back as 1973 I was supposed to do an album for Atlantic but I was a bit of a naughty boy and let things slide. It was a case of being too busy running around the world playing with different people to actually sit at home and put it together. About 1975 I started the album for A&M but a lot of things went wrong. We shifted from studio to studio, started off with 24-track and then changed to 16-track — it just wasn't right. I had a break for a while and sort of lost contact with A&M until I started working with Joan Armatrading and resumed contact with them. They were still keen for me to finish the album so I got back into it.

"There are two tracks from those original sessions which I felt were worth keeping. Recording with other people over the years you think you learn a few things, but when you go in there doing your own thing you make mistakes — it happens to everyone. But I'm very pleased with the album and I feel very relaxed now that it's out. After all this time it was beginning to



feel like a cloud over my head but now that I've got it under my belt it will be a big help when I get down to do another one."

The album was recorded in Los Angeles, in the Enactron Truck Mobile, owned by Emmylou Harris's husband, producer Brian Ahern. And the musicians used by Albert were mainly Emmylou and the Hot Band. Albert who has lived for the past few years in nearby Malibu, felt it would be the most comfortable atmosphere to work in.

"It was recorded in different ways. Some of the stuff was based on what I'd done with Head, Hands and Feet. When I was doing those albums I'd put down the basic track, which is myself, and bass and drums, and then we'd put all the guitars and piano over the top. I did that with some of the tracks but others were recorded the way Emmy likes to record with about five or six musicians, so you don't have to do many overdubs. It's good to mix it up because if you just do basic tracks and pile stuff on top it can be a bit thick sounding and layered. It doesn't seem to breathe like a live track where everyone is listening to each other.

"The truck is a huge thing, I've never seen anything like it. It's got its own dubbing room, two 24-track machines and main mixing room. I think they mixed quite a lot of the *Last Waltz* there. It was real hard work and although Brian Ahern was the producer, I had the last say. A good exchange of ideas from everyone working on the album went into it. The material came along mostly during the sessions and there's quite a lot left over. It's strange how different people record. Some can go in with 10 or 12 songs and that's it."

Although he still records with Emmylou, Albert is no longer a regular member of the Hot Band, and has just finished a three-month tour of America with Eric Clapton. In all they did some 47 dates and plans are now taking shape for them to do an extensive European tour later in the year. "The American tour went really well and we had Muddy Waters opening up for us. It's great playing with Eric because our styles are that different. I think we really complement each other — it's not a battle. We kind of bounce off each other.

"The tour was really well planned — none of this getting up early in the morning and travelling all day to the next gig. We had our own jet and we'd stay in one

city for about a week with a number of gigs being within one hour's flight from the city. We'd leave for the gig about six, get there about half an hour before we were due on, do the set, rest for a while and fly back. This way we had the next day to ourselves. At the moment there's only Eric and I in the band. The last band had been together for about five years and they all thought it had come to the end of the road and it was time for a change.

"There's talk of us coming back in October to rehearse a new band. He's looking for bass, drums and maybe keyboards. I won't be doing much for the next couple of months until I get back on the road with Eric, that's going to be Europe, probably Eastern Europe, perhaps Israel and then on to Japan. I'm committed to working with Eric but it's not a big commitment because he only works a few months out of the year, so I'll be free to do other things."

Other projects will include putting his own band together to do a few gigs in America to promote *Hiding*. He is likely to team up with Rodney Crowell of the Hot Band who has also done a solo album, and some other members of the band. Emmylou Harris is expecting a baby so the band are off the road. Albert says there is a possibility that he may do some gigs in Britain although there are no definite plans: He has been a professional player since the age of 16 when he first went out on the road with the Larry Parnes rock stable, backing people like Dickie Pride, and making £12 a week brandishing a Hofner Futurama guitar.

Today he uses mainly Telecasters but has some 20 guitars in all, both acoustic and electric. "I've got about four or five Telecasters and a lot of acoustic guitars. I've got some Everley Brothers, an original Everley Brothers given to me by Don Everley, a J200, but I think my favourite recording guitar is a Martin 00028.

"When I'm working in the studio there's about eight guitars that I use quite a lot, depending on what I've got to do but all of them get used at one time or another. I'm not a glutton for guitars, I do pick them up quite a lot when I'm not expecting it, but I'm not one of those guys who goes out and buys guitars to put them in the cupboard. I like to think I've got a use for them.

"My amplification is Music Man. I got to use one before they came out on the market and I was knocked out by it. Previously I'd used Fender Twins, but

Music Man seemed to be an extension, taking things a bit further. The 8 x 10, 130 watt is my favourite all rounder but of course I use a bigger one with Eric." Life in America suits Albert but he does admit to missing England. He started going out to the States around 1973 and his trips gradually got longer until he was spending more time there than at home. There was little for him to do here in Britain, while in America he got to meet and play with people he had idolised for a long time.

"I think I do an equal amount of studio work and touring but I don't really like to think of myself as a session man. It really suits me to be able to do different projects with different people. I'm very lucky because I really like to play around, it doesn't matter who with, but obviously the better they are, the happier I am." Joining up with other people and adapting to playing different music never seems to be a problem for Albert. Quite often in the past he's gone in cold, with little or no rehearsal, and produced the goods. He's also adept at adapting to different touring schedules but once in a while he does run in to difficulties.

"Probably the hardest gig I've ever had was working with Joan Armatrading. The problem was that her music was so far removed from anything I'd done before. I really enjoyed it but it took a while to really get into. More often than not though it's really easy to slot in. It's healthy to change what you're doing now and again. I'd meant to leave the Hot Band earlier to get stuck into my album but something would always come up, a tour, other recordings."

Work with Clapton will take him through to the end of the year but he has no way of knowing what other type of work lies ahead. There can be nothing new on the horizon and then all of a sudden offers of work will flood in. However, he would like to produce another solo album in the future. "*Hiding* is based on my influences over the years. I've been playing for 20 years and first went on the road in the Sixties, so I've picked up a lot of influences. It's a fair cross section of the stuff I've been into. I don't know if it's a good thing, because people like to put an album on and listen to one type of music. *Hiding* is varied. I suppose if I directed myself a bit more and made a concerted effort to become a big rock star, I might get further on in a certain direction, but I'm pretty happy the way things are."

Sean Higgins

KORG Echoes Remain True



SE-300 Stage Echo

SE-500 Stage Echo

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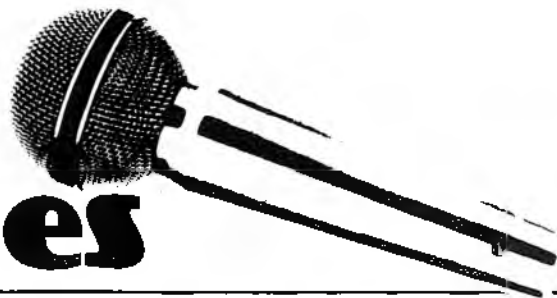
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Microphones



Any live performance sound system can be considered as consisting of three basic ingredients:

1. Conversion of natural air-borne sound into an electrical signal.
2. Electrical processing of that signal.
3. Re-conversion of the electrical signal back into air-borne sound waves.

A sound recording system can be considered in a similar way:

1. Conversion of natural air-borne sound into an electrical signal.
2. Electrical processing of that signal.
3. Re-conversion of the analogue electrical signal into magnetic, digital or mechanical form for storage.
4. Retrieving of stored material and re-conversion into an analogue electrical signal.
5. Further electrical processing
6. Re-conversion of the electrical signal back into air-borne sound waves.

No matter how complicated the electrical processing at any stage might be, how many special effects like echo, flangers, reverb, phasers, ADT, etc might be added, or how many compressors, crossovers, graphic equalisers etc might be employed, or how many watts might finally be used for reproduction, the basic concept remains as simple as the various stages set out above. In practice of course, the recording chain boils down to two separate chains, both of which are similar to the live performance system, where functions 1, 2 & 3 are the recording chain and 4, 5 & 6 are the reproducing chain. Each time a conversion of the signal from one form to another takes place, there will be some degradation of the signal quality. Therefore, live sound will always be the best quality you are likely to experience, and for each stage of conversion or processing, there will be a degree of deterioration. By the time you buy an album and play it back on your home hi-fi, the material you hear will have gone through a minimum of 10 stages, and possibly as many as 20. It therefore follows that even if every stage has been performed to the best standards possible, a gramophone record will never approach the original in terms of reproduction quality. In this age of electronic sophistication, the degree of degradation inherent in the electrical processing is minimal. It is the electro-acoustic, electro-magnetic and electro-mechanical conversions that will be responsible for most of the deficiencies.

Hitherto, since I was invited to join the team of contributors to IM & RW shortly after the magazine first appeared on the newstands in 1975, I have been

mainly concerned with the reproducing aspect of the chain — with particular accent on the final conversion — the loudspeaker system. Now we are to turn our attention to the other end of the chain, the means by which the natural sound is first converted into an electrical signal so that it can begin its journey through the electronic wizardry that produces today's sounds — the microphone. In the series, which will run for something like six months, we shall be looking at the various basic types of microphone — crystal, ribbon, moving coil and condenser, the various directional characteristics — cardioid, omni, figure of eight etc., the various impedances, balanced and unbalanced lines, microphone connectors, phantom powering of condenser mics, the various techniques of miking up different types of instruments for different applications etc, and plan on a special finale, in which we shall invite established studio engineers to participate in a round the table discussion on who uses what mic where, for what, and on the various studio microphone practices adopted by the various engineers. All things being equal, we plan to follow this with a 'Microphone Check' as an ongoing feature, treated in much the same way as we do the current 'Speakercheck' project. By way of an introduction, we will devote the remainder of this article to an historical look at the development of the microphone from its beginnings to the current state-of-the-art.

The very first form of microphone was mechanical. It was invented by Thomas A. Edison in 1877 as part of his cylinder recording device. It consisted simply of a horn flare with a diaphragm at its narrow end, to which was attached a form of stylus. Its principle of operation was that sounds would be picked up by the horn, the pressure of the sound waves would

be increased by the reducing diameter of the horn and by the time these reached the horn throat, there would be sufficient pressure to modulate the diaphragm and thus the stylus. The stylus was employed to produce vertical modulations in a helical groove cut in a revolving cylinder — usually powered by a clockwork motor using a system of governors to ensure a reasonably constant speed. To reproduce the sounds thus recorded, the procedure was simply reversed, so that the diaphragm was modulated by the stylus and the horn became the loudspeaker — not unlike a modern horn unit, except that the motive force was mechanical instead of electrical. Fig. 1. gives the general idea.

Such a system was in commercial use until well into the 20th century, when it was superseded by flat discs — the forerunner of the modern gramophone record. These were still recorded by a similar mechanical means, but onto a flat wax disc, from which, a stamper would be made so that the wax master could be reproduced as a thermoplastic pressing for mass production purposes. The gramophone as such was invented by Emile Berliner in 1887 and for a time, both cylinders and discs were commercially sold. Eventually however, even Edison changed over from his own cylinder system to flat discs in about 1910.

Apart from the obvious considerations of quality, one of the major difficulties presented by this mechanical recording system was that only performers with loud voices, or loud musical instruments were capable of producing sufficient acoustic power to modulate the recording stylus, whether cylinder or disc were being cut, and this placed a severe limitation on the material that could be recorded. Meanwhile, 1910 saw the introduction of the first studio microphones, of valve amplifiers, and in the

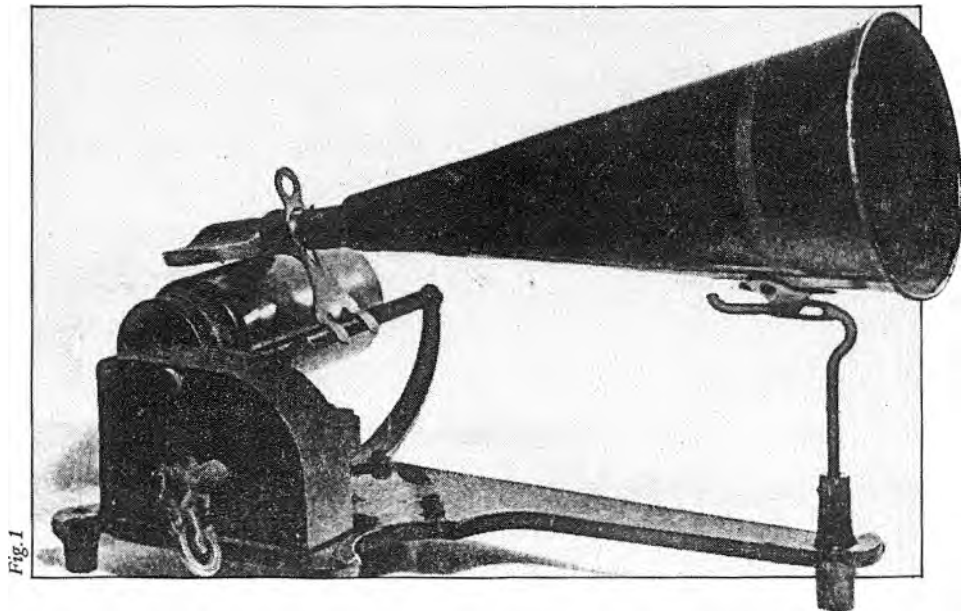


Fig.1

Part 1: Historical Aspects

early 1920's, sound radio broadcasting came into being, along with sound motion pictures. Therefore, with the introduction of an electric disc cutter by the middle of the '20's, the record industry too could adopt an electrical recording system. This of course revolutionised the industry, as not only could practically any material now be recorded, but it could be controlled, and microphones mixed. From here onwards, with broadcasting and the movies firmly established, and with a thriving record industry, the demand for better quality microphones added the sort of impetus to microphone development that only commercial pressures seem able to generate. In fact, a good deal of early microphone development in the UK was spearheaded by the BBC's own engineering dept. in joint projects with the leading manufacturers of the day — Marconi, STC, etc., while in the States, RCA, Western Electric and later, Shure Bros. were treading similar paths.

It is interesting to note the order in which the various basic types of microphone appeared on the market. Surprisingly perhaps, the earliest microphone of any quality was a condenser type, and was commercially developed in the 'States in the early 1920's from an earlier design intended for use as a measurement instrument, and originally developed about 1910. It was not until the end of the 1920's that 'dynamic' or moving coil microphones were developed to an acceptable standard. Meanwhile it seems, the BBC had been using a combination of the 'Meatsafe' — a particularly delicate and cumbersome microphone known as the 'Magetophone', and a carbon granule type, both of which are shown in our picture gallery.

During this period, the sensitivity of the microphones was such that when performers were to sing a high note, or a loud passage was imminent, it was necessary to turn away from the microphone to avoid overload and creating blasting effects. Sometimes, when a loud note overloaded the equipment, the whole transmitter would automatically shut down, and it would be several minutes before the station could get back on the air! All these early microphones were nominally omni-directional — ie. were sensitive to sounds arriving from any angle. However, due to their large physical size, they tended to become directional at higher frequencies. The first type of microphones to overcome this difficulty, and to present a reasonably uniform directivity pattern was the ribbon or 'velocity' types introduced in the early 1930's.

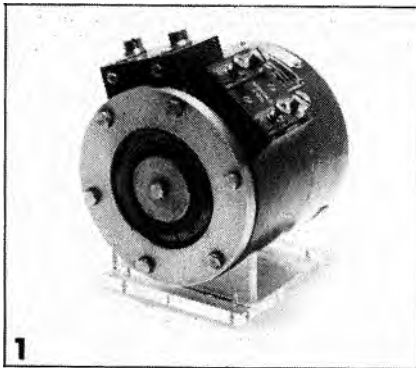
It was not until the early 1940's that a dynamic, or moving coil microphone

with a unidirectional pickup pattern which was reasonably uniform across the useful frequency spectrum was introduced. Among the first of these, was the Shure 'Unidyne', first introduced in 1941, which was of course, the forerunner of the immensely successful Unidyne 3, Unidyne 4 and the SM57 and SM58 models which feature so prominently in today's music industry for both studio and live performance use. Throughout this period of course, the condenser microphone had continued to develop, with the BBC producing a brute of a thing in 1934, Neumann introducing a cardioid condenser mike in Germany in 1939, well before cardioid dynamic mics were readily available, and of course, the introduction by AKG of the legendary C12 and C24 condensers in the 1950's and early 1960's, and the advent of the C451 FET condenser microphone system in the early 1970's. It must however be said, that STC were in fact the first into the field with the modern, slim line FET condenser type microphones with their 4126

There now follows a picture gallery showing some of these older microphones which I hope will be of interest, and maybe, cause some amusement as well. Next month we shall get down to business with a look at the basic principles of the various microphone types and directional characteristics.

1. Marconi-Sykes 'Magnetophone'; 1923

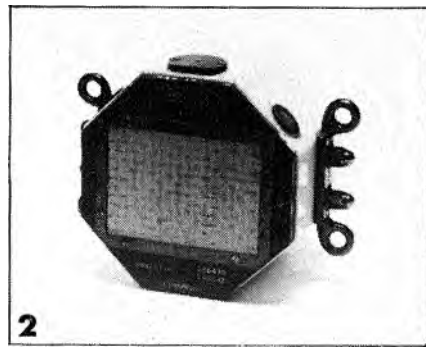
This was the standard microphone to be found in the BBC's studios between 1923 and 1926. It is basically of the moving coil variety, except that the 'coil' consists of a flat coil of aluminium wire which is itself moved by the sound waves. No diaphragm is fitted, and the coil is held in place by cotton wool pads and



'Vaseline'! Due to its delicate and sensitive nature, it was invariably used on a rubber suspension system within a large mesh box standing on four legs on the floor, and because of this, it was affectionately known as the 'meatsafe'.

2. Marconi-Reisz carbon microphone; 1926.

This microphone is of the transverse current carbon type and is housed within a block of solid marble. It was characterised by the high levels of hiss due to its mode of operation and was particularly prone to severe distortion of high amplitude signals. It was standard equipment in BBC studios from 1926 to 1933. It would normally be suspended on a system of springs within a circular frame — hence the mounting lugs on the sides of the microphone.



3. STC moving coil microphone type 4017; circa 1931

This was the first microphone to achieve anything like a uniform directional characteristic, and was reasonably



constant from 35Hz to 10kHz. This was achieved by a carefully designed, acoustically tuned chamber behind the diaphragm. These microphones were also used by the BBC for a short period.

4. Early BBC condenser microphone circa 1934

It is essential that for any condenser type microphone, the pre-amplifier is located as close as practicable to the capsule. Before miniature valves, and later, transistors became available, this pre-amplifier was of necessity, somewhat large. Hence the outlandish proportions of this condenser microphone when compared with today's miniatures! The odd shape of the casing is to minimise the effects of reflection which would otherwise interfere with the proper working of the capsule. The microphone is shown disassembled and the "thermionic valve" can be seen under the rear cover.

sunn 

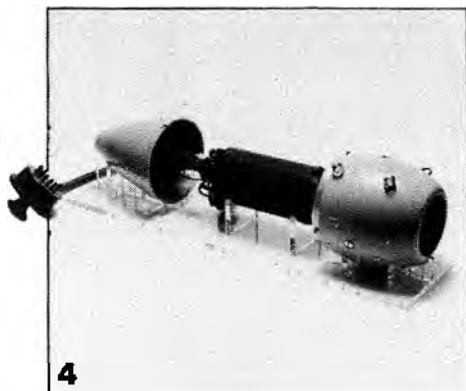
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Microphones



4

5. BBC-Marconi ribbon microphone type AXBT; 1934.

In the eyes of the general public, this microphone was the unofficial trademark of the BBC for many years. It somehow seemed to be the epitome of 'Auntie', up there in her ivory tower with her aspidistra, busy broadcasting to the world. The microphone is of the ribbon variety and was the first to offer a



6

7. Neumann condenser microphone type M7; circa 1939

This is one of the earliest microphones to exhibit a 'cardioid' directional pattern and was in widespread use in Germany before and during the war years. Compare this with the BBC design of just five years previous!



8

ponse respectively, or using both together to provide a cardioid characteristic. This microphone found extensive application in television studios.

9. STC ribbon microphone type 4038; circa 1935



5

directional characteristic that was truly independent of frequency. It was in widespread use for over 25 years from 1934 and was built by the Marconi company to the BBC's own design. The view of this unit with the cover removed shows the magnet and ribbon assembly.

6. STC moving coil microphone type 4021A; circa 1935

This microphone is also synonymous with the BBC and became known as the 'Apple and Biscuit' due to its unusual and rather distinctive styling. It is also considerably smaller than most microphones in use at the time. This unit achieved good high frequency directional control due to the use of a smaller diaphragm, and also to its shape and acoustic design.



7

8. STC variable response microphone type 4033; circa 1949

This was the first of the studio microphones to offer the facility of a variable directional characteristic — now a standard studio requirement, this being achieved by accommodating both a ribbon and a dynamic microphone element within the case, and switching between the two individually to provide a figure-of-eight or omni-directional res-



9

This is based on yet another BBC design, which in turn, was a further development of the AXBT. It employs a more compact magnet assembly than did its predecessor, has a shorter ribbon, and due to its acoustically designed shape, offers an extended high frequency response to 14kHz.

We would like to acknowledge the co-operation of the Science Museum, South Kensington, London in providing the facilities for us to photograph these microphones, and for the background information provided.

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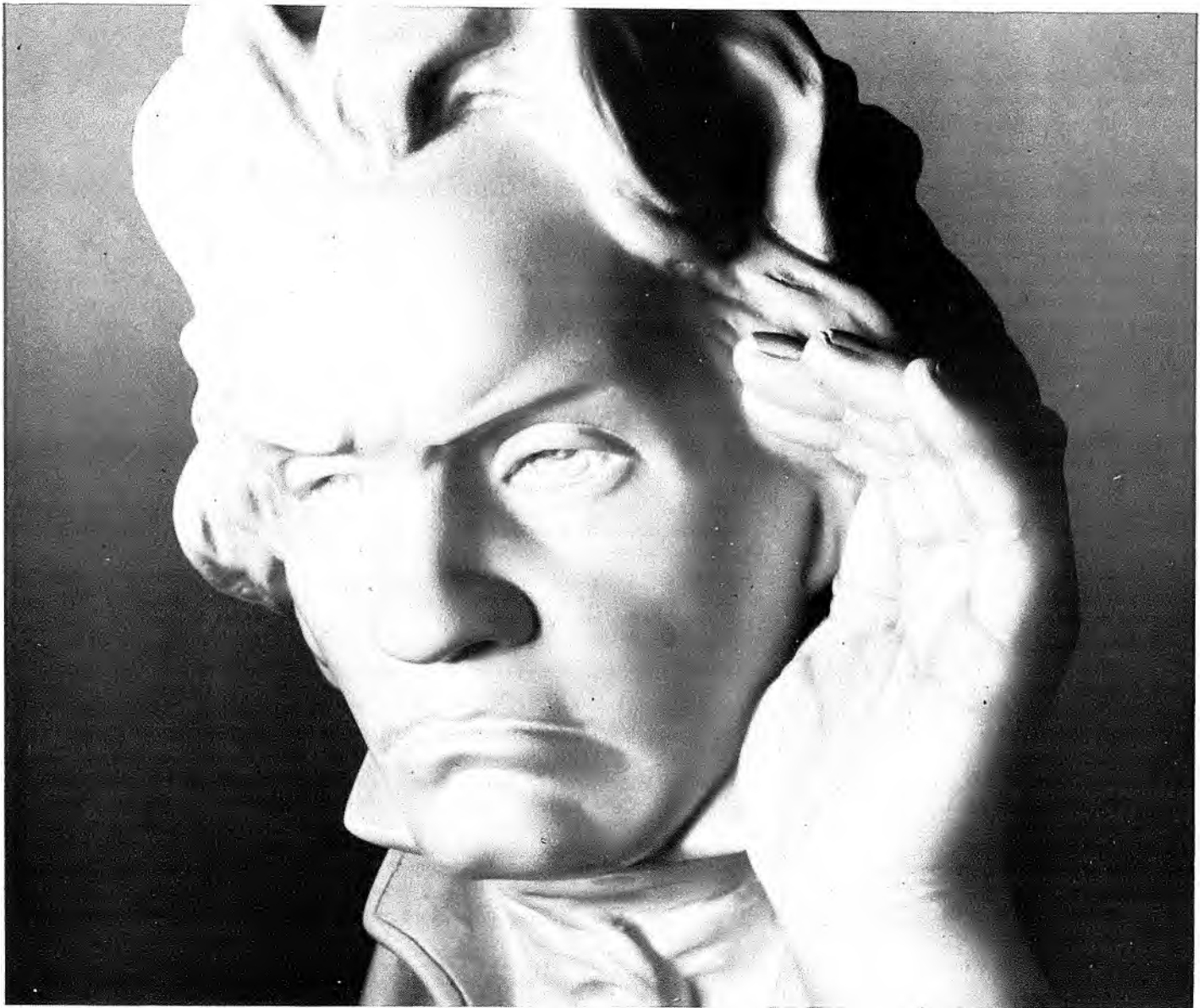
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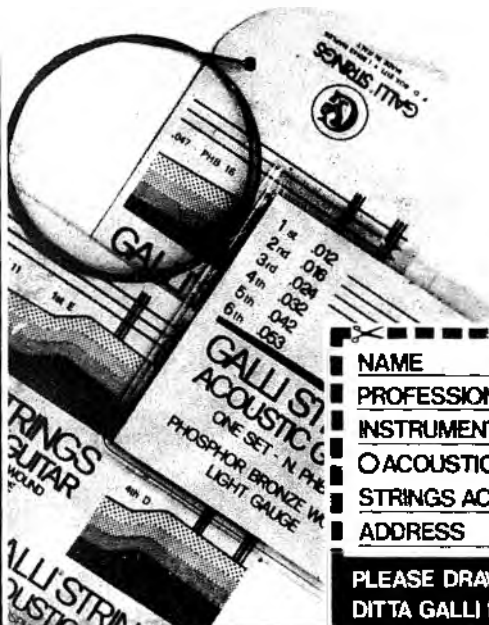


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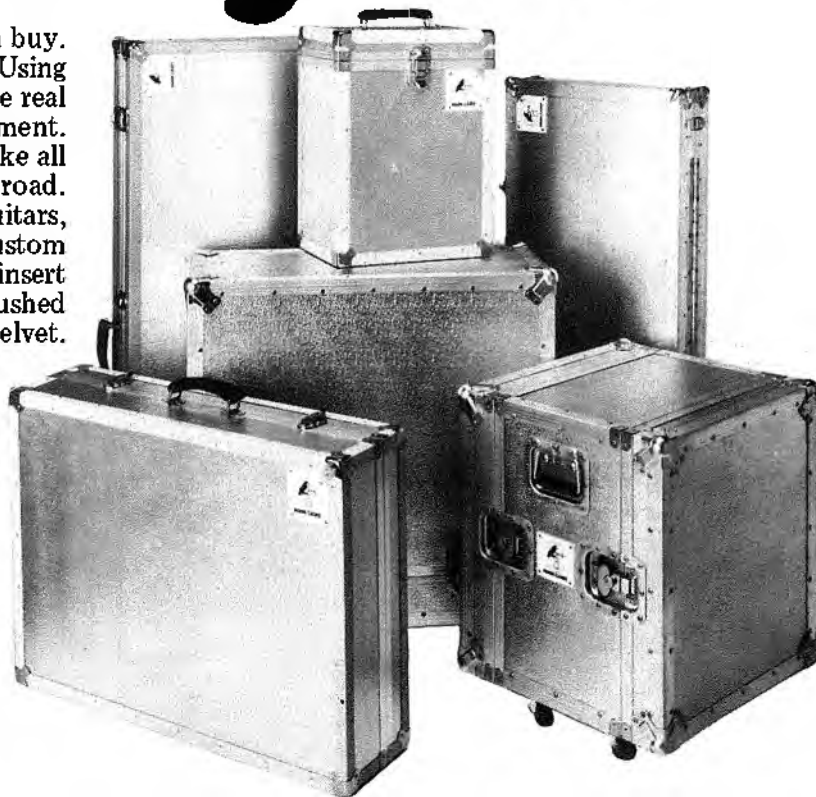
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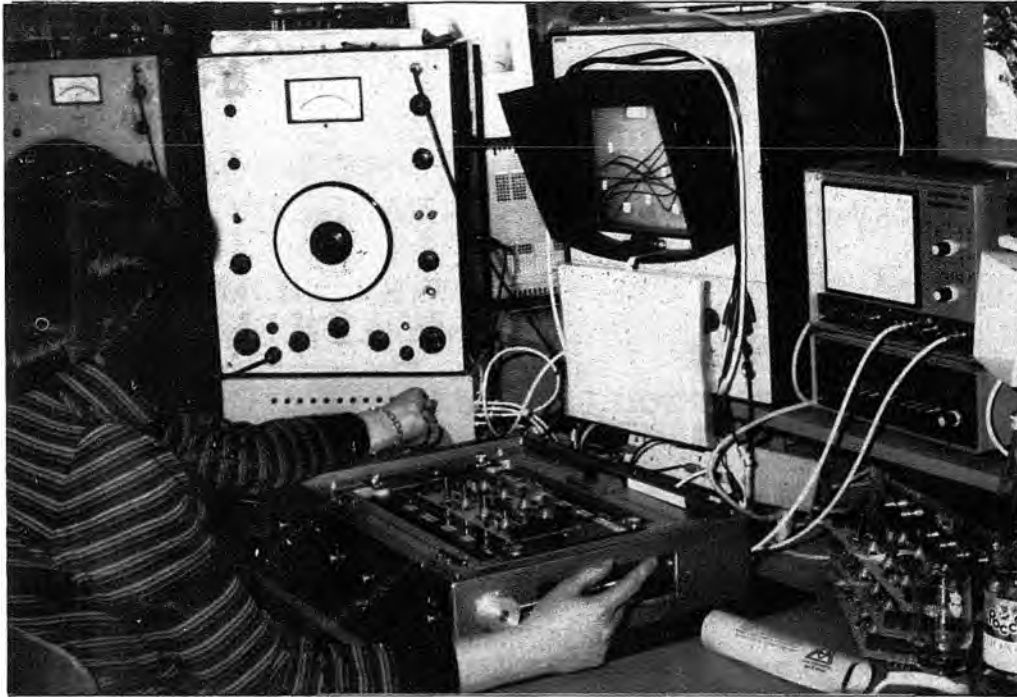
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Dynacord believe in doing as much of the manufacturing process themselves as is practicable. A giant machine shop provides all metal chassis and parts for the amplifiers and each section undergoes the same rigorous testing.

After each assembled printed circuit is tested, the boards are assembled into a chassis and the complete circuit tested again. After the chassis is mounted into the housing two further tests are carried out — one purely electronic, one audio. All items of equipment are left to "burn" for a minimum of five hours. This process ensures that if there is any faulty component, it fails in the first few hours. After this period the likelihood of electronic failure drops to very long odds.

When a product has been "burnt" it is once again tested for electronic measurements and tested again for audio output. In addition to these tests during the manufacturing stages there are also electrical safety tests to ensure the product is completely safe for normal use and there are special tests designed to seek out weakness that could occur after many years of use.



Dynacord

A visit to their Bavarian factory

by Ray Hammond



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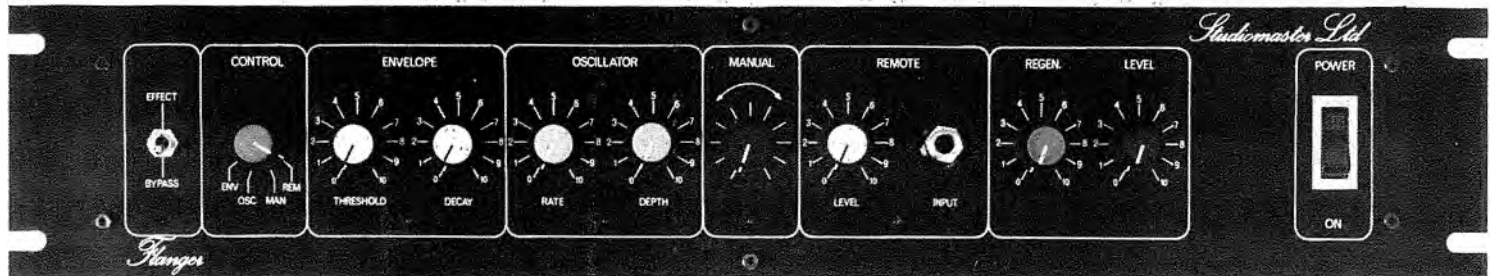
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OPERATING INSTRUCTIONS

Bypass switch and indicator: In the up position brings the Flanging effect into the circuit and in the down position (LED indicator on) allows the signal to go through unaffected.

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An LED indicator will show which mode has been selected.

Envelope: This mode has two controls: Threshold and Decay. The input signal controls the flanging effect. Threshold sets the level at which the signal is effected, and Decay sets the time taken for the effect to stop after the input signal has dropped below the threshold setting.

Oscillator: This mode also has two controls: Rate and Depth. The flanging effect is automatic, sweeping from low to high frequency and high to low frequency. (The oscillator is a linear up/down ramp). Rate controls the Sweep rate and Depth controls the amount the oscillator affects the flanging.

Manual: This mode allows a manual sweep. By rotating the control clockwise the flanging effect will go from High frequency to Low frequency.

Remote: This mode has one control and one input socket. The flanging effect is controlled by an external voltage between 0V and +5.5V DC. Level controls the amount the external voltage affects the flanging. (The remote input on the rear panel is disconnected automatically when using the front panel socket).

Regen: This control adds a selected amount of feedback around the flanging circuit creating increased depth of effect and in the extreme clockwise position a very interesting and unusable effect.

Level: This control continuously adjusts the flanging effect level of signal.

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TECHNICAL SPECIFICATIONS

Input Level: maximum +20 dbm
nominal 0 to +8 dbm

Threshold: adjustable from -15 db to +8 db

Oscillator Speed: from .07 hz to 7 hz fully adjustable

Delay: adjustable from 0.1 ms to 10 ms

THD: direct 0.06%
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Output Level: adjustable up to +12 db

Input Impedance: 600 ohms unbalanced

Output Impedance: 600 ohms unbalanced

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Very few other manufacturing companies apply such thorough tests to products and the effort has paid off for Dynacord. The equipment has a reputation for reliability unequalled in the music industry.

In the last two years the image of Dynacord has changed and new "professional" audio equipment has emerged that has stamped Dynacord as a leader in "state of the art" electronics design.

These new products include the DRS 78 Digital Delay line, the SRS 56 and the TAM 19 delay lines and these highly sophisticated tools are now being used in professional recording studios, large PA rigs and with many hire companies.

Leading the research and design team is Josef Galneder who is a specialist in applying microprocessor technology to music equipment. Dynacord place great emphasis on research and development and the large team enjoy their work in well lit, well equipped offices removed from all hustle and bustle that could intrude upon the creative thought process.

The job of marketing the equipment falls upon the shoulders of Rolf Crostek. He's young and he understands precisely what today's music market wants. His feed-back trips "in the field" give the necessary information on market requirements to the design team.

It's fairly well known that Echolette products are closely associated with Dynacord and the well known tape units and amplifiers are in fact produced under the Dynacord roof. Along with the Dynacord "industrial" equipment this goes to make up about 50 per cent of the company's total output.

"We're very pleased with the way the new Dynacord products have been accepted," General Manager Hans Tscherning told *International Musician*. "Musicians are becoming more and more technical and music demands sophisticated products like the DRS 78. It's already becoming one of our most successful products."

In the industrial division, success presents certain headaches: "One of the problems with that division is that every customer wants a slightly different system. One hospital will want an automatic alarm system, another will want to replace that unit with a radio bleep system. Every system is individually designed for the location. It can be quite complicated to work out exactly what is required."

Rock musicians in Britain and the USA are now using Dynacord professional products. In a "heavyweight" situation reliability as well as superb performance is an absolute necessity and this ensures that the future for Dynacord is extremely good.





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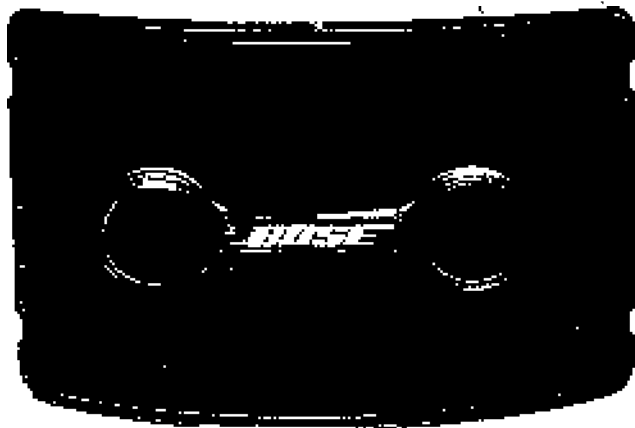
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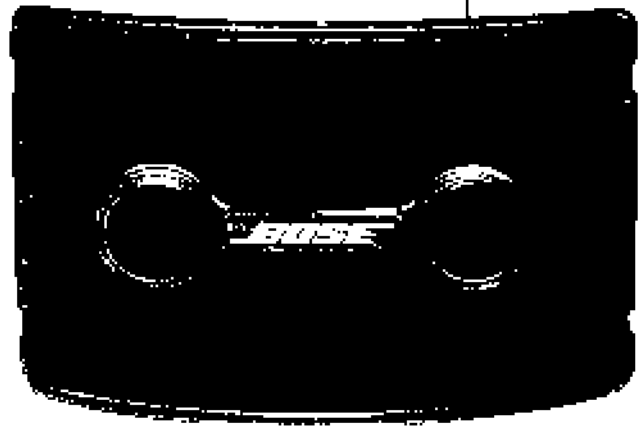
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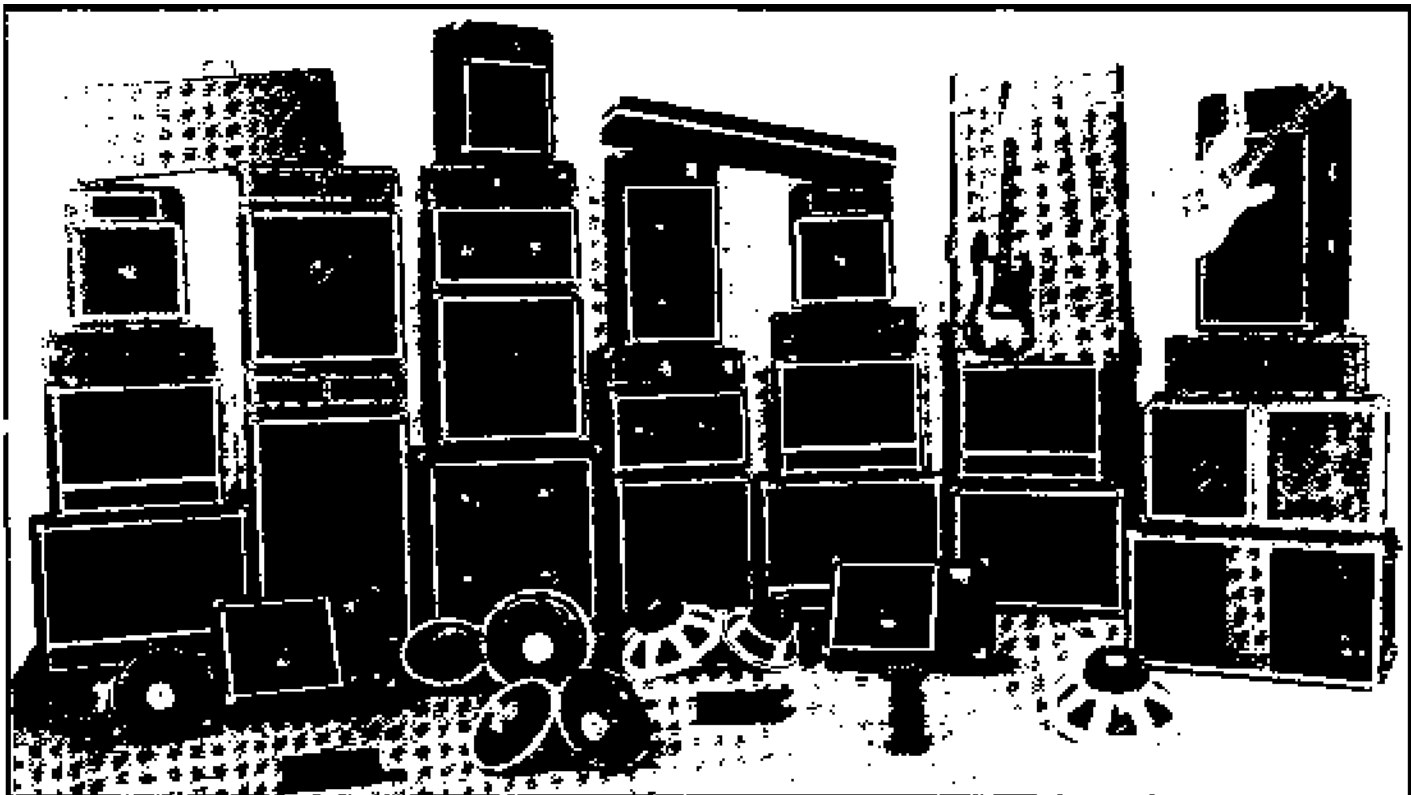
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BOYLE'S LAW

One guitarist's view of jazz-rock

Gary Boyle is a guitarist of the highest calibre whose roster of gigs spans from Wes Montgomery and Keith Tippett to Stomu Yamashita and (not quite in the same breath) Dusty Springfield. His musical output over the past nine or more years has rested predominantly in the 'jazz-rock' arena — a much abused musical form if ever there was one. We catch the versatile guitarist at a time when he appears to be in the process of re-assessing his musical values.

The floodgates opened by John McLaughlin with his Mahavishnu Orchestra appear to have released a great many guitarists playing fast, complex jazz-tinged rock. Unlike its primary exponent, to date, the main virtues of most jazz-rock has been in the playing, rather than in the music, which has often tended to lack much of the musicality anything written for enjoyment should have. From the tepid efforts of otherwise erstwhile artists such as Alan Holdsworth to the bleak formats of Al DiMeola and Stanley Clarke; from the various examples of 'hi fi music' epitomised by the latest recordings by Max Middleton/Robert Ahwai to the downright crude efforts of sidemen from Weather

Report, Return To Forever and the Mahavishnu Orchestra — the whole genre is one that must have caused every music enthusiast some despair at some time or another. Having passed through the thick of all this, Gary Boyle is in an excellent position to comment. John McLaughlin must be one of the seminal influences on guitar playing in the Seventies — does he, or does he not have a lot to answer for?

"Listening to John steaming away on his guitar you don't hear someone playing fast. You may, on one hand, wonder at the speed and the control, but behind it you can hear the music; a musical tradition that goes back a long way, before, including before and after Coltrane. This could be the difference between McLaughlin and a kid picking a couple of chords to steam over at speed. That can be a bit depressing to hear but listen to that kid a few years later and — who knows — he could be a transformed player. It makes me sound really arrogant to say this."

Gary's 1960's Guild Starfire rested in his lap as we talked. At various times the guitar would be used to demonstrate a musical point. The only other guitars he owns for stage and studio work



include a 1954 Les Paul Custom and a white Strat. On stage the Starfire has done much of the work in recent months. A pedal board with flanger, phaser, envelope shaper, compressor and volume are his usual stage controls, utilising a 50-watt Marshall valve combo. At many gigs this is again DI'd into a 100W Marshall. The envelope shaper Gary uses only sparingly on stage, mostly playing rhythm behind someone: "It's like a kind of automatic wah, dependent on the pressure with which you hit the strings." But with the flanger it is possible, when the controls are correctly set, to get an almost 12-string effect: "you can wind it up further and the effect goes slightly out of tune." As the Starfire is a relatively recent acquisition its handling in the studio for the next album is as yet uncertain and Gary might, in fact, bring back the Les Paul for this task. There are greater difficulties with going back to the Strat after the Gibson and Guild: "The Stratocaster seems to have a harder, more brittle neck. I find the Guild even more malleable, more expressive than my Les Paul. I like the semi-acoustic feel on stage — I'm just getting into it — but I might have to go back to a solid in the studio."

It seemed useful at this point to catch up with the history part before taking up the original thread. Gary Boyle's first guitar, it seems, was an ordinary 'round hole' acoustic belonging to his uncle. After this came 'some rubbish I can't remember' and a Gretsch Anniversary, before his first Guild — a single-cutaway semi-acoustic:

"We were all playing skiffle, actually, after Django Rheinart. Then I got a job where the 'chink, chink' Guild sound didn't fit. I thought 'Oh dear, this is not going to do, — after only the first rehearsal. I had to shoot down to the shop where they had this Strat for £65 — this was back in the Sixties. I suggested a straight swop and the guy jumped at it — 'Oh, yeah sure!' — the Guild was, of course, worth more to him. I used the Strat for six or seven years after 1964."

After a period of playing rock, listening to a lot of jazz, a spell of folk in coffee clubs followed by some guitar study under a teacher, Gary Boyle turned full professional: "I started meeting a lot of people who were really into jazz and that really is when the rock I was playing took on more of a jazz feel. About '63-'64 we had a jazz-rock outfit with Alan Bown on trumpet. After '65 I did a lot of backing work with various people, before eventually joining Brian Auger. "I felt so at home that, I felt I would like to work on it as a form." College in '67 and '68 then another year with Brian Auger, three years of studio work — and thus to Isotope."

Isotope was, of course, a band very much at the centre of the jazz-rock genre, both in terms of style and musical content. At various times the band had Jeff Clyne and the Soft Machine's Hugh Hopper on bass. Listening to someone playing at the very edge of his technical ability can be inspiring at times when there is also music behind it all. But someone playing faster — almost than they are able to think, or apply control, risks dragging the melody or skipping over it altogether. Taking Al DiMeola as an example of this kind of speed syndrome, the whole thing often becomes so cold, so mechanical, that it takes a musician to appreciate even the playing. The fluid precision of John McLaughlin seems to have been created with a lot of right hand light and shade — rather than the familiar staccato machine-gun attack:

"This is so close to the way I am thinking at the

moment that I almost would rather not comment on it. I think I am as guilty of the syndrome as anybody else. With the Mahavishnu in 1970 or thereabouts the jazz crossover managed to reach a wide audience. But I think when many guitar players look back on their work they may wish they had not used it in this way — there's more to the guitar than just steaming about. The excuse — for myself as much as for all the other guitar players — is probably in the music itself. It's a struggle to get the music across. The jazz clubs themselves don't want to know about it — in England anyway. You have to get on the rock circuit to get heard. The rock circuit is very involved with flash — literally: flash lights, flashy performances. You suddenly get caught in the tow. This is the great danger.

The musical progression described by Gary Boyle is probably a tradition which should continue. John McLaughlin himself seems to have come full circle, musically speaking, before his presently unpredictable variations. In the case of Gary Boyle he moved out of London to the north three or four years ago, a change which meant his newer friends and the people around him generally were not necessarily musicians: "It may seem a strange thing to say after all these years of playing but I suddenly realised that music is to be communicated. I realise now that people can only admire skill up to a point. After that point they have to enjoy. I would like to play a little more within myself so that I may have the chance to communicate on a slightly different level. In other words I have been trying to communicate on a sort of virtuoso approach, which is a kind of a joke anyway — there are only two or three virtuosos of this type in the world who merit the title. I think I sort of — well — *bored myself* with my own playing. I want actually to get across to people now the sheer enjoyment of music. When I say this I know I had a ball doing it all these years. And it's not that I would like to simplify the music to make it easier, it's just that for my own spiritual well-being I would like to communicate to people a quieter, more melodic thing. At the same time I want to feel stretched."

The next question was to how he would have changed his last album *Electric Glide*, with Gary Moore and Robert Ahwai — if this had been put together now rather than then: "It's difficult to go back in your mind to try and re-do something already committed — I would probably have taken a little more time over it rather than set out to change things necessarily. This last album was a bit of a bee in my bonnet. I never seem to get a chance to jam with friends, fellow musicians. So I thought, 'great — I'll do a guitar album' — That's what it was all about. I personally prefer my last album but one, the *Dancer*, anyway. The next one is to be more focussed — I might actually write songs for it, do some singing, maybe; simpler structures and a more direct musical attack. On the musical front I'm getting more into American black funk music. I get as much joy hearing — 'Boogie Wonderland,' as I get from Miles playing 'My Funny Valentine.' One is possibly more sublime but the buzz is the same."

What is it that makes Miles Davis or, say, John McLaughlin's 'My Goal Is Beyond', more sublime than a disco dance hit?

"I don't know, really — maybe the improvisational nature of the thing, the more spontaneous inspirations, the interaction."

James McGill



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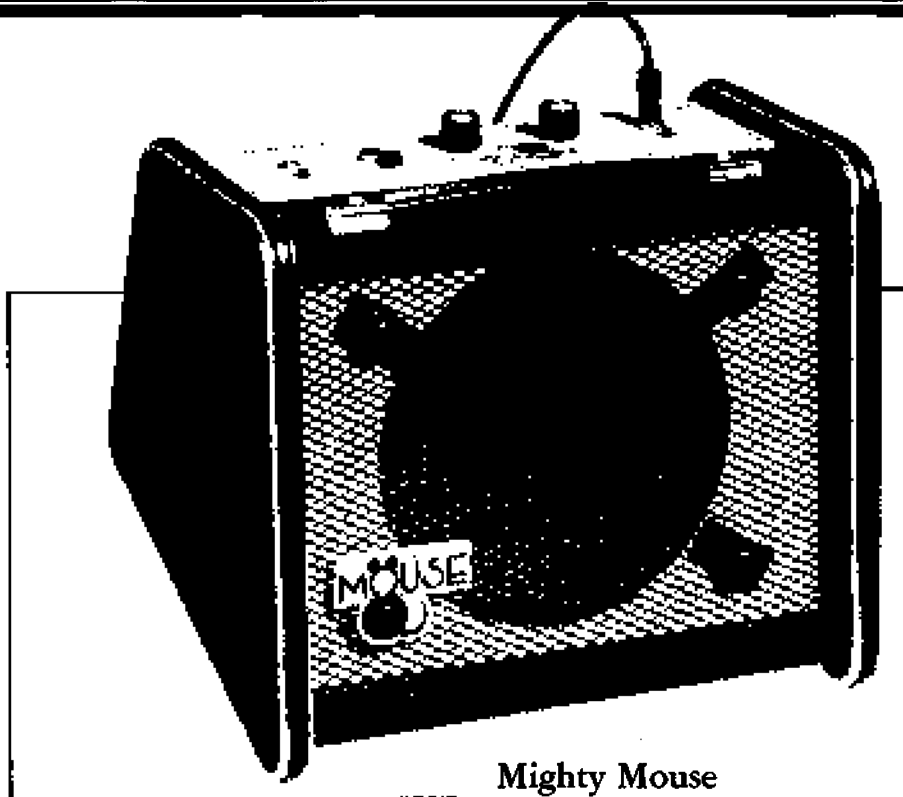
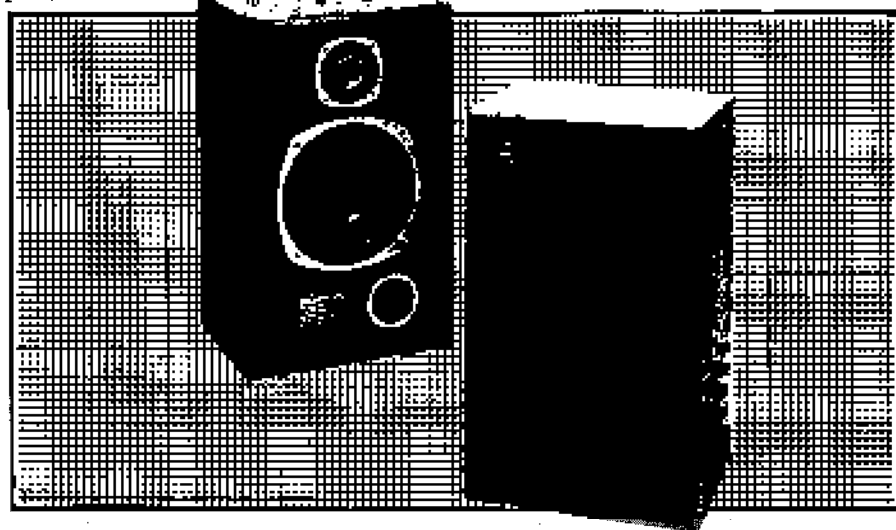
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The Tannoy Company continues to develop its less expensive units with the T115 Cambridge, which follows on from the slightly larger T125 Oxford launched in December 1978. The new model features the same compression driver h.f. unit as the Oxford but uses an eight-inch bass driver instead of the 10-inch unit employed by the T125. There is a sensitivity of 88 dB at 1M with 1 watt input, and the Cambridge will handle 45 watts RMS (easily coping with peak levels of 120 watts). Extending the range at the lower end of the price scale, the Cambridge loudspeakers retail at £169.50 a pair.



Mighty Mouse

Lectrosonics Inc. have recently announced a new practice amp which combines compact size with unusual power (5 watts) and rechargeable batteries. The Mouse, as it is called, was launched as a logical extension to the company's range of small, high-quality PA systems.

It features an 8-inch speaker to give 'clear, performance-level sound', full tone control facility, a 10 mega-ohm input making it suitable for lead, bass, and pickup equipped acoustic guitars, and a rugged case and speaker grill.

Introducing the Mouse, Lectrosonics Marketing Vice President Hal Newman emphasised the advantages of rechargeable power pack: "In as little as 50 hours of battery operation, the owner of the largest selling practice amp could have purchased a Mouse."

Borgani now at JHS

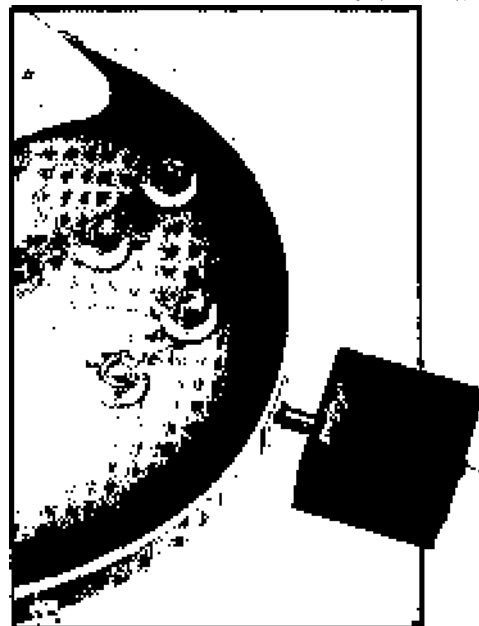
John Hornby Skewes & Co Ltd announce that they have added Borgani woodwind and brass instruments to their range. These products, which come from the family firm under the ownership of Professor Orfeo Borgani, are constructed to a tradition of craftsmanship dating from the founding of the firm in 1872. Gerry Mulligan, Gianni Basso, and Larry Nocella are among the leading professional musicians that use them.

Available at John Hornby Skewes are the Tenor Saxophone outfit 0162S (£350.00), the Alto Saxophone outfit 0161S (£320.00), the Curved Soprano Saxophone outfit 0161C (£330), the Straight Soprano Saxophone outfit 0160 (£295), the Silver Plated 'C' Flute outfit 017B (£154), the Bb Boehme System Clarinet outfit in wood 077 (£199) and the Bb Trumpet outfit, brass lacquered 0181 (£144). All prices include VAT.

LA40 Mini-Amp

One of the most popular new small goodies introduced by Gigsville at their recent Trade Show in London was the tiny LA40 Amplifier which plugs directly into the jack socket of guitars. The volume of the amplifier is controlled directly by the volume control on the guitar and Gigsville have received many favourable comments about the tone ranges available from the LA40.

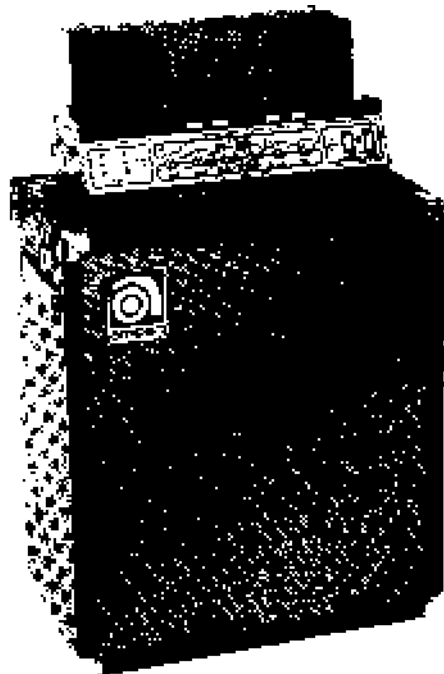
The amplifier measures 3" x 3" x 1", with a 2" speaker, and a power rating of 0.5 watts. Two 9volt batteries provide the power supply. Gigsville state that the LA40 can easily be carried in most guitar cases and is ideal for tuning, testing and playing in confined places such as your local Inland Revenue office, public conveniences and back seats of Minis as a portable passion producer if your bird is moody! The LA40 retails at £16.19 including VAT.



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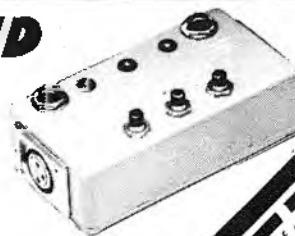
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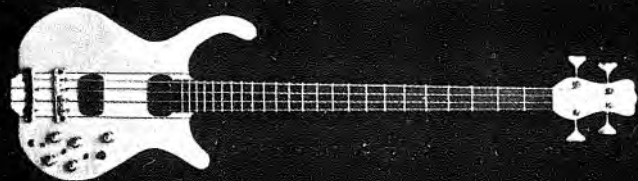
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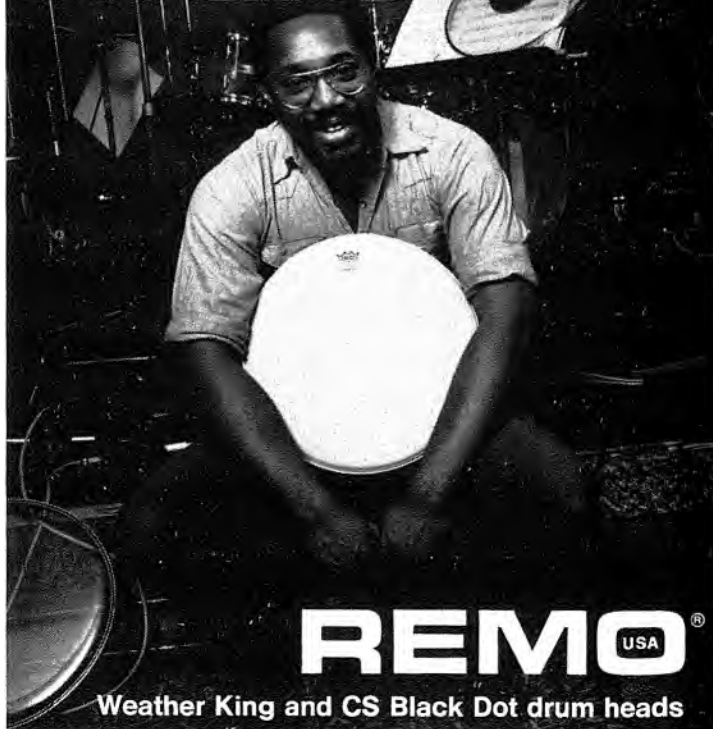
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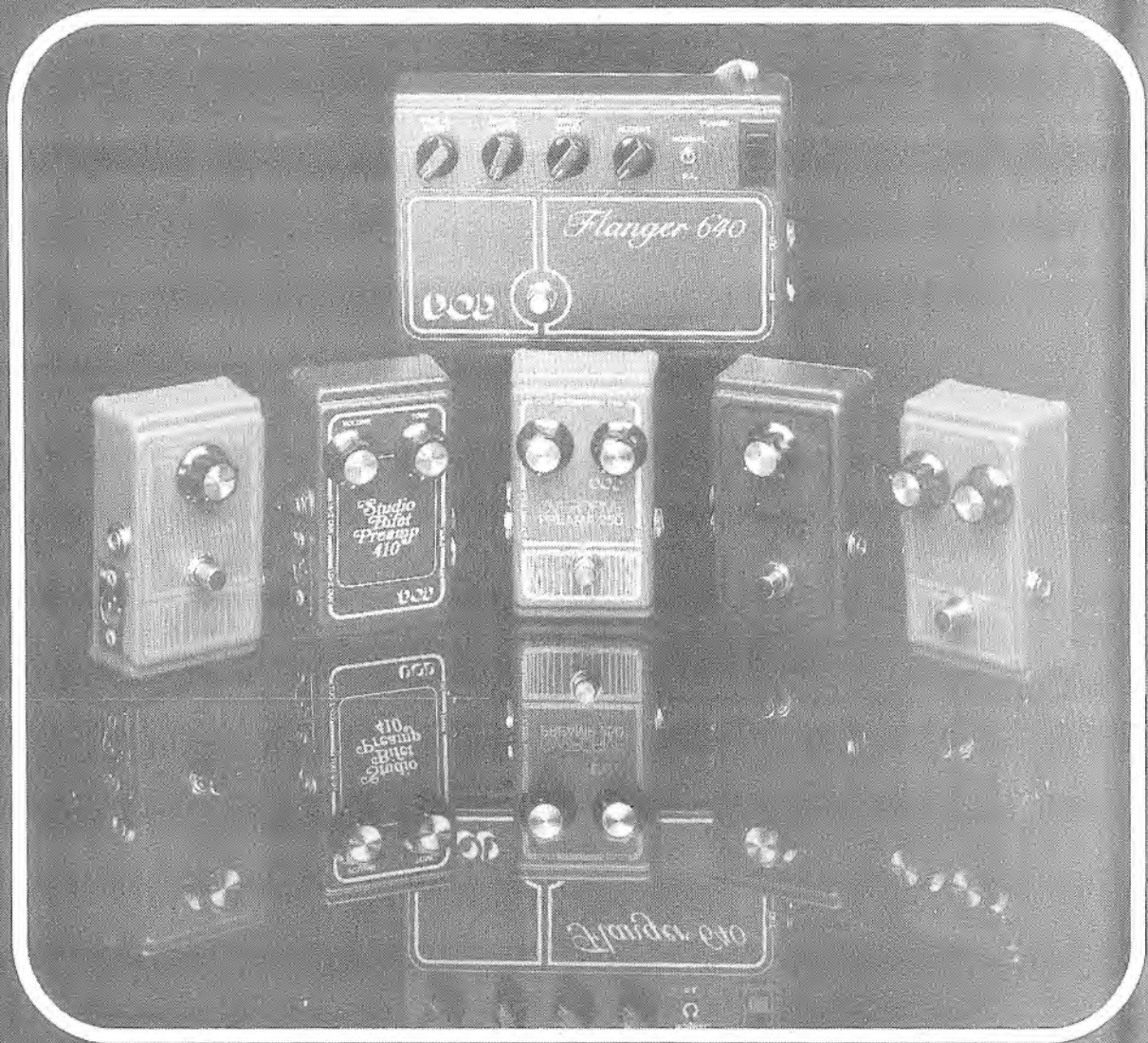
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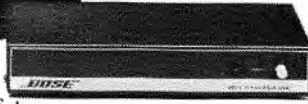
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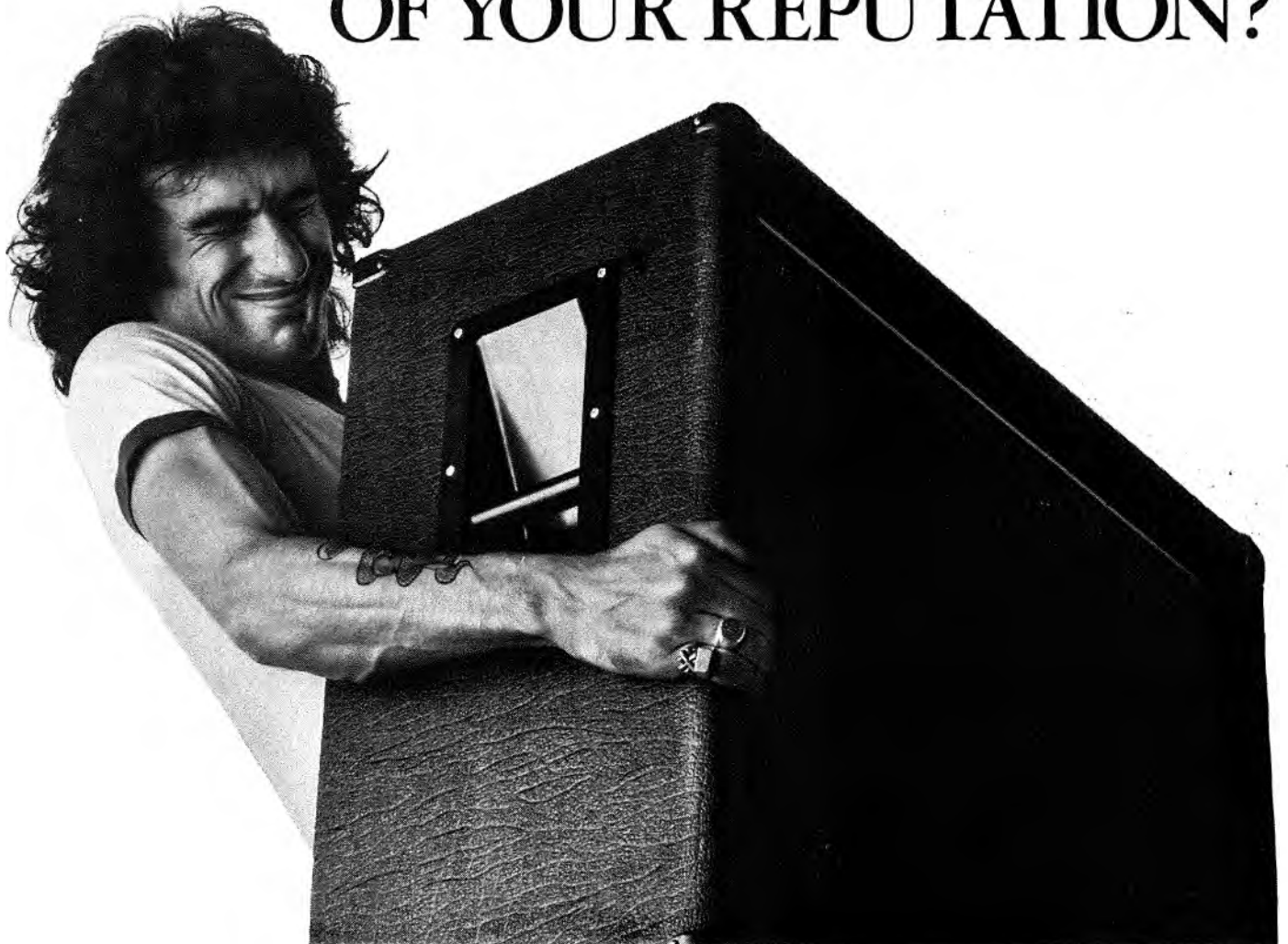
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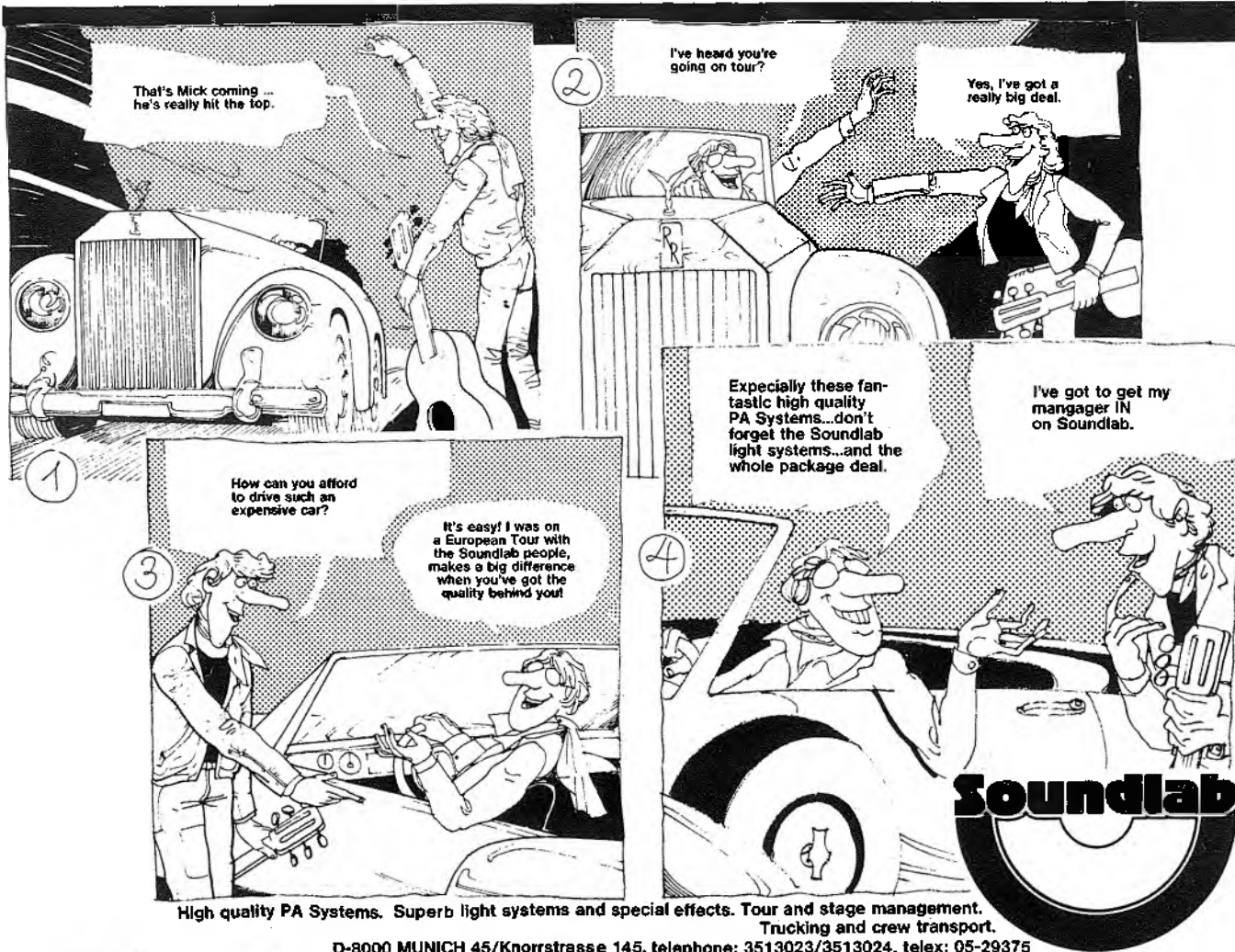
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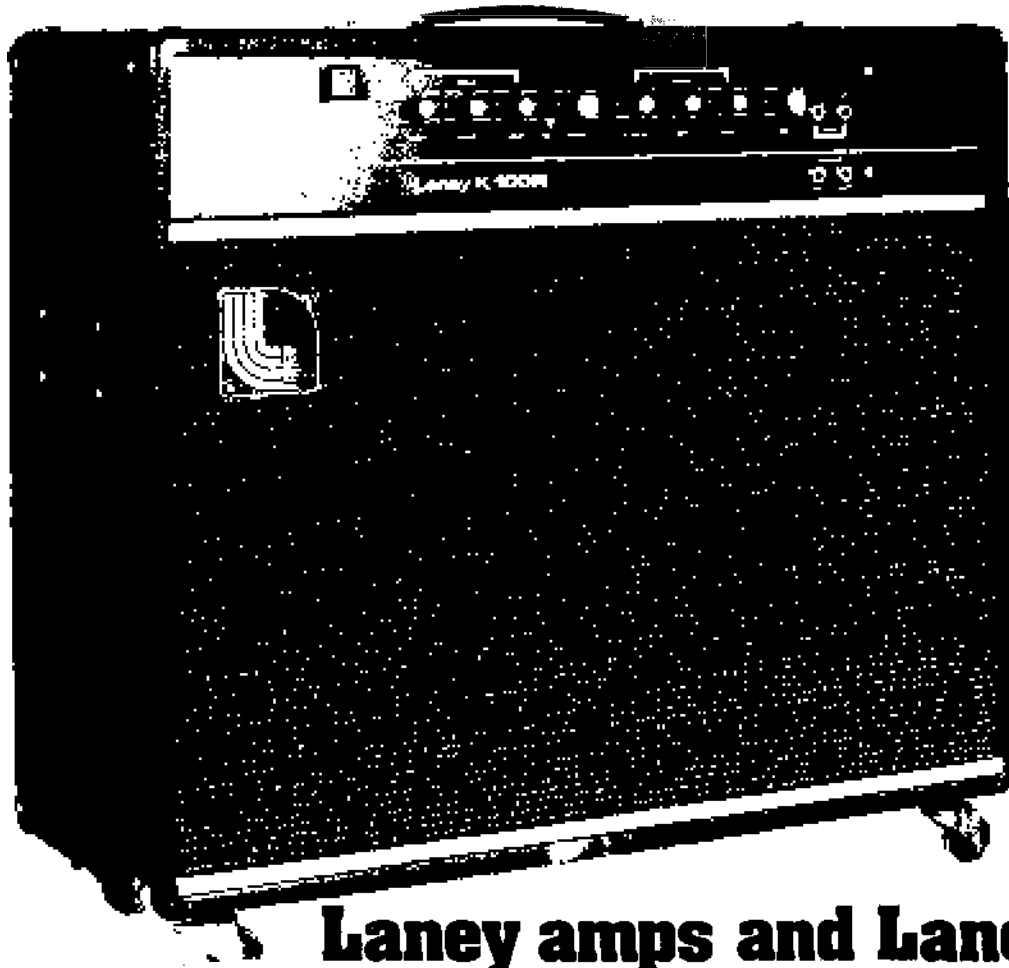
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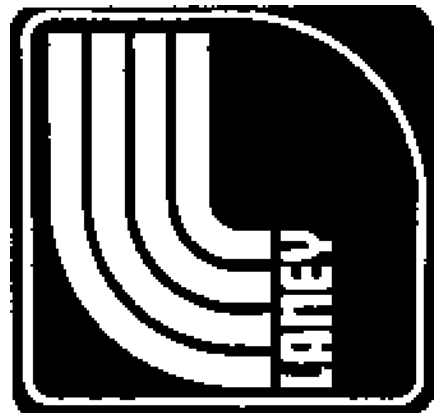
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The Rose-Morris /Ovation Connection

Have you ever wondered how all those foreign instruments and that wide variety of sound equipment ever comes to adorn the shelves of your local music shop? Probably not, the only time you may become aware of this particular end of the music business is when the goods you have bought need repairing.

Then you are likely to hear phrases like "It'll have to go back to the wholesaler," and you will begin to appreciate that the instruments don't appear on the shelves by magic.

It is rather unfortunate that the wholesaler only becomes known to the majority of customers when something goes wrong, because it is as a result of these largely unpublicised organisations that music shops up and down the country can offer such a wide selection of instruments and amplification.

We thought it was about time that the public were enlightened as to the role of the wholesaler, and their vital link between the manufacturer and the music shop. So we have chosen to spotlight one of the most famous — Rose-Morris of Gordon House Road in the North West of London.

Rose-Morris are one of the country's biggest wholesalers, dealing in the entire range of musical instruments. However, we are going to take a look at just one product, the highly acclaimed Ovation guitars and trace their journey from the factory to the shop.

The fact that musicians in Britain have such a wide choice of instruments is largely due to the foresight of companies like Rose-Morris. It is their job to scour the world for new products and take on those which they think will be worthwhile — and, of course, also sell well. But then high sales reflects a good product.

Rose-Morris have been distributing Ovations for about 10 years now, and can take much of the credit for making the name world-famous as innovative and high quality instruments.

Marketing Director Keith Drewitt recounts the reactions when the first few Ovations began to trickle into the country. "People thought, 'what is this strange guitar?' Still, we liked the people and thought it had potential, so we worked with Ovation and built them up into a worldwide product and a very much in-demand guitar."

Obviously, taking on a new product is a risky business, and the Ovations, with their original designs and revolutionary features possibly presented more of a risk than a tried and tested home built product. But Keith and his team know their business and it wasn't long before more people were taking an interest in these "strange" guitars.

However, the success or failure of an instrument depends on the state in which they arrive in the shops. They may be perfect when they leave the factory, but thousands of miles travelling, days spent in storage in a variety of locations and wildly different temperatures can destroy even the best made guitar.

The Ovations would present all these problems because of the very nature of their construction, using new technology, designs and in some cases new materials. So bringing them from the American factory and putting them into British shops would be quite a task.

From the outset Rose-Morris were determined to eliminate many of the problems involved in transport by air freighting all the instruments. As Keith explained, "There is a big difference between the UK and the US so we bring them all in by air freight. Our view is that the quicker we get an instrument here, the better it will be.

"So every guitar comes by air freight, which means it doesn't sit on a truck, or at the wharfside — it comes from the nearest available airport. Our objective is to get the instrument here in 100 per cent condition."

So to begin with, Ovations get a better start on the road to the UK, but that is just the beginning of the Rose-Morris involvement. As Keith says, transit damage is very limited, but if one is found to have suffered badly then it goes straight back.

The guitars are then put away to settle down in the Gordon House Road warehouse, usually for about a week. In particular, this gives the necks time to stabilise, these being one of the most sensitive features on the instruments.

Once this settling down period has been completed, then the guitars are again examined by the Rose-Morris experts. During this phase of the operation one man reigns supreme — Adrian Legg, who is something of the Rose-Morris guru when it comes to guitars.

A mote than useful picker himself, particularly in the Country and Western field, Adrian is one of those guys who are apparently born to fiddle around on guitars. In his workshop, deep in the bowels of Gordon House Road, he is surrounded by an amazing collection of instruments, many in various stages of adjustment and repair.

Every Ovation guitar that comes into this country goes through Mt. Legg's fingers. He plays, checks and adjusts every model until it is perfect, and only then can it be considered for dispatch. A last minute "tweaking" is carried out prior to it leaving the premises, things like checking the action — because British players in general prefer a lower action.



Adrian Legg at work



Finally the instrument is ready to be sent to the dealer for inclusion on his shelf. But the Rose-Morris involvement does not stop there, apart from the usual handbook which accompanies every new instrument, there is also the Rose-Morris Guitar Preparation Document.

This takes the form of a warranty, but includes a detailed list of the examinations the guitar has gone through before it has been allowed to leave the premises. Details of the headstock, fingerboard, neck, body, bridge and pickups, control functions and electronics in the solid bodied instruments are all listed, including notes on some minor adjustment. However, the document does stress that any problems will be dealt with by the dealer or Rose-Morris themselves.

It is this kind of service which has led to the quality Ovation products gaining such a reputation in this country. It is a combination of a good initial product (and the recognition of that product) with a highly organised back up system which has undoubtedly contributed to this success.

Walking round the Rose-Morris premises, it is obvious that the people there are musicians who are eager to give the customer quality and earn his satisfaction. Pushing sub-standard products is all too easy, but more often than not the problem of instruments coming into this country which do not match up to expectations, can be narrowed down to the way they are handled on the journey from the factory.

At Rose-Morris they realised this from the beginning and set about ensuring that a guitar like the Ovation, which deserves the best treatment, gets the best treatment. So now you know what goes into getting the products to the customers. It's not just a large business conglomeration of unknown faces, or a production line speeding out the instruments as fast as they come in. It's about Adrian Legg, who has personally played the guitar you are just about to hand over your hard-earned cash for. Someone who's done, and is still doing, all the gigs you're likely to play. He knows what a guitarist wants, and makes sure he gets it when checking an Ovation.

So, we now know about how the Ovation reputation was gained, but Keith Drewitt and his colleagues aren't about to sit back and say, "we've done it all." There are always new innovations like the Viper III with a 25 1/2 inch scale and three pickups, or the new Magnum bass. They will all get the Rose-Morris treatment, to ensure that their name and that of Ovation remains a symbol of reliability and quality.

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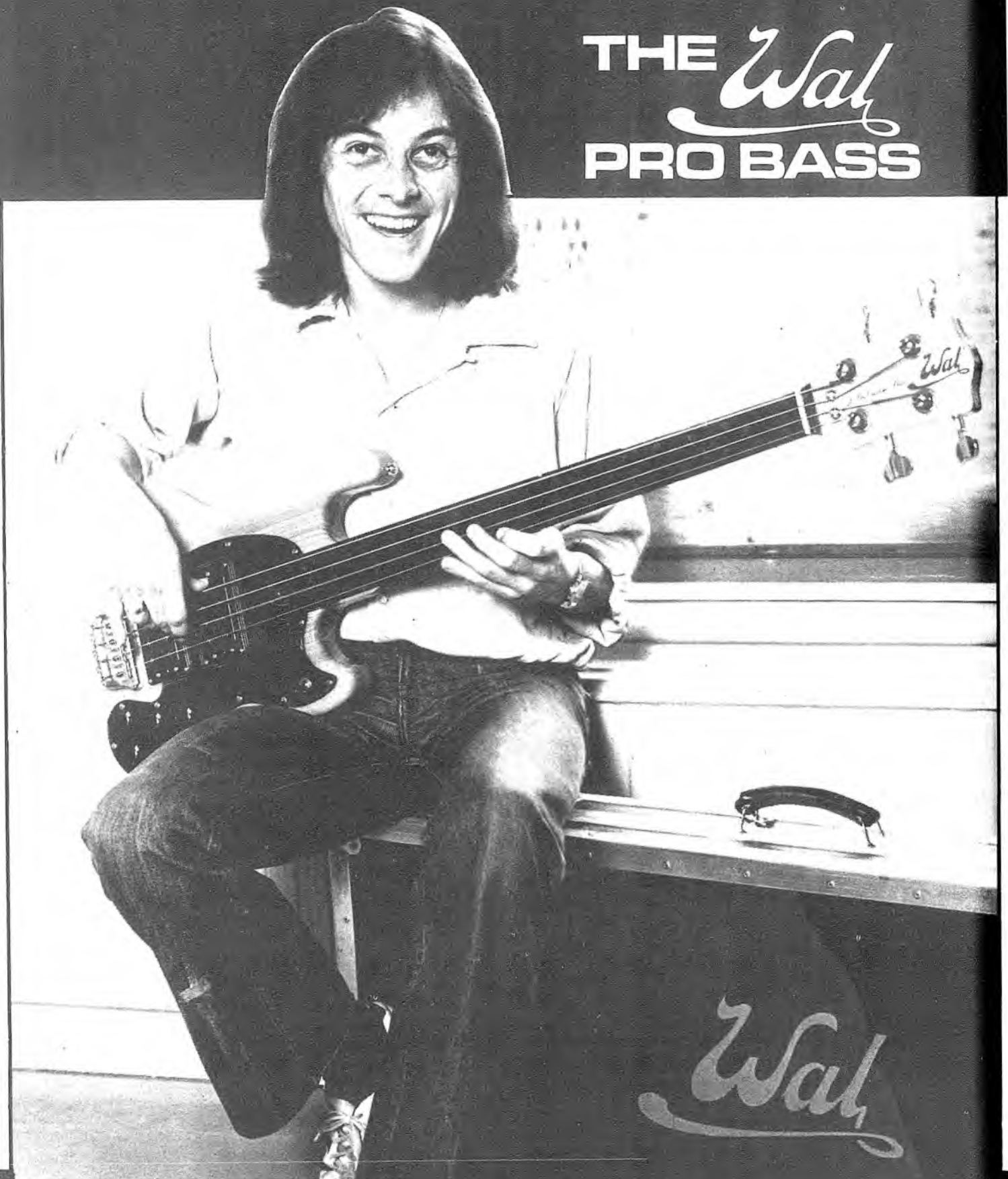
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Taking Care of Business

Continuing his look into what happens behind the scenes of a big record company, Alan Holmes investigates the marketing department. How do records take off? What is done to promote them? How important is the marketing campaign? There are many myths surrounding this part of the business, so Alan talked to Peter Buckley of the EMI marketing department to find out just what goes on.

"There are several categories of artist and this affects the way a record is presented for marketing. The superstars, who deliver their records independently of A&R involvement like Wings, Queen, and Pink Floyd, who come in with a master tape, usually complete with finished artwork for the cover and a suggested campaign from their management company.

The second bracket of acts are those who are not yet superstars but have accomplished some success and work hand in hand with the A&R department and

through them with the marketing department. We are well aware of their plans and are kept informed of what the possible hit tracks are by seeing them at concerts. The third category are acts that the A&R department have just signed or someone who has just 'walked in off the street' and given them a record which they feel is a hit. We come in at one of the three stages but generally when the A&R department have decided what record they want released. It is then up to us to devise an effective marketing strategy for that particular single or album.

Of course no, two albums, singles or stage acts are ever the same. The follow up after a successful single is never the same as the one before, so you have to give a good deal of thought to every step, particularly in a business like this where public tastes and influences change so fast. For instance, American repertoire has become very strong over the last few years with the growth of disco music and though disco is widely listened to by the

public it is still primarily American music. Like the A&R department, we have to keep abreast of public taste so that we can interpret what the public wants. While Paul McCartney's latest record may not be a disco record outright, it may be regarded as disco for marketing purposes because it appeals to people who like dancing. One can then make a strategic decision about the marketing approach.

By no stretch of the imagination can you market Olivia Newton-John like Donna Summer, just because disco is a happening thing. We are conscious of presenting each artist in their own market sector but when they occasionally cross over with another particular record, you must be careful not to lose the market you have already built up for the artist. In the end it is down to what is in the grooves and whether the record buyer likes that particular record enough to make it a hit, after we have done all we possibly can to promote and market it.



Peter Buckley (back row, 2nd. from right) with American soul group Tavares and manager Brian Panella (back row, far left).

The Marketing Machine

BY ALAN HOLMES

First release

With the first release by a new band we listen to the music to see whether it is singles or albums orientated. In the case of album orientated, we need to arrange live appearances throughout the country in order to complement our campaign and this can very often mean several tours, as it's impossible to do anything with a campaign based on only one night. A tour doesn't necessarily mean large gigs with truckloads of equipment, very often small dates in clubs — so that we can launch the single and work the radio and press in each town is enough for the first one. Then we can go into heavy marketing of the album on the second tour and start to get TV, so that by the third tour we will be into the second single.

We liaise with management to get the tours organised but once we get actual tour dates we then design or redesign the artwork needed to go into advertising and merchandising, which we hope will come initially from the album cover. Once we have that, we then can take a number of different techniques. We can put the album out and 'suck it and see'. In other words, you don't get the sales team to go in and do a heavy number — you just see what response you get. On the other hand, if we feel quite strongly that there is a hit single on there and it is worth while asking the sales force to do a hard sell job in the shops of towns where the artist is going to be playing, then you can try some other techniques.

There is also cooperative dealer advertising, where you enter into agreements with record chains and you offers discounts where they advertise that record. But you have to make sure when you do that and go in heavy, that you are choosing the right act, because there is nothing worse than launching an act that turns out to be lousy on stage leaving the dealers with the records sitting on the shelves.

The sell

From delivery of finished masters to release date is normally six weeks. Our reps call on a monthly basis. We present the product to them in the first week of the month and they sell on the second, third and fourth weeks. You have to have enough bits and pieces to present the dealer with an album; the marketing campaign; the promotion campaign; and hopefully, give them a finished sleeve or a printed flar and either a finished record or a white label pressing with track listing. It's essential that you are able to give the reps the product to play, not necessarily in its totally finished form but it's got to be presentable, playable, to make the 'sell'. They will show the dealer the cover, hopefully play him a few prime tracks off

it and then go down through the details of the marketing campaign which will include tour details, merchandising details and advertising in the music press. If it's one of the chosen few, he'll also inform him about the special cooperative deal campaign, and other gimmicks.

For one of our Capitol heavy metal acts, Max Webster, who were supported on a Rush UK tour, we had 65,000 flexidisc album samplers made to go on the seats at concerts. We had a coloured vinyl 7" version of the single coming out, followed by a 12" version of the single, followed up by a picture disc. Press material, presenting the album was in all the shops, all of which was designed to bring home the fact, quite forcibly, that Max Webster was on tour throughout the UK and that they were a band worth seeing. During most support acts people stay at the bar, so we had beer mats made to get them away from the bar which said — 'Drink up or you'll get caught in the rush to see Max Webster'. We had people out on the tour to distribute them at all the gigs and Max Webster were getting 80 per cent of the houses in to see them, and dealers reported that people were buying the album the next morning.

We were able to do a number with this band because they had a strong management and we could get utmost co-operation from them. If we said, 'We want you at a press conference at nine in the morning', we knew they would be there. We figured that because heavy metal was making a comeback we should implement a strong campaign but this can be a risk with a new group because they haven't ever learnt what it means to have a campaign like that and then see results in the chart.

Forward planning

Ideas for the creative aids to marketing are thought up by the marketing department. Every Tuesday we have a scheduling meeting which puts on paper the fact that there is a single or album coming from the following group. Normally what we do then is set a release for six weeks time unless the A&R department have a reason for wanting it out sooner. Following on from the scheduling meeting, there are a number of other meetings, Capitol, EMI, Harvest and the associated repertoire dept. Each of these is headed by a general manager. Underneath is a structure which encompasses marketing people, press and promotion people. Every week those departments have their own meeting with their own staff and the A&R people are generally there to advise, consent and give ideas and the artist development also go to those meetings. They take what's come up at the scheduling meeting and say 'Let's

get down to brass tacks. What are we going to do on these albums and singles'. The decision could well be to work it through the press and lay off the heavy advertising because the press people tell us the group has a good following in the music press who are waiting for the piece of plastic to come out. We get it out to the press three weeks before the release date so that hopefully, when the record comes out it is getting good press and reviews.

With radio being more 'instantaneous' it's a little dangerous to play something too far ahead because having created a demand, unless you can meet it it can go away. We don't really have the last word on which track is released as a single, but if the A&R department or the management of the artist feel strongly about a track which we disagree is a hit, then my advice to my department is 'Don't let it influence you — if you don't think it's a hit you still must go with the full campaign and promote and market it to the best of your ability. If in the end it falls flat, then so be it. It is not actually the A&R guy's fault, he thought it was the best track to release and in this business who the hell is right all the time? No one ever is. Sometimes I have to arbitrate, not by taking a middle course but by playing the record on my own and then deciding between the various choices which one to put out.

I've got about 45-50 people in my department, including secretarial and promotion people, some out on the road, going to radio stations and discos and TV stations to get plays. We release about six singles a week and 15 albums a month. In any given week promotion man would be taking upwards of six new singles to radio, plus what he took in the previous two weeks and is still worth going with. Out of those six, if one becomes a hit then we would be happy, making money. It is very much like drilling for oil.

The BBC is now no longer the make or break for a record. When I came here three years ago from New Zealand, it was very much a case of if it didn't get on Radio One, then there wasn't a lot more that one could do. With the New Wave bands touring, a lot of things that never saw the light of day on radio certainly sold well, made the charts and groups became established from it. Then disco came along and the American disco chart started to create releases on import which became hits. So the three main influences are firstly radio play, which is still the most critical, disco and touring. But increasingly, it is having the records in the shops that is going to be the decider. The days of getting the record on Radio One, and having it played and getting our team of 50-odd telephone sales girls to ring the

The Marketing Machine

dealers, and say 'So and so is on the Radio One play list from next week,' and getting 15,000 to 20,000 orders, has gone. Dealers don't do that any more. Now it's down to making sure our records are in the shops even before we start getting all the activity because it seems now, kids are more inclined to go into record shops and browse, particularly on singles.

There has been an enormous boom in singles in the last four years — it has gone up from 56 million singles yearly for the total industry to close to 100 million this year — almost double in the last three and a half years. Albums in the meantime have declined. The reason why that has happened is twofold, and this comes from consumer research. Firstly, the price of albums has risen quite a lot from three years ago £2.99 to over £5 today. Then there has been wage freezes and all the rest of it, and, even though there is a bit more disposable income around now, the 25 to 35 year old age group are more likely to spend more money on the mortgage, car, colour TV set, holidays, hi fi etc and less on records.

The customers

There has been quite a change in the demographics of the UK. There is now a band of kids between the ages of 15 and 19, over a million, who three years ago were between 12 and 15 and were buying comics. Now they are a bit older and are earning money, and they are spending it on three things: clothes, singles, and magazines. They are not buying comics but publishers are reporting a boom in various teenage magazines on music, sports and girls. You go to clothing manufacturers and they are having a boom in jeans and T shirts, and young peoples fashion clothes. Three years ago Burtons were going bust because they were making the wrong clothes. Then they decided to hit the young market, so they opened up with new style clothes and TV advertising featuring Patrick Mower from the TV series, 'Target', and Fiona Richmond. Now they are making a profit again because they are selling clothes to young people, mainly under 25. Now in the singles market these kids are searching for their own heroes and our theory is, that the heroes these kids latch on to *today*, through singles, will be the album sales in three or four years time when they are older.

So my job as a marketing and promotion man, is to emphasise singles as much as albums. It is essential to hit if off with singles. Once upon a time you used to put the album in the shop but now you must get the single in first because the balance of the market has swung the other way. This is why there was a pre-

ponderance of marketing influences on singles, with 12-inch disco cuts, coloured vinyl, picture bags. Because, if you get them buying singles today, in four years time those same people will be buying albums. Also coming back to demographics, the publishing world are launching a spate of new titles aimed at this happening part of the market. This market responds directly to what you do. If you do something special for a single, you get a sales response, you don't necessarily get the response on albums these days, you used to three or four years ago.

We have a specialised department to deal with disco promotion and it can break records through discos. Having once got record going with a chart entry and radio play, it then becomes a matter of sustaining it. You sustain a record through keeping it on TV and radio and disco play, but generally selling an album is a matter of good marketing, with window displays, press advertising, radio and TV advertising and increasingly important, co-op dealer advertising with 30 per cent of the market in the hands of the multiples; Boots, W. H. Smith and Woolworths. A lot of thought, strategy and effort has to go into planning what the next move will be to take an album from No. 20 to No. 10 in the chart. As you move it up the chart, the more sales you get and some shops will only stock a record if it is in the Top 50, if you don't make it to the Top 50 they just won't stock it.

The budget

Regarding promotional budgets, these are worked out anything from six months to a year in advance and loosely they are done on a percentage of sales on the label, although if we all genuinely think that a particular artist is going to be the greatest thing this year, than we allocate the money. You may not think that you will get any sales out of it, but a lot of it is gut feel — 'let's get stuck in on this one' because it's an increasingly competitive market, I just hope it doesn't get like the American market where they are all starting to fall flat on their faces and really come unstuck in a big way.

Everything is on sale or return and the ego of the American record industry is such that, if you don't ship quadruple platinum, your company stinks and your artist is a load of crap. They're spending the dollars up front paying the royalties etc., and it's all coming back in the other door unsold.

We do not operate in this country, a blanket sale or return policy, you do it very selectively for a strategic cause. The Americans are really in a lot of trouble because to get the records stacked up on

floor on the record supermarkets you have to offer discounts and marketing and promotion money for the radio, I have been told that you can offer say 15-20 per cent discount, and when the shop returns the records, they are at the price before the discount and there is apparently no way of checking how many the guy has bought on discount. Some dealers are making more money out of shipping records back than they are out of selling them, because the discount they get is so big and the credit is so large they are using it to pay off their bills. It won't ever happen here because we just can't operate in that way, they are getting into a situation now where they have to sell more than 300,000 albums to make money.

The money

We are in the business to make a profit so there is a limit to the amount of money you can pour into an act before you have to say 'That's it, we are not getting the sales'. Sometimes we will spend a lot of money on an act for their first album, knowing full well that we are not going to make any money on them just to establish them as a name. There is not a lot one can do for a single that doesn't cost £3,000-£5,000 a page in *Melody Maker*, *NME* and some window banners and after giving a few away, you don't get much change. We have some acts with £20,000 campaigns without TV advertising and even that doesn't go far these days.

You can go as high as £200,000, but I wouldn't sanction that on just any act, it would have to be a television compilation. I would probably spend a maximum of £60,000 on an act and then if it hasn't had three hit singles and sold over a quarter of a million I would be reluctant to spend any more. Except in the situation where it got to a quarter of a million albums with two hit singles and we had a definite No. 3 hit single on it, then you have a good chance of taking it to half a million albums by putting more money in, and doing another campaign all over again, although very few albums have three hit singles these days.

I suppose that sometimes we have said no to an act when we could have said yes to more money, but I don't think that it has ever resulted in the death of an act because we are not that tight. We probably hang on to acts longer than any other major record company, and I can't remember a major act leaving EMI for years except for the Sex Pistols. Our acts tend to stay with us because we satisfy their needs by offering more than other companies not only with advertising but recording, distribution and production facilities, promotion, marketing and sales staff etc. all over the world".

Area Sales Manager

Robert A. Perry, former order credit supervisor at Fender Musical Instruments' Fullerton, California plant, has been named Sales Manager in the Northern Illinois and Wisconsin area.

Perry has spent over 17 years in the music world, both as a musician and in the retail side of the business. A bass player, he played a Fender Precision bass for 12 years in the East Coast, touring with several groups. In 1974, he joined Sorkin Music in New York, working in sales until he joined Fender in 1978.



The J&C sound of success

Yorkshire based company, J&C Sound Systems, expect to make quite an impact on the audio market with the launch of their new Pro-range loudspeakers. The use of top quality components and distinctive design have been combined to produce compact units with high sensitivity.

The men behind J&C, Steve Jones and Tony Crooks, spent a year developing the range, which was unveiled for the first time at London's Live Music Show, in August. Steve, a physicist with an interest in acoustics, teamed up with former cabinet maker Tony, some three years ago. Using Electro-Voice components, the Pro-range comprises three models, 15" three way, 12" two way and 15" bass loudspeakers.

They have paid particular attention to the design of the cabinets, which are finished in a green fibre laminate. Protected by an impregnable black epoxy steel mesh, these front loading loudspeakers have aluminium bound edges, heavy duty flight case fittings and XLR sockets. J&C, who are based at Nile Road, Ilkely, are now busy building up a chain of retail outlets across the country.

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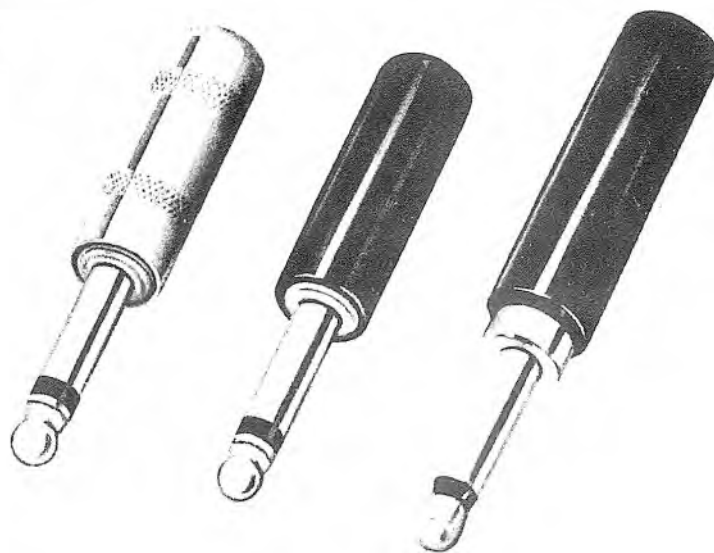
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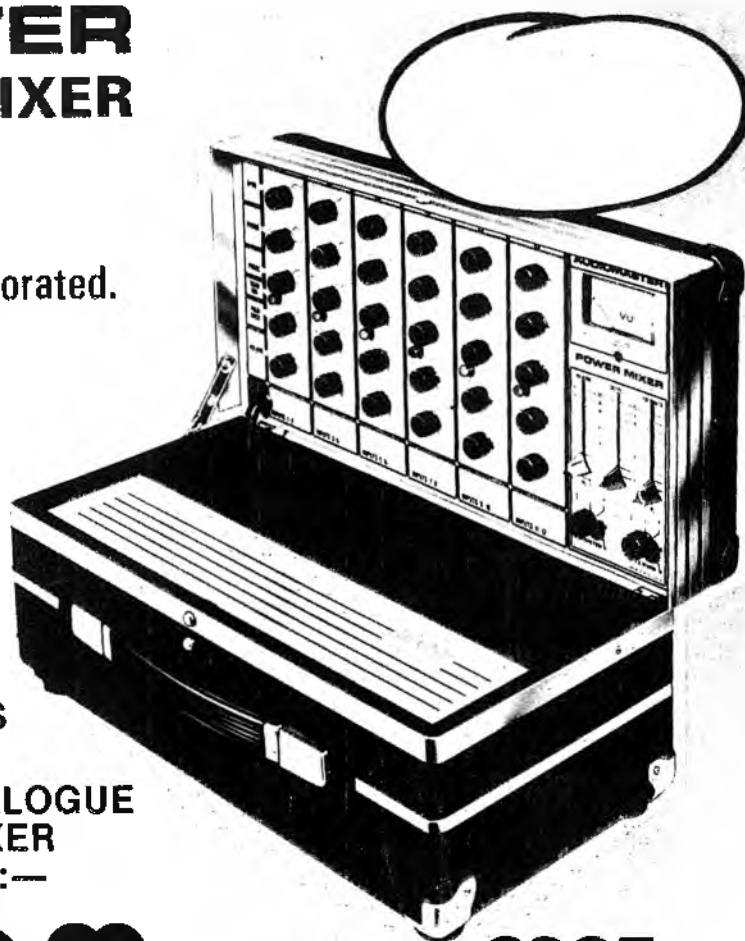
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By the way, I'm a pro musician who worked in accountancy and for the "dreaded" Inland Revenue for years. Whilst I was there I learned most of the tricks of the trade, from a musician's point of view.

Anyway, I had so many enquiries from other musicians about how to reduce their tax bills (legally!) that I've written a booklet for you all. There's just about everything you'll need to know in it — the different sorts of expenses and tax allowances you can claim for; how your tax is worked out; easy ways to keep your "books"; a section about VAT (and some advice on whether or not to register); a long list of "DOs and DON'Ts"; lots and lots of financial tips (such as the best time to buy new equipment/new vehicle, etc. to save the most tax) — like I say, just about everything I wish I'd known years ago. All this is simply and clearly set out, and written only from the musician's viewpoint.

Oh yes — and if you still have a problem you can use the free personal advice service which is included in the price of the booklet.

(Incidentally, it was a very pleasant surprise to hear recently that lots of copies have found their way into accountants' offices. They're used for reference when they deal with musicians' tax.)

Well, I can't say fairer than this — send for a copy (it's called the MUSICIAN'S TAX SAVING MANUAL, by the way) and read it. Then if you think it's a load of rubbish (which you won't!) or are not happy with it, send it back and I'll refund your money. At the worst you'll have had some free tax advice.

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Bell Electrolabs and PA:CE

PA:CE announce that all Bell Electrolabs' Modular Effects are now being manufactured and marketed by PA:CE Musical Equipment Ltd. Dick Parmee, Chairman of PA:CE, states: "The move is a very positive step forward for PA:CE to be able to offer musicians a comprehensive range of effects units through our existing MM Electronic, Redmere, Intermusic, and Microphone Distributors and franchised dealers. Due to our modern streamlined production method and state-of-the-art circuitry, we are able to reduce prices while still maintaining high reliability and professional quality."

Crumar Multiman S demo offer

Crumar have asked us to point out that due to overwhelming demand for copies of the demo record featuring their Multiman S, which was advertised in *IM*, some readers are experiencing a delay in receiving their copy. Crumar apologise for the delay and are shipping in extra copies from the USA to meet the demand. They also ask us to point out that the instrument referred to on the record as the orchestrator, is in fact the Multiman S.

'Cadac' back in production

The assets of Cadac (London) Limited (in liquidation) have been acquired by C.A. Audio Systems Limited, and production of consoles for music recording, broadcast and theatre applications is once again in full swing.

An improved version of the recently introduced 'In-line' series provides full function flexibility for recording and mix-down. As options DC sub-grouping, sophisticated automation and centralised routing are available.

To many existing Cadac console owners round the world C.A. Audio Systems offers a full back-up for facility expansion, spares and servicing. The address is C.A. Audio Systems Limited, 141 Lower Luton Road, Harpenden, Hertfordshire.

BBC Order for Racal-Zonal

Racal-Zonal Limited has won a major contract worth almost £600,000 to supply recording tape to the BBC for its national, local and overseas radio services.

Principle suppliers to the BBC for 15 years, Crawley based Racal-Zonal is providing three quarters of the BBC's total recording tape requirement for the coming year. Half the order is for a pink backed tape which was developed in conjunction with the BBC for FM stereo broadcasting. The remainder is a high performance tape for mono broadcasting.

John Rooke, Racal-Zonal's general sales manager, commented: "This order — the largest from the BBC in 15 years — combined with others from many IBA radio stations makes us the leading tape supplier to UK broadcasters."

AKG at the Olympics

AKG Acoustics of Vienna, Austria, has sold its new state-of-the-art Time Delay Unit, the TDU 7000, to the Soviet Union for the 1980 Olympics to be held in Moscow. President Leo Steinkellner of AKG advises that the TDU 7000 will be used exclusively in the many different stadiums, arenas and other event locations which will make up the 1980 Games.

Further, he states that officials were so impressed by the equipment specifications the firm order was placed solely on these detailed performance specs, as a completed unit was not available when the order was placed. Additionally, large orders for microphones and headphones were also received.

Gentle's giant step

Things are looking up for Tim Gentle Music in Leigh-on-Sea. Up until now they had to make do with rather restrictingly small premises. However, this is all going to change for they have bought up the entire building at 1420 London Road — a step which will expand their display and repair areas threefold. This means that they can now get into "huge, monster PA systems" which they have been

wanting to do for a long time. Anybody interested can get hold of them on Southend (0702) 72926.

Peavey News

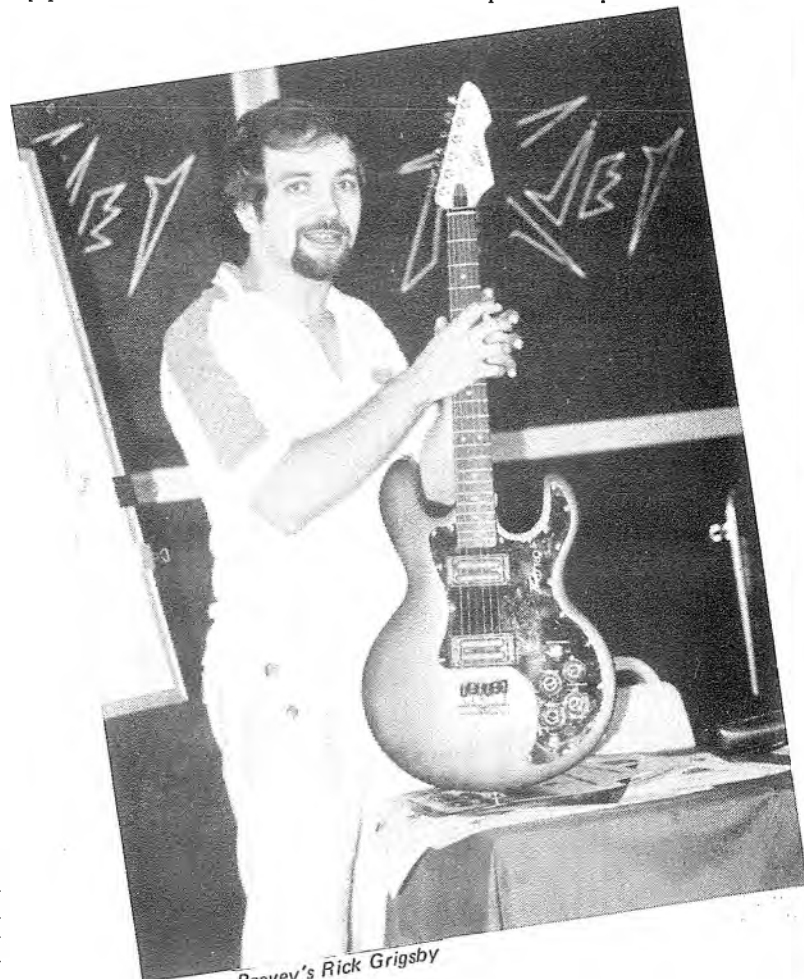
Peavey Electronics recently invited dealers to the Holiday Inn, at London Heathrow for another of their excellent "Dealer Seminars". Introduced by host Ken Achard were Rick Grigsby from Peavey, USA and several interesting videotapes showing production processes. Rick Grigsby's talks were both informative and amusing. Among instruments shown were the T40 Bass and T60 guitar — a new version of the T60 with a sunburst finish and rosewood fingerboard, also hints of Peavey guitars to come: the T25, and the T15. The T25 has a structured foam body and is expected to retail around £230 with case. Some "Alem-bic"-style guitars are also in the pipeline.

techniques and technical information there was news of future plans such as a Mesa Boogie type combo.

From talk and tapes it became clear that one reason for the reliability of Peavey gear is the excellent relationship Harvey Peavey has built up with his workforce, who are really involved, through consultation, profit sharing and training schemes. Peavey workers can, after four years in the factory, qualify for a degree in Industrial Arts from Mississippi University — British Manufacturers/Open University please note!

Dick Middleton

Dick Middleton Music of 31 Quarry Street, Guildford, Surrey have recently expanded their range of merchandise to include Schecter guitar necks and bodies which they will be importing direct from Schecter in California. Schecter make all kinds of replacement parts and



Peavey's Rick Grigsby

Some of Peavey's newer amplification was also on view and dealers had the opportunity to question and comment. As well as useful hints on sales

accessories and started manufacturing the necks and bodies comparatively recently. For more information contact Dick on 0483 34537.

Kramer in Concert



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HI-FI FOR MUSOS

James McGill

sound field using binaural techniques is one of the more interesting new ways of creating a believable stereophonic spread. Prior to the development of JVC's Biphonic processor this was really only possible via headphones. The principle does however afford a graphic illustration of the mechanisms by which the brain takes clues from the arrival time of sounds at the ear, plus their phase and intensity, to recreate that approximation of real-life sounds we call stereophony. JVC's HM200 headset represents an entire binaural recording system, including mikes and headphone monitors in one package. Used as a system to record live sounds the effect can be startlingly lifelike — the mike capsules are each located in a recess shaped to simulate human ear flaps (pinna, to give them their proper name) and are, of course, exactly where the ears would normally pick up the sounds.

A 'surround sound' effect is, by this means, possible though only two channels of information are used. The effect is also limited largely to headphone listening — loudspeakers introduce a degree of acoustic crosstalk which reduce the effect. The main virtue of this example is that the success is based simply on a better understanding of the human hearing mechanism.

There are, in fact, quite a few specialist binaural recordings available commercially. The BBC have from time to time made binaural transmissions. For either of these all you need is a standard pair of headphones and a Biphonic Processor if you want a similar effect via your loudspeakers.

If the subject has interested you this far it looks like you will have to read the main article, won't you?

Professional users at a studio/live gig often require enough isolation from a noisy environment to be able to use headphones as a monitor. In the home a busy adjacent main road, the TV set or other room occupants might also make it desirable to cut oneself off in order to listen to music. In both circumstances a 'closed-back' design stops much sound leaking in or leaking out.

To provide a good bass response a closed-back headphone may need to exert considerable pressure against the earlobes. This should never be achieved at the cost of wearer comfort if the set is to be worn for long periods of time. Among closed-back designs those models which totally enclose the ear and rest against the head rather than merely pinning the ears back along a small contact area may prove more comfortable for long term listening.

Where background disturbances are not a major problem the feeling of being completely cut off from one's environment can be disconcerting — you may still want to hear the phone, baby or doorbell; all the companionable nuisances around you. Open-backed headphones are generally much lighter and do not require a heavy air seal against the ear for good bass. Many of the better open-backed designs use what is described in literature as 'high velocity' moving-coil drivers rather reminiscent of a microphone capsule.

Among the range of open-backed designs available there are also those which use a flat, lightweight 'film' diaphragm placed between two acoustically transparent magnetic plates. This category includes sets variously described as electret/ electrostatic, 'orthodynamic' and 'isodynamic'. The use of film diaphragms can result in very low distortion and low colouration. In common with all things no specific approach, of course, is a blueprint for success.

Most of the better designed open-backed headphones — and there is an increasing number of these — do not pin the ear back too uncomfortably. The heavier ear contact of closed-back examples is not necessarily a disadvantage. Where the pressure is evenly distributed about the ear/head things can still be very comfortable. More importantly, perhaps, the headband should be adjustable to fit vertically against the top of a wearer's head to take most of the weight and laterally to allow the earpads to follow the natural shape of the user's ears and head.

Apart from the matter of long term comfort, the prime frequency response of any headphone is critically affected, particularly in the bass end, by how good the fit against the ear is or — in the case of circum-aural types which enclose the ear completely — against the head.

Loading

It takes less than 1 milliwatt (1/100th) to produce a very loud or reasonably loud noise out of most headphones. Using these sort of energy levels, distortion is rarely an important consideration in headphone design if the colourations and other basic design parameters are competently handled. And as there is no acoustic 'cross-talk' between channels in the way speakers in a room mix sound, the channel separation and image definition via headphones tend to create an enhanced 'larger than life' effect. The recording has been engineered, of course, in most instances to provide adequate stereo separation via loudspeakers.

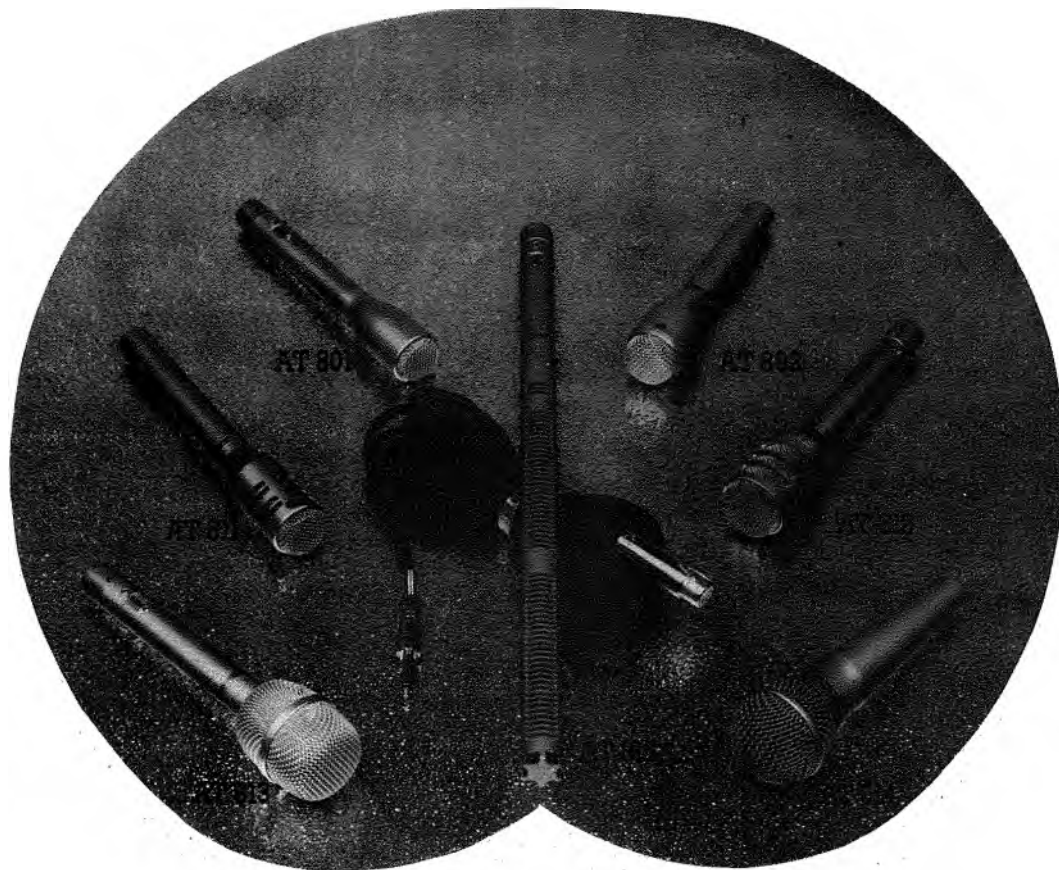
Low impedance headphones — below 16 ohms, say — stand a greater risk of coil burn-out resulting from too much power inadvertently applied at the amplifier. This could easily happen if the set was left plugged in and forgotten. Low impedance headphones can be useful for monitoring off tape recorders and from mixers where the levels of drive available are limited. Many modern amplifiers and tape machines place a resistance of around 300 ohms in series with the headphone output. A set with an impedance of 100 ohms and more will not have its maximum attainable loudness cut by as much as an 8, 4 or 16 ohm model under these conditions. Precise matching of headphone to amplifier/tape recorder input is rarely necessary and neither is it necessary to fiddle about too much finding a model to choose. Generally speaking it is simplest to choose sets with a medium or high impedance (i.e. — 100-3,000 ohms) for hi fi applications. The sensitivity/efficiency of the set is more important if it is to be used for monitoring off a tape deck or mixer.

An examination of the role of headphones in hi fi applications introduces a sort of nexus — a meeting of points, so to speak. The headphone shares a description common to the microphone, pickup cartridge and loudspeaker. Each of these is a transducer; making one form of energy out of another. Headphones and loudspeakers convert power into mechanical action while the converse is true of the pickup and the microphone — which transduce voltage out of mechanical energy.

Looking at the function of headphones one is also inclined to touch on the subject of psycho-acoustics (the way in which we perceive sounds) and the manner in which two sound channels have been used to create the illusion of stereophony. The role of the room environment, for better and for worse as far as sound reproduction goes, is another factor which must come to light in any comparisons between headphone listening and loudspeaker reproduction.

The very act of donning a headset implies a more intimate involvement with the musical programme and with the standard of reproduction the system is capable of — turntable rumble, circuit noise, frequency anomalies in the reproduction chain, tape or FM hiss are in each case all the more immediate, all the more noticeable.

The localisation of sources within a



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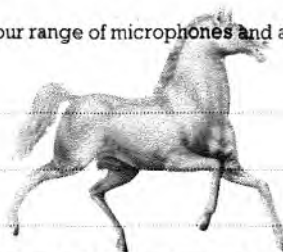
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HI-FI FOR MUSOS

JVC HM200E/BN5 Biphonic Processor

Just as the brain uses the information from both eyes to judge distance, sound localisation is most reliably determined with two ears. The bone and flesh between the ears (your head, this is) introduces slight delays or relative 'phase shifts' to sounds arriving from different directions. The contours of the outer ear assist this process to determine distance, height, etc of the sound source. So go current theories about the human hearing mechanism. According to this thinking, lower frequencies — sounds below 700 Hz, generally — have a longer wavelength than the distance between the ears and will therefore pass around the skull obstruction without giving away too many directional clues. Higher frequencies appear more directional because the skull to a certain extent 'shields' or attenuates a part of the sound reaching the ear farthest from the sound. The brain uses these sort of clues to determine where and what a sound is.

An important aim in hi fi reproduction is to re-create enough of the subtle clues found in a 'natural' sound field. But the fact is 2-channel stereo is no more than an elegant illusion at its very best. The sound emanates from a virtual point source — a loudspeaker radiating forward mostly — and does not provide the brain with enough cues to form a 'believable sonic impression of the 'real' sound'.

'Dummy head' stereo usually involves two microphones positioned together, the way the ears of a listener normally would be. These mikes might be worn in the ears of a listener or built into the modelled ear lobes of a dummy head in order to simulate the pickup of a pair of human ears. Played back on headphones the

chain is relatively intact — sound recorded at the left ear is reproduced at the left ear and the same for the right. Loudspeaker reproduction will normally destroy the effect by mixing some of the left information with the right channel in the manner orthodox stereophony works. To get a better binaural effect via loudspeakers, additional circuitry needs to be introduced which introduces delays and phase shifts. Such electronic modification is expected to cancel out the negative effects of acoustic crosstalk in the listening room. Here is the essence of JVC's BN5 Biphonic Processor. And it works.

JVC HM200E headphones £56, the BN5 Biphonic Processor £150.

AKG K80 'Cockpit'

A deluxe version of the £13 K40, the K80 is an attractive lightweight (220g) 'semi-open' design of 600 ohms nominal impedance. Its performance represents an average for units at this price (£20 approx). Its high sensitivity and good bass make this a good choice for recording as much as for hi fi.

AKG K240 'Cardan'

A central 'elocity' type moving-coil driver surrounded by no less than six auxiliary bass radiators this lightweight semi-open design again offers a 600 ohm impedance and a useful sensitivity. The large earpads enclose the pinna and seat comfortably against the head while elasticised stays from the headband self-adjust against the top of the head. Sound-wise an understandably powerful bass performance works with a receding treble to suggest a device equal to fairly loud monitoring without pain. The K240 is undeniably one of the very best at its price and above. £47



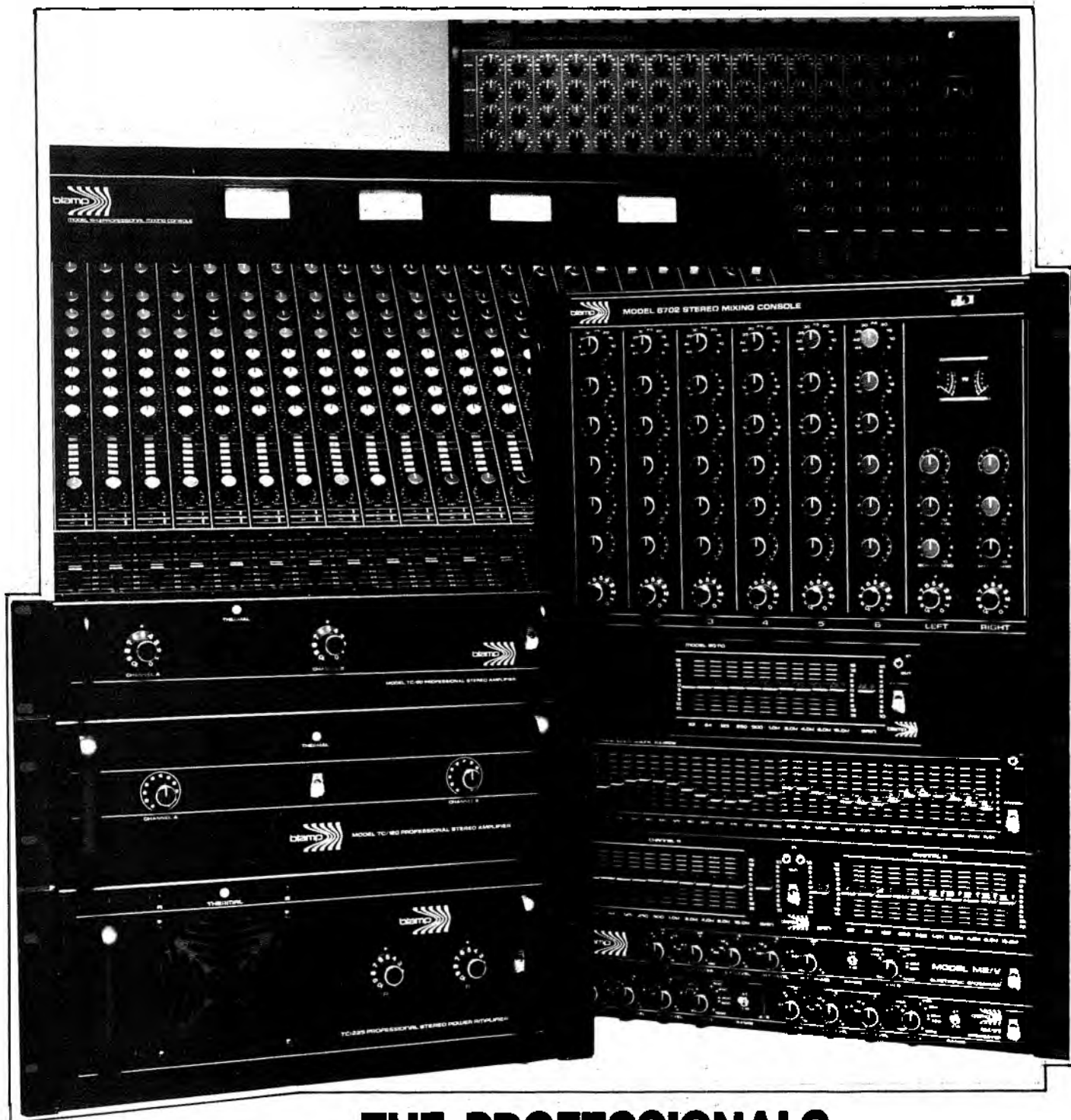
AKG K240 'Cardan'



JVC's HM200E/BN5 biphonic processor



AKG K80



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HI-FI FOR MUSOS

Beyer DT440

Open-cell foam earpads and an open-backed construction offer little sound isolation in a high sensitivity 600 ohm design offering a clean and 'easy' sound balance. Again a must to look out for among open-back designs for under £30.

Beyer DT220

A closed-back pressure-contact type equivalent to the DT440 offering a better bass than the 440. The cushioned earpads fit snugly against the ears though without discomfort. The DT220 seems to impart a more 'closed in' feeling than the 440 though it offers the same clean midrange. £33

Beyer DT100

An established favourite in the studio and for live monitoring the DT100 is a rugged closed-back design of 400 ohm nominal impedance, high sensitivity and a rather emphasised presence region. Used under conditions where there is a loud musical background the restricted bass performance is corrected by some leakage — which must be the intention. In the home a fair amount of bass boost seems necessary to re-establish a good balance. The set will accept this boost which makes it a versatile choice for someone who needs to wear more than one hat/headphone. £33

Howland West CIS 850

A skeletal semi-open velocity type of simple, clean lines and just as clean a performance. Not exceptionally comfortable if you have hard ears. £20

Howland West CIS 1500

Less than 200g in weight the 1500 is an open-backed 100 ohm design of average sensitivity and a response tailing off at both frequency extremes. The earpieces (less than half an inch deep) allow no adjustment in the lateral plane and should therefore suit people with relatively 'flexible' earlobes, otherwise these can become a little uncomfortable. £34

Koss Pro 4AAA

The third A is a more recent addition to the title of an established device out of the 'battleship' range from Koss. A marked midrange dip and a receding bass suggest in these 440g and 215 ohms headphones a design destined more for professional applications than domestic — similar conditions apply as to the Beyer DT100. A tight fit around the head and the Koss 'pneumalite' air filled ear cushion hardly contribute to comfort though the sound isolation and loudness potential combined with high sensitivity will appeal to some applications. £45

Koss Technician VFR

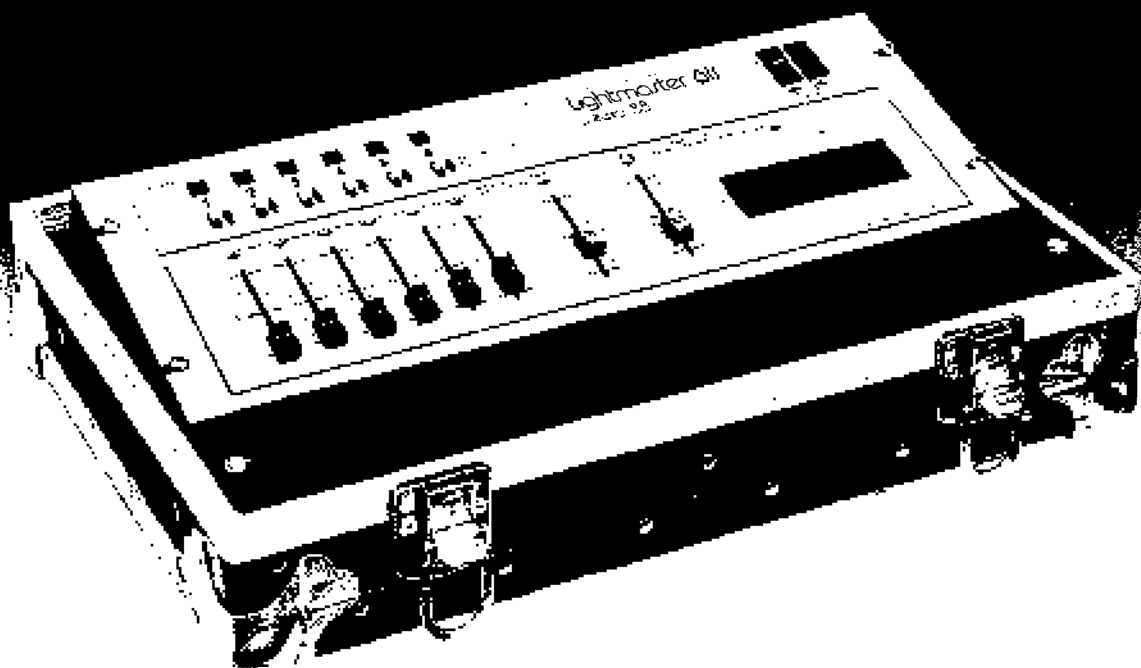
Again a good isolation from external noise these heavy (480g) headphones incorporate a variable frequency response adjustment (VFR) which cuts bass and seems to boost the midband and presence for professional applications. A screw insert for a boom microphone near the mouth is included for even more specialised application. Both the VFR and Pro 4AAA impart an impressive though very 'artificial' impact to midrange sounds — a virtue in monitoring though not necessarily an advantage for straight hi fi applications. £45



Howland
West CIS1500



Lightmaster 611



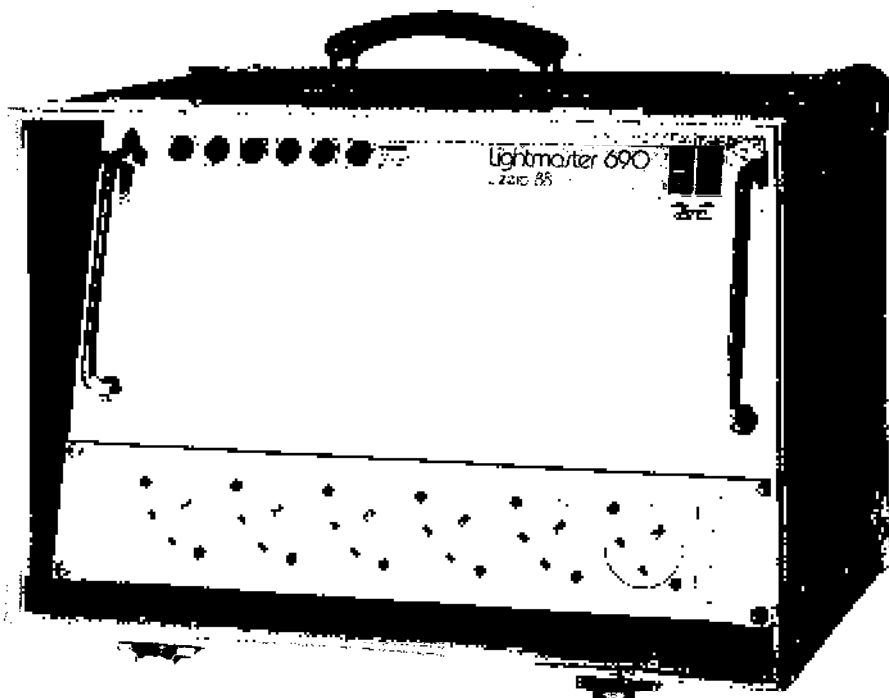
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HI-FI FOR MUSOS

Koss HV/2A

Developed out of one of the original velocity types introduced by Koss many years ago the HV/2A is a mid-weight (260g) 170 ohm semi-open, offering some attenuation of ambient external noise but a restricted loudness capability. On rock material the bass performance is quite superb, the response measuring down to the lowest musical octave — not many headphones manage this. Treble is quite prominent and this makes music sound subjectively 'louder' than it often is — not a bad thing necessarily. The headband allows adjustment in all planes though the open-cell ear pads feel a little precarious against the pinna. Much recommended. £19

Ross RE 257

A low impedance (8-70 ohms) and quite a low sensitivity make the 257 more applicable to hi fi amplifiers than to tape recorders with limited output. The design makes sonic results rather dependent on the wearer. Volume controls fitted to inexpensive headphones can be useful though possibly something of a liability when dust in the atmosphere enters the pots to turn them 'scratchy' and intermittent. These volume controls feel fairly robust. £25

Ross RE 272

Ross distribute a very large range of headphones at different prices. Their 'studio monitor' model 272 derives its very shallow profile from the use of samarium cobalt magnets which characteristically offer high magnetism for a reduced mass compared with more orthodox ferrite and ceramic compositions. Light at 160g the 272 offers a nominal 1,000 ohm load and only a slight pressure against the ears. Efficiency is average, though the sound has a prominence in the

midband which makes it difficult to attain loud sound levels comfortably without a midrange control at the amplifier. £36

Sennheiser HD 420

Bass response extending to around 40 Hz the midband clarity of the 420 has a lot to commend it. A 600 ohm impedance and average sensitivity is offered with these light (140g) headphones. In common with most of the output from Sennheiser these are an auditioning must if you find yourself in the market for a set at this price. £25

Sennheiser HD 424X

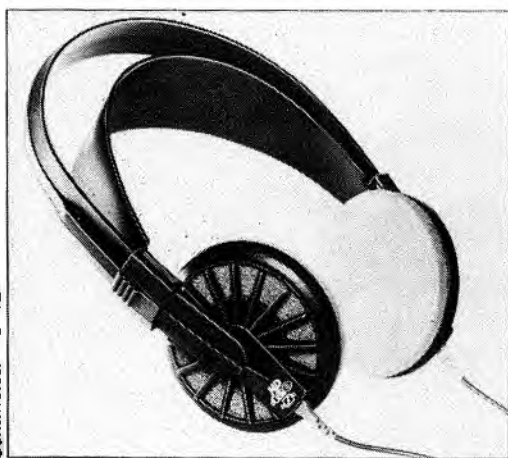
Classic value for £30 the HD424X is indeed an example to be emulated. Weighing in at 190g and possessing an average efficiency with a nominal impedance of 2,000 ohms, the 424X can be considered for most applications where discrimination against background noise is not an important consideration. As an open-backed design these only mute outside sounds. The quality of engineering is quite superb.

Stax SRX Mk3

If electrostatic loudspeakers offer less colouration, generally speaking, than moving coil units and headphones produce lower distortion than loudspeakers then the Stax SRX III is indeed a force to be reckoned with. Confirmed headphone users might quite literally substitute a good pair of electrostatic headsets for loudspeakers. Electrostatics usually need to be driven from loudspeaker outputs via an energiser. The SRX is capable of reasonable loudness, with an even midrange, good low bass and superb rendition of fine musical detail. One of the very best but expensive at £150.



Ross RE 257



Sennheiser HD 420



Sennheiser HD 424X



Ross RE 272

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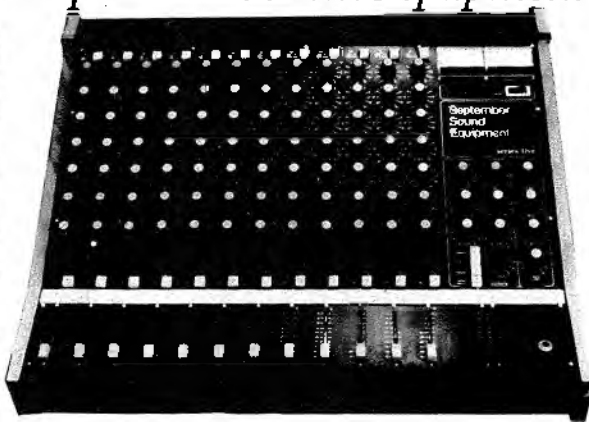


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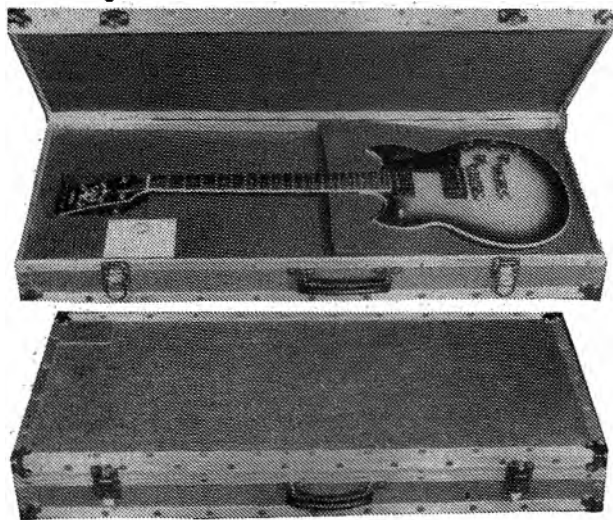
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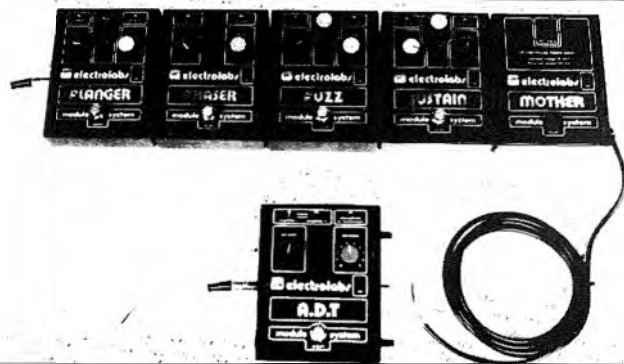
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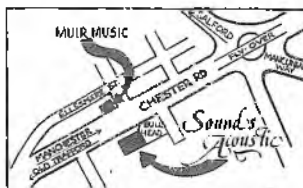
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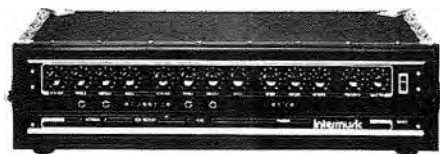
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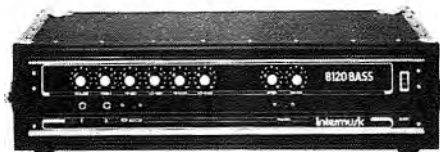
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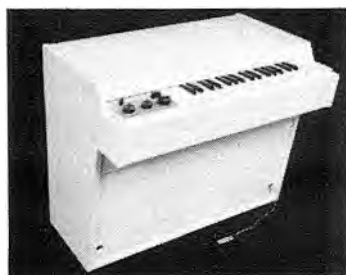
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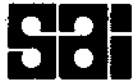
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tf	Transfer facilities
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- Wide cutaway for easy access to 22nd fret.
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Neck

- One-piece rock maple construction.
- 25½" scale with 22 frets.
- Available with flat 12" radius fingerboard (Sabre I) or oval 7½" radius fingerboard (Sabre II). Sabre I has jumbo frets, Sabre II has standard frets.
- Rock-hard Melamine nut for long wear and precision notching.
- Patented flat truss rod which allows more strength while providing thin neck size (800/1000ths inches front to back).
- Neck tilt adjustment for adjustable angle without the use of shims.
- Head designed so that strings pull straight across nut.
- Patented Music Man tuning keys (manufactured by H. Schaller). Tapered string post forces strings to lie flat against head for improved tension over nut.

Pickups

- Two humbucking pickups with 12-¼" magnets.
- Narrow pickup design provides increased picking space between pickups.
- The two pickups are each of individual sizes so that magnets are positioned directly beneath each string. There is no volume loss when string is bent away from magnet.
- Pickups are vertically adjustable for perfect tone balance.

Electronics

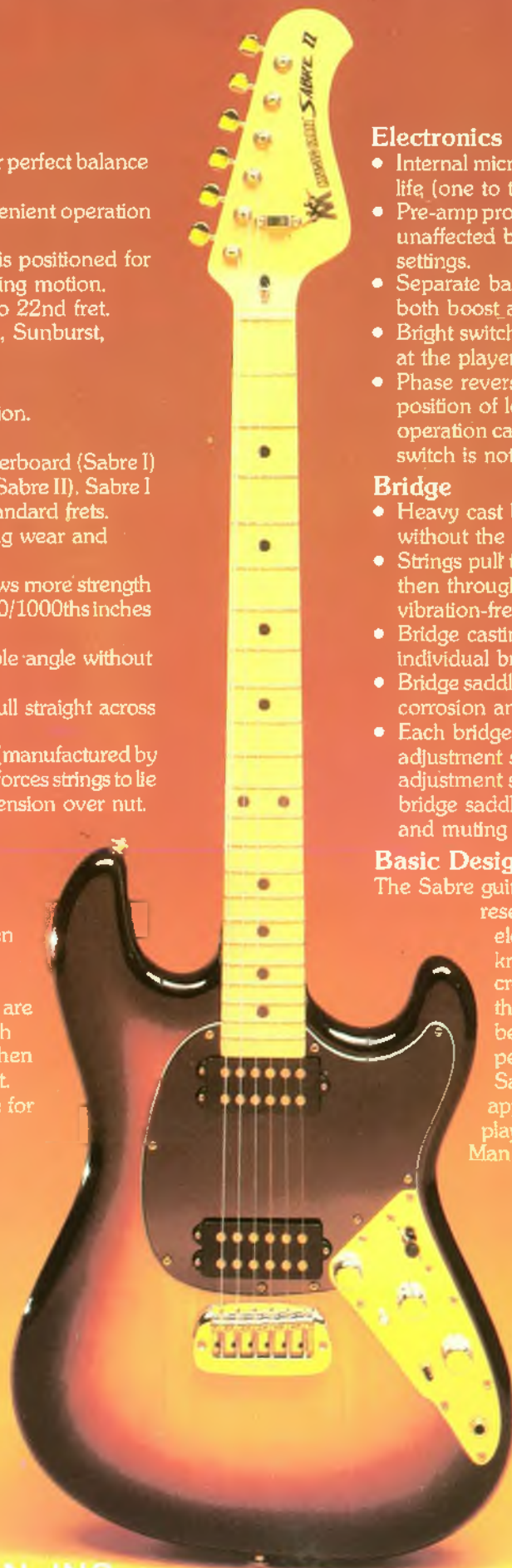
- Internal micro-powered pre-amp for long battery life (one to three years).
- Pre-amp provides low impedance output. Tone is unaffected by long cords or low-volume control settings.
- Separate bass and treble tone controls provide both boost and cut.
- Bright switch conveniently adds additional highs at the player's fingertips.
- Phase reversal switch for pickups works in any position of lever switch. Instant out-of-phase operation can be obtained even though the lever switch is not in the two-pickup position.

Bridge

- Heavy cast bridge provides excellent sustain without the need of a heavy body.
- Strings pull through from inserts in rear of body, then through bridge casting, resulting in rigid, vibration-free assembly.
- Bridge casting provides recessed well for six individual bridge saddles.
- Bridge saddles are made of stainless steel to resist corrosion and ensure long life.
- Each bridge saddle has two vertical height adjustment screws and one horizontal octave adjustment screw. All screws are recessed within bridge saddle avoiding interference with picking and muting styles.

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