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AND RECORDING WORLD

JULY 1979 50p

**We talk to the
people who book
the bands**

KEEP
MUSIC
LIVE

Larry Coryell

The Police

Jeff Porcaro

Laurence Juber

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Live Music Show preview

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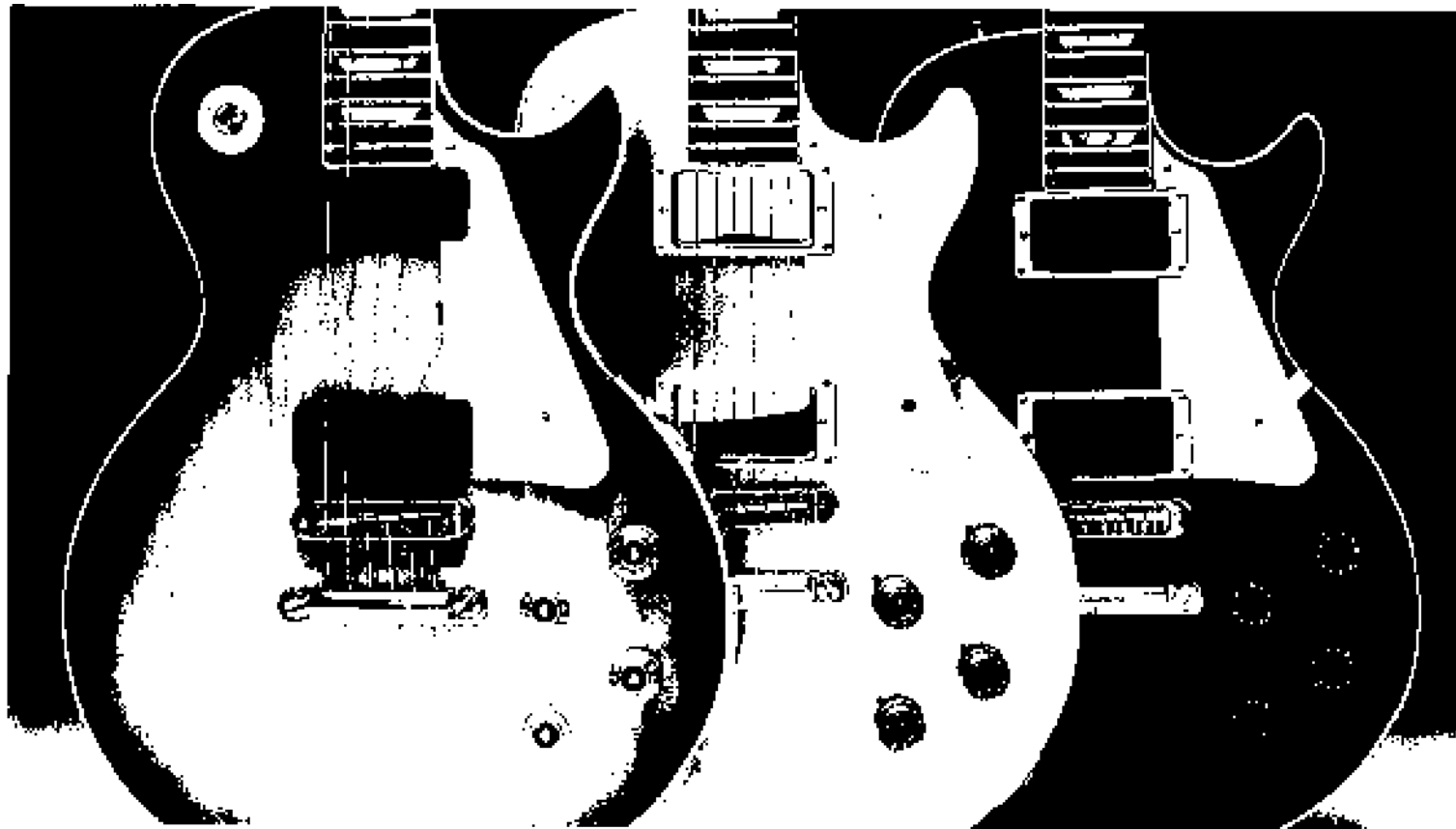
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Our words cannot truly tell you about the sound of the **Z PLUS**, so we urge you to hear it for yourself.

Anyone familiar with a screwdriver and a soldering iron can install a pair of **Z PLUS** pickups in his Les Paul. The instructions are simple and complete, including directions for 'coil splitting' using only the tone controls already in your guitar.

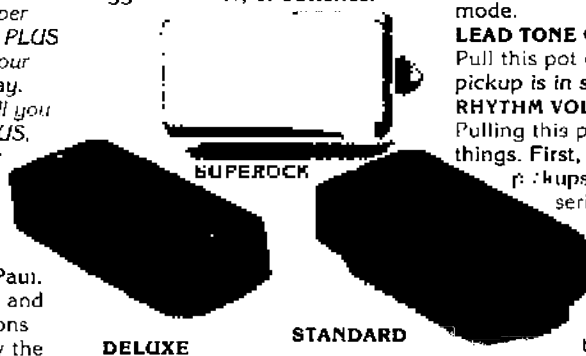
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Third, the rhythm pickup volume becomes a master volume control for both pickups.

LEAD VOLUME CONTROL—

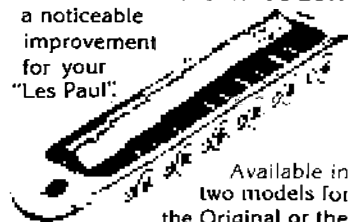
Pulling out this pot does two things. First, it puts the lead pickup out of phase in relationship to the front pickup. Second, it will select which coil is active in the single coil mode.

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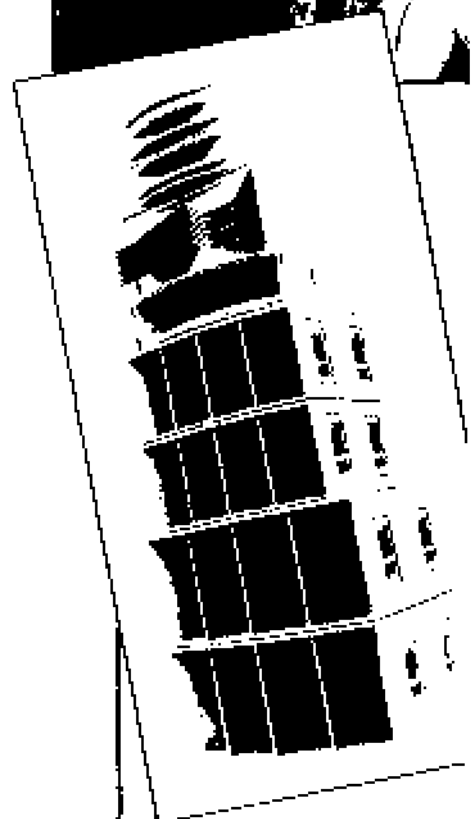
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EDITORIAL

This month's issue is certainly lively, in more ways than one. First off we take an in-depth look at the gig scene and question the people who actually book the bands. These, often faceless people, have the power of life or death for bands in areas where there is only one venue to play. Also we have an extensive preview of this year's British Live Music Show at London's Olympia, an exhibition which is a must for both dealers and musicians alike.

If you needed any incentive to attend, then the IM stand will be just that. All the magazine's experts will be there, including our master luthier Stephen Delft, and we will be giving away thousands of pounds worth of equipment in a series of competitions, which can't be bad in these post-Budget days.

Speaking of the Budget, this issue was put together during the Chancellor's deliberations, and we have, where possible, put the up-to-date VAT price on the equipment we have tested. However, if you are thinking of buying any of the items under review, it would be advisable to double check the price with your dealer.

No reminders are needed of the effect of the increase in VAT on musical equipment, which puts value for money at the top of any musicians shopping list. Therefore, our reviews take on even greater significance so make sure you read before you buy. See you at the show.



Vol. 5 No.7
JULY 1979 (UK)
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A STATEMENT TO MUSICIANS ABOUT & ARP

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Major demonstrations of ARP products will be arranged in the near future for musicians. Watch page 96 for further details.

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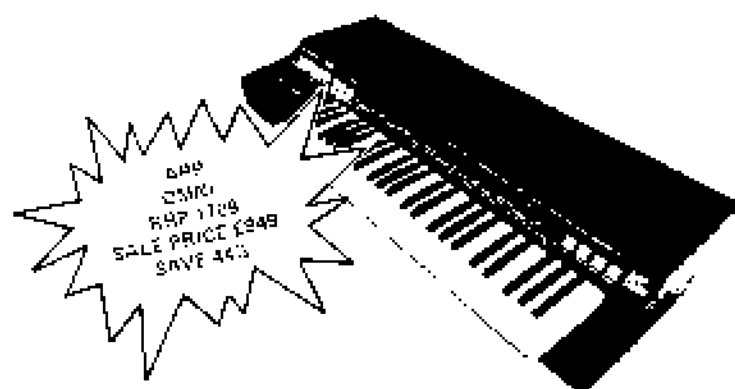
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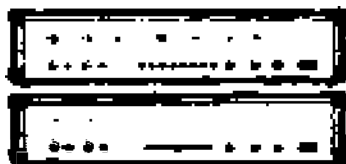


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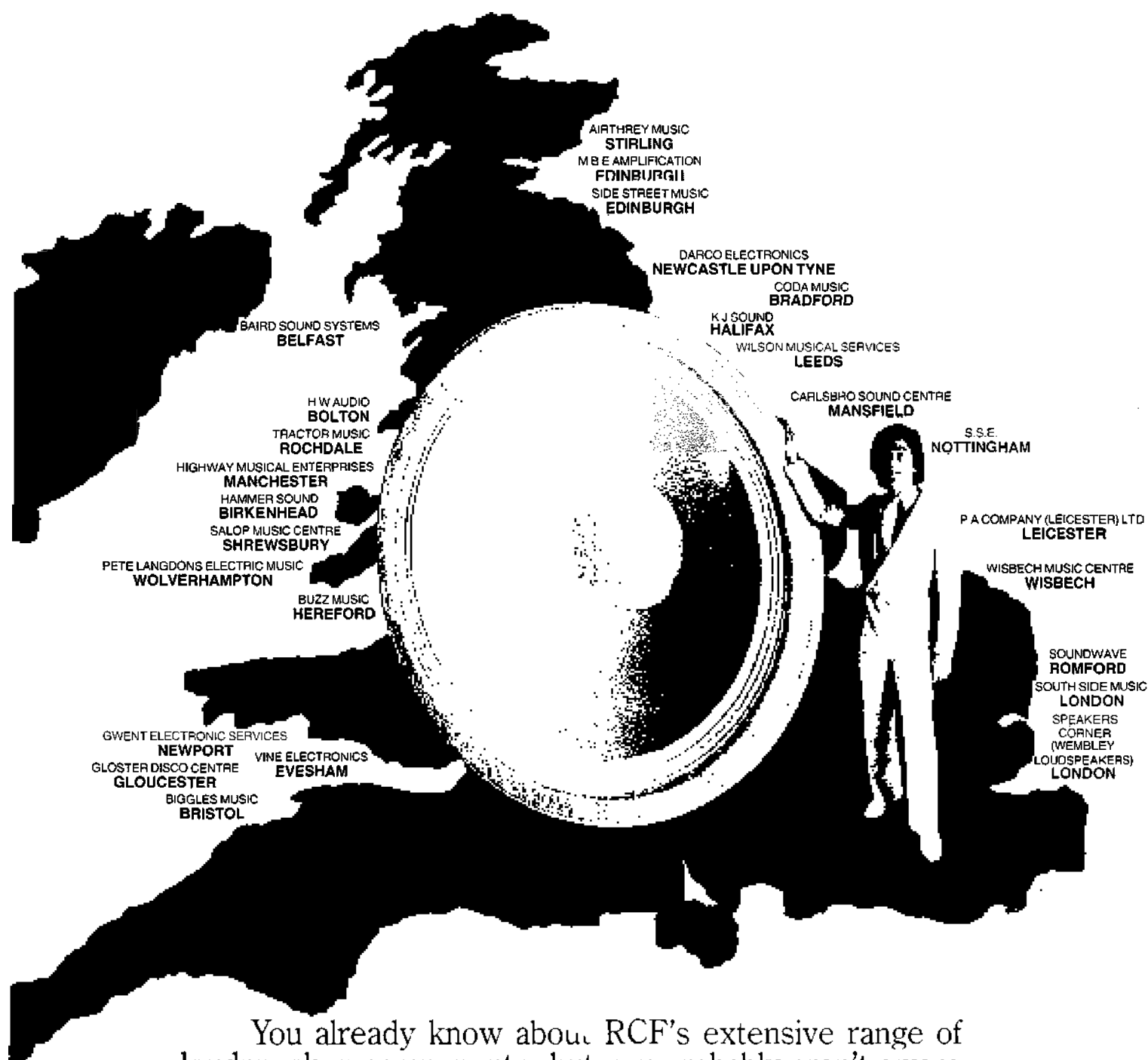
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Letters

Putting Pat straight

Dear Sir: I have to congratulate you on producing, what I consider to be one of the best contemporary music magazines on the market. With reference to your interview in your May edition with Pat Travers, the only conclusion I came to was embarrassment for him.

I refer mainly to his comments on Al DiMeola; Travers was right, he should not have put him down. Whether he appreciates DiMeola's style or not, Travers as a "musician" must be able to appreciate his musical ability. I'm sure he didn't spend three years at the Berkeley School of Music, merely playing scales" (although scales are a fundamental part of the art of guitar playing) and then go on to win the respect of such great musicians as Larry Coryell, Chick Corea and Paco De Lucia, to name but a few.

How he can comment on such a fine musician or even begin to discuss the subject of music, when it took him a year to discover what time signature the title track of his new album was in, "If you can dig that". Not for one moment do I mean this letter to be of a defamatory nature, obviously Pat Travers gives his followers what they desire. Perhaps, in future he will realise that some of us out here are familiar with the technicalities involved with music and playing.

G.B. West,
Wootton Bassett,
Swindon.

More about Moore

Dear Sir: I would like to thank you for a great magazine, although I have got something to criticise. I think your magazine has too much advertising (about 90 per cent of the magazine, I think). I also think you concentrate a bit too much on punk and new wave. (Personally I'd prefer more jazz).

I'm also writing about the comparison of Gary Moore and Jeff Beck. Music is (or at least should be) a matter of art and playing-what-you-feel (which I think very few musicians really do). It is not a competition to see "who-can-get-the-heaviest-sound" and "the-fastest-playing." The sound and technique etc. are essential to the music, but comparing musicians is silly. It destroys the real meaning and joy of music.

Bjorn Bolstad,
Oslo,
Norway.

Anyone for D.I.Y?

Dear Mr. Delft: I am writing with regard to your D.I.Y. article "Build a solid

guitar". I have followed the articles with great interest, but I have not yet had a go as I would like a bit more experience with tools. I know you are a busy man, and have a business to run but would you consider reviewing some of the home made guitars in *IM*. You could ask readers to send in a photo and description narrow them down to say ten, and have ten monthly reviews *IM* could offer a prize for the best one. So what do you think?

Geoff Gardners
Sale
Cheshire

P.S. Thanks for the interesting and informing reviews and D.I.Y projects.

Stephen Delft replies: Thank you for your letter. I would certainly consider a feature on guitars which readers have made themselves, and some sort of prize or prizes for the best efforts would seem to be appropriate. If other readers are interested in this idea, would they please get in touch with us.

Ringing true

Dear Sir: In his letter to *IM* (June, 1979) referring to my description of the ring modulator in *Understanding Synthesizers Part II*, Mr. Franklin pointed out that the name of this module originally derived from the configuration of the electronic components in the circuits which were used at the time. Whether or not that is the case, the term "ring modulator" has undoubtedly been retained by synthesizer manufacturers even when circuit designs have drastically change because it is descriptive of some of the effects which the module can produce. So although I did not describe the historical source of the term, I would maintain that a synthesizer's ring modulator is still today "so-called because it can be used to synthesize bells, chimes, gongs and the like."

Tony Horsman, BA, PhD,
Croft Cottage,
Linton-in-Craven,
North Yorkshire.

Sheet Sabbath search

Dear Sir: After reading the April issue of your magazine, I remembered one of the letters about sheet music, I wondered if any of your readers could help me in regard to sheet music. The books I am looking for are *Black Sabbath song book* and the *Black Sabbath Vol. 4 song book*.

As I live in Cyprus, the only way to get songbooks is through the 'Music Sales Ltd' mail order system, and as they say these two book are out of print I was

hoping one of your readers might be willing to part with them

Wilton MT.,
RAF Akrotiri,
BRPO 57.

Orange Alert

Dear Sir: Regarding S. Groves' letter (March '79 issue) I must agree that the "little orange box," does nothing but ruin a bands performance for both the band and the punters. I have been playing professionally for three years with "Black Lace" (The 1979 Eurovision entry) and another seven semi-pro, and have come across this "thing" many times.

In my experience a nice chat with the guy in charge explaining matters can sometimes stop the thing working and a pint or two stops it working on future gigs at that venue. If this fails, get together with the rest of the lads in the band and decide whether or not you are going to play or how many times you are going to let the "thing" cut you off before you pack up and go home, remember the money from one gig is not worth the reputation of "A Really Crap Show."

Apart from "Mary Ann", Black Lace do play a wide range of numbers from "Somewhere over the Rainbow" to "Killer Queen" and "Bohemian Rhapsody" and for some unknown reason the "thing" inevitably cuts off in a quiet passage (strange!).

C. Routh,
Ossett,
W. Yorks.



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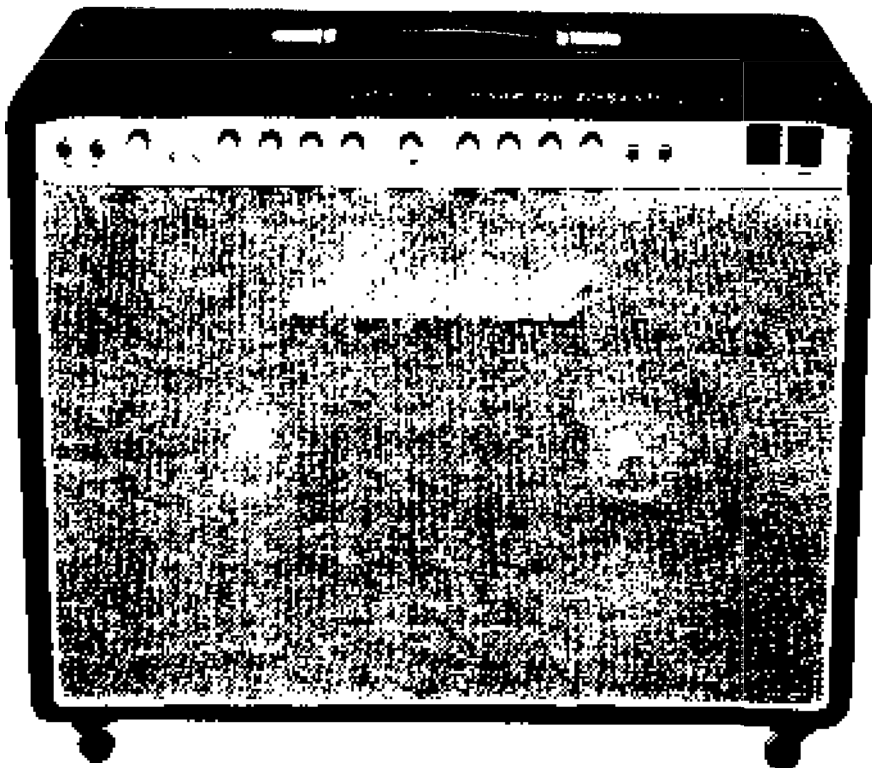
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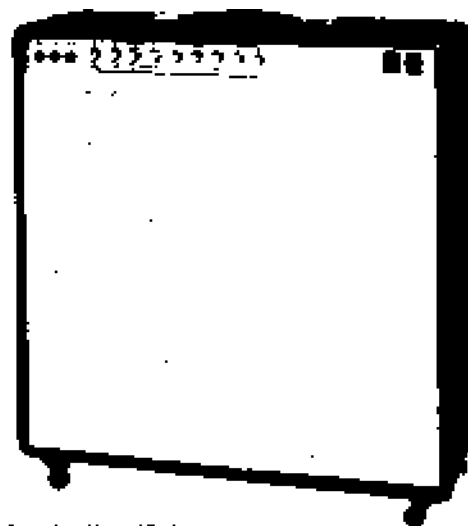
It took years of exhaustive research and development to produce this, the ultimate club musicians combo.

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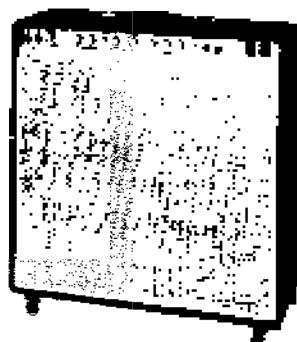
The Marshall 4150 Bass Combo

Designed to complement the new Club and Country combos, the 4150 is an entirely new bass combo, which features an all valve 100W amplifier driving into 4 x 10" (25.40cm) 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, mid-high presence circuit and built-in compression 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.



The Marshall 4145 Combo

Utilising the same amp section as the 4140, this combo has four new 50W 10" (25.40cm) Celestion speakers to give a rich but biting sound. 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.



Please send me more information about Marshall Country Combos.

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The Marshall 2144 & 2299 Combos

Two further adaptations of the Combos range are the 2144 & 2299 versions. Both providing top performance and the reproduction associated with Marshall amps. The 2144 incorporates 2 new features. The first enables a wide range of clean reverberation from the Hammond reverb circuit, and the second is the facility to allow preset at 2 levels – before and after distortion, with the new boost circuit. The 2144 operates on 120-240 volts AC and drives external speaker configurations of 4 or 8 ohms impedance, both reverb and boost are controlled from twin foot switch. For ease of handling and setting up it comes mounted on 4 skids and a carrying handle. The 2299 is a superb amp giving a wide range and versatility – ideal for club and group work. The Hammond reverb circuit is controlled from a front panel. The whole unit operates on 240 volts AC.



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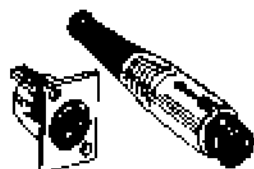
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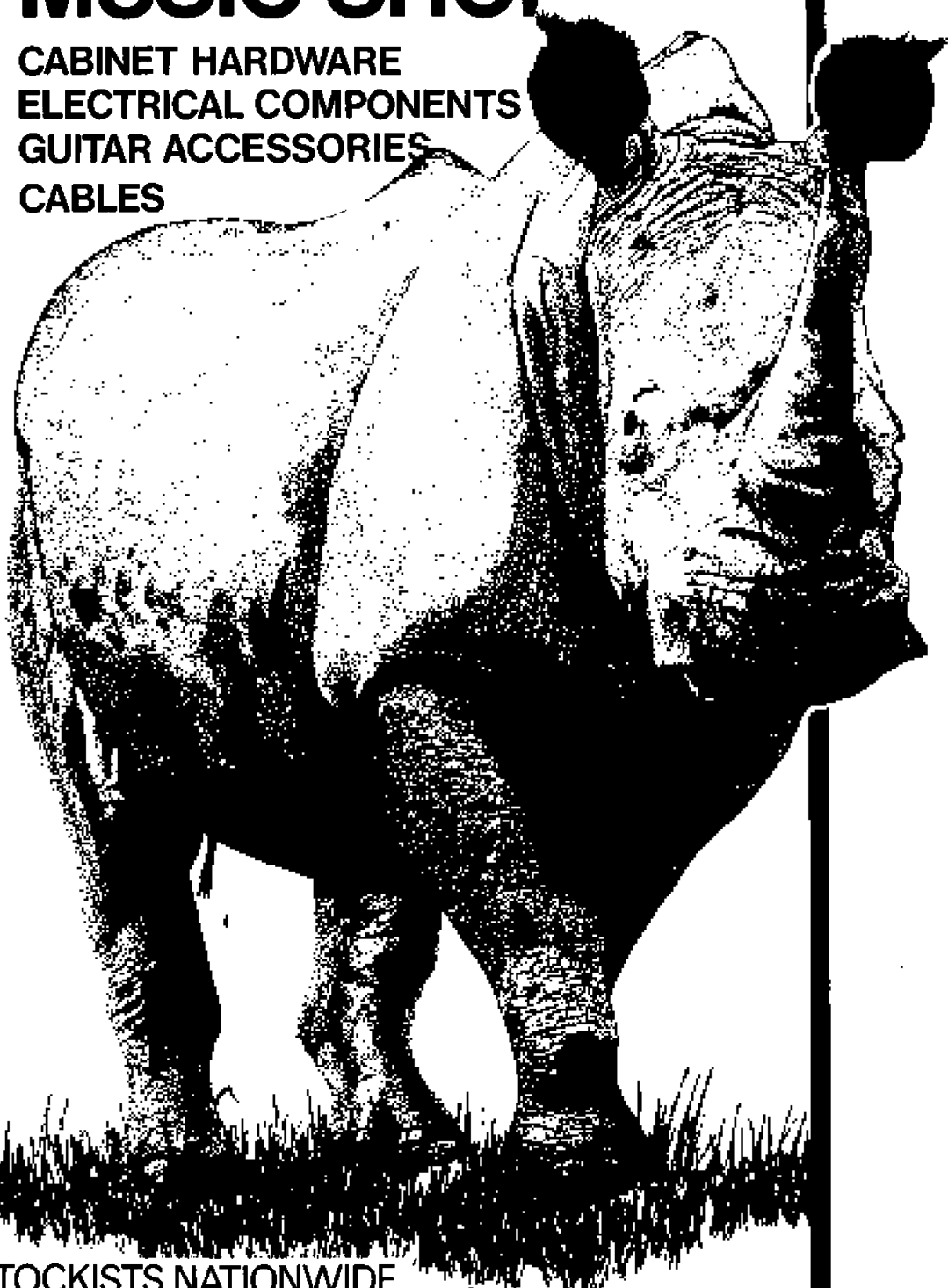


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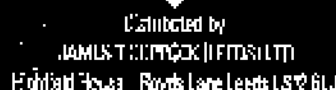


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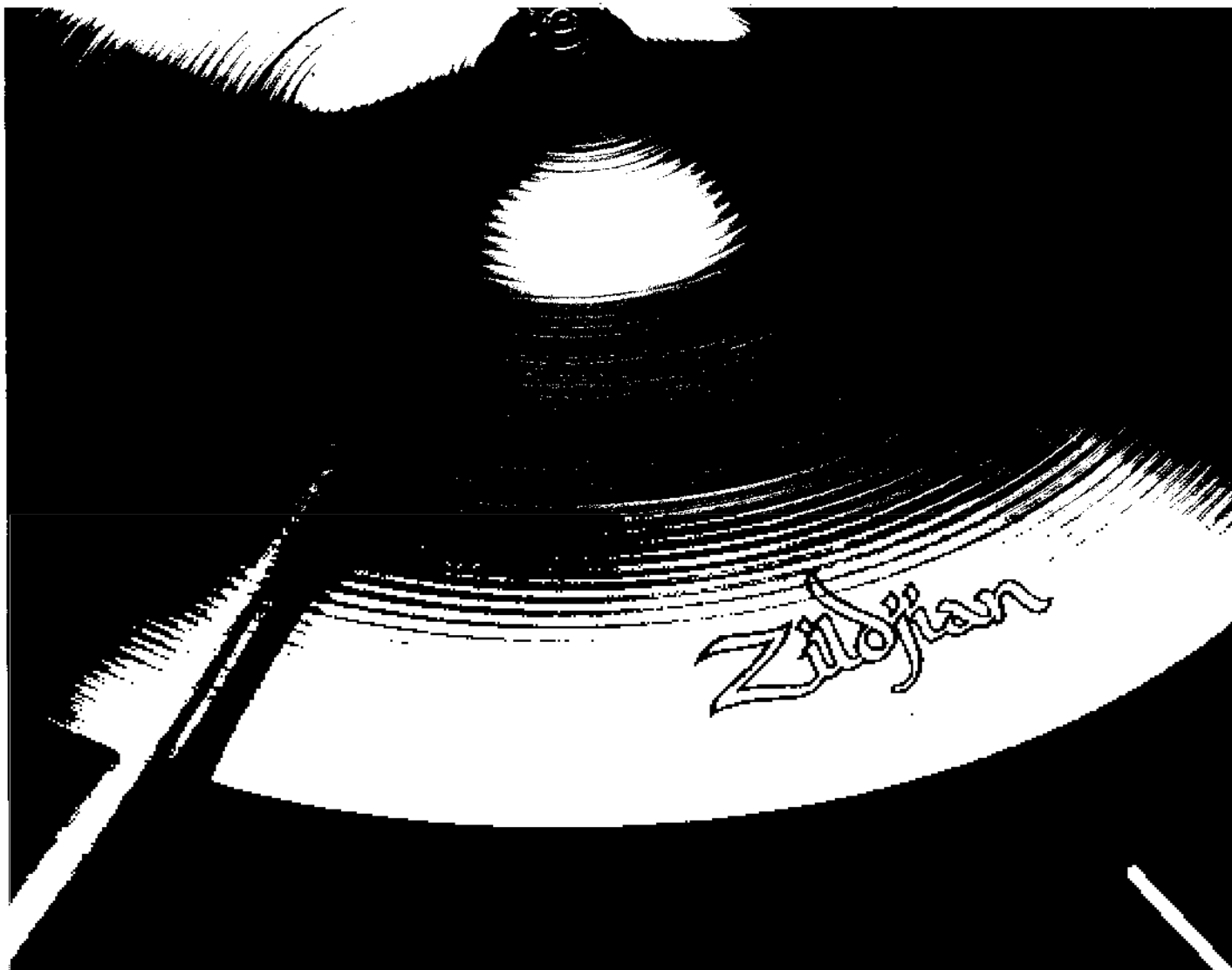
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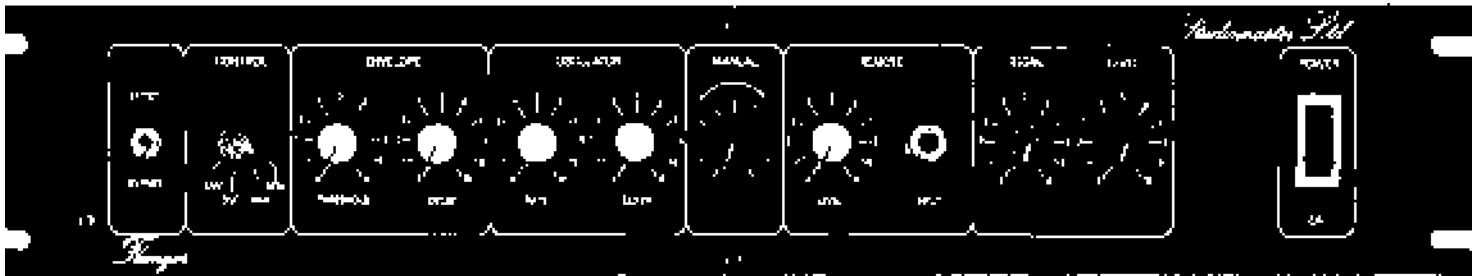
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Control: 4 modes of voltage control are selected by this switch; Envelope, Oscillator, Manual and Remote.

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).

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Input Level: maximum +20 dbm
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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%
delayed 0.5%

Output Level: adjustable up to +12 db

Input Impedance: 600 ohms unbalanced

Output Impedance: 600 ohms unbalanced

Frequency Response: direct 20 hz to 20 khz
delayed 20 hz to 10 khz

Signal/Noise Ratio: better than -70 db

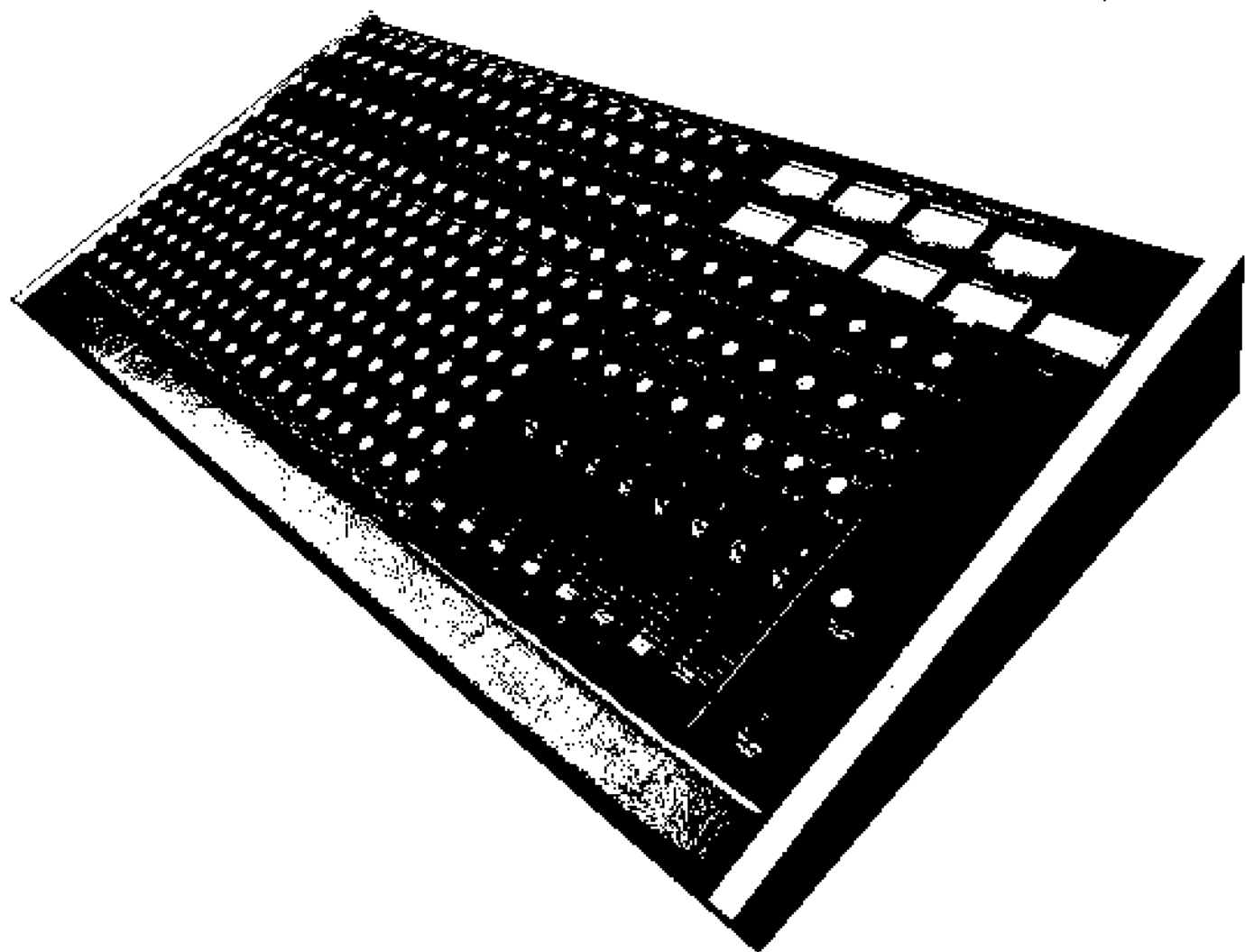
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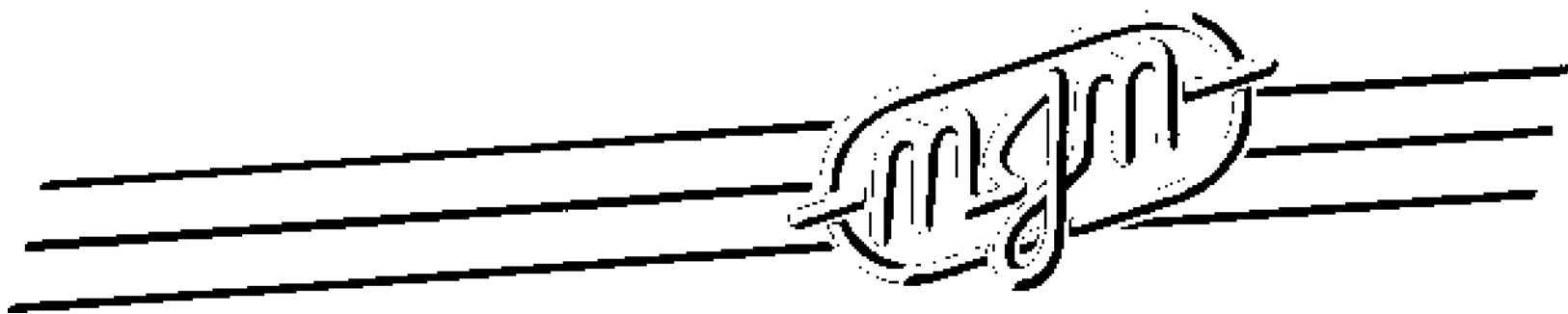
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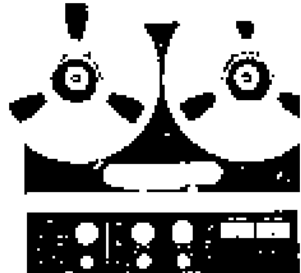
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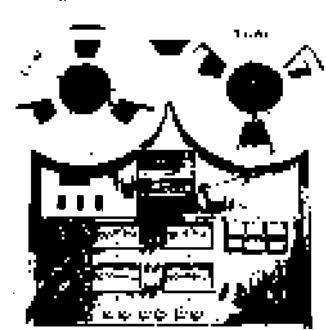
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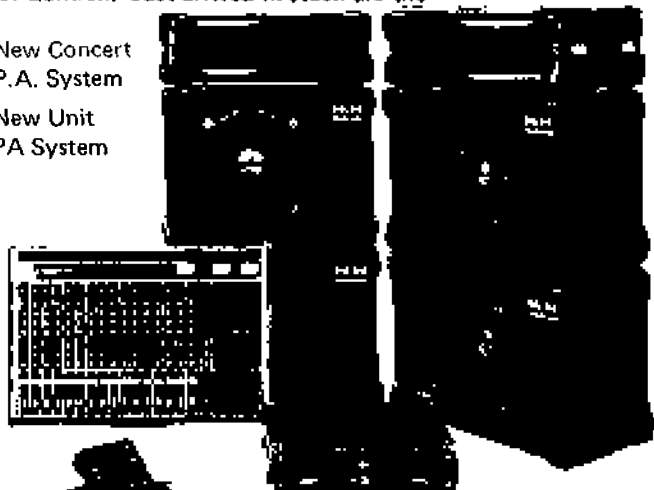
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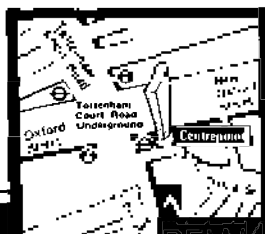
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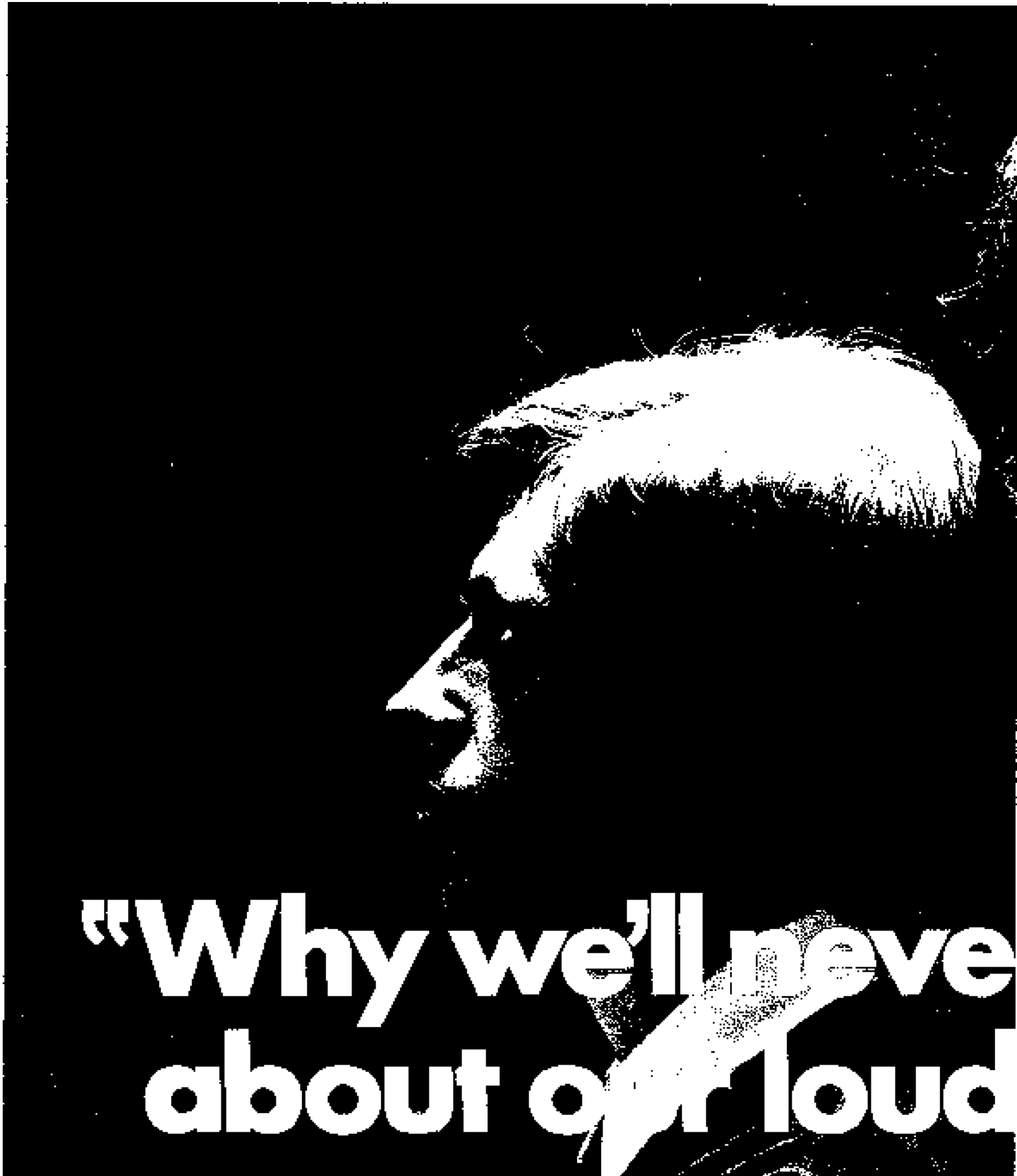
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Billy: "We're not going to make as many
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Hans: "What?"

Billy: "Well, we can't go on like this. I want to
slow-up the production line for a while."

Hans: "What for?"

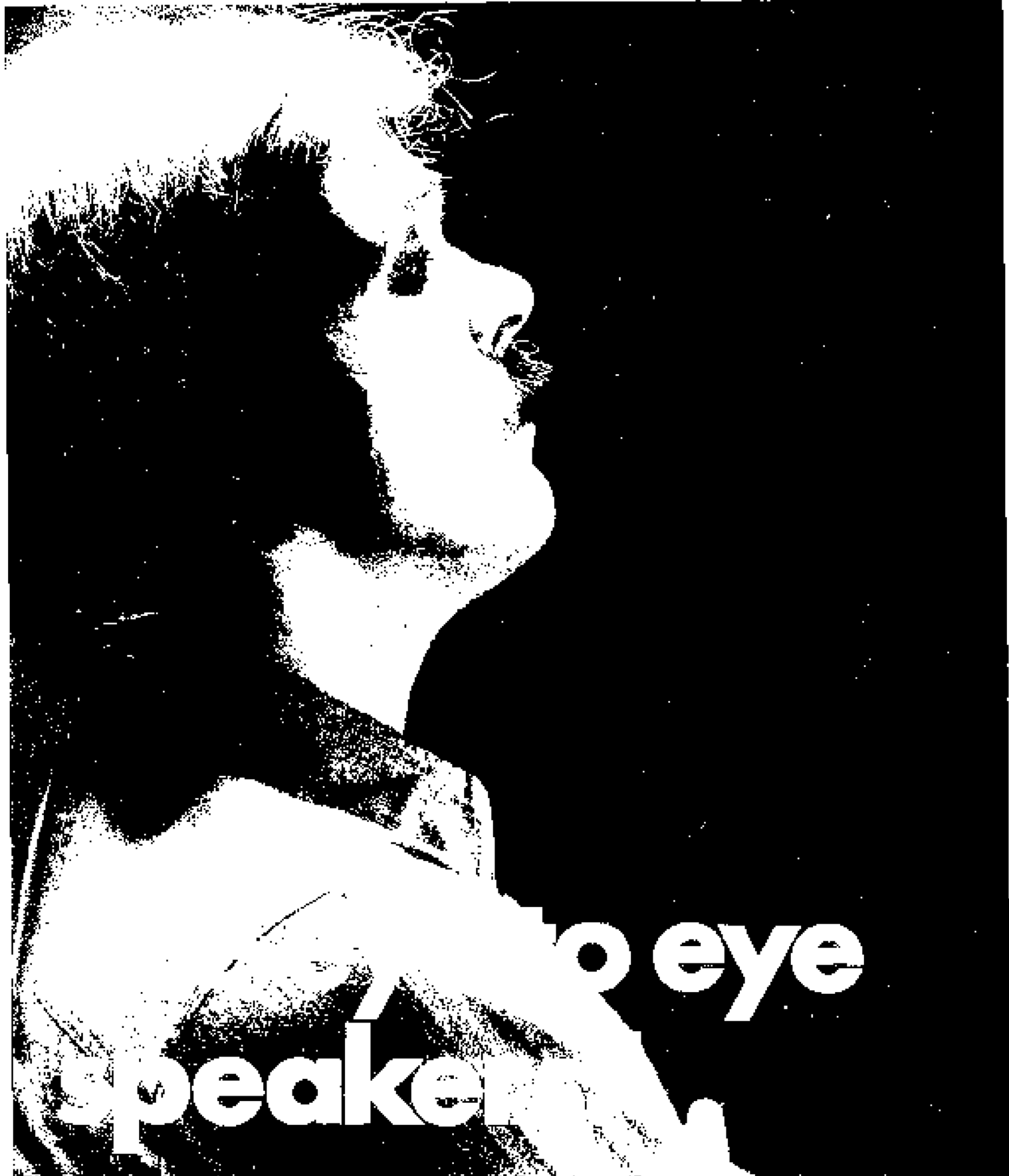
Billy: "Remember the old days? I used to watch
every speaker come off the end of the line."

Hans: "Oh yeah!"

Billy: "Seriously, we were up till all hours but I
checked every one of them."

Hans: "But there was only the 12" unit and people
weren't exactly beating down the door.
Now there's the 9" and the 15" and studio
monitors."

Billy: "I know, but each piece must still be
checked and I want to spend more time
on the 'line.' Maybe there is another
improvement to be made."



Hans: "But the factory is running very well. And I've got more orders than we can fill now. And we're getting more from all over the world."

Billy: "I rejected yesterday's output you know."

Hans: "You what?"

Billy: "Well, I just wasn't very happy with them. We can do them again tomorrow."

Hans: "OK, I know what you mean. We've got our reputation to protect. I'll phone the customers."

Billy: "They'll understand. We're only doing it for them."



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MAYALL ACQUAINTANCE

**David Lawrenson meets
the never-to-be-forgotten
blues man**

Keeef Hartley, Jon Hiseman, Dick Hecstall-Smith, Jimmy McCullough . . . the guest list reads like a Who's Who of the British Blues Boom. Closer inspection of the names reveals a common factor among them all, at some time or another they were all employed by John Mayall.

Like an Old Boys re-union, they have all come to see their old gov'nor, who is making a brief visit to this country with a couple of gigs at The Venue in London. After an absence of two years Mayall, a Californian resident for the past decade, is back with a new album *Bottom Line*, a new label, DJM, and a new band.

The music, too, is different; gone is the legendary blues crusader who brought forth such a legion of talented musicians. He doesn't want to talk about all those famous lead guitarists, and hates being called the Father, Godfather, Grandfather or anything of British Blues. For him all that was in the past, now he is more concerned with modern Mayall music.

If there is anyone out there still clinging to the memories of his old *Bare Wires* album, then the current Mayall is likely to disappoint. His long sojourn with Uncle Sam has taken its inevitable toll, and John admits that his music is now the product of his American influences.

"It would be easier to categorise it if we were in the States because it is the flavour of what people are listening to over there, that is a major influence on what I play. Over here, it's hard to tell what people are listening to on such a brief visit, it seems punk rock orientated and a lot of reggae.

"The US is a big country, the music, rock 'n' roll, country, it's all mixed up and the jazz players are now playing funky stuff. A lot of the musicians on my album work on the best people's albums, so it's pretty much an American music.

"Over there, there's no controversy at all, but over here there is because they can't get this old 'father of British Blues' image out of their minds. I expected that in Europe there would be some sort of shock waves but there you are. I'm not changing. I'm going forward not backward."

The music reflects a number of styles and is more like the middle of the road American rock music than the driving blues which were his trade mark. The line-up is quite large utilizing horns, a range of keyboards and a female vocalist. John is aware of the criticism he is likely to get from his faithful British fans and critics but has been around long enough not to let it bother him unduly.

"Of course there are a lot of people saying, 'This isn't John Mayall, what's going on here?' But you see that's what I'm doing now. I've always run up against obstacles, it's very fashionable with all these critics to be knocked. Whatever I do, there are always those negative or abusive reviews of any album I do, so you can't please them all and I don't intend to.

"I tend to please the audience I'm playing to, there's always a new audience. You lose some of the hard core blues followers, but their places are taken by people who couldn't care less, all they want to hear is rock 'n' roll."

Still, Mayall sports one relic of his Sixties days, the guitar which adorned the *Diary Of A Band* albums and became one of his trade

marks. "It's the same old one which I originally got from Mick Taylor for £40. It's a Strat, a pretty old one, when I bought it from Mick it was old and that was in 1967, so it's got to be about 20 years old.

"I chopped it into pieces, carved it and cut it down to size so it looks like a piece of Swiss cheese. I cut it down weight-wise with the strap over one shoulder so I could get it off and on without tangling my neck up in it. It's real lightweight and small, but the actual neck and controls are original. It hasn't made any difference cutting it in half."

John found himself playing more lead guitar on this tour as a result of an accident involving his regular guitarist. "Normally I play lead guitar on some of the numbers and James and I would do guitar duets, but it's mainly rhythm. Then in Barcelona a couple of weeks ago James was on stage playing guitar and he hit the microphone and there was a big blue flash which blew all the amplifiers. The stage had a metal floor and James just keeled over, he nearly died so he had to be sent home.

"So now I'm taking over lead guitar as well as clavinet and harmonica, so it's quite interesting. Of course I'm no Eric Clapton, I'm more primitive than that. There have been certain guitarists that I've had, who haven't encouraged me over the years and I haven't even thought about it. But over the last few years I've gained a lot more experience about everything.

"I learned a lot more about myself in relation to audiences, so I get up off my piano stool and I'm being a lot more physical about the whole thing. Working with James has encouraged me, we have a lot of fun together. It's very hit and miss, sometimes it comes off and sometimes it doesn't, but at least I'm not scared to have a go now."

A full range of Hohner harmonicas still accompany him on stage, but that other trusty old friend, the Hammond organ, is a notable absentee. John explains that this is largely a case of practicalities. "It's a very cumbersome instrument and I haven't played it for at least 10 years on the road.

"I've used it on tracks for albums occasionally, but I'm obviously very rusty on it. It's different from other keyboards, there's a different feel, and it's all those pedals and a million knobs. It is very impractical to take on the road and it wouldn't fit in the type of rock 'n' roll show that I have.

"The clavinet I don't have on the regular legs because I stand up to play it, so I've carved these wooden legs which are about six inches higher. They are a bit wobbly and battle scarred, but it means that when I'm playing it's just a thin little piece of keyboard and people can see me. Then my guitar is over on my left hand side which means I can grab the guitar over my shoulder, I can play something on the keyboards, or guitar, leave that strapped around my neck and pick up the harmonica, so it's like a three ringed circus."

Following on from that, it seemed rather logical to ask him if he ever thought of doing a solo blues album or perhaps going out as a solo performer like many of the old blues giants. The answer comes as something of a surprise.

"No, absolutely not, because I've never been a blues musician as such. I've always had bands, and working in a structure like that, I've never been a soloist. I think if you're a blues singer like Muddy Waters, he could get his guitar and make endless albums just singing the blues. John Lee Hooker could do the same thing, and Johnny Winter can do that, it's certainly an old tradition, but if I have to sit down alone, I got to pieces, I need a rhythm section, musicians to spark off from.

"Davey Graham was the first guitarist that I worked with and he always worked solo acoustic guitar. One of the things he said to me was, 'It's great working with a band, because all the time you're playing to yourself when you're a soloist, there's only so far you can go with that. But if you're working with somebody, there's an interchange of ideas and stuff so it's a different thing. I'll stick with bands, I'll be a bandleader and an entertainer.'"

Despite his many years on the road, John still enjoys touring, although the reason for this lies in the fact that he doesn't have to do it, and he can pretty well pick and choose what he does and does not do.

"It's not a necessary evil, I regard touring as a lot of fun, I treat them as adventures. I really like it, otherwise I wouldn't do it, in fact I wouldn't do any of this. I've made enough money and I could retire tomorrow, but I just love going out on the road. It's great to come home again, have a nice rest and then you're ready to play again. Playing is what it's all about, there's nothing like it, unless you're in a band that hates each other, and that's no good at all."

During his short visit to Britain he had managed a few days up in his native Manchester to see family and friends, but a wet and windy Manchester or even London couldn't really rival California as a permanent home. He could not see himself returning to Britain to work or record.

Still, John was pleased with his first show at The Venue and was looking forward to the second. "The first night was really wild, I was talking to someone who works there and he said it was the best reaction he'd seen from an audience, which was rather encouraging. Everytime we get on stage, wherever it is, it is my goal to get them involved. I was a little nervous last night and the adverse reviews didn't help but coming into contact with the audience was no problem at all because The Venue is a real cosy place — large but cosy with a good atmosphere and we had a ball. Tonight I think we'll have a few notables from the British contingent of musicians who've worked for me and been associated with me and we'll have a nice party afterwards..."

And I must admit, when I got home I couldn't help putting on an old Bluesbreakers' album and listening to what, for me, will always be what John Mayall is about.



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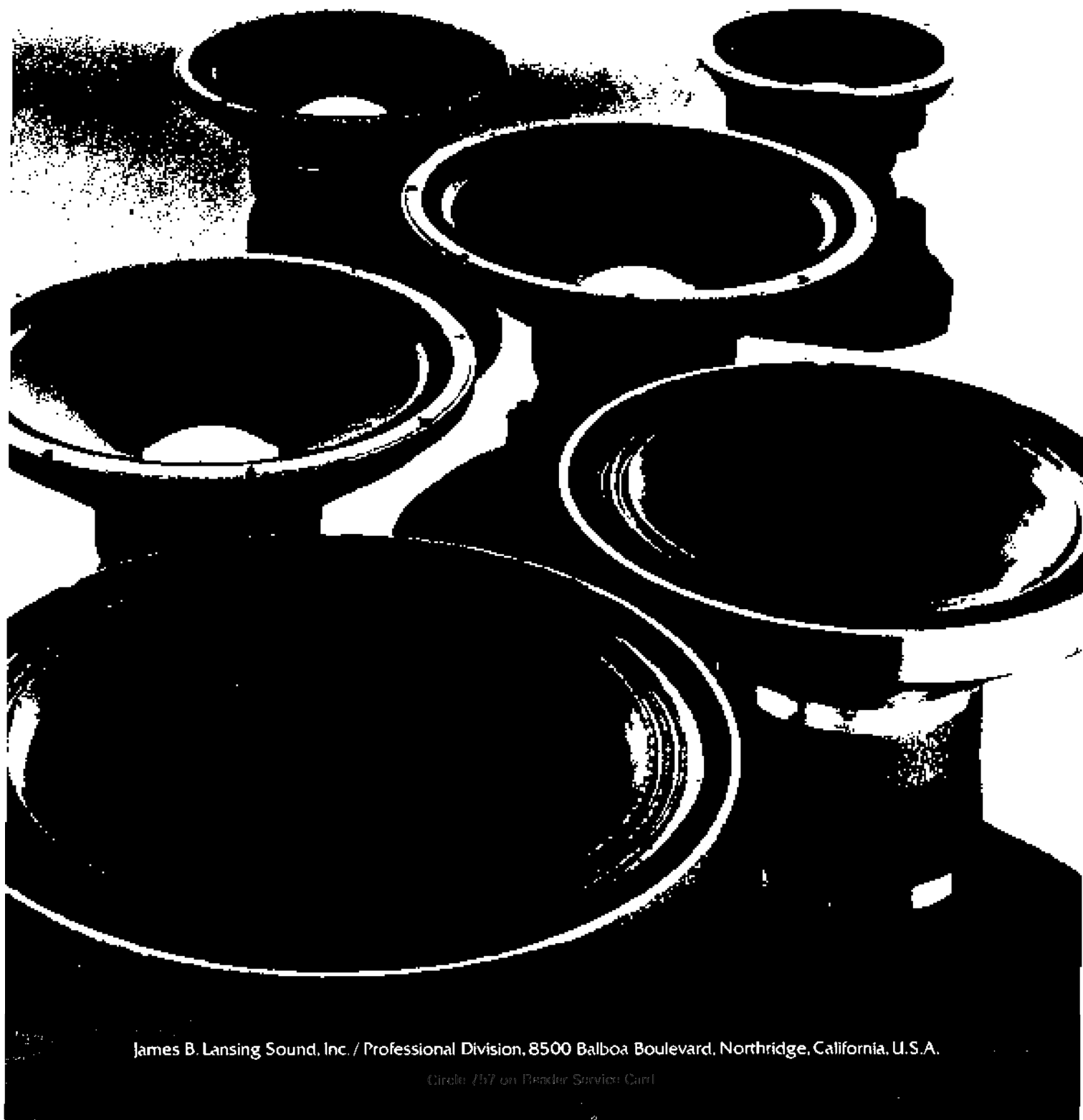
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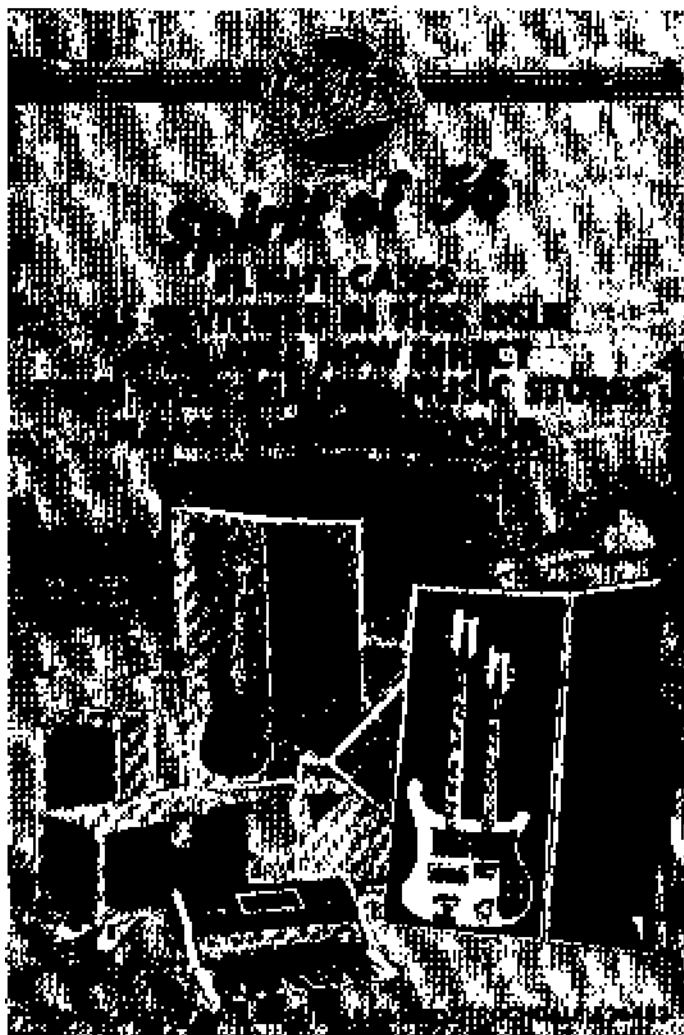
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Buzz

What's happening in the music biz

Mini-minor

Neil Charlesworth is 20 years old and comes from the Birmingham area. He is now living in London and working for Rosetti, one of the major UK importers and distributors of musical instruments. For those of our readers who study our guitar reviews down to the last detail, I can now reveal that Neil is the person responsible for the famous "Rosetti fret-polishing job". Not satisfied with this achievement, Neil has also started making one-off instruments in his spare time, at home. On closer investigation, instrument-making seems to run in the family; his grandfather used to make the metal-work for the original Windsor banjos.

Until very recently, Neil's home workshop space was so tiny that a full-size instrument would have been almost impossible. Not easily defeated, he started making *half-size* replicas of famous old American guitars and fitting them up as solid electric mandolins. The photograph shows our celebrity of the month holding his latest creation, and being completely upstaged



by a cat with big feet. The mandolin is a striped mini 'Explorer' model which has attracted much interest wherever it has appeared. Neil's next commission is for a semi-acoustic '335' mandolin. The cat shares a workshop with Stephen Delft, and is currently being trained to do some of the simpler repairs.

Zehn Archar

So much for the British invasion of America, we now have word of a young American band who are trying to get their own back. Zehn Archar (the name comes from a Todd Rundgren song), are apparently the hottest rock 'n' roll band in Baltimore, Maryland, and are coming over to England to try and secure a recording deal.

The Archars line up is Alan Lopata and Richard Taylor (guitars), Rusty Dashiells (bass) and Joder Armacost (drums). They specialise in hard-driving rock 'n' roll and cite their influences as early Stones, Kinks and the Who. Although the band are without a deal they have nevertheless financed their own EP, and that coupled with the UK venture, shows a determination to succeed which usually results in success.

All that jazz

Here's a chance to go back to school. The Jazz Centre Society hold their annual two-week Comprehensive Jazz Course at the Rutherford School, Penfold Street, London NW1, from 23rd July to 3rd August (10am 'till 5).

The curriculum includes: Indivi-

dual/Group tuition for technique and interpretation; harmony classes (ear training, arranging, etc. and some practical playing (small ensembles and big band). The tutors include Olaf Vas, Jimmy Hastings, Dave Cliff, Geoff Castle and Peter Ind with Eddie Harvey as the organiser. There is a special lecture by Stuart Dempster on "The trombone in jazz". Stuart is a well-known trombonist in the US and is an accomplished author as well as composer and teacher. Fees are £48 (under 21) and £53 (over 21) inclusive of meals and drinks.

Contact Barbara Ind on 580 8532 for details (and mention our name!) but hurry, places are limited so apply now to secure a place.

Competition winner

Congratulations are in order for Tim Nowell of Southsea, Hampshire, who was the lucky winner in our April PA competition. Tim has won for himself (and his band) a complete PA:CE system worth £2,000. He will be receiving his prize during the Live Music Show in London at the PA:CE stand in the Royal Kensington Hotel on Saturday, July 28.

MCI take the lead

MCI, the manufacturer of top professional recording equipment have announced the development of a new low-loss cable.

Dag Fellner their Managing Director, considers this new product to be of great interest to the recording and studio world and his technical expert flew in direct from Sweden for the recent London APRS show. The cable consists of a tough mantle shrouding a multi-cored lead which is constructed of very pure copper wire, and it is this feature which the manufacturers feel will make the product superior to existing designs.

Northern Lights

A band that appears to be shining in the Leeds area is an outfit known as "The Howard Ellis Band". They are a heavy five-piece comprising lead and bass, drums, keyboards and a fetching backing singer named Lyn who supplies the harmonic support.

But this is not your total "bang ya 'ead on the wall" stuff but melodic with the accent definitely on the vocal harmonies and with an average age of about 18 they are very professional.

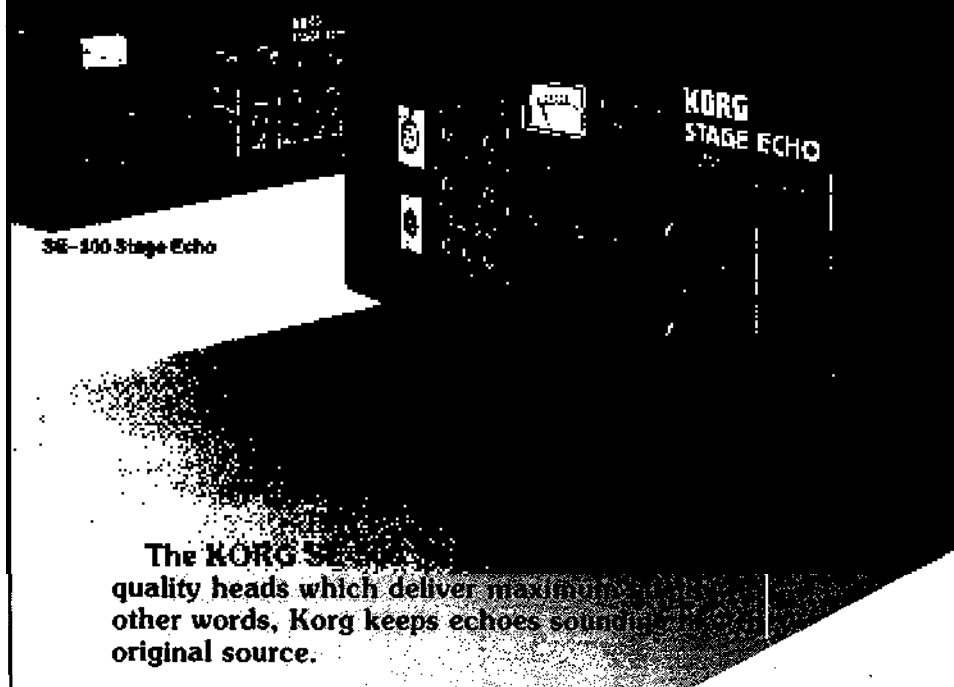
Despite sending demo tapes to all and sundry no-one has apparently snatched them up yet so if anyone is into chip butties a trip north to Leeds may be worthwhile! Rumour has it that Howard Ellis is a graduate of Leeds College of Music so contact them c/o Julian Norman on (0532) 680003.

The new West Coast?

Jazz fans' prayers in the West Country have been answered at last. Unimpeachable sources inform us that the Bell Inn at Ash in Somerset now has Tuesday Jazz Sessions every fortnight (you can find it just off the A303, west of Ilchester).

The Bell features some local lads called Delegation - who have no mean reputation, by all accounts - and while you partake of your real ale you may be able to listen to some top jazzers such as Georgie Fame, Martin Drew, Barbara Thompson, Louis Stewart, Humph, Dick Morrissey and Doris Mickleby. If you want to check out who's appearing when, ring Martock 3387 for further information. ►►

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New man at Rhodes

Tom O'Donnell has been named Director of Marketing for Rhodes Keyboard Instruments by Vern Eszlinger, International Director of Marketing for Fender/Rogers/Rhodes. Mr. O'Donnell will be responsible for marketing and marketing development of all Rhodes keyboard instruments and amplifiers. In announcing O'Donnell's appointment, Eszlinger stated, "Tom's exceptional music background, plus his work in synthesizers, all added to four years' work for us in sales, makes him an invaluable addition to our marketing management team."

Wanted!

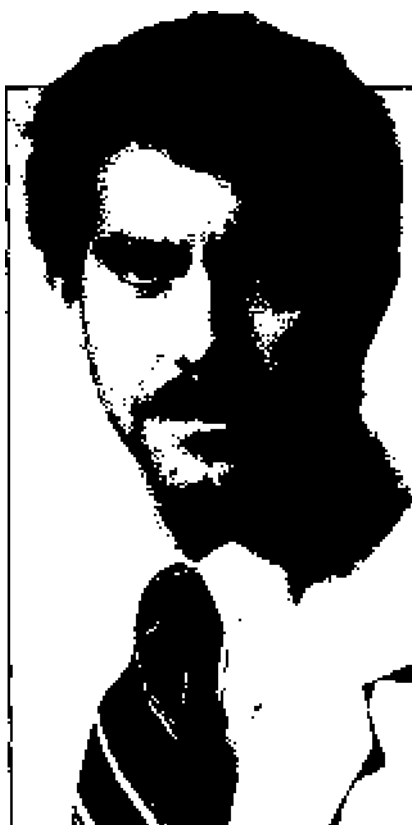
Roland JC120 amplifier (serial no. 728454). Stolen from the back of a car on the Thursday 14th June outside the Camden Head pub in Islington. Ian White, the owner, would be eternally grateful to anyone who can help him recover it intact, and he has offered a reward for it's return. Readers, grasses, fences, etc. who can help should contact him on 722 1827 or P.C. Hughes at Islington Police Station (226 3281 ext. 33).



Bad News brief

In this case Bad News is good news (if you can believe their press release!). They are four young musicians who are billed as ace vocalists with a loud and earthy style and heart throbbing rhythms.

The band comprises Peter Calvert, Martin Read, John Bartlett and Terry Sharp. The boys rehearse hard and believe constant hard work on the road keeps them musically tight. For more newswashes telephone G.F. Reynolds on Grays Thurrock 73886.



Art Failure

No, it's not a misprint - but a five-star line up of guys currently gigging around from the wilds of Sheffield down to The Smoke. The band are based in Nottingham where they regularly play the "Sandpipers" venue although they have toured major venues in Birmingham, Leeds, Sheffield, Bradford, Derby, Hull and many others.

Art Failure have just recorded a

Mega at Olympia

Mega (Acoustic Design and Manufacture) Limited, have been chosen to design, build and install the PA and lighting systems for this year's Live Music Show at Olympia. The organising committee wanted to ensure that the sound and light systems for the stage and auditorium would be capable of setting the various moods and provide the appropriate levels and quality of sound required for the varied programme.

Mega is renowned throughout the professional world as one of the leading exponents of modern PA systems, supplying their equipment to many famous names, all over the world, and recently entered the retail market with their exclusive designs, aimed at the broader market of retail outlets.

The running of this side of the show will be handled by Mega's Marketing Manager Cliff Campbell, their Research and Development Director David Lyth and some hand-picked technical staff to ensure a smooth performance for all the artists.

single (which incidentally is a self-financed venture) at Spaceward Studios with production by the band's own soundman extraordinaire, Vincent Rice, which is being distributed by the now legendary Rough Trade on the band's own label Vogue Records. Art Failure can be contacted through their manager Steve Baker on: (077384) 5950. There's a 24 hour answerphone if he's not in.



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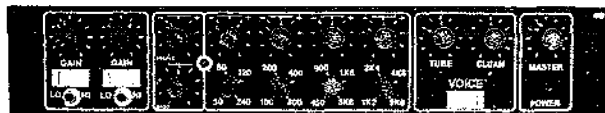
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Drumcheck

Rogers Londoner 5 Kit £959 inc VAT

The Rogers Drum Company is now owned by CBS and the drums are built near Los Angeles; but, up until the late Sixties, they were privately owned and located first in Cleveland and afterwards in Dayton, Ohio.

As I said, the giant TV and records corporation bought the name and all the patterns and moved the whole thing to Fullerton in California. To my open mind this was a move for the better since if there's one thing the CBS people are conscious of it's quality control. The set in contention this month is the Londoner 5 which is, according to Rogers, their most popular basic rock set-up. They say:—"It is not a traditional five-piece drum outfit, but part of a whole new way of thinking about drums and drum equipment." On the evidence of this month's *Drumcheck* I must say I agree with them.

This Londoner 5 set is just a little unusual for a couple of reasons. The first being that Rogers have never produced a wood exterior finish before (butcher's-block was just another plastic covering), and secondly the set I was examining was a prototype. Mind you, they should be available here soon.

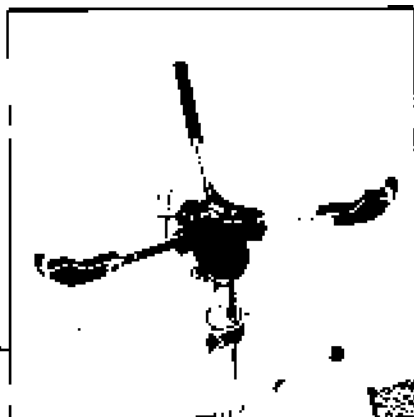
So, this is a new departure for Rogers. The shells themselves are made from five plies of maple with five-ply glue rings. They have several coats of clear lacquer on the outside

but the interiors appear to be untreated. Heretofore Rogers' shells had that hard, flecked-grey paint sprayed on the inside called Zolotone and this is of course still available on any plastic covered set. The exterior finish was not, to be 100 per cent honest, all that great. It seemed a little bumpy, but I accept this set was a prototype and even as I burn the midnight oil writing this I understand the company has that problem licked.

This outfit as usual features Memriloc, which has been with us for the past three years or so. For those of you from the sticks who haven't seen it I will describe it in vivid and infinite detail. Memriloc is a completely new system for adjusting height, angle and positioning on the drum kit. Gone is the old Swivo-Matic tom-tom holder and cymbal tilter, gone is the adjustable, basket-type snare-drum stand, gone too are the Rogers collars and disappearing hexagonal cymbal arm and spurs. (All of these original Sixties or late Fifties developments seem to have been bequeathed to the Japanese. Rumour has it that "tooling up" for Memriloc cost 200,000 dollars and on the evidence I consider this money well spent.) Instead, we have much more substantial cast aluminium fittings. Basically, the height adjustment on all the stands is held by a cast aluminium clamp (rather like a glorified pipe clip) which is locked into position with your drum key. This clamp fits on to any of the extra large diameter tubing used on all stands and fittings. Once set, this clamp locates into a cast aluminium block which is actually situated at the top of all the tubes on cymbal, hi-hat, snare stand and of course the stool. It also acts as the shell mount receiver on the tom-toms and bass drum shell. The Memriloc block, once in position flush in its receiver, is locked with a new style wing bolt. (These bolts used to have a milled end but Rogers have discontinued this because they could make a mess of the tubes.) The aforementioned cast aluminum receiver block is interchangeable for a bass drum mounted tom-tom holder, or tom-tom receiver, or spur mounting or (fixed on its side) floor tom-tom leg holder.

BASS DRUM

Rogers' 22x14 inch bass drum has a really good sound with both heads on. (Incidentally, *all* the drums are fitted with a CS head on the batter side and a clear Ambassador on the other.) The drum has a tube in the middle extending all the way down its diameter in the centre of the shell which I shall explain later. This tube proved very convenient for stuffing padding behind to over-dampen the



drum for single headed playing and doesn't seem to affect the overall sound with two heads working in sympathy. This drum has five-ply maple counter hoops which look OK, but not for me as good as the solid maple ones favoured by most of the other manufacturers. Like most companies Rogers fit 20 nut boxes (single-ended beaver tails in this case), pressed steel claws and timpani type I-handled tension screws. They also fit a felt strip damper to each head and recommend a specific place to position it — roughly three or four inches from the hoop. The company maintains that a centrally placed damper causes the bass drum to buzz. To sum up, this bass drum has a good clear sound with a nice thump with two heads on.

TOM-TOMS

This Londoner 5 set comes with 8x12, 9x13 and 16x16 tom-toms. I was rather surprised before that this "rock-type" set doesn't have the more up to date larger sizes. Still the toms supplied sounded big enough for any normal application. Which just goes to show that it's not how big you are. These drums had a really deep throated sound and were very powerful. Rogers no longer fit internal dampers (the Rogers ones were the only ones I really liked) but instead fit a spring steel external damper which clips in any position on the rim and acts on top of the head.

SNARE DRUM

Rogers justifiably famous ten-lug brass shell Dynasonic is supplied with this five drum outfit. For those of you unfamiliar with the well respected Dynasonic system, it was introduced in 1962 and uses a special and unique cast aluminum frame built completely around its snare which keeps it taut at all times even when the snare is not in the "on" position and not touching the head. The result of this innovation is an "unchoked" snare drum sound with clear definition and very little distortion. The brass shell is strengthened with five twin beads in the centre and two deep trenches about an inch from the inverse flanges to prevent the shell from buckling. Rogers original triple-flange hoops and a substantial internal, adjustable, under batter head operating damper. The snare strainer is Rogers' cast version of the adjustable cam action which is generally acknowledged to be the sturdiest and most positive around. By the way, the Dynasonic doesn't have a snare bed to accommodate its snare frame and it's because of that the drum does not convert to ordinary cord attached snares (without the cast frame) very readily. Rogers snares are manufactured (not stretched) to exactly seven coils per inch and are

not soldered but glued to their butt plates. (The heat used in soldering can weaken the coils — this could make them less resilient.) Of course the idea of the cast stretcher is to ensure that nothing other than the snare wires touch the head — no cord or snare butt plates to deaden it. The bottom rim has now been accepted to enable complete turns of the key at the two snare guard positions. Before the key used to foul these positions.

I personally like the Dynasonic but I can appreciate it isn't everybody's cup of tea. It's very crisp and powerful but somehow more brittle than, say, a Ludwig 450. It's not too easy to set up with instructions. (You must put four half turns on the batter head and five half turns on the snare head. Also tuning should not be alternate across the drum but having done one and two you should proceed clockwise but miss one tensioner and proceed to the next.) On reflection I haven't played a 6½" shell Dynasonic — perhaps this would be more what I'm looking for.

ACCESSORIES

The hi-hat is an updated version of Rogers' Supreme model. This one has a two piece cast aluminium foot plate and saddle with two replaceable joining straps to its adjustable spring, nylon sleeved centre-pull mechanism. This model, naturally enough, has Memriloc height adjustment and in this case its bottom cymbal support is from 1" diameter, satin chrome finished steel. (This satin chrome finish is applied to all tubes in the areas where locking and adjustment are needed and gives added holding power.) This top tube had an extra large and agreeable locking angle adjustable, nylon bottom cymbal seating unit which contributes greatly to the overall stability of the hi-hat.

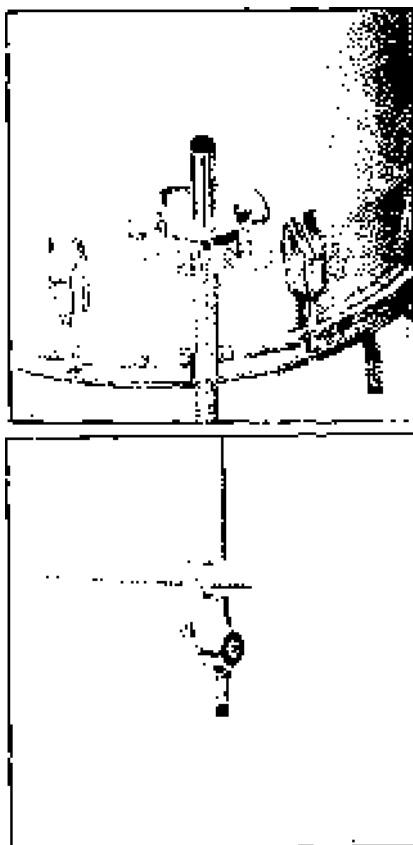
The Supreme hi-hat stand at its normal maximum wouldn't extend high enough for me for comfortable playing with a multi-tom-tom set-up but on leafing through an old catalogue I notice Rogers offer a 7" extension rod which would be the answer to that particular problem. By the way, the pedal's action is as smooth as silk and effortless.

The Supreme bass drum pedal is in concept the same as the old Swivo-Matic but like the hi-hat is almost completely made from cast aluminum. It also has a two-piece footplate and a new, more positive, way of clamping itself to the hoop. It's a cam-activated clamp which tightens with an 'L' shaped bar. The pedal is adjustable in every possible way: the spring tension, the stroke (for more or less powered volume), the beater height for larger or smaller bass drums (the striking arc remains the same), and the angle of the footplate to the bass drum

itself. All these variables can be self-customised to your exact playing style requirements. The nicest feature for me of the Supreme is its beater. It's a double-sided egg-shaped affair, futuristic and aerodynamic in shape and made from some form of synthetic material lighter than wood. A small piece of felt is stuck to the narrow end of the egg and the shaft is 5/16" in diameter (thicker than usual) and so less prone for bending and whipping than normal. The sound from this Blackjack beater is amazing — it gives pinpoint definition to the sound of any bass drum. I've been using one in the studio for two or three years now. I neglected to say that the beater can be used either with the felt side or the slightly larger unpadded side which gives much more of a "crack."

I have owned an old Swivo-Matic BD pedal for some years and have never been truly happy with it. However, this one I attached to the drum, adjusted the spring tension a little and it felt great. It was really smooth and comfortable. The last time I tested a Supreme I managed to make the footplate swivel on its horizontal axis but this time suffered no such consequence. Also, since the last time I notice that the company has put strengthening cylindrical blobs around the pedal's base where the beater axle's height adjustment is, which can't be a bad thing. Also, the feet of the pedal have small rubber ribbed pads glued to them to help eliminate movement and, of course, protect your rim.

The Memriloc cymbal stand also doubles as the base part of the floor standing double or triple tom stand. One simply removes the unit from the bass drum receiver and inserts it into the corresponding receiver at the top of the down tube of the cymbal stand. This was impossible with the old holders because of their down-tube flattened shape. As a cymbal stand it is, at six feet high, the tallest and sturdiest I have so far seen. It's made from four separate lengths of tube and so has three Memriloc fitments. It can be bought in two different types. There's a more flush based type which still works on a tripod and there's a conventional tripod base type with double legs which used to be called The Samson. The latter is allegedly useful for fitting around spurs and other stands on a small stage. The tripod base stand has had a couple of changes recently. The very bottom horizontal struts of the stand have been given a movable locking collar around the bottom tube which means that the span of the legs can be made smaller when necessary. Also the large spring ratchet tilter is no longer roll pinned to its top tube — instead it's riveted to stop any movement. This was quite a problem for a while with ►►



the stand. (Perverse as usual, I felt the Swivo-Matic ball and socket tilter to be the *sine qua non* of the cymbal world.)

Rogers have come up with a completely unusual sort of snare drum stand which is unlike anything they have ever done before. It's not an adjustable basket type but instead has two fixed holding arms with one diametrically movable one. These arms no longer have rubber tips on them but right angled aluminium brackets which locate onto the recess of the triple flange snare side rim itself. They are coated in what appears to be Teflon as are the faces of the playing angle adjustment plates. For safety reasons the movable retaining arm doesn't adjust too far (you can actually squash your drum out of true if you use excessive force when adjusting it), so to accommodate different size drums Rogers has thoughtfully provided several alternative holes to locate the right-angled brackets. The playing angle is adjustable like the tom-tom arm's and cymbal tilter's on a sprung saw toothed ratchet. Like all the other stand bases the bottom tube is from one inch material and its height adjustment is by Memriloc.

The multiple tom-tom stand mounted on the bass drum has that large support tube inside which extends and is fixed to the bottom of the drum and successfully stabilizes the whole unit. This holder is to me very like the original Trixon or Sonor models which utilized an adjustable "L" shaped tube which in Rogers' case is made from one inch tubular steel

(non-slip and satin-chromed). The fitting is movable on a vertical axis like its German predecessors on a five-toothed, spring-loaded ratchet. (The German castings were from cheap Mezac and were plagued with a casting air bubble weakness.) The ratchet is secured with a bass drum tensioner handle type wing bolt. If the tom-tom holder block at the top of the down tube is turned backward 180 degrees so that the apex is towards the player — it's possible to have the shells of the two drums touching. The cast ratchet arm has two grooves cast into it to facilitate a more positive and safe vertical tom-tom position.

The triple configuration tom-tom holder block is fitted as standard to all sets (even the double tom ones) and has three ratchet arm receiving holes bored into it. These holes are ingeniously engraved around their circumference with numbers like a clock. This is to (quote), "duplicate the exact horizontal axis setting each time." The facility is known as Memri-Dial.

The Memriloc spurs are made of Rogers' ubiquitous one inch diameter tube with a very shallow working angle which can be used with or without a rubber tip. These tubes have semi-circular diametric sections cut out of them at their ends which means the edges so formed work like double spurs (sort of) which effectively stop the drum from creeping. I still think the spurs are a bad case of overkill. They work well but don't look great. Rogers' tom-tom legs are no longer fixed into position with the old "knobby" fittings — nowadays they too use Memriloc. The legs themselves are of large bore 1 5/8" OD tube which could be steel but was light enough to be aluminium. These legs now have rubber crutch-type tips instead of the plastic looking inserts they originally had. The leg holder itself is a cast block bolted to the shell and seems to be a mini bass drum receiver mounted upside down. The height clamp fits around the leg, secures with a drum key and then fits like all Memriloc fixtures into the female retaining block. It's very sturdy, yet doesn't seem to be as heavy as normal leg holders do.

The ingenious little external dampers I mentioned earlier are called Super X, and as far as I know are sold separately. They clip on to the rim and in ones and twos they are ideal for recording. The damper's pressure is adjustable via a fine threaded wing nut. The damper part is articulated and unfortunately it has the annoying (to the recording engineer) habit of turning as one plays, thus changing the sound. However, I'm sure that, like me, you could find a hammer to make the rivet hold better. For anyone

who's not familiar with the good points of the external damper I'll give you a crash course. With an internal damper in the "on" position as the drum is struck, the head is forced down even further into the felt pad, therefore not only is the damper always "on" but we achieve even more dampening as we hit the drum. Whereas with an *external* the damper serves to "stop" the sound of the drum only once it has been struck and the head is returning to rest. So what effectively happens is that the decay time is decreased, thus the drum's ringing overtones are cut out — not completely, but significantly.

Rogers' Beaver tail nut boxes look exactly as they used to but now are supplied without springs and have instead a "C" clip inside them. This means that since the nut boxes have no springs there won't be any buzzing or singing in sympathy with a specific note — this is often a problem in a close miking or recording situation where any rattle can be magnified out of normal proportion.

CONCLUSION

The set I saw was finished in lacquered maple and I have seen the Sunburst finishes too, so add these to the other 10 in the catalogue and you have a dozen very acceptable professional-looking finishes. (I personally don't like butcher's block but I understand this one will be discontinued.) It would appear that Rogers consulted not only drummers to help in their production (particularly of the Memriloc fittings) but also equipment managers, because these sets seem to me to be just about the only ones in general production built to stand up to the rigors of heavy American touring. I find all Rogers drums to be stimulating to play but the natural wood finishes seem to have a clearer sound so if you combine this with the immovable, rock steady Memriloc fittings you end up with a pretty exceptional drumming experience.

I can't for the life of me understand why Rogers would at this stage of the game call their set Londoner 5. The name is so dated and positively reeks of the early Sixties and dear old Dave Clark. What about L.5?

I know for a fact that Rogers have some new products coming out soon and have racked my brains to think of a way to tell you about them without the guys at Fullerton getting sore at me. Well, I don't want to give anything away but some drums will have more heads than before, a new size or two will be introduced, one size drum will be re-instated which I didn't even know had been away, one famous drum will be made from a material which it hasn't been made from until now — and last but not least watch out for more plies and fewer rings.

Henry Roberts

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Synthesiser centres on Manchester

Mr. Amrik Singh Luther's proud boast that he stocks the biggest range of keyboards at the lowest prices in Britain, at his London Synthesiser Centres, is even enticing canny Scots to make long treks South of the Border.

As champion of bargain keyboards, Mr. Luther has now expanded his London-based operation by opening a London Synthesiser Centre in Manchester, to serve the Midlands and the North of England. News of his bargain buys spread fast, and on its opening day, in April, customers were queueing up to nearby traffic lights outside the store at 60 Oldham Street. Some 300 people passed through the doors that day.

Sales assistant Ian Jenkins was the

only member of the current staff on duty that day. "It was absolutely ridiculous. We were only open for three hours and we were packed out. There were guys down here from Scotland and more and more have been coming back since then. In fact from what we can gather, they are now pooling together to come down in groups. They pile into cars, throw in for petrol money and save money getting here that way," he said.

His colleagues, Martin Russ, Paul Kilvington and store manager Derek Simpson, are all involved in the Manchester music scene. Surprisingly, Derek is the only member of staff who doesn't play keyboards, but he roadies and knows what musicians want. Says Derek, "I'm learning to

demonstrate the synthesizers now. It's such a complex instrument you can never know it off by heart. Here in Manchester, bands are only just beginning to get tuned into synthesizers.

"In this respect we're a bit behind London for instance. Most of the young bands here started out as punk bands with guitars thrashing, because it was the in thing. Now they're beginning to get interested in the potential of the synthesizer and are coming into the shop with their spiked hair and everything, asking what it's all about."

For this reason, the store aims to become a synthesizer centre in every sense of the word. Under an ambitious development plan, which will add a complete guitar and amp section, there will also be an on-the-premises synthesizer workshop and school. They already have someone lined up to come in and teach beginners just how to get the best out of synthesizers, and Martin Russ is the electronics wizard who will man the workshop.

Derek went on, "We're great believers in good service. It's what brings customers in and brings them back. There's a year's guarantee on all our goods and if anything goes wrong they can bring them in and we'll set Martin to work."

"The synthesizer school is part of the service and the four of us are on hand all day to answer inquiries. In the same way, customers are free to come in and spend as much time as they want to in here without any obligation to buy anything. If anyone wants to come in and play they can come in and play for as long as they want. We had a Canadian guy come in who was on holiday over here. He spent one and a half days in here!"

Derek reckons the development work should be completed in about two months. Meanwhile, the centre's cut price bargains are still packing them in.

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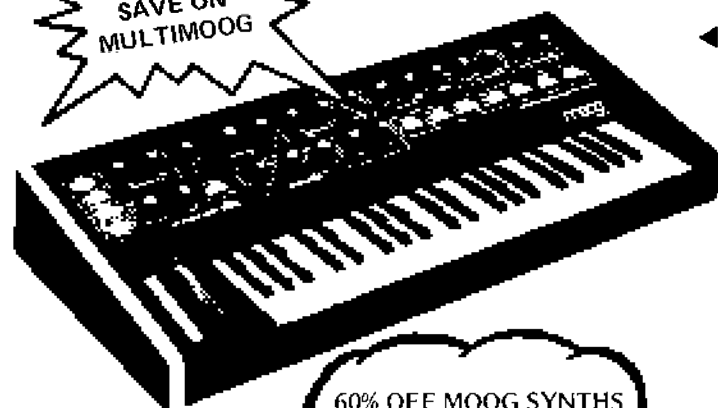
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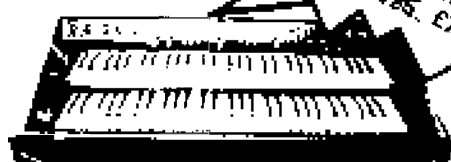


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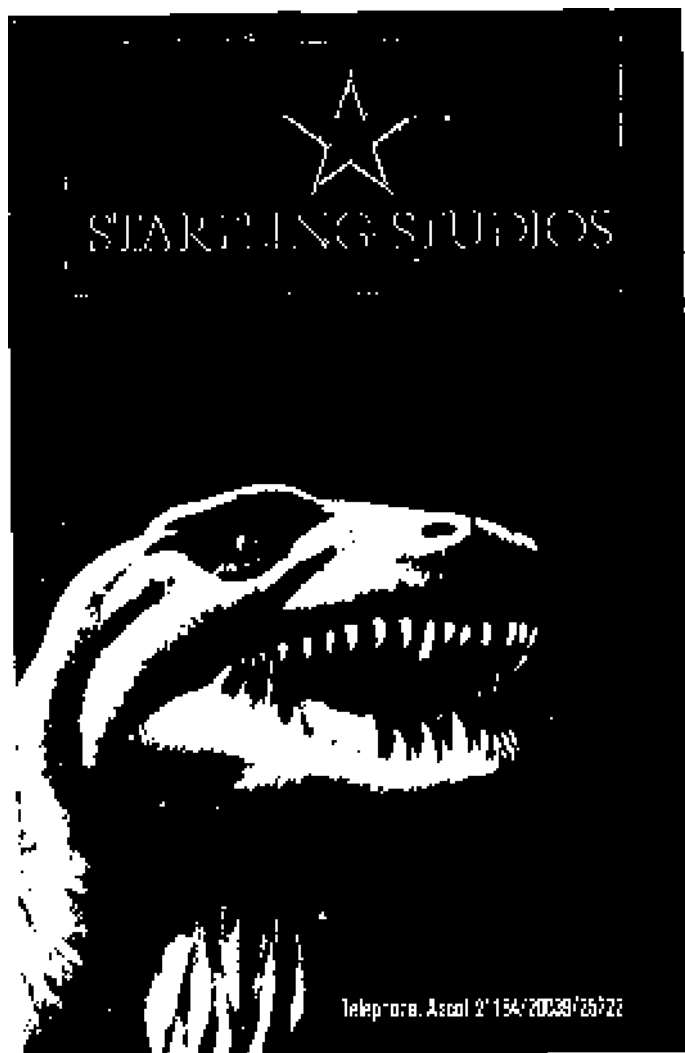
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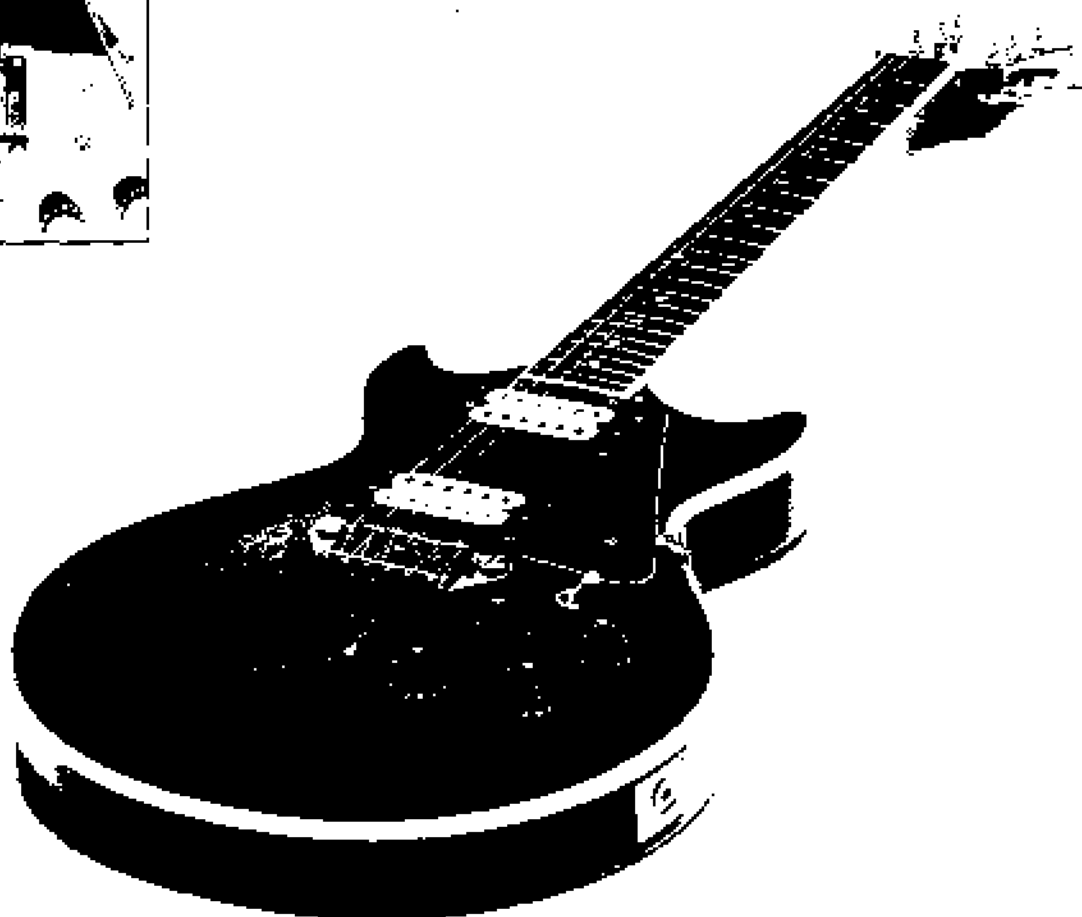
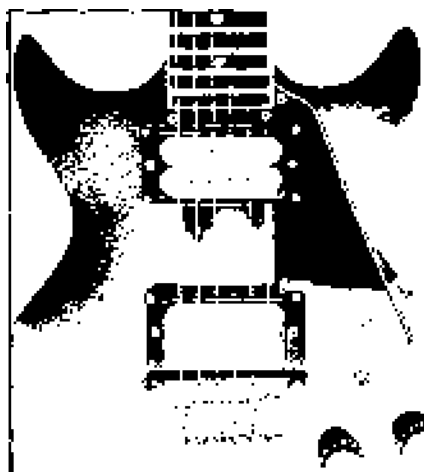
Gordon Smith "Graduate" £495 inc VAT

This is the first time I have had the opportunity to play one of Messrs. Gordon and Smith's guitars. I must allow for the fact that not everyone will share my tastes and prejudices. However, my own opinion, based on this sample, is that this model deserves to be a howling success. It has outstandingly good tone and playability. It has the sort of sustain that keeps Gary Moore fans awake at night, it is sensibly made and it is versatile without being complicated. This is a British-made guitar which can compete on an equal footing with similar-looking instruments from the better American companies. It is not cheap, and it is going to cost you a lot more than the latest 'Discount-Store Special', but craftsmen have to eat too, and good workmanship usually costs a bit more than a conveyor-belt job.

This is going to be a fairly short review, because it is a fairly conventional sort of guitar and you won't need driving lessons before you can start to play it; also because there is nothing much I can find wrong with it. This particular sample seems to have had something of a rough passage on the way from Manchester to our London office. Although the outer carton

looked undamaged, the hard fitted case inside was badly split at the seams and crushed on one corner. The guitar is still in perfect working order and does not have so much as a crack in the lacquer. We do not usually drop-test instruments sent for review but as it happened anyway at some stage in transit, I think it is to the credit of Gordon and Smith that their guitar has survived without any apparent ill effects.

There is a more serious problem which is apparent on our review guitar. When I first opened the case, I noticed a strong sharp smell. On inspecting the guitar I also noticed that the frets had turned the colour of tarnished brass, and some of the fixing screws on the body were slightly corroded. Most of the major metal fittings are either chrome-plated or stainless steel and these do not seem to be affected. As this tarnishing is, in my opinion, clearly something which has occurred in transit or in storage, I am going to ignore it in this review. It is still a very fine instrument, although it would probably be a good idea to give the frets a light polish to remove the tarnish and restore the smooth playing surface. I must admit that I



have never come across this sort of problem before, but I am certain that it has happened *after* the guitar was finished and checked, and I am also certain that there is no fault in the guitar. Something nasty has happened to it. I expect that by the time you read this review, the problem will have been located and dealt with.

As you will see from the photograph, this is a nice looking, but fairly standard sort of solid electric, with two cutaways, two pickups and the usual complement of knobs and switches. In addition to the obvious controls, the two volume controls also operate coil-tap switches when pulled out from the body. Volume and tone controls work smoothly at all pickup settings, and the tone controls provide a range of different tone qualities, rather than just a graduated loss of 'top'. The bridge arrangement is very solid, has a wide range of adjustment and appears to be made specially, either by or for Gordon Smith. It seems to be more or less rot proof and it does not have any projecting sharp screws (palm-dampers, please note).

The pickups are an original Gordon Smith design, and the catalogue states that they are not available as a separate listed part. They are of centre-tapped, humbucking construction and cast into a solid block of plastic. There is very little chance of unwanted feedback, or of accidental damage to the coils, but there is an individual screw adjustment under each string. On my sample, some of the adjustment screws are not well finished, but in all other respects, these pickups could give many famous names a run for their money.

I don't know how Gordon and Smith divide up responsibilities for making these guitars, but someone obviously knows how to make good pickups. Incidentally, this guitar is also available with Gordon Smith single-coil pickups.

The body and neck on the Graduate model are made from solid mahogany, and have a pleasant shaded/sunburst finish. The fingerboard is ebony, with very fat frets, and seems to be a little wider than average. It is not *much* wider, but I do find it an advantage. So does Ross Record, who came in to have his SG adjusted while I was working on this review. I asked him if he would prefer this guitar, or a new Les Paul. He said he should be so lucky to have the choice, but I could keep the Les Paul. It is only one opinion, but he is one of my most critical and discerning customers. I have not made any adjustment to the guitar since I took it out of the box, and so far no-one has thought it needed any.

Conclusion

We now have several companies in the UK making high quality electric guitars in small to medium quantities. I think by and large they all do a good job and I am pleased that they survive in spite of the competition from imported instruments. Of those which I have seen so far, this one comes closest to the kind of instrument which gets me going. It also happens to be a very good example of its kind. It is not a cheap guitar, but it is a fair price for a good instrument, and if you get one like my sample, you will certainly get good value for your money.

Measurements on Gordon Smith 'Graduate'

Ser. No. 00158

Scale length 625mm

String spacing at bridge 51mm

String spacing at nut 38mm

Fingerboard width at nut 46mm

Depth of neck at 1st fret 21mm

Depth of neck at 12th fret 24mm

Depth of neck at 15th fret 28mm

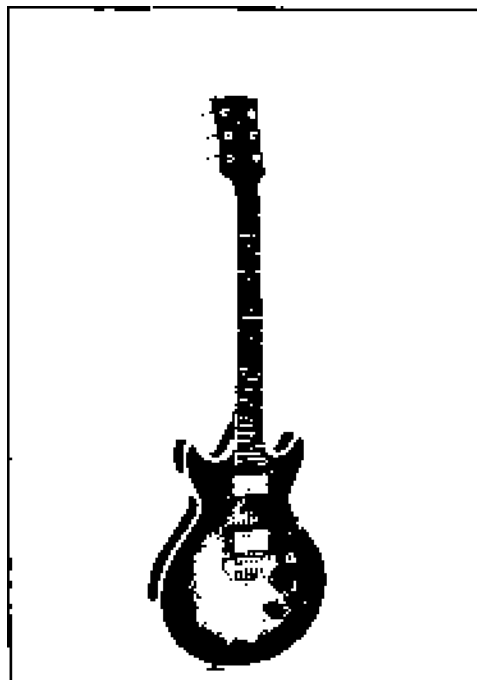
22 frets on fingerboard, heel begins at 15th

fret, body joins at 19th fret

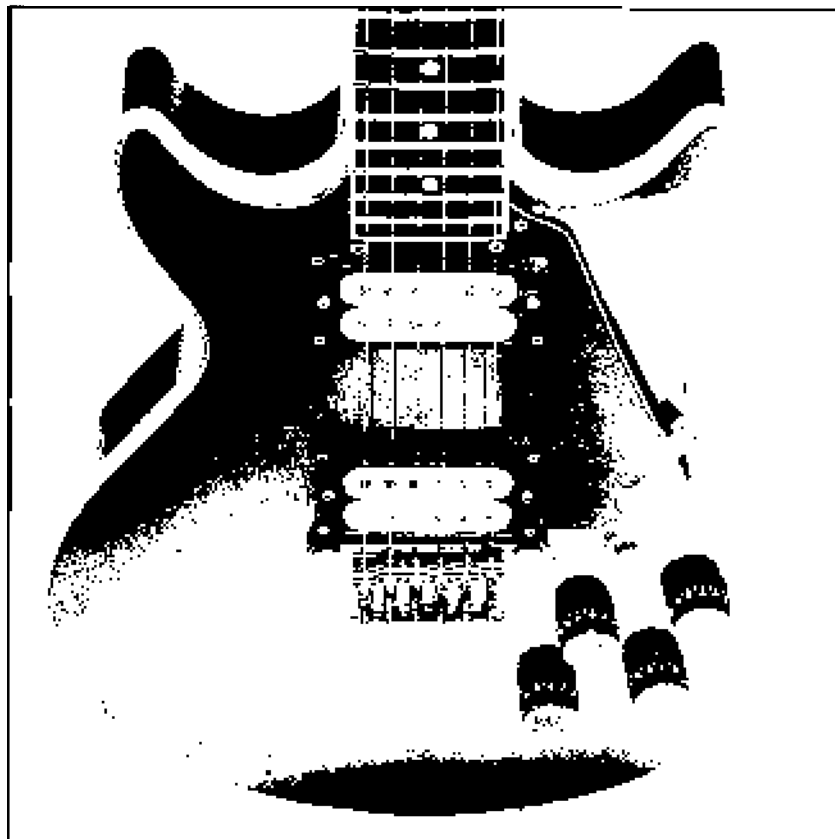
Action as supplied 1.3mm treble/1.2mm bass

Lowest 'standard conditions' action 1.2mm

treble/1.5mm 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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daniel mari strings inc.

New York, N. Y. 10023

Sole Distributors *Barnes & Mullins Ltd.*
to the Music Trade 155 GRAY'S INN ROAD, LONDON, W.C.1.



Explore Stand I45 at Olympia.

Big exhibitions can be as uncomfortable and confusing for some of you as they can be rewarding for others.

A large, noisy hall can be a pretty frightening place; dense with people wandering aimlessly from stand to stand, lost and bewildered and relishing the thought of getting out.

For others, with a clear intention of what they want, this jungle of distraction will not deter them from their objective; they will head straight for the Yamaha

stand, happy in the anticipation of what they will find.

The strange and dazzling sights confronting them will not dull their sense of purpose or weaken their objective.

So if you catch sight of these happy people at the Live Music Show at Olympia, ask them where the Yamaha Stand is. They'll know.



YAMAHA

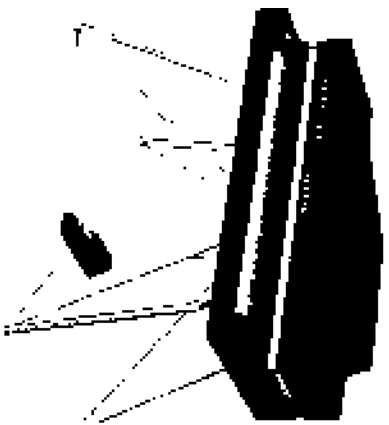
Craftsmen to the world's
musicians since 1887.

Kemble Yamaha, Mount Avenue, Bletchley, Milton Keynes Telephone 0908 71771



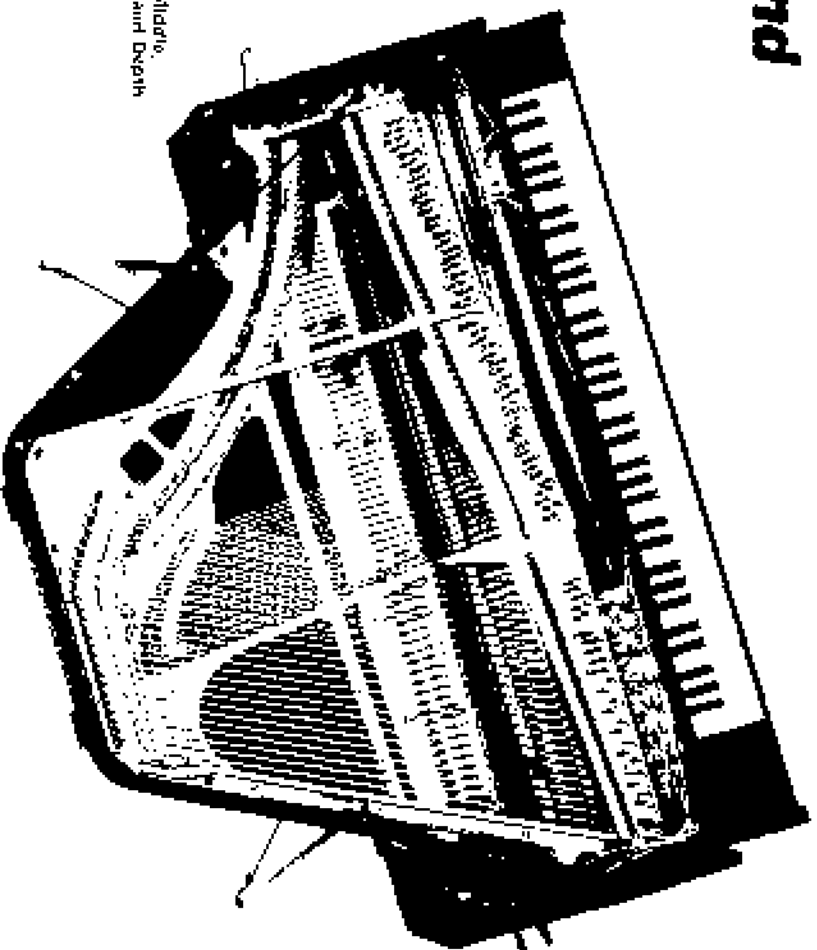
YAMAHA COMBO KEYBOARDS

Electric Grand



NEW
CP-70B

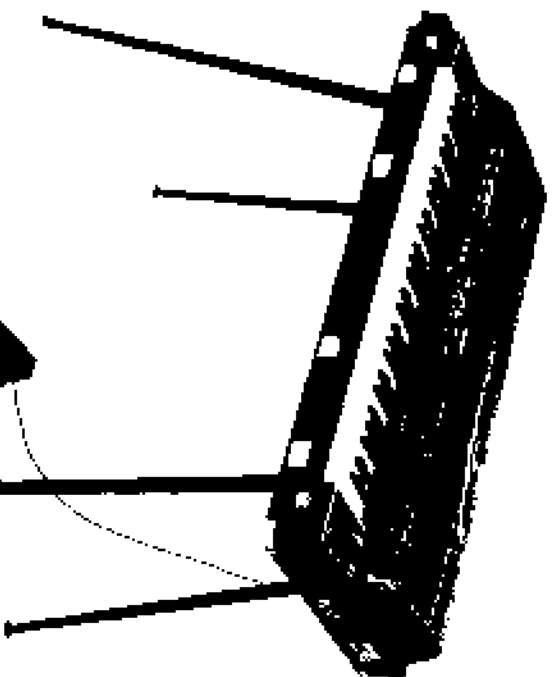
Key 73 lbs. (~ 9.3)
Electric Control: Bass, Middle,
Treble, Tremolo Speed and Depth



NEW
CP-30

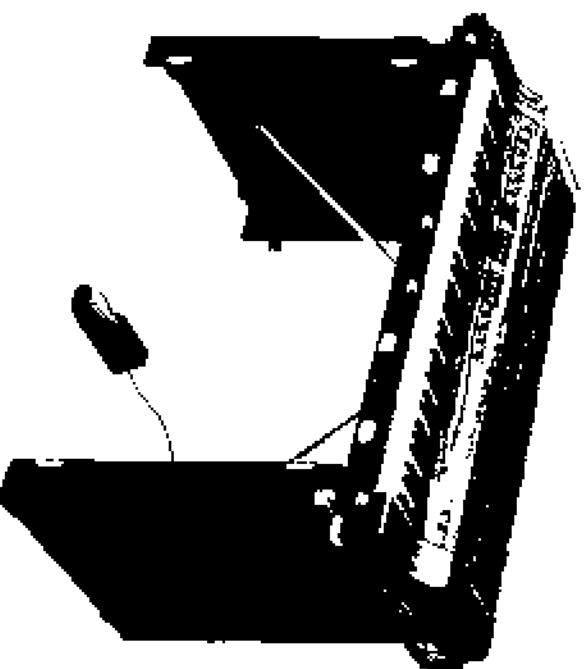
Key 76 lbs. (~ 9.4)
Tone Selector: on, 1/4, ch, 1/2
Effect Controls: Pitch, Decay,
Tremolo Speed and Intensity,
Bass, Treble

Electronic Pianos



NEW
CP-20

Key 61 lbs. (~ 4.5)
Piano 1 Piano 2
Harmonical 1 Harmonical 2
TREMOLO CONTROL &
Speed, Intensity





YAMAHA SYNTHESIZERS

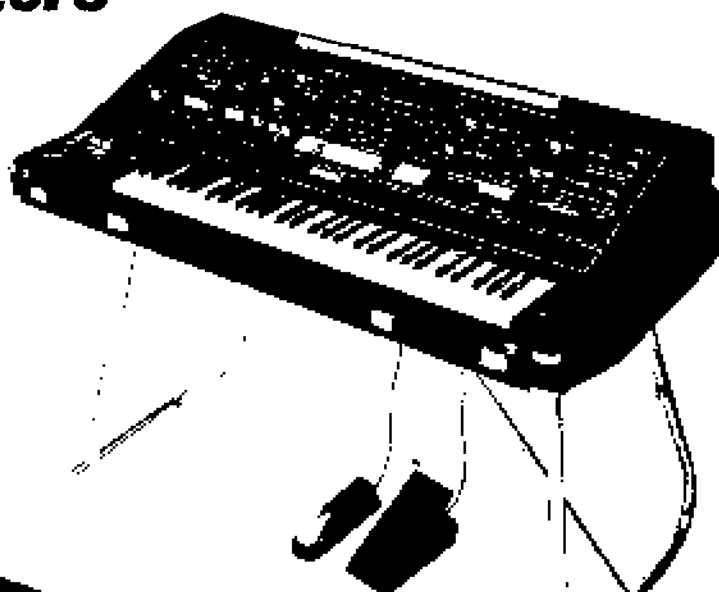
Synthesizers

Distributors and/or dealers
need special service training

CS-80



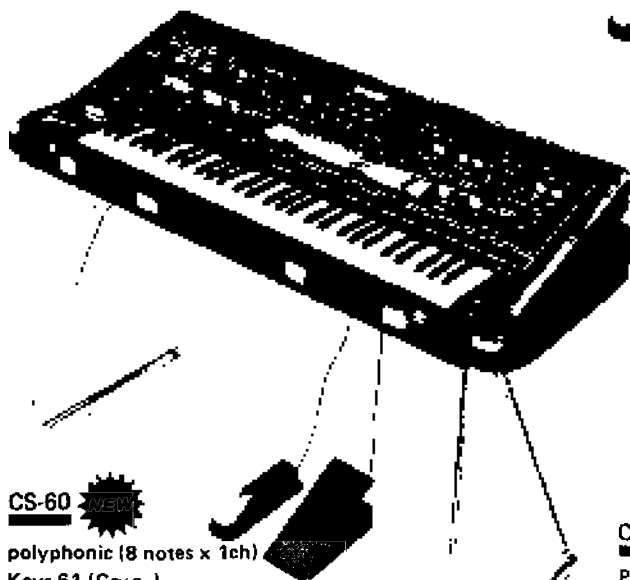
Polyphonic (8 notes x 2ch)
Keys 61 (C ~ c₄)
Tone Selectors: ch. I-11, ch. II-11
Programmable Section Levers:
24 x 2
Memory Banks: 4
Effect Controls: Ring Modulator,
Touch Response, Sub Oscillator
Sustain, Portamento/Glissando,
Slide Controller, Resonance,
Brilliance, Keyboard Controls,
Tremolo/Chorus,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



CS-60



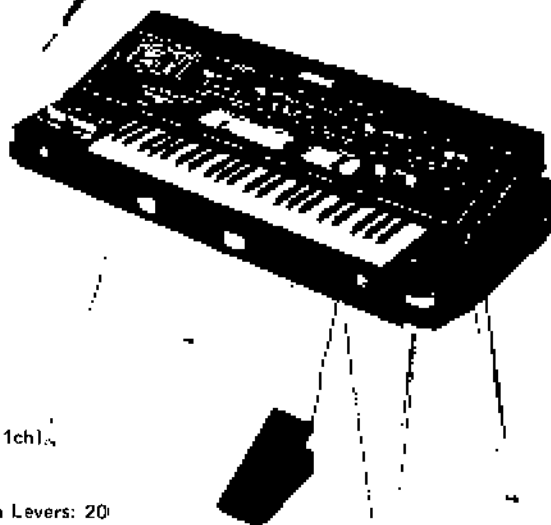
polyphonic (8 notes x 1ch)
Keys 61 (C ~ c₄)
Tone Selection Levers: 20
Memory Bank: 1
Effect Controls: Ring Modulator,
Touch Response, Sub Oscillator,
Sustain, Portamento/Glissando,
Slide Controller, Resonance,
Brilliance, Keyboard Controls,
Transposition Selectors



CS-50



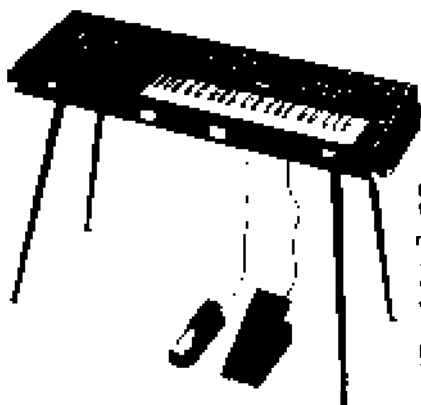
Polyphonic (4 notes x 1ch)
Keys 49 (a ~ c₄)
Tone Selectors: 13
Programmable Section Levers: 20
Effect Controls: Ring Modulator,
Touch Response, Sub Oscillator,
Sustain, Portamento/Glissando,
Resonance, Brilliance,
Transposition Selectors



CS-30L



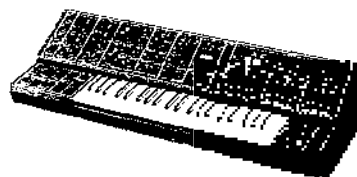
monophonic
Key 44 (F ~ c₃)
VCO-1, VCO-2, VCF-1, VCF-2,
VCA-1, VCA-2
Ring Modulator
Envelope Generators with
LED Indicators
LFO



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





YAMAHA AMPLIFIERS

Built-in Guitar Amplifiers

G25-112

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

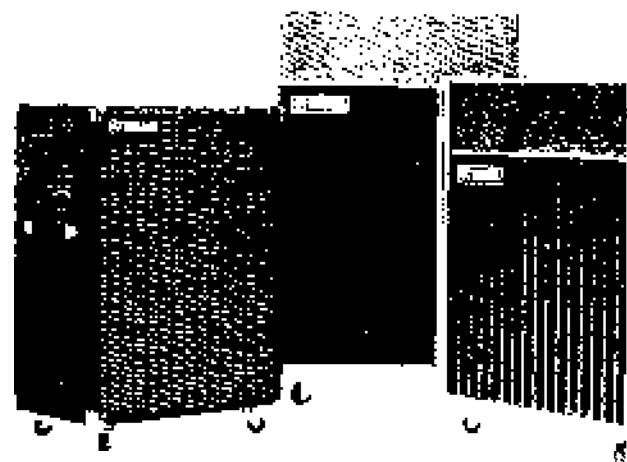
B100-115 (BASS)

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

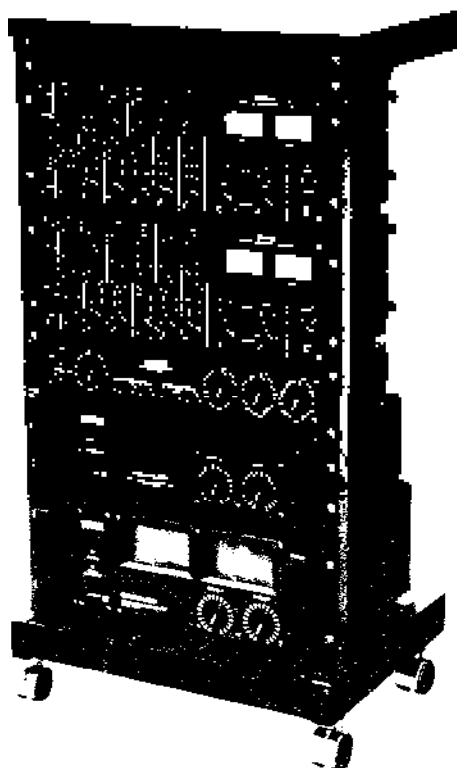
100W
Woofer: 1 x 15" (JA3803)
H.F. Driver / Horn:
1 x (JA4201)



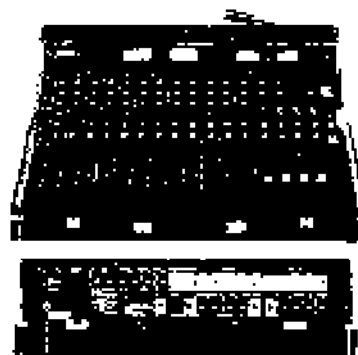
YAMAHA

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

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

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

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)



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

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)

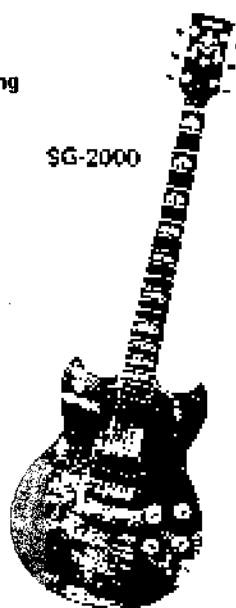




YAMAHA ELECTRIC GUITARS

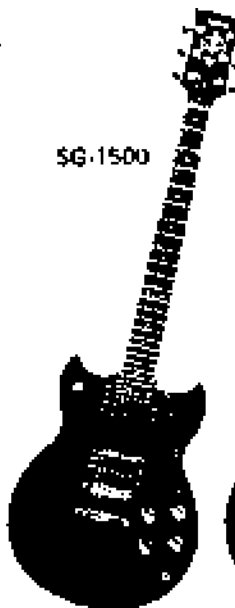
Solidbody Humbucking SG Series

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 SF Series

NEW SC-1200



Natural,
Brown Stain

NEW SC-1000



Blond,
Brown Stain

NEW SC-800



Blond,
Persimmon Red

NEW SF-1000



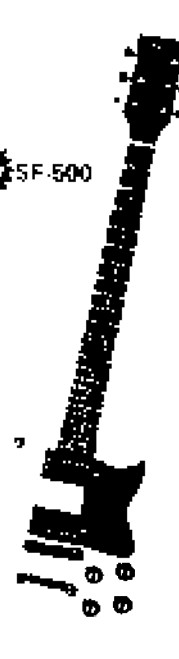
Oil Stain,
Black

NEW SF-700



Brown Stain,
Persimmon Red

NEW SF-500



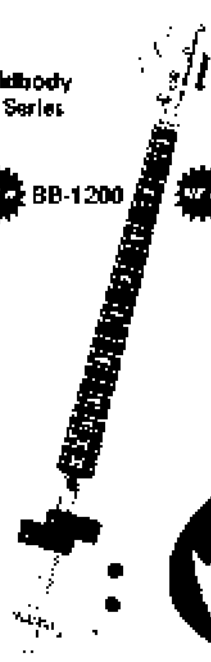
Ivory White,
Brown Sunburst



YAMAHA ELECTRIC GUITARS

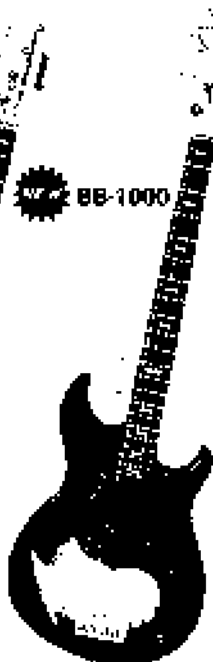
Solidbody BB Series

NEW BB-1200



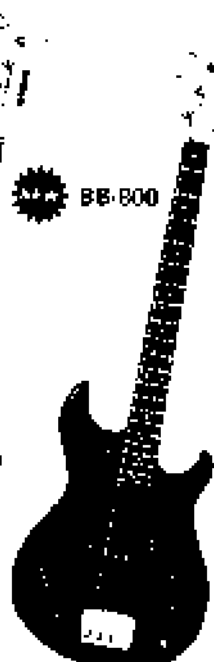
Natural,
Brown

NEW BB-1000



Natural,
Sunburst

NEW BB-800



Brown,
Black

Semi-Acoustic SA Series

NEW SA-2000



Brown Sunburst,
Natural

NEW SA-1000



Brown,
Persimmon Red



YAMAHA

MIXER AMPLIFIERS

Mixer-Amplifiers

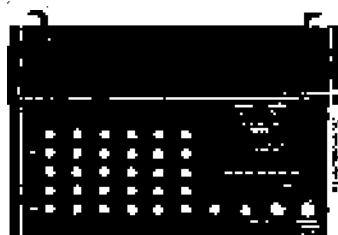
EM-150

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



EM-120

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

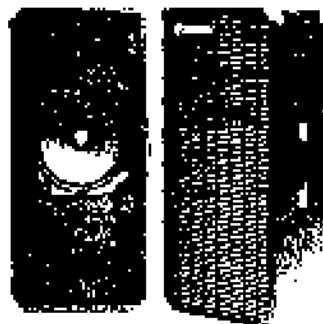
Input Channel Controls: Volume,
High & Low Equalizer, Reverb/
Echo, Input Level Selector,
Output Channel Selector





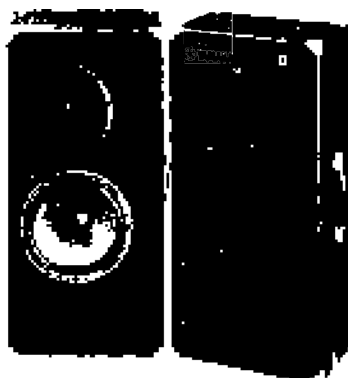
YAMAHA SPEAKERS

Speaker Systems



S0110T

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



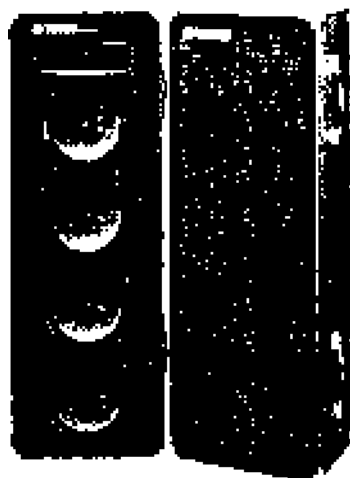
A0112T (Self-powered)

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



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

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



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



S6115H (S6115 + H6115)

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

Hagstrom

A. HAGSTROM LTD.
790 81 ALVDALEN, SWEDEN.

Pick up a Hagstrom - the Super Swede for example. It's a pure guitar. No frills. Just an instrument that sounds good and plays very fast. Only the finest woods go into Hagstrom guitars, just as every fitting is the finest metal. Hagstrom guitars are built to a quality standard unequalled in the mass-produced market place. When you buy a Hagstrom you're buying an individually produced musical instrument.

FCN

FLETCHER, COPPOCK & NEWMAN
Medley Road, Tonbridge, Kent.
Tel: 0732-366421.

From today, anywhere with a power point can be a recording studio.



Up till now, if you were serious about making high quality, two-track simul-sync recordings, you had to resort to sophisticated reel-to-reel equipment.

Up till now.

Because we'd like to introduce you to the revolutionary TEAC A-108 Sync.

It's the world's first-ever two-track simul-sync cassette machine.

And it'll produce beautiful synchronised stereo recordings just like a multi-track reel-to-reel, only with all the simplicity and convenience of a cassette deck.

For the aspiring star, the A-108 Sync represents a unique opportunity to get recording experience without the horrific expense of a recording studio.

While to the fully-fledged professional it means a lot of studio time could be more profitably (and more comfortably) spent at home.

What can the A-108 Sync do?

Take one look at the controls of our machine and you'll realise it's more a question of what it can't do.

For a start, head layout and circuitry has been so designed as to allow you to record left and right channels individually, one after the other, in perfectly synchronised stereo.

Let's take an example.

You lay down your lead track on the left channel. You rewind. Then, while listening to the lead track back through the cans, you can over-dub the bass track on the right channel.

Play back the result, and you'll find both channels have been recorded in perfect sync with each other.

Then, to get some idea of how the vocals would sound, the A-108 allows you to place your voice in the middle of the two-track recording.

You can even hear yourself simultaneously on the cans while using the music blend control to adjust the mix of the new track to exactly how you want it.

We didn't stop there.

The A-108 Sync also boasts a mic/line mixing feature which lets you record your own voice or instrument on to your favourite record (so you can show them all how it should be done).

And once your recording session is over, you only have to flip the 'Cross-Feed' switch to blend left and right channels together to give that 'live' stereo feel to the final result.

As you'd expect, a machine like the A-108 Sync has all the advanced features normally found on TEAC cassette decks.

Features like the finely engineered and highly reliable transport system; the sophisticated Dolby circuitry; and independent bias and equalisation selectors.

Nor have we forgotten the memory re-wind facility built into the tape counter. Where we did stop.

There is, however, one feature of the A-108 Sync that's conspicuous by its absence: the hefty price tag.

Incredible though it may sound, you'll find the machine retailing at around £200.00 plus VAT.

The way we see it, that's a mighty small price to pay for indefinite studio time.

Please send me a free information pack on the revolutionary TEAC A-108 Sync cassette deck and its accessories.

Name

Address

Post Code

Harman UK, St John's Road, Tylers Green,
High Wycombe, Bucks HP10 8HR.
Telephone: Penn (049 481) 5331.

TEAC

Circle 872 on Reader Service Card



Rod Argent's Keyboards

20 DENMARK ST LONDON WC2 Tel. 01-240 0084

ARGENTS LEADS THE WAY WITH

Sequential Circuits

Prophet 5 — Completely programmable polyphonic synthesizer, which will remember 40 complete patches.

Amazing.

Model 700 programmer — 64 patches on your synthesizer memorized.

Model 800 digital sequencer -- 256 note capability, 16 different sequences.

RMI

Keyboard Computer KCII — the first digital polyphonic synthesizer. It sounds so real it's unreal

Oberhelm

OBI — programmable lead line synthesizer.

2 Voice — duophonic synthesizer with analogue Sequencer.

4 Voice -- 4 note polyphonic synthesizer with programmer. A very powerful instrument.

8 Voice — as above but with extra 4 voices making 16 VCOs in total.

Cassette Interface — will load your programmes onto a cassette machine. Build your own sound library.

DSIIA — 144 note digital sequencer.

360 Systems

Spectre — undoubtedly the best guitar synthesizer around.

Polyfusion

Modular synthesizers. With touch keyboard.

Roland

System 700 — The big one, Roland's largest modular synthesizer.

Helpinstill

Electric Grand Piano — just arrived from the USA. Beautiful sound and action.

Stick Enterprises

The Chapman Stick — The guitarist keyboard.

And:

Moog, Yamaha, Roland, ARP, Korg, Wurlitzer, Fender Rhodes, Octave, Skywave, WLM, Welton, Pari, Hammond, WEM, Electroharmonix, Bell, MXR, Systech, Carlsbro, Leslie, Steiner Parker, Crumar, Flightcases, Contemporary Keyboard Magazine.

And from EDP Limited:

THE WASP

a small, fully portable, two oscillator synthesizer for under £200. Unbelievable but true.

We have a team of experienced engineers available to help with technical or modification queries.

So for all that's best in Keyboards, it's **ROD ARGENT KEYBOARDS.**

George Martin

If anyone deserves the title "the fifth Beatle", then surely that honour would go to George Martin. As the producer of all their albums, he contributed more to Beatles' music than anyone outside the Fab Four themselves.

His fame would have been assured if he had done nothing else after accepting their demo tapes and giving them a record contact with EMI. But he went on to achieve legendary status by producing pop music classics with every Beatles album including, of course, the revolutionary *Sergeant Pepper*.

It would be easy to talk about his career just in terms of the Beatles, but that would exclude much of his excellent work with such diverse artists as Jeff Beck, Stan Getz, John McLaughlin and America. Yet even now, 10 years after his last album with them, the Beatles won't leave him alone, for he has just produced a Beatles Concerto album featuring pianists Peter Rostal and Paul Schaefer and the Royal Liverpool Philharmonic Orchestra.

Ironically, George started out as a classical pianist and only took a job at EMI, "as a stop gap on my way to becoming Rachmaninoff the third." He began helping the guy who ran Parlophone Records and soon became hooked on early recording techniques. He worked on records in the early Fifties, but wouldn't go as far as to say he was a producer in those days.

"Records weren't so much produced then, the guy was more of an organiser at the session, in fact he wasn't called a producer, he was called an Artist Recording Manager. He used to supervise the engineers and be the link man between the artist. It was a very rudimentary form of recording, so there wasn't much you could do.

"I'd already done a lot of 'spoken word' records before the Beatles, I had a corner in the comedy market. I used to do all the records for Peter Sellers and Spike Milligan, and the *Behind The Fridge* boys, Peter Cook and Dudley Moore. That was the beginning of being a record producer because you were a kind of drama producer as well. Particularly in stereo, you were planning a sound picture."

Towards the end of the Fifties, rock 'n' roll came along but the groups were mainly lead singers with a backing band, like Cliff Richard and the Shadows or Rory Storme and the Hurricanes. George used to work with Jim Dale and also had the Vipers skiffle group, but he was already looking out

for something new. When Brian Epstein came along with his demo, he found it.

"Brian came to see me with this demo and I didn't know at that time that he'd been to everyone else in town, including my own company, and been turned down. It wasn't very good, but I thought it was quite an interesting sound and so I said, 'The best thing you can do is bring the boys down to London and I'll have a look at them and give them a recording test.' I didn't know they'd already done a recording test with Decca.

"So I spent an afternoon with them in Number Three studio at Abbey Road, got to know them, liked them and signed them. It was entirely on my say so that they recorded, we had the power of life and earth in those days."

The rest, as they say, is history with George working on all the Beatles' albums. They were, he says, very much a team effort and after the initial year of success the four became more involved in studio work and were very quick to learn and latch on to new ideas. The willingness to experiment led to some memorable recordings, and George himself developed studio techniques which were to change the whole history.

"Speeded up tape was my idea and the reversal of tapes and playing things backwards was another little gimmick I introduced them to. It was all those

technical little things I'd learned over previous years by manipulating tapes for myself. Once you know what can be, it isn't so much the cleverness of doing it as choosing the right moment to do it.

"For example, that backward bit was first used on a Beatles' track called *Rain*. I just happened to find a piece of backward music of John's voice that fitted exactly with the right chordal sequence and made a very interesting pattern. Those kind of things were done through experimentation in the studio, and John and Paul used to leave those kinds of things to me. That was the kind of thing they tended to shy away from. They were what John called 'production gimmicks.'

George was one of the first people to use phasing, which came about through the invention of Artificial Double Tracking, the product of one of the Abbey Road backroom boys, Ken Townsend.

"I said to Ken that it was such a chore to get people to record things twice over, can't you just do something with a time-slip to make it sound like two people? He went away and thought about it and devised this tape delay system, where he took an impulse off the record head. Of course, when you mix, you take it off the replay head which is behind, and by delaying that he was able to bring the second image very close to the first.

"We found out, by trial and experiment, that round about 30 milliseconds

THE PRODUCERS



The Beatles Concerto (arr. J. Rostal) Peter Rostal, Paul Schaefer and George Martin.

was the optimum time difference between the two images to get a really good artificial double tracking sound. More than that, we found that if you let it float you had an extra effect, because not only did you have a good distance between the two images which varied, but also the slight variation in speed in the second image created an undetectable 'wow' which altered the harmonics of the voice or instrument. So it would not sound like an exact image, so that enhanced the effect."

They discovered quite by chance that if by taking this image close to the original until it actually became one, you would get a phasing effect. The Beatles loved the effect, particularly John, who according to George never liked the sound of his own voice and constantly asked for it to be distorted.

George also has an interesting story about how the word 'flanging' came about. Apparently one day John asked him to explain how ADT and phasing was done. "We used to joke about a lot and I said, 'Well it's really a bit too technical for you, John, but what you do is get the double bifocused splashing flange and that goes through the Doppler effect.' Having said that he used to ask, 'Would you like to do that flange thing on my voice.' So every time, he called ADT 'flanging'.

"Then many years later I found out that the word flanging was being used, and the derivation of it which was given to me was rather curious. It was that in the early days, British engineers started ADT, and found they were able to vary the speed of the second image by putting their thumb on the flange of the plate - hence the word flanging!"

Not all of George's experiments were successful, and he particularly remembers trying for a long time to get a 'speaking instrument' without much success. Of course we now have the Vocoder which does just that.

Today studio gadgetry and that dreadfully overworked phrase, "state of the art technology", has become big business. Studios vie for the latest and most sophisticated hardware which is flooding the market. As a pioneer of so many effects, how does George Martin rate all these new innovations?

"I've tried them all out, but they're fairly fringe kind of things. They make minimal difference nowadays. I think a good delay system is worthwhile but I've always been used to making my own effects. It's quite useful to use tools if you can speed up the process, but some of them take more time to set up than they're worth. Sometimes you get better

results doing it the old way, but it depends. Harmonisers are very useful and obviously you have to have a lot of outboard gear in a studio, but I don't go out and buy every machine that comes on the market."

However, George found that he needed all his experiences and technical know-how when asked to work on his final Beatles album, *The Beatles Live at the Hollywood Bowl*. The project was fraught with problems and, at the outset, George wasn't very enthusiastic. He has been present at the original concert and remembered that the sound was awful and the boys hadn't been singing in tune. He naturally thought the tapes, which were recorded on three-track 1/2" Ampex machines, would never see the light of day.

His first reaction on being asked to listen to the tapes was, "You're flogging a dead horse." He knew the Beatles wouldn't approve and he was against reviving something sub-standard just to make money. However, he reluctantly listened to the tapes - and was pleasantly surprised.

"I must say that, without working on them, I was amazed at the excitement generated on them. The feeling was obviously nostalgia for me, but I did say to myself, 'If I could do something with this, it would be great.' So I said I'd work on them, but wouldn't make any promises.

"The tapes were in a terrible state, they were about 12 years old and were all crinkled at the edges because they'd been very badly stored. First of all, it was very difficult to find an Ampex three-track machine because they don't make them any more. Eventually we did find one, a vintage machine, and the first job was to transfer it to 24-track because we couldn't keep playing the original tape.

"To begin with, when we played it once the machine began overheating, so we had to bring in a vacuum cleaner and blow cold air on it. Because of the crinkled edges, we had someone standing by with a pad of cotton wool holding the tape while it was going past the head. Once we got it onto 24-track, it was easier. Each of the three tracks I put onto three of the 24 so I had nine tracks and we then played with each track.

"On the original three-track, you had voices in the centre, bass and drums on one track and both guitars on the other. The audience reaction, surprisingly, wasn't on the vocal mikes but mainly the instrumental mikes. What I did, for example, on the bass and drum track that had been transferred to three tracks, on one of the tracks I would concentrate on the bass sound, on another I'd concentrate on the top end of the drum and the one

underneath, maybe the bass end of the drum. So we'd actually get three different sounds out of one sound and then we'd place them in a stereo picture so it gradually evolved - then copious editing. It was a labour of love really, and I think it worked out alright."

It seems that whenever anyone mounts a project involving Beatles' music, a call to George Martin is required. It is not something he encourages because, as he explained, "It was a lovely period in my life, but I don't like digesting it every moment of the day." He admits that the Beatles Concerto album is the type of thing he usually shys away from. Still, he became interested in the project, produced the album, and thought that it was the best arrangement of Beatle material in classical form that he'd ever heard. "To me it's the kind of thing where you're listening to a piece of classical music, and you're pleasantly surprised to find you know some of the tunes."

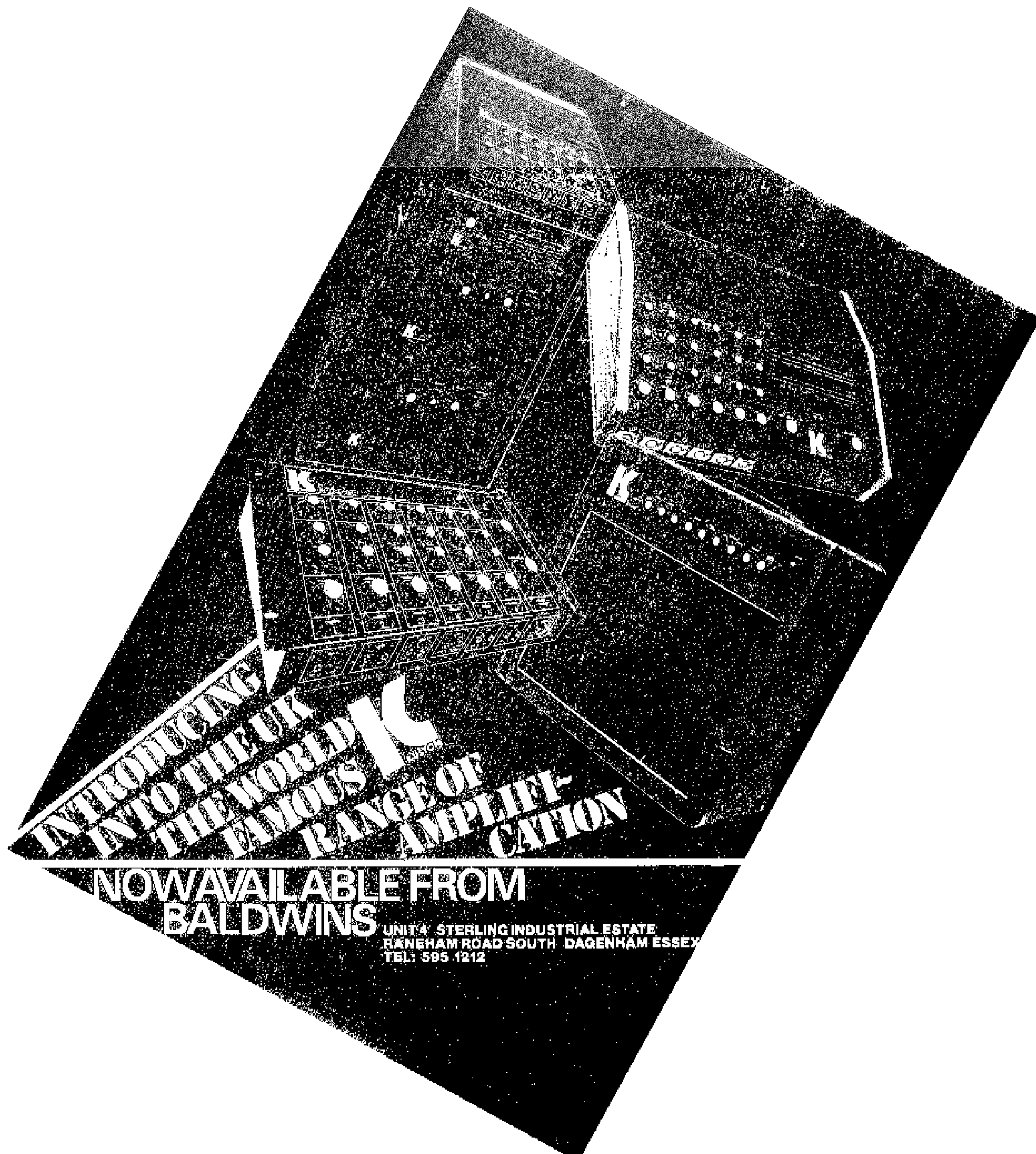
Of all the artists George has worked with outside the Beatles, Jeff Beck seems to be the one which would perhaps raise a few eyebrows. The polite, respectful character of George Martin appears to be at the other end of the spectrum to Beck the moody guitar hero. However, the partnership worked extremely well, and the results, *Blow by Blow* and *Wired*, brought Beck back into the limelight.

"I had a message from Jeff's manager," said George, "asking if I'd be interested in working with him. Maybe the only strange thing was that Jeff should think of me, but I've always admired him as a guitarist - I think he's a marvellous guitar player. People advised me against it, saying, 'you'll burn your fingers with Jeff, he's a strange bloke, you won't be able to make records with him.'"

"Well, *Blow by Blow* was the first one, and it wasn't easy, but it was very rewarding. I thought Jeff was remarkably pliable, and when I suggested putting strings behind him, which was a pretty dangerous thing to do, he went along with it and loved what we did, and the album went gold."

America were another band who benefitted from the Martin magic. He teamed up with them after their third album had flopped, and went on to make seven albums with them, four of which went gold and one platinum. In spite of this long association, there has never been any hint that he would form a relationship which would in any way be similar to the one he shared with the Beatles, and this was a very conscious policy on his behalf.

"After the Beatles, I didn't seek to



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A moment of magic – the Beatles with George Martin at Abbey Road

have any long relationships with anyone, I like doing individual albums. So I like doing the odd album with Mahavishnu, then going on to make an album with John Williams, that kind of thing. The great thing is that I can make an album with someone and not make a commitment to do another.

"I did three albums with Stan Getz, for example, because I liked doing the first one. I've just done an album with Gary Brooker. I liked it and enjoyed working with him. I might do another, I might not, but I don't have to, which is great."

Nowadays, George divides his time between producing, mainly in the States, and running his own studios. He set up Air Studios in the Sixties and is currently putting the finishing touches to a new one on the Caribbean island of Monserratt. As someone who has worked in studios all over the world and also own his own, it seemed natural to ask George what he thought of studios today.

"Studios are so near each other these days, that the things one tends

to look for are the little finishing touches. Obviously, the board has to be a good one, a clean one, and your monitoring system has got to be something you can cope with. We have all Neves, and the new Neve board in Monserratt is the best board I've heard in my life. In the US, the boards I like are Trident and API. I have used MCI and they're very clean but I don't like the smallness of their knobs. I like something you can get hold of and know what you're doing.

"I have recorded in quite a few Eastlake type studios, but I'm not crazy about them. They're comfortable physically, but not acoustically. I find the control rooms rather oppressive and small. But there is a high standard now, so it's the little extra touches you look for when booking a studio. In Los Angeles, I use Cherokee a lot because the people there are very nice to work with, and put themselves out for you."

When asked to name a favourite producer, George doesn't immediately reel off a string of names. He mentions

Phil Ramone's work, and is careful to go for the "legitimate" producer rather than an artist who just happens to fancy his hand at producing.

This leads onto the question of today's producer now being held in as high esteem as the artist, something which is a long way from the job he started out doing. "I regret that, I think it's wrong. Obviously it benefits me, and I'm not unhappy about it except that, being impartial, a producer is *not* as important as the artist and I think it is wrong to put him in that position.

"I think the unfortunate side effect of that is, because he has become as important, the artists regard the production credit as a vital one and always want to do it themselves. I don't think they do as good a job, I think everyone needs the impartiality of a producer, if he's a good producer. I regret this swing in emphasis – although, I must confess, it hasn't done me any harm!"

David Lawrenson

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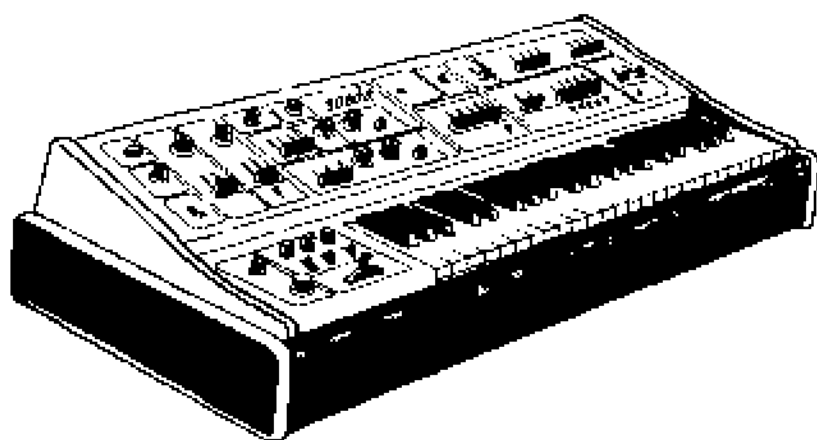
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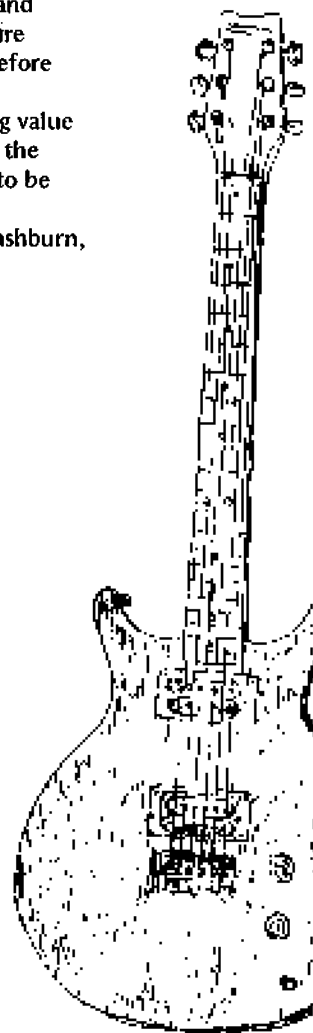


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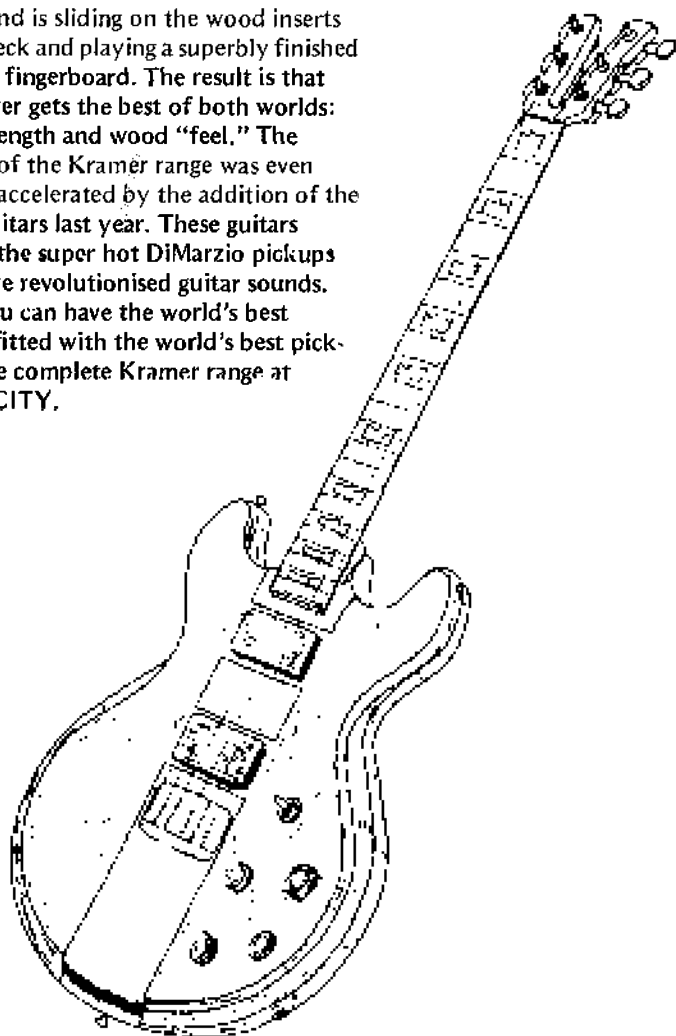
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SARM STUDIOS, LONDON

London's East End provides an unlikely setting for one of the top recording studios in Europe. For just around the corner from Aldgate East tube station is the home of Sarm Studios, Britain's first purpose-built 48-track studio.

Occupying the basement of a building in Osborne Street, Sarm's list of prestigious clients has, over the years, included Queen, Elton John, David Essex, Ian Hunter and Kiki Dee. All could have chosen more central locations but after a brief visit to this plush, darkened labyrinth, it's easy to judge why they opted for the East End.

Sarm provides a small intimate cosy atmosphere coupled with the best in technical sophistication where even unknown bands are guaranteed the same treatment as the international celebrities. This month Lindisfarne have been working there, alternating with the up and coming Buggles, a new Island discovery.

It's something which the Sinclair family, who own and run Sarm, are proud of. No matter who you are, their full range of facilities are placed solely at your disposal with no charge made for overtime. Noted producer, singer and songwriter John Sinclair explains, "There's no big star bias, whether you're Elton John or a young band no-one has heard of, you get the same service. In this business, the nobodies of today are tomorrow's stars. The people you meet on the way up are the people you meet on the way down. It's a small studio and when you book time here, it's your's completely, there's no question of people sharing facilities. The reason we don't charge overtime is that we believe this is a 24 hour business, it doesn't matter whether you start work early in the morning or late at night."

Sarm came into operation in 1973 as Britain's first purpose-built 24-track studio, and has been a leader in the recording field every since. Said John, "When we began, 24-track studios had been working in America for some-time but as far as we knew not in Europe. As we were starting from scratch there wasn't much difference between 16- and 24-track, in terms of total investment, so it was quite logical to develop along those lines. We did a lot of the work ourselves, the specialist work was done under supervision."

The venture took off quickly and their facilities were very much in demand. Clients came back again and again to such a degree that original plans to make various improvements, particularly to the actual physical



surroundings, had to be postponed until fate took a hand. Sarm was hit by a fire in March, 1978.

Studio manager Jill Sinclair, the "other half" of this brother and sister partnership, takes up the story, "Elton John was booked in, it was a Sunday and he had to cancel. Someone, we don't know if it was kids or who, started a fire on the doorstep by the stairwell. Well that was it. If it had been a few feet away we'd have been OK but the damage was done!"

When the firemen had finished, Sarm was submerged under five inches of water. The smoke and water damage was more serious than the actual effect of the fire. There was major damage to power and audio cables and repairs would have meant so much disruption that the big decision was taken to close the studio and carry out the long planned improvements. The new 48-track Sarm was born, redesigned, rebuilt and redecorated.

It was redesigned with flexibility in mind with the maintenance and tape library being moved into new Sarm offices across the road, where there will soon be a games room and shower for those relaxing between bouts of work.

The studio offers a 24-hour collection and delivery service on copying and editing and all the equipment is first class. Occupying pride of place in the control room is a new TSM console, 40-in/40-out, 24 groups, Studer 24-track machines linked by the TLS locking systems and Programmable Insertion Record Capability. This allows the tape machines to electronically compensate for the "hole" left between the erase and the record head when dropping in and out.

The most extensive structural changes have been made in the studio area, where the striking good looks are backed up by inventive and effective acoustic design. It now houses a large drum booth, the acoustics of which can be altered with clip-on hard screens to the rear of it. In the centre of the room is a very live area of hexagonal shape with brick floor and wooden ceiling. Behind the studio's splendid 9ft 6in Bosendorfer concert grand piano is what John describes as their "naughty sculpture", an erotic work which gives the sound board of the piano a live area to "speak" into.

Most novel of a long list of innovations are the triangular movable traps with angled perspex vision panels directing the sound down into their rockwool filled bases. Mood lighting has also been carefully considered and there are eight dimmers in the studio. In the control room one of the attractive features of the TSM desk is that all the monitor channels have their own EQ, auxiliary send, and

STUDIO OF
THE MONTH

RECORDING WORLD

panning functions, and can be routed directly to the quad/stereo buss, making the desk effectively an 80-in set-up when mixing.

A long list of auxiliary equipment includes: parametric equalisers, graphic equalisers, Kepex noise gates, digital delay lines, instant phaser, flanger, Omnipressor, DBX compressor/expander, Westrex compressors, Marconi limiters, Teletronix levelling amplifiers, Universal audio limiters and three high-frequency limiters.

Staff at Sarm comprises chief engineer Gary Langan, engineer Julian Mendelshon, tape operator Richard Williams, receptionists Karin Clayton and Kathleen Coleman, not to forget electronics wizard Jim Smith. He has a habit of designing and building new "toys" when his exact requirements are not met by commercial products and this back up facility has proved a great asset.

Getting away from the technical

side, the informal, intimate atmosphere of the studio is just as important. There is plenty of room to relax and a busy kitchen where food and other extras are provided free of charge. Says John: "We look on it as being all part of the service. Little things mean a lot to us, and it's taking care of the little things that has given us such a good rapport with artists and with producers.

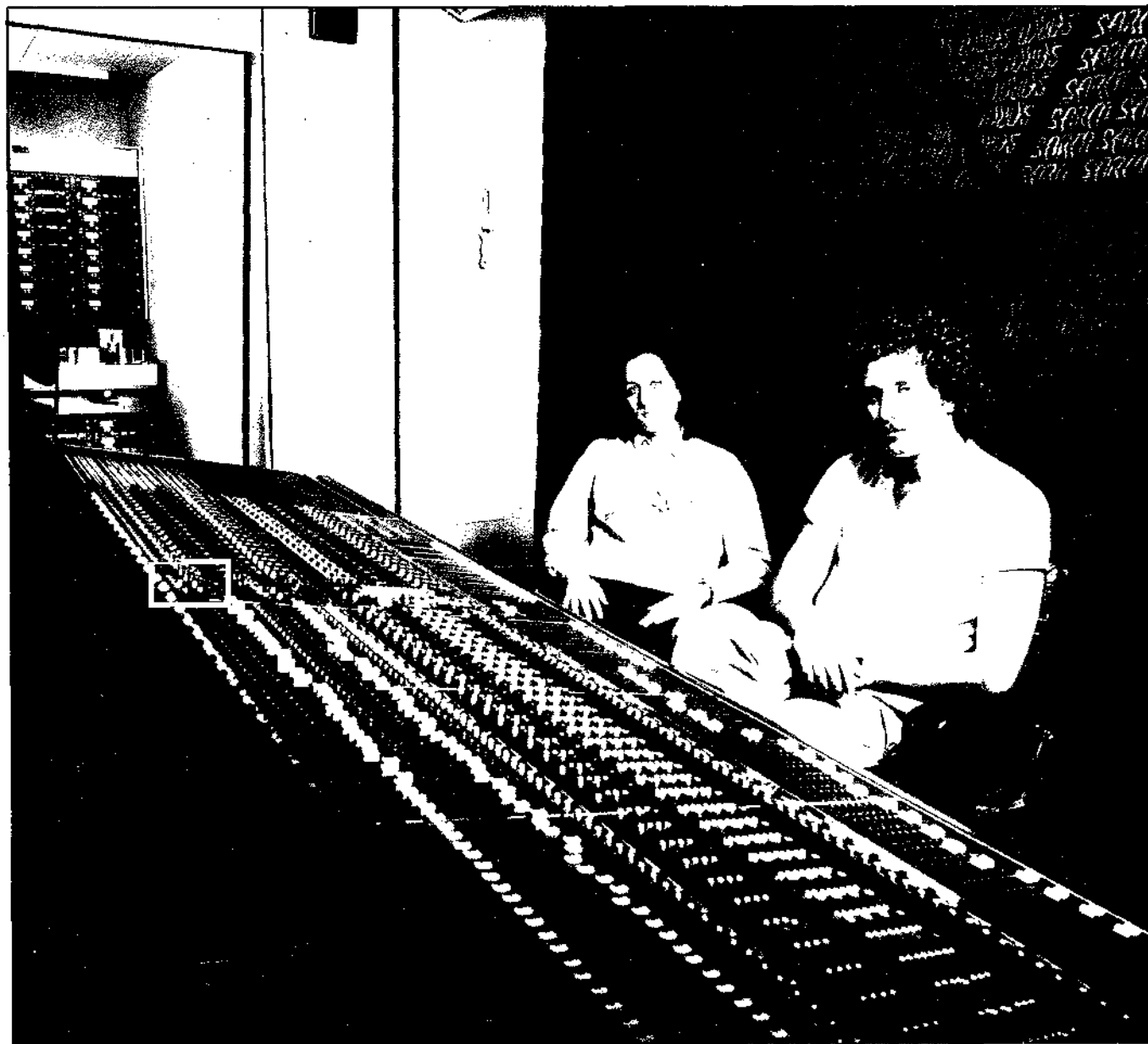
"It makes it an economical studio to work in, there are no extra costs. We try to take as much pressure off, in the sense of taking away the little boring things, to let people get on with what they're here for - making music. You're there to create magic, and creating magic depends on a certain chemistry and I think we have it. There are a lot of attractions for artists here. Why else would Elton John make a special trip over here from Windsor to the East End. It's ethnic and there's an anonymity. The big

names can work here in privacy.

"Elton was here once and took a few people out for lunch at a nearby Indian restaurant. The bill came to £18 so being the generous person he is, he doubled it, writing out a cheque for £36 and gave them his banker's card. The staff had a hurried little conference in the corner and came back to say they couldn't accept it because his card had a limit of £30!"

Sarm are now branching out into promoting, with two new companies being set up - Sarm Productions and Sarm Songs. Says Jill: "We'd be very interested to hear from new bands and artists. We're now looking for new talent who, if they came to us, wouldn't run the risk of getting lost like they probably would with one of the big record labels."

So, from the ashes of the great fire of '78 has risen the new Sarm, with the same enthusiasm and enterprise. Play it again, Sarm!



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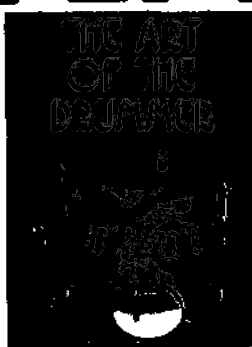
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Speakercheck

In the January 1979 issue of this magazine, we tested six compression drive units from the "standard" category, and followed this in February with a further eight units, this time from our "special" category calling these "standard" into groups for review purposes. The "standard" group are the more general purpose loudspeakers and drive units, while the "special" group caters for the more professional end of the market. For example, it would be quite unfair to compare, say, a Celestion G12 with a JBL K120. The JBL sells at about four times the price of the G12, so we should look at the two types of product separately. Though we sometimes get an overlap between categories the arrangement has generally worked well, and so we will stay with it.

In the case of compression drive units, the price break between "standard" and "special" groups comes at around the £100 mark, though this break was fairly well defined at the time we did our first review of this type of product, we now find that there are a number of new products which sit right on the dividing line. These it seems, are really lower priced

professional quality products rather than general purpose units, but are included here because they are priced within reach of the working band, and could be considered for incorporation into commercial loudspeaker systems.

There are very few commercially made systems — apart from specialist makes such as Midas-Martin etc, who incorporate say, a JBL compression drive unit costing anything up to £300 in a standard loudspeaker system. But the Emilar EC175-8 and the Vitavox Music Motor reviewed here would all be a viable commercial proposition, with retail prices just under the £100 mark before VAT. The remaining three units reviewed in this month's *Speakercheck* are the Celestion DC50 and DC100, and the RCF TW101. These really are general purpose units and are primarily aimed at the manufacturing market, although they are generally available over the counter as well.

It would be beneficial for readers to refer to the 'Speakercheck' articles in the January and February issues of IM, as a number of important matters concerning compression drivers were discussed there. However, I will

repeat details of the way in which our tests are conducted in order to add some relevance to these results.

The tests applied to each unit were as follows:—

1. Sine wave frequency response curve, swept from one octave below the maker's recommended crossover frequency to 40kHz, with an input voltage calculated to dissipate 1 watt at the manufacturer's stated nominal impedance, measured at a distance of 1 metre on the central axis of the test horn. This response is also used to assess the average sensitivity of the unit, and is published as part of the test result.

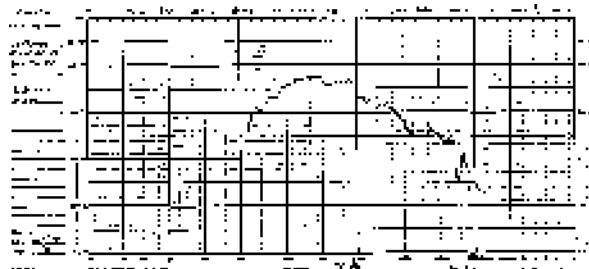
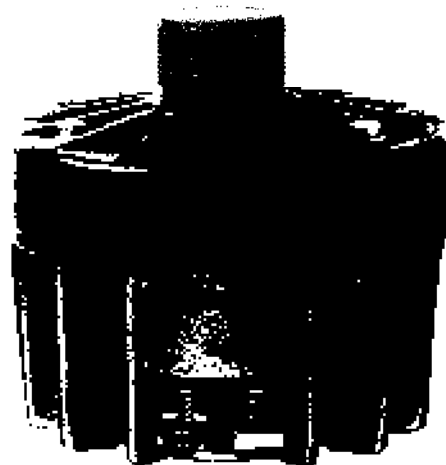
2. Distortion at manufacturer's rated input power is measured on a second sine wave plot, this time swept from the manufacturer's recommended crossover frequency to 40kHz, with an input voltage calculated to dissipate 10 per cent of the maker's programme rating at the manufacturer's stated nominal impedance. The second and third harmonic components present with the fundamental frequency are then plotted on the same curve and the ratio between these are calculated and expressed in percentage terms.

VITAVOX Music Motor (UK)

Retail price £113.85 incl. VAT

Parameter	Manufacturer's rating	Test result
Power	30w cont. pink noise 100 w programme	Confirmed at equivalent sine wave power of 10w RMS above 600Hz
Distortion	Not stated	10% @ 10w RMS sine wave
Sensitivity	109dB @ 1w @ 1m (400Hz — 15kHz pink noise	103dB @ 1w @ 1m averaged between 400Hz & 4kHz
Resonance	Not stated	700Hz coupled to std. test horn
Impedance	8 ohms	7.5 — 14.5 ohms
Recommended c/o frequency	Not stated	Above 1kHz
Useful frequency response	400Hz — 15kHz unqualified	200Hz — 10kHz @ 12dB — see graph

This brand-new drive unit has a particularly business like appearance and, as with most products we have reviewed from this manufacturer, is built to a high engineering standard. It is unusual in a number of ways. For example, it is unusual to find a new product coming on to the market with an Alnico type magnet assembly, due to the rapidly escalating price of cobalt and the general shortage of this type of magnet. It has a particularly clever arrangement for rapid, on-the-road replacement of the diaphragm assembly with just a pozi-drive screwdriver, but the unusual feature about this is that the diaphragm is replaced by removing the substantial cast alloy faceplate instead of taking off the back cover. Not that this is in any way detrimental, as the unit has the standard 1.362" multi 18tpi. screw thread coupling and therefore, there is no difficulty in removing the unit from its horn for servicing — unlike the larger flange mounting types, which can be particularly awkward to decouple in situ, and therefore usually have rear access for diaphragm replacement. Even the three retaining screws in the faceplate itself are of the captive variety so that will not get lost in the process. Good thinking indeed. The rest of the unit looks very much like the magnet assembly of the old Vitavox GP2 drive unit (see January 1979 'Speakercheck'), within a large, heavily finned, black painted, alloy housing, fitted with a pair of rather fine spring retaining terminals and 'new image' logo at rear. It has a substantial, 'butch' look and feel about it. Mind you, if the unit ever did generate enough heat so as to require all those fins etc, there could not possibly be very much sound coming out, as it would require all the input power the unit could handle to warm up the



cooling fins! But I am being facetious, and riding one of my pet hobby-horses at the expense of what is, without doubt, a fine new product from a very well established British manufacturer.

The unit has not come out at all badly from a performance aspect either. The frequency response, although falling short of the maker's claims by our reckoning, is usefully wide, and free of any serious dips or peaks and would permit the unit to be crossed over at practically any frequency in the range, except that the third harmonic distortion component is rising rapidly below about 600Hz and therefore, a minimum crossover of 1kHz is recommended. Above this frequency, there was little evidence of any stress at our 10w sine wave test, although distortion did rise to about 20 per cent at 20w. Sensitivity as measured was not high, and due in all probability to the use of a different testing procedure, as well below the maker's published figure. Even so, at 103dB it is far from bad.

All aspects considered, this is another good quality product. Very well made, and good overall performance, if tending towards the expensive side on today's market.

A distortion figure of 10 or less qualifies for a confirmation of the maker's power rating.

3. The active impedance of the unit is plotted right across the frequency spectrum and maximum and minimum impedance values are read off this curve, being the maximum and minimum values attained above the maker's recommended crossover frequency, and below the maker's stated upper frequency limit. The resonant frequency of the system is also taken from this curve.

The tests are carried out at the GEC Hirst Research Centre at Wembley under anechoic conditions.

Obviously, with one group of products priced around the £30/40 mark, and another at £110/115 mark, direct comparison between the products bracket have the usual pyramid response characteristic and require careful filtering to avoid the harshness

often associated with this type of drive unit. A 12dB/oct filter at 2kHz would seem about right for the RCF TW101, and Celestion DC100, while the DC50 would benefit from a filter with a 3kHz turnover point. The TW101 does not have quite so pronounced a pyramid shape as do the two Celestion units, but distortion levels are of a similar order for all three — the DC50 showing up best in this respect. The more expensive units have their own strengths and weaknesses. The new Vitavox Music Motor has the lowest distortion, but is down on sensitivity and does not have the particularly smooth frequency response curve exhibited by the Emilar. The Emilar has a superbly smooth frequency response of the order normally only available at the top of the JBL product range — at between two and three times the price of the Emilar unit. It has very good

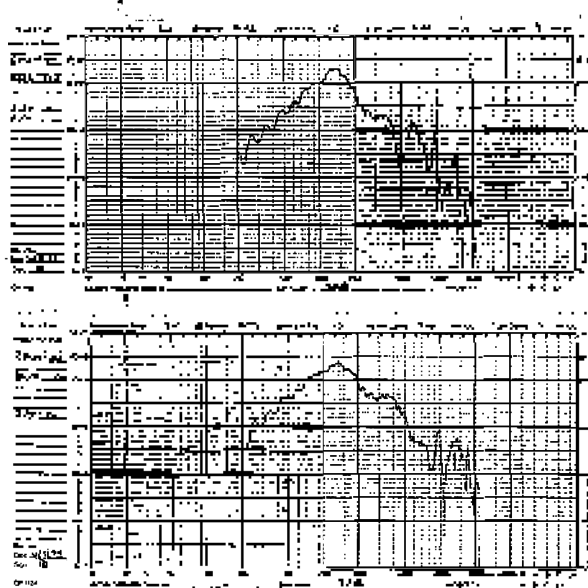
sensitivity, but suffers from what I consider to be high distortion levels — of the order of 15 to 20 per cent at the equivalent of a 100 watt musical programme rating.

All measurements were made with the sample driver coupled to a standard laboratory horn which has been specially designed for this purpose, and is not commercially available. It has been made available to us by Vitavox Ltd., who use it for product development and testing in their own research and development department. This horn is illustrated here so that those interested can assess for themselves the loading conditions under which the test units are operated. It is constructed in a number of interconnected sections, so that any type of throat coupling can be accommodated, and the horn length adjusted accordingly.

CELESTION DC50 (UK)

Retail price incl. VAT £26.91

Parameter	Manufacturer's rating	Test result
Power	50w system rating	Confirmed at equivalent sine wave power of 5w RMS above 200Hz.
Distortion	Not stated	10% @ 5w RMS sine wave
Sensitivity	101dB @ 1w @ 1m averaged between 1kHz & 10kHz	103dB = 1w @ 1w averaged between 400Hz & 4kHz
Resonance	Not stated	1.3kHz coupled to standard test horn
Impedance	15 ohms	11 — 16 ohms
Recommended c/o frequency	Not stated	3kHz at 12dB/oct
Useful frequency response	100Hz — 8kHz unqualified	500Hz — 4kHz @ -12dB 1kHz — 10kHz @ -12dB with 3kHz, 12dB/oct high pass filter



Although nicely made and finished, these two units are of utilitarian construction, being built to do a job of work with no frills. A common, nicely cast face plate is used for both models which carries the standard 1.362" multi 18tpi throat coupling and a pair of 0.110" 'Fast-on' terminals, and is nicely finished in a black crackle stove enamel. The only difference between the two models is the size of the flat ceramic magnet assembly fitted behind this face plate. Both have 2" voice coils and from the makers specifications, should have very similar performances — the only differences being the power ratings and the 2dB increase in sensitivity on the part of the DC100. However, an inspection of the results obtained from our tests show other differences which are not at all apparent from the specifications as published. Firstly, we have the usual pyramid frequency response curve so often found on this type of unit, and the best way of using such a driver is the use a high-pass filter having a turnover frequency that is well above the actual lower frequency at which the unit will be used. In the case of the DC50 and DC100, filter frequencies of 3kHz and 2kHz respectively will produce a useful response from around 1kHz to 10kHz, which can be seen to represent a marked improvement over the response of the raw drive unit. Also, operating the unit at these frequencies will be compatible with the characteristics of most of the general purpose horns with which such drive units are likely to be used. (see March 1979 'Speakercheck'). This does result in some loss of sensitivity, but removes the peakiness of response and in some circumstances, will permit an increase in power handling capability to compensate. Surprisingly, the DC50 has a much lower distortion figure than does the DC100 — in fact, on a re-test at 10w (equivalent to a 100w music signal), the DC50 still showed lower distortion than the DC100, and from the characteristics of the distortion measured, did not seem to be under any great stress at this level! The sensitivity levels recorded are very good indeed — especially as the response peaks have not been taken into account in the averaging of these figures. They would not be recommended for use in a professional sound rig, but are not intended for such applications, and at these prices, must be considered very good value indeed.

CELESTION DC 100 (UK)

Retail price incl. VAT £31.28

Parameter	Manufacturer's rating	Test result
Power	100w system rating	Unit under stress at equivalent sine wave power of 10w RMS
Distortion	Not stated	20% @ 10w RMS sine wave
Sensitivity	103dB @ 1w @ 1m averaged between 1kHz & 10kHz	107dB @ 1w @ 1m averaged between 400Hz & 4kHz
Resonance	Not stated	1.3kHz
Impedance	15 ohms *	13 — 12 ohms
Recommended c/o frequency	Not stated	2kHz at 12dB/oct
Useful frequency response	100Hz — 8kHz unqualified	300Hz — 5kHz @ -12dB 800Hz — 10kHz @ -12dB with 2kHz, 12dB/oct high pass filter

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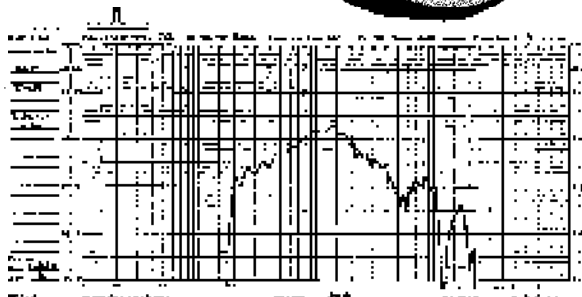
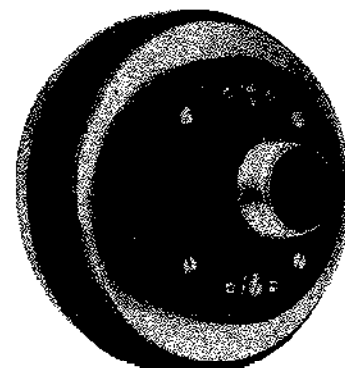
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RCF TW101 Retail price around £43.00 incl. VAT

Parameter	Manufacturer's rating	Test result
Power	100w unqualified	Not confirmed — see text
Distortion	Not stated	15% at equivalent sine wave power of 10w RMS above 400Hz
Sensitivity	114dB @ 1w @ 1m when coupled to RCF 4823 horn	109dB @ 1w @ 1m averaged between 400Hz and 4KHz — see graph
Resonance	Not stated	1.5KHz when coupled to standard test horn
Impedance	8 ohms nominal	6.5-8.5 ohms
Recommended c/o frequency	400Hz	400Hz
Useful frequency response	400Hz-15KHz unqualified	400Hz-10KHz @ 12dB — see graph



This compression drive unit looks rather like a large ceramic type magnet assembly, removed from the back of a cone loudspeaker chassis, and fitted instead to a cast alloy faceplate. The horn coupling is standard 1.362" screw thread and the overall finish and presentation is of the usual RCF quality. If a little on the utilitarian side in this particular instance. A 52mm aluminium diaphragm is fitted at the front end of the magnet assembly, under the face plate, and is field replaceable with a soldering iron.

Although by no means smooth, the frequency response remains within reasonable limits over most of the useful response range — which from our tests is only to 10KHz, as compared to the 15 KHz figure claimed by the manufacturers. A more useful working range would, in

my opinion be from around 800Hz to 3KHz purely as a midrange unit, in which case its sensitivity average would be increased to about 110 or 111db. Although the power rating of 100w was not confirmed, remember that our criteria relates to distortion levels, and not necessarily to the ability of the unit to handle the amount of electrical power being fed in. Even so, I consider 10w to be an excessive level of distortion, especially so when, as in this case, it is a fairly constant level, rather than an occasional peak.

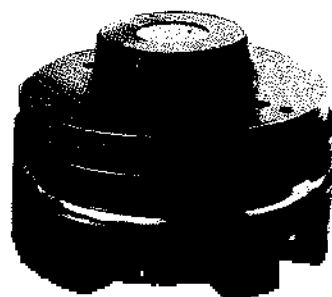
As a workhorse unit, and at its price, the overall performance I find acceptable, but the TW101 cannot be recommended for use as a component in a high performance sound system or in critical situations, except, as I have said, as a mid-range reproducer over a restricted range of frequencies, under which conditions it should behave quite well.

EMILAR EC--175-8 Ser. No. 16818 (USA)

Retail price £108.42 incl. VAT

Parameter	Manufacturer's rating	Test result
Power	40w pink noise above 500Hz	Unit under stress at 10w RMS sine wave
Distortion	0.5% THD @ 100dB with Emilar EH80C horn	20% 2kHz — 10kHz, dropping to 6% below 1kHz at 10w RMS sine wave
Sensitivity	108.7dB @ 1w @ 1m 800Hz — 5kHz pink noise	109dB @ 1w @ 1m averaged between 700Hz & 9kHz
Resonance	Not stated	2.4kHz on std. test horn
Impedance	8 ohms*	6 — 12 ohms
Recommended c/o frequency	500Hz	Above 800Hz
Useful frequency response	500Hz — 15kHz unqualified	400Hz — 11kHz @ -12dB — see graph

* Also available in 16 ohms. impedance



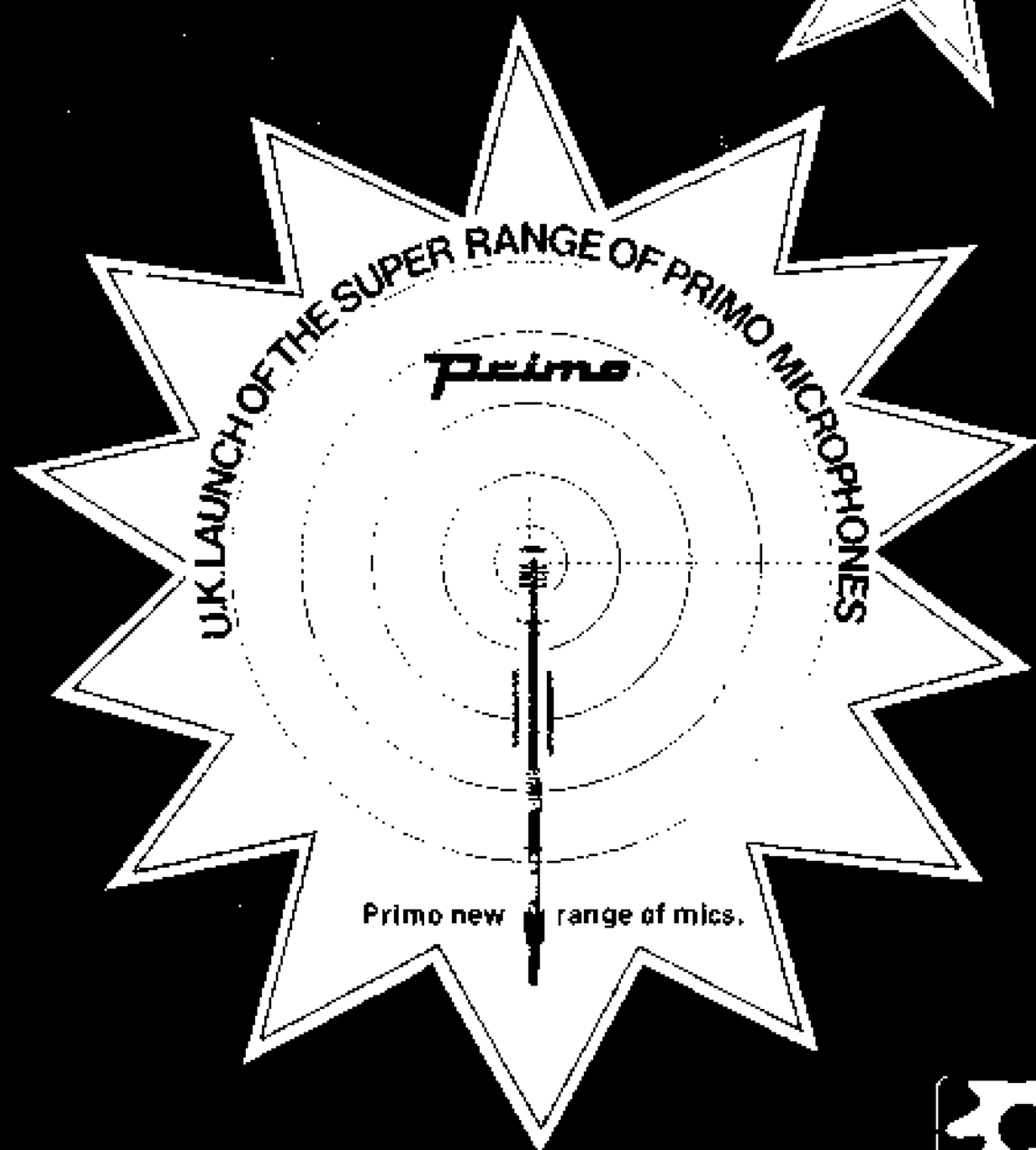
To all intents and purposes, this unit has a virtually flat frequency response from about 700Hz to 10KHz, which is combined with a high sensitivity. This is a remarkable performance to find in a unit in this price bracket, and is on a par with compression drivers at between two and three times the price. There should be no crossover problems with this unit, as it can be crossed over at practically any frequency above the 800Hz minimum — always depending of course upon the restrictions imposed by the horn with which it is used. The only problem, as with practically all units tested, is again distortion. In the case of the Emilar, this is particularly in evidence over the higher frequency band, and improves considerably towards the middle band. We did not attempt to verify the makers published distortion figure of 0.5 per cent total harmonic at 100dB, but this is considered somewhat misleading as such a drive unit is most unlikely to be used at such a low near-field sound pressure level. It would require an input of only 0.125w (yes, one eighth of a watt) to produce 100dB on our test horn, and our lowest distortion measurement was taken at 1 watt — yet even at

this level, we measured a good 6% distortion, mainly second harmonic. It is good to see manufacturers at last publishing distortion figures for this type of product, but a more realistic presentation of the facts should be given. With a 40w RMS pink noise rating, I would have expected the unit to stand up to at least a 20w, if not 30w sine wave test, but as distortion at 20w rose to an alarming 25 - 30 per cent at the upper frequencies, we did not try testing at 30w for fear of damaging the unit. To be fair to this manufacturer, I must repeat that this general tendency, to a greater or lesser extent, is common to practically all compression drive units we have tested, at any price level.

This product is simple and unpretentious, with no frills or cosmetics, but it delivers the goods at a very competitive price for this level of overall performance OK so the distortion is on the high side, but with very few exceptions, so is every other unit of this type. The exceptions to this rule have other short comings so it really boils down to where your priorities lie.



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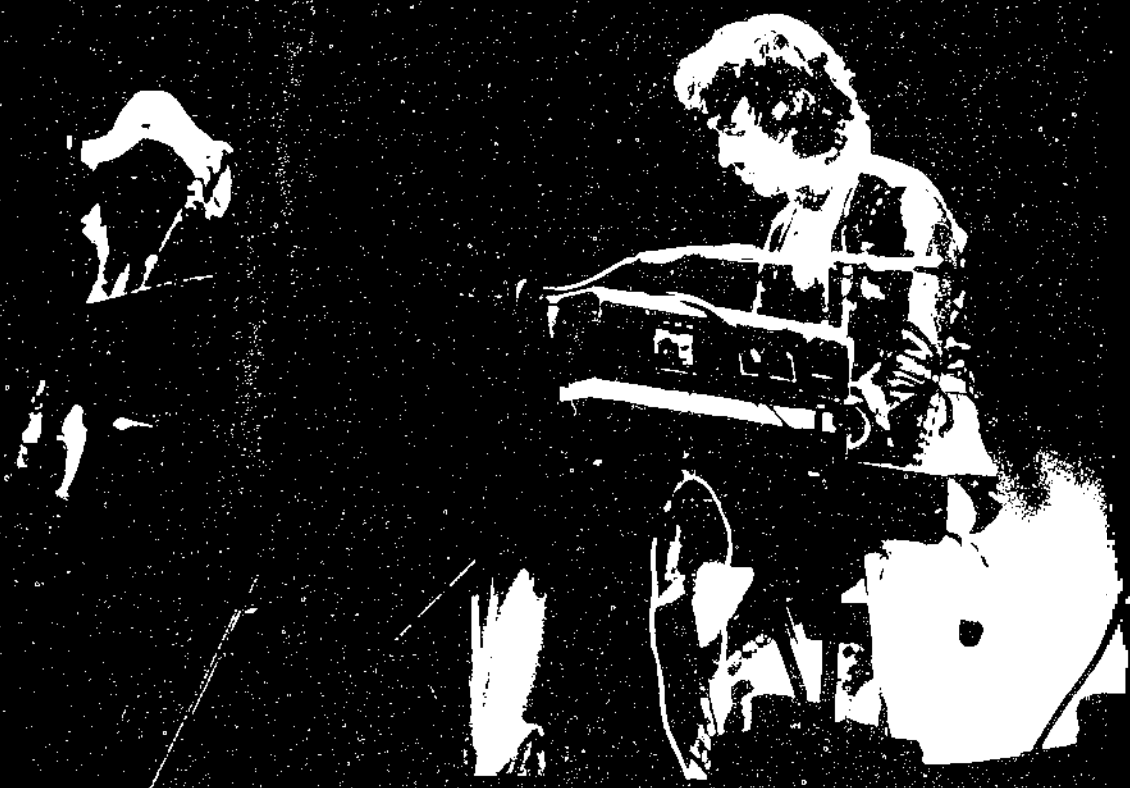
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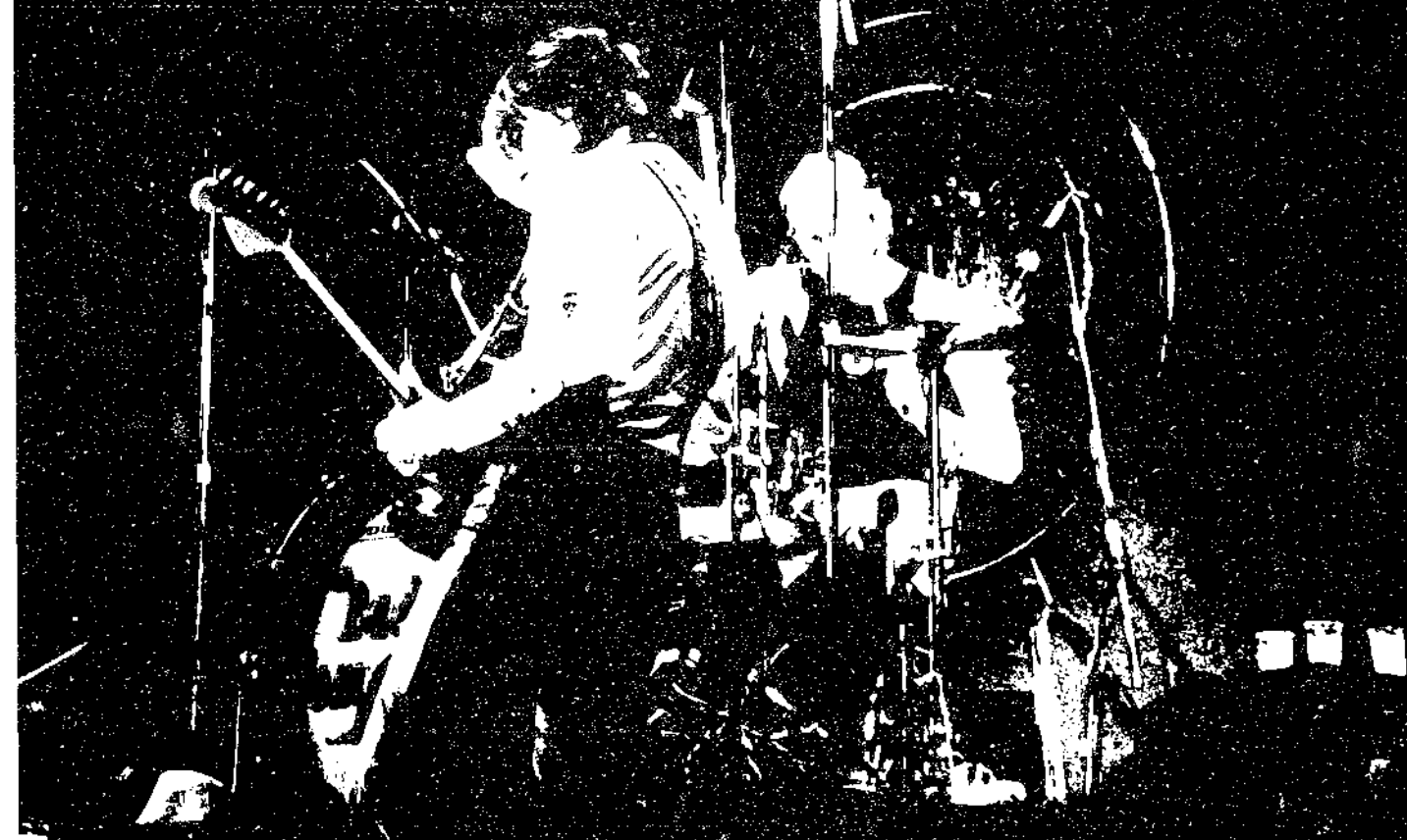
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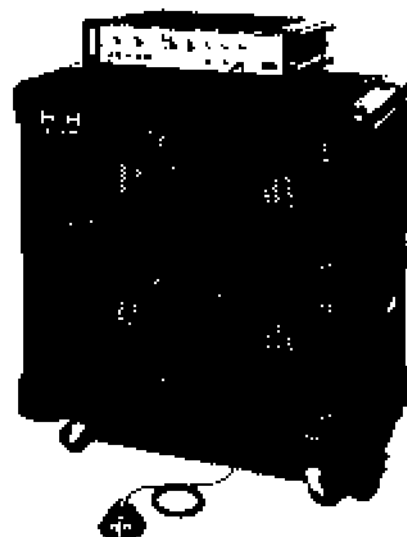
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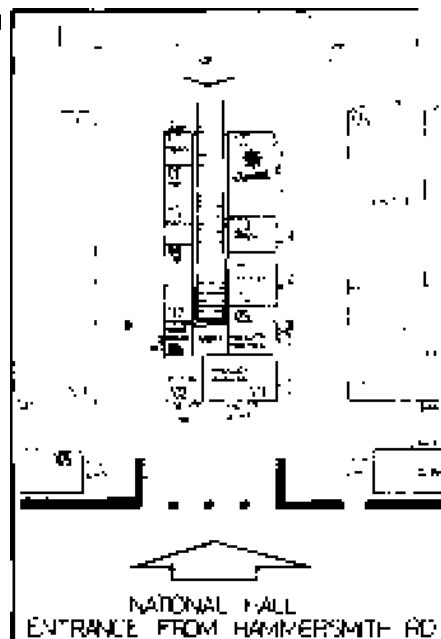
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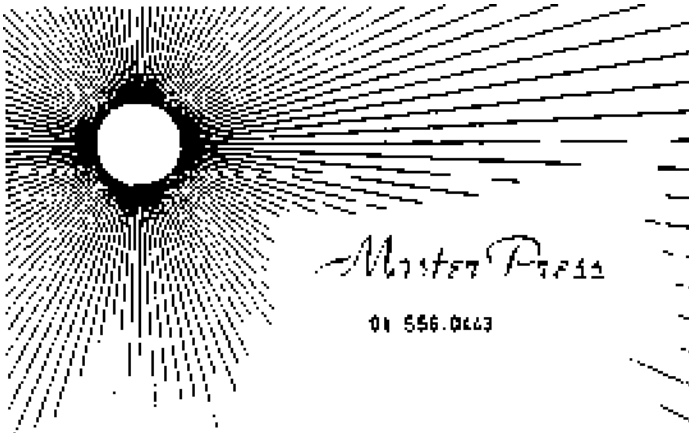


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Guitarcheck

Yamaha FG365s Steel-string Acoustic £145 inc. VAT

This is a straightforward sort of big acoustic guitar. It has a solid spruce front, comes with good strings and good machine heads and plays correctly in tune at the 12th fret. The spruce front looks as though it grew in Canada, the guitar was made in Taiwan and the technology is originally Japanese. That sounds like a fine example of international guitar-making.

Although this instrument is in no way intended as a direct copy of a Martin Dreadnought, it is the same general kind of guitar, and it is inevitable that the Martin originals should be used as a standard of reference when comparing less sophisticated instruments. The Martin Dreadnought tone is a classic, and has become, by influence and by imitation, characteristic of a certain style of guitar, rather than a certain make. Although this may not be entirely convenient for the Martin company, it is certainly a considerable compliment. Unfortunately, some guitar-making companies have extended the "compliment" to include producing "look-alike" copies of current production instruments. I am generally happier about instruments such as this Yamaha, which are influenced by famous American guitars, but have their own style and do not try to ride on someone else's reputation.

My impression of this guitar is that it has generally the same sort of sound as a large Martin jumbo. It doesn't look like one, and it doesn't sound as good as one (at £145, you would not expect it to sound as good) but it does sound *similar* to a Martin, rather than to a Gibson or a Guild, for example. This is not intended to be a very expensive instrument, but my sample does seem to offer rather a good sound for the modest price. In common with many instruments which are intended primarily for amateur use, this guitar sounds best to the player and next-best to an audience at perhaps 10 or 15 feet away. To someone listening in front and about four or five feet away, the treble is hard, there is a general emphasis somewhere in the upper mid-range and the bass lacks warmth. To the player, it sounds quite good, and to a more distant audience, it sounds less melodic, but generally well balanced between bass, middle and treble. This is a

reasonable performance and normal for a modestly-priced guitar which may have to do a variety of different jobs. To improve on this performance usually requires skill, experience, care-

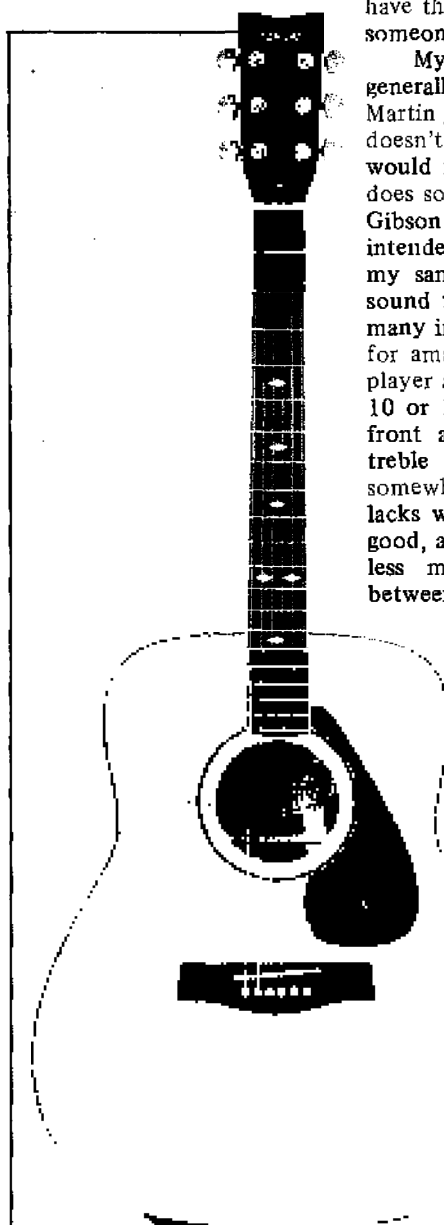
ful selection of materials and sometimes a bit of guitar-makers' luck. All this is readily available, if you can afford £1000 for a guitar. Even if you can afford such a guitar, you may not want to take it on tour, consigned to the tender mercies of baggage-handling machines. When I last counted up, I found several owners of famous and rare old Martins, who actually played Yamahas on all but the most prestigious and well-organized gigs. I think that speaks for itself. Of course

Yamaha make an enormous number of guitars, and if you are very discerning about such things as

action and tone, you may have to use as much care picking the right cheap guitar as you would apply to picking the right expensive guitar.

A case in point is this particular review sample, which arrived with a moderate action, the neck curved slightly forward and the string slots in the nut higher than necessary. At least, I thought they were higher than necessary until I straightened out the slight bow in the neck. When the neck seems to be almost straight, and as it should be, my measurements suggest that the second and third frets are a little higher than the first and fourth frets. You could say that the neck bends slightly, but sharply, backwards between the second fret and the nut. When I adjusted the nut slots so that the strings were at what seemed a reasonable distance from the first fret, I got buzzes. The first, second, fifth and sixth strings tended to buzz easily when played open, or at the first fret. By leaving the nut alone, I could have had clean-sounding open string notes, but there would still be the buzzes at the first fret: no amount of nut adjustment could cure that. Now think for a moment; when you last tried out a guitar, did you actually check out the notes at the first fret? Very few people do, and that is probably how this guitar managed to pass inspection. The only ways of losing the buzz by adjustments would be either a very high action, or putting the bow back into the neck (which also effectively makes the playing harder). This is not, in my experience, a typical fault in Yamaha guitars. It appears only occasionally, in many different makes of guitar. The actual discrepancy in fret heights is small, compared to the height of the frets, and a light and careful fret stoning would make the guitar work right with a straight neck and a nice low action. The neck is not wobbly; it is good and stiff, but it just has a little kink in the end. The moral is not that Yamaha make sloppy guitars — they don't. Their quality control seems to be better than average. The moral is that if you know a little about what truss rods are for, and you buy a bargain-price guitar (of any make) with a slightly bowed neck, it may be a bargain . . . or it may not. It may be wiser to try to adjust such bargains *before* you buy them. In this case I estimate it would take an average repair man about 15 minutes to have this guitar stripped down, straightened out and tuned up again, so it is not really a serious problem. As it happens, the bridge saddle is perfectly positioned for this type of bridge arrangement and it is the right height and shape to give a nice playing action. One could easily spend 15 minutes putting these points right on some different guitar.

The soundboard of this guitar, as I have mentioned earlier, is of solid spruce — not laminated. Put at its simplest, this means that the guitar is more likely to develop a really nice tone with continued playing, but it is more likely to break if you treat the guitar badly. It is also likely to crack or warp if you keep the guitar in a very dry or very damp place, without using some sort of humidity control. Most problems come from excessive dryness, and I have found that a 'Dampit' is very effective if you follow the instructions consistently. This problem applies to most high quality stringed instruments. (If you give your guitars a hard



time, or if you live over a swamp, try a slightly less expensive Yamaha with a laminated front.)

The back and sides of my sample appear to be made from laminated Indian rosewood, and there is some decorative inlay down the back and at the end by the strap-button. I regret that some of the internal jointing is not up to the standard I have come to expect from Yamaha - even on their cheap guitars. For instance, one of the sockets in the corner linings which accepts the end of a back strut, has enough room for three more strut-ends apart from the one which is supposed to be in there. At the moment this does not cause any trouble, but if the back gets a bit of a knock against something, you could easily find yourself with a loose strut, which rattles when you play. I think this aspect of production really ought to be tightened up.

Fingerboard and bridge on this guitar are of rosewood, stained black, presumably to appear like ebony. The head and fingerboard and body edge are neatly bound with various decorative plastic strips. The fingerboard has diamond markers at the front and small black dots set in the edge-binding. The frets are fairly narrow, well rounded on top, and a bit sharp at the ends. Yamaha seems to be one of the very few Japanese guitar companies who do not use one of the common varieties of Japanese machine head units. They seem to have a policy of designing and making their own. The machines on this review sample look solidly-

made and work smoothly and accurately. That is good for a £145 guitar, and also one of the points which makes this Yamaha rather a good standby for anyone who doesn't want to travel with their best instrument.

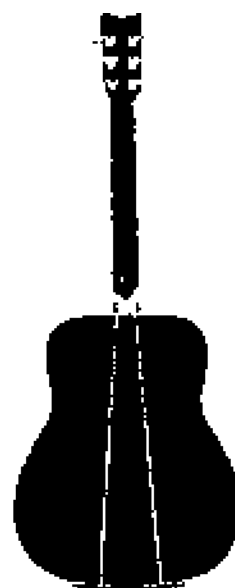
Conclusion

A sensible guitar without a lot of fancy decoration and giving a good sound for the money. Our sample was a bit rough in places inside and needed a light skim over the frets for optimum performance, but it was reasonably playable as delivered. Good value for money, but check for neck straightness and/or fret buzz.

Stephen Delft

Measurements on Yamaha FG365s Ser. No. 1477686

Scale length 635mm
String spacing at bridge 50mm
String spacing at nut 36mm
Fingerboard width at nut 44mm
Depth of neck: 1st fret 23mm/10th fret 26mm/12th fret 34mm (heel begins fret 11)
20 frets on fingerboard
Body joins at 14th fret
Action as supplied 2.4mm treble/3.4mm bass
Action possible after some adjustments
2.1mm treble/3.0mm 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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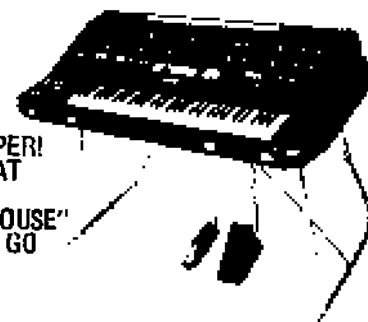
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Live performances are life's blood for all bands. For up and coming bands in pursuit of popular acclaim and hopefully a recording contract, it is their bread and butter. Large venues can bring in the money for established bands and often nationwide tours precede the release of a latest album.

The thrill and sense of occasion involved in seeing someone perform would seem to make live entertainment as popular as ever. But it's not all peaches and cream, as many bands themselves, managers, hall managements, social secretaries, agents and promoters will tell you.

For unknown bands chasing their first big break it's invariably a hard slog, especially on the pub and club circuit. Little financial reward, humping around equipment, inadequate stage, hostile reactions or a chilling no reaction at all from audiences, do not make life easy.

Touring can be quite an ordeal even for the big names, despite the financial backing, professional roadies, hotels and limousines. An intensive city to city tour can often bring about those nasty personal clashes which break up bands and send them into oblivion. And of course there are the unsung heroes, amateurs and semi-professionals who are keeping music live because it's their greatest enjoyment in life. Playing for free beer out in the wilds, doing popular requests from barstools and having a ball.

But what of the people who manage, promote, book and hire out the venues? The enjoyment they get and the problems they face in helping to keep music live. Public apathy can bring about crippling debts when expected returns fall short of the money outlaid. Competition from other forms of entertainment such as the growth in popularity of disco, cannot be ignored.

Today bands are largely restricted to playing the more adventurous pubs and clubs, universities and the major venues in cities and towns. Take Manchester Free Trade Hall, where the Polico and John Cooper Clarke were recently billed.

Management at the Free Trade Hall told IM: "Big names are selling as well as ever but less well known bands

have not been doing so well recently. And it's all due to more competition and choice.

"Clubs, pubs and universities do well, so whereas a few years ago advertising would have pulled in curious customers, the public is now picking and choosing where to go for live entertainment. More people are going for live entertainment than ever before."

At universities and colleges a different picture emerged. Difficulties in booking bands at Brighton Polytechnic do not make life easy for Lesley Davy. Obtaining licences is just one of the problems.

Said Lesley, "Many popular bands are now bought up by professional promoters which make them unbookable. The Undertones are one example here. Then we get our fair share of competition from venues such as the Dome, Rank and Brighton Centre. And we also suffer from a certain apathy here in Brighton. People don't just go along because they're into live entertainment because it's live entertainment, they usually want to see someone they like in particular."

Universities and colleges are a good testing ground for local bands. In some cases they're hired as the main attraction and many secretaries like to hire them as the support band.

Despite today's acceptance of New Wave, its initial impact and association with violence has made some people wary of booking punk bands. Birmingham Town Hall staff say they would be prepared to book "reputable" New Wave bands on recommendation but are still worried about audiences "wrecking the hall".

At the Aberdeen Institute of Technology, New Wave is not very popular at all. Indeed recent visitors, the Angelic Upstarts, were banned after much equipment, including the college organ, was broken. Other visitors here have included Supertramp, Be-Bop Deluxe and the Stranglers.

Dick Owsley, who books bands at Bristol Polytechnic, finds that New Wave tends to attract youngsters in from town. Says Dick, "It's a tricky one, especially in view of the bar licence. They're obviously under-age and can cause a lot of trouble. It's

hard to make live music profitable here because none of the halls hold more than 600 people. We've had bands like the Pretenders and Penetration on here and we like to put on local bands too."

At Hull College there are only isolated incidents of trouble reports Steve Bellamy, who has booked bands such as the Damned Magazine and Skids. "We have one idiot comes along here with a fetish for setting off fire alarms. For every alarm that is set off it costs us £80 so it's more than just a nuisance," he said.

Most student unions have a budget which they work with and are expected to break even. Disco is a popular money spinner, easy to arrange and cheaper to run. It gives bands a breather and helps to maintain interest in the entertainment programme. Many say that it is the best way to subsidise less lucrative live evenings.

There are a number of grumbles nationwide about the costs involved in live entertainment, particularly from small clubs. Management at Tempo in Barnstaple said, "Bands charge too much money. If you want decent bands and you're a small club they've priced themselves out of the market." And small clubs cannot accommodate bands with large amounts of equipment.

In the centre of Bath is the Island Club which has live music five nights a week. It was formerly a huge Victorian public convenience on a traffic island that used to be called "Bog Island!" Management is not personally averse to New Wave but considers its audiences too "up market" for punk. At Thursdays Club, at the Bull Ring, Birmingham, they have disco dancing most nights of the week and its opening reflects the growing popularity of dancing. They also have, in conjunction with BRMB local radio, a joint venture of having live bands on some nights and the radio team have the rights to record and broadcast live.

Local authority-run establishments prove to be rather conservative in taste, due largely to the fact that artistes are vetted by committees of good men and women all, before they're booked. Cut backs in local authority spending do not help matters.

At Basildon Towngate Theatre and Arts Centre, Malcolm Jones books about one band a week but only one of these per month is rock. Subject to council approval he chooses bands himself and goes for visual entertainment. He defines this as the Albion Band, the Chieftains and Fairport Convention. Mr. Jones considers "rock bands to be beyond the reach

KEEP MUSIC LIVE

We talk to the people who book the bands

of the more intimate nature of my theatre. The whole *mudos operandum* of rock music is to sell albums so they do not want small audiences anyway."

Music at the Southampton Civic Centre is a mix of classical, folk, jazz and they have a smaller hall which specialises in discos. New Wave has yet to make its debut but over at the Gaumont, names like the Tubex, Child, Eric Clapton and David Essex have been packing them in.

The acting entertainments manager books bands at Barnsley Civic Hall. There are two halls with 876 and 150 capacity. The big hall costs £50-£60 to hire, the small one £15. Local bands find the small hall very cheap and it's also used for discos. Bands hire the hall at a flat rate and sell their own tickets. They are not keen to book New Wave because of violence in the past.

Moving away from venues, it is not all plain sailing for promoters. Some have opted out of the business completely, others are now moving in different directions. It can be a cut-throat business full of tough competition.

Martin Mills at Beggars Banquet, in London, has changed from straight promotions work to a record label company. This is because of the "very competitive market" and as Martin puts it, "It's a lot of work for very little return. He did large gigs such as the Stranglers (until they were chucked off at the Rainbow by the GLC for having "rude" T-shirts), the Crusaders and Dory Previn. Martin was disillusioned by some promoters who "are content to get money on the table and then sit around and not do much to earn it."

In Bristol, Rainbow Promotions, run by Adrian Squires and three colleagues, also promote nationwide tours, but like to specialise in local bands. They handle Tony McVie, Ritz and Interview and rely on local bands such as the Europeans, the Spics and the Gods for support. Adrian complained about a lack of venues in the West Country and their relatively apathetic audiences. Says Adrian, "Agents are happier to book New Wave now they have mellowed into the general rock idiom. The main problem used to be the violence that prevented clubs from rebooking, you know, broken toilets, assaulted bar staff and that sort of thing. In promoting there's one thing of paramount importance, you've got to have a good Bank Manager!"

Mr. Ian Beard, of Tryclops, Cheltenham, promotes concerts in general, from John Williams to discos. He is now getting out of the classical/rock side to concentrate on disco for commercial reasons. From his

experience he says New Wave is popular but the trend at the moment is towards funk. The borough council is still not keen to book New Wave bands because of the early days and all those bad reputations.

Another case of a promotions agency reflecting the trend of turning to personal management, is Tramp Promotions run by Johnathan Cook. Too much cut-throat competition gets the blame, and he now handles one band who have a single that he is trying to promote. Says Johnathan, "The band I'm manager of now has taken four years to make it, so all those rushings up north for £50 gigs have paid off, though I didn't think it would at the time. Paying your 'dues' pays off eventually."

A survey of the gigs

BOGNOR REGIS: ESPLANADE THEATRE (02433) 21902

Peter Sydenham is the "Regis Centre Manager" but his assistant gave the information. No discos, but live music once a week on average - more in summer. Not much rock as present, some jazz, folk and theatre drama. Rock can be a hassle - audience reactions at a recent New Wave gig was described as being "Hysteria" and "Just like Beatlemania". This very strong audience reaction was ascribed to being "probably because we have had very few New Wave bookings." It's apparently very popular and on a more recent gig the kids "went berserk". Because of the OAP residents (over 60 per cent of the community are over 60 years old) the demand for rock has to be tempered with consideration for the older section. New Wave bands are a relatively new thing in the area and when the new theatre is built this will probably increase. Problems for them are high costs, rock bands "pricing themselves out of the market" and local authority cuts imposed after the change of government.

BOLTON ART DEPARTMENT (0204) 22311 x 466

Mrs Haslam does the booking and she books on the recommendation of the Council committee. There are two main halls, one of 280-capacity and one of 1000 capacity in the Town Hall. There are no discos at the Arts venues but the corporation have them at a local leisure centre. Live music is mostly classical, chamber etc., with some folk and jazz (trad) about once a year. The corporation Arts committee "vet" artists and musicians and Mrs Haslam has no brief for any rock at all. She

thinks they would definitely not book New Wave bands but this is for commercial reasons not because of the "image".

ASTON UNIVERSITY (021) 359 6531

Corinne Ryan the social secretary, books the bands. They have gigs every Friday night, and she books on her personal preference and the choice is vetted by the entertainments committee. The Union has a tight budget which means they have to break-even. Discos are on separately once a week and are the usual "breather" for the band. Disco interest is increasing, though not at the expense of live music. They have recently spent £1000 on new disco equipment and the *really* popular sound is soul. Live bands that have appeared recently are: Dr. Feelgood, Generation X, Steve Gibbons Band. There are 10 "in-house" roadies that do the "humping and hauling" for the bands and discos.

CHECKERS NIGHTCLUB (0271) 71794 BARNSTAPLE

This is a small local nitespot. They have mostly disco in summer as this is tourist season. The live bands that they do have are mostly local as the costs have to be kept down. They pay £400-£500 for a band (local lads include Green Velvet, Paintbox and Mr. Mike Deakin is the proprietor.

He said that while disco was very popular, audiences liked live bands, but would not dance to them. They preferred to listen rather than dance. As it was a small club the brunt of the setting up for a live gig fell on his shoulders and he found it a drag to close two to three hours later to allow the band time to pack-up etc.

TEMPO (0271) 73393 BARNSTAPLE

Mr Loosemore organises the bookings here. Live music is once or twice a week. Bookings have been constant over the last few years but he was one of the major people to grumble about prices. "Bands charge too much money" and he definitely found them a hassle e.g. if they were very popular he *did* have to hire more staff to clear up etc. Large bands (usually the popular ones) have too much equipment, and because the capacity of the club is small compared to large city clubs, they cannot be accommodated.

BASILDON: TOWNGATE THEATRE & ARTS CENTRE (0268) 23953

Malcolm Jones books the gigs. About one per week on average but ►►

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only one of these per month is rock. He chooses things himself but he doesn't go for rock unless they are what he calls "visual entertainment" (his choice of words not ours!) He defines this as the Albion Band, the Chieftains, Fairport Convention. We challenged him on his choices with regard to the use of his expression "visual" but couldn't get him to re-define what he really meant. It was obvious, though, that what he didn't like was heavy stuff!

Bookings remained stable but he was "on the ball" by regularly canvassing his audience via written questionnaires. He had in his opinion "fair freedom" of expression but his choices were subject to Council approval. (450-seat venue).

BATH CITY COUNCIL (0225) 61111 x 531

Mr Scott is the man we spoke to, he is the assistant Promotions Manager and was quite helpful. The city has three major venues: The Assembly Rooms, The Pump Rooms and The Pavilion. Venues are "horses for courses". They have live stuff every weekend, usually in the Pavilion. The Pump Rooms are small, catering usually for folk etc., and the acoustics in the Assembly Rooms are very bad. Live music is definitely preferred to just dancing to a disco although they do dance to live bands. Mr Scott has a guiding influence on the type of gig although they use main agents who are private operators. He had no aversion to New Wave but the only promoter who "specialises in New Wave is letting people down."

THE ISLAND CLUB, PARADE GARDENS (0225) 62238 BATH

This establishment used to be a huge Victorian public convenience in the centre of Bath. It was converted into a nightclub by Mr Lye who also does the bookings. They have live music five nights a week and Wednesday night is now their Trad Jazz night (they have also featured Dave Bailey) with the Georgian City Stompers. They have a local Avon-area professional band called "The Alan Benny Sound" who play Thursday, Friday and Saturday. They tried "White Wing", a local band, but they found them too loud and heavy. Disco normally alternates with the live band to give them the usual breather" but now Sunday, Monday and Tuesday are now "disco-nites". Live stuff is therefore mostly at weekends. He doesn't like or have an orange bubble" and he just asks them to turn the volume down if they're too loud. He is not personally averse to New Wave music in itself but he has an audience that is aged 20 - 35ish and he considers that too "up-market" or punk.

BIRMINGHAM COLLEGE OF FOOD AND DOMESTIC ARTS (021) 2366104

The social secretary books here. It's a personal choice but the decisions are vetted by the committee. The folk club has folded due to lack of inertia, but they have live music once a month. They are limited by the budget subsidy which dictates that they must now break even. They book local bands through John Motson (a local agent, with whom they are very happy) and these include Ricky Cool and the Icebergs, The Sunsets, Muscle, Bullitt and a band that went down very well in Arborough. Disco is put on during gigs for a break and is popular but exams cut short the summer season, and disco is cut down accordingly. Bookings have decreased but not due to popularity, but because of personnel changes, with a fast turnover of social secretaries. New Wave NOT generally liked.

DIGBETH CIVIC HALL (021) 235 2434

They have one to two rock shows per week on average. Discos are put on as a "breather" between acts, but New Wave seems to be gaining popularity. Promoters come to them as they have a set scale of charges which are fixed by the committee, and there is no leeway. The bands who appear there use the theatre's PA sometimes, but where the band have loads of equipment they have to use their own roadies. The theatre do not hire extra staff to cope. Some damage has been caused when the New Wave bands play, but the management seem quite philosophical about this and usually pay the bill.

The rock bookings are definitely increasing - about 10 years ago it was mostly jazz, then there was a folk revival and now its Police (sold-out), packing in about 700 people in all, also Skids and Angelic Upstarts.

THURSDAYS CLUB (021) 6324595

Mr Williams is the manager and he has dancing every night except Sundays and they have resident DJ's who provide their own music. The opening of this club reflects, in his opinion, the growing popularity of dancing. They have also in conjunction with radio BRMB started a joint venture of having live bands some nights and the radio team have the rights to record/broadcast live, the tab for the band being picked up by BRMB. This was the area managers idea (they are part of Goodhews (B&S) Ltd of The Blue Anchor, Southend, Croydon). New Wave is not popular and the manager considered it "Rubbish". One feature

is that they sometimes have special evenings such as a '60's evening where they have live sessions from Billy J. Kramer and the Dakotas, and Wayne Fontana etc., and they intersperse this with disco records of the same period, and these are very well supported. He said that punters would usually sit and listen to a live band unless they were really good when they would get up and dance.

ABERDEEN: ROBERT GORDONS INSTITUTE OF TECHNOLOGY (0224) 574239

Martin Lane books the bands (he's the social secretary). They have two venues and they only have access to the large hall three times a term. The smaller hall has local bands six times a term and the ever-increasingly popular disco sessions. The main hall holds about 500 people and the ticket prices vary from £1 for a local band to a staggering (his adjective not ours!) £1.50 for the Enid. Other previous visitors have included Supertramp, Be-Bop Deluxe and Stranglers. Discos are used as a warm up and breather and to help with the hassle of live shows they "press-gang" a few students into helping, (for a couple of pints!). The main cost is the hiring of a college electrician for £25. New Wave is not popular and recent visitors The Angelic Upstarts didn't "click" and, in fact, were banned after much equipment was broken (including the college organ) and the general fabric of the hall. Their main grumble was that the hiring costs were rising too fast.

SOUTHAMPTON CIVIC CENTRE (0703) 23855 x 755

Mr Blundell is Entertainments Manager and books the bands for their two venues. There is a 1400-seater concert hall with removable seats to change from a theatre-type to a dance hall-type venue. The music here is a mix of classical, folk, jazz and the smaller hall (250 seater) majors in discos which are mostly private although there has been a very popular day-time disco for the "teenyboppers". Disco enthusiasm is rising in this hall and they will open a new regular disco for older people in the new year. Of the whole civic centre about 60 per cent of the functions are live music and the halls are full booked 80 per cent of the time. No New Wave bands have as yet appeared as they have not yet had any requested. The Gaumont (the other major venue in Southampton) seems to have the more up-to-date bookings with bands like the Tubes, Child, Eric Clapton and David Essex. A complete cross-section of tastes. They use local and big London agents who are considered good and they have had no complaints.

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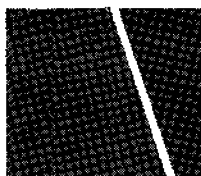
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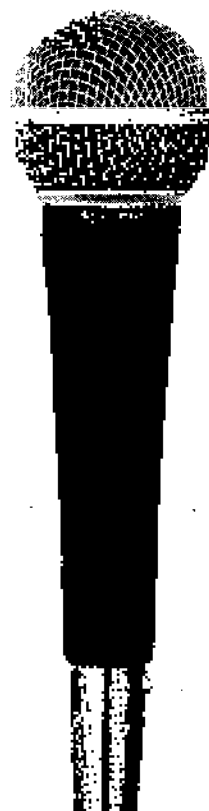
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Synthcheck

**Korg Sigma
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The Korg Sigma synthesizer is one of the better small on-stage synths I've had a look at lately. It seems that someone has actually sat down, as a musician, and pondered the whys and wherefores of knobs, functions and inbuilt circuitry, and with this instrument, Korg appears to have struck the happy compromise between pre-set ease of use (with its inherent rigidity of sound) and synthesizable sound areas and control. As with all compromises, there are shortcomings from any one person's conception of an ideal instrument, but these are forgivable to a large extent in this case. Particularly impressive as a feature of the Sigma is the grouping under the left hand of the player of a large range of control functions for use when playing. More of this, but let's talk our way through the Sigma.

The Sigma is a monophonic synthesizer with a 37-note keyboard from C-C. Above the keyboard area there are three banks of pre-set tab switches, named (left to right) as EFFECT, SYNTH (sic) and PRESET. All but one of each of these tabs has a small variable pot control placed just above it that controls some function of the pre-set. Let me list each subgroup switch by switch; painstaking to write and read, but there's no quicker way to go through it all.

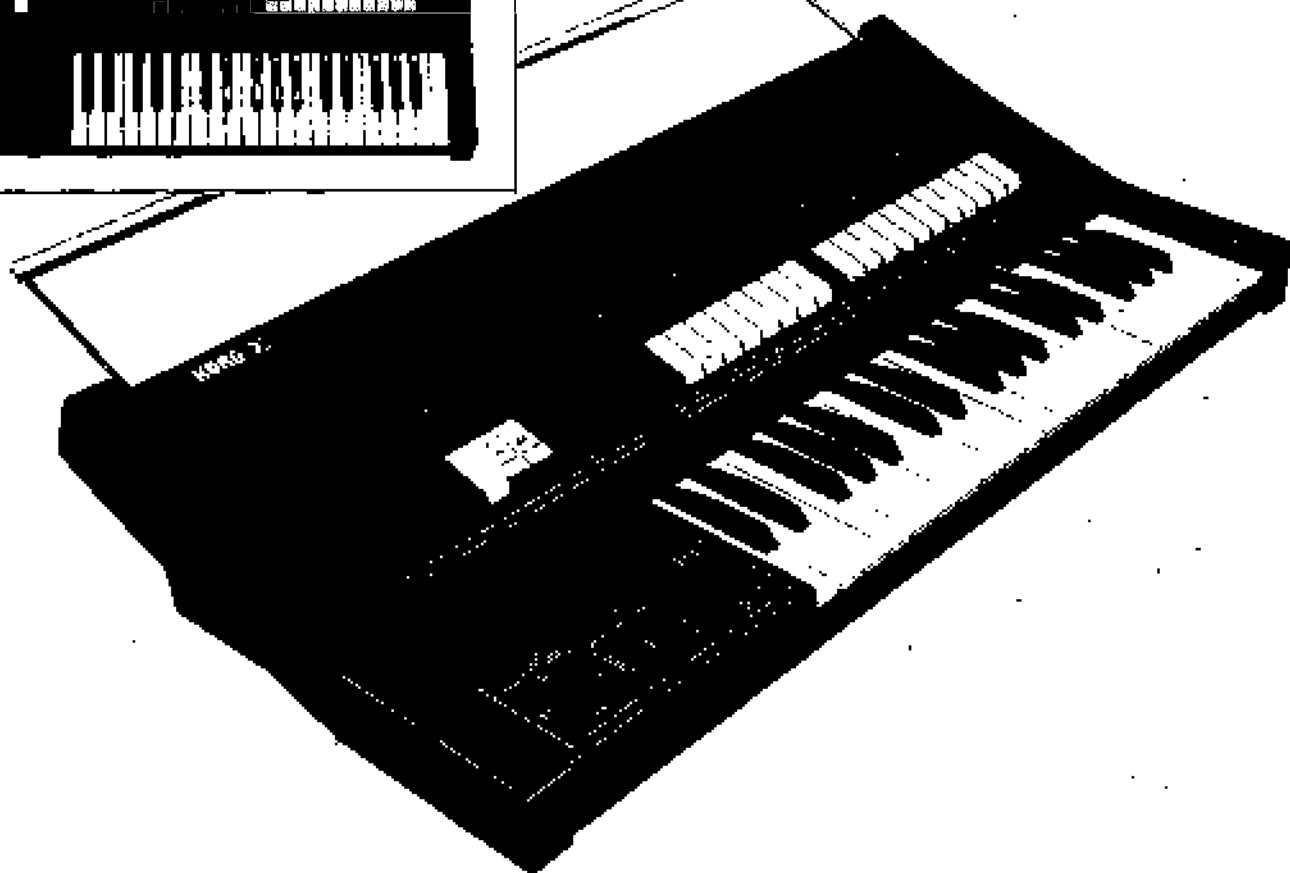
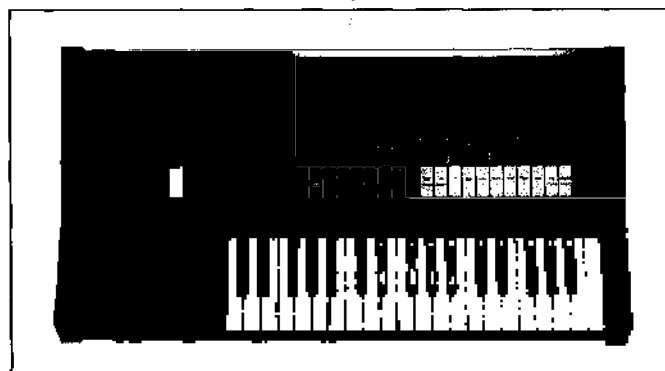
Effects Dept: From the left, there are two octave controlling buttons, one for up, and (would you believe?) one for down. An overall tuner for the instrument is placed just above one of these, as is the VCO 2 pitch knob, thus putting the two tuning variables conveniently

together. The instrument can still be tuned, however, even if you are not wearing overalls.

There then follows a portamento tab, plus a knob for the speed of that effect, a keyboard sensor tab, with an intensity control; two joystick pitch control selectors, one for SYNTH settings and one for PRESET settings, and both with range controls over them, and next to that is a delay-vibrato tab that has a depth control all of its own. Finally, there are quarter tone, multiple trigger and keyhold tabs.

And on the SYNTH tabs, with these, and the instrument tabs, 20 in all, the basic use is to switch tone colours in and out. And because the pre-set or instrument part has its own VCO and VCA circuitry per tab, you can turn on as many as you like from either bank, in any combination. There's a balance control on the left of the keyboard which allows you to mix the signals from each bank to your own whim of levels. Anyway, the first of the SYNTH tabs is Ring modulation, which also brings that effect in on the pre-set department as well, a noise generator, whose top knob controls attack and release times, a 32' sawtooth waveform, a 16' Sample and Hold section that can be controlled both from the knob above, to adjust the time between steps, and the right hand joystick for the type of effects. A red LED above the tab gives you a visual indication of the speed of the rhythm as it flashes. Then there is a 16' Pulse width modulation tab, which essentially, I suppose, provides tone colour variation in a cycle format, providing a kind of a chorus/flanger sort of sound. And then comes an 8' sawtooth button, Pulse wave and Square wave button, all controllable again from the right joystick and their own individual Attack/Release or Decay knobs. Finally, a 4' sawtooth wave button

Robin Lumley is a record producer and keyboard player who has won international recognition through his work with David Bowie's Spiders from Mars, Brand X and a wide variety of credits. He now divides his time between freelance producing and session playing both in Britain and the US.



completes the SYNTH sections kit of parts to build sounds with.

Now for the instrument tabs. There's not much point in trying to describe how near or far to sounding like their labels these buttons are, but suffice to say that each tab gives a workable sound in the general area of its labeling, and that some are very much more accurate to their labels than others. So, from the left to the right, there are: 32' Electric bass, 32' Tuba, 16' Clavi, 16' Fuzz guitar, 16' Horn, 8' Trumpet, 8' Clarinet, 8' Double reed, 8' String, 4' Flute and 4' Hammered percussion (like xylophones). Each of these carries, of course, an additional pot to adjust subtleties in the attack, decay or tone colour of each, where appropriate.

Now a look at the manual controls: the things that you adjust while playing, that give each synth player an individuality and a style of his own. Firstly, the joysticks: There are two on the left of the keyboard, and the left one of these is basically a pitch-bend controller. The range of bend possible is dictated by the range knob above the joystick select tab in the effects section, and pitch bending occurs up and down in an East/West configuration. The joystick's North brings in Vibrato, and pulling it South

gives the depth of noise introduced. Naturally, all other subdivisions of the compass, as it were, are possible too. The right hand joystick is used for controlling various facets of the waveform tabs described above. The keyboard sensor section is interesting as it provides a touch sensitive alternative to the joystick in terms of controlling pitchbend and vibrato. Like the joystick, this function can be used to control just the SYNTH, or Instrument Section alone, or both. Therefore, you can use the joystick for one section, and the keyboard sensor for another, thus giving you independent variable control over each section's vib and pitchbend. Especially useful if one of your hands is not free to operate the joystick, e.g. when on a groupie-

grope or lighting a ciggy. How hard you press down on the keys determines the pitchbend or vibrato, depending on which position you've parked the selector switch. Very useful little bit of musician-sympathetic design, that.

Before summing up and passing sentence, here are a few more technofacts about the Sigma:

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Answer: A Korg Sigma Synthesizer.

Robin Lumley



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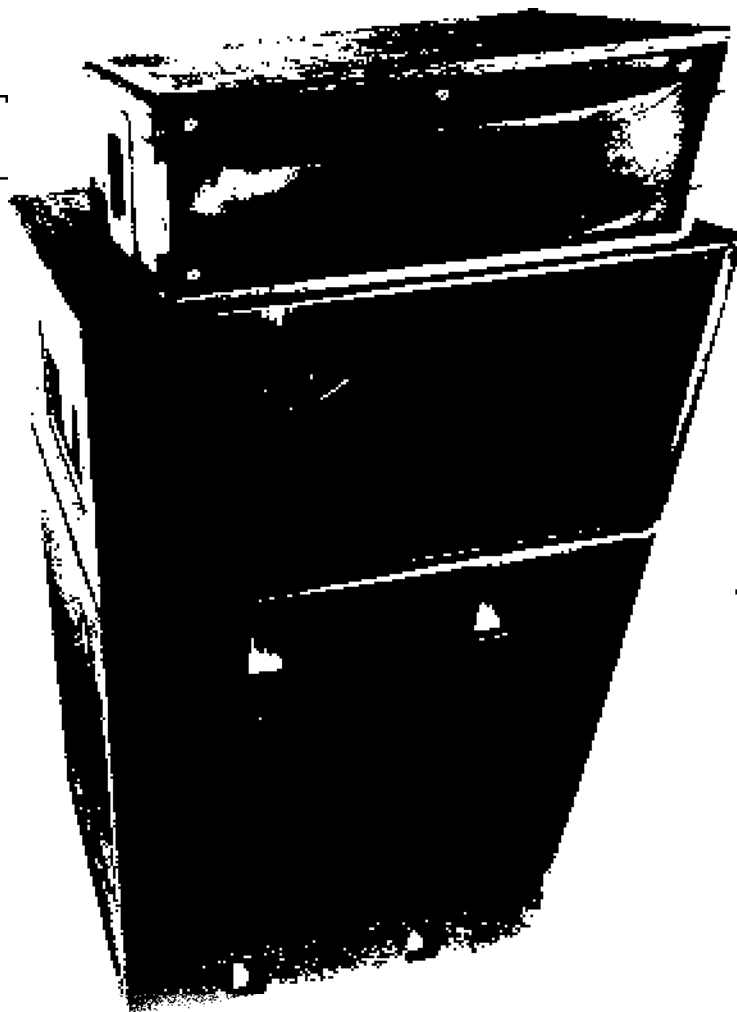
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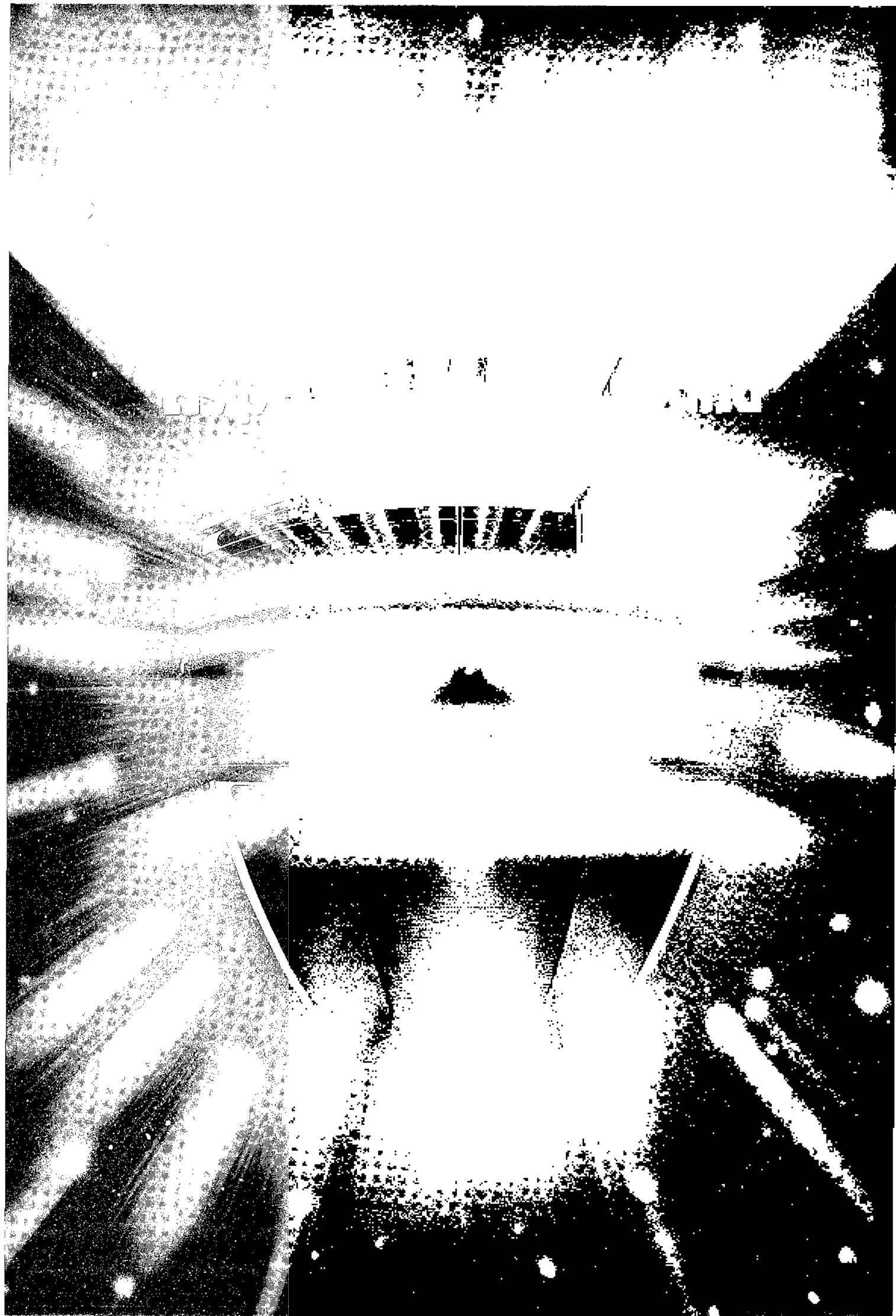
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Features: Two switchable channels with flexibility to operate separately, combined or be switched between the two. Footswitchable 5 band graphic equalizer. Six in/out pre-amp jacks allow patching of effects between pre-amp and power amp for optimum performance and give access to Channel A, Channel B or both combined. Treble, midrange and bass controls. Input pad and bright switch on each channel. LED indicators note power, EQ and channel selection. Two section foot switch "Power Boost" switch provides punch for low gain instruments. Dimensions: $6\frac{1}{2}$ "H x $26\frac{1}{2}$ "W x $11\frac{1}{2}$ "D. Shipping Weight: 42lbs.

model 400 stereo power amplifier

375 Watts RMS/per channel into 2 Ohms. One LED overload indicator per channel.

Features: Dual power supplies, separate input level controls, separate power switches, high speed fan cooled, rack mountable, RCA pin type (phone) and $\frac{1}{4}$ " standard phone jack inputs on front and rear, banana plugs and $\frac{1}{4}$ " standard phone jack outputs. Thermal and short circuit protection without programme interruption.

Dimensions: $8\frac{3}{4}$ "H x 19 "W x 19 "D. Shipping Weight: 67lbs.

model 220 bass amplifier

160 Watts RMS at 5% THD into 2 Ohms. $\frac{3}{4}$ " plywood with interlocked dado construction. 125 Watts RMS at 5% THD into 4 Ohms.

Features: High and low gain input jacks, bright switch, treble, midrange and bass controls, power boost switch, and footswitchable 5 band graphic equalizer. Pre-amp in/out bypass jacks for internal patching of accessories. 1 LED indicators note power, EQ and channel selection. Will accept 120 and 240 Volt supply.

Dimensions: $6\frac{1}{2}$ "H x $26\frac{1}{2}$ "W x $11\frac{1}{2}$ "D. Shipping Weight: 35lbs.

model 230 guitar amplifier

160 Watts RMS at 5% THD into 2 Ohms. $\frac{3}{4}$ " plywood with interlocked dado construction. 125 Watts RMS at 5% THD into 4 Ohms.

Features: High and low gain input jacks, bright switch, treble, midrange and bass controls, a footswitchable gain compensated master volume control, a footswitchable reverb control, and footswitchable 5 band graphic equalizer. Pre-amp in/out bypass jacks for internal patching of accessories. LED indicators note power, reverb, EQ and master volume status. Will accept 120 and 240 Volt supply.

Dimensions: $6\frac{1}{2}$ "H x $26\frac{1}{2}$ "W x $11\frac{1}{2}$ "D. Shipping Weight: 35lbs.

model 911 powered mixer

200 Watts RMS into 4 Ohms.

Features: INPUT CHANNELS - Balanced low (cannon 3-pin) and hi impedance inputs, LED

overload indicators, input gain switch (-40, -20, -0), bass control ± 15 db, midrange

control ± 15 db, treble control ± 15 db, reverb/effects send control, monitor send control,

channel fader.

Features: OUTPUT CHANNELS - Master output fader, monitor output control, reverb/effects return control, nine band graphic equalizer ± 18 db, graphic EQ switch (main/off/monitor), eight segment light bar output display on master channel.

Features: REAR PANEL - Master pre-amp output, monitor output, effects input (bypasses internal reverb), effects output, power amp input (disconnects master pre-amp), tape output, mixed buss input, (2) speaker outputs for master channel, 200 Watts RMS into 4 Ohms at less than 3% THD.

Dimensions: $7\frac{1}{2}$ "H x 25 "W x 24 "D. Shipping Weight: 65lbs.

ENCLOSURES	Model 403	Model 406	Model 802	Model 813	Model 400
Power Handling Capacity/Watts (Maximum Amplifier Output)	200	200	125	175	300
Nominal Impedance/Ohms	4	4	8	4	2
Enclosure Type	Sealed System	Front Loaded Vented Baffle Tuned Reflex	Front Loaded Tuned Reflex	Front Loaded Horn with Tuned Reflex	Tuned Combination Reflex
Speaker Complement	4-12" Spkrs	2-15" Spkrs	1-12" Spkr/Lows 1-Horn/Mids 2-Piezoes/Highs	2-15" Spkr/Lows 1-Horn & Driver/Mids 2-Piezoes/Highs	4-15" Spkrs
Overall Size/Inches (HxWxD)	$26\frac{1}{2}$ x $26\frac{1}{2}$ x15	43 x $26\frac{1}{2}$ x18	20 x $24\frac{1}{2}$ x $15\frac{1}{2}$	40 x $26\frac{1}{2}$ x16	50 x $26\frac{1}{2}$ x20
Shipping Weight/Pounds	100	130	65	115	142

Construction: 802 and 813 models: $\frac{3}{4}$ " plywood with interlocked dado construction and hard coat finish

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Keyboardcheck

Crumar Model Performer £465 inc.VAT

The Crumar Model Performer is a rather oddball piece of equipment. It's difficult to decide what the maker's philosophy might have been in producing this instrument. It has anomalies that left me searching for the owner's manual — in vain, I might add, since the Performer is so new they haven't had time to print one. And yet, through the mass of contradictions, the controls that promise much but deliver little, there shines the one redeeming factor — the string sound. You can have a lot of fun with this string section: weird and wonderful effects are at your fingertips here. The string section makes the whole thing worthwhile, doubly so at the price.

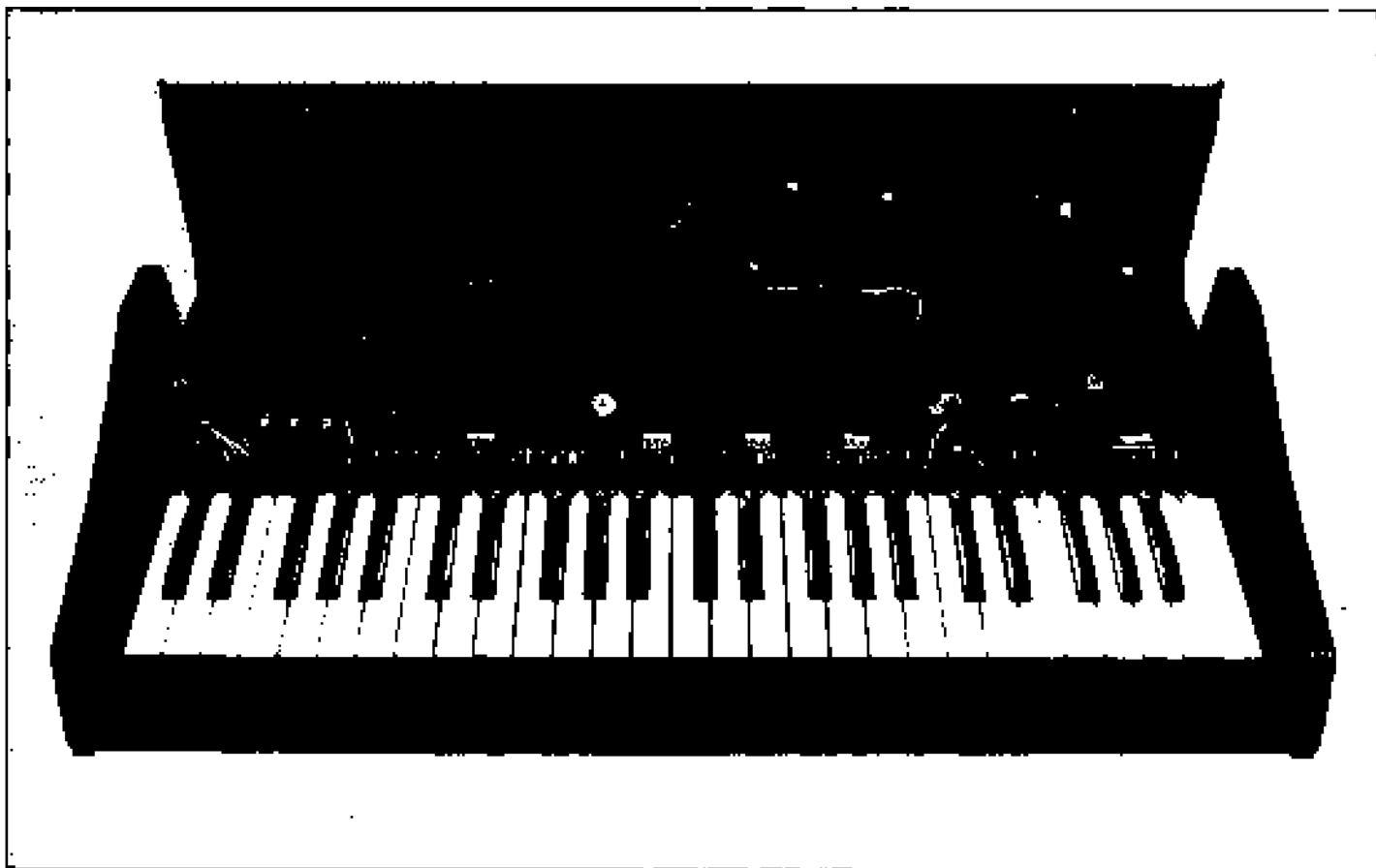
Having got that little tirade out of the way let's lift the instrument out of its plastic carrier bag — easy to do thanks to the light weight. Note the veneer surrounds and black vinyl finish. Also the flimsy looking plastic sliders. Looks OK but hardly in the first rank of aesthetic achievement. The keyboard has a four-octave compass (two octaves either side of middle C). At the back there are three outlets to choose from, main, brass and signal, indicating stereo facility. There's also a 3.5mm phone jack labelled "Gate." I've done some checking here and the general opinion is that Crumar synths are interfaceable with other synthesizers, and certainly the brass section would benefit from some extra filtering.

Switch on, play an A, good grief! That sounds flat — about a minor third flat to be precise. Look perplexed in absence of master tune control on front panel, notice white plastic knob on the back (left side) that looks as if it might rotate. It does. Not only that but it affects the pitch. No fine tune this, none of

your semitone either way stuff here, these guys aren't fooling around. You can raise the pitch by a fifth and lower it by no less than an octave and a sixth. This being so, the obvious thing to do is to buy a wheel of about six inches diameter and fit it to the said protrusion, thereby providing yourself with the mother and father of all pitch bends and, incidentally, adding considerable visual interest to the machine's appearance. I'm serious.

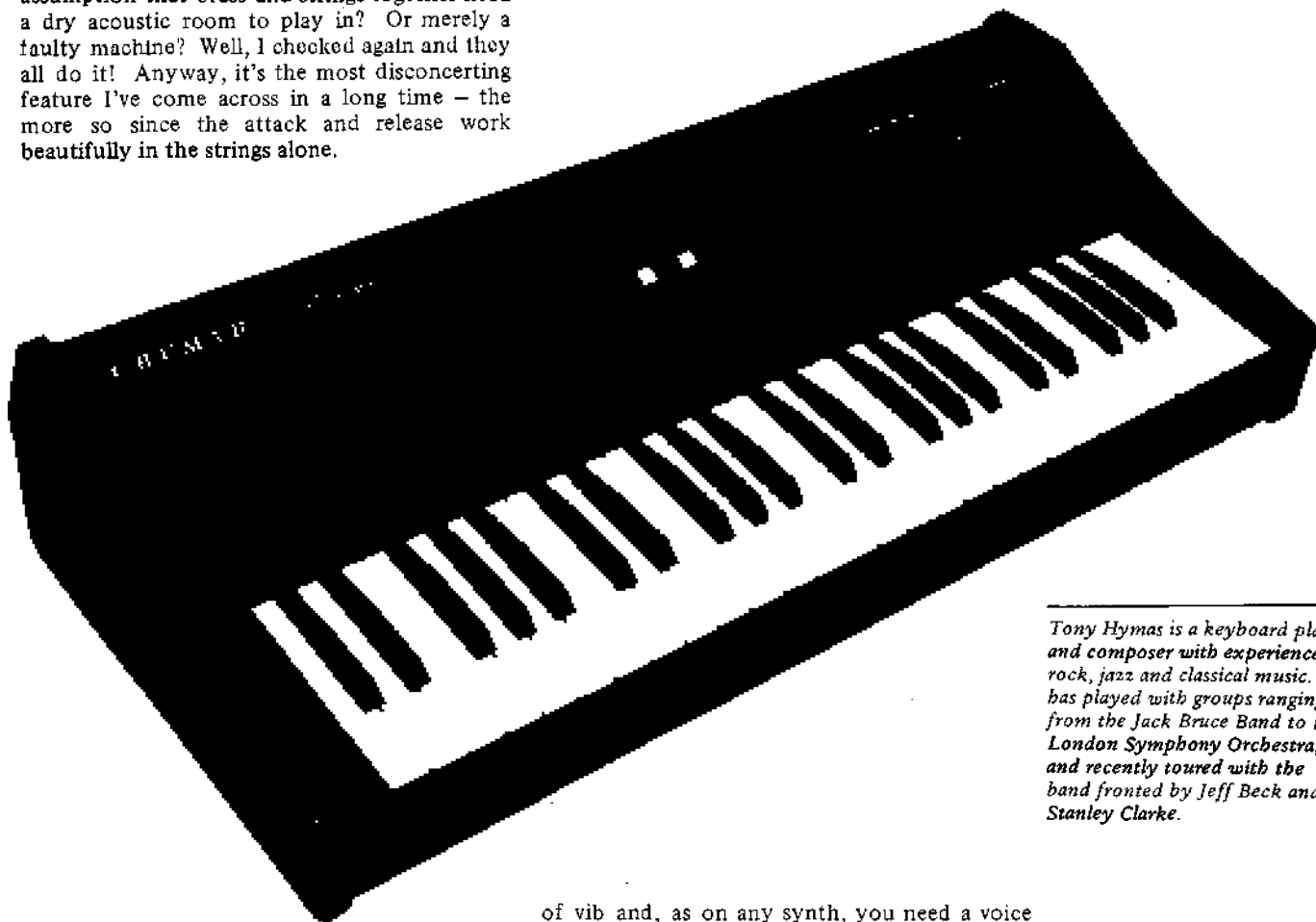
Meanwhile, back on the front panel we see that there are three main control sections. On the left is the brass. There are four sliders for attack, decay, range and resonance plus a fifth for volume. This last actually has quite a marked effect on the quality of sound, but the rest . . . Let's take the resonance slider first. On a normal synth this will add emphasis to the frequencies just below the cut-off frequency (ie the highest partials), which in this case are set by the range slider. Beyond a certain point the resonance filter will start to act as a sine wave oscillator in its own right whose pitch is determined by the range setting. On the Crumar these effects are minimal, so minimal as to leave me scratching my head wondering if this particular specimen wasn't working properly. So I experimented with the modulation section and got some effects which proved that it was working, but in a very half-hearted way.

Again the range slider has only a limited effect: it makes the brass a bit edgier. The attack and decay slider seem to control the amount of those qualities sent to the filtering system but not the length. In other words, you can't alter the envelope shape. To do that, you must turn to the crescendo and sustain (a misnomer for release) sliders in the string section.



By the way, the brass can be punched in or out by means of a square button, which has a red pilot light over it, as can the string 16' and 8' voices. But supposing you have a nice sustain (release) going on in the strings and you switch in the brass, the release disappears — just vanishes. So if you combine voices you lose this valuable facility. Now this doesn't make sense at all. Is it a design feature to save cost? An assumption that brass and strings together need a dry acoustic room to play in? Or merely a faulty machine? Well, I checked again and they all do it! Anyway, it's the most disconcerting feature I've come across in a long time — the more so since the attack and release work beautifully in the strings alone.

So to the modulation section. This consists of a low frequency oscillator, the rate and amount of which are controlled by two sliders. A further square button routes the LFO to either the filter (button out) or frequency modulation (in). The FM produces a pitch vibrato and used carefully can add a further luster to the strings. I'm not so sure about the VCF facility. This makes for a "breathy" type



Tony Hymas is a keyboard player and composer with experience in rock, jazz and classical music. He has played with groups ranging from the Jack Bruce Band to the London Symphony Orchestra, and recently toured with the band fronted by Jeff Beck and Stanley Clarke.

And it is the string section that turns this Crumar into a serious musical instrument. One rank of string sound divided into two by 16' and 8' selectors and you have a first rate string sound. To the left of the selectors are three sliders for equalization. Now these *do* work and by playing around with them while you sustain chords with your right hand you get some intriguing sounds. The attack and release — sorry crescendo and sustain — each last from 0 to 6 seconds which brings us to the other remarkable feature of this Crumar. If you set the cresc and sust sliders to fairly long values you can play as many notes as you like, keep piling up chords on chords and all the notes will creep in and die out in their own time (providing they are held till a point reasonably near the peak of the cresc). On many string machines, once you've heard the initial slow attack, any other notes you play, assuming you keep the first depressed, will sound immediately (thus spoiling the effect). Not so with this instrument: the slow overlapping of chords is a large plus mark in the Crumar's favor.

of vib and, as on any synth, you need a voice that can take it. Flute sounds are the best where the image of breath sounds natural. Unfortunately the Crumar has no such tonal characteristic. For a start, the VCF mod will only work on the brass section — see remarks near beginning of review. Anyway, the FM has its uses and a further fader will give automatic delay of the effect by up to six seconds. There's one final slider for overall volume and that completes the specification.

The keyboard has a pleasant feel to it, light of course but perfectly playable. It's very much a chordal instrument, though. Rapid lines won't sound right. So the impression is of an instrument that needs a little more thought: if they cut out some of the frills or get them to function in a more positive manner, Crumar could have a real winner here. In a way, it is a winner already thanks to those strings, especially considering the price. If you go for a demo ask to hear the overlap effect and you might just walk out of the store with one under your arm.

Tony Hymas



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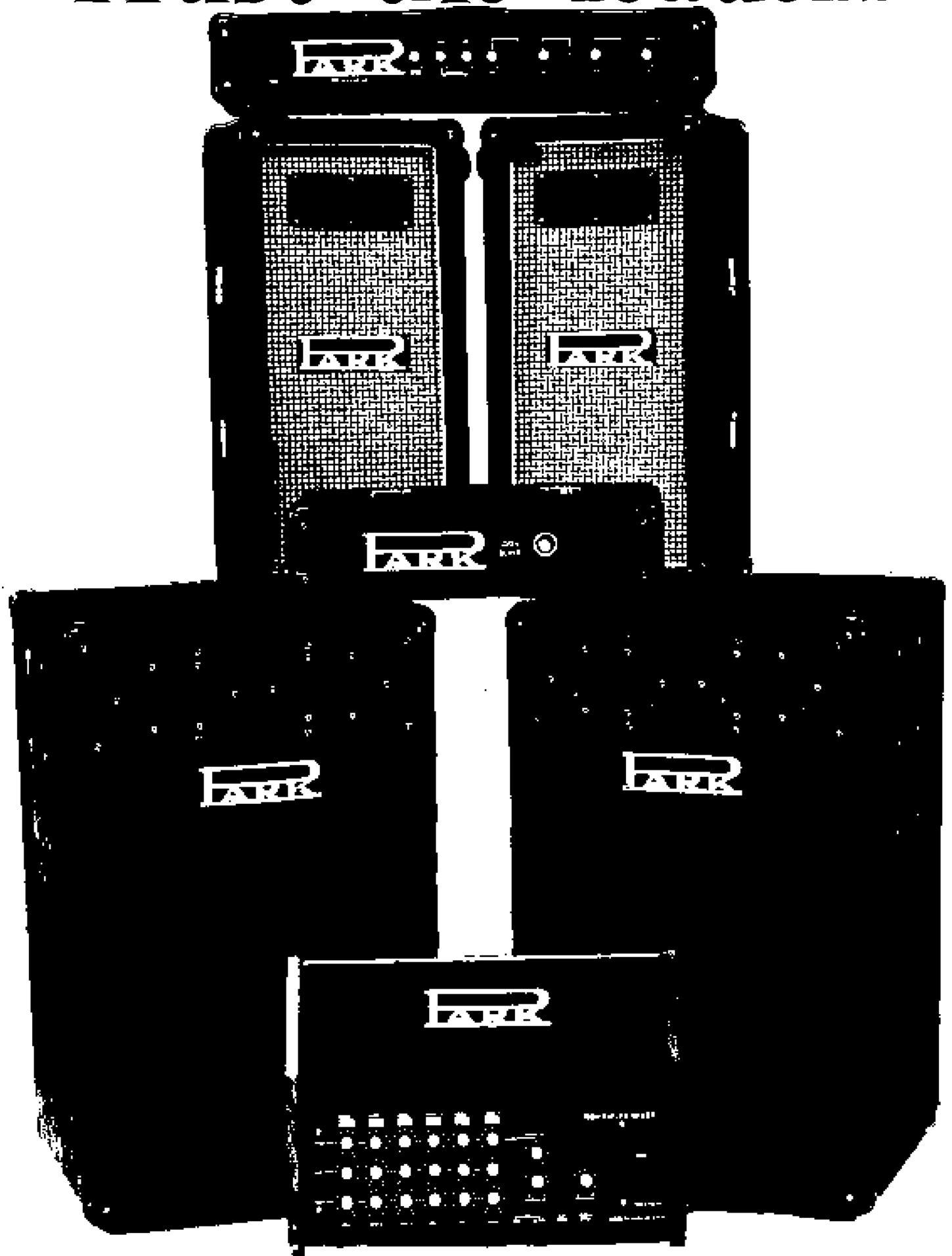
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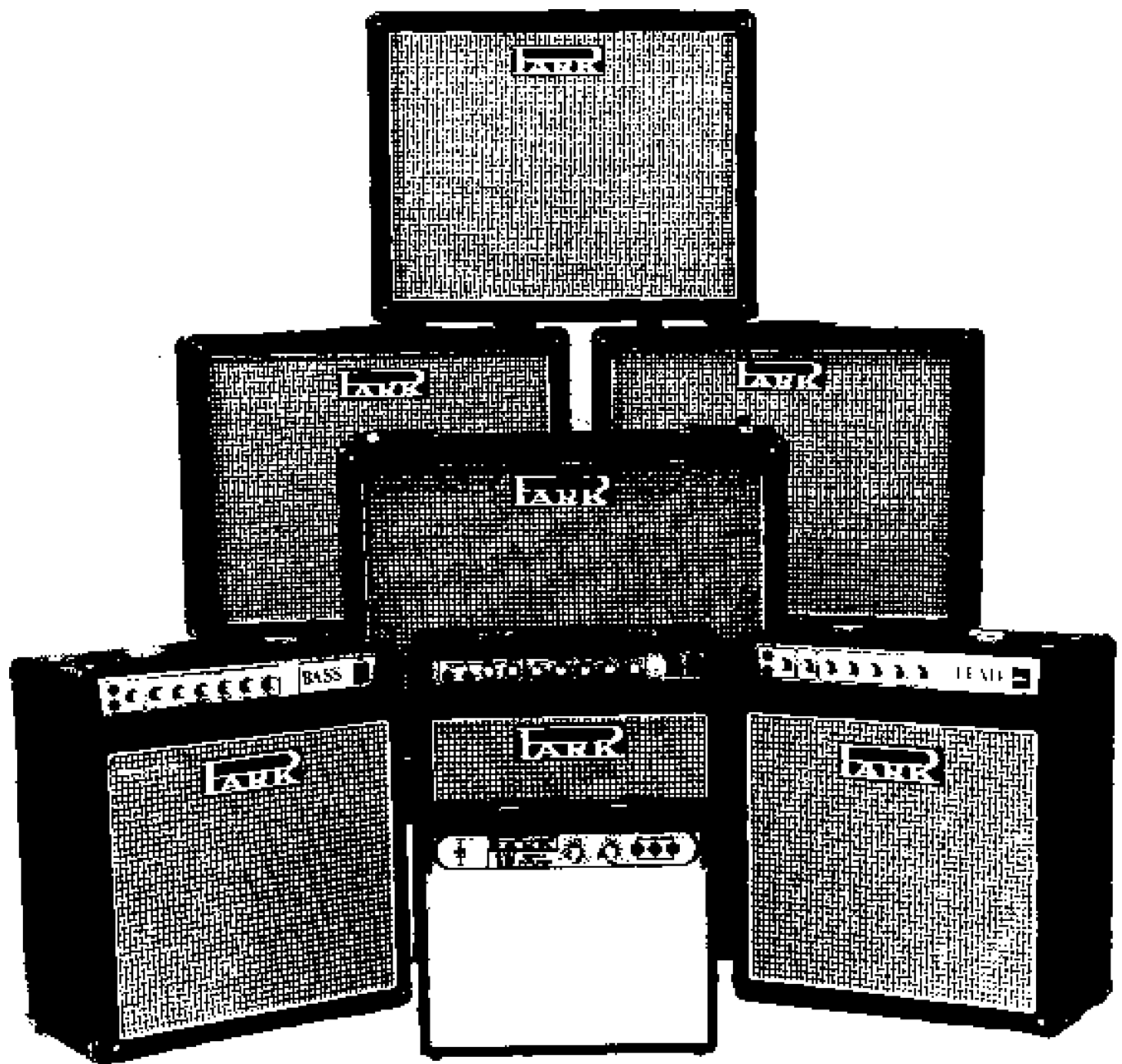
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Adjusting beginners guitars:5

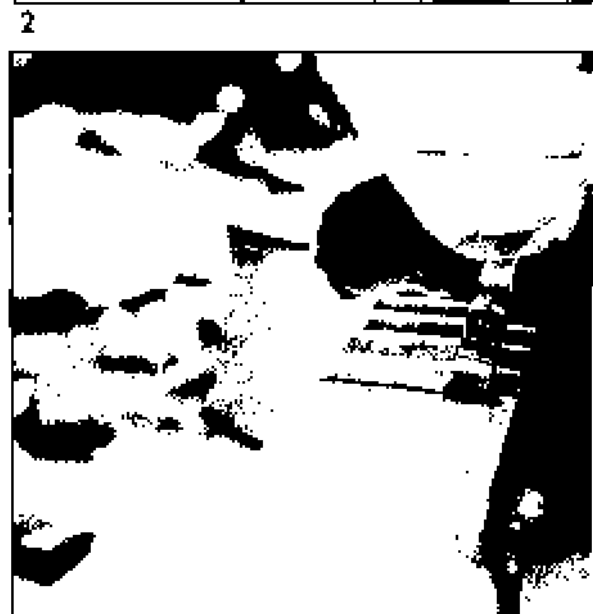
This is *not* "Instructions on how to re-fret your guitar." It is not written to encourage you to re-fret your own guitar. It is not written to help you convert your fretted bass into a fretless bass. There are probably as many styles of re-fretting as there are good repairmen and most of them can get you into serious trouble if you attempt a do-it-yourself job. On one level, a really good re-fret, appropriate for a fine instrument, can easily cost £50 or £60 and this represents many hours of precise and very hard work. On another level, when I last checked, the cheapest re-fret in London cost £12.50. This is probably less than cost of fretwire and the specialised tools needed for the job. So if you have a really nice guitar, you are unlikely to be able to re-fret it well enough, and if you have an old clunker, a cheap commercial re-fret will cost you less than the bits to do it yourself. From either end, it does not seem worthwhile.

If you live miles from civilisation and you *must* do the job yourself, I would once again recommend Irving Sloane's *Guitar Repair* book. I would also mention that UK readers can obtain suitable "flush-cutting" nippers from Fletcher and Newman Ltd. They are made by Bahco and I believe piano repairers use them for trimming brass wire pins or pivots used in the piano's action. Stentor Music have a useful range of tools and fretwire, but they cannot supply direct to the public. Order through your nearest helpful music shop, or try one of the guitar-makers' suppliers who advertise in IM. That gives you an instruction book, the right tools and a supply of fretwire. Beyond that point I am offering no further advice or encouragement.

I think it was necessary to begin this month's Workshop in a cautionary way. Judging from the letters and 'phone calls I receive, the world appears to be full of guitarists and bass players who are itching to pull the frets out of their instruments for one reason or another. I am not going to be held responsible for the results. If your guitar has worn frets, re-fretting may not be essential. It may be possible to remove some or all of the uneven wear by dressing the tops of the frets with a Carburundum stone. Details appear in "Improve a Copy Guitar" (parts 1, 2 and subsequent printing corrections) May, June, July '75. Photocopies should be available from our subscription department for £1 each. I shall try to arrange some articles on re-fretting at a later date. For the moment, I must emphasise that the repair techniques offered this month are intended for cheap "beginners" guitars and may

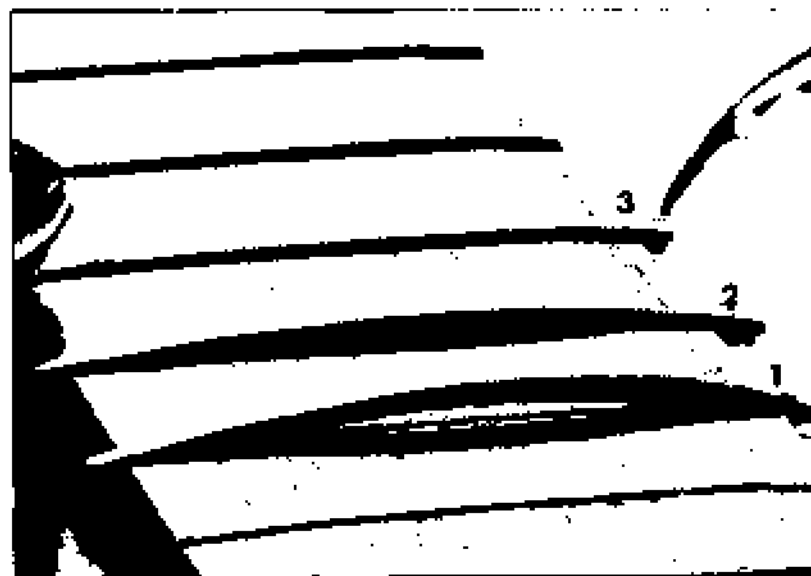
not be appropriate for better instruments. Loose frets, or frets which are so damaged that they require complete replacement, may be removed with flush-cutting nippers as shown in photos 1, 2 and 3. Alternatively you could use two woodwork chisels and two strips of sheet metal to protect the fingerboard as shown in Photo 4. The chisels will not be much use for woodwork afterwards and they should have slightly blunted edges to protect your hands in case one of them should slip. Even if a fret appears to be very loose, take it out slowly and gently. Put a little Gloy Liquid Glue in the fret slot. Bend the fret so it is slightly more curved than the fingerboard, as in Photo 5, fret 1. If you are replacing the same fret back in the slot, line up the fret ends with the edges of the fingerboard. Support the guitar neck on a padded wooden block (Photo 6) and gently tap the fret down until it is almost into place, but still gently curved upwards towards the centre (Photo 5, fret 2). Continue the gentle tapping along the length of the fret until it is fully into place, as in Photo 5, fret 3. As you tap the fret back in, look carefully at its gently curved shape and adjust the position of your hammer blows so that the curve remains, gradually straightening, until the last bit of the fret finally fits into place. The ends should go down first, and should stay down, while the middle of the fret is gradually brought down level. It sometimes helps if you hold the ends of the fret down firmly with your left thumb and second finger. You can use carpenters' white glue instead of the Gloy, but it may cause trouble if the instrument needs to be refretted later on. If the fret is still loose at the ends, don't hit it harder, that will only make it worse. While the glue is still sticky, put a hard rubber or cork block over the fret and clamp it down hard overnight.

If a cheap guitar has just a few frets which are loose at the ends, it is usually worth fixing them in this way. If all the frets are loose it may be more trouble than the instrument is worth, or it may be more sensible to ask for a quote on a cheap commercial re-fret. If one or two frets are loose only at the ends and can *easily* be pressed into place with a fingertip, there is another way of fixing them easily, but you should *not* do this to any instrument which you may later wish to have properly re-fretted. It is more suitable for quick repairs on the "junk-shop" variety of guitar. To fix frets which are loose at the ends, place one drop of "super-glue" under each side of the fret at each end. Clamp down immediately with a hard rubber block or a





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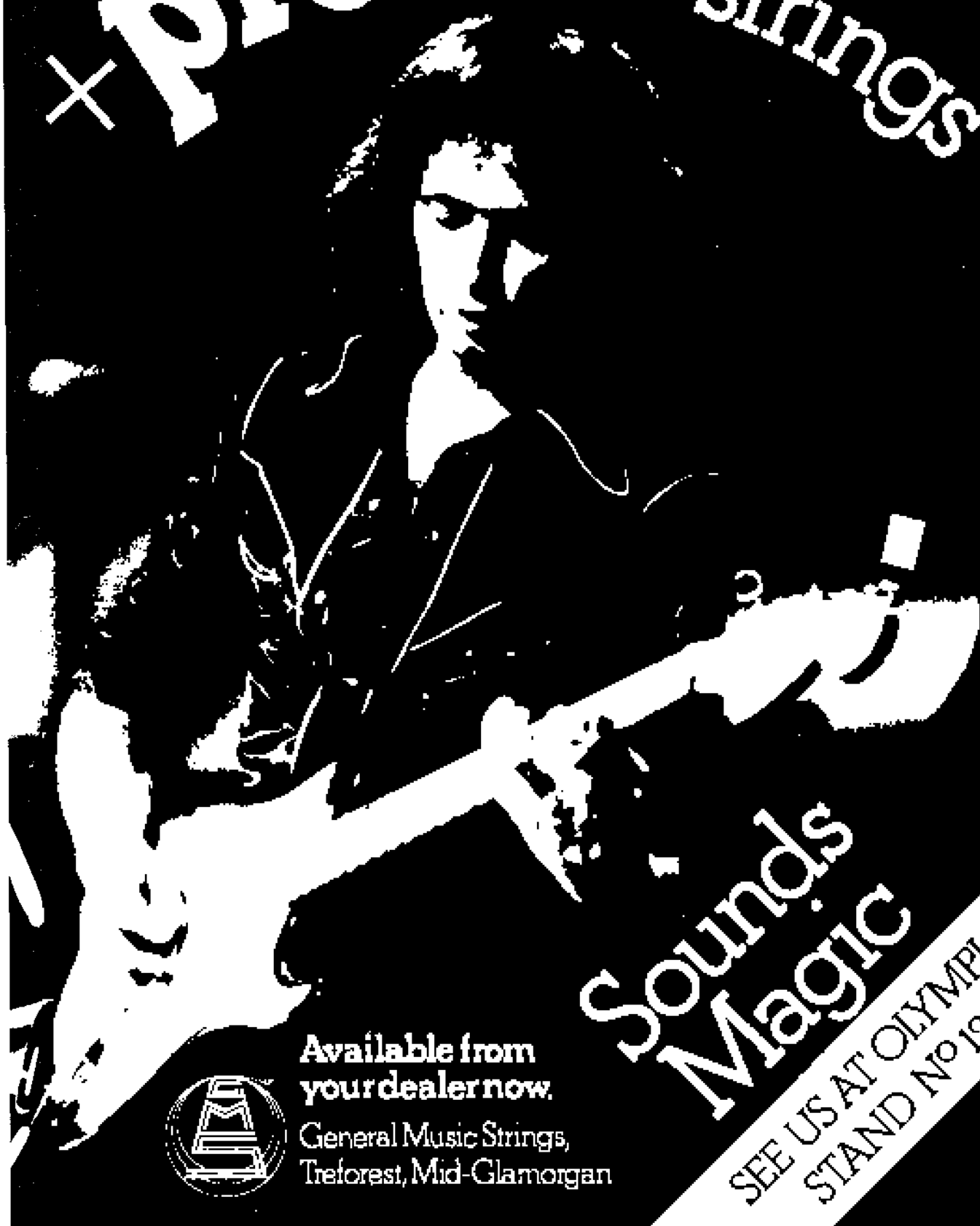
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cork or soft wood block covered with polythene sheet. Leave overnight (not for the advertised 5 or 10 minutes). Super-glue sticks fingers better and faster than anything else. Be careful, especially when piercing the tube. You can remove the glue from fingers, when partly set, with acetone and a cotton wool swab. Pull apart only very slowly and very gently while flooding the area with acetone. It may take up to half an hour to separate glued fingers. If you pull hard, you will pull lumps of skin off your fingers: I don't recommend it. In spite of the easy availability of various makes of "super-glues" they can be hazardous in use. Disposable thin plastic gloves will protect your hands. Either wear some sort of eye protection when opening the tube, or at least hold it at arm's length and point it away from your face.

Rough frets on a cheap guitar usually occur because the manufacturer has levelled the frets after assembly with a coarse sanding-belt machine. Photo 7 shows a block of smooth, hard wood with 600 grit wet-and-dry paper stretched over it. If you rub with even pressure and small circular movements, you should be able to remove most of the roughness on the tops of the frets. You will need to spend rather more time rubbing on the frets in the top third of the fingerboard (nearest to the bridge). As they are closer together, the smoothing process needs either more time or more pressure. More time and constant pressure gives a better result. This process will probably give you frets with smooth tops and fairly sharp edges. To remove the sharp edges, unless you use one of the special (and rather expensive) fret files, wind a strip of 600 abrasive paper several times around your first and second fingers. Rub up and down the length of the fingerboard, banging your fingers fairly hard against the sides of each fret. This will remove the worst of the sharp edges, although you cannot expect it to produce completely rounded tops to the frets.

"Dented" frets are not usually dented. They are usually old and well-used frets which have worn away under the strings. Small amounts of wear or small dents from rough handling of the instrument can sometimes be "stoned" out. See the "Improve a Copy" articles referred to earlier. Large amounts of fret-wear under the strings usually require a complete re-fret. Bear this in mind when looking at secondhand guitars. If one or two frets have real dents as a result of accidental damage, you may be able to obtain a matching size of

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fretwire from a music shop and replace the damaged frets. Use the same method as described earlier for replacing loose frets, but cut the new fret a little longer than necessary, and trim the ends after it is fitted. Use a small triangular file or sharp flush-cutters to cut off the surplus fretwire, and then trim the ends as described later on under "Frets with sharp ends". If you are really desperate for one or two frets on a cheap guitar, use the two highest frets, nearest the soundhole. They will be un-worn and long enough to replace any other fret. Most beginners will not miss the top two or three frets on a guitar.

If you can't get an exact fretwire match, you could remove a few frets from the top end of the fingerboard to replace worn or damaged frets lower

down, then fill in the slots at the top with a smaller size of wire. Smaller wire for the highest frets will still work. Larger wire at the top may cause buzzes. Larger wire for the lowest two or three frets may work, but you may need to raise the nut to avoid open string buzzes. Larger or smaller wire anywhere else is likely to cause buzzes. You can fit a *slightly* larger wire and then stone it down level by following the fret finishing processes in the "Improve a Copy" article. Frets come in an odd assortment of heights and widths which is not always logical. You may choose the right width of fret to look right on your guitar, but it is the *height* of the half-round part of the fret which determines whether you will have string buzzes or not. You may have to take a different width to

get the right height.

Frets with sharp or projecting ends can be trimmed level with the edge of the fingerboard with a very fine, narrow file, as shown in Photo 8. File downwards as shown, to avoid the risk of loosening the end of the fret. The file shown is a Swiss-made "long, slim pillar file", but you could also use a similar "needle-file". In either case, fitting a long, slender handle gives better balance and control. You can use the same file to round over the resulting sharp corners at the end of the fret, or you can "file" the sharp fret-ends with the edge of a flexible, rubber abrasive block. These are available in the UK from Garryson Abrasives. Individual rounding of each bit of the fret-end with a file is better, but needs much more skill. More information on dressing fret-ends appears in the "Improve a Copy" article, but what I have described here should be quite enough for a beginner's guitar.

As a rough guide, a guitar could have rough frets, worn frets, damaged frets, frets loose at the ends, frets with sharp ends. Any two of these problems are probably worth fixing. If you have more than two or three of these problems together, it may be simpler and more economical to pay for a re-fret, or to leave the guitar alone. You can fix all of these problems even if they are all on the same guitar, but it may involve rather a lot of work.

There is little point in polishing or stoning-down worn or dented frets if the lowest part of any fret under any string has less than about 0.5mm of metal left above the fingerboard. By the time you have even, smooth frets, they will be as low as the lowest worn bit. (If they were not as low as this, you would still have a dent). Frets less than 0.5mm high may be possible on some electric guitars but they are unlikely to work properly on the sort of beginner's acoustic guitar which I am considering in this series of articles. As I have mentioned earlier, if most frets are only very slightly worn and one or two are very badly worn, you could replace the badly worn ones and then "stone" all the frets down level. There is also little point in trying to smooth down rough frets if they are low as well as rough. By the time they are polished, there will not be enough height left. You could probably make some improvement by rubbing along the top of each fret with the edge of a rubber abrasive block.

This brings to an end all the easy and not so easy adjustments I can think of, which may help you to improve new or secondhand cheap beginner's guitars.

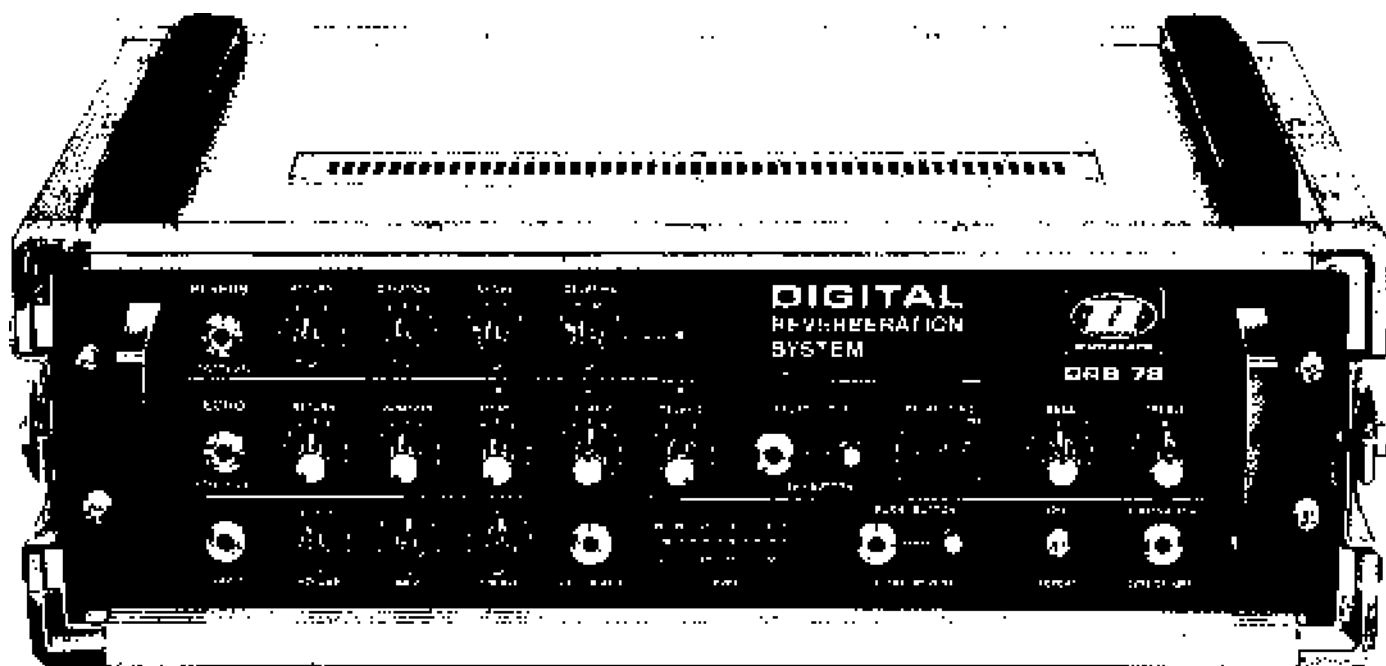
Stephen Delft



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THE TAM 19. This product is at the forefront of musical technology. It's a device for "Time Axis Manipulation" and in simple terms it uses two delay lines to create some beautiful and interesting effects.

The use of two solid state delay lines (in parallel, series or other combination) allows a whole range of effects to be instantly created. Flanging, phasing, pitch shifting, double tracking, ambience enhancement, chorus and space sound can all be had at the flick of a switch. In the TAM system the music signal is alternately expanded and compressed in time and

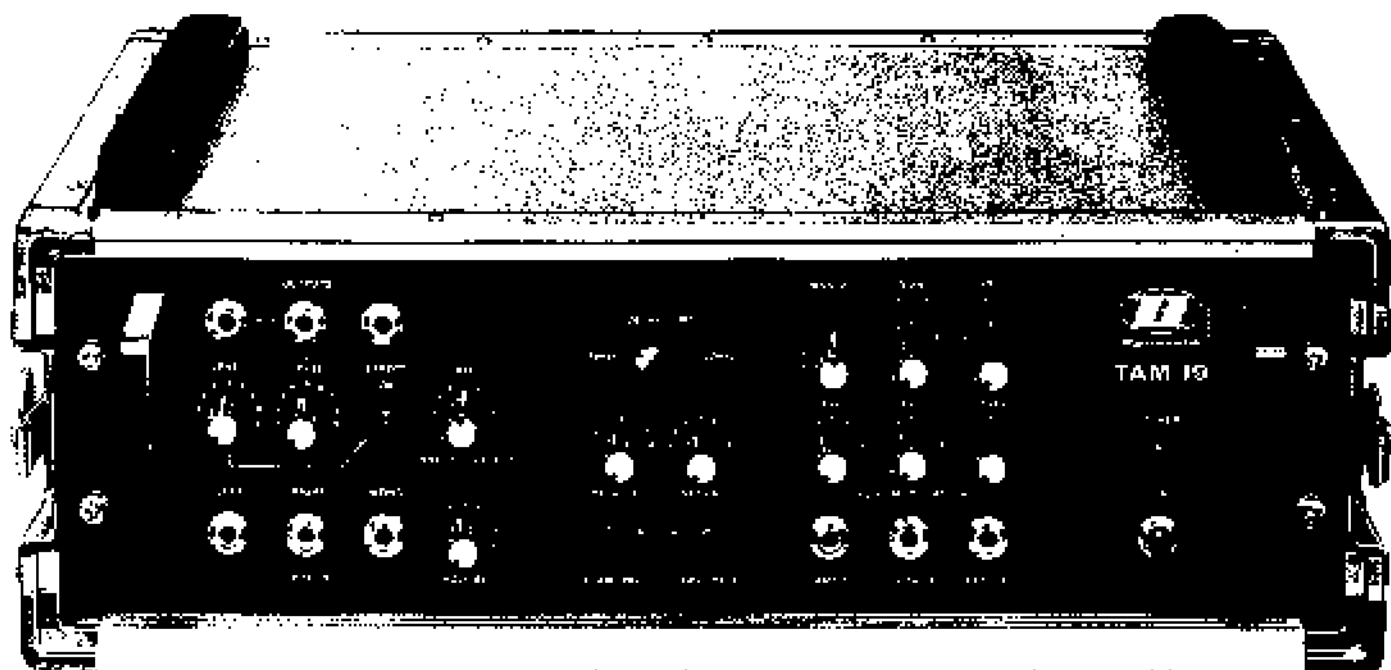
remixed in various ways with the original.

Mixing the manipulated signal with the original creates a comb-filter-like progression in the musical spectrum. Outstanding stereo effects are easily obtainable with the TAM 19 and the stereophonic design makes it possible to achieve positive and negative flanging, phasing and even pitch shifting.

The TAM 19 is equipped with three internal generators for time axis manipulation – triangle, sine and AVRGD (averaged), which can be mixed with one another in any desired combination. Of particular interest here is the AVRGD generator, which used the average value of the input signal for control of the time manipulator. Using the AVRGD generator, a drummer can, for example, control the temporal progression of the flanging by varying his technique. A foot switch makes remote control of the manipulator possible. The internal generators remain in operation, however, so that a maximum of four control signals can influence the TAM 19 simultaneously.

This is Dynacord technology working for you.

TECHNOLOGY IS WORKING FOR YOU



TECHNOLOGY IMPROVES MUSIC. Who says so? Most of the good musicians who use technological advances subtly to improve their art. No amount of technology can improve poor music, but feeling can be aided by the judicious use of the right effect. Dynacord specialise in making just the right effects.

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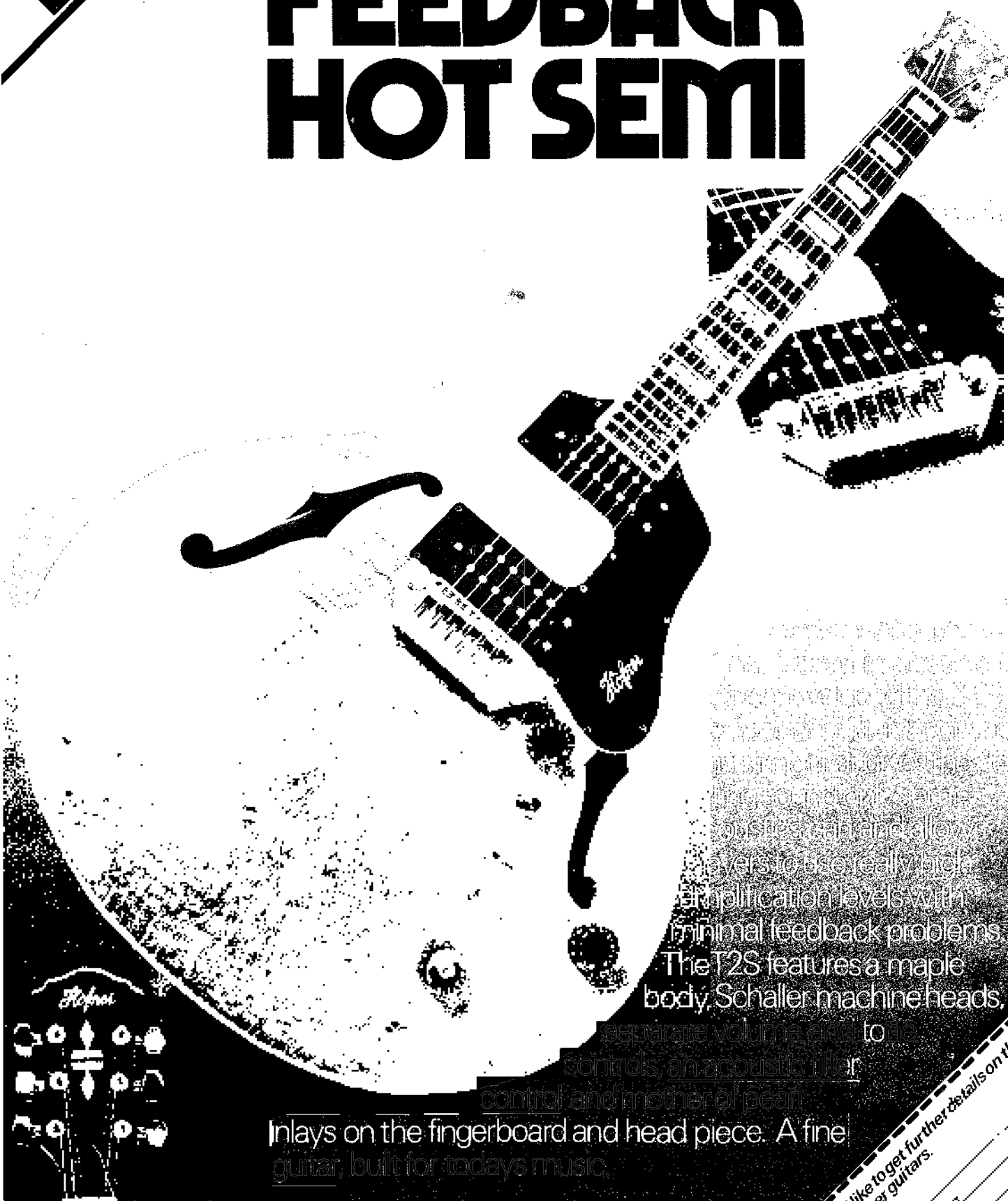
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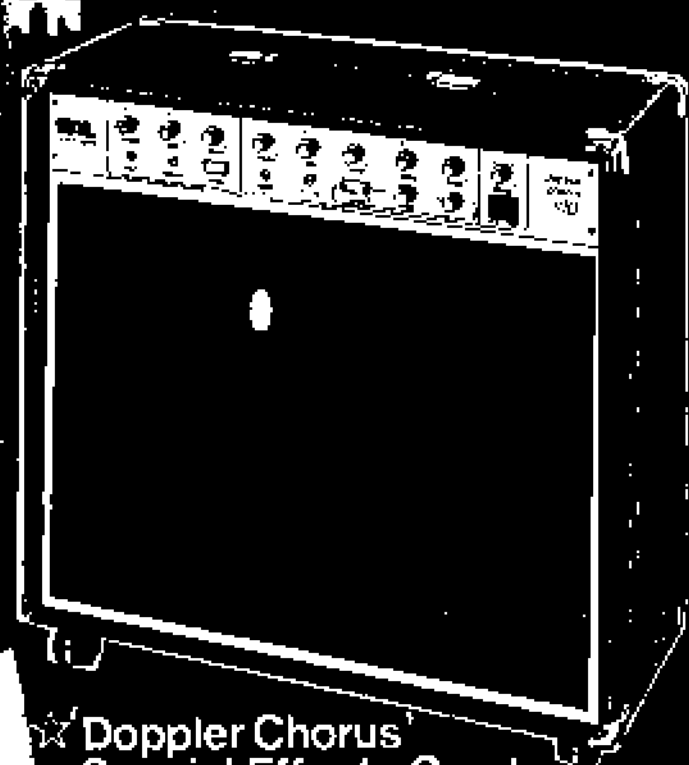
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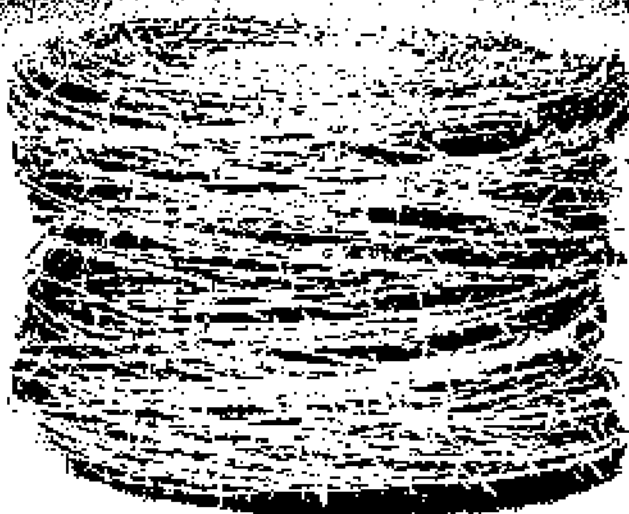
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LARRY CORYELL'S European Impressions



"Since I've been playing acoustic, I've discovered a different response than when I play electrically, a kind of sensuality. I have come to regard the acoustic element as being the purest element of the guitar."



Provocative words from Mr. Coryell, the Texas-born guitarist who, in the very next sentence of his current Arista Records bio, is credited as "one of the acknowledged pioneers of the jazz-rock fusion movement."

From his earliest gigs around the Pacific Northwest backing up rock and roll legends like Gene Vincent to his exploration of jazz stylists like Wes Montgomery, Barney Kessel and Joe Pass through his radical fusion experiments with the Free Spirits and the Eleventh House, Larry Coryell has been primarily committed to the electric guitar as a means of articulating his musical ideas. Certainly his chaotic but often inspired — especially in live performance — work with Jim Pepper, Chris Hill, Dobby Moses and Steve Marcus in the ground-breaking Free Spirits and his passionate interplay with John McLaughlin, Chick Corea, Miroslav Vitous and Billy Cobham on the landmark *Spaces* album guarantees his reputation as an authentic "pioneer" of the electric guitar. So why this seeming abandonment of the electronic mode in favour of a more sedate acoustic approach? Could Larry Coryell, one of the original "wild & crazy guys," the Young Lion of contemporary jazz guitar, finally be slowing down as he passes through his mid-thirties?

The answer to this and other pertinent questions of the day would soon be forthcoming since I was on the verge of hooking up with Coryell at the Ovation Company headquarters in Bloomfield, Connecticut, USA a few hours away from his country home in the southern part of the state. It was a happy coincidence, of purpose — Coryell, an official endorser of Ovation acoustic guitars, had driven up for the day to pick up a custom-made fretless guitar and have some minor work done on his six and 12 string Custom Legends. I was there to speak with Charles Kaman, the head of the company, and observe Coryell's first in-person visit to the company. In any case, one never really interviews Coryell, one experiences him.

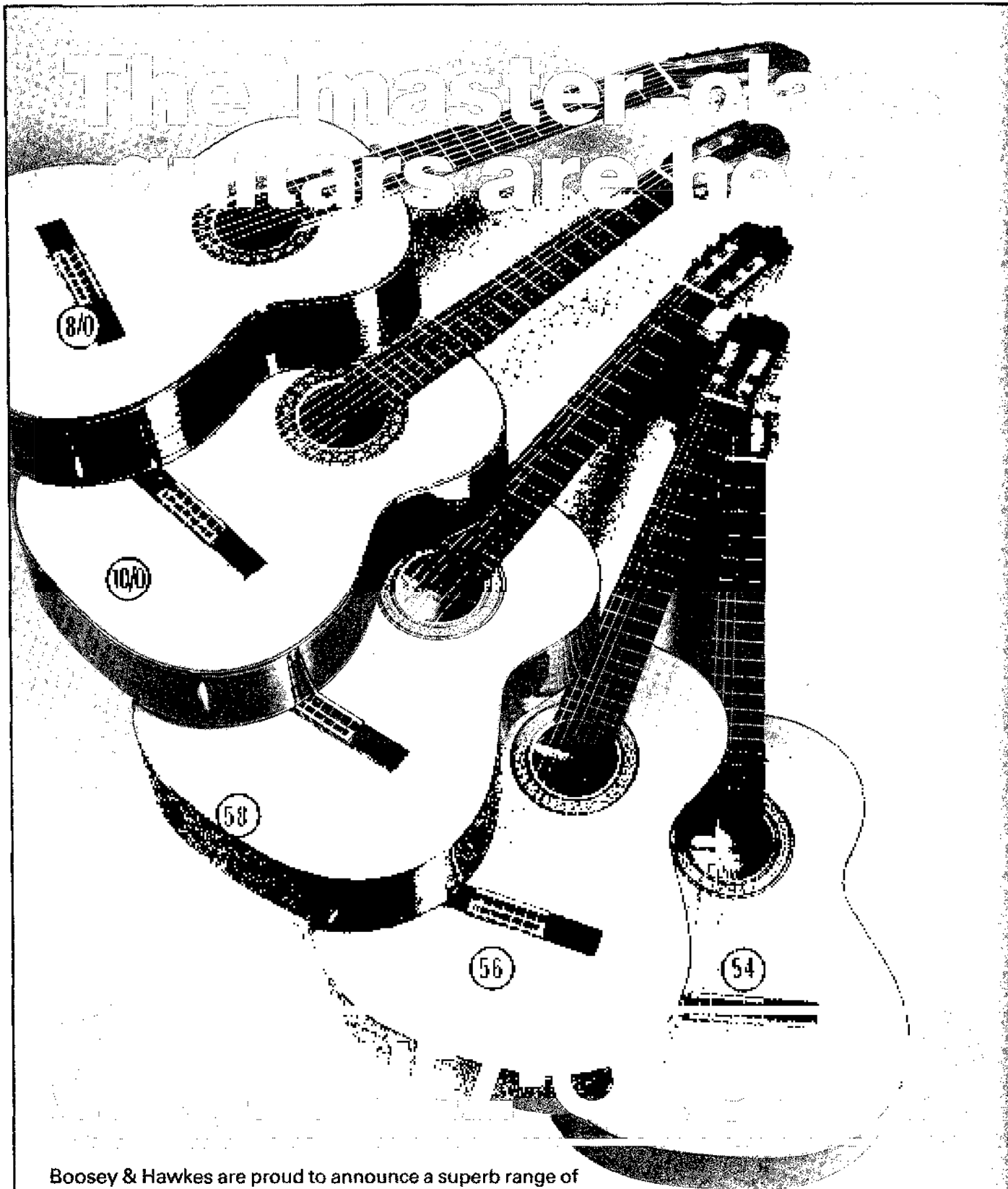
Crouched amid a welter of battle-scarred guitar cases, trying to make some sense of things at this rather unlikely hour of the morning, Larry Coryell is between SRO "acoustic" tours of Europe with John McLaughlin and Paco de Lucia, and the aggregate total of jet lag is starting to get to him. The company employees clustered around seem anxious to help but a trifle intimidated by this unusually

intense young man with the flowing mane of black and silver hair. Hunkered down under his funky-but-chic leather trenchcoat, Coryell slowly scans the area, searching for something. The arrival of Charles Kaman and the cordial introductions that follow lighten the mood perceptibly, especially in light of the fact that Kaman is an avid guitarist and his first meeting with Coryell is tempered by that instinctive rapport between musicians who play the same instrument.

Before heading into Ovation's sound room for a photo session, Kaman takes Coryell aside and casually asks him if he'd like to try out his son Bill Kaman's "personal" Adamas guitar. A dyed-in-the-wool fretboard fanatic, Coryell quickly agrees and is soon balancing an impeccably set-up (Bill Kaman is responsible for manufacturing the Adamas, Ovation's top-of-the-line instrument) brown sunburst Adamas on his lap. Within seconds, the guitar explodes into life as Coryell whips through a sensuous composition by flamenco virtuoso and current playing partner Paco de Lucia. True to form, Larry falls in love with the guitar instantaneously. Captivated by the rich sound of the instrument, he is even more knocked out by the feel of the neck and the low action. And if he is amazed at the Adamas, those of us watching him play are even more astounded by his fluid mastery of the guitar.

A half hour of acoustic improvisations and unsolicited testimonials follows, with Charlie Kaman exchanging guitar tips with Larry as he warms up to the Adamas (among other things, Coryell has mastered a difficult fingerpicking style for getting parallel harmonics guaranteed to turn any "competent" player into a fumble-fingered boob.) By now, Coryell is thoroughly convinced that the guitar could definitely play a role in the continuing evolution of his acoustic style. Kaman, with a perfect sense of timing, waits for this precise moment to give him the Adamas. Larry slips into a mild case of shock and disbelief, trying to express his thanks as Charlie Kaman chuckles with the pleasure of this brilliantly orchestrated surprise. Coryell is obviously moved by a personal gesture that easily transcends the normal working relationship between a musician and the company he represents.

This touching moment over, everyone focuses on the task in hand. ➤



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LARRY CORYELL'S European Impressions

Kaman and Coryell proceed to a small stage in the darkened soundroom where they sit on stools bathed in the hot glow of the photographer's lights. Kaman proposes a jam and both men are soon launched into a spirited version of *Satin Doll*. Inspired by the company, Kaman charges through the rhythm changes while Coryell weaves delicate solos over the top. And even though this is hardly a "professional" playing situation, the folks at Ovation who weren't too familiar with Larry Coryell up to this point are true believers within a few bars. Mr. Kaman is smiling: "Let's have some fun, we never have time for fun anymore." He invites us over to his house for a jam but Larry has to beg off, which he does with genuine regret.

After both men exchange autographed albums (Larry's very latest, a studio LP recorded in Germany named *Standing Ovation*, and Charlie Kaman's *Goin' To The Dogs*, a delightful "home-made" album featuring Kaman, his sons Bill and Steve and Marcel Dadi) and farewells, we all proceed to a local eatery for lunch. The nice folks from Ovation travel in one car while Coryell and I follow in his. Larry is in rare form. Buoyed by recent events — he's also nuts about the one-of-a-kind fretless Ovation has made for him — he is quickly reverting back to the "looser," free-form Coryell style that I'm more familiar with by the time we hit the exit from the parking lot. He responds to my initial query about the "new and improved" reviews of his latest acoustic LPs with characteristic directness: "F— 'em! They've always hated me, so I couldn't really give a shit what they think at this point."

By the time we roll up to the restaurant Coryell is totally disoriented due, undoubtedly, to a little inhaled sustenance. His recent clean-up programme ("It's a great feeling to know you can get higher off your kids than anything else you care to name") and extensive touring have made him susceptible to foreign substances and he gets a mild case of the "paras" as we prepare to face the more formal social confines of the restaurant.

All things considered, Larry pulls off the lunch with considerable panache, regaling everyone at the table with hair-raising stories of his recent touring. Occasionally, in the heat of an anecdote, he gets carried away with his descriptive syntax, causing a few anticipatory tremors to run through our hosts from Ovation: "Yeah, I first

got turned on to Ovations by Steve Kahn. We were on tour together and I broke a string during a solo segment. He handed me this Ovation real quick and the first time I played it I thought it was f—ing horrible!"

Obviously, Coryell has changed his thinking on the matter since then, but it is this very same undiluted spontaneity of thought and emotion that makes him such a fascinating person and endlessly inventive artist. There has always been a transitory aspect to his personality: one gets the impression that best moments of musical interaction or self-discovery are all-important. Everything else, with the notable exception of his wife Julie and the children, is merely a waiting period which he does his best to get through with a minimum of psychic damage.

After wrapping up a pleasant day at Ovation by choosing a small, inexpensive guitar for his son, Coryell bids everyone another round of fond farewells and we head south down the turnpike. For the first time today, he has a moment to reflect on the current state of his career. He is obviously in an "ascendant" phase right now, having just returned from a series of engagements in Europe to packed houses and frantic reactions with McLaughlin and de Lucia, both of whom he greatly admires: "I love John. It's great to be sitting up there and playing next to a guy who's a genius. And Paco's so good, man. He's got this incredible flamenco technique that makes him so fast and so clean. Plus there's a lot of jazz in his playing."

This recent emphasis on his acoustic work can be traced back to the *Lion and the Ram* album (Arista) although Larry certainly recorded acoustic material before then — *The Restful Mind* (Vanguard), featuring Coryell and members of Oregon in an acoustic setting is an example that springs to mind. Following this up were two well-received duo LPs with Steve Kahn and Philip Catherine and his most recent US release, *European Impressions*, recorded last summer at the Montreux Jazz Festival and his first American "strictly solo" venture. As far as the recent tour is concerned — which is thankfully being recorded for unlucky Americans who won't get to see it — Coryell claims that it came about almost by accident: "Somebody, I don't even remember who, called me up and asked me if I wanted to tour with John and Paco."

Throughout our conversation,



Larry continually demonstrates his unquenchable enthusiasm for the guitar, good music and good musicians. He is lavish in his praise of contemporaries like Pat Metheny — "He's a fine player. His music is just like him, man. Light, airy and melodic. He's got a great touch" — and reluctant to criticize others, probably because he's gotten so much heat for his dense, multiple-note extravaganzas over the years. The electric guitar has been temporarily laid aside but not forgotten. "Now that I play an acoustic for a living, I get a lot more pleasure out of picking up the electric (Hagstrom) at home and playing it." He also has tentative plans for another electric combo sometime in the unspecified future.

Reaching the inevitable crossroads in our mutual destinations after a surprisingly quick trip, I am reluctant to break off what has been a very positive dialogue. Leaving me at a train station for the return ride to Manhattan, Coryell lapses into a brief surge of nostalgia, reminiscing about the excellent players who came up via the Eleventh House: "It's nice to know that all those cats are out there playin'. Cats like John Lee, Gerry Brown and (Alphonse) Mouzon. I'm really happy about that." And then he's off. Roaring down the street in his big sedan filled with guitar cases in a mad dash to pick up his kids before he catches hell from the wife. =====

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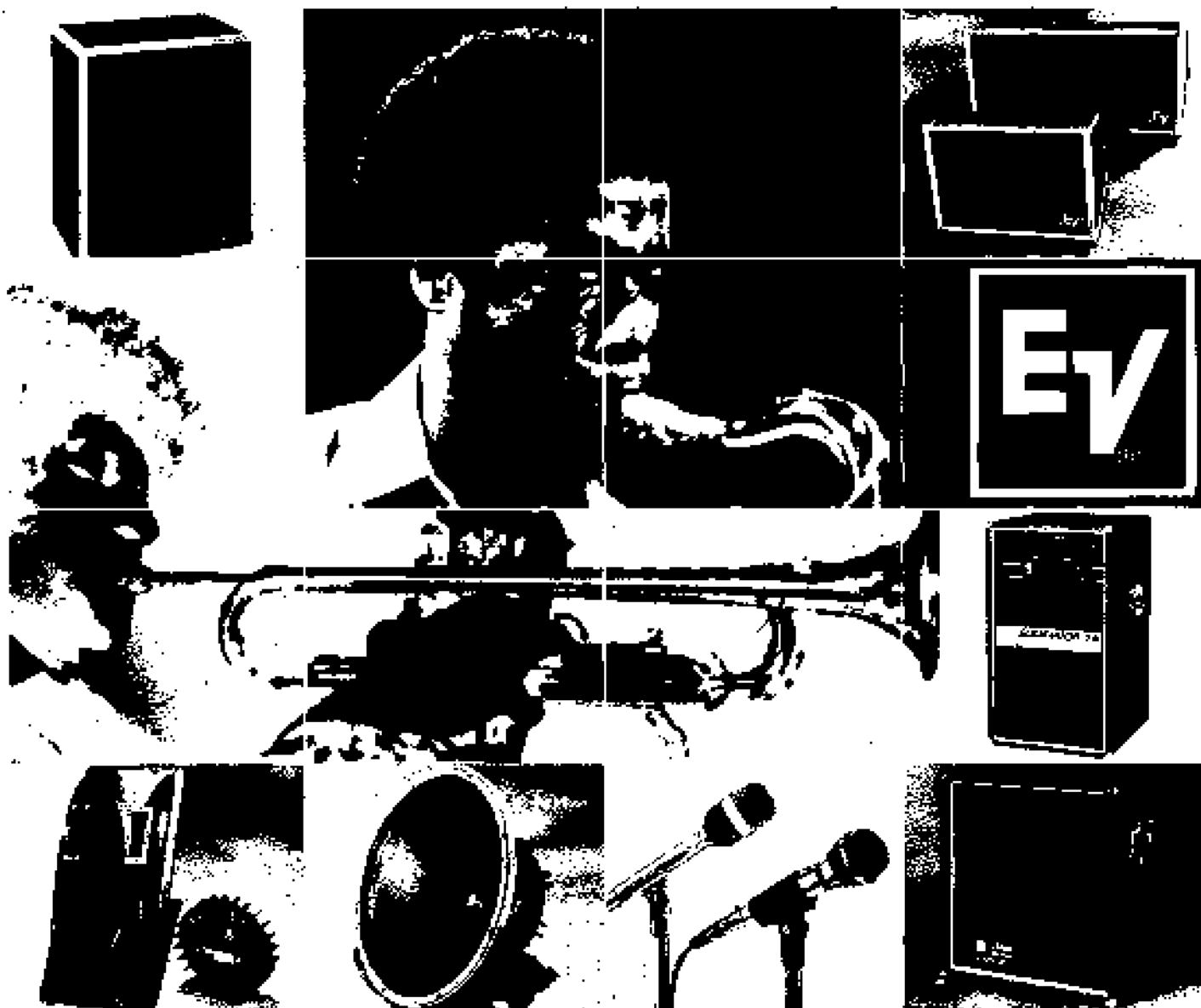
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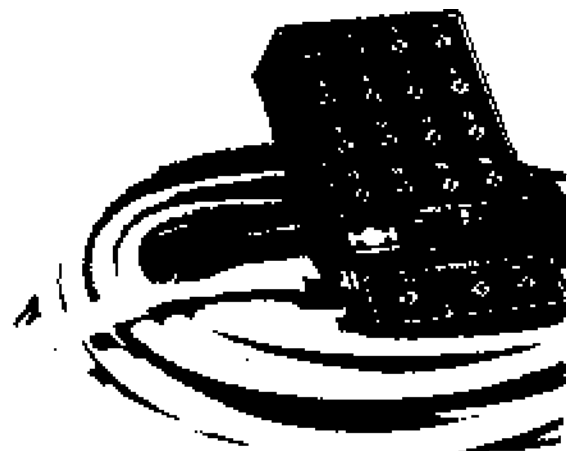
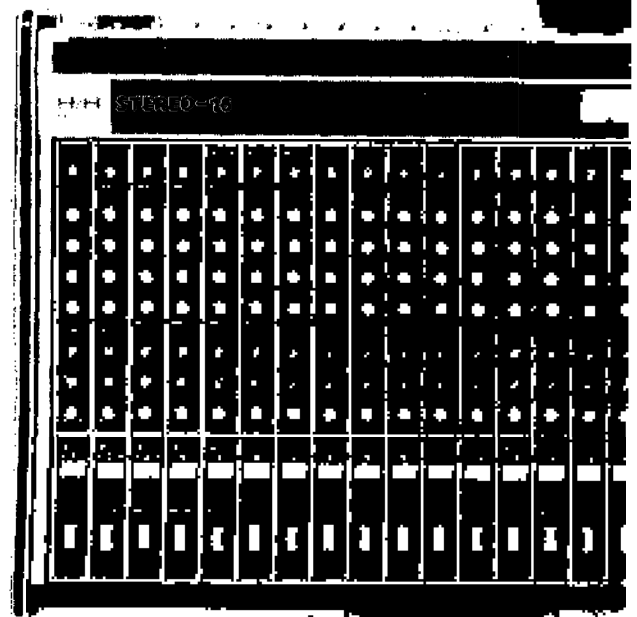
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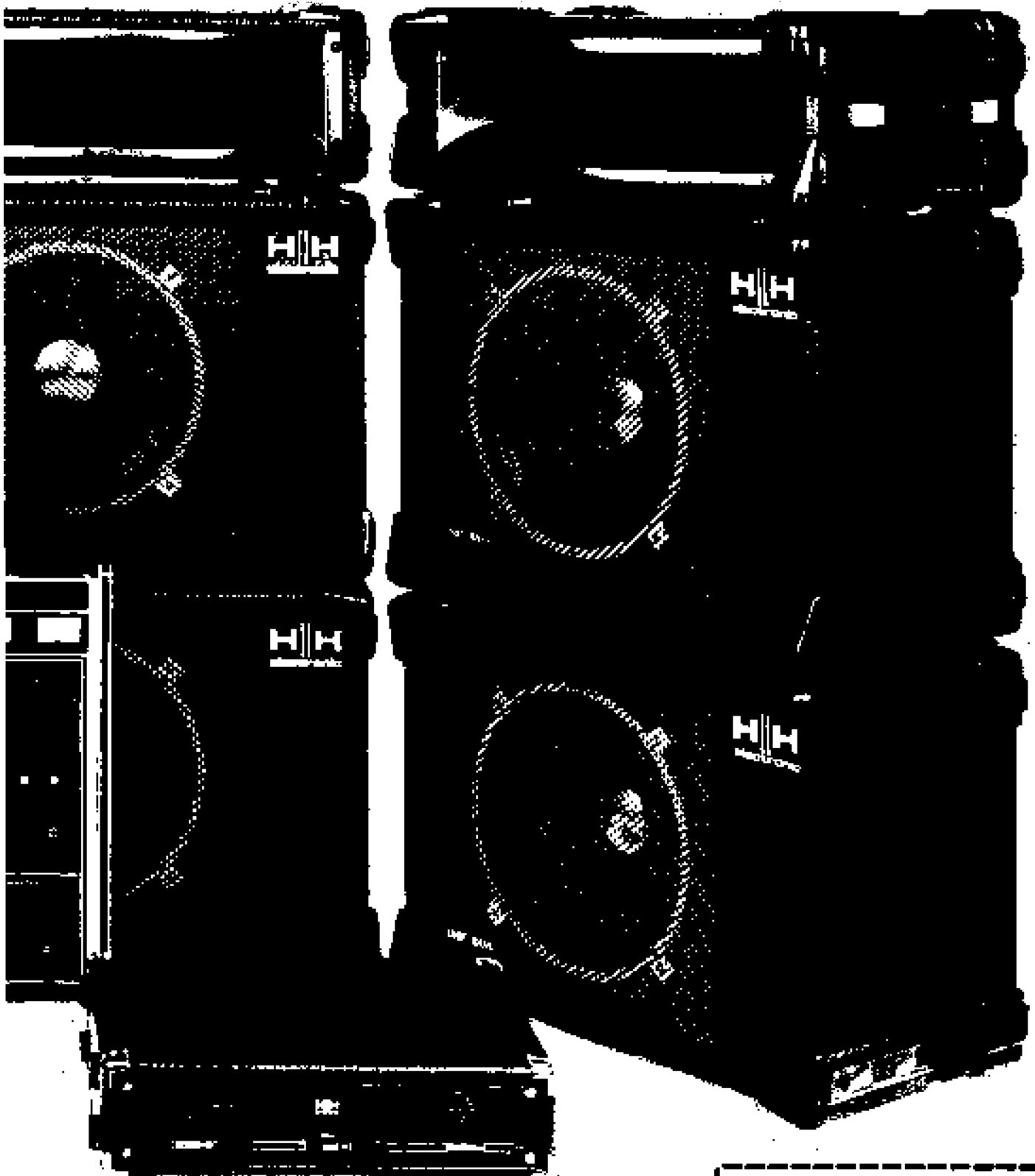
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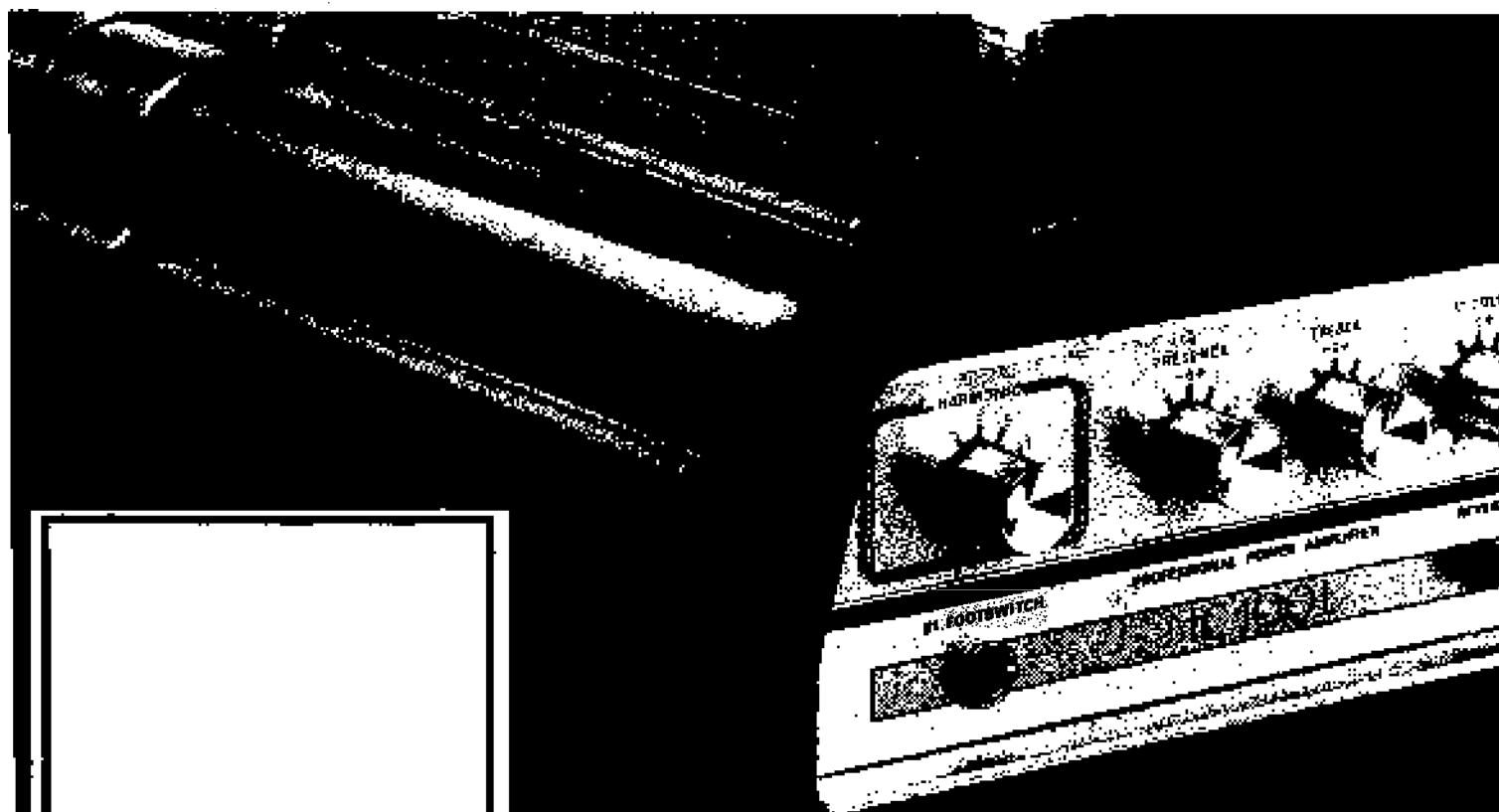
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Soundcheck

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Hiwatt Equipment Ltd., from beautiful Kingston on Thames, Surrey, have become well known since it's early beginning in 1964, mainly for it's valve and, more recently, solid state amplification equipment. It's latest catalogue includes 14 pages of various musical gear and you will find such things as: all-purpose valve amplifiers, covering a power range from 50-400 watts (models 504, 103, 201, 405); graphic EQ solid state amps (model NCA 108), speaker columns - 4x12, 2x12, 2x15, etc., with standard tuned reflex enclosures; combination valve amplifiers (models SA 112, SA 112 FL, SA 115 FL, SA 212) covering an RMS power range from 50-100 watts; with built-in reverb and vibrato (SA 212R); PA quasi-modular mixers with a special construction enabling the system to be used with various channel crossovers and foldback monitors; slave power amps, and many more. The Hiwatt Tube State 200 valve PA slave amp is the one under review this month (trade name applied for, by the way).

The Tube 200 Hiwatt "all valve" power slave amplifier is designed for a 19" rack mounting and its dimensions are 13cm high by 34cm deep, weighing in at 26kg. The amp is rated at 200 watts RMS and is intended for all-purpose PA use. On this occasion we shall be delving into a well tried electronic circuit, which has been on the road now for approximately 10 years, but with a slight modification incorporated specifically for PA work. Hiwatt claim they have advance orders from the music

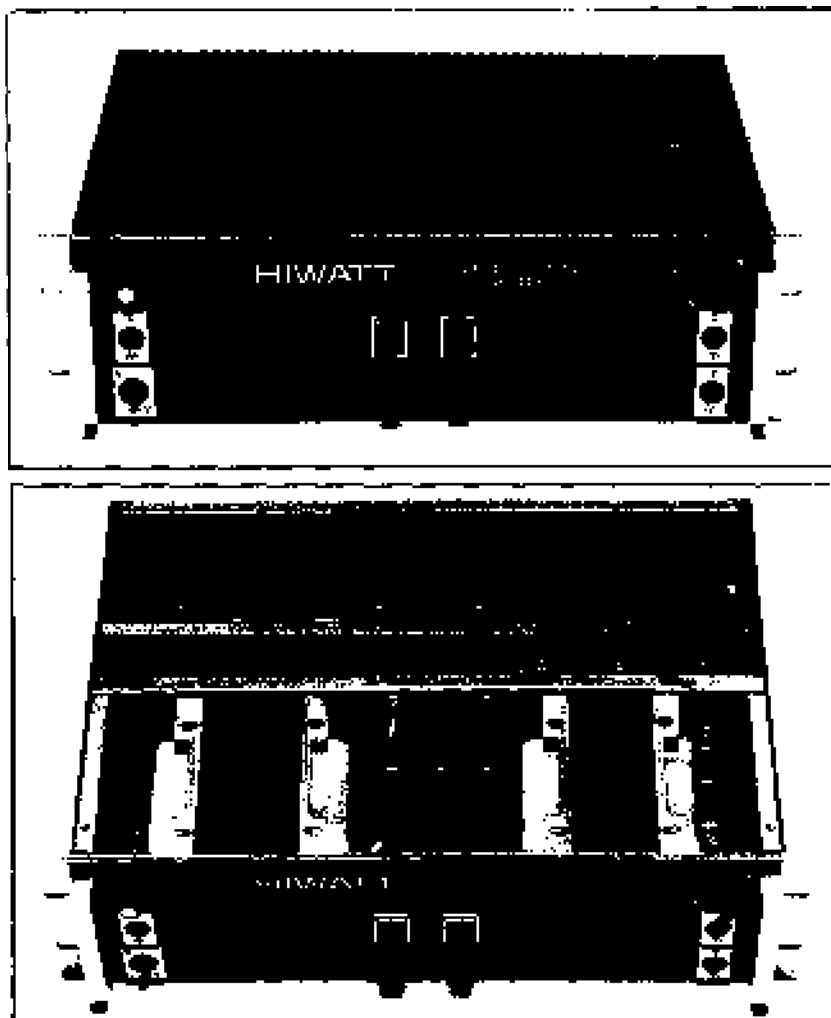
industry for the stereo version in hand, but availability is delayed until the NAMM show of this year.

The Tube State 200R's control panel is quite simple i.e. Input/Output XLR Cannons, simple Gain potentiometer, output 4/8/16 ohms selector and a pair of Power/Standby red illuminated rectangular switches. For overall flexibility, a pair of one male and one female Cannons is used on the input side and the mains lead Euroconnector socket is riveted on the rear. An unusual feature is that the Impedance Selector switch is fitted on the front (top right corner), which I found quite handy on my tests. Below both Power and Standby switches, there are a pair of 5 Amp and 3 Amp fuses respectively. Unfortunately no markings on the front panel indicated which was which - confusing to the user as both fuses have different ratings. The sides are finished off with compact aluminium handles for transportation.

Now to the innards of the Tube State 200, which is split into three compartments. Firstly (closest to the front panel) both power output and supply transformers and a battery of five 100µf/450v electrolytics (RS components). Secondly, the middle section, housing most of the small bits and pieces soldered neatly to the two tag strip boards and finally the valve compartment. All valves, i.e. pre-amp ECC81/ECC83 power stage - 6xEL34, are mounted horizontally and replacement access is provided from the rear, on simply removing the metal plate screwed to the rear panel. The pre-amp section's valves are screened magnetically and proper ventilation is provided from both upper/lower sides of the chassis. Wiring is clear and tidy using multi-coloured wires and the high sensitivity input circuitry uses screened cables for hum/noise performance. I particularly liked the method of wiring on this amp with its minimum of components hanging around the EL34's sockets and all placed separately on the tag boards which, in fact, will be replaced in the new stereo version by high quality PCBs.

There is a lot of common sense in the design of this amp, leading to simplicity in layout, both on the mechanical and electrical side. One point I didn't like very much was the use of Pop-Rivets for fixing the Cannons' connectors on the control panel which, although obviously economic and simple to install, are better seen on things like flight cases, although this is purely a personal point of view, supported by my experience. If, for example, any of these connectors had to be replaced in time, then rivets mean a lot of extra messing about - screws and washers save time.

Now for the performance: the amp meets the manufacturer's specification nicely. On the power side, we have in excess of 200 watts RMS when measured at the onset of clipping into 4 and 8 ohms. Operations into 16 ohms of speakers load are also possible but one must not forget to select the relevant impedance switch. THD levels are quite different with both four and eight ohms Ref. 1kHz test. In both cases the 26dB negative feedback loop efficiently controls the overall balance of THD, which can be regarded as fairly low for a valve design amp. The input sensitivity figures tally precisely, and what's important is that the amp is happy working with the whole range of



permitted speaker impedances, monitoring its gain on a professionally constant level.

Power response Ref. 200 WRMS into 8 ohms was approximately 30Hz to 6kHz, nothing exciting in these days of solid state technology, but in practice for a valve amp, it can be regarded as satisfactory. I should really mention that Hiwatt also sent me a few PCB boards from their new stereo slave amp. What always worries me when folk try to put PCBs into an all-valve amp, is the presence of HY on PCBs, but in Hiwatt's case the track layout seems quite adequate and it seems that they have overcome this serious problem. Still, I look forward to seeing the production sample of their new Stereo Slave Amp, which will also be available in a 100 W RMS per channel version.

Conclusion

One always gets a deep feeling of nostalgia when reviewing any all valve amp, but this time was something of an exception. The amp is based on a modern construction, still having valves, but skilfully, using contemporary electronic experience, we have gained from solid state. No objections to the electricians or the performance of the Tube State 200R amp, and I think there will be quite a lot of people who will welcome this type of PA amp despite the "valve consequences" such as weight, fragility, vacuum tubes and naturally higher costs compared with similar solid state power levels. But for those who are prepared to pay more whether it be for the sound or the valve tradition of the Sixties, they will find in this amp what they look for.

Mark Sawicki

Mark Sawicki M.Sc. (Eng.) is a consultant in electronics who also designs and builds electronic equipment.

PARAMETER	RESULT	TEST CONDITION	COMMENTS
Specific Power Output; Watts RMS; 1 KHz	213.16 W RMS 203.02 W RMS	Onset of clipping into 4 ohms Onset of clipping into 8 ohms	Hiwatt claims max output @ 1 KHz as 250 Watts. Pre-amp valves are 1 x ECC83, 1 x ECC81. Output Valves are 6 x EL34. Rectification: 9 x BYX 94. Max DC voltage measured on Standby switch is 660v DC or 720 v DC (no load condition). Output impedance is 4, 8, or 16 ohms.
Power Response	30 Hz - 6 KHz	Ref. 200 W RMS into 8 ohms	The power response is relatively poor when compared with a solid state power amplifier, but in practice we can regard this as quite satisfactory for a valve amp.
Total Harmonic Distortions (THD %)	4 ohms dummy Load 0.481 % 0.314 % 0.180 % 0.165 % 0.166 % 0.162 % 0.165 % 0.181 %	@ 200 W RMS @ 180 W RMS @ 140 W RMS @ 100 W RMS @ 80 W RMS @ 40 W RMS @ 20 W RMS @ 10 W RMS	THD levels measured into 4 ohms of dummy load are lower than when using 8 ohms load. Predominance of the 2nd harmonic components was observed on these tests with both 4 and 8 ohms loads.
	8 ohms dummy Load 1.413 % 0.560 % 0.541 % 0.324 % 0.265 % 0.180 % 0.182 % 0.181 %	@ 200 W RMS @ 180 W RMS @ 140 W RMS @ 100 W RMS @ 80 W RMS @ 40 W RMS @ 20 W RMS @ 10 W RMS	The 26dB negative feedback applied controls efficiently the overall balance of THD which can be regarded as quite low for typical valve design amps.
Input Sensitivity in V RMS for 200 W RMS/ 4 ohms output Level (28.28 V RMS)	0.775 V RMS	1 KHz/4 ohms load	Satisfactory. Manufacturer claims input sensitivity of 0dBm (0.773 V RMS) - unbalanced.
Input Sensitivity in V RMS for 200 W RMS/8 ohms output Level (40.0 V RMS)	0.773 V RMS	1 KHz/8 ohms load	Input sensitivity figures remain virtually unchanged when tested with both loads - 4 and 8 ohms. 200 W RMS power output - Very Good.
Signal/Noise ratio	67.50dB	IEC "CURVE A" weighting @ rated output	True RMS reading with ANM2 Radford Noisemeter
Transient Response	2 microseconds	Ref. 5 KHz/50 Watts	Fast. Not bad for valve amp.
Capacitive Load Test	OK	2 microfarad non electrolytic capacitors and 4/8 or 16 ohms dummy load	Acceptable
Feedback Control	26 dB	Negative feedback	Negative feedback reduces the overall distortion levels. Man. claims a high damping factor of 20 also.
Open circuit Stability Test	OK	Dummy load removed, Gain pot set on MAX	Very good. Man. Claims unconditional stability for normal operating conditions.
Short Circuit Test	30 Seconds	Full Drive	No ill effect, however, all anodes of the six EL 34 pentodes go red hot very quickly. Worked perfectly OK after short was removed.

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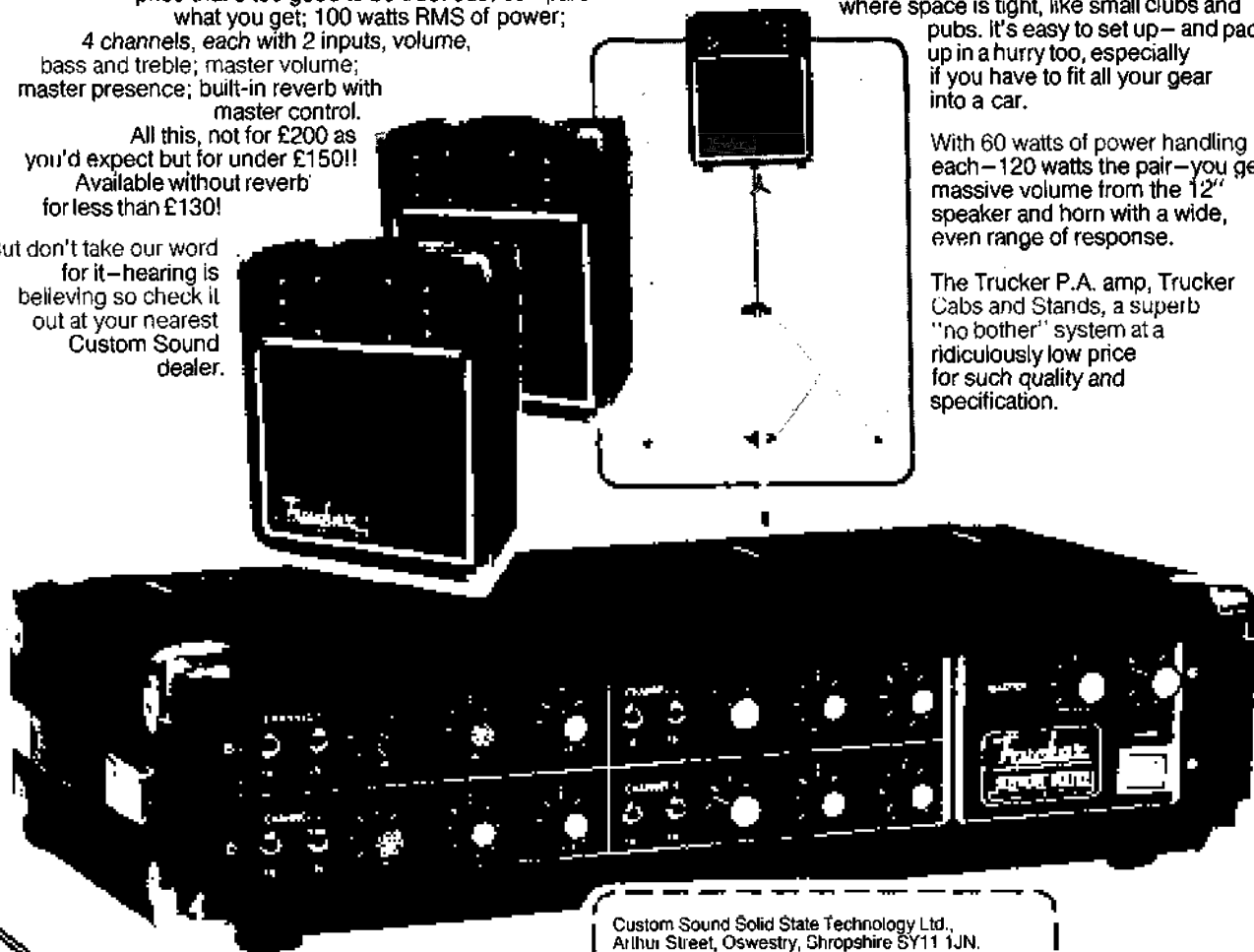
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Soundcheck

Doppler Chorus 100 Combo £303.60 inc VAT

The Doppler Chorus 100 is a combo specially developed for both organ, keyboard and guitar applications and is made by Futuristic Aids Ltd. (FAL) of Leeds, Yorkshire. It is provided with two independent instrument channels (each equipped with a pair of input jacks). The first input channel, from the left, (No.1) is "STRAIGHT" – that is the signal does not pass through the Doppler section, but does have treble and bass controls, and a switch to introduce reverberation where desired. This channel is intended for guitar, vocal, etc., where the full effects facilities are not required. The second channel has a more comprehensive tone control circuit, i.e. middle, treble and bass potentiometers, reverberation "depth" and finally a pair of potentiometers controlling the "width" and "speed" of the effects side – incorporating the following: Rotary sound (quasi-Leslie), Chorus, Doppler phasing and a wide combination of these effects. A master volume (controlling both channels) and a mains switch completes the front panel's control functions. As mentioned earlier, each channel has a pair of different application input jacks, called here "NORMAL" and "BRIGHT".

Construction

Designed as a 100 watt combination amp, the FAL Doppler/Chorus 100 should deliver a power of 100 watts to a pair of 12"/8 ohms speakers wired in parallel and specially selected for both organ and guitar work. One of the most interesting features of this amp is the use of Mullard "Bucket Brigade" integrated circuits in the effects channels, as a delay line device, in which the clock oscillator is swept, producing a rotary speaker effect of Doppler shift. Bucket Brigade devices are part of the Charge Coupled Devices (CCD) family – representing quite a new and rapidly developing scene of monolithic integrated circuit technology and are basically intended to delay analogue signals.

The working principle is that CCD operates as a monolithic shift register, commonly named as a "Bucket Brigade". The reason being that their operation is analogous to a chain of

firemen passing buckets of water from hand to hand when fire fighting in the old days. In general, "Buckets" correspond to the IC's capacitors and "Water" corresponds to the electric charge which is the analogue sample of an applied waveform.

The FAL "effects" circuit is very straightforward with only two external controls, i.e. "Width" and "Speed". Increasing the width introduces feedback around the BBD loop which causes phasing to take place, at a maximum, the signal is either enhanced or cancelled at different frequencies which sweep up and down at a speed which is externally controlled, thus producing a COMB filter of flanging effect.

All BBD associated sound effects can be used with the orthodox electro-mechanical Reverb spring device and while giving simultaneous footswitch control. It is worth noting that this particular "Bucket Brigade" device contains 512 stages (buckets) and with the clock oscillator frequencies ranging from 5kHz to 500kHz will produce a time delay from 51.2 to 0.512 milliseconds.

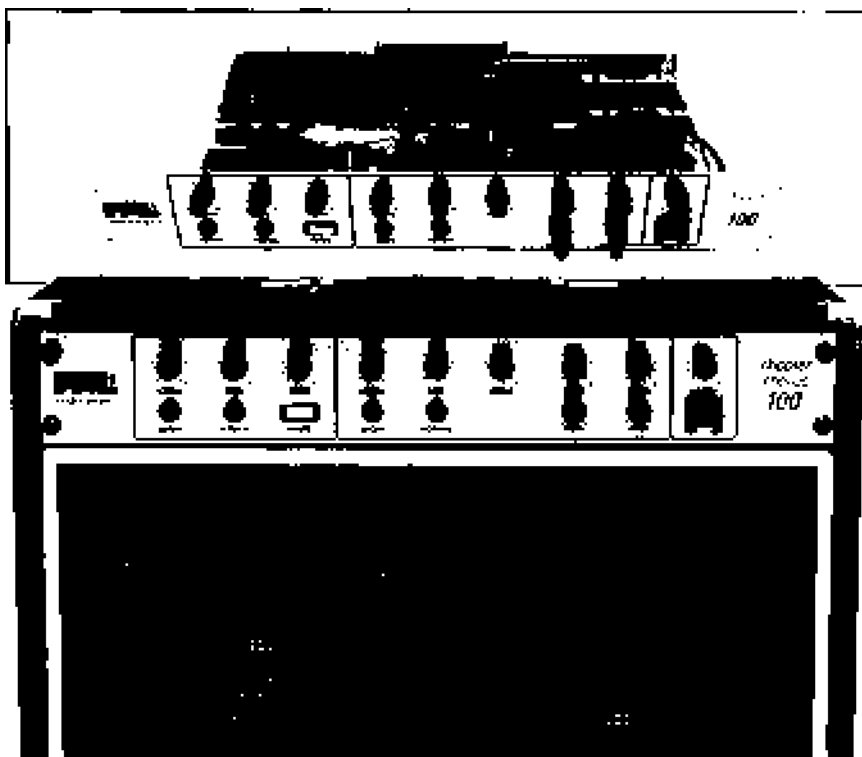
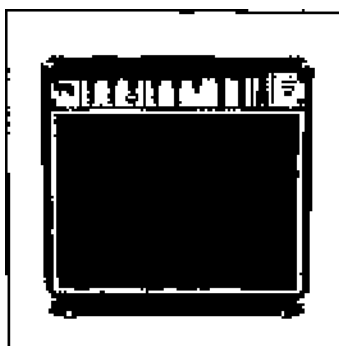
At this stage, having got all the necessary technical details off my chest, I can start to write about the practical aspects of this combo. Firstly, Channel No.1 not much to write about, in fact. Tone controls/Reverb seem to be adequately designed with two types of input, i.e. "Bright" for solo guitar work mainly where higher frequencies are emphasized and sound is very sharp, but "light" at the same time. "Normal" input gives a 'full' classic meaty sound with a pleasant jazzy overtone (Chet Atkins/Bossa Nova).

The second channel tone control circuit is slightly different as an additional "Middle" tone control is provided. This does its job well from the tonal point of view, however, it works a little bit like a gain control – for when it is turned fully anti-clockwise the overall amp volume is significantly reduced and this applies to both Bright/Normal modes of operation.

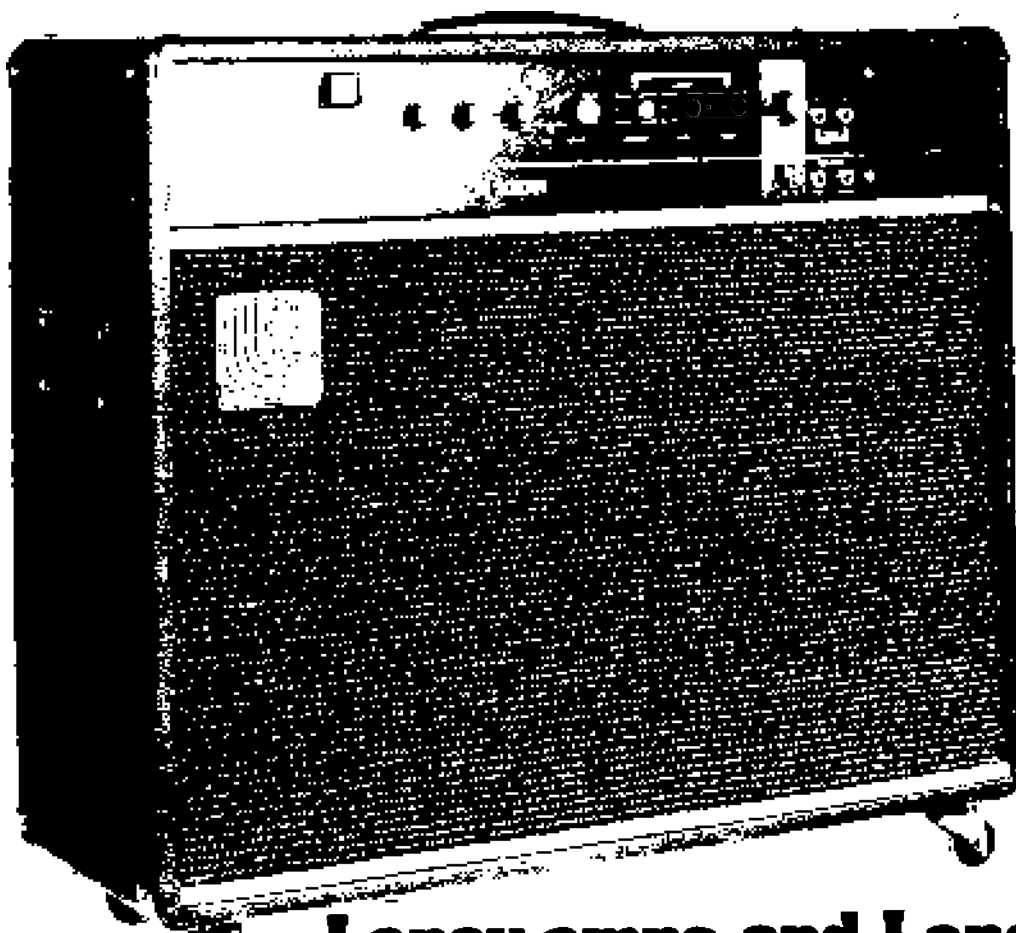
The "Width" and "Speed" controls are very easy to operate and it took me only a few minutes to learn how to set the amp for the exact sound I wanted. A small but important point on the Reverb control potentiometer: with the high settings of this control and with certain settings of the Master potentiometer – say, above 60 per cent – acoustical feedback and increased noise may occur. The quality of reverb sound is OK, however, the spring unit used here seems to be a little 'microphonic' as was found during practical tests. Another point to be mentioned, this combo is not one of the "quietest" (noisewise) and so if using it in recording studios or playing quiet phrases, special care should be taken in order not to over-emphasize the volume/tone and master control settings.

Conclusion

Apart from this, the FAL Doppler/Chorus 100 is a nice small amp at a realistic price, and bearing in mind the few comments I've come up with, it's certainly worth trying, because of its advanced electronic effects circuit. I would still say that the manufacturer could easily improve the reverb and signal (noise performance) and maintain the same price level. The outside appearance is very professional in every



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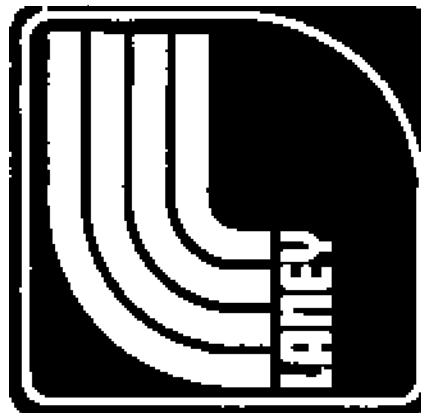
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respect, the same applies to the quality of workmanship and components. The wiring is clear and tidy, but I would like to see the power stage amp section's PCB card additionally secured in its "edge" connector, as the present arrangement

seems to be a little bit fragile for hard work. The amp is fairly compact (665mm x 640mm x 270mm) and weighs 32.5 kg, and with a specified power of just around 100 watts seems to be ideal for club work and touring.

Mark Sawicki

PARAMETER	RESULTS	TEST CONDITION	COMMENTS
Specific power output watts RMS 1kHz	98.01 W RMS 64.12 W RMS 37.97 W RMS	Onset of clipping into 4 ohms Onset of clipping into 8 ohms Onset of clipping into 16 ohms	FAL claim that this amp delivers a power of 100 watts continuous RMS into a pair of 12" speakers specially selected for both organ and guitar requirements. The combo is, however, NOT recommended for bass guitar use. The power stage used just a pair of 40636 RCA silicon power transistors.
Total harmonic distortion (THD)	0.52% 0.34% 0.23% 0.29% 0.34% 0.47%	@ 90 W RMS @ 70 W RMS @ 50 W RMS @ 30 W RMS @ 10 W RMS @ 3 W RMS	Ref. 1kHz/4 ohms dummy load, Channel No.1 measurements only
Tone control range (swing in dB)	Ch. No.1 24.2 dB swing 37.8dB swing Ch. No.2 32.6dB swing 10.4dB swing 31.5dB swing	Bass @ 100Hz; treble - flat } Treble @ 10kHz; bass - flat } Bass @ 100Hz; treble - flat, middle - min. Middle @ 400Hz; bass - max, treble - max. Treble @ 10kHz; bass - flat, middle - min.	Man. claims for Doppler/Chorus combo, the following for tone controls: Ch. No.1 Bass ± 12 dB @ 100Hz Treble ± 20 dB @ 10kHz Ch. No.2 Bass ± 14 dB @ 100Hz Middle ± 8 dB @ 400Hz Treble ± 16 dB 10kHz
Input sensitivity in mV RMS for 100 W RMS (20V RMS) Output signal 1kHz	Ch. No.1 17.2mV RMS 7.3mV RMS Ch. No.2 10.1mV RMS 4.2mV RMS	Ref. Bright i/p) 1kHz/4 ohms dummy Ref. Normal i/p) load. Treble/Bass - max. Ref. Bright i/p) 1kHz/4 ohms dummy Ref. Normal i/p) Treble/Midd/Bass - max.	All four inputs are normal 1/4" jacks specified at 8mV (50 Kohms) input sensitivity. Generally the "NORMAL" inputs are more sensitive than the "BRIGHT" ones. Channel two is significantly more sensitive than one.
Signal/noise ratio	Better than 68.17dB	Ref. 100 W RMS/4 ohms output level. Reverb - OFF. Tone control - flat Channel No.1 test only	Could be better. IEC Curve "A" weighted test with a true RMS reading on Radford ANM2 Audio Noise meter.
"Effects" sweep frequency	Approx. 0.1-7Hz (also internal preset control provided)	Bucket Brigade IC is TDA 1022 by Mullard. Clock Driver Circuit uses one 4011 CMOS IC. The TDA 1022 device contains 512 buckets which work with clock frequency ranging from 5-500kHz. Line attenuation is typ. 4dB Ref. signal frequency range up to 45kHz.	The "DOPPLER" effect is adjustable from a very slow sweep to approx 7 cycles. With the footswitch in use, a speed up/slow down effect is provided by the RH footpedal section. When the speed up pedal is operated, the "DOPPLER" effect builds up quickly to a maximum level of approx. 7Hz.
Reverb	0-100% mix	Small 2 spring (each of 140mm long) electro-mechanical device)	Sounds OK with guitar. In Channel No.1 - just ON/OFF reverb switch. In Channel No.2 - Reverb level control pot. provided.
Damping factor (non-dimensional)	80	Ref. 4 ohms load	Governed by output inductor
Capacitance load test	OK	2µf non-electrolytic capacitors and 4 ohms/8 ohms dummy load	Passed this test
Open circuit stability test	OK	Dummy load removed. Tone controls - Max. Master - max.	Stable during OCS tests
Short circuit test	60 seconds		The amplifier is protected against both open and short circuit conditions for when an external loudspeaker cabinet is being used.

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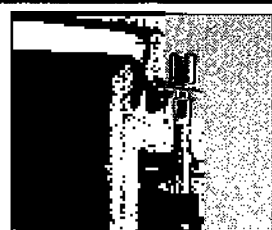
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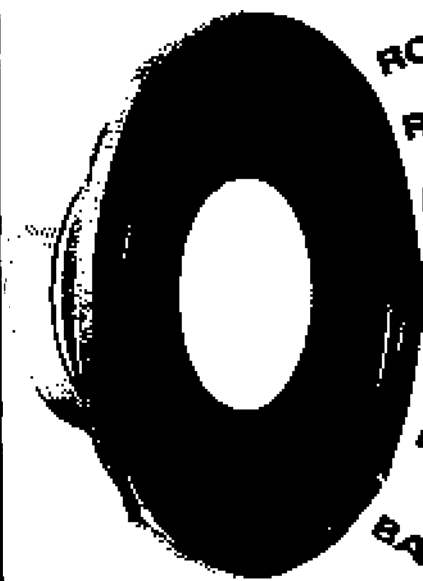
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You may well have heard of us, (Our Free 'n' Easy on wheels is famous throughout the length & breadth of lower Harrogate). The idea is that we come to your house with the gear of your choice for you to try out before you buy. This way you can be sure that anything ordered is right, before you take delivery.

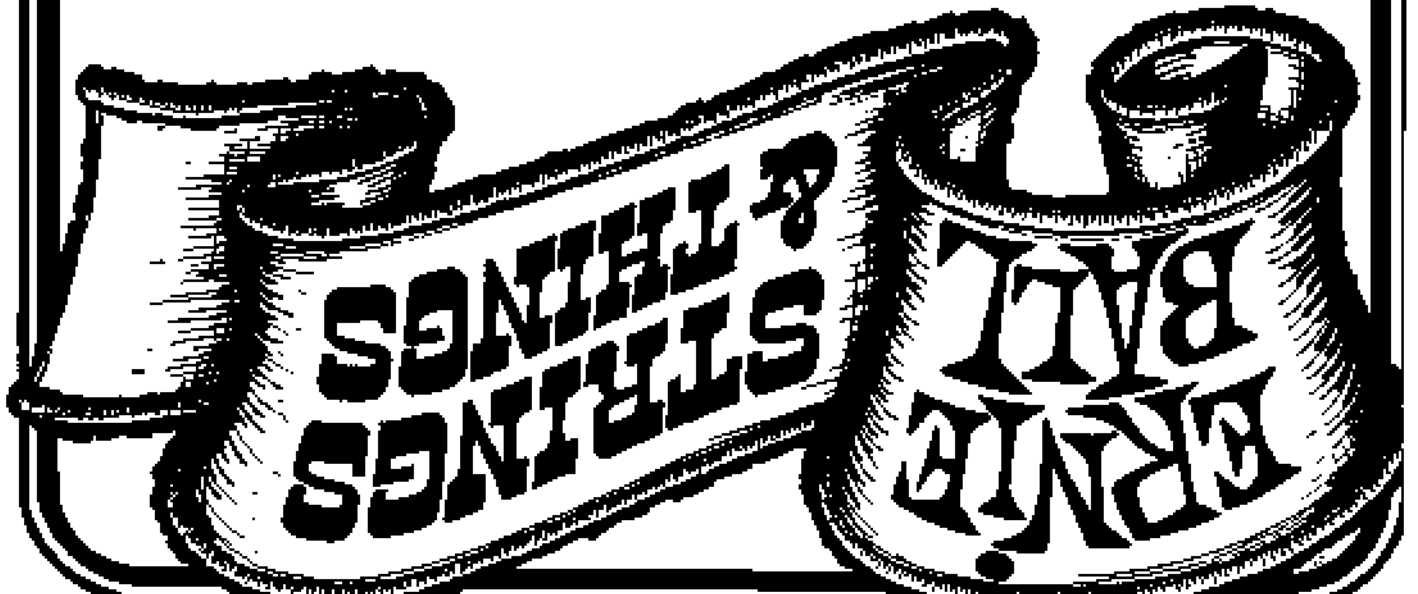
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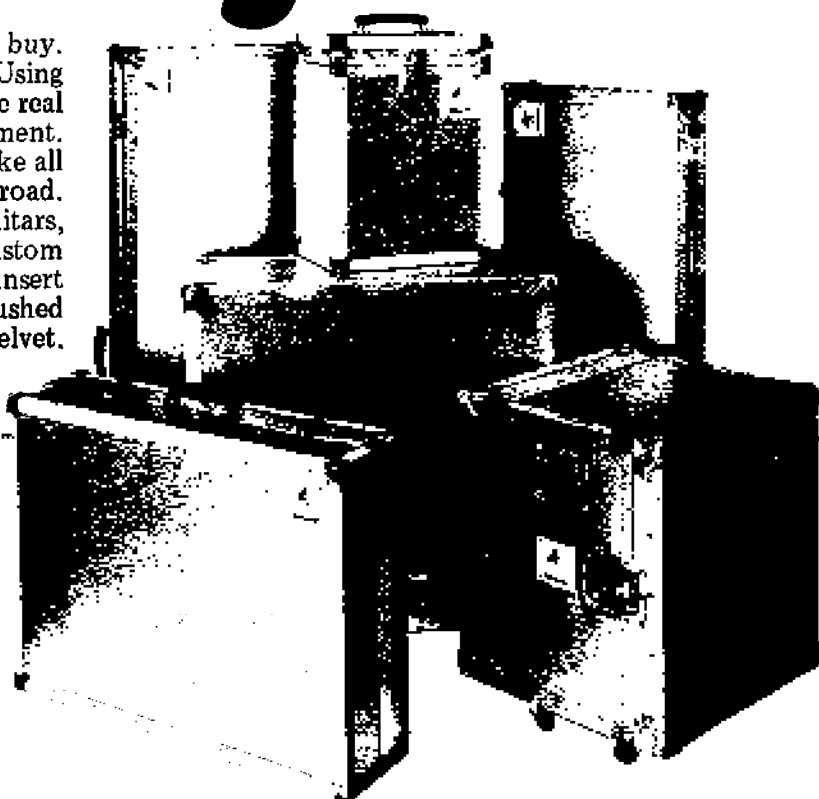
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Albums

The Beatles

E.L.O.

Gerry Rafferty

Bob Dylan

The Beatles

The Beatles' Concerto (Parlophone)

Well, it was a comment often heard in the Sixties — that the Beatles' music was modern classic music, and here you can now judge for yourself. The *Concerto* album is a collection of their best tunes featuring pianists Peter Rostal and Paul Schaefer with (appropriately) the Liverpool Philharmonic Orchestra.

If nothing else this album serves as a reminder, although few people should need one, of just how great the Fab Four were. From the opening triumphal strains of *She Loves You*, you are treated to superb orchestral arrangements of those magical songs.

Obviously much time and effort has gone into these arrangements which are tasteful as well as being superbly played. Thankfully Messrs. Rostal and Schaefer haven't just slung together a medley of Beatles tunes, but have thought long and hard and come up with a real Concerto format.

All the old favourites are here: *Fool On The Hill*, *Eleanor Rigby*, etc., and it's easy to see why these numbers will remain classics. George Martin's guiding hand is very much in evidence, and really gives the whole thing a seal of approval.

Of course this isn't a rock album, it's the type of record you put on for background music or easy listening. But the best thing about it is you find yourself picking out the familiar melodies and singing them. I don't expect *The Beatles Concerto* to rock the Royal Albert Hall, but to someone like my dad, who always considered them an awful racket, this might just prove an eye opener.

David Lawrenson

Recorded at the Royal Liverpool Philharmonic Hall. Produced by George Martin.



Gerry Rafferty



Bob Dylan

E.L.O.

Discovery (Jet)

With this eighth ELO album you get some of all the elements on the modern day music scene. To begin on Side One, *Shine A Little Love* and *Confusion* could easily be found in your local DJ's disco collection, while there is a weepie in *Need Her Love*.

The Diary Of Horace Wimp is pure delight. You'll have to listen to it half a dozen times to grasp its true meaning and *On The Run* has a beginning reminiscent of the Who's *Music Must Change*, with the coin dropping and the guitar sound. An ideal single, to my mind, as are most of the tracks on this album.

Karl Ayling

Produced by Jeff Lynne, engineered by Mack.

Gerry Rafferty

Night Owl (United Artists)

The album kicks off with *Days Gone Down* which was pleasant enough and ran along smartly but it didn't make me sit up and listen hard. It was followed by *Night Owl*, the single, to which I found myself tapping my feet.

Get It Right Next Time has a nice introduction with just a touch of saxophone before it breaks into vocals, and is probably the best track on Side One. A quick flip over reveals more of the same. *The Tourist* features some nice bluesy saxophone and proves to be the strongest track on the album. Rafferty wrote all 10 songs on this album which is easy to listen to and doesn't place any demands on your ears.

Karl Ayling

Produced by Gerry Rafferty and Hough Murphy. Engineers Barry Hammond and Mick Parrick.

Bob Dylan

Live at Budokan (CBS)

Here it is, the long-awaited double album recorded by Dylan during his tour of the Far East last year, before his "pionio" at Blackbushe and gigs at London's Earl's Court. On import, this package, culled from two nights in Tokyo, Japan, would have set you back £18. Those who have shrewdly managed to contain their excitement at the thought of a new release from the living legend, can buy this one and make a saving of over £10. Well worth the wait, in more ways than one.

For assembled here are over 20 tracks which read like a Greatest Hits compilation. They're all here, from *Times They Are a Changing*, *Mr. Tambourine Man*, through to *Is Your Love In Vain*, off his last studio album, *Street Legal*. There is no new material, although the master has, with varying success, drastically revised the lyrics on a couple of numbers, notably *Simple Twist of Fate*, from *Blood On The Tracks* and *Going, Going, Gone* off *Planet Waves*.

I have reservations about this album. The rough and ready feel found on his last live release *Hard Rain*, courtesy of the Rolling Thunder Revue escapade, is gone. There's a richer, fuller sound, with violin, mandolin, saxophone, flute and recorder accompaniments, not to mention vocals from three girl singers,

Helena Springs, Jo Ann Harris and Debi Dye.

But I'm a bit tired of hearing Dylan re-work old standards such as *Blowing in the Wind*, *Like a Rolling Stone* and even the raucous *Maggie's Farm*. They are done well enough, but lack bite. Particularly disappointing is his treatment of *Going, Going, Gone*. It's nothing short of a disaster. For those tuned into *Planet Waves* this song, with some fine guitar work by Robbie Robertson, is one of its many highlights. Well, here it's almost unrecognisable with a change for the worst lyrically. How it got on here I'll never know.

Nevertheless, it would be wrong to write this album off completely. There are some magic moments to brighten up the boredom. It's worth buying just to hear this version of *It's Alright Ma (I'm Only Bleeding)* which is highly charged with anger and booms along with Dylan spitting out the words like venom. Another rocker is *All Along The Watchtower* which provides a showcase for Steve Douglas on saxophone. His playing is commendable throughout.

Sean Higgins

Produced by Don DeVito, engineered by Tom Suzuki, Teppei Kasai, Tetsuro Tomita, G.H. Sukegawa.

Dion and the Belmonts

20 Of Their Greatest (Ensign)

I've got this mate whose taste in music includes simple Fifties and Sixties American pop, the louder and more crass the better. On seeing this album of Dion and the Belmonts, his eyes lit up so I asked him for his comments. Take it away, Paul.

"You can forget about Grease. It doesn't come within an exhaust fume of Dion and the Belmonts. Worthy recent efforts by Showaddywaddy, Darts and Rocky Sharpe only pay tribute to the originals of *I Wonder Why*, *Drip Drop* and *Ruby Baby*, all of which are on this LP.

"Dion, straight out of New York's lower East Side, was no wimpish crooner. He may have sung about the "Madison" and being teenagers in love, but *The Wanderer* used to rub the girls' noses in it, and you wouldn't have touched *Runaround Sue* with a bargepole.

"The acapella harmonies were always perfect. Worked at in Bronx subways, they fronted a sound which only changed slightly when Dion went solo in 1960. Masses of reverb, punching chants and vocals which were the right mixture of leery laziness and gutsy edge, provided the basic ingredients.

"Dion and the Belmonts — the name always reminds me of the scene where the Jets meet the Sharks." See what I mean, the words of a true afficianado.

David Lawrenson

No recording details

Rick Wakeman

Rhapsodies (A&M)

Throughout his solo career Rick Wakeman has been an easy target for critical flak, mainly due to his habit of basing all his albums around a concept, a criticism which I find totally incomprehensible. With this album he has set himself fairly and squarely in the firing range.

Rhapsodies is a budget-priced double album containing 18 tracks — some good, some bad, mostly indifferent. The extremes stand out. At one end are pieces such as the beautiful *Flacons de Neige*, which is reminiscent of *Crime of Passion* on the *Criminal Record* album; a light-hearted uptempo version of *Rhapsody in Blue*, and *Sea Horses* with its distinct 1940s feel, while at the other extreme are the silly *Animal Showdown* with its quotes from *Yes, We Have No Bananas*, an awful reggae re-hash of Tchaikovsky's *Swan Lake* re-titled *Swan Lager* and a "ho ho" final track called *Credits* in which a somewhat inebriated-sounding Wakeman introduces his band. Otherwise it's typical Rick Wakeman — jolly and easy to listen to.

Wakeman's problems show through clearly. His position as one of the early exponents of the synthesizer has led to his over-reliance on the instrument to the extent that it dominates most of his work (along with the acoustic piano) while most of his contemporaries — Tony Banks, Eddie Jobson, Keith Emerson — have succeeded in finding the right balance between the synthesizer and other keyboards.

Rhapsodies would have made a better single album — though at £4.99 who's complaining? And my advice to A&M is to issue *Rhapsody in Blue* as a single. Not only does it stand a very good chance of charting, but would also bring Rick's music to the attention of a much wider listenership.

Rob McIvor

Produced by Tony Visconti at La Grange and Mountain Studios.



Photo: Pat Foster

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Albums

John McLaughlin & The One Truth Band

Electric Dreams (CBS)

An album not worthy of a musician of the calibre of McLaughlin, this nightmare makes me hark back wistfully to the heady days of the Mahavishnu Orchestra and those awe-inspiring improvisations.

Apart from one or two solos, a very brief acoustic guitar intro and a banjo break on the title track, McLaughlin might as well not have bothered. It's banal and unimaginative, lacking both punch and power. Dreadful moments include bassist Fernando Sanders' vocals on *Lover And Understanding* and worst of all is the last track, *Unknown Dissident*, which begins with a police car siren and ends with a sound effect firing squad. McLaughlin moving away from the Shakti experiment and back to jazz, needs to do some soul-searching about where he goes from here. The next time the firing squad might be for real.

Sean Higgins

Produced by John McLaughlin. Engineer and co-producer John Pace, assistant engineer Terry Rosiello. Recorded and mixed at Sound Mixer Studios, New York City.

Bruford

One Of A Kind (EG Records)

For two weeks I hated this album. No matter how many times I listened to it, it seemed that I would never work out the right moments to tap my foot. Bill Bruford has always been at least one step ahead of the average home percussionist, but with this record he left me a good 10 miles behind – for two weeks. However, like all Bruford's work, *One Of A Kind* matures and gains structure with repeated plays, and I eventually found myself humming the opening of *Hell's Bells* down the telephone and beating hell out of my typewriter as the title track reaches its climax!

Bruford has gathered together some fine musicians for this album – Dave Stewart, Jeff Berlin and Allan Holdsworth – each of whom contributes a wealth of experience as well as a distinctive playing style. This is especially true of keyboard player Dave Stewart who must surely be one of Britain's most underrated musicians. Listen to this album for a long time before you make any decision about it. I've had it for three weeks and I'm only just beginning to discover its brilliance.

Rob McIvor

Produced by Bill Bruford. Recorded at Trident Studios, London. Engineered by Steve W. Taylor.

Judie Tzuke

Welcome To The Cruise (Rocket)

This is a very tasteful debut album from a young lady who we could be hearing a lot more from in the future. I certainly hope so. Rocket rightly feel they have what is potentially a very hot property on their hands, with Judie being heralded as the new Kate Bush. Her original vocal style has already been compared with Christine McVie and has been described as vaguely reminiscent of Joni Mitchell.

Judie has a golden voice, very distinctive

and full of quality. And it is her originality which I find so refreshing. It's a beautiful album which I found hard to fault. With help from her mentor Mike Paxman, who co-writes most of her songs, she's assembled a good tight band around her, with arrangements which are full of depth. On all the tracks, from the opener, *Welcome To The Cruise*, through to the tender finale *Stay With Me Till Dawn*, her vocals shine through.

There's not a bad track on the album and the playing is excellent throughout, with Peter Van Hook and Simon Phillips on drums, Mike Paxman and Ray Russell on guitars and Mo Foster on bass. This is a gem well worth checking out.

Sean Higgins

Produced by John Punter, engineered by Steve Nye, Colin Fairley, Tim Cuthbertson and John Punter, recorded at Air Studios.

Alan Hull

Phantoms (Rocket)

Phantoms is another solo effort from Alan Hull, of Lindisfarne fame, and it is true to say that away from the band he does not enjoy the same wide popular appeal. From this album it's easy to judge why.

It opens promisingly enough with the catchy *I Wish You Well* and then we hear Hull at his best on *Make Me Want To Stay* and *A Walk In The Sea*. But all the other numbers are rather forgettable. On Side Two, with the exception of *Corporation Rock*, there's little to hold the attention. This song sees Hull return to his popular theme, the perils of the music industry and super stardom. "Corporate your music/cause it's not music anymore," laments Hull. His main weakness seems to be his inability to sustain the high standards apparent in his more inspired work.

The musicians assembled for this album, including his old pal Kenny Craddock, play well enough but an all round strength is lacking. The songs, bar a couple of weak efforts, are well written, but I feel Alan Hull can do a lot better than this.

Sean Higgins

Produced by Alan Hull and Peter Kelsey, engineered by Peter Kelsey, recorded at Trident Studios, London.

Middleton and Ahwai

Another Sleeper (EMI)

The extensive technical sleeve notes assure me that to record this album "No artificial harmonic phase shift was used" ... frankly, I'm surprised, everything else seems to have been! But seriously, folks, the combination of Middleton and Ahwai (favourites of George Martin – in case you didn't know) gives a very solid and tasteful sound (sometimes Bensonesque), especially on tracks: *Dance By The Light Of The Moon* and *Total Madness* with the mellow Martin Ford string section. Side One has a tight piece, *Snake Hips*, that pays homage to Robert Palmer and endures listening to many times. The highly engineered studio sound on this album lends a somewhat flat and "clinical" impression but it remains, nevertheless, even tempered listening with no sharp edges.

Mike Feasey

John McLaughlin

Bruford

Judie Tzuke

Alan Hull

Middleton and

Ahwai

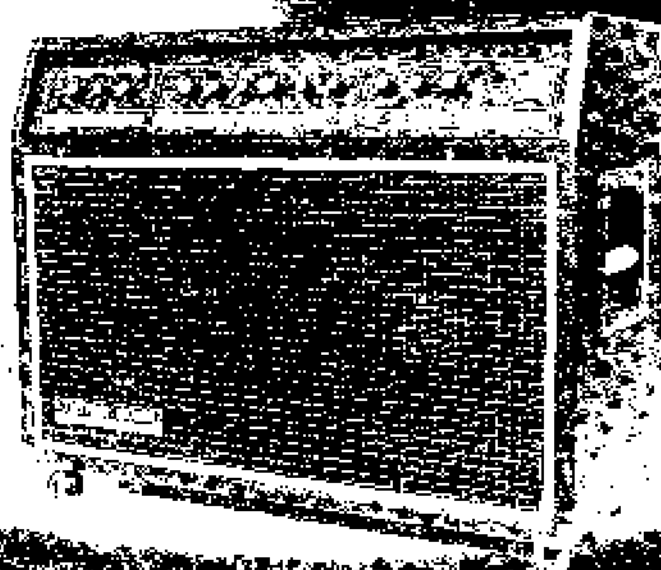


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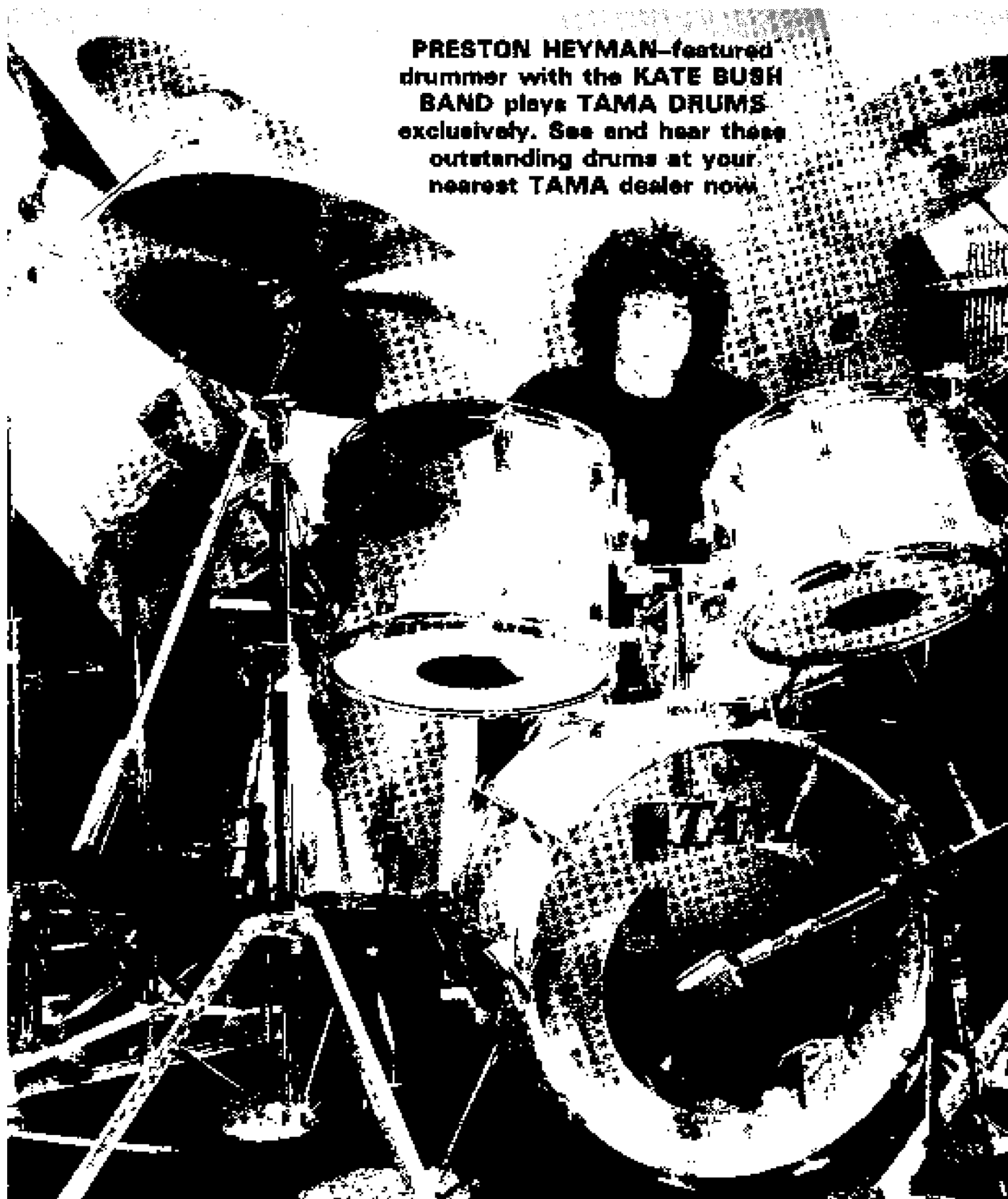


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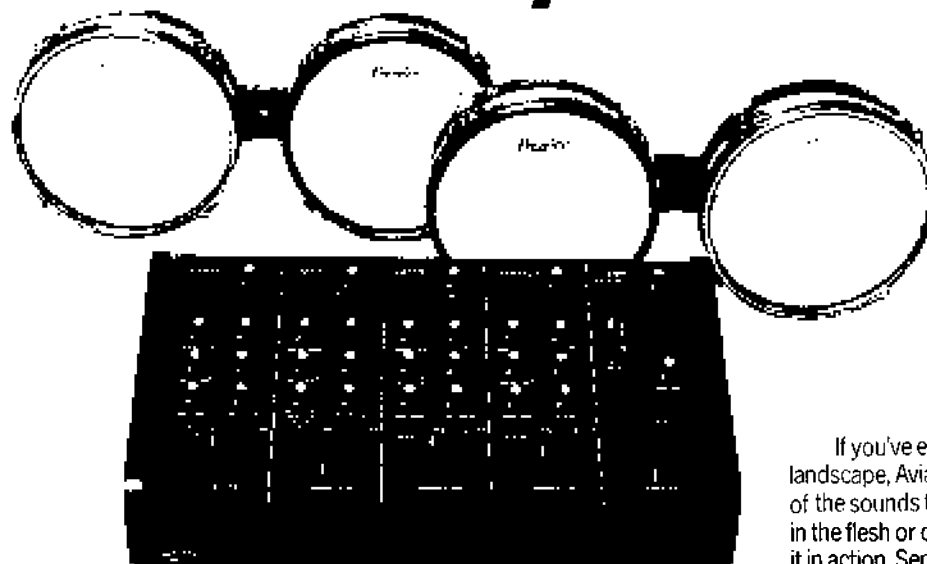
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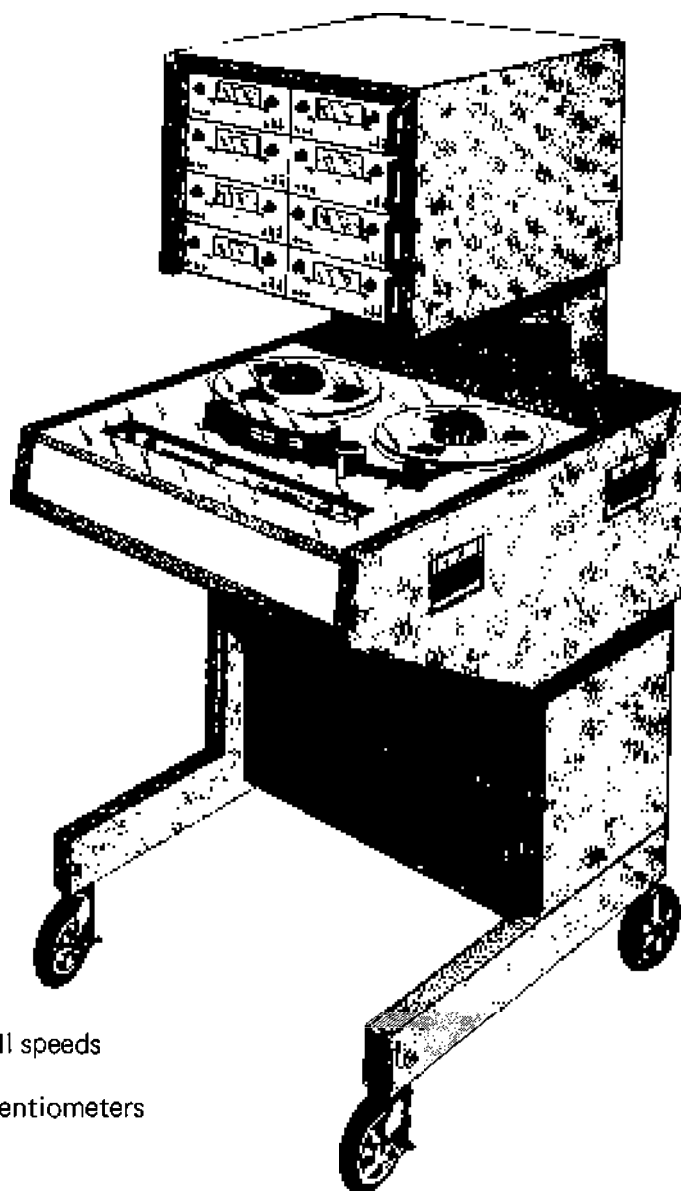
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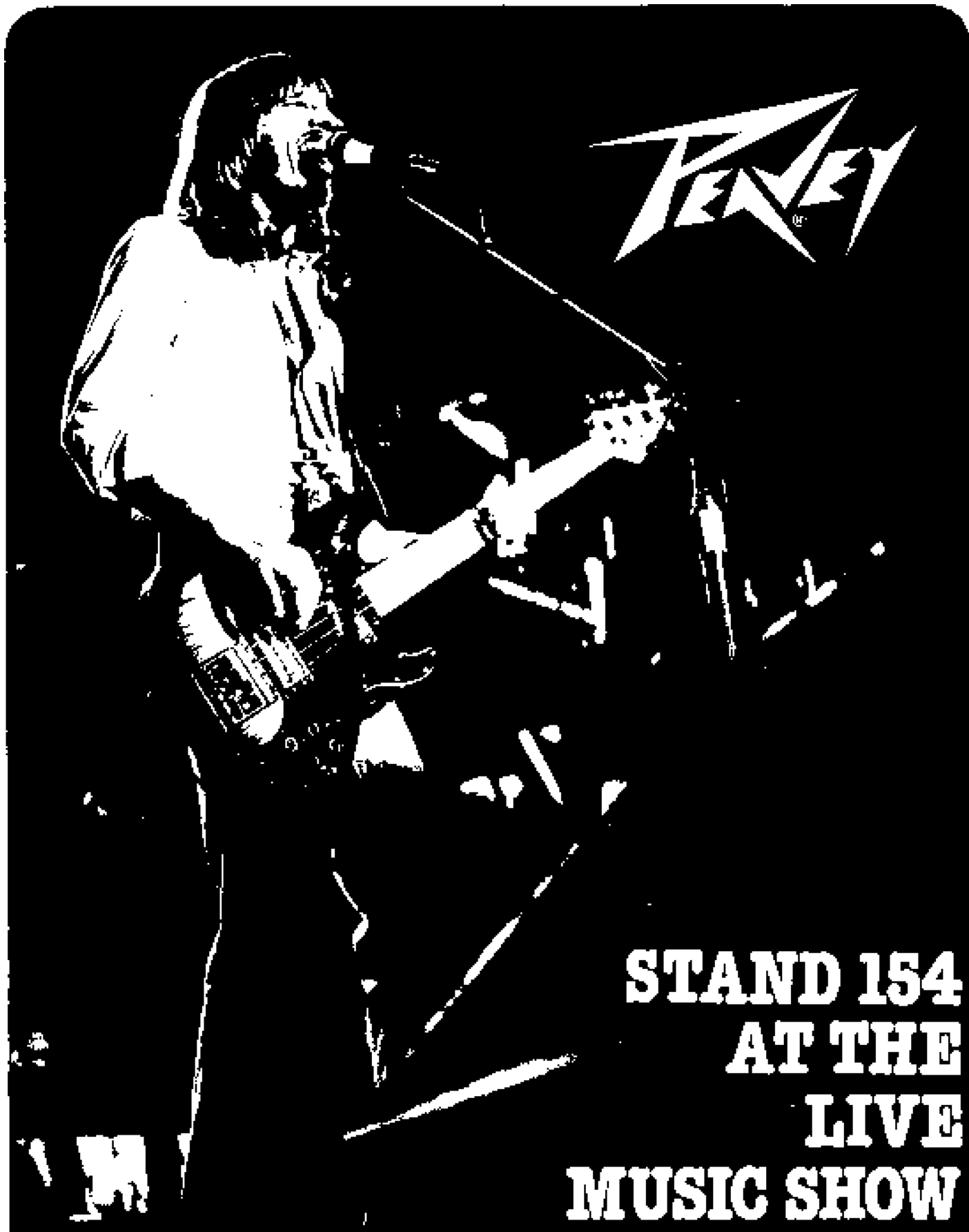
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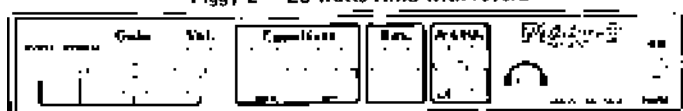
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Nick Gilbody,
North Anston,
Sheffield.

Stephen Delft replies: I must admit that I have not heard of an Em Bee Original Axe. We are publishing this letter, in the hope that one of our readers may be able to help you.

Cutting comments

With reference to the article in your May edition by James McGill and Chris Rogers entitled 'Hi-Fi for Musos' on page 157, at the top of the page, the following statement is made: 'In the cutting room someone takes 15ips master tapes, mashes the dynamic range, bashes programme peaks, re-equalises and squashes the end result into a record groove.'

I have never heard so much rubbish regarding the cutting end of this industry. What your writers say may be true of some cutting rooms in this country (but I doubt it), but none of this occurs in the cutting room of County Recording Service, and as our literature states we endeavour to give our clients as near an identical copy of their tape as it is possible to do.

I would welcome your writers to come to our cutting room and watch us at work. I think they might learn something. Our aim is still to give a faithful reproduction of the client's tape whether it be classical, punk or rock.

John Martin,
County Recording Service,
London Road,
Binfield,
Bracknell,
Berks.

James McGill replies: In terms of end results you will not deny that market product lags a good way behind technological potential - a random selection of any three LPs played on good equipment should prove that. We must therefore interpret your comments as a more or less amiable dialogue - and very welcome too.

The use of limiting and compression, in rock and pop music particularly, is so widespread as to defeat argument. The pressure put on pressing plant by the short lead times

Send your questions about instruments, amplification, music and the business to: Queries, International Musician and Recording World, Grosvenor House, 141-143, Drury Lane, London WC2.

of popular commercial product causes quality control to fly out the window - the discs are whipped off the presses before they cool flat and the surface noise is often dreadful. Low volume classical albums do not seem to have this problem when produced on specialist labels. Again, the existence of high quality discs - direct-cut, 'supercut', PCM and dbx-encoded - amply shows how much life has lain untapped in the vinyl groove.

Your words 'near identical' must acknowledge the constraints under which you work - how do you go about putting 21 minutes of play time on an LP side in the presence of an 'impressive' stereo sound stage and/or large helpings of bass? The suggestion is, the tapes you receive have already been queered. The average punter merely wants value and the end result is rarely good enough - a figure of 20%, I would hazard. Your attitude may, in fact, be exactly what is needed at various points in the chain.

Biting

I have been using a Lawton mouthpiece on my tenor sax for about six months, which due to my persistent chopping and changing is about the longest I have ever kept one mouthpiece. By and large I have been very pleased with the mouthpiece, but in the last month I have noticed a gradually deepening rut in the bite where my teeth rub against the black plastic insert.

Is there anywhere where I can get the plastic insert replaced when it wears out? Does the fact that it is wearing out so fast (by comparison to previous mouthpieces) indicate that there may be something awry with my embouchure? Thanks for a great magazine, but how about more saxophone-based articles, reviews on instruments, perhaps, or new brands of reed under "small things"?

Christopher Guy,
Friern Barnet,
London N12.

Alan Holmes replies: You can send your mouthpiece back to Lawtons to have the 'bite' replaced for about £2, although the plating is likely to be scratched by the machining process so it is a better bet to have it refurbished, which includes relaying, repolishing and replating for about £12. Lawton mouthpieces are at 44 Birtles Road, Macclesfield, Cheshire SK10 3JQ.

It would seem that you have very sharp teeth and are, perhaps, sliding



up and down the mouthpiece too much. I would recommend two layers of thick plastic insulating tape stuck across the bite to create more friction and to stop your teeth and the mouthpiece from wearing out.

I shall be reviewing instruments and accessories in the magazine so we had already anticipated your request.

Getting high!

I would appreciate some advice on the choice of horns. I use a Fender Precision into a 120 watt Matamp and a Fane Crescendo 120 watt heavy duty 8 ohm speaker in a rear loading bin. The sound is very bassy and I would like to increase the high frequency end by using horns.

Could you tell me if two Fane Acoustic J73 horns wired in series with the recommended crossover network would be suitable, and if so how would I connect them into the amp-speaker set up?

Michael Bruce,
New Moston,
Manchester.

Ken Dibble replies: Firstly, I assume that by 'rear loading bin' you mean a 15" loudspeaker facing forwards, with a horn loading at the rear of the cone - like the JBL 4520 or 4530 for example. If this is the case, then you may be using the wrong type of bin for bass guitar. This type of enclosure is for reproducing very low bass notes, and is best suited for the very low bass of a PA system, and for short-throw applications only. You will get much more punch for bass instrument application with something like the 4560 design. Also, I do not recommend the 'W' bin designs as a general rule.

Whether the Fane J73 horns will be suitable will depend on the amount of power they will be required to handle. I did include the J73 in a Speakercheck article in the August, 1978 issue and recommended that it is best crossed over at 5kHz. This is probably too high for use with a bass system and Crescendo 15" loudspeaker. I would suggest the J104 as a better bet, as this can be crossed over at 3kHz and will handle more power as well. If you buy the Fane HPX/1 filter, the wiring instructions will come with the unit, or alternatively, Fane will probably be pleased to advise you further.

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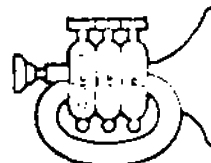
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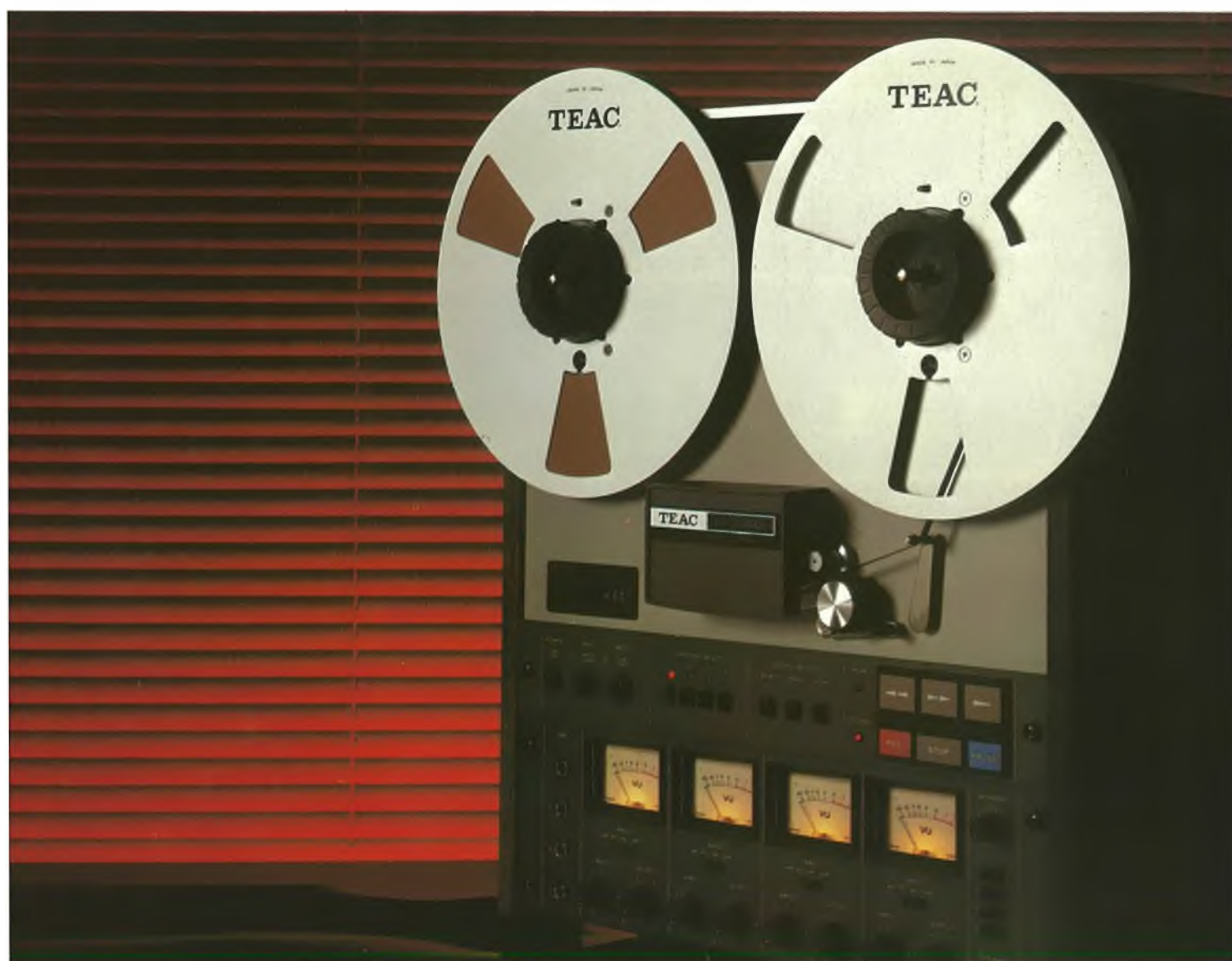
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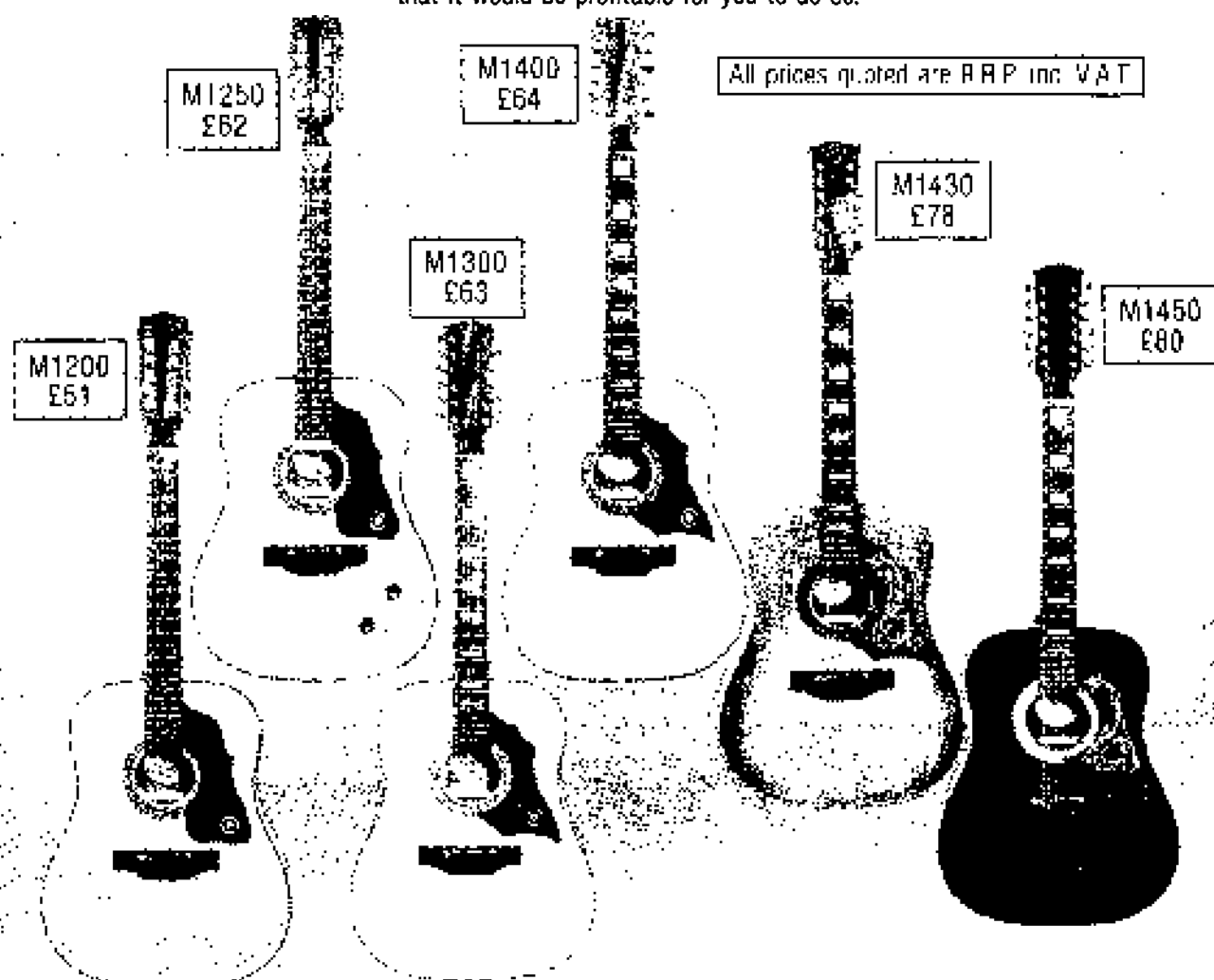


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LAURENCE JUBER

**Taking off
with Wings**



When Laurence Juber joined his first full-time band, it wasn't quite the desperate bid for stardom with a few mates, which usually marks one's entry into the musical arena. To begin with, he'd been a professional musician for seven years, and secondly the band he joined was Paul McCartney's Wings.

You might well be thinking "Laurence who?", and it's true to say the name wouldn't mean anything to the average pop punter. So why would Paul McCartney, who presumably could have his pick of the world's top musicians, choose someone virtually unknown? The answer becomes obvious when you look at Laurence's career and musical background. His credentials are just about the best you will ever see from someone who has made playing the guitar his chosen profession. Aged 25, Laurence has an impressive seven years of session work behind him, encompassing every style and situation.

He has worked on albums by such diverse talents as Cleo Laine, Shirley Bassey and Cerrone, played guitar on TV series like *Get It Together*, *Paul Nicholas* and the *David Essex Show*. He has worked in a variety of London shows like *Jesus Christ Superstar* and was also the featured guitarist on the soundtrack of *The Spy Who Loved Me*. Add to this a spell with the National Youth Jazz Orchestra and a Bachelor of Music degree from London University and you begin to see why Paul asked him to join Wings.

Talking with Laurence, you soon become aware of his highly professional attitude to his work and his music. His perfectionist attitude must have been apparent from an early age because by the age of 13, when he got his first electric guitar, his dreams weren't of being a pop star.

"Right from that age I was determined to be a session musician," he recalls. "I didn't know what it involved, but I had this image of being a session man from the outset. I knew that that was a sort of peak of mastering the instrument, and I really wanted to do that."

The next few years were spent playing in a variety of local groups during which

**Paul McCartney's
new guitarist
talks to David
Lawrenson about
sessions and success**

time he became interested in jazz. Basically, he was still learning by copying from records but then his musical career took another step forward: "When I was about 16, I started classical guitar because I needed Grade 5 on something in order to take A-level music, which I wanted to do. I did classical guitar because we happened to have a classical guitar teacher at our school.

"By the time I'd finished school, I'd done Grade 8 and wanted to go on to University. Even then there was the pressure not to be foremost a musician, but just to have it as a hobby, an "insecure profession" and all that. I was dedicated to making it a profession but I kind of got sidetracked and I ended up applying to do all kinds of things at University but never got in.

"So I took a year off after school and through this period I was doing dance band gigs and getting bands together. I was using a Strat at this time, which was my first really good guitar, and a Watkins Dominator amp which was great. I was also doing a gig in an Irish ballroom a few nights a week and that was the first time I actually started reading on electric guitar. I had been doing all the classical stuff and discovered that it was much easier reading electric guitar parts.

"I then applied to do music at Goldsmiths College in London. I was doing a BMs degree, which was basically sort of musicology. There is a certain amount of heavy ear training, a certain amount of harmony, and things like writing string quartets in the style of Mozart, but the main direction of the course was studying periods of music. The first thing we had to do was study a lot of music from about 1600 right up to the present day. That gave me a broad historical perspective. That's been really useful because it has enabled me to compare things, then and now, and just make connections. After that I had the opportunity to specialise a bit more.

"I had also been playing some lute, which I studied and found really fascinating because it really tied in nicely with the sort of interest I had in people like Jerome Kern and Cole Porter. I studied a lot of that and really got into the Beatles' music from a technical point of view.

"Then, in my last year, I did a lot of stuff on the history of instruments, which was fascinating again, origins of the guitar and technique. In fact, I almost didn't do my final year because I was playing in a West End show. I was doing a lot of depts like *Jesus Christ Superstar* and *Hair*, but the main one I did was *Let My People Come*."

Incredible as it may seem, Laurence also managed to fit in a spell with the National Youth Jazz Orchestra, as well as a variety of dance band gigs and a few solo stints. Upon finishing college, the phone started ringing and his career as a session musician began. Unfortunately, after a promising start, including playing on a Cleo Laine album which George Martin produced, things did not really take off. He was doing basic sessions and jingles, but suffered a setback when many of his guitars were ripped off.

After a brief spell in Los Angeles, during which he did hardly any playing but gained much experience, Laurence returned to London and immediately his fortunes changed. He began to get work on TV shows and films in addition to the run-of-the-mill session and album work. It was on the *David Essex Show* that Laurence met Denny Laine, through an inspired guitar solo on "Go Now". The subsequent audition and recruitment to Wings came at just the right time, according to Laurence.

"I'd not been interested in a permanent band up to then, because I was very much concerned with getting some kind of security in what I was doing. I needed to do the work so I could buy guitars and get my musicianship together. I was very much into that aspect of it at the time, although I used to have blows with friends and do jazz things. I love live playing, but I went through a period where I did very little because I was too busy doing sessions.

"I couldn't really afford not to do the sessions because I was trying to get established. I did want to join a group and Wings was really the first one I was asked to join, which was great. I came to the basement of the office in Soho Square for an audition and we just had a blow. We didn't play any Wings' tunes, it was just a blow with the rest of the band, doing blues things and old rock 'n' roll tunes. I didn't go for the audition desperately hoping I'd get the job, but it was all fairly relaxed, it wasn't an audition atmosphere. We all had fun, and a couple of days later they asked me if I wanted to play with them."

Although Laurence has been with Wings for a year, everything has been a bit low profile because there has been no new Wings product featuring him and the other new member, Steve Holly. However, with the release of the new Wings album *Back To The Egg*, the spotlight is bound to fall more on him.

When talking about the album, Laurence was able to offer an insight into working with one of pop music's living legends: "Paul obviously has a very powerful musical personality, but he's very prepared to listen to someone else's viewpoint, so there's space to contribute your own thing. If you don't happen to come up with the goods — and everyone has a day or a tune when they can't find the right thing to play — then he'll suggest something because he knows what he wants.

"Sometimes, you can come up with something that's maybe better than what he thought of, or take what he's got and put your own thing into it. So, either he'll suggest something to do or if you're on the right track he'll say, 'Try missing out these few notes' or else he'll do it himself. I'm quite happy to sit back and listen to him play guitar because I love his guitar playing. So there's lots of scope for all different things within the band because Paul and Denny are great on both piano and guitar.

"What they have got over me is that experience of playing on the road and having been involved in the music business for so long. ►►

Both have been involved in music for about as long as I've been playing and I've just come through a completely different direction. Paul's got all this experience which just comes right out into the open in the studio and there are times when I just sit back and learn."

So what about playing with McCartney the bass guitarist? "I love his bass playing because of the way he plays tunes. There are very few bass players who have that kind of ability to play tunes with the fundamental notes of the chords. Not being terribly sophisticated about it, but a melody will just come out. Some of the stuff on the album is quite raw, very upfront high energy, but there's still a kind of melodic aspect to it."

Laurence is convinced that joining Wings has improved his playing, allowing him much more freedom than the rigid technical approach which is often demanded of session players. Despite his intense musical background, he is aware that good guitar playing doesn't simply mean reading all the dots correctly.

"Joining Wings has given me the opportunity to relax and not have such a tight hold on the guitar playing aspect and allowed me to develop as a person, which I think has improved my playing much more than sitting down and doing a lot of practice. I could have used the time just to get more technical, but technique is meaningless. I think it's what comes out of your heart that counts."

As you would expect, Laurence has quite a range of guitars, but doesn't count himself among rock's great guitar collectors. His "tools of the trade" all have specific functions and are not merely *objets d'art*.

"I have two main guitars. The first is a '63 Strat with Schecter electronics, which is very nice. The Schecter is an assembly you buy and each pickup has two different sounds. It's a coil tap thing so you get an old Fender sound, then you switch it over and it sounds boosted — not quite a humbucking sound, but more powerful. I've compared it with a couple of late Fifties Strats and it's exactly the same sound. The other main guitar I use is a Les Paul which is about six years old. I've put Schecter electronics on that and it's amazing because it's got the push/pull things on all the pots, in and out of phase, series, parallel, single and double-coil. It's more simple than it sounds and it's a really nice guitar. I'll probably use that and the Strat on stage."

"I've got a '58 Gibson 335, one of the dot inlay ones, which is great. I'm not sure about using it live. I find the tunings a bit unstable but I love the sound. They're great studio guitars for certain things — a lovely lead guitar. This one has the original PAFs and they're so raunchy, much better than the new humbuckers. I've also got a '59 Les Paul Junior that's rather nice, and I might have that around for using as a slide guitar."

"I have a Yamaha SG2000 which I think I'll maybe use as a backup. It's a very good guitar, wonderfully made, but the neck's a bit chunky. I also find the pickups are too powerful, they distort too much. I like my sound to be on the clean side. I think the Yamaha is

probably the best-made guitar of them all."

Laurence has three main acoustics — a Martin D28, a Guild F50 and an Ovation Adamas. As far as effects units go, he uses an MXR flanger and a volume pedal, but that's about it preferring a pure guitar sound. For amplification he's got a Music Man and a Hiwatt, but has a new Mesa Boogie on order which he's been really impressed with.

Being a full-time member of Wings, Laurence doesn't do a great deal of session work anymore, one reason being because he wouldn't like to deprive another musician of his livelihood. He is aware of the difficulties that a young musician can have when trying to break into the hard world of sessions.

There are no easy ways to become a session player, although Laurence offers some pointers as to the necessary requirements: "It all depends on what kind of sessions you want to do. Even the reading aspect of it isn't terribly important providing you can read a chord sheet. You are more likely to get in on the 'bread and butter' side if you read the dots, but having good sounds, being reliable, turning up on time, having a nice attitude, all those things are important because it's a job like any other."

"Also, you've got to be creative, you've got to be able to come up with a lick if somebody needs one. There's a whole aspect of sessions which has nothing to do with reading at all, it's down to being creative and having the right sounds. Sometimes, you can get loads of sessions through having an effects unit that no one else has! You've got to be well-equipped, and well-equipped means technically, on the level of guitars, your attitude, transport, all the different things. You've got to have the right attitude because you can't turn up on a TV set playing for Vera Lynn with a 100 watt Marshall — it just doesn't go."

Right now, Laurence is enjoying life as a band member and looking forward to going out on the road, which will be something of a new experience for him. "I would like to go on the road, I think everybody would. We're planning to do some rehearsing, whether that rehearsing will be just for fun or whether it'll be to do some gigs I don't know."

"I'd like to think we'll do some gigs. If we don't, then we'll do something else interesting. I feel ready to handle it somehow. I might feel differently when we've been out on the road for a while, but I feel ready for it."



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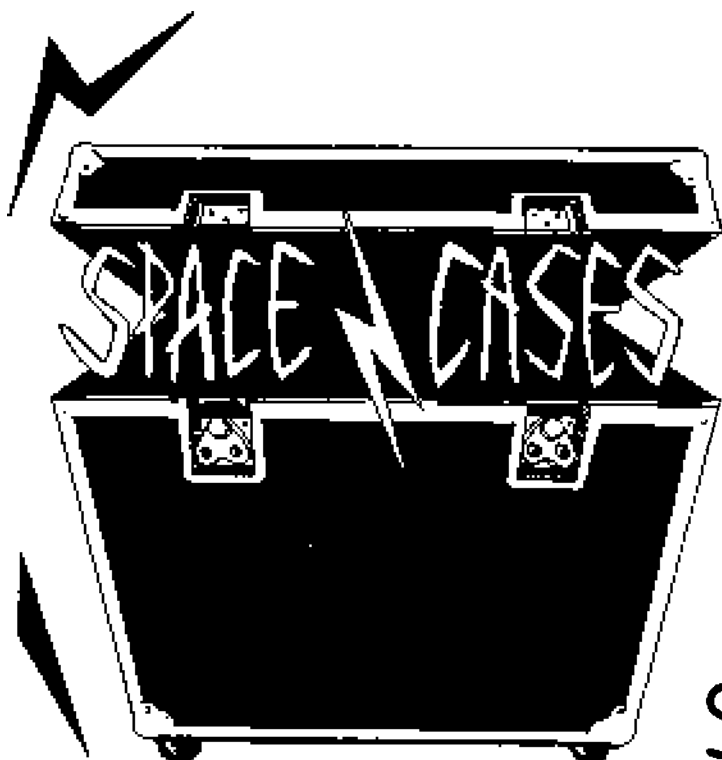
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JEFF PORCARO

Toeing the TOTO line

by Eamonn Percival

MANY musicians, particularly drummers, will know the name Jeff Porcaro. He has appeared on scores of albums in recent years, including names like Boz Scaggs, Steely Dan and Russ Ballard. When he was only 18, he was playing top venues with Sonny and Cher. Now, at 24, with an enviable track record, he is the drummer with Toto, a relatively new band who scored a giant hit with *Hold The Line* from their recently-released debut album *Toto*.

The band is made up of musicians who, although they have all worked on the road with many name acts, are better known for their session work. Toto are: David Paich (keyboards), David Hungate (bass), Steve Lukather (guitar), Bobby Kimball (lead vocals), Jeff and his brother Steve Porcaro (keyboards). They are adamant that the group is not just a money-making opportunity to cash in on their individual reputations. However, they have had a lot of flak from rock critics. Bands made up of former session eers have, in the past, suffered from their own instrumental ability. It's all too easy to fall into the trap of being too eager to show off their musical prowess and end up either overplaying or sounding clinical. To their credit, Toto have managed to avoid all this. They have yet to set foot on a British stage but their album indicates a good future for a band who can combine energetic rock with thoughtful, melodic ballads. Jeff Porcaro paid a fleeting visit to these shores recently and I had a chance to talk to a real "drummer's drummer".

Jeff is currently playing a new Ludwig custom kit with Power-Toms. These are maple shells which have been extended for extra power and depth.

"The bass drum and tom-toms all have extended shells," he explains, "they're a new line that Ludwig have brought out. The sizes are 8", 10", 12", 13", 16", 18" with a 22" bass drum and the depth is the same on all of them. They're all 16" deep which is normally the depth of a floor tom. It's a good sound. I use bottom heads on all of them so with the air pressure going from the top head all the way down to the bottom you get that real 'dwoom' sound. It's a real wide open sound".

Jeff agrees that it's not really fashionable for rock drummers to use both heads. Many players like a dead, dull sound from the tom-toms and bass drum.

"I've never been partial to that sound. I've always liked getting more of a note out of my drums. Real live, you know?"

On cymbals, Jeff uses Zildjian throughout, with the exception of the hi-hats which are Paiste. The sizes are three 18", two 19", 22" and 20" plus a pair of 14" hi-hat cymbals.

He doesn't use any one kit for



sessions, although a Ludwig maple kit was used 80 per cent of the time. The lucky bleeder has 11 kits and over 50 different snare drums stored in a warehouse, ready for selection and setting up depending on the style of music he's going to play. Why 50 snare drums?

"I change snare drums a lot. There's a couple of metal shell drums there, but the majority of them are wood shells. I have this guy who fixes my drums up for me. He takes my studio sets and packs the lugs with cotton so there's no ringy overtones. He strips the drums completely and, instead of using screws, he puts Allen screws in so they keep everything real tight. He also veneers the inside of the shells. He takes all my snare drums and puts Gretsch hoops on because they're better hoops. They're a moulded hoop instead of a piece of sheet metal that's been bent round. Half of the drums have the old original Radio King lugs, I have some with brand new Gretsch hoops, some have Gretsch lugs with old Slingerland hoops, they're all different."

Jeff has been "messing around with drums" since he was four. He took lessons for three years when he was seven and learnt to read and, as his

father was a drummer, it was drums, drums, drums throughout his childhood.

His sight-reading abilities obviously helped Jeff make a name for himself in session work, although he doesn't need to call on it much these days, as Toto is his main concern.

"I'll tell you, a lot of guys go to school and they sit there and learn to read, sight-read, and then super sight-read. If Zappa, say, called me to do a session and he had everything written out, and he'd want me to get it down by the third take, then I'd be in trouble, because that's really complicated stuff when you're going from a bar of 4/4, to a bar of 7/8 to a bar of 13/20. I don't have my sight-reading down that well. You need to sit at home and read all day to be able to do that and I don't have any drums at my home."

"I did very well for my age. A lot of guys use their ears. Like, I listen closely to what's going on and I can anticipate a phrase about eight bars ahead and I can see that phrase like reading a word. You interpret that, depending on whether it's a horn figure or whatever. You just use your ears to see how to approach the music."

Sessions are a thing of the past for Jeff and the rest of the band, although Jeff is due to do some tracks on the next Steely Dan album.

"I'll be doing some stuff with Steely in a couple of weeks but, apart from that, there just isn't time to do sessions. I haven't done one for about eight months because there's so much happening with the band. The band has always been our dream and it's our number one consideration. There may be some time in the future when we have some time off when we might be able to do guest appearances on certain albums but there really is no time now."

Toto have come in for more than their fair share of criticism so far. Their music has been described as "the soft-rock version of Foreigner" and the players as "slick and cynical studio musicians". When I mention this to Jeff, it's the one time he gets a trifle heated. It's obviously a little below the belt to him.

"They're short-sighted people who don't know us and who expect 35-year old guys to walk in to be interviewed. We've been in studios for three years, we happened to live at home and it was work, you know? We didn't want to rush into anything but we'd played together at high school and in garage bands and it's a case of us thinking we were being smart and holding back until the time was right and until we had the experience under our belts and nobody was going to pull wool over our eyes as far as record companies are concerned."

"The point is that we worked in studios but we all realised it was just a temporary thing until we got a certain amount of experience under our belts. We've all played on stage with other bands as well and jumping around all over the place and now we've come out of the studio, people think we've been in studios for 15 years and expect us to come out on stage wearing headphones and sitting in chairs."

"The thing that bothers me is that these journalists should have done their homework and maybe contacted the record companies. They've seen the album notes and they might not have liked a particular album we were on but if they'd seen the wide variety of albums we've played on... Steely Dan don't hire asshole lazy studio musicians. Like, our guitar player played with Cheap Trick and all this shit and these guys don't hire turkey studio musicians. If the critics had done their homework and called the record producer, they'd have found out that we were the most radical studio musicians that ever entered LA, and the youngest. We're not typical studio musicians in any sense of the word."



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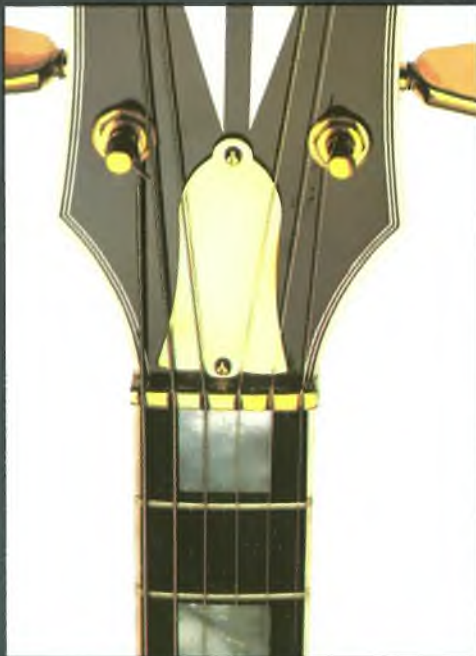


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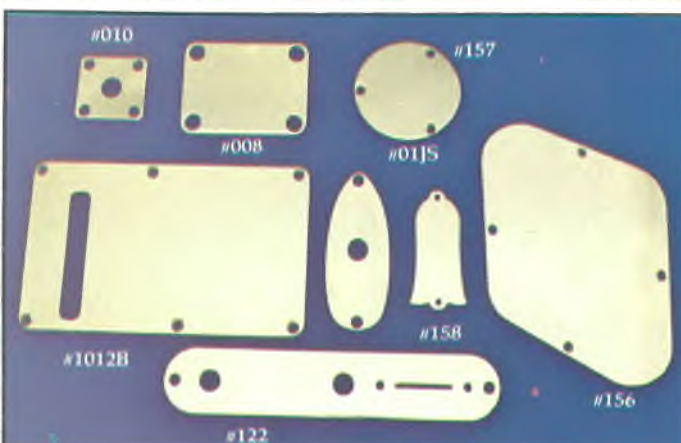
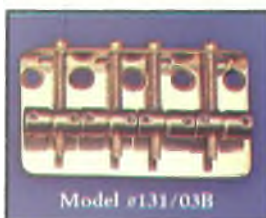
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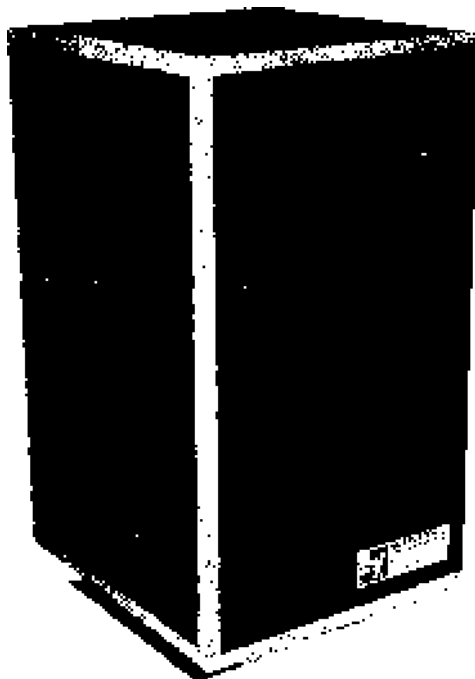
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Speakercheck:1

Electro-Voice Eliminator 5 System £621 inc.VAT



Although we normally consider only one product at a time in our *Speakercheck* systems features, it occurred to us that in this particular instance, it would be of particular interest to look at two models together. The reason for this departure is that both products are fitted with exactly similar drive units and identical crossover networks – the only difference between the two being the design of the enclosure.

The S15/3 comprises an EV EVM/15L bass unit in a large capacity tuned reflex enclosure, the new EV VMR vented cone midrange unit and the ST350/15L bass unit in this instance mounted in a folded horn enclosure which is of comparable dimensions and design to the well known Eliminator 1. To all intents and purposes, this is a re-vamped version of the Eliminator 1, but fitted with a more advanced mid and high frequency section with a grille over the front. In both instances, a full three way passive crossover is employed, having high-pass, band-pass and low-pass sections so that only the appropriate band of frequencies is fed to each drive unit. A further feature of the design is the inclusion of an electronic protection circuit for the high-frequency horn – more of which later.

For those interested, the EVM/15L

bass unit and the ST350/A high-frequency horn were separately assessed as components in the April and September 1978 *Speakercheck* features respectively, in which both these units fared very well indeed although as separate components, they are somewhat expensive. The units, as fitted to the S15/3 and Eliminator 5, have been shorn of their elaborate finned covers and fancy nameplates – the obvious reason being to reduce cost, and the units appear simply as functional pieces of engineering. I have been complaining for years about the disproportionate contribution to the overall cost of professional loudspeaker units that is entirely due to cosmetics – and here is a *prima facie* example of the fact that loudspeakers do not require fins on the back of the magnets in order to keep them cool! Fins just make them look good and hefty – and add considerably to the cost.

In fact, I would go so far as to suggest that in this instance, the stripping of adornments has been taken too far in that there are no actual terminals on the VMR unit or on the ST350/A, these having been replaced with an attached length of flex. During our tests we had occasion to replace one of the VMR units and found this somewhat awkward due to the fact that this attached flex is terminated

Dimensions: 570mm wide x 960mm high x 590mm deep

Weight: 51Kg (approx. 112lb)

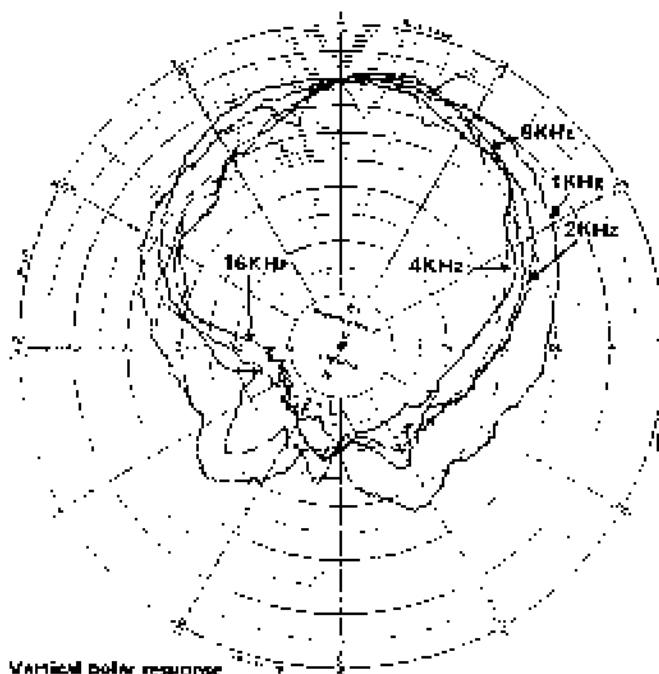
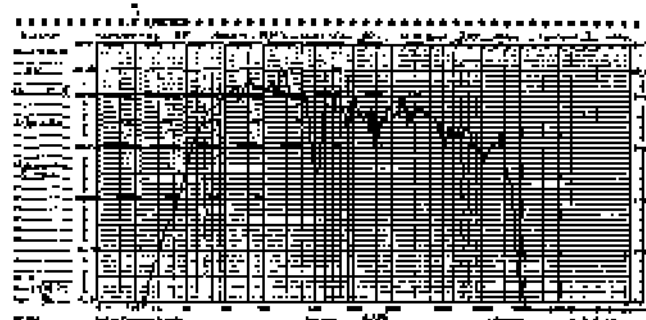
Drive Unit Complement: 1x15" LF, 1x6" mid-range, 1 x horn HF

Crossover Frequencies: 600Hz and 4kHz

Performance Specifications and Test Results:—

Parameter	Manufacturer's rating	Test results
Sensitivity	LF section — 122dB MR/HF section — 116dB both at 100w at 4ft	98dB @ 1w @ 1m averaged between 80Hz and 3kHz
Useful Freq.	Not determined at time of going to press	45Hz-16kHz @ -20dB 55Hz-15kHz @ -20dB see graph
Rated input power	100w long term average	Confirmed at 100w RMS sine wave see text
Distortion	Not stated	6% above 50Hz
Impedance	8 ohms nominal 5 ohms min.	4-22.5 ohms
LF resonance	Not stated	55Hz
Polar response	Not determined at time of going to press	126 V x 114 H @ 1kHz 102 V x 112 H @ 2kHz 64 V x 128 H @ 4kHz 68 V x 108 H @ 8kHz 64 V x 96 H @ 16kHz included angle at -6dB — see text

Ken Dibble MIMIT is an ex-musician with a background in engineering and manufacturing sound equipment. He now works as an electro-acoustic consultant.



Vertical polar response

Electro-Voice S15/3 System £603.75 inc.VAT



directly at the crossover down in the inaccessible depths of the enclosure, making the replacement of units unnecessarily difficult. The S15/3 is fitted with two standard jack sockets for connection, while the Eliminator 5 has the oft-encountered nonsensical arrangement of a pair of male XLR/3 connectors. The XLR/3 in its male form is fine as an input receptacle, but any 'link out' facility must, by convention and by common sense, consist of a socket outlet so that the 'live' contacts are shrouded when not being used, and also so that standard male-to-female cables can be used. In fact, it seems somewhat odd that two cabinets, of identical power ratings and from the same manufacturer, should be fitted with two different types of connector.

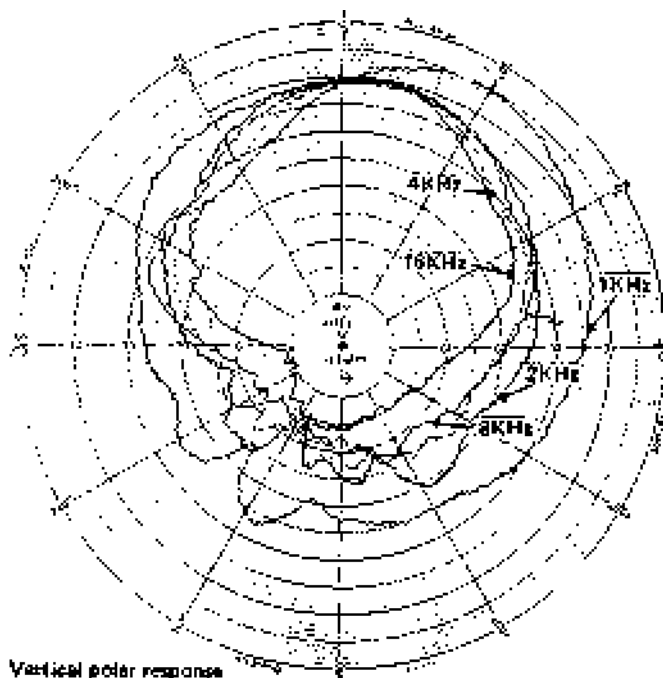
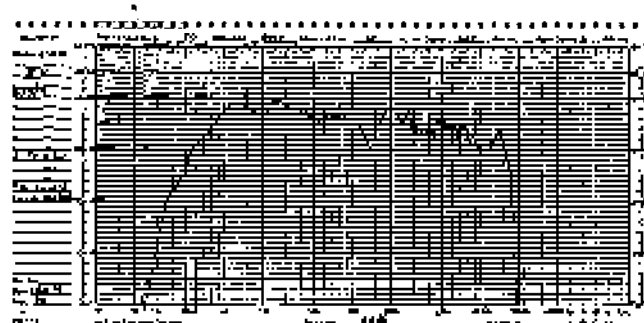
The cabinets themselves are of substantial construction and made from good quality plywood. Both are covered with black vinyl and cabinet protection is by means of an aluminium extrusion along all edges. The recessed carrying handles are of particularly good quality and are of a pattern often found on American loudspeaker cabinets. These are well positioned just above the centre of gravity of each cabinet to provide good balance for carrying. In fact, carrying either cabinet is no real hassle considering

the size and weight of these loudspeakers — particularly in the case of the Eliminator 5. However, the rubber feet are not so clever and it is suggested that hardwood skids or heavy castors would be a better solution.

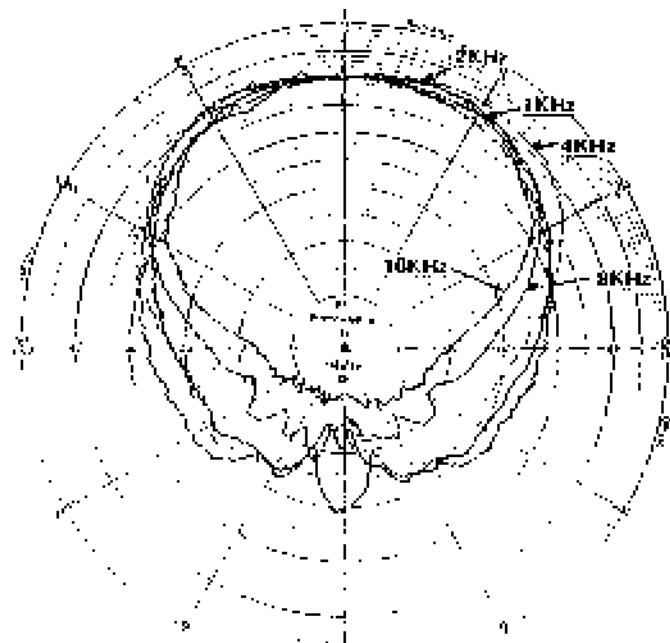
What of the performance? As the curves published show, both loudspeakers stood up remarkably well to an extensive laboratory testing schedule. These products certainly live up to the classification as full range cabinets, and are able to maintain substantial sound pressure levels at any frequency between about 50Hz and 15kHz. A comparison between these two loudspeakers is a good example as to the inadequacies of simple statements in respect of a speaker's frequency response, as although the stated frequency response figures for the two are remarkably similar, it can be seen from the graph that the Eliminator 5 has a markedly increased output over the upper LF and lower mid bands and this does produce a noticeably more punchy and gutsy sound quality than does the S15/3. The overall sensitivity of the cabinets is very similar indeed — as might be expected under the circumstances. It can be seen from the polar response curves that the Eliminator 5 has an exemplary horizontal radiation characteristic, maintaining good forward

Dimensions: 620mm wide x 730mm high x 350mm deep
Weight: 40Kg (approx. 88lb)
Drive Unit Complement: 1x15" LF, 1x6" mid-range, 1 x horn HF
Crossover Frequencies: 600Hz and 4kHz
Performance Specifications and Test Results:—

Parameter	Manufacturer's rating	Test results
Sensitivity	88dB @ 1w @ 1m 116dB @ 100w @ 4ft	97dB @ 1w @ 1m averaged between 90Hz and 3kHz
Useful Freq.	50Hz-16kHz unqualified	35Hz-18kHz @ -20dB 50Hz-16kHz @ -20dB see graph
Rated input power	100w long term average	Confirmed at 100w RMS sine wave
Distortion	Not stated	Generally below 6% but rising to 10% at 100Hz
Impedance	8 ohms nominal 5 ohms min.	4-22.5 ohms
LF resonance	Not stated	75Hz
Polar response	92 V x 120 H @ 2kHz 65 V x 98 H @ 4kHz	166 V x 174 H @ 1kHz 82 V x 86 H @ 2kHz 57 V x 124 H @ 4kHz 72 V x 124 H @ 8kHz 46 V x 96 H @ 16kHz included angle at -6dB

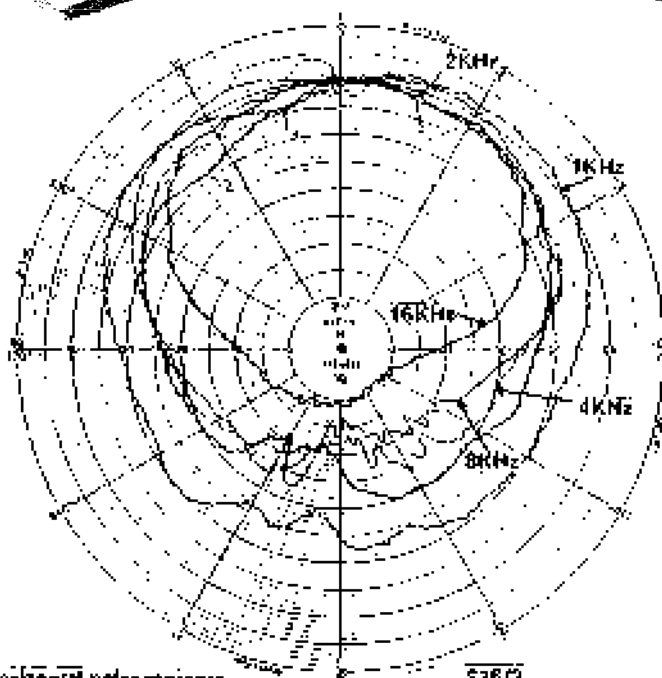
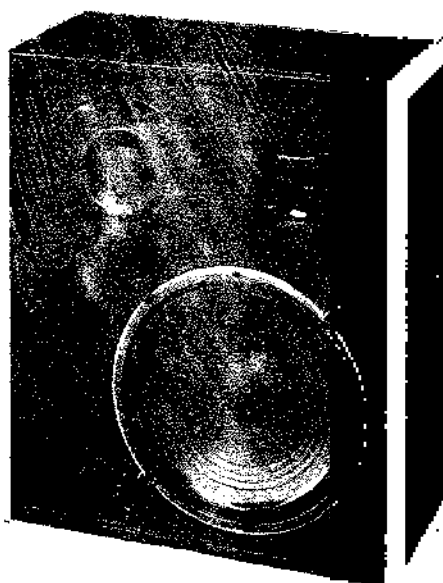


Speakercheck: 1



Horizontal polar response

Eliminator 5



Horizontal polar response

S15/3

propagation down to 1kHz.

The S15/3 is almost as good, but only down to about 2kHz, below which it is tending towards an omnidirectional characteristic. As might be expected from such a design, the vertical patterns are all over the place, although the forward propagation remains good and the lop-sided peculiarities are not likely to be of any real consequence in practice. Neither loudspeaker found any difficulty in meeting the 100w power rating, although there was a tendency for distortion levels to increase towards the lower frequencies in the case of the S15/3. The loading characteristics of the folded horn of the Eliminator 5 are obviously very good indeed, as low frequency distortion of the low order measured in this instance would indicate that the bass cone is being tightly controlled by the acoustic loading conditions – a situation which by no means applies to all folded horn designs. As the results tables show, our impedance measurement showed a low of 4 ohms, instead of the 5 ohm minimum stated by the manufacturer, this being reached as a dip in impedance at about 2.5kHz and applies to both models. It is not likely to give rise to any serious amplifier matching difficulties at this frequency, and the published minimum is reached at two points only, at between 130 and 160Hz and at 700/800Hz.

These are, without doubt, a very nice pair of loudspeakers, suitable for a wide variety of applications. As a compact, full range PA or Disco system for example, a pair of Eliminator 5s should give a very good account of themselves, and at the sensitivity figures measured, will not require vast amounts of amplifier power to drive them. The sound is clean, crisp and gutsy and they do not require a road crew to handle them. The S15/3, of considerably smaller size, has a performance capability that differs only in the overall sound characteristic, in that the lows seem to offer more fundamental low frequency, but less guts. Also, the mid-range seems less harsh and I confess to having found this model more pleasant to listen to. Generally, I found the performance of the VMR transducer far more acceptable than the smaller type of mid range horn normally fitted to such systems – even including the EV 1823M/8HD horn assembly as fitted to the Eliminator 1.

Electro-Voice produce a number of other speaker systems based on a similar concept, including the S12/2, a two-way baby brother to the S15/3, and two wedge monitors. A special tripod stand is available to facilitate mounting the S15/3 and S12/2 overhead, and all Electro-Voice loudspeaker systems and components are guaranteed for five years

Ken Dibble

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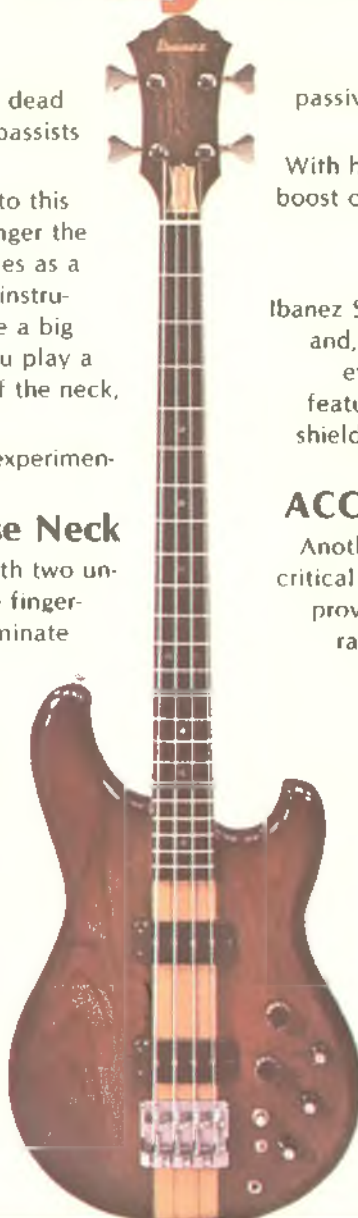
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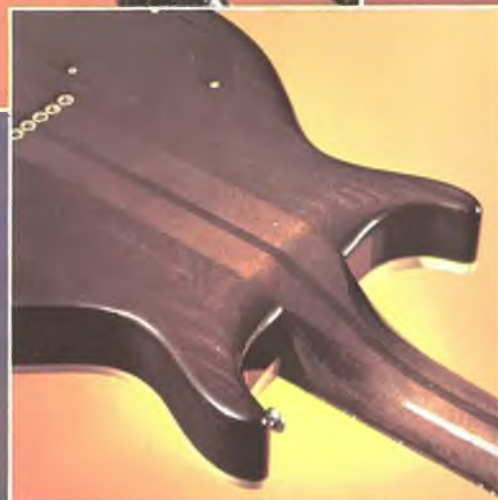
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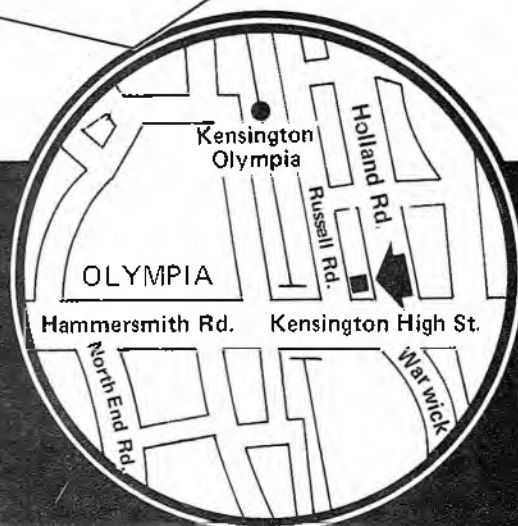
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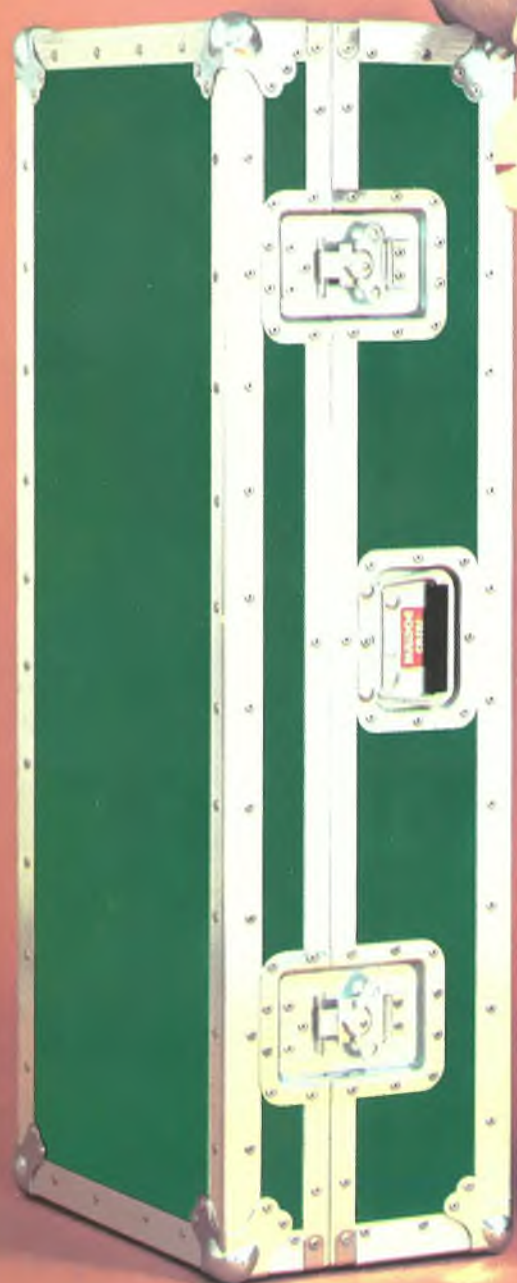
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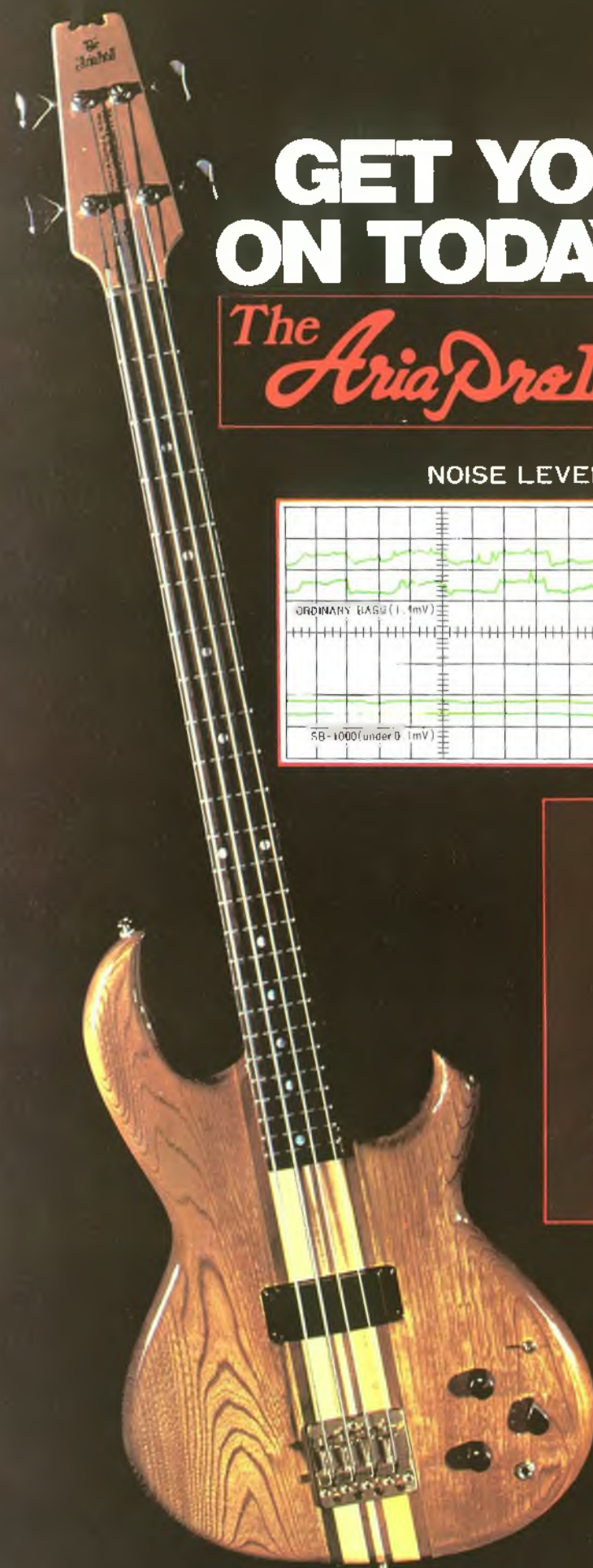


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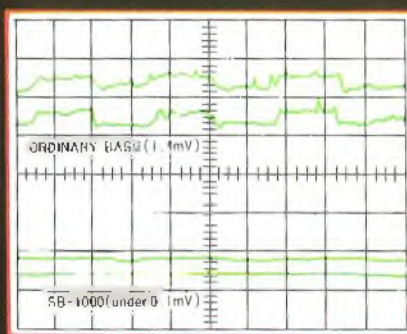
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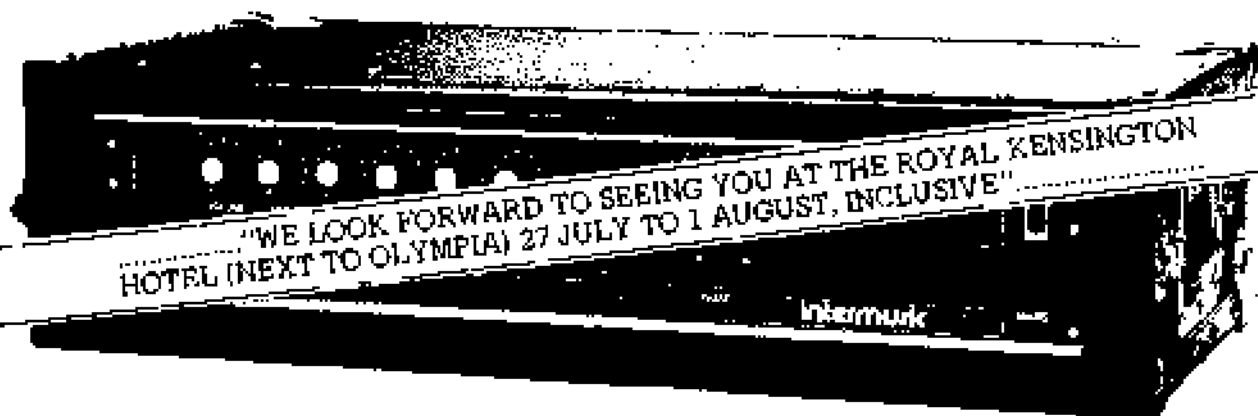
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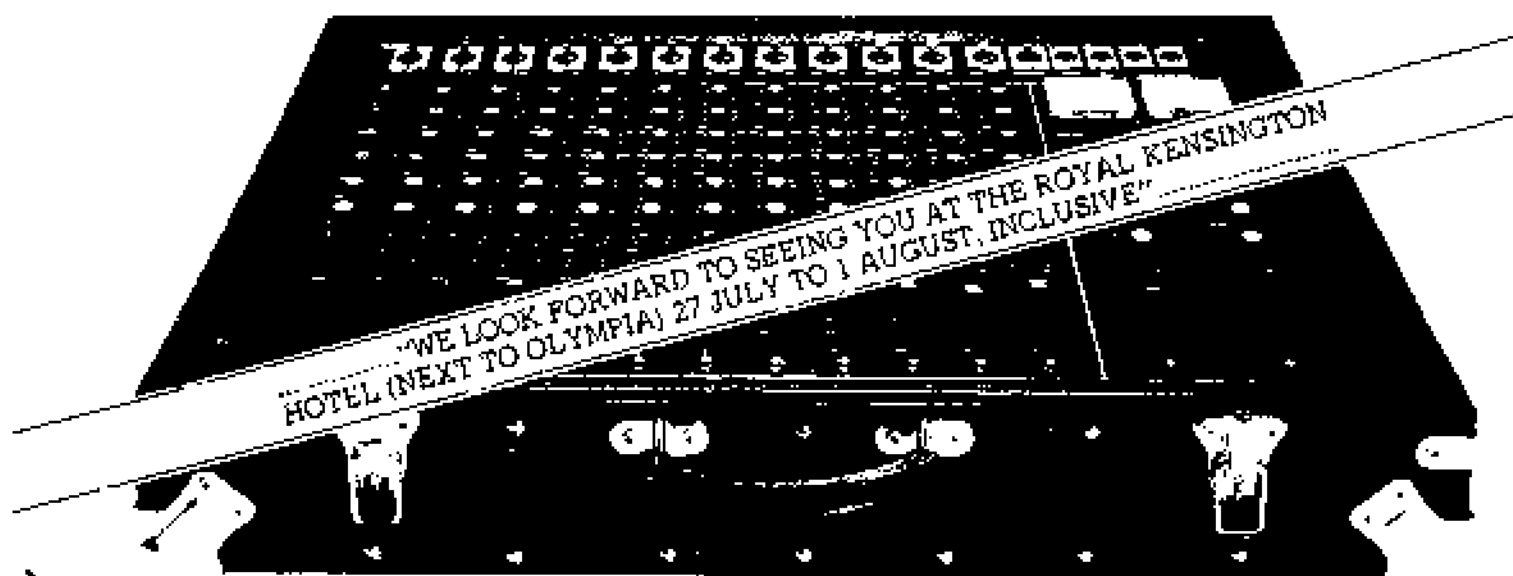
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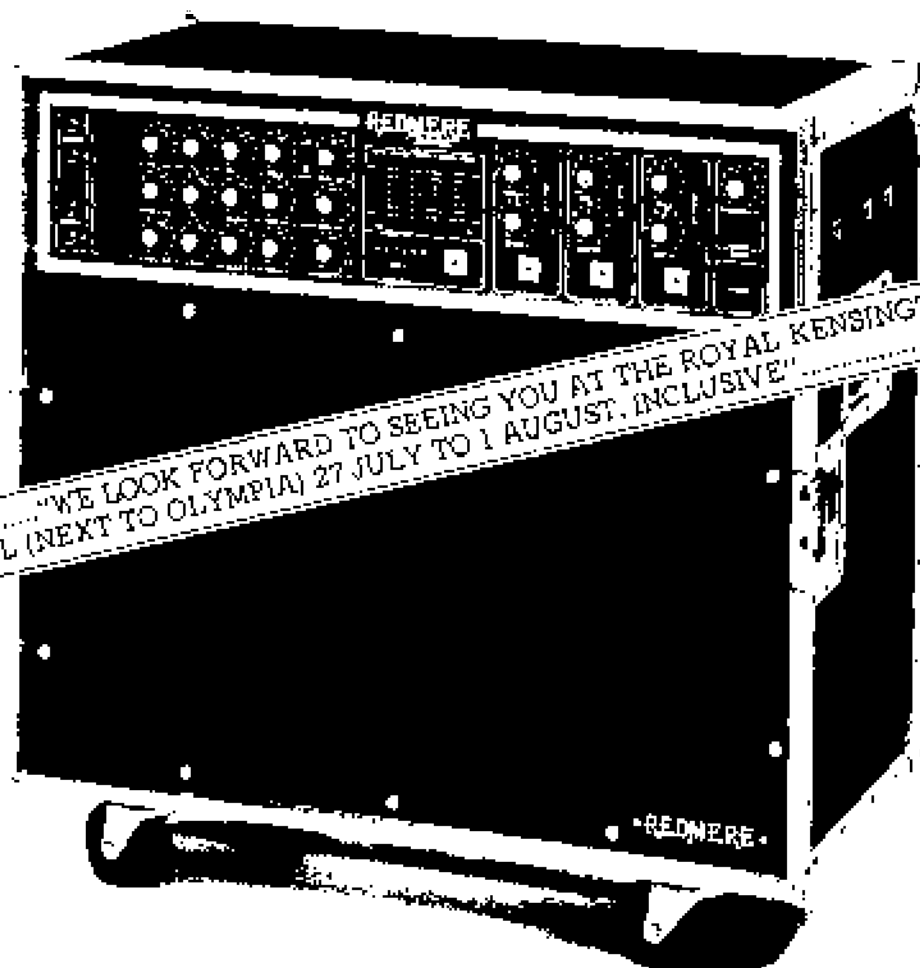


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Understanding Synthesizers

PART 14

In this article, which is the last in the *Understanding Synthesizers* series, I describe how a digital computer can be used to control a synthesizer. Although it may appear otherwise from some advertisements, the application of digital computers in the field of sound synthesis is not in fact a particularly new development. Electronic music studios associated with the American broadcasting companies, universities at home and abroad and in particular EMS Ltd. in Oxford have been exploring the potential of computers both as synthesizer controllers and as generators of sound for over twenty years. However, the enormous cost of computerised systems and their consequent rarity has previously meant that only a few composers, let alone performers, have had access to them. Furthermore, in these studios (particularly those associated with universities), the emphasis has tended to be on the composition and performance of abstract as distinct from popular music.

Nowadays, however, the situation is changing, largely because the cost of computer hardware (i.e. components) has decreased to almost incredibly low levels. In the February issue of *IM*, Malcolm Green and I reviewed the progress of computer technology, culminating in the development of the microprocessor (a miniature "com-

puter-on-a-chip"). Microprocessors form the heart of many of today's computer systems, and are already incorporated into certain kinds of polyphonic synthesizers. So whether they are aware of it or not, some keyboard players are already using digital computers!

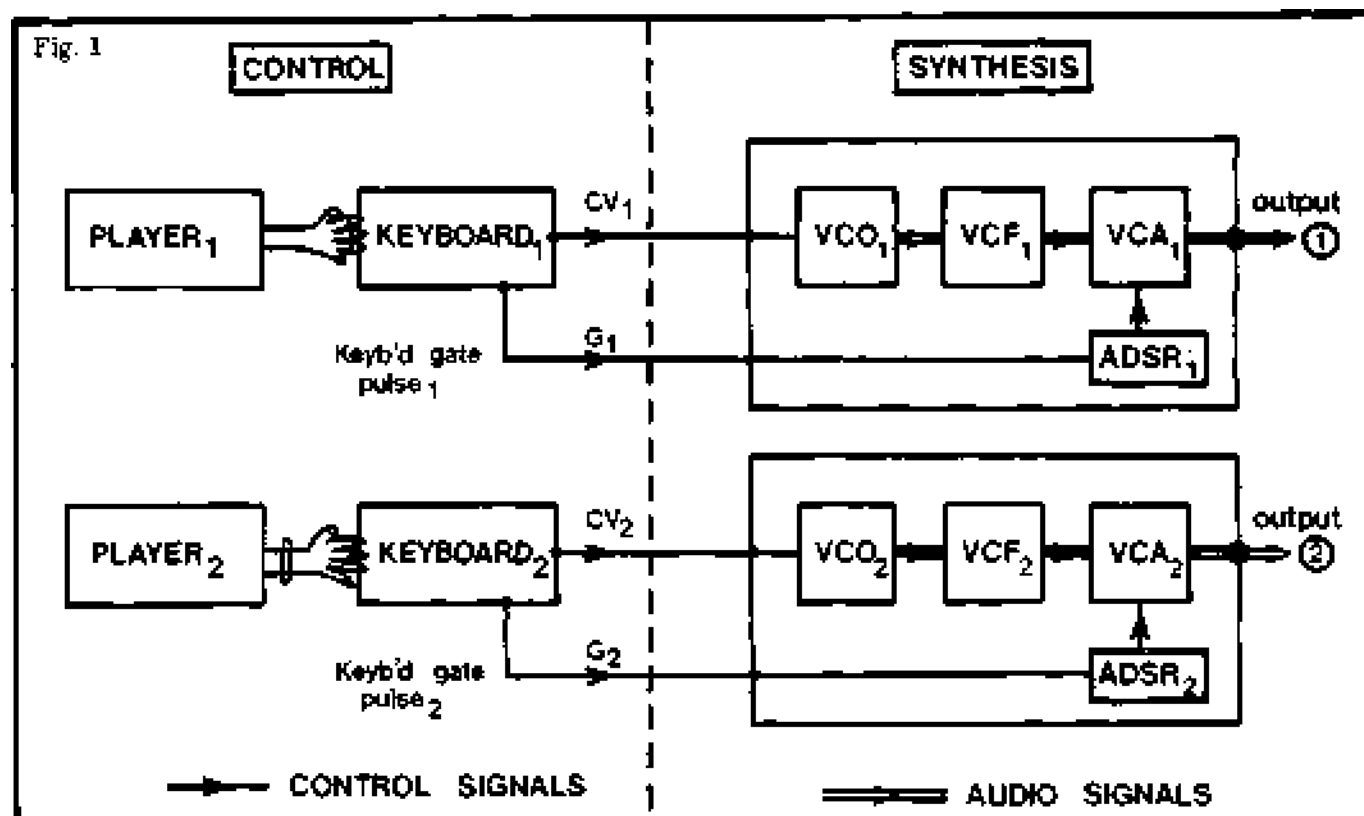
As I implied at the start, the possible applications of digital computers in sound synthesis are many and varied. One of the simplest is the use of a computer as a "super-sequencer", an approach which has been commercially developed both by EMS and Roland, and which I have adopted in my own studio at Silverhill Music. The last two articles described at some length how conventional sequencers work, so let's start this month by identifying the most important limitations of conventional sequencers before moving on to computer-sequencers and computer-controlled synthesizers.

A synthesizer band

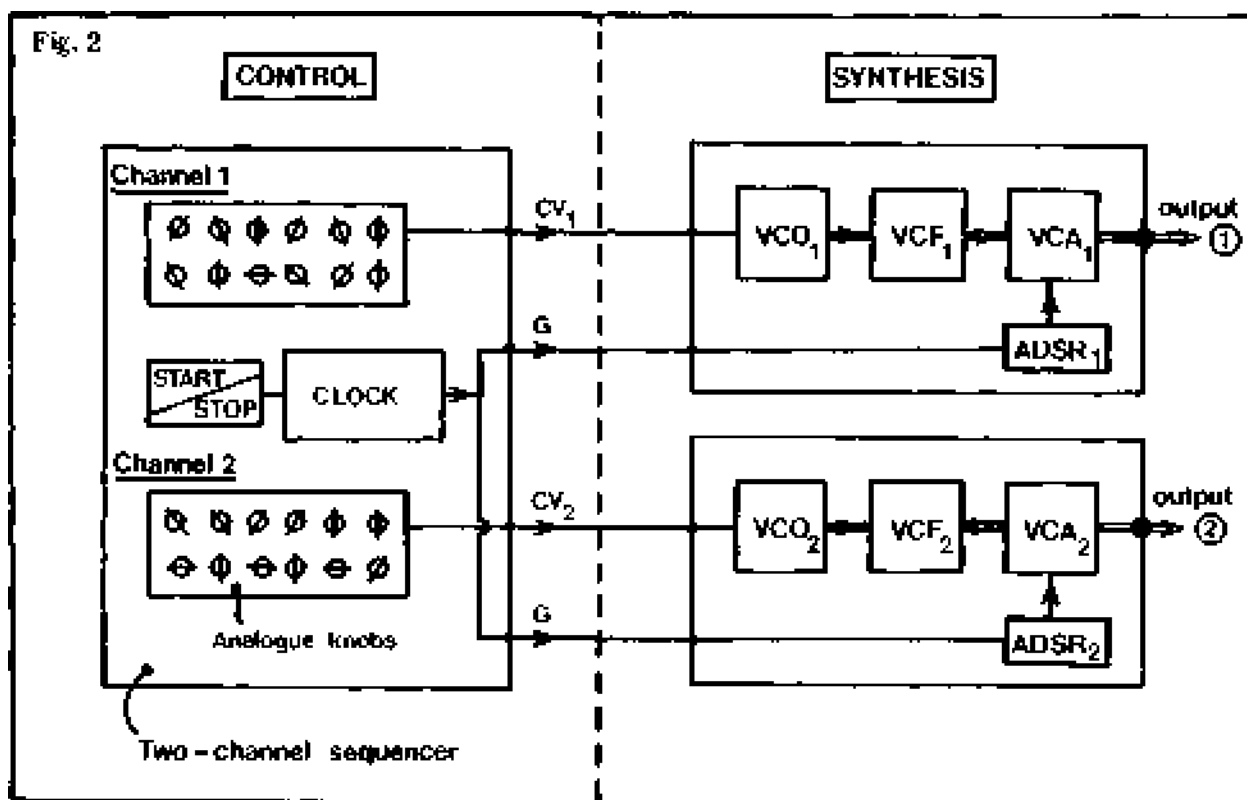
In Fig.1, two independent synthesizers are shown being played by two separate musicians. Each keyboard produces one control voltage and one gate pulse, the former varying the frequency of a VCO and the latter triggering an ADSR module which in turn controls the gain of a VCA. It is easy to imagine that this scheme

could be expanded to any number of players, each playing an independent part, forming in effect a synthesizer band.

A dotted line divides Fig.1 into two parts: to the left, the controlling devices (including the players!) and to the right, the synthesizer modules. As I explained last month, a two channel sequencer can provide two independent control voltages and associated gate pulses; so the left part of Fig.1 could (technically speaking) be replaced by a two-channel sequencer, as shown in Fig.2. The resulting set-up, which could perhaps be regarded as an automated synthesizer, would of course have very limited capabilities. For a start, the number of voice lines (i.e. parts) would necessarily be restricted to the number of channels on the sequencer (usually less than four), whereas a band can contain any number of instrumentalists; but far more serious, the content of each voice line would be severely constrained by the number of steps on the sequencer, which is always relatively small. Although the set-up shown in Fig.2 would be very useful as an aid to performers in the various ways I described in Parts 12 and 13 (for example, in the synthesis of complex rhythm patterns), no such set-up involving conventional sequencers could play even one complete part in a



A synthesizer duo. Each keyboard produces one control voltage (CV) and one gate pulse (G), the former varying the frequency of a voltage-controlled oscillator (VCO) and the latter triggering an ADSR module, the output of which controls the gain of a voltage-controlled amplifier (VCA).



An automated two-channel synthesizer in which the role of the keyboards has been taken over by a sequencer (compare with Fig.1). The control voltages produced by the sequencer (CV1 and CV2) are determined by the settings of the analogue knobs. The gate pulses (G) are derived from the clock, the speed of which determines the duration of each step in the sequence.

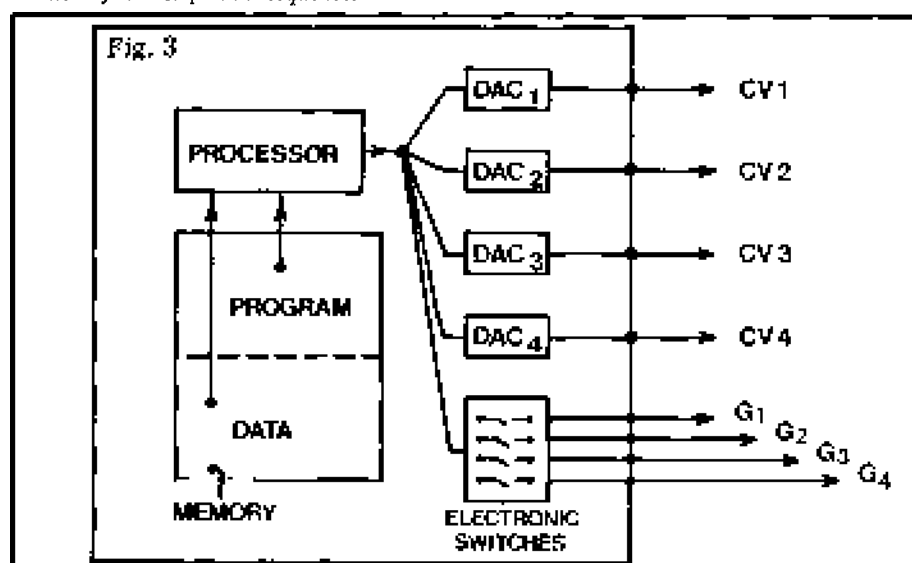
typical jazz-rock number of any reasonable length.

A computer-sequencer

It is possible to overcome the technical limitations of sequencers by designing a special-purpose computer which (like synthesizer keyboards and sequencers) provides control voltages and gate pulses for the synthesizer modules. Such a device, outlined in Fig.3, is in principle capable of providing control voltage sequences of almost any length on a large number of independent channels. In the illustration, a computer-sequencer having four control voltage and gate outputs is shown, which could be used to control four independent synthesizers (i.e. four VCO-VCF-VCA/ADSR chains). So provided it could somehow be told what the control voltage and their relative durations were to be, that is, which notes each synthesizer should play and for how long, this computer-sequencer would in principle be capable of making the synthesizers "perform" a four part composition of any length. (In case all this should seem more fantasy than fact, such a device, called the "Microcomposer", is already manufactured by Roland in Japan; it has eight output channels and is potentially capable of totally automating an eight part arrangement a few minutes long!).

Musical numbers

In a digital computer, all information is stored as numbers in its memory. As shown in Fig.3, part of the memory



Outline of a four-channel computer-sequencer. Data in the computer's memory are fetched out sequentially by the processor, then turned into control voltages (CV1 to CV4) by electronic modules called "digital to analogue converters" (DACs). The gate pulses (G1 to G4) are generated by electronic switches which are turned on and off by the processor.

contains numbers which specify what tasks the computer will perform (i.e. the computer "program"), while another part contains numbers known as "data" which, in the case of a computer-sequencer, determine the control voltages and their durations for every channel.

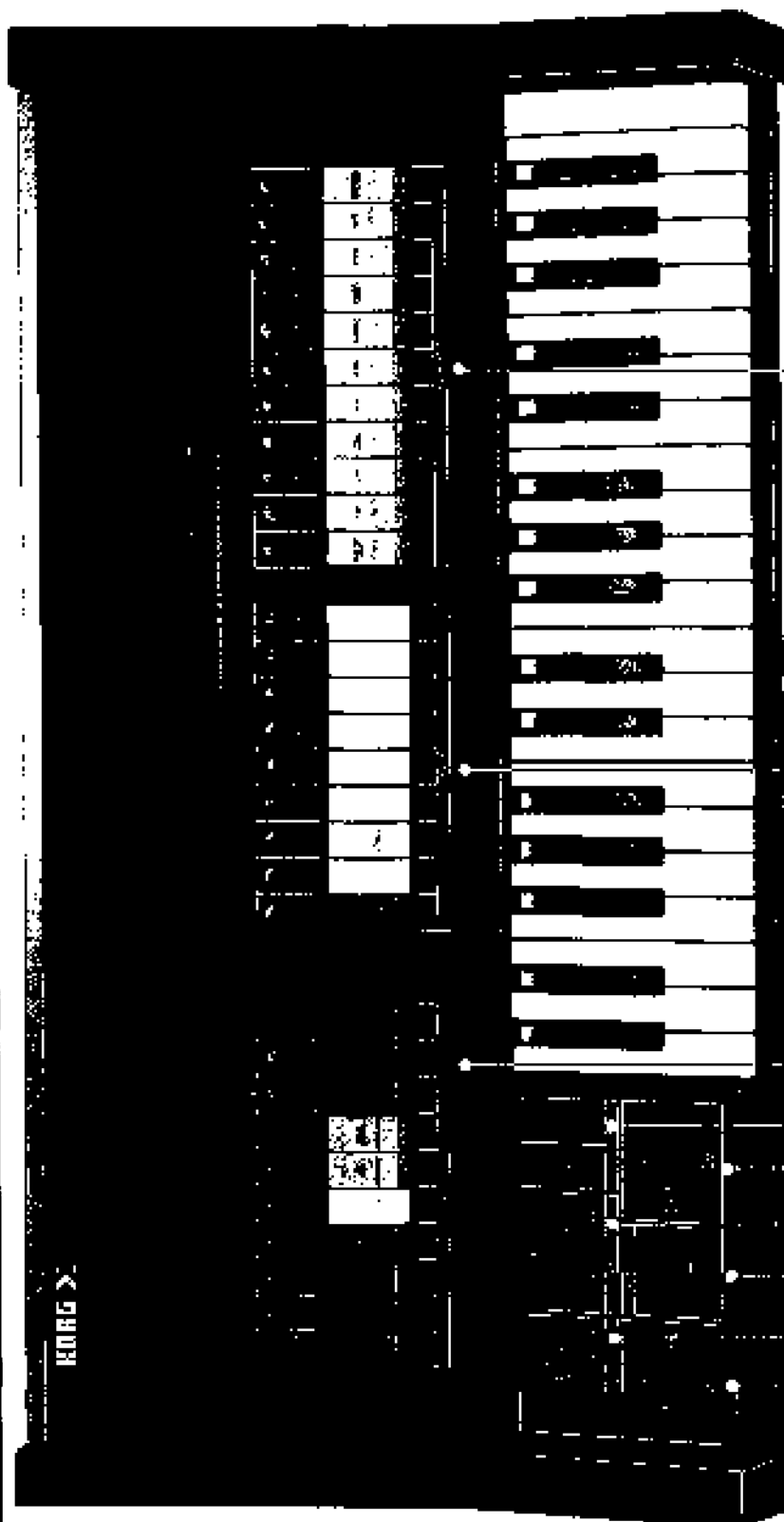
In some systems, the data are fed into the computer memory from a typewriter-style keyboard (see Fig.4 top). To make this kind of computer-controlled synthesizer play, numbers first have to be entered from the typewriter which effectively mean "on channel one, play A for 10 seconds,

then B for one second . . ." and so on. This is very tedious, of course, and the user has to work from a written score. However, once the score has been typed in, all the "performances" are note perfect (assuming there were no typing errors!). Remember too that the voicing of each part has nothing to do with the computer, so the actual sounds the synthesizers produce can be altered at will between, or even during, performances.

Such a system does not have much appeal for a keyboard player but is potentially a very powerful tool for the arranger/composer. However, an

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Understanding Synthesizers

alternative approach is possible, much more appealing to most performers, whereby the computer actually memorizes the events (i.e. key depressions) that occur on a musical keyboard (see Fig.4 bottom). My own 16-channel system uses this approach, as does the new EMS polyphonic synthesizer. The computer in effect "looks at" the keyboard, remembering each key depression as and when it occurs. At the same time as the computer is memorizing the keyboard events, the synthesizer is made to work in the usual way (as far as the player is concerned). After a live performance the "data" can be replayed, the synthesizer producing a new performance under computer control. The computer and synthesizer in effect re-enact the original keyboard performance, but if required with modified sound qualities.

Final remarks

As I have already stressed, the use of a computer as a powerful sequencer

is just one of many possible applications of modern digital electronic technology in the field of sound synthesis. In fact computers can already synthesize music and speech without resort to conventional synthesizer modules. To the pop musician of the future, present-day synthesizers may look as appealing as serpents to Wakeman! But for most of us, now, voltage controlled synthesizers remain fascinating and challenging musical instruments whose potential is still largely unexplored.

A personal note

This series would never have existed but for the personal encouragement and help of several friends. To them, in particular Margaret Simpson who has painstakingly prepared over 70 diagrams, Dick Milner who carefully checked the articles for technical accuracy and Malcolm Green, IM's Market Development Director, who continually provided useful suggestions and guidance, I am particularly

indebted.

Next month I will be starting another series, taking a musical rather than technical view of sound synthesis. In it, I will be explaining step-by-step how any small synthesizer can be used to produce multi-track recordings with only a minimum of keyboard technique and without any special knowledge of musical theory.

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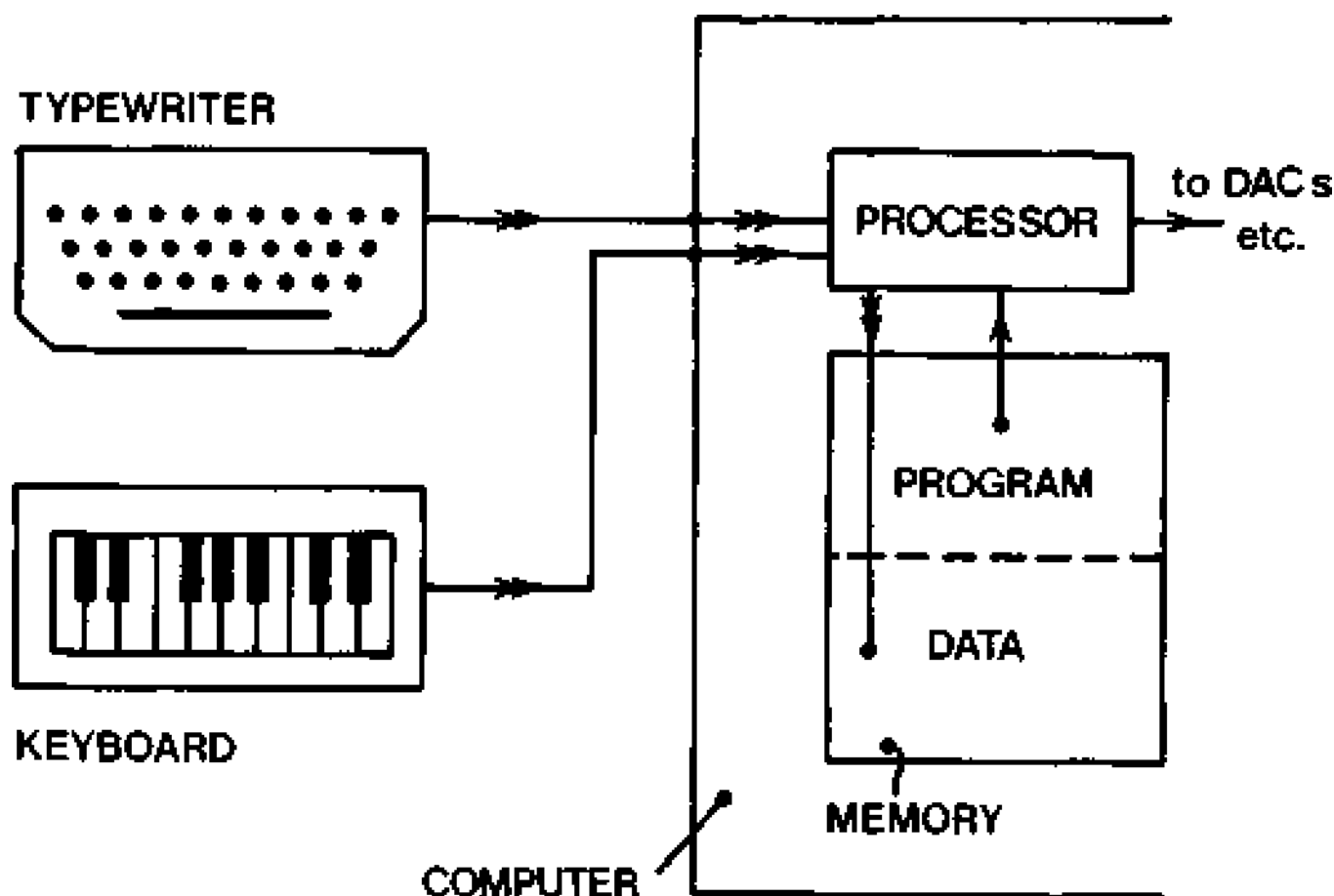
As a special offer to IM readers, the complete *Understanding Synthesizers* series has been compiled as a book which is available at a cost of £4.95 (including VAT and postage) from:

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Tony Horsman

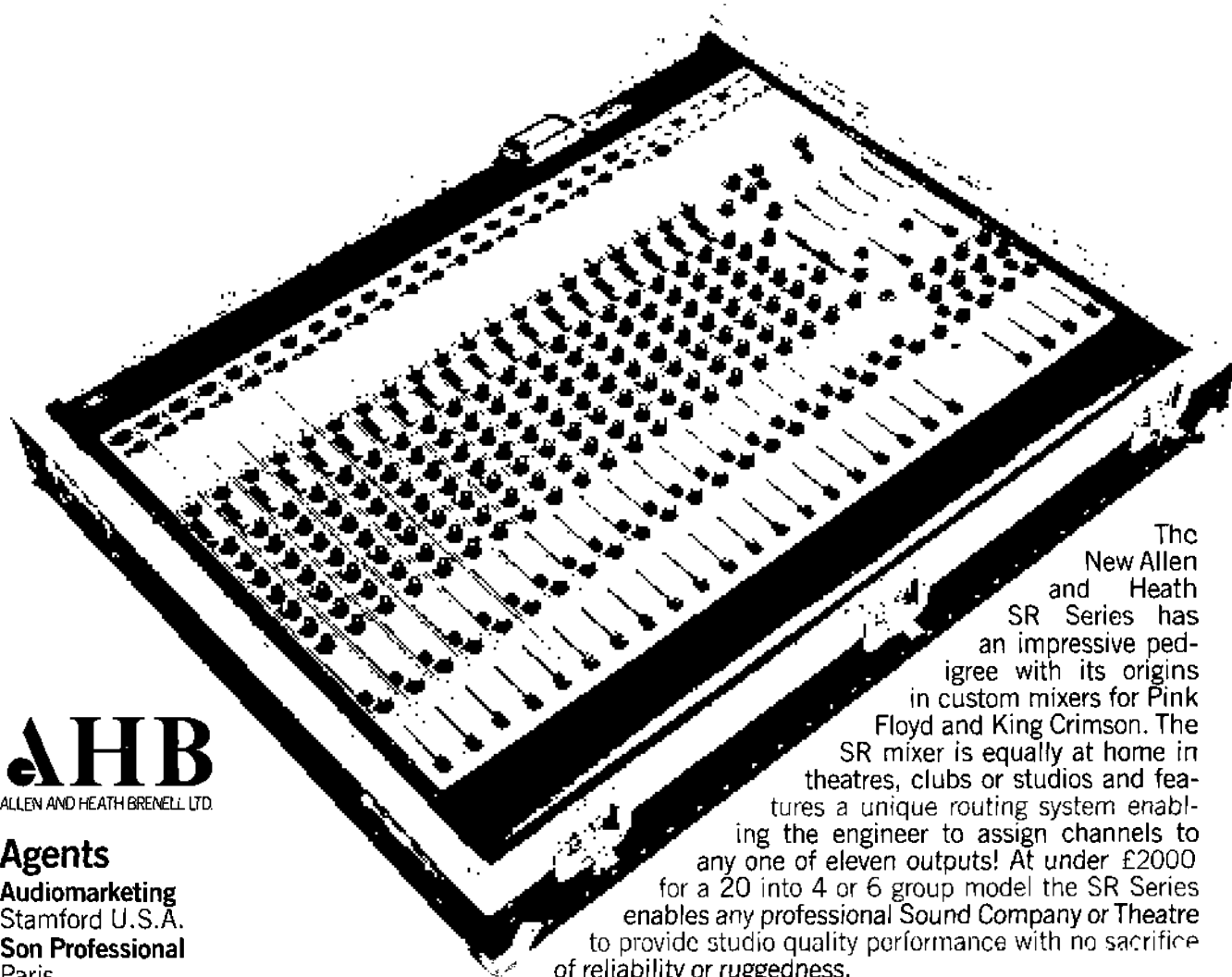
Fig. 4



Two kinds of data input to a computer-sequencer. Information about note pitches and durations can be fed into the computer's memory from a typewriter-style keyboard (top). Alternatively, the computer can obtain information directly from a musical keyboard (bottom) so that live performances can be "memorised" for subsequent re-enactment by the synthesizer.

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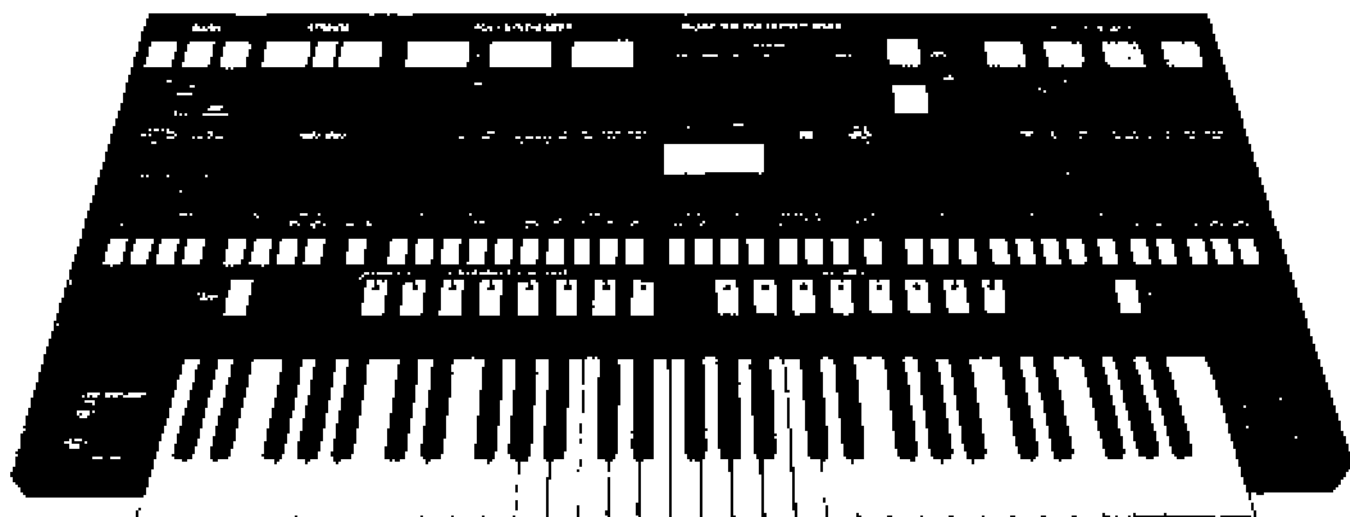
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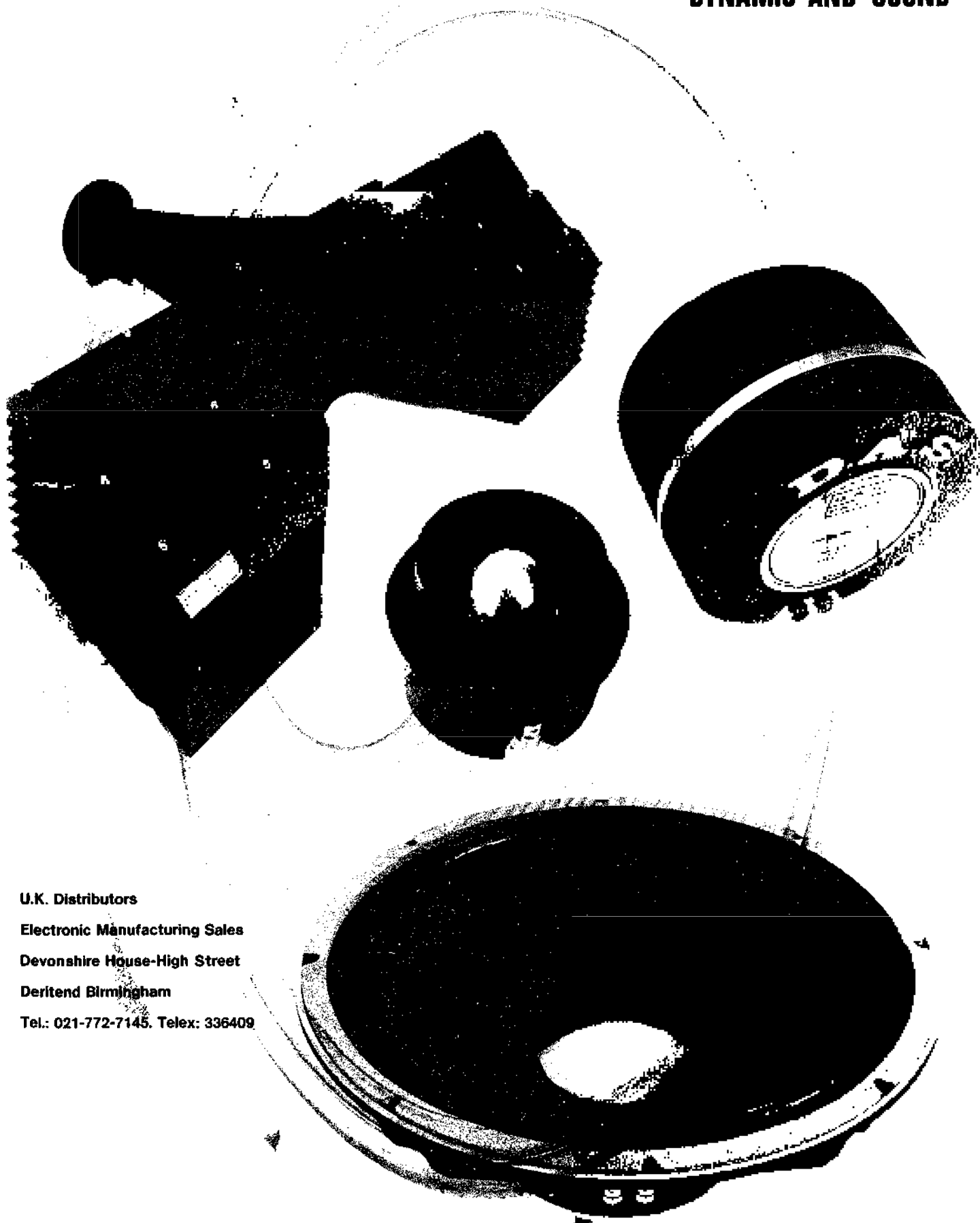


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Brian Shepherd is General Manager of A&R in EMI's Group Repertoire Division. He claims he knew from the age of 13 that he wanted to be an A&R man. At 16, he joined Radio Luxembourg as a tea boy and within four years had worked his way up to be a programme producer. He left to work as a promotion man for CBS, then joined Mercury Records as a staff producer. Then he was involved with forming the Vertigo label, then went on the road with Magna Carta for a year. After another spell with Vertigo, he went to WWA then early in 1974 became International A&R Manager of Capitol International in the States. Last August he joined EMI in London. Alan Holmes began by asking him where today's A&R man finds his acts

There are various sources of talent. We receive about 8,000 tapes a year and each one is carefully logged and listened to. I think that since I've been here we've signed one act that came in via the post. Unfortunately, the songs that come in on those tapes leave a lot to be desired. Often they're lyrically immature, because they come from young kids. The first thing that stands out on a tape are the songs, even before the singer. You can hear the structure of the songs.

The most common way is through personal introduction — someone knows of someone who tips us off and says "check this out". The system here is to check all the gig guides and circle every band that we haven't seen that plays in London. Outside London, I have one guy who does nothing but travel the country getting tip-offs from the sales force, from the regional promotion guys, from local radio stations, etc. He's never here — he's your actual wandering talent scout. It is important to be seen to be on the street. For the number of record companies that there are in this country, the number of people that you spot at gigs is terrible. English record companies seem to wait for the records to walk in through the front door. We're very aggressive in going out looking for acts.

Another area is publishers. We have a major publishing arm, EMI Songs, but we also have good relationships with many publishers. It is very much who you know. Someone might be a house publisher for another record company but might decide that Brian Shepherd is a better bet for the particular project that he is working



on and EMI is more suited to handle that, so it comes in that way.

As regards the type of acts we would be interested in, I have one advantage in that I don't have to deal with MOR. That's a totally separate department and a different area of the market, your Radio Two area hopefully crossing over to Radio One. We are always going for Radio One and if we can pick up anything on Radio Two it's a bonus.

I tend to take more the rock and roll of the business: I cover everything from roots reggae through rock and roll, new wave (basically new bands), disco — everything that's not MOR. It's a broad spectrum, but we're a big record company and we can't afford to specialise.

Would there be a difference between what you would be looking for and what Tony Squire of the EMI Licensed Repertoire Division would be looking for?

Tony is fortunate in that he is far more able to specialise at the moment, being a small new department, working with a very selective bunch of guys. He is able to build and hand-pick his roster. I wasn't able to do that — I inherited EMI, a solid well-defined roster. I have to balance a big roster

and keep it in balance, choosing artists that don't clash with existing ones.

After listening to the tape, a phone call will be made or a letter sent. If it is a band, is it working? You go and have a look at it and if it passes the test and is interesting, we then have the luxury of having our own studio here in the middle of the office, so I can put a band in there and check them out. We'll make a tape and hold on to it for a short while, until we've made our decision. If we decide we like it, we do a deal. If the decision is that we don't like it, then we give them the tape, so at least they end up with the tape to either take somewhere else or keep as a souvenir of the day in EMI Studios.

A band may already have a set of tapes, in which case that part of the process doesn't have to be done. The A&R man involved might decide that he wants to put them in to see how they perform under studio conditions. We've had problems with bands sounding great on stage who can't cut it inside the studio for various reasons. It does give you the opportunity to check the band out at close quarters.

We do not sign by committee. However, if two of the guys go for it, we do the deal, even if I don't hear it.

The A & R Department

BY ALAN HOLMES

I'll only veto the deal on a business level if I think it doesn't make firm business sense. I believe I have experts here and if two of them decide that this particular act is something we should do, or that particular record is a record that we should make, then we'll do it, whether I like it or not.

I have two business affairs advisers here, who are both solicitors. They don't report to me, so they are totally independent. So if we decide to go ahead and negotiate the deal, I give them the terms that I want, the client gives his solicitor the terms that he wants to get and they fight it out. Then you have a contract.

How do you decide on an advance?

We look at a band to see what they need. The manager will come in and say he needs £30,000. We will look at that band and decide how much money we think it is going to cost to put that band in shape so that they can go out on the road — so that the booker can phone through and say, "Listen, you're doing Dingwall's tomorrow night at 11 o'clock. Be there." We will look at the equipment, the PA. As far as we're concerned, that is the advance, along with knowing that the band obviously needs food to work, and perhaps something towards the place where they live. That's it. We usually ask why they were asking for £30,000 when we reckon they need about £12,000, or whatever.

More and more we're asked to make decisions on extra money outside of the contract and you end up in awkward situations with management and artists. It's that part of the business that I don't like. You never get this with top management; they will structure their deal so that they are financed correctly. If it is a fairly large management company, they might have finances of their own or they will budget their artists out so they don't get any inflated ideas of their position or how much money they're making. The young management teams get the advance and blow it, then come back and wonder why you're not going to give them any more. You have to be clever in your negotiations when you're dealing with young bands and young management. You have to understand that they are maybe not completely together when it comes to taking care of financial business. I might stagger the money that is payable, stagger their advances or purposely hold some back and put it in reserve so that I've got it at a later stage for them. One guy I've actually

"Advances are the name of the game now, unfortunately"

sent out to do accountancy at a night school because he couldn't even balance a set of books. Advances are the name of the game now, unfortunately. All you can do is to make your advances realistic.

What would you say would be a realistic points figure for a new act?

There is no norm. Because of the advance situation, you balance the deal up with points and advances. I have sometimes actually offered more points than the manager has asked because it has been a totally recoverable deal. The higher his percentage that I'm recovering from, the more chance I get of picking up the money. The maximum is 16. A "division one" act making hit records with a track record would conceivably get 16 points. A new act would start between five and eight. You wouldn't ever go below five because a solicitor would advise his client not to accept less. I would not be dissatisfied with five, six, seven or eight over a four-year period, escalating one point each year. That's not a bad royalty. The record company is paying a producer as well, so for the company it is maybe eight, nine, ten, eleven if you're paying three points to a producer. The artist sometimes doesn't realise that if the record company is paying the production royalty, it isn't that cheap for us. I very often make inclusive royalty deals because of this; the artist doesn't realise that the production royalty is added on.

Regarding advances for tour support, there are arguments for and against this. It is justified up to a certain extent. I believe it should be what I call a fully recoupable item — I'm loaning you money to go out to be able to perform. I want it to be a recoupable item because, when you make it, you're not about to give me a cut of your profits. I agree with Clive Davis: tour support is 100 per cent recoverable from royalties. More and more people seem to think that the record company is the limitless bank

account in the sky. We're not. We're in a business, like any other business, to make profits for our shareholders, not to give those profits away straight away on some lighting rig or for PA hire, etc.

Then, the big problem — the producer and the songs. Chances are, you might have already found the song because that's most likely why you signed the act in the first place. The problem is the producer: who are you going to get to produce this record? There are half a dozen division one producers available, 30 or 40 division two jobs, and all record companies are vying for the same producers. That is always the problem: can you get the producer you want. Perhaps you want to do it in May and he can't do it until September. You're back down the list again. That has been known to take months. We recently waited seven months to get a particular producer on one record because we knew he was the man. He liked the record and wanted to do it and the artist was willing to wait, so it made sense to wait. The waiting paid off as far as we're concerned — although the record is not out yet.

Having made the master, what happens then?

That's when you start to involve the rest of the record company. It doesn't work out the same with every artist. Sometimes, one involves the rest of the record company at an earlier stage. If it's a band you're signing, we will vibe up the record company before the deal has been done. With the Gang of Four, a lot of people from other areas of the company were checking out the band once we had decided to become involved. Chris Briggs saw them before Christmas and the interest spread from there. Label manager, promotion guys, press people, they all checked out the Gang of Four.

Our weekly gig guide of those acts that are playing in town that we think people would be interested in seeing in



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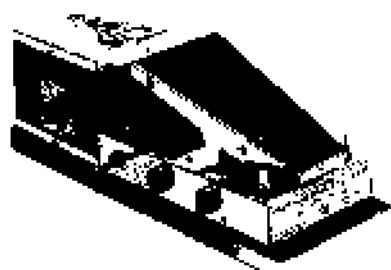
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PRO PHASER (PFA)

Treadle angle sets the phasing rate. Manual phasing like a wah with the automatic off.

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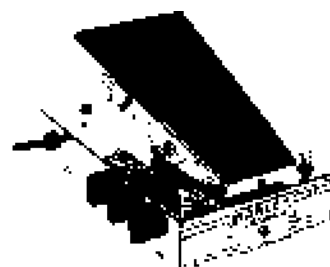
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the company, that goes to every person in the company. It gives the name of the band, the venue, the time, whether or not we think it's a band that we're genuinely interested in or we just think it's something that they ought to have a look at.

If you are making a pop/disco type of record, it is sometimes dangerous to involve people too early, people who can't imagine what the finished product is going to sound like. If they hear a piano, bass and drums demo they go away thinking that they've heard the biggest load of shit and you said it was going to sound fantastic. That creates a bit of a negative vibe so in those cases, you make the record, then wander around with it to your promotion people and marketing people and explain that this is the record and we've done it. It's a committed record and you hope that they agree with you.

Each of the labels here has regular weekly label meetings. We get together with the label managers and general managers of the label. We have a man who is independent of the marketing and A&R area who co-ordinates to make sure that these activities take place, that I don't sit on a record for too long if he knows I've got it. *Would you say you wouldn't be so keen on signing an unmanaged act?*

It depends. I have signed unmanaged acts. Sometimes managers can be a help, other times they can be a hindrance to you. If you are developing an act at a very early stage, sometimes you don't need that manager there looking for his 15 or 20 per cent. Bands must have a manager. If they don't have one, we help. Our artist development department might take over that role for a month or two while we look for a manager for them. If it's a solo artist, maybe not having a manager is an advantage. That way, I can get more control of the artist. In a company of this size, if I have a female solo artist with no back-up band, and I want to organise a radio promotion tour, I have a whole regional radio set-up I can use. If I need to do press for her, we have a whole press department who can organise everything. They'll give her her itinerary and she can do it. We have the artist development boys who can guide or protect her if she needs it. The only independent person that I insist that she should have would be a

lawyer, for contractual reasons. As the whole thing starts to snowball, then I might want a manager to step in. Then I might also have a record that is popping away and I am going to be able to get a better manager and will be able to attract the right kind of manager.

We then start to step back a bit, our job basically being done. The last part of our job is to make sure that there is a follow-through of information and that the label manager and general manager of the label have all the information that is needed.

There are 13 of us in this A&R department. I am the general manager, we have four domestic A&R men, one talent scout, an international A&R manager and myself, who are the main team, backed up by three people in artist development. Also, an international co-ordinator and about five secretaries. The A&R guys cover everything from reggae, disco, funk, new wave, rock and roll to what I call the commercial pop area. Each one of us has our favourite kind of music — and we all appreciate each other's work. We wouldn't be a team if we didn't. We do tend to specialise. I am starting to promote an in-house philosophy, which is different from some other major record companies who are building satellite companies outside as they don't have A&R departments. We do a lot of in-house work and in-house production, which is not often done. It went out of fashion back in the late Sixties, early Seventies, when the independent producer came along. A lot of the house producers left and formed independent companies, basically because in those days the record companies wouldn't give them a fair shake.

Today, we've learned from those mistakes and have constructed different situations. Maybe one-third of our work that's coming out of here now is coming out of in-house situations. Where do the next set of independent producers come from? Some will come from sound engineers in the studios, but not all of them. The best producers, I think, are very often A&R men and not engineers. The A&R man is trained to listen to material, songs, trained in song structure, whereas engineers are trained in sound. You very often get amazing technically produced records — but where are the songs? An A&R man very often

produces an album with a hit because he's listening for that song. If he knows his engineers, he picks one that's going to help him. Having delivered the record and followed it through, we obviously keep a close eye on it, with a regular series of meetings. We're always in control of the record. We have very qualified marketing, promotion and press people to take it from there.

What would you advise to an aspiring young band who were attempting to present themselves to a record company?

If it's an aspiring young band that has some money or access to a studio, the best thing to do is to, obviously, make a tape. Speaking only for this company, it will be heard — and not just three seconds of it. The best thing is to identify an A&R man. Make an appointment or write a letter. When I was a musician we tried to find out who was into what and actually studied who signed whom. I know very few bands do that these days. We waited for the A&R man who we felt we would be happy with, he was the guy who was signing the kind of acts that we were. He turned us down, but he put us on the right rails. I think you stand more of a chance if you can do it that way — identify your A&R man and go for him. You mustn't give up. Somewhere down the line it will happen.

If they can't do that but they can gig, they should get in touch and pester the life out of us to come and have a look. If it's a band that's starting to make some noise, usually we hear about it. The amount of feedback that we get is amazing from the regional people — a great source is local radio. We sponsor the Melody Maker Rock and Folk Contest so we get to see a lot of things at very early stages. There was an act that won one of the heats recently and we're actively pursuing them at the moment.

The tape is still the best way, it's a good investment. It doesn't have to be of fantastic quality — a professional A&R man or a professional booker can very often see through a demo and if it's clearly marked as a demo no-one is going to take it seriously as a finished piece of work. It will be considered as a demo. Above all, keep trying. Call again and again and write back if you don't get a reply within a month. Nobody ever got anywhere without making an effort.

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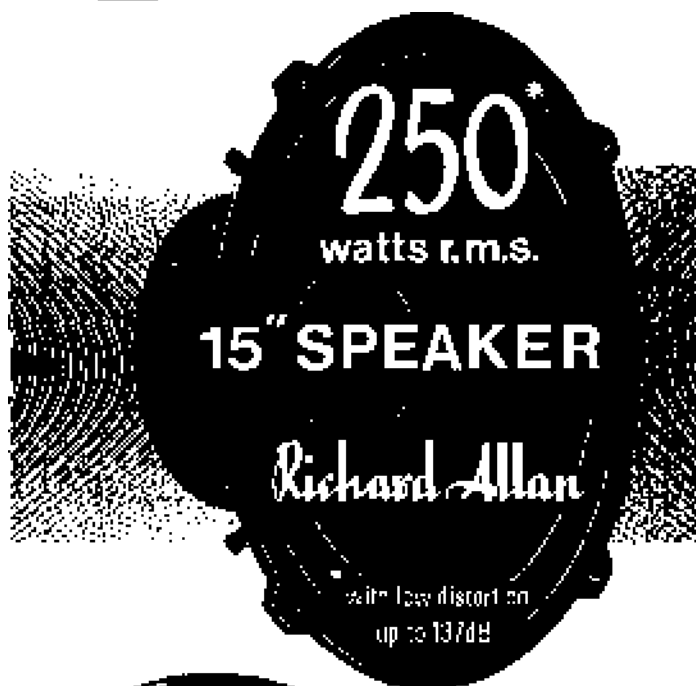
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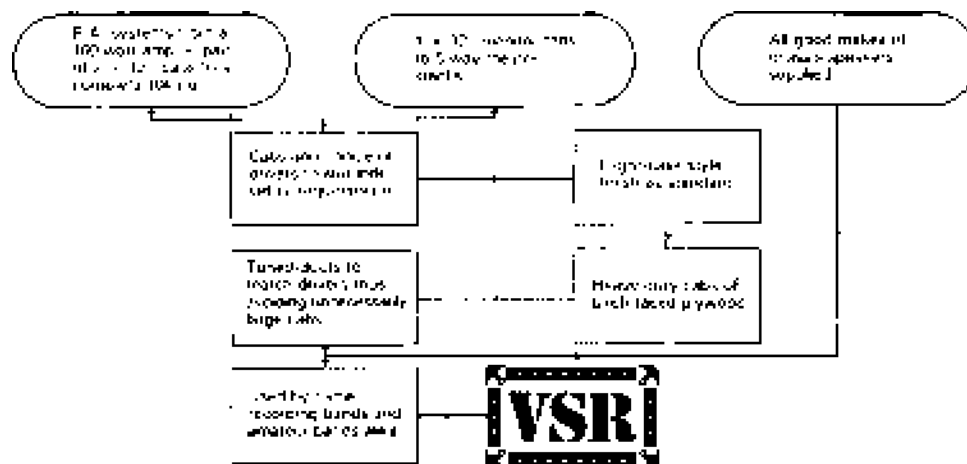
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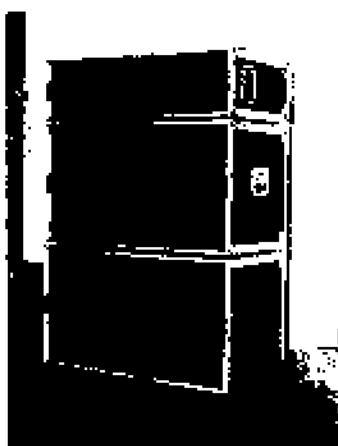
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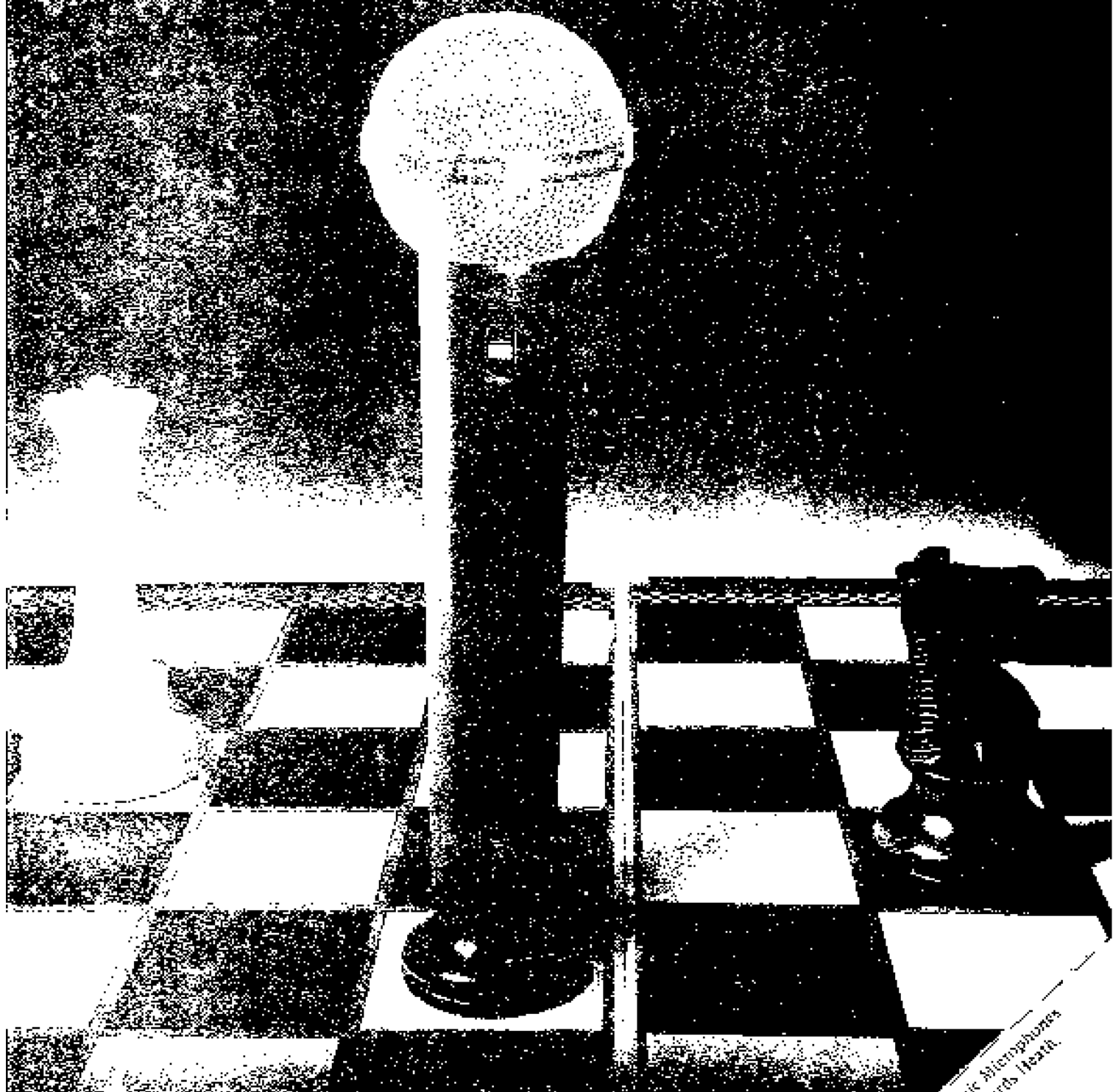
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It was a week of firsts. To CBS/Arbiter it was the very original and fresh idea of taking 20 of its most prestigious dealers (plus guests) to the Fender/Rogers/Rhodes factory in Fullerton, California. As Ivor Arbiter (Chairman and Managing Director of CBS/Arbiter) said: "CBS has a long history of being first. With this trip I think we'll set yet another precedent." To many of the people on the trip it was their first voyage to America, their first major flight and to Chris Carton (Professional Percussion Ltd.) his first plane flight.

Nervous excitement probably best sums up the mood of the entourage as it made its way across the breadth of America to what was hoped, the sunny climes of California. But, as luck would have it, when the bus rolled up to the mock-Tudor Sheraton Palace Hotel in Anaheim, hazy skies obscured the state's golden sun (it's as if someone knew a plane load of Britons were on their way). But, with an uncanny amount of energy after a 12 hour flight, everyone took optimum advantage of their free day by heading for Laguna Beach, Knotts Berry Farm and Universal Studios.

A pleasant dinner at the Sheraton that evening brought everything together as Roger Carvin (National Sales Manager F/R/R) laid out the week ahead with a great tongue-in-

cheek routine and Martin Fredman introduced all of the dealers, connecting familiar faces with names. The tone was set for an enjoyable, working week.

The Fender factory is impressive from first sight. Huge, well laid out amidst nicely manicured lawns, it immediately struck everyone with a certain respect. In the main conference room a short recap of the day's itinerary lead to a break of the group into four parts for a more intimate tour through the factory's bass and



Ivor Arbiter
fiddles the keys of a
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Mr. & Mrs. Ivor Arbiter with Mr. & Mrs. Ross Brown at the opening cocktail party and dinner.



Tom O'Donnell explains a feature of the electric piano production.



Harold Rhodes, creator of the legendary
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The UK distributors at the beginnings of their factory tour.



The group at the end of their tour.



Greg Perry explains the Rhodes production line.

guitar production lines. It was perfect. Dealers could ask a lot of questions and, importantly, get the right answers. As Ed Jones (Chappell) pointed out, "An amazing amount of hand work goes into each instrument."

Everyone returned to the conference room a bit awed at the size and methods of production. From the final inspection, where the instrument

is set up and played, back through to the woodwork shop, many myths were dispelled and things learned.

Vince Basse (Product Specialists - Fender) gave the first product seminar on guitars. Fielding questions and giving those "hard to come by" professional answers, Vince went through every instrument and explained more about pickups than most need to know. Dinner that night provided a Hawaiian show, a lot of exotic drinks and much discussion about the manufacturers and their hospitality.

The second day's visit to the F/R/R plant echoed the first in style but varied in product. Tours were led through the amplifier and, Rhodes and Rogers production lines. Again the precision in production and intensive quality checks were impressive. A seminar lead by Greg Perry (Product Manager - Rogers) proved lively and instructive. As Greg pointed out "Input is very important at Fender, Rogers, Rhodes"; the dealers enthusiastically supplied their ideas and knowledge about the product line.

Lunch in the F/R/R cafeteria was followed by a seminar put on by one of the stalwarts of the company, Harold Rhodes. So much into his keyboards, he gave one of the most instructive of the seminars - explaining adjustment and repair methods to the



On the Fender production line.

Fender Rhodes as only he can. Harold was followed by Dick Fevert (Director of Marketing of Squier Strings), who introduced a new bass string line, and Tom Adcock gave an instructive seminar on Gemeinhardt flutes. The evening was capped off by a pleasant dinner at the Sheraton followed by the fantastic music of the Roy Burns Quartet.

Work was over. Our gracious hosts had made everything come off like clockwork (Pat Ray - Office Manager - thank you). Vern Eszlinger (International Marketing Director), Ross Brown (Senior Vice President of CBS Musical Instruments) and Ivor Arbiter all agreed: the trip was well worth the effort and amazingly successful.

To the dealers the focal point then changed. Instead of the F/R/R factory it was Disneyland, instead of Fullerton it was Hollywood. It was the ideal combination of work and fun - not necessarily in that order! After the last dinner, where the group was also treated to a marvellous performance of Neil Simon's "The Sunshine Boys", Kathy Fisher summed it up for the entire entourage: "It's been just great, really marvellous."

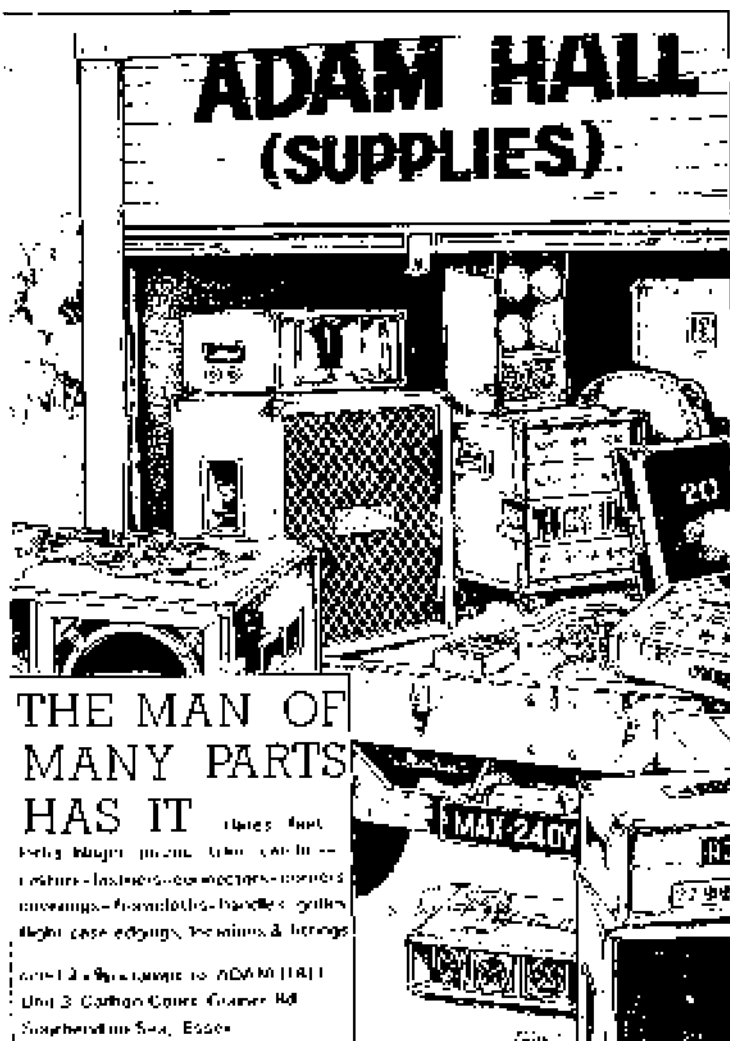
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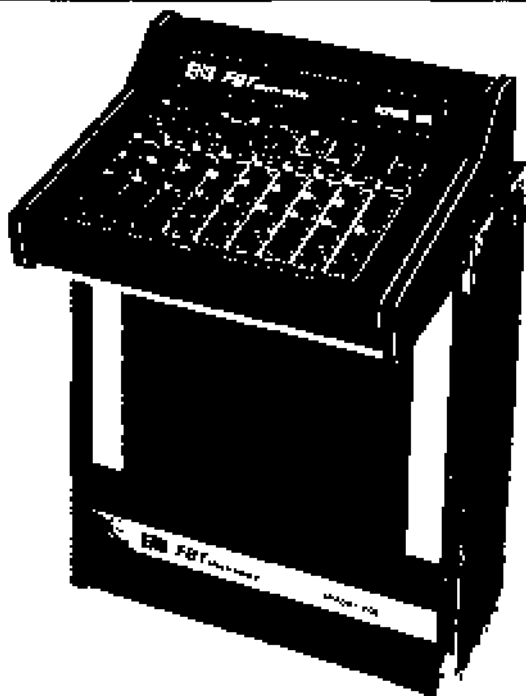
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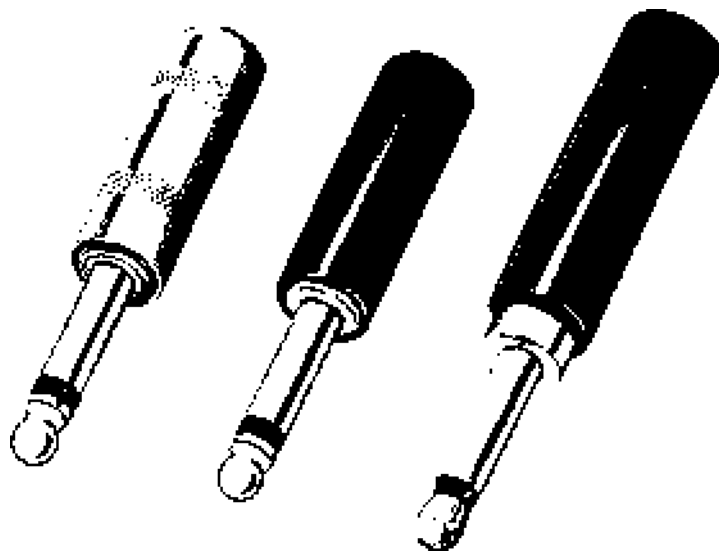
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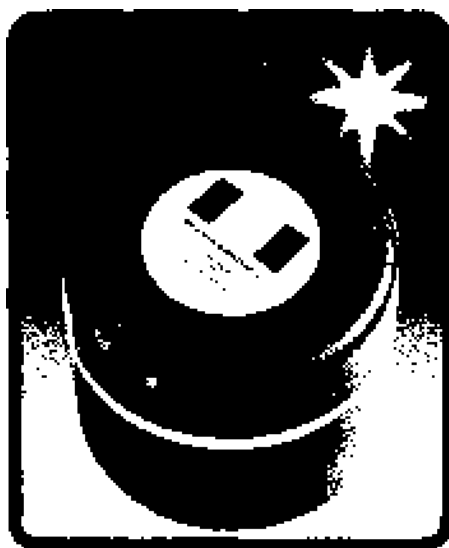
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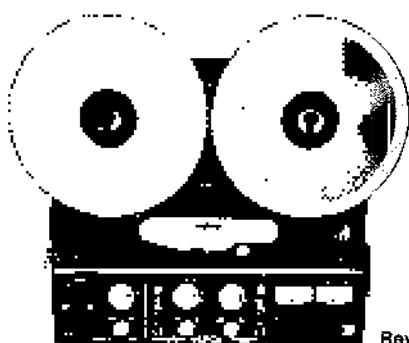
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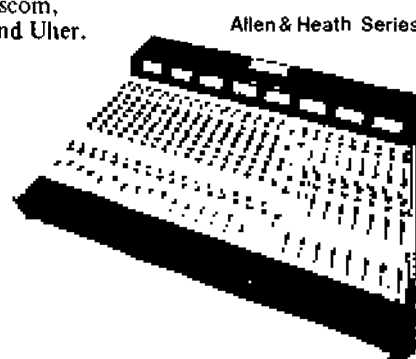
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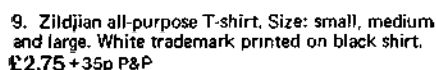
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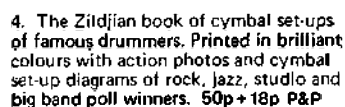
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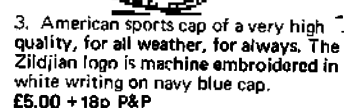
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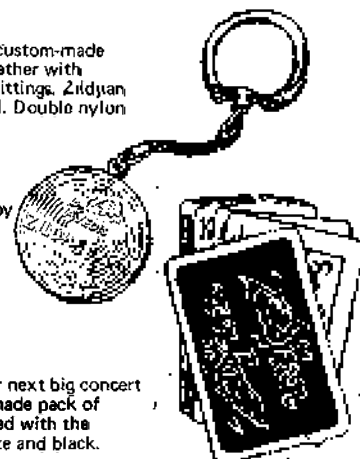
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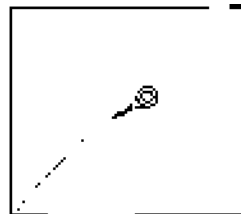
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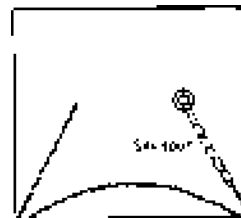
Usual method



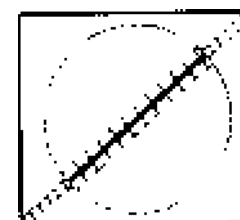
Sounder method



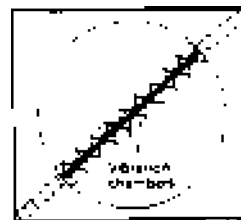
Usual method



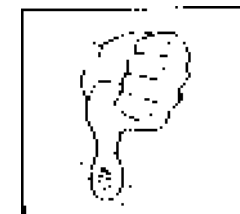
Sounder method



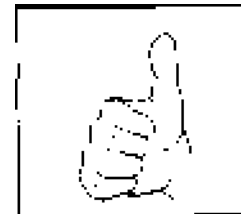
Usual method



Sounder method



Usual result



Sounder result

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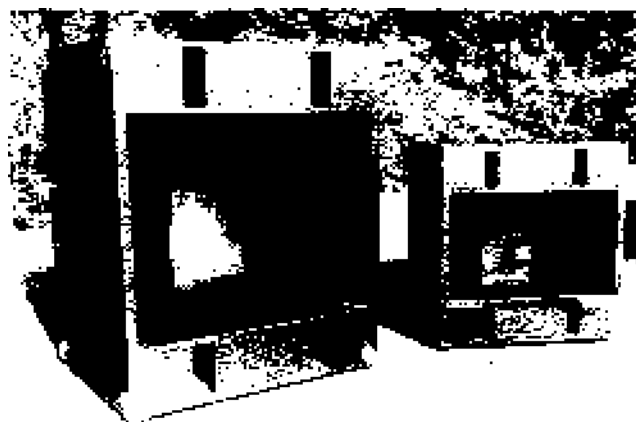
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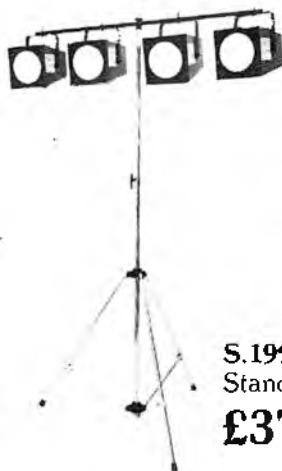
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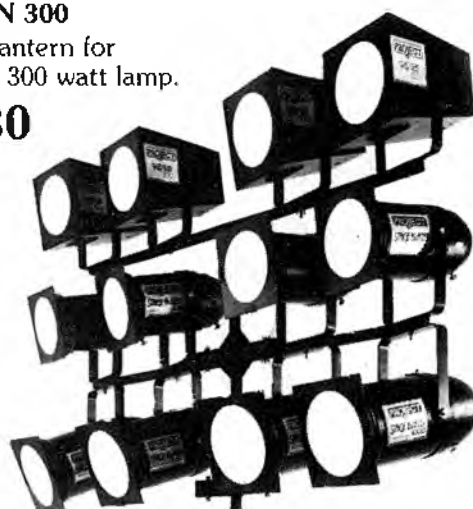
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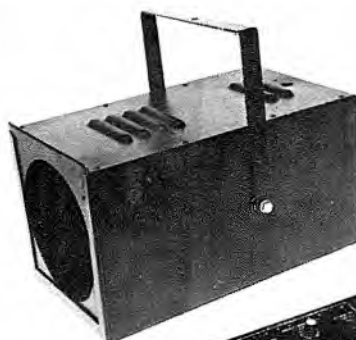
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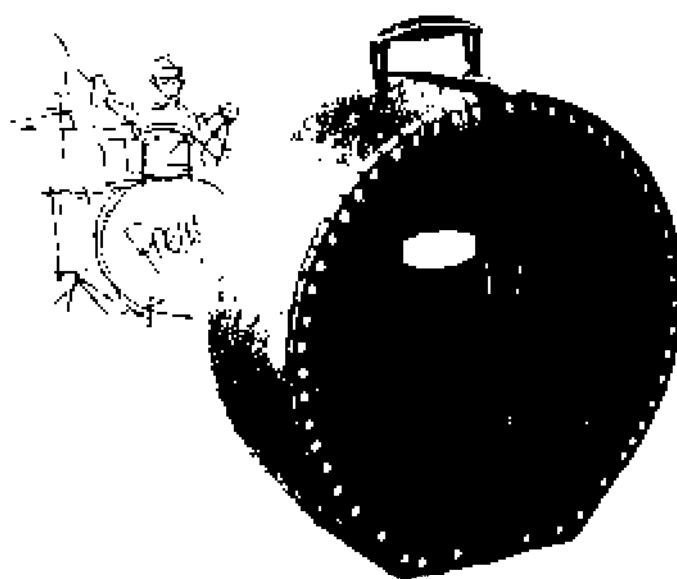
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POLICING THE AIRWAVES

Grouchy and sceptical, I sat in a corner nursing a beer waiting for a band called Police. Great. Someone I trusted had ordered me to see them before they went back to England, and this act, I decided, would be the barometer of any future trust. Anyway, out come these three guys — two with bleach blond short hair and one who almost looked blond by birth. I figured they'd probably do punk versions of Beach Boys tunes. They tuned up (!?) and jumped into a typically super fast rocker (*Truth Hits Everybody*) as if they were late for their next gig.

But wait. This was different. There was a certain sprightliness in the air. They played hard and fast but not as if their only objective was to dismember the audience with sound waves. And their singer (bass player) had a good voice. Maybe even a great voice. I wasn't ready for what came next.

They followed with a tune called *I Can't Stand Losing You*, which began with a few guitar power chords through an Echoplex, some furious drumming, dove into a quick reggae verse, a powerhouse rock verse and a devastating chorus. And then back again. Sort of like the Wailers meet the early Kinks meet the Who. Great tune. The rest of the set was no less impressive. They did *Roxanne*, *So Lonely* and about six others. I even stayed for the second show.

Four months later, and two months after the release of their first American album (on A&M) titled *Outlandos d'Amour*, before they do their official New York showcase at the Bottom Line. That night, in a club called The Decade, one of the locals in the audience says to his friend before the show, "This should be a good test for this band. If they can make it in a working class town like Pittsburgh, they can make it anywhere."

After the show, one thing was obvious: The Police can make it anywhere.

The Police are Sting (real name Gordon Sumners, age 26), on bass and lead vocals, drummer Stewart Copeland, 25 and guitarist Andy Summers, 28. They're not you typical punk band. In fact, they're not a punk band at all. They share the punk ethic of Hard and Fast, yet add to that base infectiously melodic songs, strong expressive vocals, musicianship (Cope-



Sting

land and Sting are former jazz players and Summers played guitar for Kevin Coyne and Kevin Ayers before Police) and finesse. They also shoot holes in most of their tunes allowing their material (and their audiences) to breathe. Most of these holes are filled with reggae breaks which, when fused with catchy verses and/or choruses have enabled the Police to come up with a new approach to rock and roll. The basic watchword of the band is "less is more" and in their case, that certainly is true.

Fast picking up new fans (*Outlandos d'Amour* will most likely go gold), the Police are sometimes hard pressed to explain their success. "To tell you the truth," says Stewart Copeland after the Pittsburgh gig, "we just play. But we do get ridiculous responses everywhere. Every single city we play in everybody goes crazy! We wonder if it's the 'Have a nice day' syndrome where everybody just naturally speaks in superlatives.

"So we try and figure out what the reason is, and I suppose there are two things that emerge: one is the energy, but our energy is a little more sprightly, and the other thing is the

**A.U.S.
view
of a
rising
British
band**



rhythms. Reggae has had a lot of effect on us but we don't exactly play reggae licks. It's kind of like honky reggae." He stops to ponder his new phrase and realizes he forgot something. "I almost didn't mention the songs, we take the songs so much for granted. That's the number one ingredient."

It was Stewart Copeland who formed the Police two years ago but it is Sting, a comparatively quiet, ex-schoolteacher from Newcastle whose musical version is the guiding force behind the band. Copeland is the only American in the group but spent all but three of his years living in England and Europe as the son of a Service Airman. In the mid-Seventies he drummed for Curved Air but stal albums and huge overheads forced him to re-evaluate the road to Nirvana. Bitten by the punk ethic, Copeland ran across Sting in a jazz group. In no time, he talked him into leaving.

Sting relates the story of the

following morning over an omelet. He begins by talking about a jazz band he had prior to the one Copeland discovered him in. "I played bass for the Newcastle Big Band which was made up of lots of old guys," he says fondly. "I was the youngest member of the group. We used to get huge crowds on Sundays in big bars pissed out of their heads. Out of that, the piano player, who was about my age, and I formed a small jazz-rock group called Last Exit. We copied a lot (Chick Corea, Billy Cobham). We used to play *Hymn of the Seventh Galaxy* note for note. Then I met Stewart and we decided to form the Police. The next week we were practicing. He had written five or six songs inspired by new wave. At first I thought, 'It's crap. It's only got three chords in it — F, A and D, (laughs).

"I got into it," he explains, gulping coffee, "by seeing a new wave audience." Copeland describes English audiences as being "half the show. They bounce off each other, strangle each other. It's like a bar-room brawl."

The Police played their early gigs a year and half ago at the Roxy in London and the other punk clubs in town. They went through one guitarist who was given his walking papers, settled on Andy Summers and began to put the pieces together. All three of them.

First, Sting started writing songs, which the band realized were so good, Stewart says, "We couldn't not do them." One, right now, is a bona fide smash in America. *Roxanne* is her name. "For *Roxanne*, Sting just had the chords and some words. I liked the chords and we started working on it. We didn't quite know what to do with it so we tried a sort of reggae approach and that was really the genesis of our style. Two weeks later, he came in with *I Can't Stand Losing You* which was immediate. *So Lonely* (the other partial reggae tune) was written before *Roxanne* but we weren't playing it with quite as much reggae feel. Once we got into *Roxanne* and *Can't Stand . . .* we re-arranged it. We've got a great new one Sting also wrote called *The Bed's Too Big Without You*. It's a killer reggae track."

While the songs were spewing forth from Sting, the business end began to be taken care of by Stewart's older brother, Miles Copeland, a veteran of many tours as road manager



Stewart Copeland

etc. for bands like Wishbone Ash, Climax Blues Band and Renaissance. A&M in England released their first album last autumn and promptly their first two singles were banned by the BBC for reasons which stagger the mind; *Roxanne* because it's about a hooker and *Can't Stand Losing You* because it mentions suicide. For once an English band has had to go to America to make it. They will return to England after this tour as stars. They can't wait to see the reaction. Much has been written about being banned on the BBC being the best thing to happen to a band, but without BBC airplay, *Roxanne* went to 42 and died. It was later re-released and made number 12.

Censorship in England notwithstanding, the Police were having an incredible amount of fun in America. "We're having an amazing time cruising across the country," says Andy Summers. "It's great right now because we're really in the embryo stage and everything's happening. Every day it seems to improve for us. And we're getting better with each gig."

They even played to three people

not too long ago and actually enjoyed it. How many bands could do that? It was, in fact, one of the highpoints of the tour.

"That was in Poughkeepsie and it was one of our best shows," Summers laughs. "There were only three people in the audience and a bartender but for some reason our spirits were really up. We had just come over from England and we were determined to do well. There was a pioneering spirit in the air and it was amazing! We did three encores and after the show we introduced the audience to each other. The guy who promoted the show flipped out over the band. Even though he lost \$200, he called our agent and demanded to have us back! We'll always remember that gig."

Sting expands on his own theory of performing. "I spent a long time learning to play my instrument and singing," he offers, "but the one thing which is probably more important than those two put together is the ability to have a rapport with the ►►

Photographie Steve Weitzman

audience, to let them have as good a time as possible. The more people who go away from a gig talking about you, the better it does you."

The Police are on the way to becoming one of the great ones. They are as inspirational a live act as Bruce Springsteen or The Clash. And because of the nature of the band — paring down to the barest of necessities and experimenting with song styles and new rhythms — they might be the most ideal rock band ever assembled. Amen, and pass the salt.

Sting does consider them ideal, as he ponders the Police as an entity. "For all of us," he says, "it's a perfect vehicle for everything we want to do. We don't just see it as a three-piece group that plays rock and roll. It doesn't have boundaries or limitations. Next year we might be doing something totally different. We're not going to play the same thing year in and year out. There's a lot of different music in my brain."

Songs for instance. Great songs. He usually starts with a title as a hook line, he says, "like *Born in the Fifties*. I'll work backwards and build a song around a hook, rather than start from A and work to Z. A genius would do that. Occasionally, the magic happens, which is totally inexplicable, and you get a great song. I think, blowing my own trumpet, that *Roxanne* is a great song. It's a really strange feeling when that happens."

He could always write a *Roxanne* part two. I suggest *Roxanne Got Married*. "Milk it for all it's worth," I kid.

He cringes. "No, please . . ." He starts to laugh. "I'm saying no and I'm thinking (scratches his head), *Roxanne Got Married* . . . It might be more appropriate to write *Roxanne Got The Clap*."

Apart from the songs, the energy and the rhythms which Stewart Copeland had mentioned as the keys to the Police, another major factor is Sting's singing ability. His voice, which can sound anywhere from Jon Anderson to Rod Stewart depending on what part of the tour you hear him on, is in fact, one of the first things you notice about the band. It leads you into the songs like a magnet drawing pins. He also intertwines his vocals around his bass playing (Jack Bruce and Paul McCartney come to mind) in a carefully thought out manner. He lists his early singing influences as



Andy Summers

Ella Fitzgerald, Cleo Laine and Joni Mitchell. Not your typical punk influences. Sting has even been known to sing a brief *Beale St. Blues* or *Basin St. Blues* in the past. He wraps up breakfast with a dissertation.

"What I actually have developed," he offers, "is a unified style of singing and playing in that in order to make space for one, you have to refine the other. There's a lot of holes in my bass playing, basically, because you have to sing in the holes, but also it sounds quite groovy if you leave a lot of holes and spaces. Space is music as much as sound is. That kind of refining process is one of necessity because you can't go playing amazing Jaco Pastorius bass lines and also contrapuntal voice. It doesn't happen unless you're born with an amazing gift and even if you had it, it wouldn't sound that good. So you have to work around the problem of doing two things at once. I think in my case I've succeeded in a style of bass playing and singing — not that I'm a great bass player or singer — but the two together make it sort of appealing. I'm very proud of that."

In the van headed for Cleveland,

Stewart uses the back seat as a forum to explain why English punk as a musical phenomenon didn't make it in America as quickly as it did in England.

"In those days," he says, referring to a couple of years ago, "there was a very reactionary attitude toward the way we looked and the things we were saying about music. Our attitudes in general were considered part of some thing that was unpopular at the time — the dreaded new wave. But now it turns out a lot of people are waking up after all. All it's taking is for a few people to explain what it's all about. When the Sex Pistols came over, they didn't explain what it was all about because the language they used and what they said when they got the media attention were messages that didn't apply in America. Their message was about social disruption and so on which there's no need for in America. The American youth is well satisfied and all the things Johnny Rotten said didn't apply here. Musically, what

they accomplished in England, America is definitely ready for it."

Rock and roll once again seems to have as many bands writing pop tunes with an irresistible juvenile abandon as it did during the Kinks' heyday, around 1965 . . . a band which, by the way, was one of the favorites of the Police.

"The Kinks' first records came out, which were the only ones I liked," Copeland says, "when I was 11 or 12. It's interesting to look at the things that keep coming back whenever a new generation breaks off and sets up a new set of ideals. The same ingredients are there every time. One of them is rough edges showing. It's more real. It's not like you're supposed to play out of tune; it's just that when you get the real thing, it's not perfect."

What are the rough edges of the Police? The question takes him by surprise.

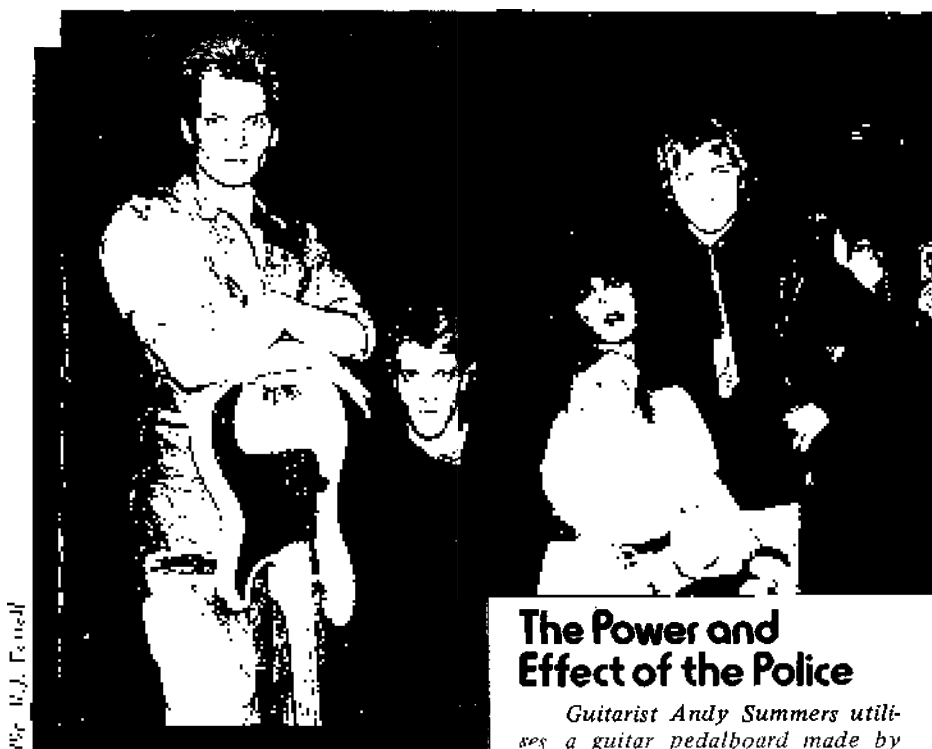
"God knows!" he smiles. "Pretty tight band, actually. I don't think there are any rough edges. (Laughing) We're getting too goddam slick if you ask me!"

For those interested in re-creating *Roxanne* et al in their living room or neighborhood club, Stewart Copeland regularly abuses Tama drums. "I've got one of the first kits they ever made. I got the huge Tama kit with 14 drums years ago when I was with Curved Air and they were just amazing drums, better than anything I'd ever used. I remember the first gig I used them, our PA guy said, 'Stewart, burn your Ludwig kit.' He pleaded with me. In England, I'm considered an expert on drums. I even write drum reviews!"

Andy Summers has a 1963 custom Fender Telecaster. "It has a little preamp built in the back which I sometimes use for lead guitar as it gives extra sustain. It's the one guitar I'd never be able to replace." He's had it for six years.

Sting plays a Fender Precision bass. "I bought it last November at Manny's," he says. "We arrived in New York that day, had a gig at CBGB's that night and I fell in love with this bass. I took it to the gig and it was standing at the side when I broke a string on my Fender Jazz bass — a normal fretted bass — and gleefully picked up my new bass and haven't put it down since." He had played his other one for nine years.

In the front seat of the van, Sting is now oblivious to a bad Barry Manilow



By H.J. Finkel

Police and friend

song emanating from the radio. In the back seat, Stewart can't stand any more. "Can't you find anything better than that?" he yells. Sting searches the dial. He discovers WMMS just as they put the needle to *Roxanne*.

"SHIT!" Sting says, amazed at his timing.

"Meet with your approval?" I couldn't help asking Stewart.

"It'll do," he grinned.

In the front, Sting mouthed the lyrics and played an imaginary bass. Stewart couldn't help but drum along. What could be more appropriate? The Police rolling into Cleveland for a gig, hearing *Roxanne* on the radio . . .

It made me think of something Sting had said the day before concerning perseverance. "We went through hard times," he said of their first year together, "but always in the back of our mind — God knows why — we were confident. I see other bands in that position and I think, 'God, what you're going to have to go through! Is it worth it?' But all bands must have that gutsy survival instinct no matter what. You know, the belief that you're going to do something Good and people are going to like you all over. We've been lucky. It's still going up for us. I dread to think of it peaking and going down."

No way, Jose. Not for a long, long time with this band.

Steve Weitzman

The Power and Effect of the Police

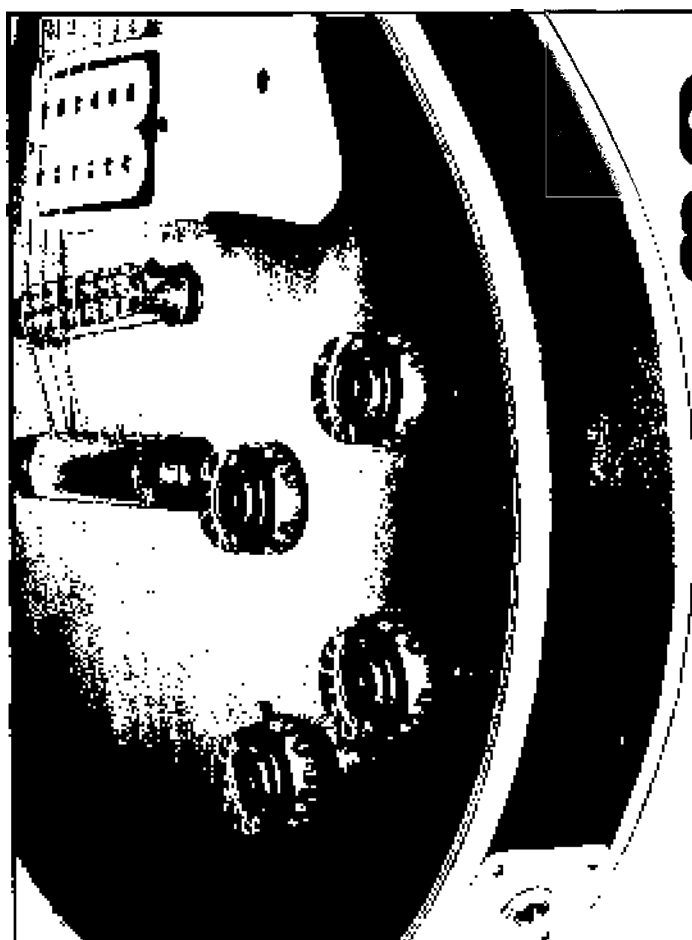
Guitarist Andy Summers utilizes a guitar pedalboard made by Peter Cornish in London. "He has a whole book with pictures of boards he's built and you can tell him what pedals you want on it. I like to play the guitar orchestrally and I get to do that in the Police because I'm continually changing from flanging to echo and doubling the echo effect.

"I have an MXR Phase 90, an MXR compressor, MXR fuzz, Electric Mistress flanger, MXR dynacomp, Cornish fuzz and a Mu-tron 3 which is basically an envelope filter — also an automatic wah-wah and a volume pedal.

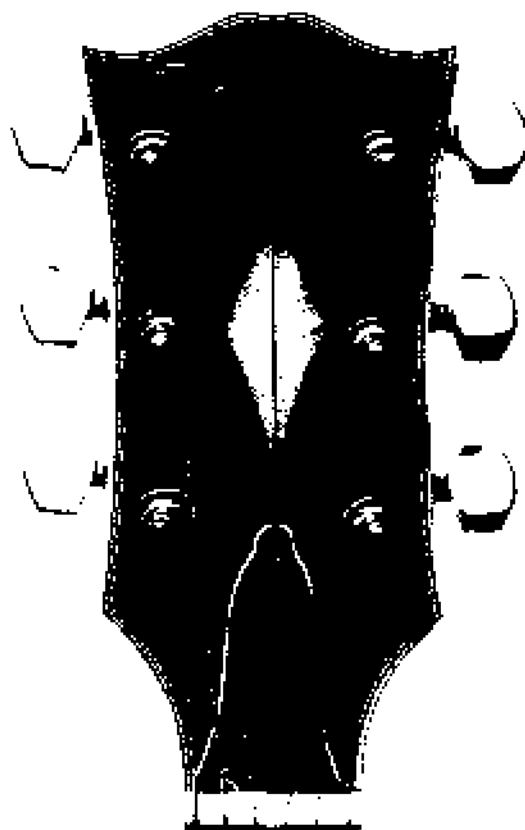
"Each pedal is now preamped so they're all the same volume, there's an echo send and return so I can send the signal to the echoplex, have it echoed, and it comes back into board and then goes to the amp so everything is very clean that way. That board is a new thing for me so this tour is the perfect trial for it."

Andy plays through two Marshall 220s. Sting puts his bass through a 180 watt Ampeg Twin Bass with two cabinets. By way of effects, he utilizes an MXR phaser and a Moog Bass Pedal. And, just to complete the sound survey, drummer Copeland mikes his kit directly through whatever PA's available.

Andy had a selection of Aria guitars on tour, including a PE1000.



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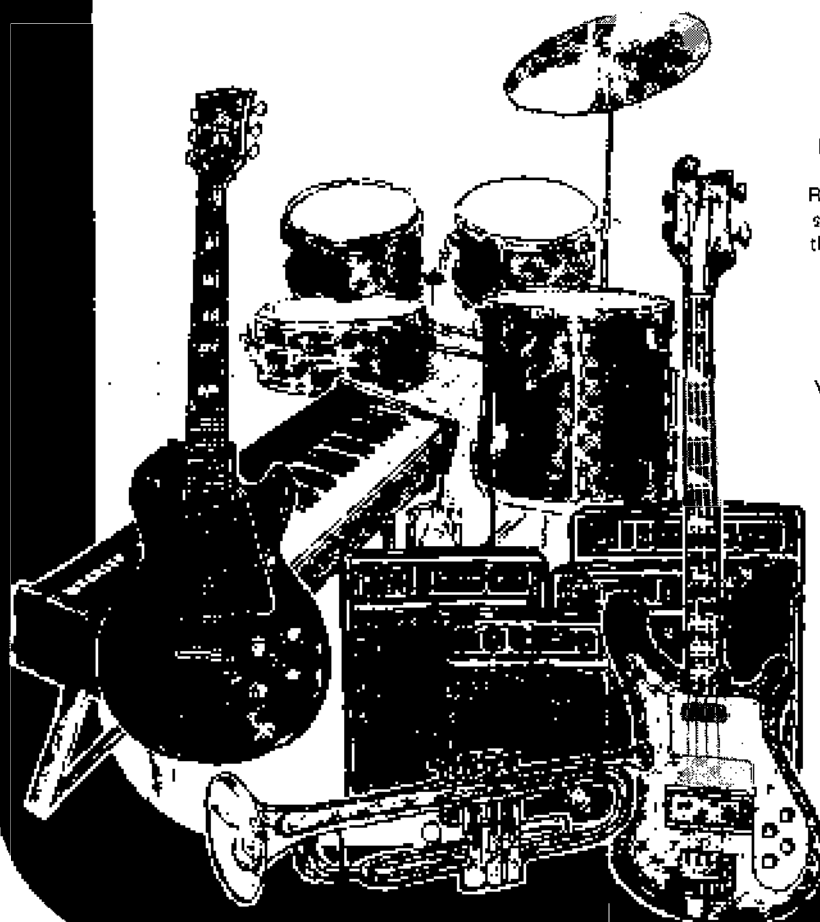
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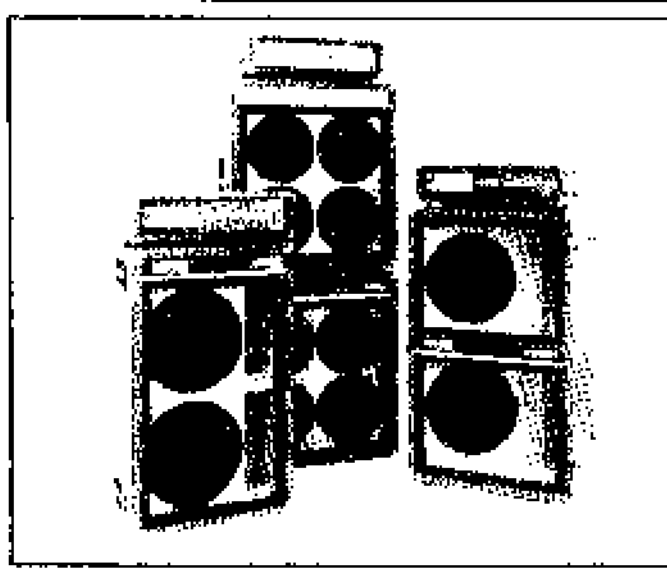
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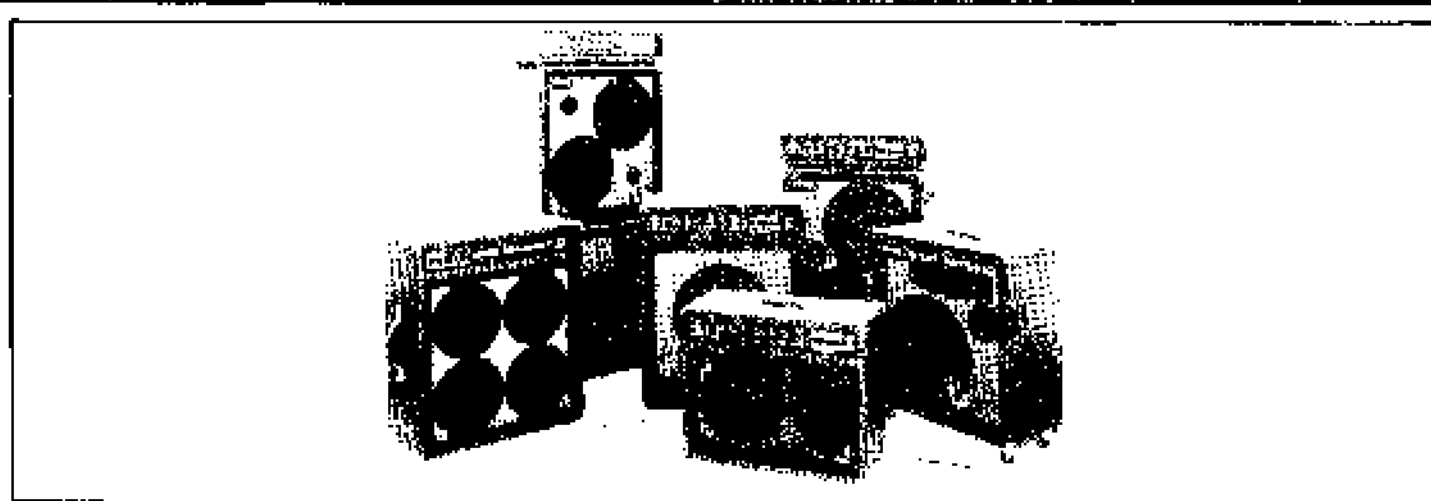
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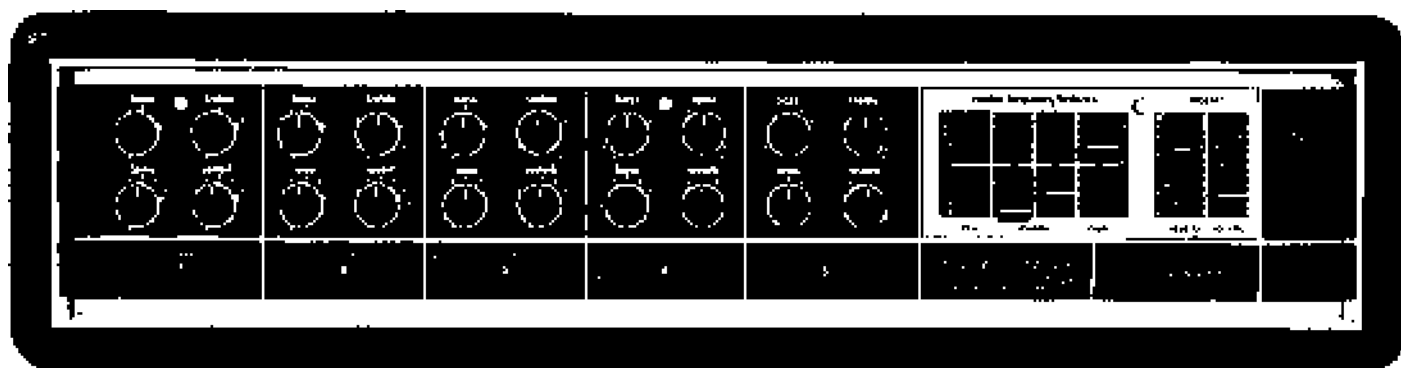
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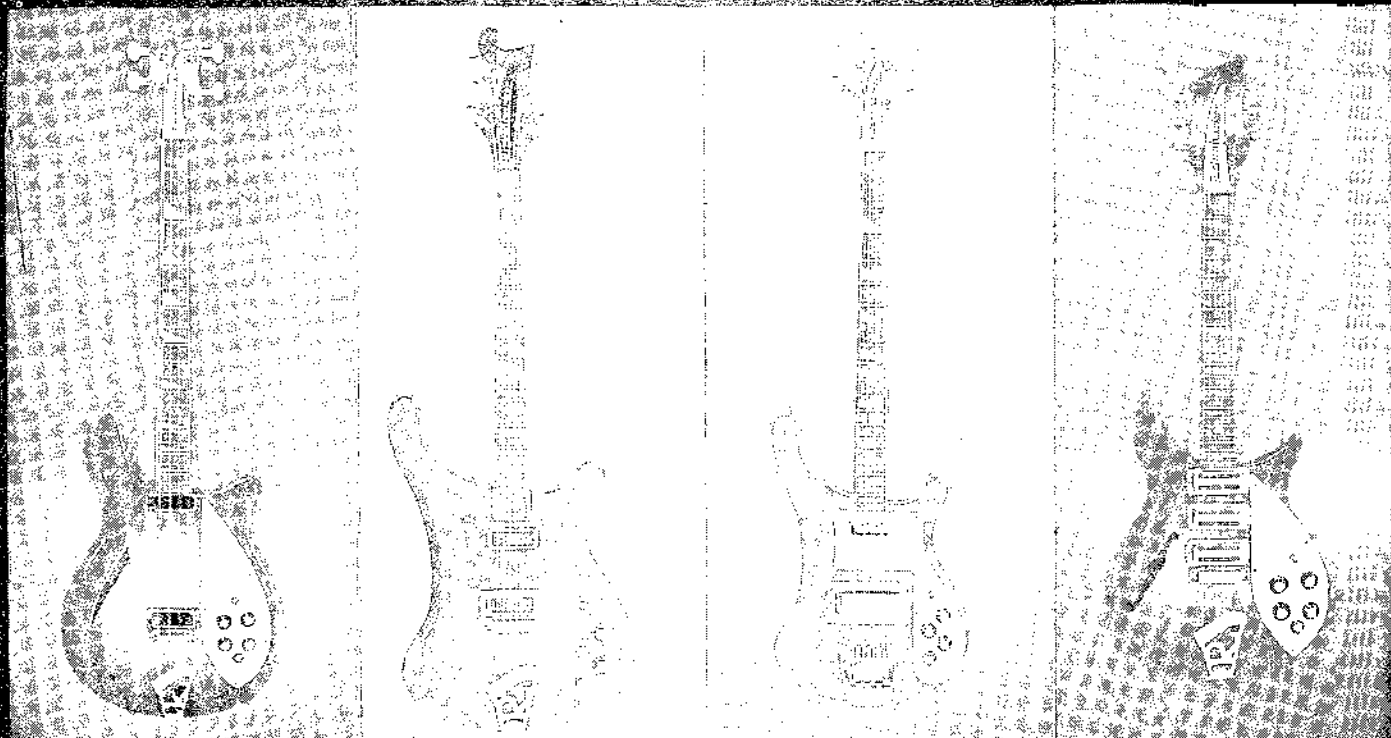
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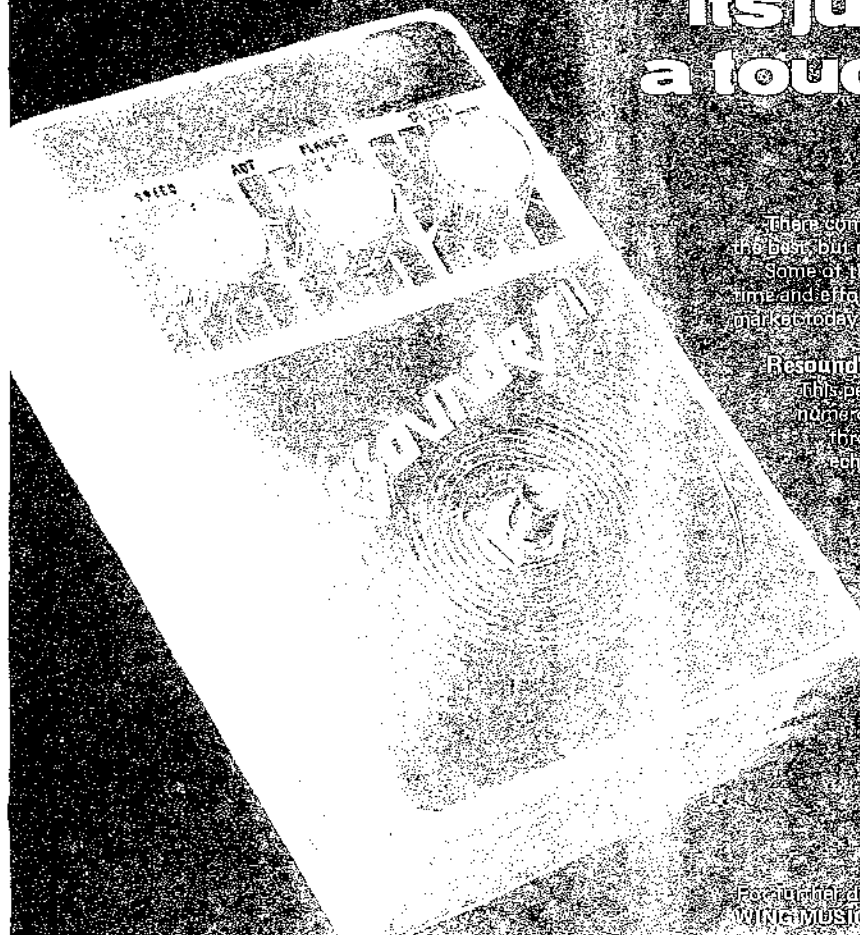


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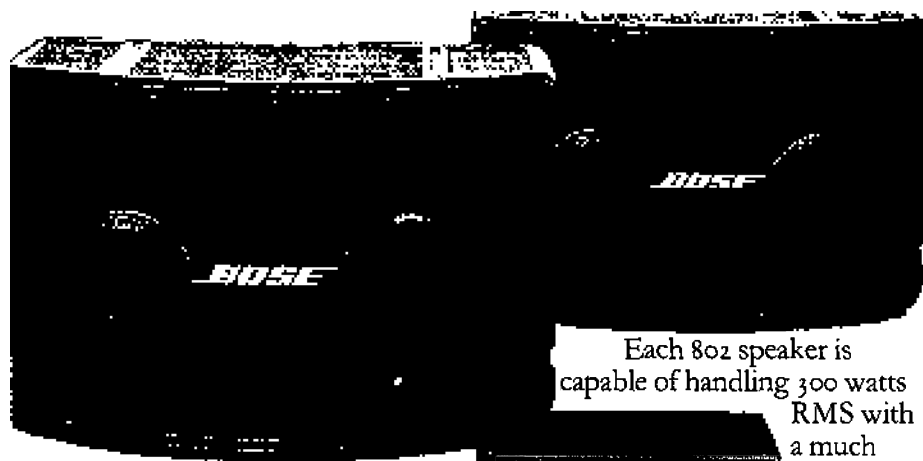
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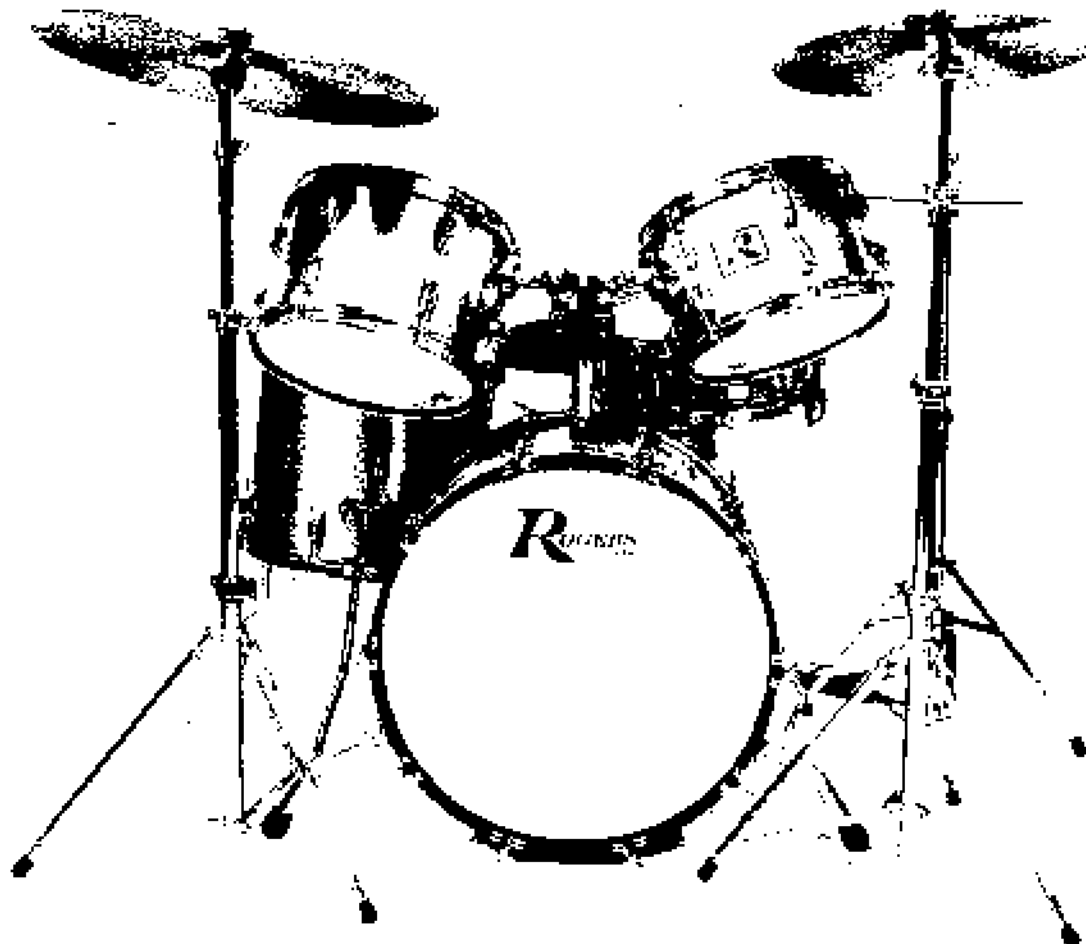
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 Bennetts of Portsmouth, 117 New Road, Portsmouth, Hants.
 Bris Drum Pad, 12b, Mersea Road, Colchester, Essex.
 Carlsbro, 182/184 Chesterfield Road, North, Mansfield, Notts.
 Chingford Organs, 242 Chingford Mount Road, London E4.
 Cookes Band Instruments, 34 St. Benedicts, Norwich, Norfolk.
 Drumland Perc, 75 Lowfield Street, Dartford, Kent.
 Dr. and GT. Centre, 4 Norfolk Street, Cambridge.
 Peter Gray, 212A Wellingborough Road, Northampton.
 Norman Hackett, 5 Bristol West Arcade, Reading, Berks.
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 Simon King, 240 Tolworth Rise South, Tolworth, Surrey.
 Kingfisher Music, 20 Kings Road, Fleet, Hants.
 London Drum Centre, 276 Postobello Road, London W10.
 Melbourne Pianos, 213 Kilburn High Road, London NW6.
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 Music Ground, 245 Station Road, Dunscoft, Doncaster.
 Norwich Sound Systems, 80 Prince of Wales Road, Norwich.
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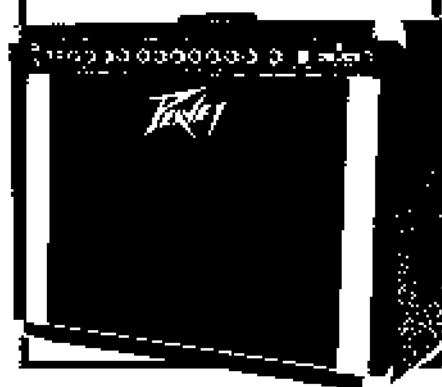
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WHAT'S NEW...

New from RCF

RCF have announced the launch of their new analyser – the full name being the "AFSAI Real Time Spectrum Analyser." This stylish model is a very versatile item from the RCF stables, finding applications in auditoria, recording studios, laboratories and factories as well as any environment where immediate knowledge of room acoustics is required.

It features 1/3 octave operation from 40-16 kHz in 27 ISO bands; an impressive array of 27 channel 324 LED's in three colour zones (green, amber and red); digital pink noise generator with level control pre-amp with balanced line input and 12v dc phantom power supply; attenuators at -10, -20 and -30dB as well as an internal test and calibration facility. Technical buffs may be interested to know the following data: Pink noise output - 0.2v RMS; 10 kOhm load impedance; Sensitivities of 30dB (24.5mV), 20dB (77.5mV), -10dB (245mV).

The unit, 7" high, 19" wide and 9" deep, is free standing (or alternatively is suitable for standard 19" rack mounting) and is available only from Covmain Ltd., RCF's sole UK distributors – telephone Rugby 815020.

Studios refit

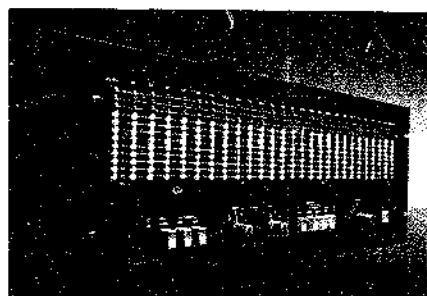
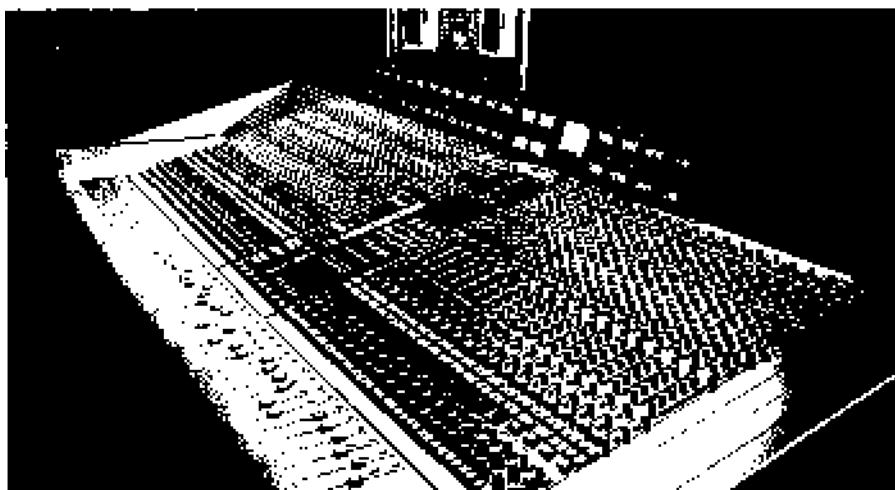
The new Town House Studio complex in Shepherds Bush, London, has built into its main console an Audio & Design SCAMP rack and power supply with two SO1 compressor/limiters, two SO5 and two SO6 Dynamic Noise Filter Gates, three F300 Expander Gates, two SO7 Octave equalisers, two S23 Pan Effects Modules, one S24 Time Shape Module and one S14 LED Column. This leaves space for two more SCAMP modules and they suggest the use of the new S100 Dual Gate or the SO2 Mic Pre Amp.

Adrian Kerridge of the Lansdowne Studio in Holland Park, London, has a new outfit which includes the new SCAMP rack and power supply unit, four F300-S Expander Gates, two SO1 compressor/limiters and the new effects modules S23 pan effects module and S24 Time Shape Modules (ADT).

The rack has been built into a self-contained signal processing "trolley" which may be wheeled to any part of Lansdowne's wide range of equipment.

SSL console

Solid State Logic, of Oxford, have a new product, the SL4000 Series E Master Recording Console and Studio



Computer on the market, which went on show in Los Angeles recently. The system features integrated console control of all multi-track functions in tandem with monitor and foldback switching, enabling one-button drop-ins.

Extensive signal processing is also incorporated, with a full feature compressor, limiter, expander, gate and four band fully parametric equalisation on each channel. The computer system provides unprecedented assistance during both recording and mixing. All computer commands are executed in simple English phrases and sentences, and verified on a built-in TV monitor which also displays fader and VCA levels.

Title, cue and track assignment record keeping forms the data base for intelligent ultralocation and programmable drop-in sequencing on the multi-track recorder. Channel, group and monitor level automation is provided with advanced capabilities for off-line manipulation of mix data. The console is available in versions up to 48 inputs. All versions have 32 output busses with integral compressor, limiter and extensive auxiliary send and return flexibility.

Stones get rolling

One of the first mobile recording units to appear on the British musical scene was the studio on wheels owned by the Rolling Stones. Although the studio is now six years old it is being

constantly upgraded and a 3M 24-track professional recorder has recently been added to the existing facilities.

The vehicle is painted in khaki and green camouflage to avoid unwelcome attention when on location recording. The unit has toured Europe and has even crossed the Soviet border when providing the sound sequence for an American film company shooting in Leningrad. Among the other artists who have used the facility are Manhattan Transfer, Eric Clapton, Bette Midler, the Who, Paul McCartney, Neil Young, Led Zeppelin, Santana and many other top-name bands.

They provide a comprehensive recording package which can be hired through The Mobile Studio, 2 Munro Terrace, London SW10 (Tel: 01-352 0005).

Troubleshooting service

Two new services are now available from Acoustic Technology, an acoustic consultancy company established in 1970, which provides full design and measurement services for new studios and studio expansion projects.

The first is an advisory service for "budget" studio operators who cannot afford the expense involved in the achievement of the highest design criteria. The purpose of the service is to ensure that the limited budget available for acoustic treatment is spent in the most effective way.

The equalisation of studio monitor systems and high-quality sound reinforcement systems is fast becoming standard practice in the industry. Acoustic Technology now provides an equalisation or "voicing" service to optimise the response of sound systems, using sophisticated real-time analysis equipment together with the client's own equalisers. A test certificate showing the final response is provided for retention by the client.

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The A.S.S. Story

From a small operation based in an old garage through to actually buying and running his own factory, is the success story of the man behind Acoustic Sound Systems, the company now building some of the best speaker systems for PA use in Europe.

As a frustrated guitarist, Tony Rossell, a toolmaker by trade, looked for an involvement in the music industry away from the glitter of stardom. Borrowing £50 from his mother-in-law he decided to harness his skills as an engineer and began in a small way manufacturing cabinets.

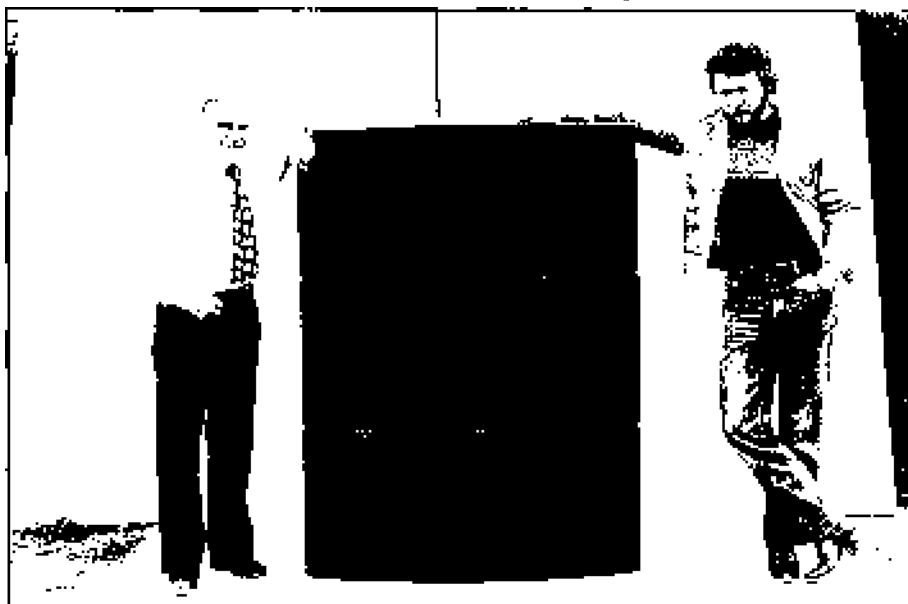
This was in 1974, and now some five years later after many trials and tribulations, he finds himself head of two companies, which together are fast establishing an international reputation.

Says Tony: "One thing I have learned over these past few years is that unless you've got pots of money to lose on the way, there's no easy way to slide into business. It's all or nothing. As a toolmaker I'd been used to a secure and highly paid job and it was a very big step when the day finally came for me to hand in my notice and go into it full-time."

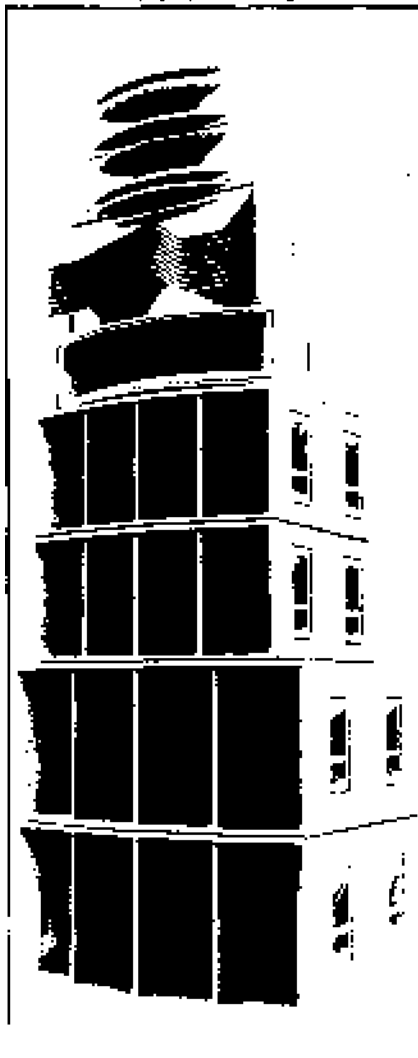
Tony rescued his other company, well known Heathpoint Timber, from liquidation towards the end of last year. Its owners had gone bankrupt and Tony, realising its potential, stepped in. "It all happened so fast. I went to visit them after the liquidators had been called in and showed interest. Later I got a phone call from them and before I knew it, I'd had a meeting with the liquidator, got money from the bank and was off and ready to go. To be successful you've just got to keep on pushing yourself," he said.

The Heathpoint factory is in Rayleigh, Essex, and soon after the take-over Tony moved ASS to bring both companies under the same roof. The factory unit measures 6,000sq. ft. and employs 40 people. Today Tony, looking back with a sense of achievement, remembers those early days in the humble garage at Corringham, Essex. "I used to go round the clubs flogging these cabinets and then eventually I did a big PA system for a band called Burglar Bill who were gigging around the country. News of my work spread and one day I got a call from Emerson, Lake and Palmer. I went over to see them and they were very interested but nothing came of it because they were heavily involved with JBL cabinets."

Faith in his products kept him going through the hard times. "They were among the first to have such a high technical specification so the professionals wanted to use them, but at the same time cheap enough so that



Tony Rossell (right) with designer Bob Wates



the poorest band could buy them." The big turning point came with the development of his Fibreglass horn. It is now so widely used that many forget just how this innovation came onto the market.

Tony explained: "At the time horns were either bad English ones or good American ones. There was

nothing of note in the middle range. My aim was to make an anonymous product which any manufacturer could buy and then call his own."

Business took off, and soon he found himself occupying 1000sq. ft. of space at a farm in Hockley. He had two people working for him and began selling well in Germany and America. A huge 90 per cent of his cabinets now go to Germany. The trip to Heathpoint, when he first heard of their financial plight, brought him into contact with designer Bob Wates, who Tony says "is just about the best there is." They make a fine team.

"I suppose I'm what you might call a bit of a PA nut. Sometimes I just sit, look at and absorb pictures of systems. After taking over the factory I could have started churning out any old rubbish to build up my capital, but that is not the way I do things. Whatever anyone has to spend, whether it's for up market gear or economy packages, they'll get full value for money," said Tony.

With the acquisition of Heathpoint, ASS can now provide complete speaker systems for PA use. Heathpoint were building cabinets and designing enclosures for many top equipment manufacturers long before Tony took over. As a result he is now able to fully specialise in PA. "In the early days when I used to get phone calls from abroad it was really significant, now I don't think anything about it. The irony of it all really is that today, I've rarely got time to do what I set out to do, build equipment. I'm so busy running the companies that I hardly ever get to touch a piece of wood. But I still like to be in on things at the creation level," he added.

This self-made managing director now making frequent trips abroad looks to have arrived on the international scene to stay. A far cry from that tiny garage in Corringham.

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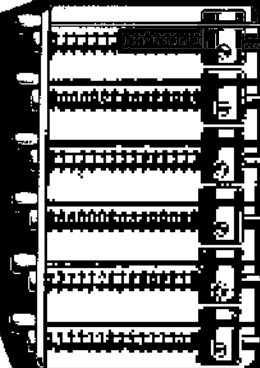
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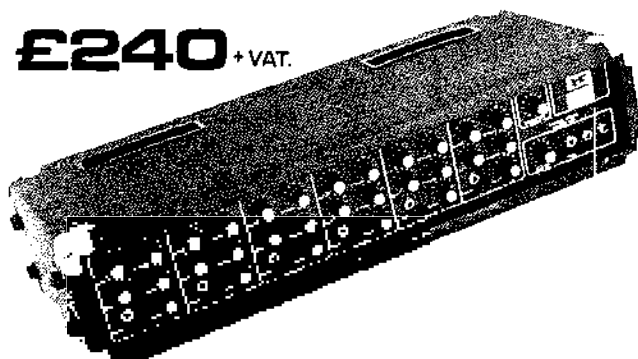
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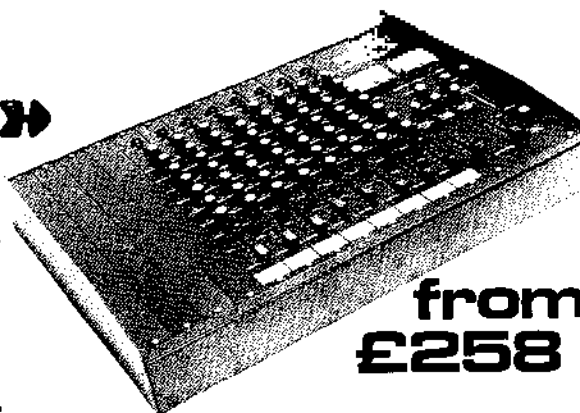


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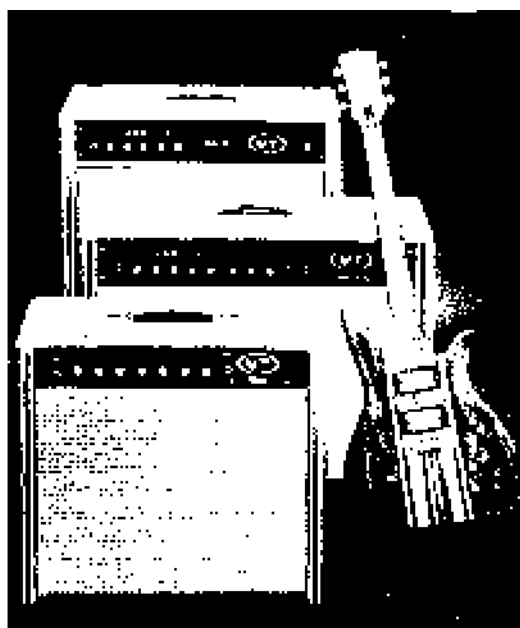


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ing a Fender

CBS/Arbiter, the distributors of the Fender 'F' series of guitars are offering dealers special terms on this top-quality range of instruments. This campaign should help boost sales and enable dealers to promote this extensive range — 16 models in all! These include the five classic models and 11 flat tops.

If you are having any problems in obtaining any of these models, contact Mark Goodwin at Fender House on 01-805 8555, who has excellent stocks of the 'F' range and would be pleased to offer his assistance.



Rodgie Allen (left)

Edward V. Haynes

Hohner re-launch

Hohner are now able to offer UK percussionists the Zildjian range of cymbals. These are the original Zildjians which, until 1978, were made entirely in Turkey (and had been since the year 1623!). They are still made by Turkish craftsmen but are imported from the new factory in Canada.

K. Zildjian series are much in demand for their individual sound, colour and character and cymbal buffs will be pleased to note that the complete range of hi-hats, crash, ride and medium bells will now be maintained in Britain. K. Zildjians can be seen at any Sonor dealer.

Frankfurt split

The decision to hive-off the "music" side of the Frankfurt International Spring Fair was commented on by Alfred Schnorr (MD of Messe- und Ausstellungsgesellschaft GmbH, Frankfurt) as a timely separation. It reflected the growing number of exhibitors, with now over 100 firms participating — a cry from the days of 1952 when instrument firm numbered only about 40.

By 1954 exhibitors had doubled, with over 300 by 1972. After more space was made available with the construction of Hall 5 the show grew to 400 firms and today's total is only possible by the extension in Hall 5a. Attendance at the Fair is of international importance

from the view of visitors, as surveys have revealed 10 per cent of total visitors cited the music halls as being the prime area of interest.

This change will be of benefit to the participants, with reduction in the usual load of demand on local hotels and catering establishments, and the organisers are confident that the best interests of the industry can now be more widely published from 1980 onwards at the new independent Music Fair.

Checking out Music Bank

Ever wondered what those newly signed bands do with their record company advances? Well, apart from buying the girlfriend a new fur coat they tend to spend their ill-gotten gains on new equipment — and that's where Ray Robinson comes in.

Ray runs a company called Music Bank, who deal in the sale and hire of instruments and amplification. Based at 11a Sharpleshall Street, London NW1, they specialise in supplying bands from record companies, tours and studios. "Kitting out" new bands with amps, guitars and particularly keyboards forms an important part of Ray's business together with tour work.

A typical assignment for the company would be providing instruments and backline gear for a touring band; recently this has included Gerry Rafferty and Peter

New man at Zildjian

Edward V. Haynes has been appointed as the Export Marketing and Promotions Manager for Avedis Zildjian, based at Rothley in Leicester. Mr. Haynes will be responsible for design control, production, distribution and sales/service of the complete line

of cymbals throughout non-US markets. He joins Zildjian from the Premier Drum Company where, as Promotions Manager, he was instrumental in re-establishing the brand name of Premier to a position of eminence among jazz and rock drummers in the UK.

Tosh. Ray has plenty of experience in this kind of work, having been with the Ezec Hire company before branching out on his own.

Music Bank stock all the major names in amplification including Ampeg, Acoustic, Fender and Music Man, while on the instruments side, Yamaha keyboards, particularly the electric grand, are proving popular. A full range of effects units is also included in the Music Bank stock.

A sister company, Space Case, also operates from the same premises dealing in custom built flight cases. With business booming, Ray will be expanding to new premises in the near future, although he will continue to operate from Sharpleshall Street.

Robert Wilson

Terry Sherwood of MXR Innovations, Inc., recently announced the appointment of Robert Wilson as Coordinator of European Operations. Bob Wilson has been active in the music industry

for many years and has a working knowledge of MXR and its product line.

Rodgie Allen

Rodgie Allen has retired after 60 years with Steinway and Sons, the world-famous piano company. Rodgie joined in 1919 at the age of 19 as a wages and costing clerk when the company set up their service workshop at Park Royal and worked his way up to UK retail sales manager with overall responsibilities for all tuning — serving three generations of the Steinway family on the way.

He's enjoyed a memorable career which has brought him into contact with some of the most famous musicians in the world, and has frequently found himself in the role of advisor to royal households both in Britain and Europe on the purchase of pianos.

After-sales service is one of the premier features of Steinway, and as tuning manager Rodgie took pride in ensuring everything remained in perfect working order.

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Saxcheck

Conn Director Tenor Sax £410 inc VAT



This must of necessity be a brief test as the proper evaluation of a sax takes around a month and involves playing it in a great variety of acoustic situations from big bands to small groups and, of course, recording. As many players as possible are given a blow and all comments noted. In this case I only have a week and because of the price of this instrument and the fact that it is not claiming to be the top of the line expensive competitor to the finest saxophones in the world, I am able to make certain allowances. It is only fair to add that in the past some of the so called market leaders have failed to give a good account of themselves.

The initial impression when hooking the instrument on the sling and getting into a playing position is that the left hand key stack is too far away from a comfortable wrist position, the nickel-plated thumb grip is domed and too slippery and the right hand grip should

be adjustable as it is digging into the thumb. The pearl grips feel too small and too smooth on the main action as one prepares to blow. These are, of course, points which you adjust to after a period of playing, so does it pass the first test? When you play it, do you like the sound it makes or do you find yourself subconsciously stopping playing after a short time without really knowing why?

This instrument has a superb tenor tone, rich and big at the bottom and full and bright at the top. The overall effect being warmer than the Selmer Mk 6 which sounds a bit 'cold' after the Conn. The older 1940s models were thought by many to have the most beautiful tenor sound and the modern Conn company has managed to get that tone out of this instrument which at the price is remarkable. The sound then is world class, the sort of noise you want to make for a very long time. Next the real crunch, does it play in tune? Yes. It is better than the Selmer Mk 7 and falls within the same sort of acceptable limits as the Mk 6.

Lastly, and owing up time. If my Mk 6 were to be run over by a truck and I went along to a shop to find something to do a gig with my band that evening, could I use this instrument? The answer to this is very surprising to me, yes, in view of the price. I put on a live tape of a gig and played all the tenor numbers along with it and overcame the awkward keywork, so that I would have enjoyed the gig and no would have been aware that it was a saxophone with such a modest price tag. My fingers were sore though, and the G sharp is diabolical. The odd feature of sax design is that the largest, heaviest keys are played with the weakest finger (little finger left hand) and these keys on the Conn are really in the wrong place. They could be bent into a curve to follow the radius of the body which would put the action more in line with the natural direction of movement of the little finger. The mother of pearl inserts are too thick and heavily bevelled which reduces their diameter. They could easily be made thinner and with a deeper contour which would make the feel of the keywork much more comfortable. This extra thickness on the pearl insert to the Auxiliary F coupled with too thick felt means that you cannot slide your finger from the closed 'B' onto it, in fact your finger goes under it. This could be made into a brass spatula as on the new Yamaha, so that the finger slides easily on the 'A' to 'Aux F' change.

The addition of Selmer or Yamaha type thumb rests and slight re-positioning of the left hand pearls could transform this instrument into a contender for the top echelon. I feel the makers have adopted the right priority in getting the sound and tuning right first and then building the keywork down to a price. The slightly old fashioned look of bell keys on the left simplifies the linkages and saves money. With a little development they could be just as comfortable as the standard right hand side bell mechanism. The key pillars follow the Conn tradition of being soldered directly to the body of the instrument and although this is not as robust as the Selmer strap method in which the pillars are hard soldered on to the strap which are then soft soldered to the body, it is thought that the Conn method contributes more to the tone. The bell is not detachable which must



make repairs to dents and overhaul more difficult and therefore more expensive. In particular the final polishing and re-lacquering of a sax with a fixed bell is very difficult in the part between the 'E' key and the 'U' bend. I would think that the slight additional cost of a screwed ring and bell well worth it.

The instrument is very nicely finished in clear lacquer and fitted with Selmer type, nylon reflector disc pads. It is supplied in a good case which is very American, being moulded in black textured material like some of the expensive suitcases which aluminium edging at the join which locks together when closed. This type of case is smart, light and strong and is lined with thick foam and pile cloth. A mouthpiece which is suitable for a beginner and which produces a reasonable sound, and a sling are also included in the price of £410 which makes it very good value as a package. To sum up: it works better than some other makers' products at prices up to £200 more. It is made at the Conn plant which straddles the border at Nogales, Arizona and is marked 'Mexico' but future models will be stamped USA, a trade technicality. Directly imported by Conn UK which is owned by Conn USA, its good value is due to the lack of importees' profit. A saxophone which sounds great, plays in tune and can be stocked and bought with confidence.

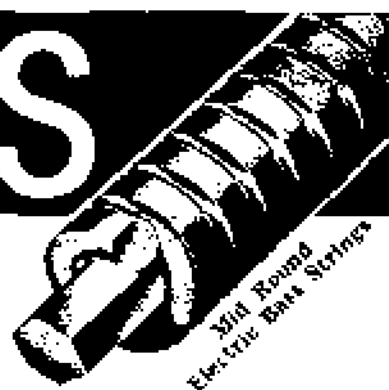
Alan Holmes



Alan Holmes is a top British session reedman who plays soprano, alto and tenor saxes, flute and alto flute, piccolo, oboe, clarinet and cor anglais. He played on the Beatles' Sgt. Pepper album and for four years he was a member of the Kinks. He now leads his own jazz-rock group.

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Canary 10-band stereo graphic EQ £113.40 inc.VAT

A recent addition to the Canary range of professional audio products. As with others of their sound processing boxes, this one is designed for standard 19" rack mountings. It is equipped with two identical channels, each split into 10 bands with centre frequencies specified at: 31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz, 1KHz, 2KHz, 4KHz, 8KHz and 16KHz. All the centre frequencies are defined with approximately $\pm 10\%$ of the tuned frequency tolerance and provide lift or cut at $\pm 12\text{dB}$ at max in each section.

Each band's slider (approx. 70mm long) is protected from the outside by a special anti-dust plastic seal with individual bands calibrated at: 0dB, $\pm 2\text{dB}$, $+4\text{dB}$, $+5\text{dB}$, $+8\text{dB}$, $\pm 10\text{dB}$ and $\pm 12\text{dB}$. The overall signal level is controlled individually in both left/right channels by a pair of volume rotary pots calibrated 0 to 10 and mounted at the top central part of the control panel. At any time during operation, EQ can be turned back to the flat position by means of a small rocker switch provided again separately in both channels.

Careful artwork layout completes the front panel – black matt painted with all markings in white and standard Canary yellow colours.

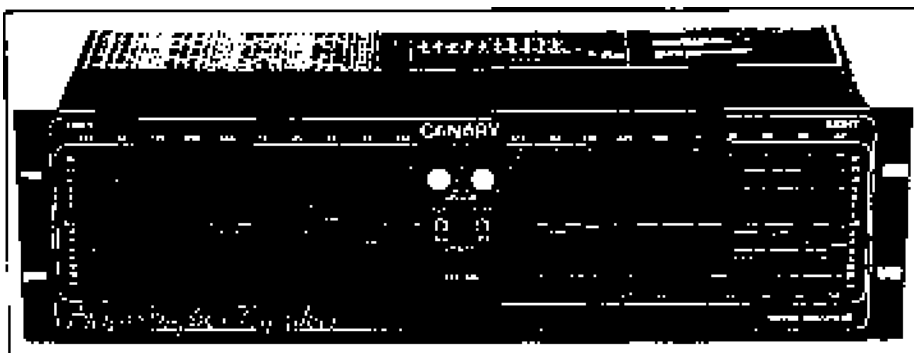
Internally, each channel has its own PCB carrying 10 BC169C transistors, one 741 op-amp and quite a few other non-active electronic components, i.e. resistors and capacitors. The power supply is protected by an internal 500mA Fast Blo fuse link, and is a non-stabilised type providing two symmetrical rails at $\pm 20\text{VDC}$ smoothed by a large double 2000 $\mu\text{F}/40\text{V}$ DC Erie electrolytic capacitor.

The rear panel carries a three-pin Euroconnector mains socket, both left/right input and output $\frac{1}{4}"$ jacks (marked "From Mixer" and "To Amp" respectively). Both input and output levels operate nominally at 0dBm with an input impedance of 100 kohms – unbalanced and approximately 600 ohms at the output. The Total Harmonic Distortion claimed should be better than 0.07% with corresponding noise figure being about -70dBm.

The overall frequency response is $\pm 0.5\text{dB}$ Ref. 20Hz to 20KHz, which is not too bad for PA systems.

Summary of Characteristics of Canary Graphic EQ

Number of bands:
10 x 10 stereo
Input sensitivity:
0dBm (100k unbalanced)



Output sensitivity:
0dBm (600 ohms unbalanced)
Max. Output level:
 $+15\text{dBm}$
Noise:
 -70dBm
Distortion:
Better than 0.07% (each section)

Frequency response:
20Hz-20KHz $\pm 0.5\text{dB}$
Section lift and cut:
 -12dB
Frequency centres:
31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz, 1KHz, 2KHz, 4KHz, 8KHz, 16KHz.

Canary three-way crossover £129.75, two-way £102.50

The Canary three-way crossover unit operates in three frequency band regions i.e. treble, middle and bass and is intended for use in multiple loud-speaker PA systems. All three channels employ active electronic filters of frequency discriminating paths for routing the treble, middle and bass frequencies to the particular power amplifiers and consequently the relevant speaker systems.

This particular crossover is designed for a 19" (48cm) rack mounting and ideally suits the three Canary (200 + 200 Watt) power amplifiers mounted in this rack assembly. The unit is extremely compact and the front panel is only 44mm high. All the controls are symmetrical for both channels: bass/middle/treble pots and vertically mounted selector switches calibrated at 5KHz/20KHz and 1.2KHz/5KHz respectively. The connectors used are Neutrik XLRs, with $\frac{1}{4}"$ plastic jacks, and this crossover is totally self-contained i.e. has its own power supply – the power on/off switch with one small red LED indicator completing the picture.

The electronics are very straightforward and built around a small single

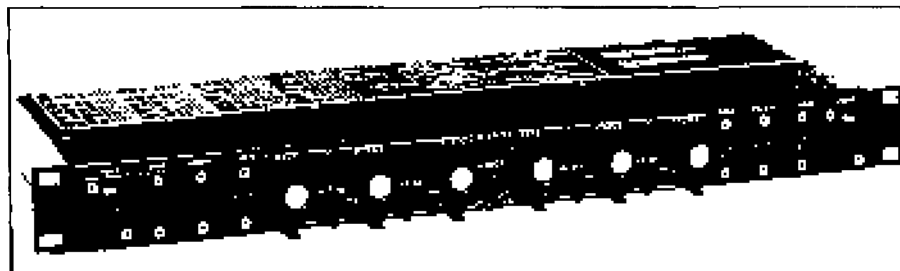
PCB which contains all the small circuit components, including the power supply unit, except for the mains transformer. The electronic filters are all active types and employ the popular 741 op-amps. Power supply is protected by an internal 500mA fuse which I think should have been assembled on the outside wall, while the main socket is the usual three-pin Euroconnector type, with the mains lead supplied as well.

The unit should be placed reasonably close to the mixer, convenient for soundmen, and it is nicely finished giving a good overall impression, with a high standard of components and a design that looks reliable. Soldering is neat and tidy. Despite the presence of part of the power supply mounted on the PCB, all high voltage parts are insulated from the filters and controls – necessary from the performance side but primarily because of the safety factor involved.

The design of the two-way crossover attains the same high degree of quality as the three-way, and uses several of the same sub assemblies, e.g. Power Supply, PCB, etc.

The quality of materials and workmanship meet the same high standard as the three-way crossover has, and so can be judged to be sensibly designed and reliable to operate. As for access, well this is positively easy, with just four Philips screws to deal with, but Canary claim that there are no user serviceable parts inside.

Mark Sawicki



EMS sound synthesis



Mick Johnson Music,
277 Putney Bridge Road, London SW 15.
Tel: 01-788-3491.

Synthesizers

The emergence of synthesizers as a stage instrument brought about a new age in modern music. Not only were a myriad of instrument sounds at the hands of a single player, if the synthesiser is polyphonic all these sounds could be played at once by one musician. But how does this player effectively co-ordinate all those parts as if they were an orchestra? This dilemma was overcome by the inventors of the EMS Polysynthi.

The Polysynthi is not an ordinary synth, not even an ordinary polyphonic synth. The Polysynthi was designed from scratch to be the most rapidly and easily played polyphonic synth built.

A completely stable, easily tuned oscillator bank covering nine octaves is the primary sound source. A four-octave standard keyboard with three simultaneous outputs — polyphonic, position dependent CV and pressure dependent CV — activates the oscillator bank. There are two voltage controlled LFO's with variable waveforms and the two ADSR's with LED indicators are triggerable from either VC LFO or from the key-

board. ADSR1 may be triggered from the envelope follower. An analogue delay line can provide echo, chorus, flanging and reverb effects.

The Polysynthi features LED indicators and colour coded source, control and treatment panels for rapid operation. The LED's indicate control voltage switching and the colour coded, logically layed out panel shows a wide range of easily patched, repeatable effects. An optional add on polyphonic sequencer, using advanced microprocessor circuits, can edit and commit to memory ten minutes of polyphonic music.

As well as producing 49 simultaneous outputs through three alternative waveforms, the VCO bank has a range switch to move octaves produced from 1' to 32'. The VCO's can be tuned to other instruments and their circuitry is drift free. Pitchbend is controlled by a centre sprung red coded knob or footpedal. Keyboard Memory determines infinite sustain or no sustain. The ADSR release is set to short automatically when keyboard memory is off.

White noise or an external input can be mixed with the oscillator bank before being sent through the filter. Balanced or unbalanced, line or microphone, high or low impedance inputs are accepted through the rear panel. If no external input is used, the Polysynthi can produce various effects with a VCO bank feedback signal.

The low-pass, switchable VCF is of the two or four pole voltage controlled type. ADSR and LFO voltage can be used to control it and ADSR 1 can sweep the filter frequency by any amount set on the "Direct Control" knob. Frequency can also be controlled by a footpedal. The VCA can be controlled in the same way, and a pedal can be used to control its amplitude.

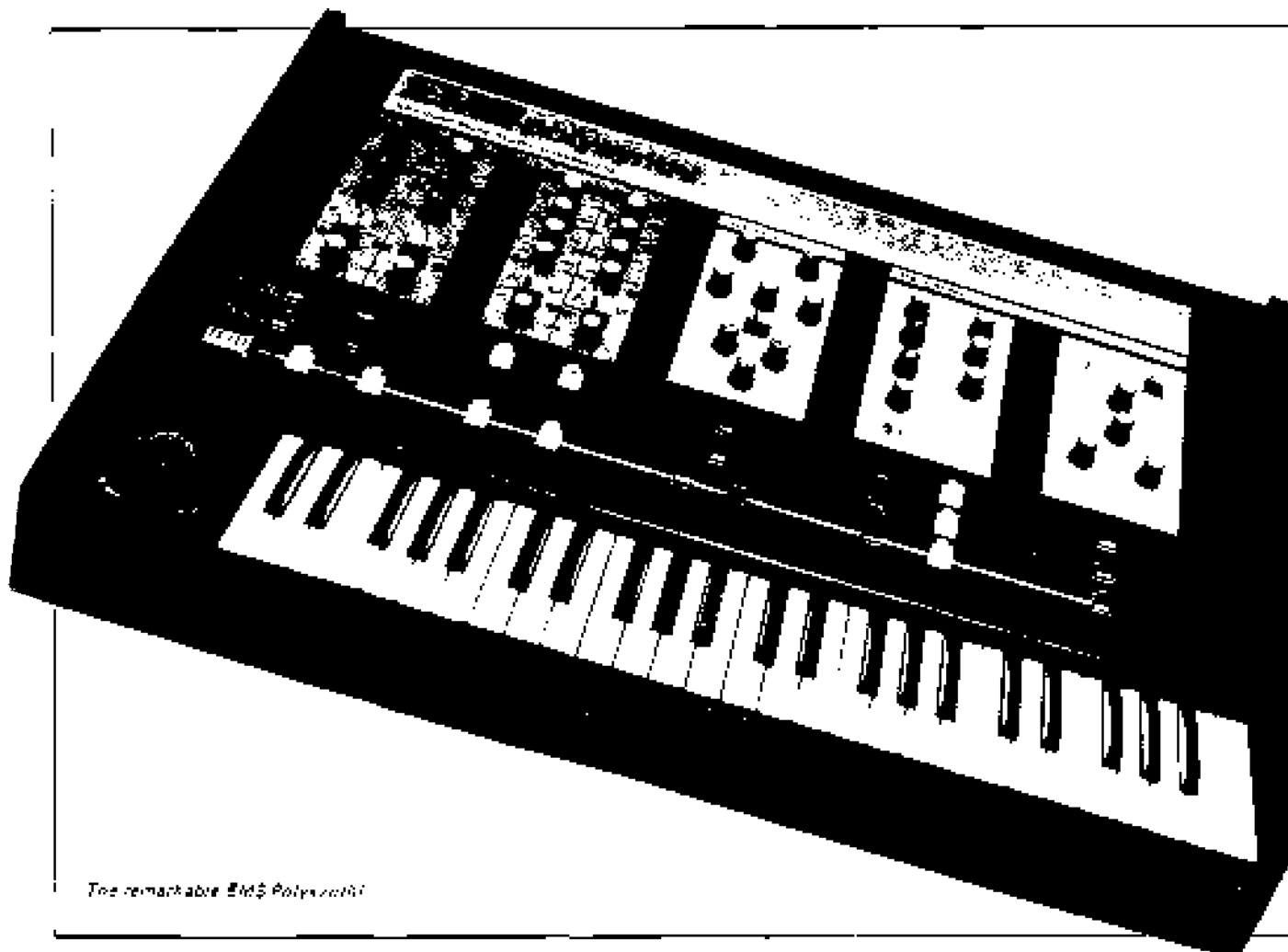
The Polysynthi's Analogue Delay Line uses an output voltage from the VCA and remixed with the original signal, gives a +4dB low impedance signal. Delay time of the various echo, reverb and chorus effects can be controlled by either ADSR, LFO or keyboard voltage. A switch selects long or short delay time ranges and another, chorus or Echo

Music synthesis is a new art, unfortunately many musicians haven't really begun to appreciate its possibilities. We're proud to offer the EMS Polysynthi because EMS synthesizers are leading the synthesizer world the way they have for the last seven years.

Many of today's top selling synth items were first commercially developed by EMS including the Vocoder and peg patch synthesizers. Now the Polysynthi reaches out to the "state of the art" boundaries on synthesis.

mode. The 49-note C-C keyboard, as well as providing polyphonic information to the VCO's, produces two control voltages. One corresponds to the highest note played and the other is pressure proportional.

Jack sockets for output, input and three pedals are fitted to the Polysynthi back panel and can be switched for line or microphone. Provision is made for the fitting of the optional Sequencer.



The remarkable EMS Polysynthi

THE MAIN EVENTS



Brodr Jorgensen

Distributors of Roland products, Brodr Jorgensen will be displaying a large range of new innovations. The RS09 organ/strings can be used as either an organ or strings or the two sections can be combined. The highlight of the stand will probably be the advanced VP330 Vocoder Plus, made especially for live performances.

In addition to Roland JC series amps, which incorporates the unique chorus effect, Roland have recently introduced a full range of rock guitar amps under their GA series. These are available in 30, 60 and 120 watt versions.

Rosetti

New lines in the guitar section from Rosetti will include a range of top quality jumbos from Japan under the name "Mugen" featuring six and 12 string models. Kawai introduce the new F1 solid electric guitars, a range of junior models and three new jumbos. Rosetti will also be introducing the 60 watt and 100 watt Zoom combo valve amplifier made in Japan.

Percussion is dominated by the Hamma range and new brass instruments include the Elkhart Marching Band models featuring, Trombone, Mellophonium and Flugel Horn.



Boosey & Hawkes

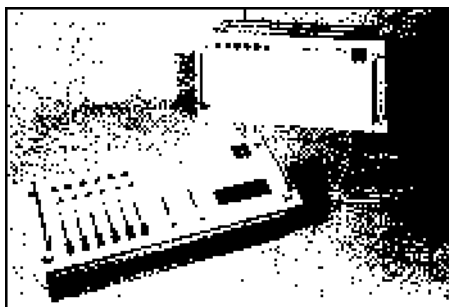
Boosey and Hawkes will be promoting a "Trumpet Spectacular" at Olympia on July 28, from 6.30pm to 7.30pm. Derek Watkins, recognised as one of the world's leading trumpet players, Henry Lowther, Kenny Wheeler, Dave Hancock Mike Davis and John Hackridge, will demonstrate the new B&H "906" Sovereign Trumpet and all aspects of Trumpet playing. They will have a backing group comprising, Terry Jenkins on drums, Neil Cameron on bass and John Horley on piano.

Zero 88

On show in Britain for the first time is

London's Olympia is the venue for this year's music trade extravaganza, and what an event it promises to be. From July 27 to August 1, tens of thousands of pounds worth of musical equipment will be on show, including many products which are being unveiled for the first time. The show is not only a must for dealers from the UK and all over the world, but also musicians who need to keep up with the latest innovations.

Here we give you a taste of what to expect at the show.



Zero's new Lightmaster 611. It's an economically priced six channel lighting control unit, designed for use in conjunction with the Lightmaster 690 slave dimmer pack. Their Lightmaster 691 combines all the facilities of the Lightmaster 611 and 690 slave dimmer pack in one package, providing 12 kilowatts of complete lighting control.

John Hornby Skewes

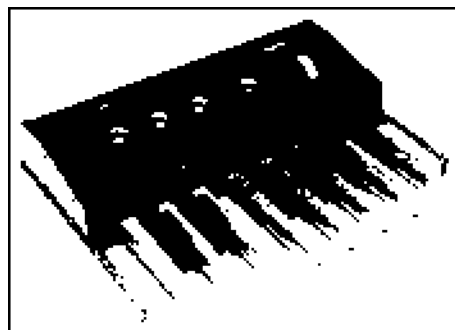
Hornby Skewes will have a vast array of products on show and there will be demonstrations of Hondo Electric Guitars, JHS amplifications, Crumar electronic pianos and the Logan String Melody.

The new Eko Tivoli Planet electronic chord organ will be on show for the first time. Similar in design to the Tivoli Star it will also have automatic chord programming. Japanese Hoshino drums and a new range of South American Conga drums will also be featured. Hornby Skewes have now become exclusive distributors of Ross pedals.



Carlsbro Sound

Carlsbro has made a major move in announcing the launch of a completely new product range at the show. For example there is the Stingray Professional, a 150 watt combo with built in Chorus, ADT, Vibrato, Reverb and Sustain, plus electronic computer switching of effects and channel selection, each channel also features a parametric equaliser. Another product to look for is the S800 Power Amplifier. This produces 400 watts per channel has built in fan cooling and LED power output displays.



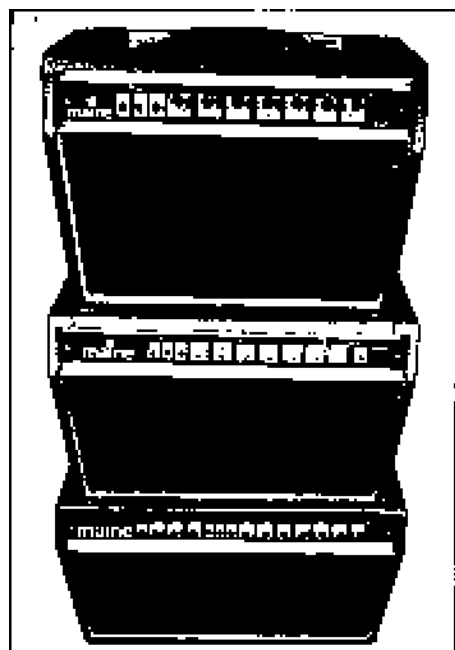
James T. Coppock

The usual big range of products distributed by James T. Coppock will be on show at Olympia, including the latest range of Elgam organs and the new series of Cimar electric guitars. There will be six brand new Elgams and a number of new guitars.

Maine Electronics

Firmly established as manufacturers of quality amplification, Maine will have their popular PA170 system and famous range of Maine combos Club 50 watt, Stage 80 watt and Musician 120 watt, on display.

The latest addition to the Maine range will be the Bassman Combo. This has a power



output of 80 watts and utilises an original design of speaker compartment with one 15" driver and a special folded horn design.

Terry Gould Music

The main feature of the Terry Gould stand will be the small and neat Lever Capo which works on all guitars, and copes equally well with curved or flat fingerboards, wide or narrow necks, six or 12 strings in steel or nylon. Look out for guitar straps and other products such as Tuff-Nail, Guitar Care, String Glide and Ampuras Classic Guitar strings.

Reslosound

Rello — the Radio Guitar System is the big star at the Reslo stand. This system is unique in design due to the mixer system incorporated in

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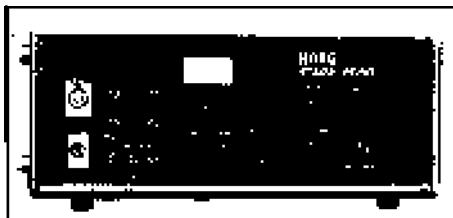
2-3 Gibbs Road (side of ABC Cinema)
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the transmitter, giving the artist not only freedom from hampering cables and microphones, but also allows complete control of the sound being produced during performance. Boomtown Rats and Gallagher and Lyle will be among a number of stars in attendance at the stand to wish Rello every success.

WEM

Wem have taken the apparently retrograde step of fitting their Copicat Echo with the old style, full track echo heads. This has been done by popular request as these old heads give twice the output of the new style half track heads.

Also on show will be the Aggressor, an open front style speaker cabinet for PA or disco use presented with the new Soundman 100, a 100 watt mixer amplifier with five channels and equaliser.



Rose-Morris

One of the most dynamic stands at the show will be stocked by Rose-Morris, who will be exhibiting more internationally-known names than any other exhibitor. Marshall, Ludwig, Ovation, Di Marzio, Eko, Zildjian, MXR, Westbury, Korg, Synare and a new line of brass and woodwind will all be on show.

The complete Ovation guitar range from the USA including acoustics, solid body electrics and Ovation Magnum basses will be represented and among the stunning selection an Ovation Preacher De Luxe with live electronics.

Rotosound

The world famous Rotosound guitar strings are exported to over 70 countries and are endorsed by many top guitarists, including Chris Squire, Stanley Clarke and Roger Waters.

Rotosound gauge selection ranges through acoustic, electric and bass guitars, and on show for the first time will be Solo bass with deluxe, linear finish which gives the musician the best of both worlds, the feel of a flat wound and the sound of round wound.



Stentor Music

In addition to their usual range of products Stentor Music will be unveiling a new bass guitar at Olympia this year. The new Maya Fretless Bass retailing at £135 (inc. VAT) will be featured on their stand.

Premier

The focal point of the exhibition will be a huge D79 Elite kit, backed up with full tuned



percussion. This 12 drum kit will be in one of Premier's newest finishes which are being unveiled at Olympia.

There is a new flagship to the Premier range of tuned percussion. Olympia will see the first display of two brand new ranges of timpani. The copper-bowled Elite range has been developed specially for top flight professional and symphonic percussionists.

Keith Hand Musical Supplies

Product lines include Gordon Smith guitars which will be demonstrated by Big Jim Sullivan. Also on show will be Eccleshall guitars and strings, I arrivee from Canada and Gherson guitars from Italy featuring their new model fitted with either Di Marzio pickups or their own super distortion pickups.



Summerfield

Ibanez guitars and Tama drums will be the main items featured on the Summerfield stand. The sensational new Studio series will be shown in full and Ibanez confidently expect these guitars to steal the show.

Almost 100 other Ibanez guitars will be on display including the Artist, Musician, Roadstar, Performer, and George Benson series. A brand new range of Ibanez acoustic guitars will be seen for the first time, including their new Artist acoustic.

The centre piece of the Tama drum display will be Billy Cobham's personal Tama drum outfit. This was the kit seen by viewers on a recent, BBC *Old Grey Whistle Test* programme, spotlighting his London drum clinic, held earlier this year. Other Tama items on show will be: Fibrestar, Superstar, Imperial, Royal, and Swingstar outfits, and the Snyder drum synthesizer and Tama gong drums.

British Music Strings

The company's range of international music strings will be on show. Sound City in its distinctive new packaging, Londoner, St David, Summit and Cathedral presents its range of violin, cello, viola and double bass strings in metal or gut. Look out for the Phoenix range of amplification.

Barratts

Wal Pro bass guitars manufactured by Electric Wood made Barratts their sole distributors. And these highly acclaimed instruments available with single or double pickups will be on show. Pro basses are obtainable in a choice of 11 finishes with the option of fretted or fretless necks.

Guild

The Guild range of guitars will be on view and their stand will also feature the new S70D guitar, a six-string electric with three DiMarzio SD1 pickups with a five way selector switch. Also on view will be a selection of the Barcus Berry range of transducers and amplifiers along with the new range of DOD effect pedals which are already making a big impact throughout the country.

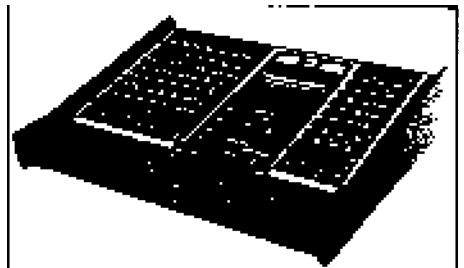
Percussion Services

Percussion Services will this year be exhibiting a range of "Perc-Serv" hickory and maple laminate drum sticks, and among other "Perc-Serv" percussion accessories on show, will be the widely used Multiperch rail (now made in two lengths). Also on the stand will be a complete range of Remo drumheads, and Rototoms, including the Rototom harness.

General Music Strings

The manufacturers of the famous Picato and Monopole strings will be introducing major new lines at the show this year. Their theme will be the magic of Picato strings and a bundle of free goodies will be available to members of the public who visit the GMS stand. A prize of a year's supply of strings will be given to the winner of a competition featuring Ritchie Blackmore.

Among the new lines being introduced by Picato will be the "all steel boogie sets," a range of four sets of customatic strings. The famous 77 series and pro-bass strings will be in their exciting new packs designed for the 1980's, for a first time preview. The full GMS stand display will be centred around an onstage setting featuring the whole range of stands which GMS manufacture for the music business, including microphone stands, speaker stands, amp stands, and lighting stands.



Custom Sound

The new products first announced by Custom Sound at Frankfurt earlier this year will be exhibited, in addition to the rest of their established high-quality range.

They have built up a fine reputation for bass amplifiers and cabinets and the latest versions of the 706 amp, the 707 combo have already proved remarkable sellers. Their new bass cab, the Delta Bin, will also be on show. PA is another area where Custom Sound has a superb reputation and the highly successful 700A goes to a Mk11 version and now offers high and low impedance inputs, master middle control and monitor output.

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MUSIC BUSINESS

Chappell

Chappell, one of the biggest music book publishers, will have a wide range of their many publications on display at Olympia. Three new publications are proving very popular, "Funky Drumming" with cassette, "Electric Bass Guitar" by Laurence Canty and the "Carminc Appice Drum Method."

Futuristic Aids

Futuristic Aids will be first-time exhibitors. Products on display will comprise a wide range of amplification and speaker systems. Their equipment has been exhibited over the last three years at major continental exhibitions such as Frankfurt and UK dealers will now have the opportunity to see a number of recently developed products. Among the latest items will be a five channel PA amp, high powered stereo slave, specialist combo amps and completely new speaker systems.

Mick Johnson Music

New products in addition to those established by the company over the past four years will be on show at Olympia. Among the major lines are the ATC high powered professional loudspeakers, and from Canary, mixing consoles and peripherals. In addition to an established range of mixers, there will be an exciting range of 19" rack mounting units.

Pride of place in the RSD/Studiomaster exhibition will be the new 16 into 8 recording console reflecting the increased trend in the DIY hit market. All the other established trend-setters will be on display.

Nashville Music Strings

This company, based in the Rhonda, are manufacturers of high quality music strings and will be showing a full range of their products. Associates, Valley Music Strings will be displaying their famous Sounder strings.

Kemble

Under the Yamaha banner, synthesizers and guitars will be strong features of the Kemble display. All this plus the already proven and extensive range of Yamaha PA gear, combos and classic acoustic guitars will ensure a packed stand.

Woods

Woods of Bolton will have their usual range of products on show, including Welson organs, Syntex synthesizer, Prestige and Granfiesta console organs, Guyatone amplification and the full range of Merlin, Allegro and Lopex guitars.

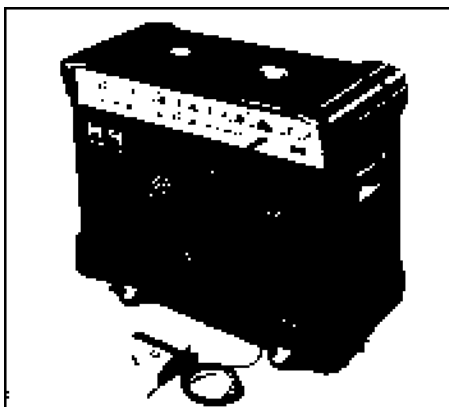
Rainbow Cases

For a view of top quality flight cases, a visit to the Rainbow Cases stand at Olympia is a must. They will have a full range of cases on display.

Laney Amplification

Laney are another company who will be making their debut at Olympia. The full range of Laney amplification will be on show, including PA, guitar and a comprehensive range of combination amplifiers, from 30 to 100 watts. The new models on show will be the new range of Laney valve amplifiers and combinations.

Bob Thomas and Mike Cooper will be manning the Laney stand.



H/H. Electronic

A radical new technology in the music industry will be unveiled by H/H Electronic at Olympia, known as MOS FET power. With it comes an exciting new range, the V series of professional power amplifiers, with performance specifications of superior denomination to current bipolar transistor designs.

At the same time as the MOS FET introduction, H/H also make available the entire range of H/H Acoustics loudspeaker units. Developed within an advanced research programme, these units saw the pioneering use of magnesium chassis, space age adhesives and sophisticated production methods.

These speakers now form the basis for the range of equipment in the H/H catalogue. From the VS series and IC100L range of instrument amplifiers, through to 412 and 215 speaker enclosures for instruments.



AKG Acoustics

For the first time musicians will be able to visit AKG at the Music Show to see their range of microphones and get advice on their application. Among the models on show will be an economical robust cardioid microphone the D120 with built-in wire mesh windscreen, ideal for all round semi-professional use.

The D190 is a high quality cardioid microphone with patented sintered bronze windscreen, ideal for miking up a selection of instruments. For vocalists who demand the highest quality, AKG suggest the D170 or D2000, both looking outwardly similar, they feature robustness, with an all metal housing, built-in wind and pop protection and an elastically suspended transducer to reduce handling noise. The D2000 incorporates a built-in base, medium switch, to adjust the microphone frequency response.

Peavey Electronics

Peavey are expecting to exhibit more new products than ever before at any British exhibition. Olympia will see the launching of several new models. Many are still on their "secret" list but among the new items already announced will be: The SP-2 Black Widow speaker enclosure, the IP-1 rack mount instrument pre-amp, the CS-X2 rack mount electronic crossover, the I18M Black Widow keyboard enclosure, the 600R, 600S and 1200 mixers, XR-500 PA amplifier, stereo EQ and EQ 27 models and the Mark III series Standard, Centurion, Musician and Bass amplifiers.

The new colour options and rosewood fingerboard versions of the T60 guitar and T40 bass will be on show for the first time, and it is hoped the packaged string programme will also be ready for introduction. The Black Widow speaker replacement over counter chassis speaker programme, will also be launched at this time.

Superwound

A unique new concept patented by Superwound, with only the core of the string going over the bridge will be on show, together with their full range of products.

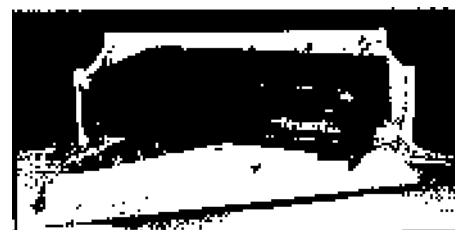
Hohner

Hohner will have one of the largest stands at Olympia, displaying their wide range of musical instruments. Not only their well-known products but many new items will be unveiled for the first time. On the harmonica front the new "Proharp" will be on show, which is similar in shape and size to the very popular "Special 20" but comes black coated with brass plates and is available in all keys. Also new is a miniature harmonica on a gold chain in a special presentation box.

Hohner's keyboard range will be featured very heavily with the Clavinet D6, Pianet T and the Duo as well as the String Performer now mains-operated rather than adapted. Hohner International keyboards will be featured with the new K1, K2 and K4 on show as well as a digital synthesizer. The Bonanza organ for home use will be on show for the first time replacing the very popular Bolero.

Soundout

Soundout Laboratories will be exhibiting their very successful range of Frunt band equipment. Introduced at last year's AMII show this new brand of equipment is already well



established with overseas distributors in 18 countries, and will be more readily available in Britain from August.

The Frunt range includes a low noise, low distortion 12 into 2 stage mixer with full EQ, PFL, talk back and monitor, plus an additional auxilliary channel. This mixer is packaged in a flight case for transportation. To compliment this mixer, Frunt also offer two power amp

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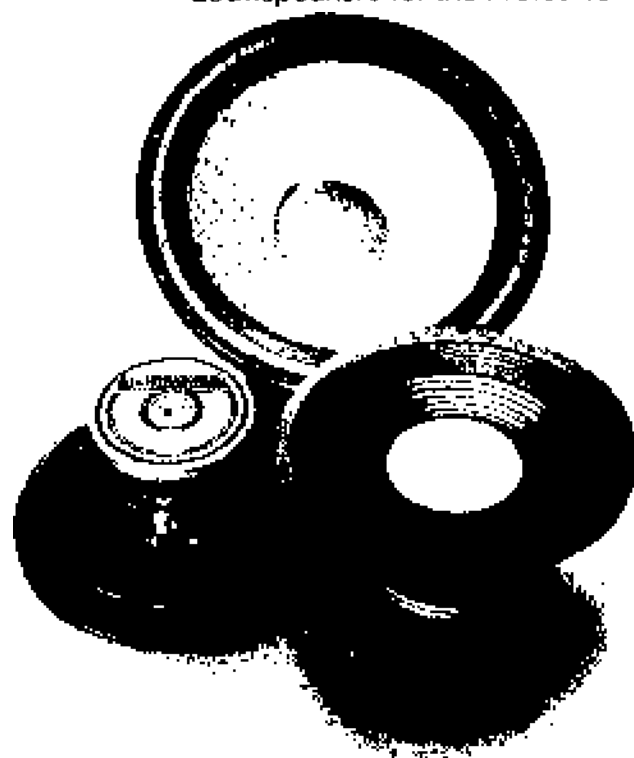
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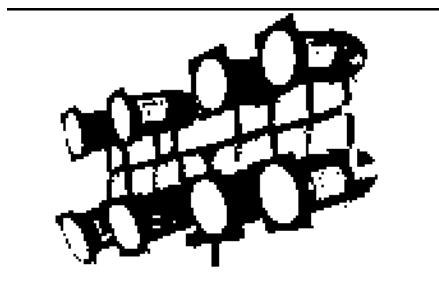
modules, 210 x 210 W RMS and 130 x 130 W RMS. These ultra reliable slave amps can be rack mounted and have LED output meters for instant visual appraisal.

Strings and Things

To coincide with the Live Music Show, Strings and Things are hoping that the recently announced new Sabre bass will be in production and available in Britain. They will have a big 500sq foot stand to display their many and varied products.

The new Sabre will have maple and rosewood options and the existing Stingray bass and Sabre guitar should also be available with rosewood fingerboard options. No new amplifier models are anticipated as the factory is at full capacity producing the 112RP and 2RD models which have proved so popular. The full range of Music Man strings and accessories, including a new moulded instrument case, will be on display.

Deliveries of the revolutionary Gizmotron Guitar Add-on Unit, have started, and will be on show for demonstration. Strings and Things recently took over UK distribution of the legendary Pignose portable amplifier, and they hope to show its new big brother, the 30/60" a 30 watt RMS mains powered combo amplifier for the first time. The C.F. Martin organisation has recently developed a new range of acoustic strings called "Rounds", brass wound strings wound on round core wire, giving a softer, more bendable feel, ideal for fingerstyle acoustic player.



Project Electronics

Demand for portable stage lighting is fully recognised with three ranges of Lanterns using the 300 or 1000 watts per sealed beam lamps. The units cover a wide range from the low cost Ar-Kan 300 to the professional Stage Blazer series, which are engineered in spun aluminium, and are so lightweight that great numbers can be suspended over stage areas.

The lanterns will be shown on the new and unique Project S.200 Light Hoists, which are heavy Duty Lighting Stands with built-in winding mechanism. The standard hoist takes 8 lanterns, and a further T-Bar can be added to take a further four lanterns, making 12 in all. These lanterns will be demonstrated with the now well established LS808 Light Mixer, and all the company's lighting equipment will be on demonstration with the LS808, with lanterns being used as the main lighting for the live entertainment during the show.

Vincent Bach International

Following the recent announcement of their acquisition of the Parisian agency Henri Belmer for the entire British Isles, Vincent Bach will be showing probably one of the most comprehensive ranges of brass and woodwind instruments currently available.



Peter Legh Musical Instruments

A completely new range of Giannini steel strung guitars will be on display at the Peter Legh stand, featuring a specially designed lubricated truss rod for support with brass top nuts and bridge saddles for greater sustain. They come complete with hand carved slotted headpieces and detailed inlays of Brazilian woods which give Giannini their unique appearance.

This design is also incorporated into the Craviolas which are patented design of the firm. They are shaped to ease the playing of fast passages in the top register of the instrument. The Craviola models are available in both string nylon and steel versions and 12 string models. Giannini nylon strung classic guitars from the basic model for children through to hand-crafted Grand Concert models, will also be on show.

Fletcher Coppock and Newman

A comprehensive range of musical instruments and accessories will be exhibited by FCN Music. The company's range of merchandise includes guitars, brass, woodwind and stringed instruments, cases, covers and a wide range of accessories. FCN have long been known for their guitars.

Well established brand names including Kimbara, Columbus, Kent, Lorenzo and Satellite, offer instruments to meet the varying styles and accomplishments of guitarists at prices to accommodate every budget. Contribution to musical development by the company does not rest with guitars alone. A major area of operation is in the field of educational music.

Clearitone

Of all the various types of musician none is better or more comprehensively catered for than the Latin Percussionist, say Clearitone, the sole British contributors for Latin Percussion Incorporated, of New Jersey, U.S.A.

LPI make and market over 150 different items and, in every instance, the sheer professional quality is unsurpassed. Their range includes, quintos, congas, tumbadores, bongos, timbales, timbalitos, cow-bells, (there are eight of these alone), cabaças, vibra slaps, bata drums, maracas, guiros, agogos, and claves. Clearitone, based in Milton Keynes, have had to allocate a complete section of their modern warehouse to housing LPI instruments.



Bill Lewington

Headlining a bigger than ever range of Yamaha band instruments on the Bill Lewington stand, will be a new range of flutes and piccolos, which are now selling even faster than their successful predecessors. The new Yamaha YCL26 student clarinet has made a tremendous impact on the market since its introduction and is expected to generate a great deal of interest.

Yamaha innovations continue with two new alto saxophones, the YAS32 and the ultimate professional instrument, the YAS62. In the Yamaha brass range, much interest has been shown in the new professional cornet YCR733 which will be on show together with the entire range of Yamaha band and orchestral brass instruments.

Also exhibiting at the Royal Kensington Hotel from July 27 to August 1 are:

Richard Brown Distribution

The WLM organ range will be on show, including hopefully a new model, Melody and Richmond guitars, Galli and "No Name" strings and Warwick keyboard amps and add on units.

Gigsville

The popular Aria guitars will head the Gigsville stand, both their electric and acoustic models, and also the Aria drum kits.

This stand will be packed with top quality sound equipment including the PA:CE range, Redmere, MM and Intermusic.

Traynor

The full range of Traynor equipment can be seen at the Royal Kensington stand from mixers and amps through to monitors and combos.

Wing Music

Paul Weller of the Jam has shown that Rickenbacker guitars are still superb instruments and you can see the full range on the Wing stand.

Dave Cottam Marketing

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Fender Stratocaster R/N W/T (Walnut)	£295	Fender Precision Bass M/N Left hand (Natural)	£305
Fender Stratocaster M/N L/T (Antigua)	£290	Fender Jazz Bass R/N S/H (Sunburst)	£225
Fender Stratocaster M/N L/T (White)	£290	Fender Musicmaster Bass (White)	£143
Fender Stratocaster M/N L/T (Sunburst)	£290	Fender Musicmaster Bass (Black)	£143
Fender Stratocaster M/N L/T (Natural)	£290	Fender Musicmaster Guitar (White)	£143
Fender Stratocaster M/N W/T (Antigua)	£290	Fender Mustang (Walnut)	£203
Fender Stratocaster M/N W/T (Walnut)	£290		
Fender Stratocaster L/T Left hand (White)	£319	Combos	
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Fender Telecaster Std M/N (White)	£255	Fender Pro Reverb Combo	£314
Fender Telecaster Custom M/N (Natural)	£285	Fender Bassman Ten	£286
Fender Telecaster Custom M/N (Black)	£285	Fender Champ	£90
Fender Telecaster Custom M/N (Sunburst)	£285	Fender Vibro Champ	£80
Fender Telecaster Deluxe (Natural)	£290		
Fender Precision Bass M/N (Antigua)	£285	Pianos	
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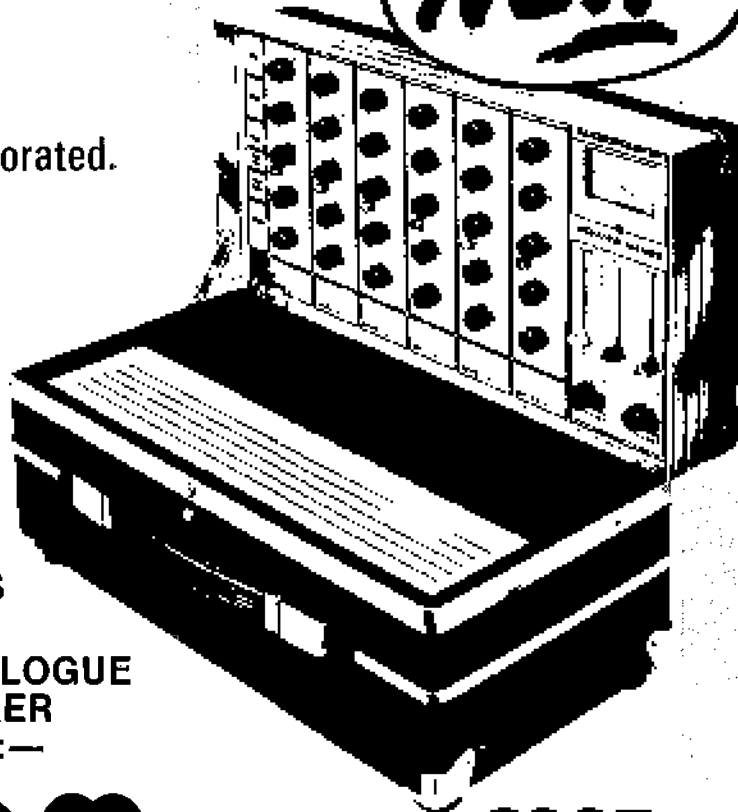
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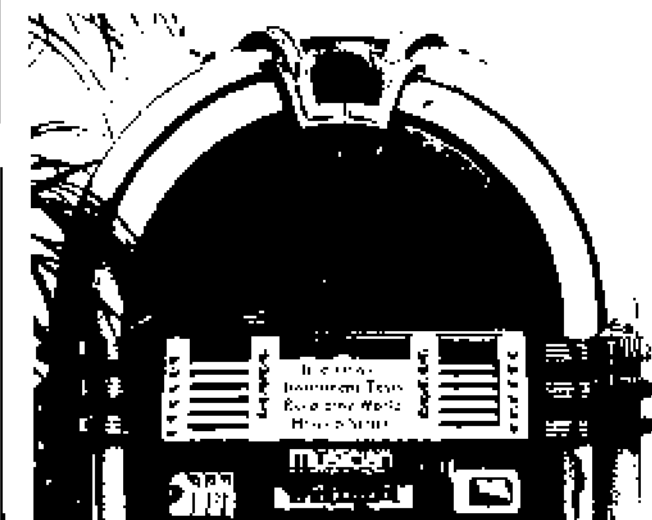
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IF YOU'RE A MUSICIAN IM & RW HAS YOUR NUMBER





1



3



5



2



4



6

East Anglia is many different things to different people – for many overseas visitors it provides a first impression of Britain. In addition to its American airbases, well-known to many musicians, it also has its college campuses and holiday camps – indeed there is more music in East Anglia than anyone might imagine. And it's not all discos – there's plenty of live music too.

Starting at the northern end, at Kings Lynn, we find John Savage's Music Centre (1) on the corner of Norfolk Street. This is not only a specialist percussion shop (John is the author of "The Art of the Drummer"), but also carries large stocks of guitars (Ibanez, Fender, Ovation, Gibson, Rickenbacker and Music Man) and Marshall, Carlsbro and HH amplification.

Upstairs the drum-room is really something special – over 30 kits are regularly stocked. Choose from Premier, Fibes, Tama, Pearl and Ludwig, plus Paiste and Zildjian cymbals. In the picture we see John's 15 month old son, Lawrence, eager to follow in father's footsteps. John also provides a rehearsal room, which is proving very popular, and there is free parking at the rear of the shop.

Down to Norwich, where Cooke's Band Instruments (2) have three separate shops, all in St. Benedict's Street. One is for classical and educational music supplies, another for organs and the third is a group shop, managed by Brian Morrison. This is packed full of amplification by virtually all the leading manufacturers, plus the locally-produced ADD range from Caister, near Great Yarmouth.

There is also a fair range of Strats and Gibsons plus the B&M range of classical guitars. On the percussion side, Brian says they have recently sold 14 drum kits over 10 days.

Over to Great Yarmouth on the coast – the road takes you across the beautiful broads! Here there are two music shops, and the first one is Allen's Music (3) in Broad Row. They have two shops side by side, each completely fitted out by the lads themselves – proprietor John Allen, organ shop manager Ian Curtin and group shop manager Eric Lund.

Established 30 years ago as a piano shop, Allen's are proud that they have the first and only Yamaha Music School in East Anglia for organ enthusiasts. They also sell Lowrey organs, a good selection of music and, of course, pianos. But most important of all – and maybe unique? – Allen's can handle repairs while you wait. They've recently taken on ex-John Birch man, Clive, to assist here on pickup repair, etc.

The other Great Yarmouth shop, Soundgear Music (4), is newer than Allen's, being less than 3 years old. One of the partners, Terry Newby (the other is Mike Easter), showed us some of the new cabs in their SGM range, of which there are currently 10 models housing a wide range of speakers. This is one of the two areas of expansion – the other being drumsticks!

As Terry is a drummer, he ensures that 60% of the business is devoted to percussion and he not only gives tuition but is currently compiling a book aimed at the younger drummer.

Southwards down the coast to Lowestoft is Morling's (5), an old family business established over 80 years ago in London Road, but is now right up to date. The present chairman is Miss Mary E. Morling and her nephew Richard represents the third generation in this all-round shop which sells everything from a kazoo to large PA rigs or even a whole orchestra.

The picture shows Richard with

some of the gear; the shop also sells a vast selection of sheet music, records and organs of all sizes. Speaking of organs, they are shortly offering the little Tivoli 18A on *Sale of the Century!* Richard offers his services to local hospital radio (the shop has a large radio, TV and hi-fi department downstairs) and is patronised by many local musicians. Morling's also have a Beccles shop.

Quantor (6) are a local company marketing amplification who are based in Norwich. Most of their products are custom-made – small speaker cabs up to large bins, all incorporating a wide range of speakers. They also build flight cases and supply PAs to local bands. They also supply Anglia TV and Deryck Allen and his partner, Tony Asbury, have many other plans for the future.

On to Bury St. Edmunds, and another all-round business, this time it's Albert Balaam's Music Centre (7) in Risbygate Street. This business has certainly developed in the 25 years since Albert Balaam bought an old-time sheet music shop and expanded it to include the vast range of products sold today.

Sadly, Albert died recently, but his son John has continued with the expansion plans and the shop is now double the original size. Besides offering the MTA Musical Instrument Insurance Scheme, Balaam's welcome continental enquiries both at Bury and their Ipswich shop.

Before moving on to Ipswich, there is Sudbury Music (8). Only 18 months old but already expanding – Tony Nichol and Sam Beadle have recently opened a second business in Sheffield. Tony and Sam are folk-musicians (ironically they are better known in the States than here in Britain) and their first album has just been released.

SPOTLIGHT ON:

+ East Anglia + East Anglia + East Anglia + East



7



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11



8



10



12

Everything advertised is actually in stock, indeed the shop is literally bursting at the seams!

Their stock includes four drum synths, two Redmere amps and a huge selection of Fenders and Gibsons. But pride of place must surely go to the wonderful selection of acoustics – Guilds, Martins, Ovations and, of course, Fyldes. Truly a picker's paradise!

And so to Ipswich. East Anglia's biggest town – not a city, but with more music shops and facilities than anywhere else; in fact, much more to offer than many cities twice its size.

Ipswich has the names for live music and the only complaint is that the corn exchange isn't big enough to hold an audience for some of the bands who've been playing in the area lately. Ipswich is the place people make for when they get off the boats at Felixstowe or Harwich. The Americans are drawn there and some of them like John Foder(9) decide to stay.

John has recently moved into PA and disco hire, and lighting will be his next move. He has already started building his own cabinets, employing Celestion speakers (another local product!) and currently they're using 12 RMS 10 watt drivers but he has 15" cabs on the way.

Just along the road, in St. Matthews Street, is the other Albert Balaam shop(10), managed by Peter Ivey. Peter and his assistant Richard Sharman are pictured here with some of the members of "Pale Moon," a local big band he is currently promoting. All instruments were supplied from the shop, of course! They have just released their latest LP, recorded at the local Hillside Sound Studios in Levington Road. Really good when you discover their average age is 17.

Ipswich isn't only the home of

music shops and venues, it's the home of Radio Orwell and Rola Celestion. And it's the home of Sowter Transformers (11). Hidden away in an old boathouse beside a backwater of the River Orwell is Michael Sowter who has been in business in Ipswich since 1952 but who moved here to larger premises last August.

Michael has been running the business since the death of his father (who founded the business in Wimbledon before moving here) and his products are widely acclaimed in the recording world.

His splitter-combiner transformer is the latest success story and he has supplied companies like Decca, Pye, RG Jones, Midas and Calrec besides the major TV companies.

More music? Yes, that's the name of Ipswich's newest music shop – More Music at 33 Upper Orwell Street. Only just opened, it's a branch of the Colchester operation (and there's yet another down at Chelmsford). Syd Warren, the manager, plays bass, and all the staff are musicians. He's hoping for the kind of success that More Music are already enjoying at the other branches – a fantastic turnover on all lines. You name it, they sell it! Syd also speaks fluent German, having worked in Germany for several years. More are also into promotions in a very big way.

Before leaving Ipswich, mention must also be made of Hillside Studios, owned by brothers David and Richard Allison. They are an eight-track operation using Tascam 80 20 Reverb Klark-Technic time-processors, Audio Design compressor-limiters, Neumann and AKG mikes. They can accommodate up to 25 musicians and have about 45 productions to date covering all types of music. Moreover, they're going 16-track soon.

Halstead is our last call in Suffolk.

and a little shop called Gearbox- better known for Pro-Axe/Ram Air Systems. Full flight casing is used on the cabs which employ Electrovoice and RCF systems. Bass folded horns, midrange and radials are available.

And lastly on to Colchester and even More Music (12). They've only been open 18 months and were originally only a disco shop, but John Hesselthaler, the proprietor, had been into promotions for about six years. He decided, therefore, to use his expertise in this field when promoting More Music for Live Music.

Having presented people such as Showaddywaddy, AC/DC, Real Thing, Sham 69, Clash, John Miles and Loving Awareness to name but a few, John used his contacts with Radio Caroline to give More Music plenty of publicity. With, of course, first-class results, because all the staff at More Music are musicians – and know what musicians want. For instance Caroline's rock programme is a favourite with the bands – so John sees that More Music is plugged on the commercials, as he does on Radio Orwell. More have yet another shop at Chelmsford but this, like Caroline, will have to wait for a future issue (on Essex).

Harper's Music Saloon at Newmarket has recently changed hands. Eric Grainger and Peter Shepherd are two of the three new partners. This is an all-round shop with a special slant to country and bluegrass. They are into bluegrass magazines and stock acoustic guitars.

Finally, there is Obtronic Studios in Lowestoft run by Paul Hobbs. The small four-track demo studio has been opened for a year and can accommodate up to eight musicians and is pleasantly situated just 300 yards from the sea.

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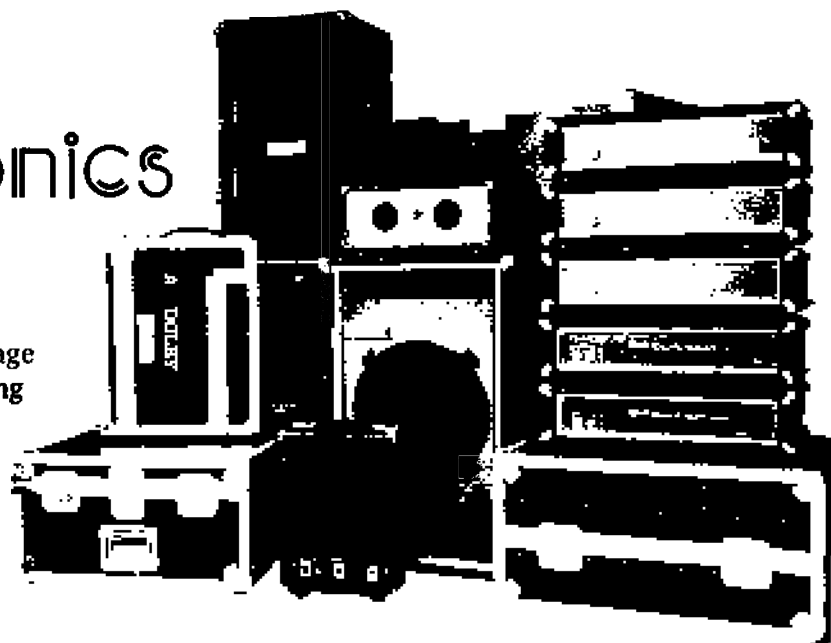
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HIGHWAY MUSIC

In late 1977, two enterprising musicians in the Manchester area had an idea to open a shop to provide a type of service which they could not find in other city centre stores.

Their aim was to provide a friendly meeting place for musicians, where equipment could be freely bought and sold in a relaxed atmosphere. The idea gave birth to Highway Music, at 263 Deansgate, a short walk from Victoria Station.

From humble beginnings, the business has grown far more rapidly than partners Eddie Edwards and Dave Boon expected. With little initial capital they jumped in at the deep end – and surfaced. Says Dave, "We started off as Highway Musical Enterprises because we opened as a promotions and entertainments agency, which we ran side by side with the shop. We had very little capital and that went on the shop, for decorating, burglar alarms, that sort of thing. And that was it. We tried to get credit terms with the big companies but it was difficult because it was our first venture."

Eddie takes up the story, "So we did a lot of second-hand dealing, and we had two large PA rigs which we used to hire out. People would also bring us all the fiddly jobs which no-one else would do. We still do a lot of chasing round, making no money, just as a service. Eventually we got on our feet, got credit and we've never looked back. The shop got busier and busier and we had to decide whether to keep the agency going or concentrate solely on the equipment. The agency went, in about March, 1978."

They are now in the process of expanding the business but have decided to stop short of developing other premises along Deansgate. "We don't want to lose the personal touch," said Eddie. Highway also provide an extensive back-up service. They have a lot more on offer than any window display could adequately mirror, and they build and provide to order.

Brian Eastwood is the craftsman who builds and repairs guitars for the shop. In an attic at home he makes on average one guitar a month and has enough orders to keep him busy for the next two and a half years.



Manchester



"People are always coming in with guitars they want adjusting or repairing," he said. "I'd say it occupies about 80 per cent of my time. On the building side I've a few interesting projects coming off. I've an order at the moment from a comedian playing the Manchester clubs, who wants the body of his guitar shaped like a mouth with the pickups as teeth, and the neck will be shaped like a king sized cigarette!"

The staff at Highway also comprises sales assistant Gary Rostock, electrician Derek Halsall and a new apprentice engineer is about to start who will specialise in PA and lighting. Highway are proud to announce their entrance into the stage lighting and effects field, something many bands tend to neglect in their stage shows.

Although mainly Aria dealers, they also stock Yamahas, Fenders and Guilds, but second-hand dealing at Highway is still booming and all models are specially vetted before they are re-sold. Amps sold at Highway include Marshall, Peavey and Leech. While you browse around these selections of amps, guitars and accessories, there can be heard from the basement the unmistakable sound of a thunderous drum roll. It is Highway's

latest development, a drum percussion centre run by a newcomer to the business, Alan Horne.

Alan explains, "I'd been playing for years and saw the need for a shop specialising in drums and percussion. I came in here, saw Dave and Eddie, and it seemed logical to come in with them. I bought some equipment and got the business under way, and now I work on the same principles as Dave and Eddie. There is a relaxed, friendly atmosphere down here, musicians can meet and play all day if they wish. I'm also a great believer in personalised kits. Rather than someone having to buy a set kit, they can add or take things away according to their requirements."

Alan is certainly doing good business, hiring out to the local BBC and Granada television studios and orchestras. He's also hired out to Shanlee Parker, the support band on a recent Sad Cafe tour, and his equipment will also be used in a forthcoming Petula Clark concert.

Having just despatched a big order for new equipment, Highway Music is on a sound footing and can look forward to future development with confidence.

HI-FI FOR MUSOS

James McGill

The seductive convenience of the cassette is almost irresistible to many of us. In earlier times this advantage was paid for with low dynamic range, high tape hiss and distortion and a non-existent treble. Sound quality was, in a word, undeniably naff – but then you can't have everything, can you? The convenience remains but progress today means having your cake and eating it. The humblest of modern cassette machines boasts Dolby noise reduction. Under the right conditions of setup and tape matching most ears could not tell the performance of a good £175 cassette deck from a good stereo disc. Since its introduction by Philips in 1964 progress in cassette technology has been prodigious. As far as this valuable medium goes we are more than simply years ahead.

A cassette deck liberates you from that tri-hourly chore of jumping up to turn the disc over and tidying things away. How often has a mood or atmosphere, built up over the 20 minutes of an LP side, gone up in smoke as the backdrop precipitously disappears? A C90 takes a whole LP on each of its 45-minute sides. Pre-recorded musicassettes, for reasons of commercial economics, rarely approach the standards set for disc pressings. But recording your own tapes – from discs, radio or via microphone – performance can be very high indeed by today's standards. Open reel machines offer a more professional approach and are possibly more versatile from the creative viewpoint. Sound quality and convenience are two strong arguments for cassette – a few decks such as the TEAC A108 or, at a much higher cost, the NEAL 340 add any sound plus sound overdubbing features a creative mind may require if convenience is equally important.

A tape deck takes the strain off your record collection in the same sense as a radio tuner does. You can string together 'mood' tapes and party tapes, arranged to take care of any atmosphere you hope to create. . . . Live broadcasts off air are fair game and can offer the highest performance your entire system is capable of. Any musician knows the virtues of live performance over the studio. You can

make your recordings with a mains timer while you are out and play them back when the radio plays nothing but schmaltz late at night, and overkill helpings of classical and chat on a Sunday. And while we're about it pass the guitar over; how's about moving the mike over here – I think I feel some blues coming on. . . .

It is the proper articulation of note beginnings and ends which convey much of the emotional content in music. Without this you are left with a more or less anonymous mix of rhythmically/harmonically related sounds swimming about in a hazy mush. The resolution of detail is what high fidelity is all about – cassette decks included.

Nicely carved up

Taking a scalpel to a cassette deck it breaks down into four main sections: the transport mechanics; Dolby circuits and tape drive electronics for recording; playback circuits and those for interfacing with external equipment; and finally, the features or user 'conveniences' tacked on.

Aiwa AD6900

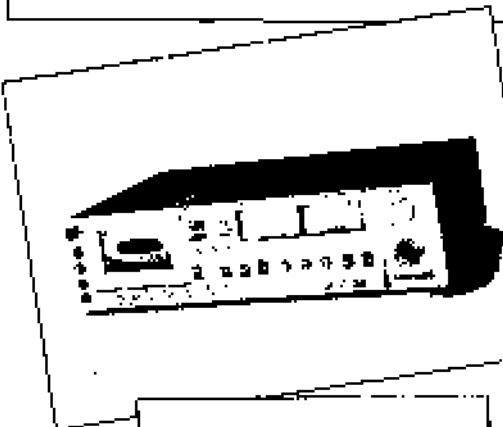
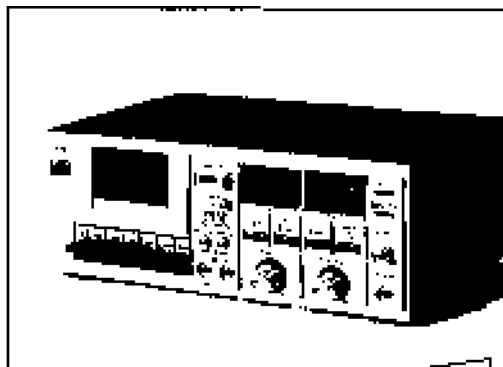
Virtually a tape manufacturing specialist each Aiwa deck – from their budget priced 1250 to their flagship AD6900 – is an example of slick mechanical execution plus a performance which puts each item in the range among the leaders in each individual class. The 6900 is a 3-head design employing electronic mode switching for the transport and internal bias calibration oscillator and presets for setting up optimum bias and sensitivity conditions for virtually any tape available and all made very simple indeed. Each meter has a VU and a pointer to register both the average energy content and short term high amplifiers in the music.

Technics RS M22

Replacing their superb RS631 Technics M22 offers three-position bias and equalisation, timer standby and a feature which shifts the mechanism automatically into the play mode after re-winding. A "timer record" or tuner "standby" allows programmed and unattended recording with a mains clock timer. Decks with this feature lift the pinchwheel away from the capstan until the mains cuts in as programmed and prevent the pinchwheel rubber developing "flats" which otherwise reduce performance. Among its useful features the RSM22 employs fluorescent bar graph peak meters which rise fast enough to respond to sharp, short musical transients.

A tape transport carries the tape from spool to spool as smoothly as possible. All equipment using a motor are affected by problems with speed drift, wow and flutter – this applies as much to cassette machines as it does to record decks (covered in June's issue). With cassette decks however it appears today to be less of a problem. A musician with an ear for pitch should look for wow and flutter figures of 0.1% or less and a pitch accuracy within 0.5% of the set speed. You are luckier than old Ludwig van Beethoven – and many of your own fans, probably – you need not bother necessarily with specifications if you've got a pair of ears.

The effects of wow are particularly noticeable on long sustained notes – acoustic piano is a good test for this and generally for showing up cassette performance. Where flutter is a problem woodwind sounds might tend to have slightly peculiar 'burbling' overtones. Poor machining of the capstan and pinch wheel which pull the tape across the heads, or errors in tape tensioning to keep it taut, poor bearings etc. could be the causes.



Dolby Circuits/Head Electronics

The recording begins with magnetic tape passing across a machined gap a few thousandths of an inch across in the tape head. Just prior to recording, an erase head applies a high frequency alternating current to erase any stray magnetism in the tape and generally 'shakes up' the tape particles to allow a more coherent imprint. At a reduced level some of this high frequency bias is available at the recording head. The audio signal simply varies the level of magnetisation provided with the bias.

On playback the magnetic variations induce a replica of the audio signal in the playback head. This is equalised and passed out of the deck. Many cassette decks use the same head for record and replay. A three-head machine has separate record and replay heads; each optimised for the role it has to play and also permitting near-instantaneous off-tape monitoring. Combined heads are a cost compromise which neatly sidesteps the complexities of cramming a third head into the narrow space available. A wider head gap, ideally, is required for replay.

At lower sound levels where hiss becomes most noticeable, Dolby circuits boost selectively at higher frequencies. On replay an opposite but directly equal process is applied; in the process expanding the tape noise downwards. To achieve its effect of noise reduction it is necessary that replay equalisation matches the encoding process — the circuits have therefore to be set up fairly carefully by the manufacturer. Without a doubt it is Dolby noise reduction which is responsible for the cassette medium competing in any practical sense with a domestic grade open reel machine running at 7½ ips.

Bias Equalisation

The amount of bias applied to a recording to the tape type used. Too low a bias distorts low frequency peaks, boosts high frequencies unnaturally and prevents magnetism going deep enough into the oxide. Generally speaking the lower the frequency the deeper the imprint. "Dropouts" can be heard as irregular drops in sound level particularly at higher frequencies. This can be caused by poor tape head

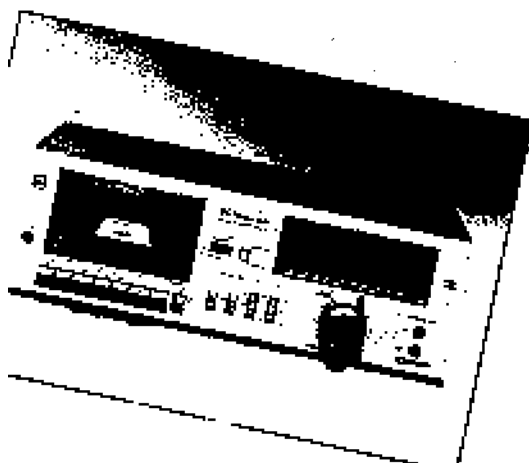
contact so using your ears try two or three brands of relatively unused tape to verify the bias condition.

The application of bias partly erases higher frequencies. Above optimum bias the treble will seem to drop off sharply and high frequencies will seem "compressed." Try a speech recording and cymbals for an absence of a fluffy "spitting" effect on the tapes recommended for the machine in question and on a couple of relatively expensive brands. A versatile cassette deck has switches for bias and equalisation. The bias is low, medium or high and the equalisation low (70) or high (120) microseconds.

The tape you buy will tell you which settings to use. The rest in the absence of tools is down to your ears on the principle that what your ears don't hear can't hurt you. If you decide to standardise to a couple of tape brands you can have the machine specifically equalised for these tapes for a cost of around £20.

Meters

The slow tape speed, narrow track widths and thin tape oxide coating allow the cassette medium only, a



Uher CR240

Uher reporter was a standard for many years before they saw fit to produce a cassette version. Robust, rugged and reliable. The peak limiter is too low, it should be stereo 'ganged' so both duck with a loud transient without central image swinging way to one channel. Operates from mains 12vDC batteries or rechargeable battery pack. It has high microphone sensitivity with good overload margin and variable phone output. The peak reading meters are capable of registering fast musical transients quite accurately. The motor flywheels rotate in opposite directions allowing good stability for recordings on "the move." The wow and flutter are a little too high for comparability with mains machines at this price. Enough output to drive loudspeakers in a small space such as car and caravan etc. — booster amp 25w.



Teac A108

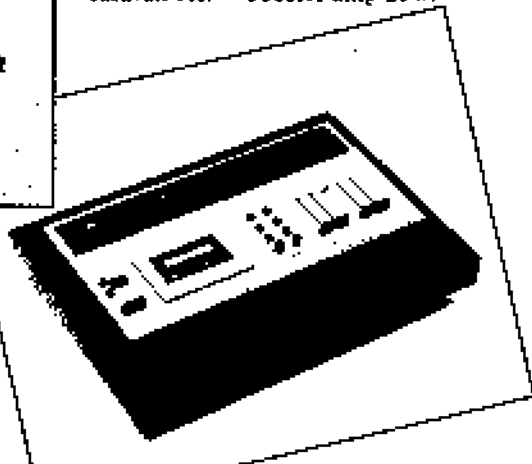
Sound with sound overdubbing and a curiously titled "crossfeed" feature (track bouncing? Check it out for yourself) all combine with micemixing in the development of a medium budget deck for the less-than-well heeled muso. The Teac A108 has an enviable track record as one of the very best budget decks around. The 108 uses this same mechanism, gives a player a lot to play with. Price £225.

Pioneer CT F500

Following in the wake of two low budget winners their CT F2121 and CTF 4040, Pioneer's new deck offers lower wow and flutter (0.05% to from 0.08%) better tape stability and a new high spec Dolby integrated circuit — and at a cost cheaper than the previous deck! A sure-fire runaway success. Price £103.

Dual CS939

It is the user alone who takes a backseat with the particularly extended playing times offered by the auto-reverse feature of this German design. Metering is made up of two horizontal banks of instant response peak reading lights. A clever fade edit feature allows you to fade pieces in and out after the recording to provide smooth continuity. One of the few really useful peak limiters around. The circuit locates the loudest musical peak and then eases off gradually over a period of minutes! Convenience without sacrifice, an undoubted high performer. Price £280.



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HI-FI FOR MUSOS

relatively narrow dynamic range, the margin between tape and electronic and the point at which the system overloads into unacceptable distortion. Under-recording eliminates distortion on musical peaks and programme transients but may result in a hissier background. A higher recording level takes the programme further above the noise floor but does reduce the tape headroom. Good reliable metering allows a user to steer the test path between the noise and compression overload.

Meters of the "VL" variety register the average energy content. Real musical peaks are often of a transient nature, lasting only a few thousandths of a second. The response time of a poor VU meter may encourage over recording if it does not rise fast enough to show the peaks. Some cassette decks have meters of the more expensive peak reading type or else use LED's, light-emitting diodes, to show the instantaneous position of real peaks. It takes a little practice to read meters properly but this is easily learnt. In the absence of a peak register a user might account for sluggish ballistics of average metering by not allowing the pointers to reach beyond "zero" VU on sharper or percussive sounds or in worse cases, minus 3 or 5dB. Making perfect recordings involves a little practice and generally coming to terms with the machine.

Interfacing

To match a tape deck with an amplifier you need to know a little about sensitivities and impedance. Sensitivities are quoted as the minimum input necessary for a circuit to function properly whereas outputs are quoted as maximum levels. Putting it simply the output available out of the tape deck going one way or out of the amplifier into the tape deck should be above each quoted sensitivity.

Using phono connections the impedance on the other end of each line of travel both ways should be higher than the source. With DIN connections signals travel from high impedance into low.

The reasons are quite complex. For various reasons it is usually best to use the phono sockets if your amp has these rather than the DIN. A DIN to DIN connection is your next best option. Both DIN and phono are reasonably well standardised, though it is not generally advisable to mix the two standards.

Tangling with tape

The equalisation side of a cassette deck is largely fixed by international standard so all recorded tapes stand an equal chance on any machine. The amount of bias applied at the recording stage takes this into account; calculated to give the best balance between mid and high frequency distortion. Too low a bias might result in higher distortion at low frequencies and a shrill treble. Too high a bias makes a dull recording — up to the theoretical limit where the tape and/or tape heads saturate with too much magnetisation. It can be a subtle or a more drastic effect. As you are paying for both the machine and the tape anyway it makes sense to get things right.

Cassette tapes come in three standard lengths for most applications: C60, C90, and C120 — referring to the maximum time on both sides. C120s can be a problem and C60s possibly a little inconvenient for playing times. Tape formulations break down into four main groups today. The original low bias ferric compounds are often the cheapest — in every sense of the word. For hi fi applications these are rarely up to much, but produce adequate results on cheaper gear. Using a similar gamma ferric formulation a newer generation of tapes need a slightly higher bias which many Japanese decks offer. Better examples in this category include Agfa Super Colour and SFD, Ampex Plus and 20/20, BASF LH and LH Super, FMI Super, Fuji FL, Maxell LN, Memorex MRX2, Pyral Optima, Scotch High Energy, Sony HF and TDK ED. Among the cheaper tapes the 'own brands' by Boots (UDV), Woolworths (Winfield Alpha Plus) and Dixons (Prinzsound C99X) are very strong competition indeed. These are often factored by specialist tape manufacturers and simply have the brand name tacked on. The above tapes produce good results on DIN (German international standard) based decks by European producers but result in duller recordings with Japanese and American machines.

A third category of ferric tapes — often a little pricier but worth the extra — work well with the higher factory set bias of Japanese decks, and generally with machines of more recent design. With DIN machines and cheaper decks these may tend to show a treble rise — not a bad thing in itself.

This category includes many brands with the suffix '1': Fuji FX 1, BASF LH1, Agfa SFD1, Maxell UD and UDXL 1 and Scotch Master 1. Also in this category is the Dixons Professional, EMI Hi Fi, Audio Magnetics XHE, TDK AD, Pyral Superferrite and Woolworths Alpha Super.

By international standard the suffix '1' goes in at a 'normal' bias and 120 microsecond equalisation. Tapes with the suffix 'II' or '2' are variously described as 'superferric' or 'cobalt-modified' or 'pseudo-chrome'. These have many of the advantages of chrome dioxide tapes but fewer of the problems, and need a 'high' bias with the 70 microsecond de-emphasis required for chrome tapes. In terms of cost-effect this category is probably the most useful to remember for hi fi applications. Examples here include the BASF Ferrosuper, Fuji FX2, Maxell UDXL II, Scotch Master II and TDK 3A. Each requires a slightly different bias for optimum effect but many manufacturers manage to guide the user quite adequately.

Ferrichrome tapes use a ferric oxide base beneath a chrome dioxide surface. Low and mid frequencies penetrate deeper into the ferric layer while higher frequencies take advantage of the chrome sensitivities. A special bias is required for these and only machines with a specific 'FeCrO2' setting do them justice. Examples include BASF Ferrochrom, Agfa Carat, Fuji FX III, Sony Duad, Scotch Master III. The developments with high energy/high bias ferric tapes shortens the gap between ferrichromes and these as far as overall performance goes.

A more recent development in this area are metal tapes which use pure iron particles in place of iron oxides or chrome. In this is probably the penultimate development of the tape medium before the eventual wide application of digital recording techniques. The very high bias conditions required mean only specially designed decks are able to cope without drastic saturation problems. The earliest machines by Tandberg — featuring their fascinating 'Actilinear' head driving circuit — has been followed with cheaper decks breaking the magic £200 price barrier from JVC, Hitachi among others. The tapes themselves cost around £5 for a C90 but are a whole new ball game in themselves.

The only tape machines which do real justice to chrome dioxide tape types might seem to be three head decks. The dualpurpose heads used with two head machines use a narrower than ideal head gap for the playback of chrome tape without some saturation. At the price the BASF Super Chrome seems the only offering really worth a lot of attention in this category.

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* — Garrard TTV Control. Patent applied for.



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Cap	Capacity
p/h	per hour
p/d	per day
D	Dolby
tf	Transfer facilities
R-R	Reel to Reel
St	Number of Studios
CP	Copying
tba	to be advised
Ka	Keyboards available
R-C	Reel to Cassette
Mix	Mixing Facilities
R-Cr	Reel to Cartridge
Dc	Disc Cutting
Comp. Mix	Computer Mixing Facility
d-t	Disc to tape
Q	Quad
OTC	Overtime charge
M	Mono
S	Stereo
fcf	Fully coated film
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CTM	Concert Tour Management
PA	Public Address
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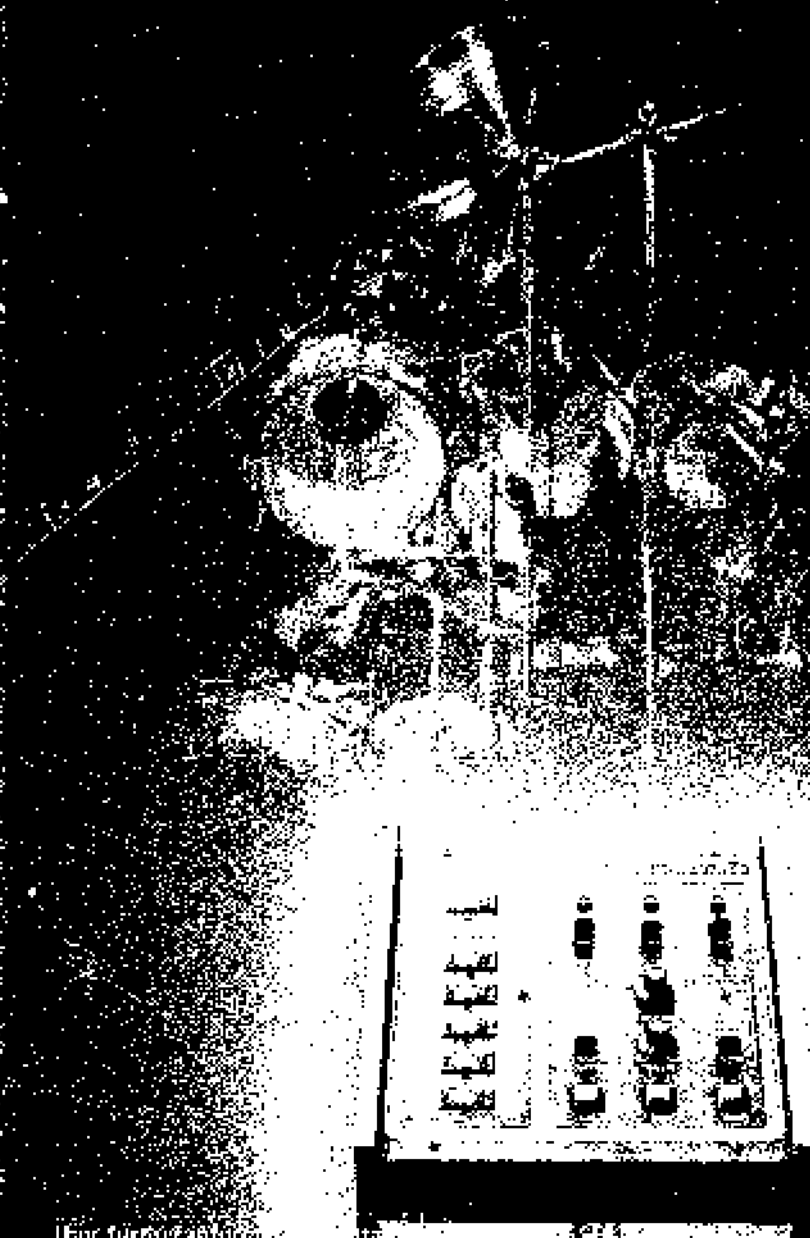
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